msx international

Global Edition

BENCH MARKER

How will EVs shape our industry's future?

Rising to the challenge of zero-emission transportation

OEMs face an unprecedented challenge in 2020. The COVID-19 outbreak demands precautions and social distancing which will deeply affect the automotive industry. Our global customers are experiencing difficulties that influence their daily operations as well as their long-term business strategies.

However, in a recent study by MSX Research regarding consumer behavior during the COVID-19 outbreak, **50%** of respondents said they would still service their vehicle if it was due. Similarly, **41%** said they would still consider buying a new vehicle despite the outbreak, proving that manufacturers still have a responsibility to deliver a positive service to their customers.

Despite these challenges, manufacturers must also continue to prepare for the inevitable transition to low and zero-emission vehicles. A complete overhaul is needed, not just to products and the way consumers identify with them, but to entire operations.

Governments are enforcing emissions targets, but it's crucial the infrastructure is in place to support electric vehicles (EVs) and hybrids, and that the changes are viable for consumers. Meanwhile, OEMs must be able to develop desirable and affordable vehicles while sustaining profits in sales and aftersales. Dealerships too need to continue protecting their existing businesses while exploring new opportunities for growth, finding new revenue streams and embracing digitalization in place of traditional models.

The April 2020 issue of Benchmarker explores the current impact of EVs on the industry, and, through the knowledge of some of our experts, speculates on possible outcomes for the future. We examine how EVs are affecting sales and aftersales services, and what it means for parts profits. We look at the effects of EVs on the warranty business, how manufacturers will have to train dealer staff and technicians, and how retail networks can prepare. We also hear from some of our leaders on the status of EV transition in some of the most influential markets.

There's no doubt that this transition will be challenging. Some markets have surged ahead, investing heavily in EV infrastructure and providing incentives to help drive sales. But manufacturers will have to work hard to sustain business success.

At MSX, our mission is to support our customers in navigating the challenges ahead. We can, and will, support the industry across many business functions – even remotely as this period dictates. Our team members are committed to providing you with high-quality services and solutions independently of their physical location. Rest assured, we are working tirelessly to ensure your new business needs are met, so thank you for your continued trust. We will face these challenges together.

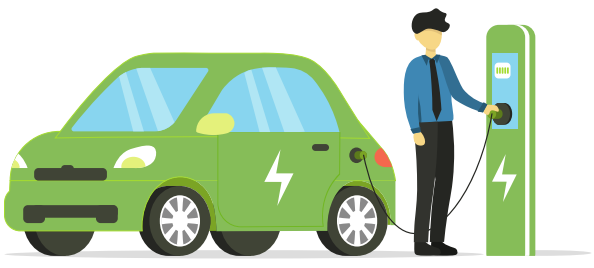
Patrick Katenkamp
CEO, MSX International

All data sources may be subject to change as a result of recent events.

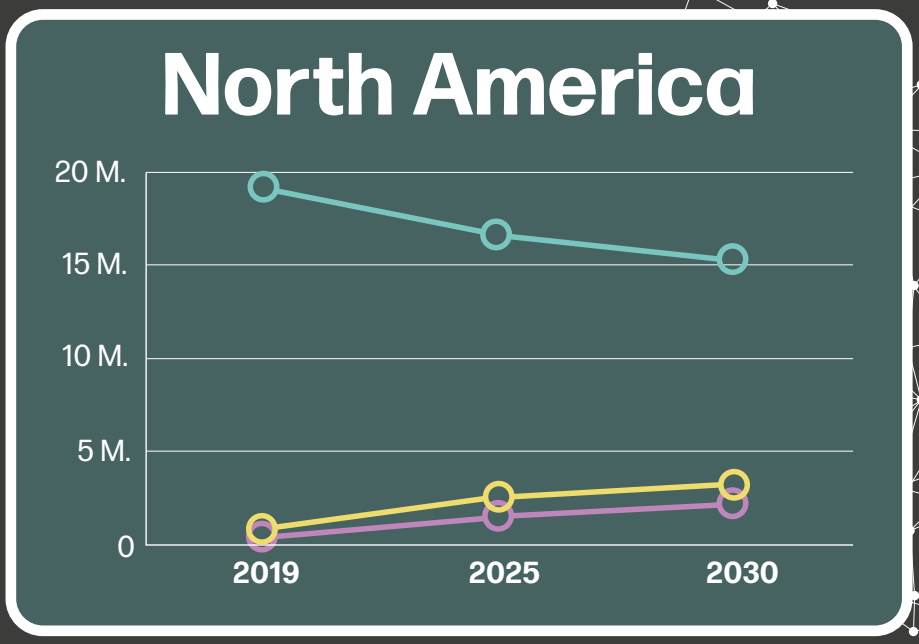
Agenda

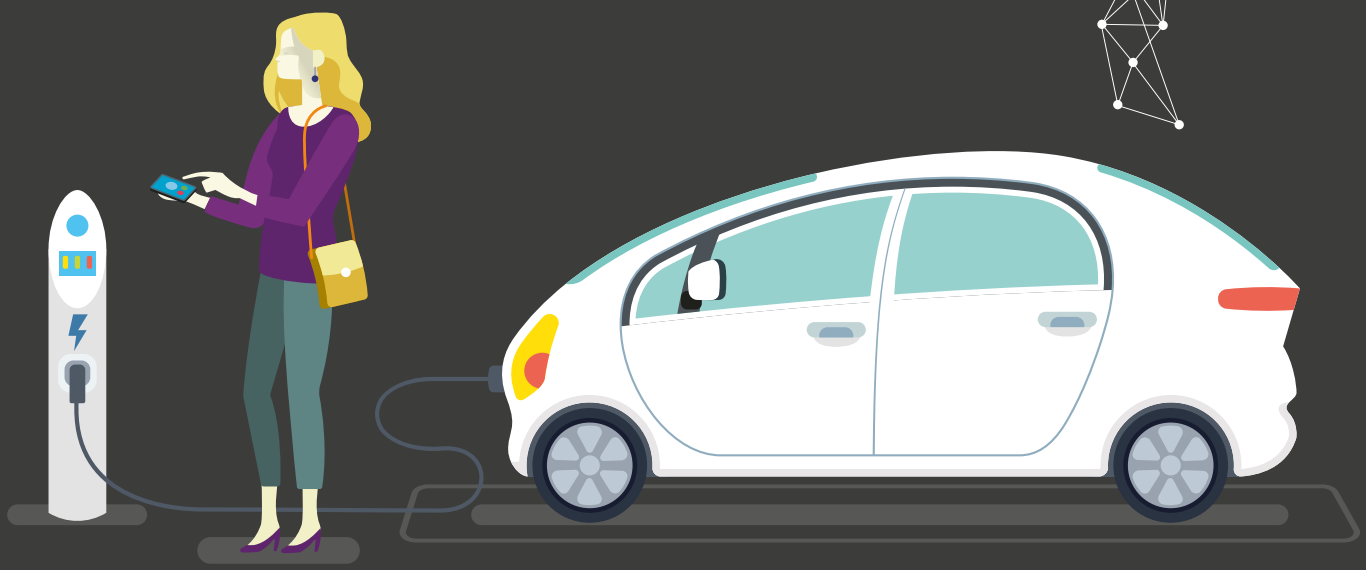
Editorial

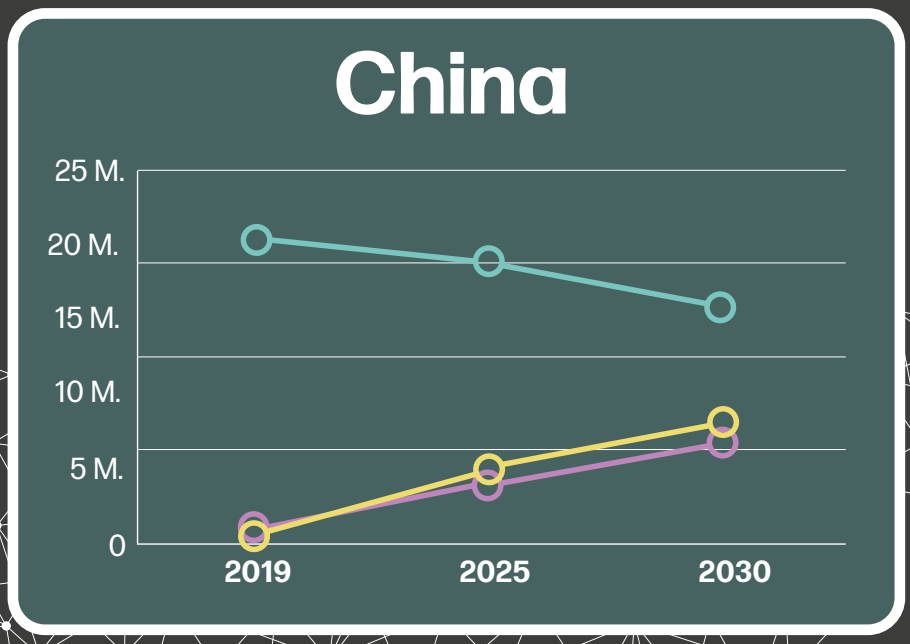
Articles

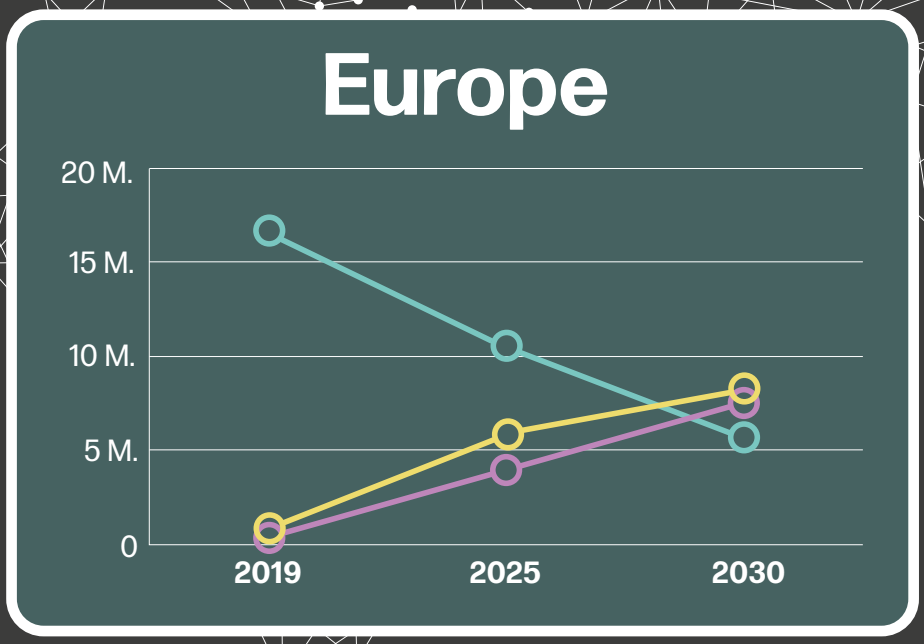


Electric vehicle – Regional sales forecast









Legend

EV = Battery electric vehicles (BEVs) and plug-in-hybrid vehicles (PHEVs)

BEVs do not contain an internal combustion engine. Both BEVs and PHEVs can be charged at a dedicated charging station or charge point.

Hybrid = Mild hybrids (MHEV), full hybrids (FHEV) and extended range vehicles (EREVs)

Include both internal combustion engine and electric motors either working in parallel (MHEV and FHEV) or in a series (EREVs).

ICE = Internal combustion engine only

Conventional internal combustion powertrain with no electric or air drive. Stop/start systems (including micro-hybrids) are counted here.

Source: LMC Automotive

Electric vehicles are changing the automotive world as we know it

In 2020, electric vehicles (EVs) are mainstream, thanks to the likes of Tesla and Nissan, and with environmental concerns at the forefront of people's minds, they're here to stay. The protection of air quality and reduction in greenhouse gas emissions is a priority for many global government bodies. As a result, emission reduction targets are placing pressure on manufacturers to speed up their responses.

The European Union, for example, introduced legislation in 2008 that dictated the need for manufacturers to reduce their emissions by 80 g/km by 2020. Today, many OEMs are facing fines for failing to achieve these targets. As a result, some manufacturers have introduced bonus schemes for their dealers as incentives to sell more EVs and help them avoid these fines.

"EVs provide an excellent opportunity for OEMs to pull ahead of the competition while becoming more socially responsible, but the emergence of EVs has reinvented the classic manufacturing business model."

Pieter van Rosmalen, Chief Product Officer

But it's a challenging market. For consumers, the transition from an internal combustion engine (ICE) to an EV is taking some getting used to. The benefits are clear – EVs are a revolution in environmentally sustainable transportation.

Pieter van Rosmalen

Chief Product Officer

As Chief Product Officer for MSX since February 2018, Pieter van Rosmalen leads a team focused on two essential activities: product and partnership development; responding to the key trends of digitalization, connected car, and mobility that are driving change in our industry. Pieter was the Vice President of Retail Network Solutions at MSX from March 2011 until 2018 and he previously served as Vice President Retail Network Solutions for Europe and Asia Pacific. He can be reached at **pvanrosmalen@msxi-euro.com**.

They contain fewer mechanical parts and require less maintenance, cost very little to run and last longer.

But their owners must completely detach themselves from the only refueling infrastructure they've ever known. Stopping at one of several petrol stations along their route to work and driving off three minutes' later will soon be a thing of the past.

Manufacturers have a lot of work to do in relieving consumer concerns. According to research by Volvo, published in The Drive, 58% of drivers are afraid they will run out of power before being able to charge their vehicles. Aside from promoting the benefits, OEMs must reassure consumers that the infrastructure is adequate, or offer incentives such as the installation of home-based charging points, subscription-based charging, or vehicle leasing options which take the responsibility of vehicle ownership - and therefore the risk - away from the consumer. In some countries, governments are also offering incentives such as tax relief on EV ownership to inspire consumer acceptance.

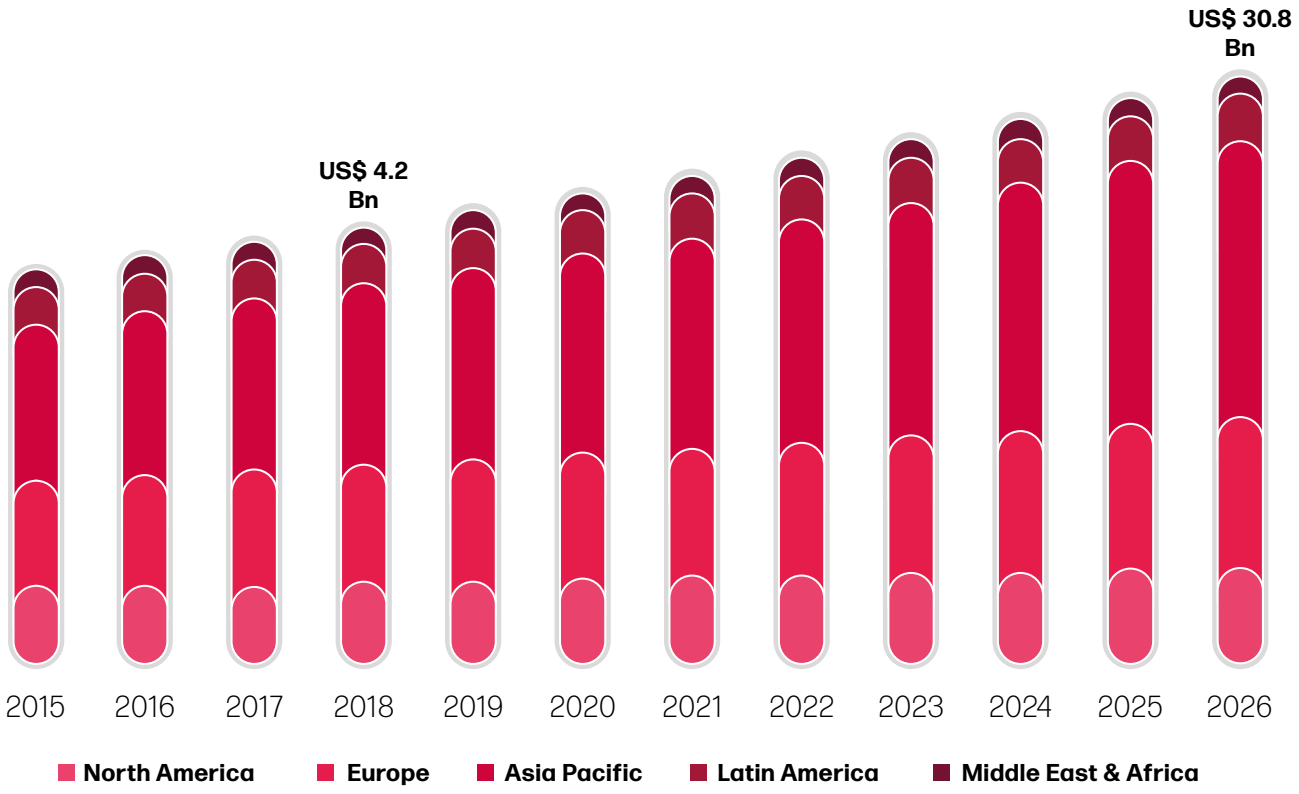
EVs provide an excellent opportunity for OEMs to pull ahead of the competition while becoming more socially responsible, but the emergence of EVs has reinvented the classic manufacturing business model. For the first time, manufacturers must push their products towards this cautious consumer market in which the largest engines are no longer the most profitable.

Competition will become tougher because new players can enter the market more easily than before. There's no longer a need to engineer a complex ICE to manufacture a vehicle – organizations can team up with tech companies to build their electric motors. Recent tests revealed that even after driving hundreds of thousands of kilometers, EVs barely even needed to change their brake pads. There's no exhaust, oil, or general wear and tear, so revenue generated from aftersales on EVs is marginal. Until now, manufacturers have relied on parts sales for 50% of their bottom line, so to survive, they need to find new ways to sustain profitability.

Selling smartphones on wheels

The development of new revenue streams is crucial, and data from connected vehicles holds the key. Tesla is already doing this with technology such as over-the-air software updates. But data can also provide meaningful insights about vehicles and their drivers, including patterns in vehicle performance, route mapping, buying behavior and servicing information. This information is

Electric vehicle charging station by region



Source: Secondary Sources and ARC Analysis, August 2019

valuable to organizations who'll pay to understand how to optimize the efficiency of their fleets, for example, or sell discounted services such as insurance to customers based on data their vehicles gather. And manufacturers can use it to keep health checks on vehicles or create better driving experiences.

Like smartphone providers, OEMs may even form partnerships with streaming services, selling music subscriptions, advertising or TV programs to drivers to enjoy while their vehicles are charging.

Dealers too are dependent on aftersales revenues and need to adapt to a new retail model, selling smaller cars and EV-related services, training staff in the necessary technical and safety skills, and adapting their showrooms to reflect customers' expectations for digitalization and a more streamlined service.

In some instances, brand dealers will have to make significant changes. In Europe, for instance, a block exemption to anti-competitive laws allows manufacturers to operate franchised dealer networks

The history of electric vehicles

The beginning

1828 - 1835

First small-scale EVs
The originals were created by investors in Hungary, the Netherlands and the U.S.

1832 - 1839

The first practical EV
Robert Anderson of Scotland builds a prototype of the first practical electric vehicle.

The first age

1899

EVs gain popularity
Especially amongst women, as the cars are quiet, easy to drive and free of smelly gasoline.

1901

The first hybrid EV
Founded by Porsche, it's powered by electricity stored in a battery and a gas engine.

The boom and bust

1900 - 1912

EVs soar on US roads
Electric vehicles account for a third of all vehicles on the road in the U.S.

1930s

EVs face extinction
A predominance of ICE vehicles and cheap petrol reduces the use of EVs.

The second age

1966 - 1973

The resurrection
EVs gain renewed interest when U.S. congress endorses electric driving as a means of reducing air pollution and oil prices reach a new high due to the OPEC oil embargo.

1971

EV over the moon
NASA's Lunar rover, the first manned vehicle, runs on electricity and helps raise the profile of EVs.

Source: US Department of Energy | Union of Concerned Scientists | International Engery Agency

* Data may be subject to change as a result of recent events.

and control who sells their vehicles based on knowledge of the product. But as more EVs appear in the market, there will be little to differentiate one brand's engine from another, potentially making these laws redundant. There will always be a role for the smart dealership provided it's willing to adopt new sales strategies that fit with the EV model, such as by becoming a mobility provider, private leasing business or specialized battery shop.

EVs are causing shockwaves in the industry. The changes are exciting and challenging, and we don't yet know what they will mean for all stakeholders. But what we do know for sure is the benefits of cleaner energy are undeniable, so manufacturers, their retailers and consumers will simply have to get used to the changes.

In this issue of Benchmarker we explore the effects of e-mobility and EVs on many aspects of the industry, from sales and aftersales processes, to parts and service, fleet companies, employee training, and on the role of MSX International within this industry transformation.

The second age

1973 - 1974

Next-gen EVs emerge
With the introduction of GM's urban electric car prototype and Sebring-Vanguard's CitiCars.

1997

First mass-produced hybrid
Toyota Prius is born.
In 2000, Toyota releases the Prius worldwide, and it becomes an instant success with celebrities, increasing the EV's profile.

The third age

2006

Nice to meet you, Tesla
Tesla Motors, a Silicon Valley startup, announces it will roll out a luxury electric sports car with a range of 200+ miles. Other automakers take note, accelerating work on their own EVs.

2009 - 2014

The rise of charging infrastructure
Estonia becomes the world's first and only country with an EV charging network with nationwide coverage.
By 2012, Europe, Japan, China, and the US deploy around 50,000 public charging stations.
By 2014, the EU enters a directive to ensure a minimum coverage of charging infrastructure throughout EU countries.

2013

Costs of EV batteries drop 50%
The battery is the most expensive part on an EV. Thanks to government investments, battery costs drop by 50% in just four years. EVs are now more affordable for consumers.

2014

Pick your favorite
There are now a multitude of choices, with around 30 EVs and 40 plug-in hybrids to choose from.

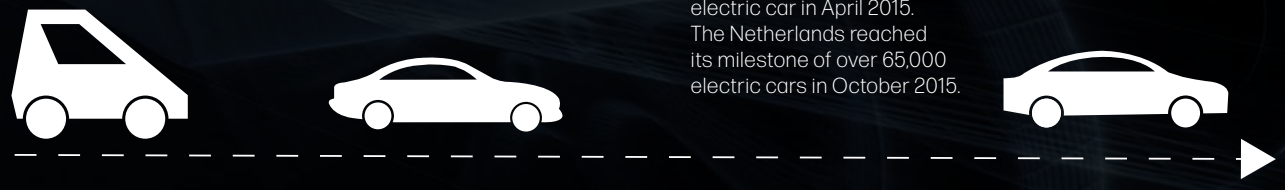
2015

Conquerors of the north
Norway and the Netherlands are leading the world's EV market.
Norway registered its 50,000th electric car in April 2015.
The Netherlands reached its milestone of over 65,000 electric cars in October 2015.

The future

2020

Expected Sales
Over 2,772,749 million EV sales are expected*.



Digital transformation and the future of automotive retail

The automotive industry is adjusting to a period of accelerated change. Increasing competition has already influenced the development and design of vehicles, and more in-car technology is being introduced with each new model. Meanwhile government regulations are dictating fuel efficiency and lower emissions, placing a greater focus on the development of electric vehicles.

Consumers want more from their buying journeys, from greater convenience to integrated, customized experiences. These demands are affecting the breadth of products and services offered by OEMs, who must step up to meet their expectations. Whether they're managing service capacity, handling warranty claims or improving staff performance, retailers have to deliver the speed, quality and accuracy expected by their customers.

Traditional focus areas will shift

These factors are putting pressure on traditional retail business models. Many of these processes are already redundant, so the implementation of future-proof solutions is the only option for OEMs if they want to remain competitive.

All manufacturers today are focusing on the implementation of strategies designed around digitalized solutions, however they need to implement these changes across all key business areas:

- Warranty and Technical: OEMs need to manage their warranty spend more efficiently and ensure retail networks can continue to service and repair vehicles with the required level of technical support.
- Parts and Service: Optimizing workshop capacity and streamlining the service process can help improve performance and parts revenue growth in this competitive market.

"The pace of change and the threat of disruption creates tremendous opportunities..."

Steve Case, American entrepreneur

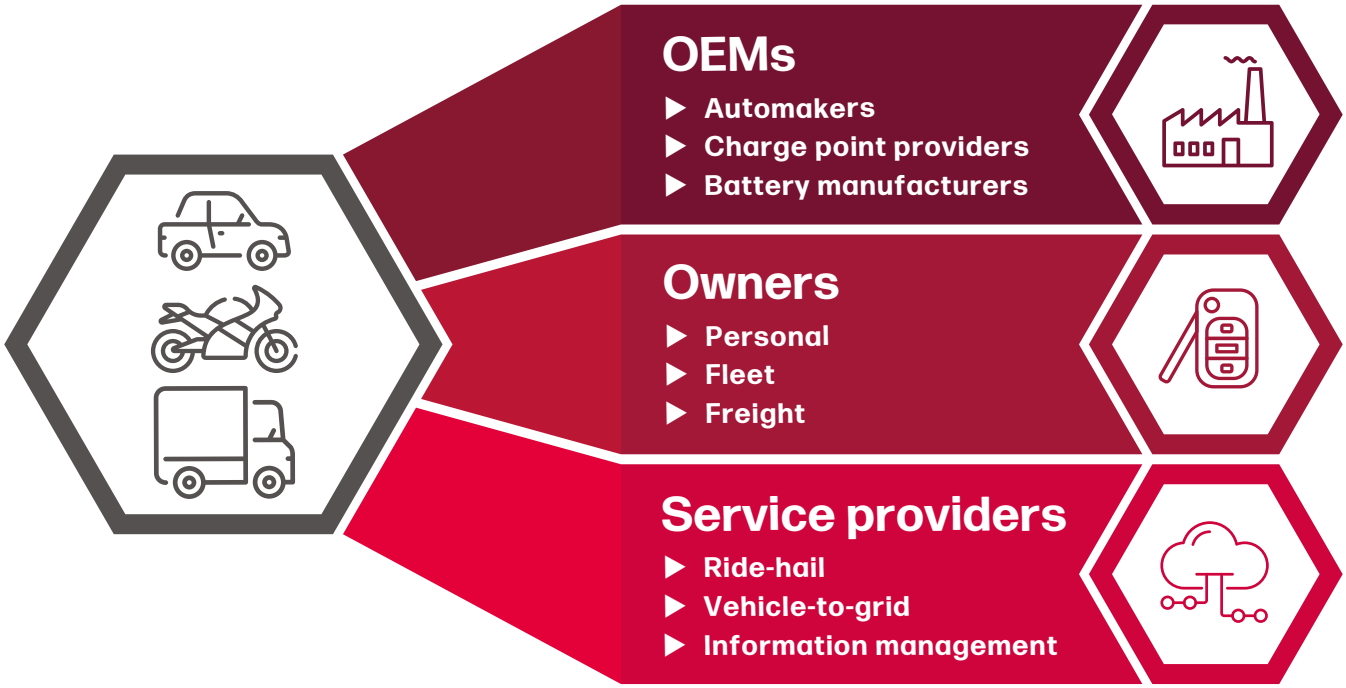
Rob van Rijswijk
Vice President, Product Management

Rob leads the MSX Global Product Management Team. He is responsible for developing and positioning the full range of MSX products and services. Rob has a deep passion for strategic innovation and he works alongside the organization's global account executives, helping them add value to a growing global client base. Rob is based in Cologne, Germany, and can be reached at **rvanrijswijk@msxi-euro.com**.

- Channel Management: OEMs must ensure their traditional dealer networks are financially sustainable while strengthening sales and servicing, and when providing a platform to transform their employees' performance.
- Fleet and Mobility: By digitalizing the management of fleets in all aspects of their ownership, OEMs can improve and consolidate fleet billing and strengthen their remarketing processes.
- Customer Engagement: Manufacturers must integrate digital and physical customer journeys to support direct engagement alongside the identification of prospects and lead management.

OEMs are wise to engage the support of industry experts to analyze their current business models and help them develop new solutions. This consultative approach can also pre-empt challenges that a manufacturer may experience in future and provide solutions long before the organization is faced with them.

Vehicles are hardware platforms at the center of a mobility ecosystem



Source: Navigant Research

Smart data management underlies crucial business intelligence

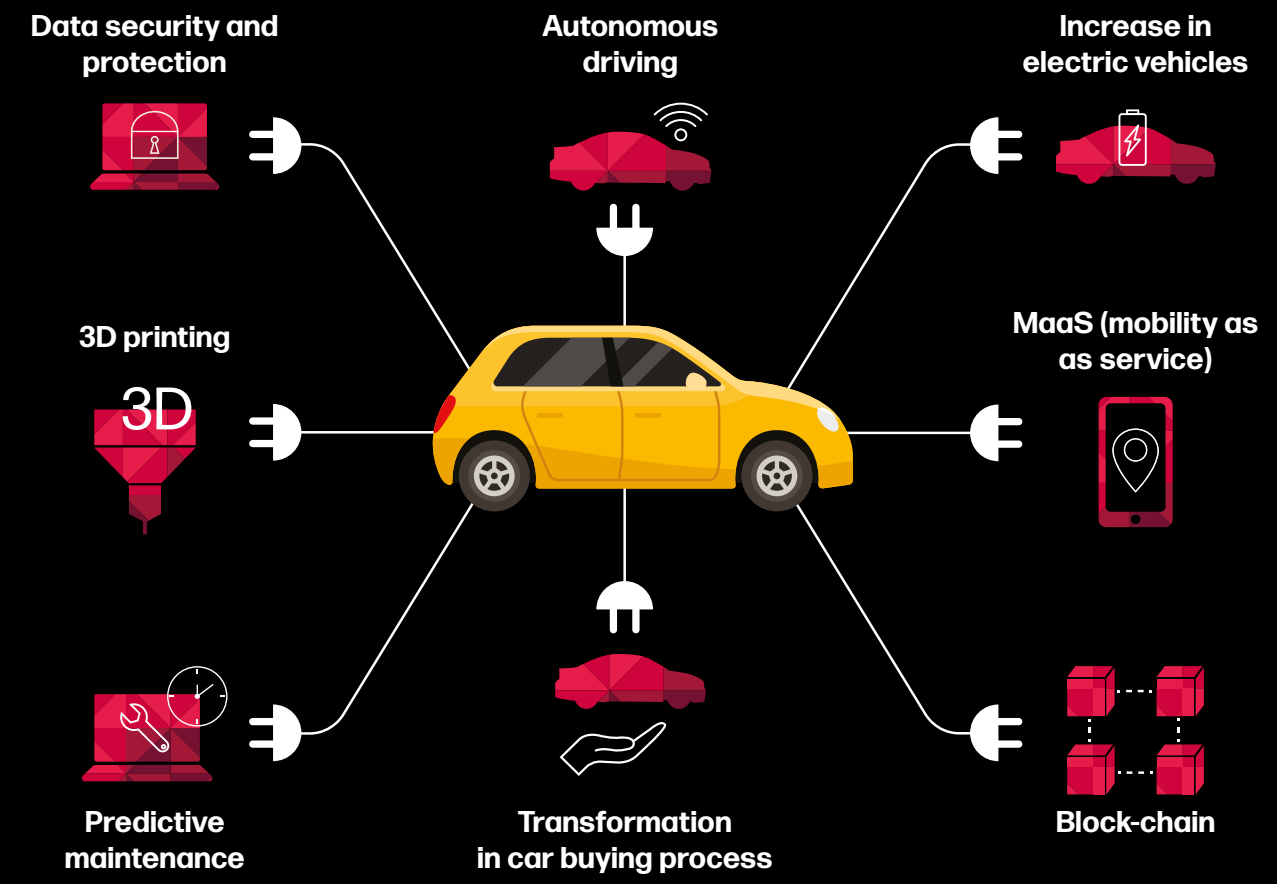
In the new retail environment, customers expect to interact with the manufacturer across multiple channels. For this to be effective, the OEM needs a sophisticated mechanism to collect, organize and analyze its customer data and transform it into meaningful information which can be used to engage more effectively with consumers.

Smart data management tools enable OEMs to connect applications by integrating data streams into one platform. In doing so, their ability to add further functionality or services is improved, unlocking a richer and more valuable layer of information that delivers real business intelligence. This enables OEMs to operate more efficiently, make more informed decisions and, above all, appeal to prospective customers in a way that's never been possible before.

Scalable solutions are created in a connected environment

Manufacturers manage multiple technologies across different areas of their business, but without the right development framework in the background,

Top digital transformation trends in the automotive industry



Source: MSX

these technologies are inefficient. To maximize their effectiveness, OEMs need a uniform and coherent style of development and information processing that is easy to scale and manage.

A dynamic application development framework provides the OEM with the ability to connect and integrate its own business applications and data sets. Developers are then able to reuse these functionalities and apply them to new business or product use cases, allowing them to quickly and efficiently build and deploy solutions that meet the customer's needs.

This not only reduces development costs significantly, but it helps break down the boundaries between business areas, and enables a single customer interaction that serves multiple purposes. For example, a pre-approval engine for a warranty solution can also be used to support technical requirements or the complaints approval functionality within a customer engagement solution.

Technologies enable OEMs to streamline their processes

By incorporating state-of-the-art technologies into their daily operations, OEMs are more likely to experience significant operational success. Artificial intelligence, machine learning, cloud services and process automation provide operational efficiencies while offering superior value and analytics to manufacturers looking to improve lead management, engage new customers and boost revenue.

Strategies such as MSX's Digital Automotive Retail Transformation (M:DART) are helping manufacturers improve their business models and processes to reflect their evolving needs and those of their dealers and customers.

M:DART is a foundation that supports new business models and forms the basis for enhancing performance, cutting costs and increasing profit in today's automotive business. It helps OEMs digitalize all key aspects of automotive retail and integrate them into one, seamless, 360-degree customer experience.

With this kind of support, manufacturers can become more progressive in the new retail environment, embracing new opportunities as quickly as they become available and connecting customers with more personalized, higher-quality services and products.

Prepare for the future of warranty management

Electrification is changing the automotive industry at pace, and with that comes added complexity in how OEMs manage their warranty processes.

Pure electric vehicles (EVs) are relatively simple compared to vehicles with internal combustion engines (ICE). Many components that can cause faults aren't present, meaning that EVs should generate fewer warranty claims.

However, in the transition to a more eco-friendly way of driving, it's expected that the industry will see a significant increase in the number of electric propulsion technology vehicles, including hybrids, plug-in hybrids and fuel-cell operated EVs. This will increase the complexity of warranty management significantly. For this period, OEMs could expect to see an increase in the number of warranty claims being handled. There is no single way of handling these claims because every vehicle is different, but with this increased knowledge gap it's likely the first-time-fix rate will decrease, and warranty spend - at least in the next 10 years - may increase.

Other issues have started to arise with the introduction of EVs and hybrid vehicles. Autonomous vehicle functionality relies on software programming to replace driver decisions. Any warranty issues that arise as a result of these features present their own level of complexity. OEMs need to define what the root-cause of the problem is, and establish whether it's an issue with the vehicle or driver expectations.

Mikael Wepsalainen
Global Director, Warranty and Technical Products

Mikael leads the MSX Warranty and Technical product function responsible for developing and positioning the full range of MSX warranty and technical products. He has a deep passion for the current automotive industry and the innovations required to support its future development. Mikael works alongside the organization's sales and operational teams helping them add value to a growing global client base. He is based in Gothenburg, Sweden and can be reached at **mwepsalainen@msxi-euro.com**.

As technicians are presented with more software-related behaviors, they will depend less on their traditional mechanical skills. OEMs will have to offer a new level of training for their technicians and dealer staff to overcome customer concerns as well as regulate warranty compensation to dealers.

The use of technology to examine claims with increased levels of complexity means that claims with deficiencies can be detected more accurately. It enables OEMs to validate complex warranty claims that relate to a software fault more easily and quickly, while the volume of claims handled also increases.

"It is definitely true that the fundamental enabling technology for electric cars is lithium-ion as a cell chemistry technology. In the absence of that, I don't think it's possible to make an electric car that is competitive with a gasoline car."

Elon Musk

While pure EVs are mechanically less complex than ICE or hybrid vehicles, they present their own unique challenges. Being fully electric requires careful engineering to ensure that when a component fails it doesn't cause the entire vehicle to stop working.

These issues will lessen as EV engineering becomes more recognized throughout the industry, but until then OEMs are continuing to invest in research and development to improve their production of EVs in the future.

OEMs have started to offer new warranty packages to combat the growth in EVs and hybrid vehicles. This trend is not only expected to grow as the EV market increases, but also with new warranty packages and services being made available. The majority of issues around warranty coverage relates to the battery, as this can be worth up to 50% of the overall cost of the vehicle, and is therefore a significant part of the sales process. Offering special coverage or an exchange policy for the battery, or extended warranty coverage for second or third owners, are sensible solutions.

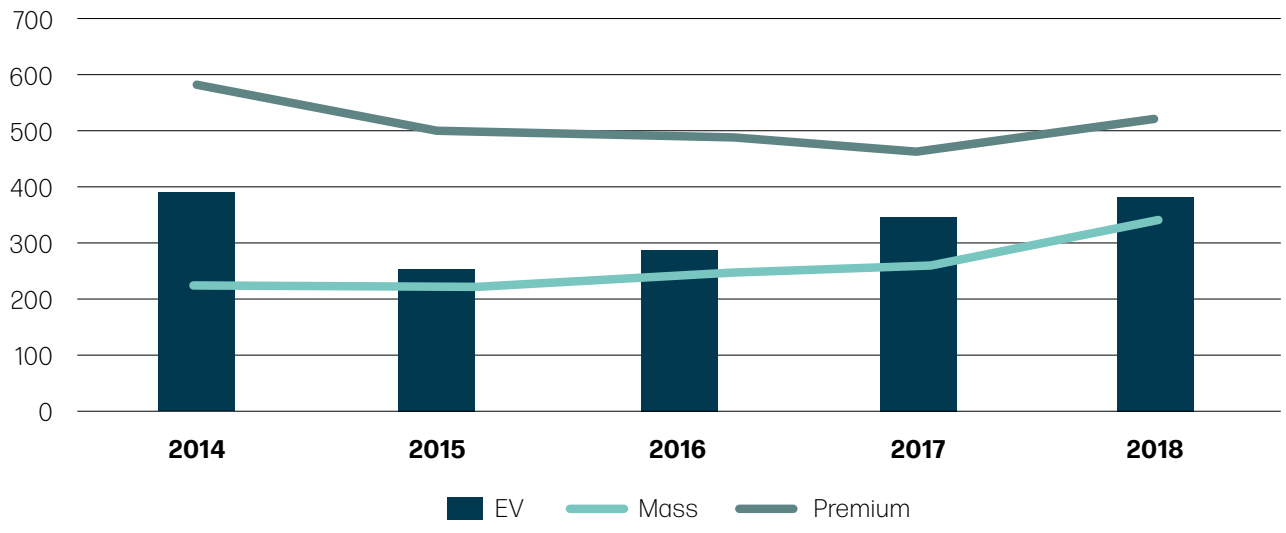
Manufacturers also need warranty handling solutions that are much more flexible and dynamic, allowing them to manage different warranty packages across different vehicle types and to scale those decisions with ease.

With the warranty bill likely to increase in the next 10 years due to this increase in complexity, it's important that OEMs reduce their warranty handling cost as much as possible in the meantime.

Transform your warranty business

It's expected that OEMs will face an increase in the volume of incoming technical warranty requests from their dealer networks. To manage these as effectively as possible, OEMs must identify and understand patterns, form conclusions and create documentation for warranty handling teams, enabling them to distinguish between frequently occurring diagnostics and customer concerns. In the cases of hybrid and connected vehicles, it could

Estimated warranty claims ($) per warrantied vehicle



Source: MSX calculation based on OEM financial reports

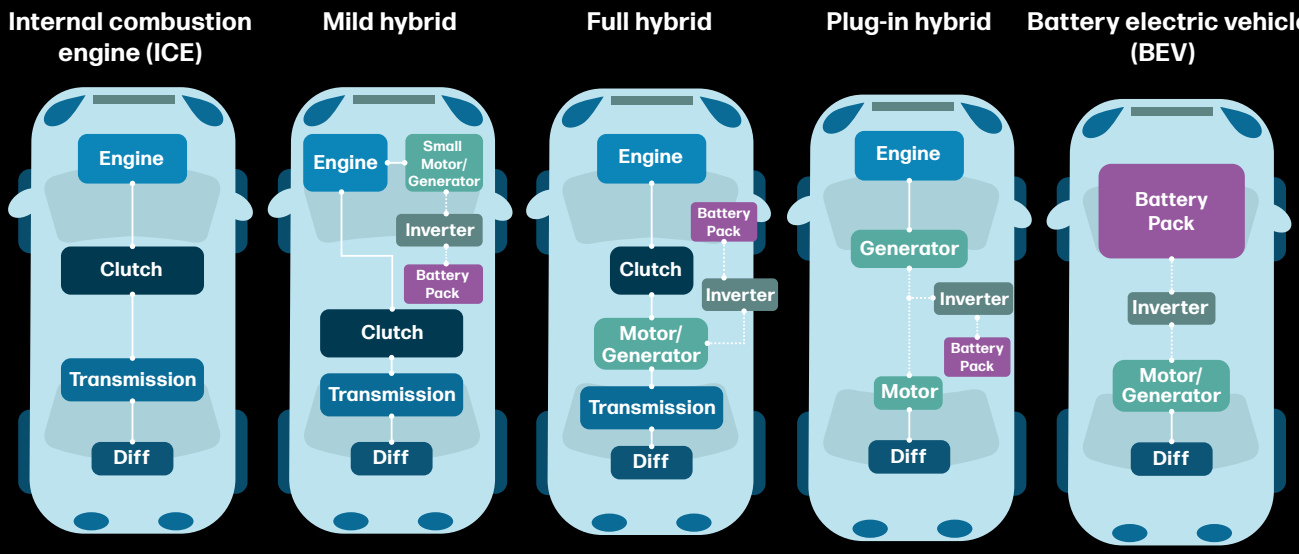
be much more difficult to identify these patterns, and an OEM may rely on in-car connectivity and data from third-party sources.

For efficiency, OEMs need to manage everything in one place. There will be an increase in the types of claims being submitted, as well as types of claimants in the market. It's likely that OEMs will handle claims submitted, not just by their authorized dealers but also by independent repairers who may be authorized for the supply and repair of specific parts. Therefore, OEMs need to scale up their warranty processes to handle a higher volume and complexity of claims.

By introducing a digitalized warranty solution, OEMs can feed warranty rules into a dynamic rules engine for process automation via artificial intelligence (AI) and machine learning. A dynamic software application architecture offers OEMs the ability to introduce other data sources, and make conclusive decisions that help the validation process and identify the patterns manual processing cannot.

By putting these actions and automated checks in place, OEMs can better manage their warranty claims, even when the incoming volume is high, and significantly reduce their warranty handling costs and overall warranty spend.

Vehicle electrified powertrains



Source: electronicdesign.com, Jeff Phillips - Hybrid Vehicles: The WORST of Both Worlds?

The future of warranty management

M:WISE, from MSX International, is a warranty intelligence suite that offers faster, smarter and more efficient warranty management.

"OEMs need to scale up their warranty processes to handle a higher volume and complexity of claims."

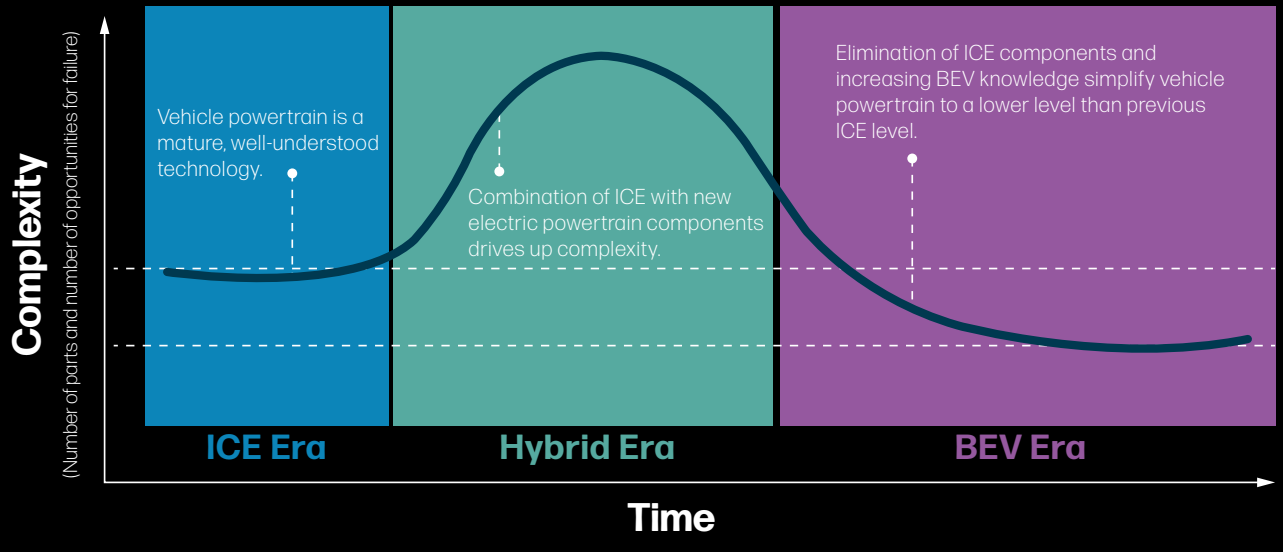
Mikael Wepsalainen, Global Director, Warranty and Technical Products

Powered by AI, these technologies integrate with a manufacturer's warranty systems to access 100% of incoming claims. The solution prioritizes each claim, accurately identifying anomalies, fraudulent claims and hidden value.

With the ability to work with source data, M:WISE can adapt to an OEM's business rules and enable it to process more claims in less time, focusing on those most likely to generate value for the business.

For more about M:WISE, please visit **msxi.com/mwise**.

Hybrid impact on powertrain complexity



Source: electronicdesign.com, Jeff Phillips - Hybrid Vehicles: The WORST of Both Worlds?

Selling e-mobility: How can retail networks prepare?

The automotive industry has prepared for considerable change for some years, but 2020 marks the beginning of a new era. Stricter CO2 regulations mean manufacturers must adapt their sales and aftersales processes to meet electrical vehicle (EV) requirements and respond to the evolving expectations of business customers and consumers.

Information reported by the media, retail networks and dealers, reveals that subjective ideas and myths continue to surround EVs. These are affecting manufacturers' responses and impeding the implementation of clear, coherent sales processes.

It's imperative to understand the concerns of consumers which are rarely based on personal experience. Opinions vary from one market to the next, but in Germany, it's thought that most consumers see EVs as too expensive, that they take too long to charge, their coverage is too small, and that the batteries pose a serious problem. If retail networks don't address these doubts, EV sales will almost certainly suffer.

Refining processes to meet e-mobility needs

Sales processes for retailers in the e-mobility market vary considerably from those used in selling internal combustion engine (ICE) vehicles. To promote EVs, retailers need to know how to acquire more information from the customer in the early stages of a sale to ensure the purchase is a viable option for the customer. Questions should include; how far does the customer drive on a single journey, how far does the customer travel on holiday, and what charging options are available at home and at work?

"A professional EV consultant will be a unique selling point for the retail network and the whole brand."

Dirk Bott, Vice President, Global Sales Operation

Dirk Bott
Vice President, Global Sales Operation

Dirk joined MSX International in May 2012. He oversees global sales and contributes to the growth of large OEM key accounts such as BMW, Mercedes, VW Group, Geely Group and others. In his 20 years' experience, prior to his engagement at MSX, he held different VP roles at European OEMs in sales, product, MI, training and strategy in regions that include China, USA, Europe or global. Dirk can be reached at **dbott@msxi-euro.com**.

Dealers must also be able to differentiate between types of e-mobility customers. Some consumers are innovators or 'early adopters' who have an affinity with technology and are less list-price sensitive and more total cost of ownership (TCO)-focused. They may already be on board with the notion of EVs and are therefore easier to sell to. Most consumers, however, are open to innovation but still need to be convinced of the logistics of EV ownership and costs. This group is the biggest challenge but also offers the largest sales opportunity for e-mobility retailers.

Selling e-mobility to fleets

A different 'needs analysis' study will help dealers to match the right e-mobility vehicle and package to the requirements and driving behaviors of prospective customers. For example, a fleet driver may become dissatisfied with a hybrid company car because fuel consumption can be higher than that of a standard ICE vehicle. It's possible fleet drivers might also have false expectations of other benefits, such as tax relief. A well-trained e-mobility salesperson will be able to determine whether a plug-in hybrid electric vehicle or fully electric

Common issues for retail networks in selling e-mobility

There some common themes across markets affecting retailers' e-mobility strategies:

1. Many dealer managers and employees are uncertain about EVs, so are unable to convince potential customers of their benefits.
2. Confusing regulations such as tax legislation, governmental support and company car policies reflect the need for new job roles with defined competences.
3. Many sales staff have driven EVs, but few aftersales staff have. Studies show that personal experience of driving the vehicle is key to successful selling.
4. Retailers should showcase a demo EV and supply EVs as replacement vehicles during services. It's vital vehicles are well charged and prepared with charging cables.
5. Retailers must be better prepared in terms of EV product knowledge and differences in the sales processes to gain competitive advantage and customer loyalty.
6. The retail network must adapt its strategy in line with market challenges and the manufacturer's targets for EVs.

vehicle is most suitable for a fleet, based on its business model and daily demands.

Manufacturers must integrate important parameters into their EV sales processes and differentiate clearly between business-to-business (B2B) and business-to-consumer (B2C) operations. B2B customers, such as fleet owners, will ask for advice on how to determine the circumstances in which employees must pay for charging, and on other elements such as charge cards. Retailers must be able to calculate and present the total cost of ownership of the most suitable EV or hybrid vehicle, as well as explain the battery capacity, charging time and options, vehicle and battery warranty, range and general features of the vehicle such as torque, weather features and driving modes.

Creating the optimal sales environment

Showrooms will need to adapt, making the EV or hybrid center of attention. Demo vehicles, for example, are an essential tool for the showroom. But with this comes the need to adopt a crucial maintenance plan, such as to ensure the battery on the vehicle remains well charged so customers can test drive without risk of depletion. And the sales team should plan a pre-selected route that best reflects the vehicle's features and capabilities, including at least one charging stop to demonstrate both AC and DC charging. It's important to introduce customers to e-mobility experts in the workshop to provide information, not just on the finance and leasing, but also on the business economics of e-mobility vehicles and billing models that may be suitable.

EV retail strategies

Differentiation 01
Differentiate between the ICE value proposition and EV list price by demonstrating EV TCO.

Consumer perception 02
Complement and enhance the brand's consumer perception by defining EV customer groups.

Brand positioning 03
Ensure your retail networks know your EV brand positioning messages.

Sales channel strategy 04
Every sales channel needs a new EV approach, because the traditional method will not be successful.

New marketing strategies 05
Develop marketing tools for every customer group.

EV staff training 06
Retail staff must be more knowledgeable to inform customers of the right benefits.

EV selling and aftersales approach 07
Dedicated EV experts to support customers offer the OEM and its retail network a unique selling point.

Source: MSX research

For some time, many hardware stores have introduced customers to local trades experts to help them install their purchases. In the same way, some dealers are teaming up with trusted local electricians to support customers with the installation of wall boxes with the guarantee of a fair and honest service. This is also an opportunity for the dealer to generate additional revenue by selling the wall box and charging cables directly to the customer.

The emergence of EVs and hybrids will also affect used car sales processes. It's even more important here to define exactly which vehicles the retailer should acquire, especially because the longevity of batteries varies significantly, and they can be very costly to replace. All stakeholders must also be clear on the retailer's ownership structure, such as in the case of battery rental.

For now, sales of ICE vehicles will continue, so it's important that retailers retain traditional sales skills. But with e-mobility moving swiftly into the marketplace, and with today's customers already so well informed, it's vital that new skills and processes are implemented quickly so the experience is seamless, and accurate information is readily available to the customer, regardless of their choice of vehicle.

Tips for selling EVs to the B2B market

MSX analysis has defined customer needs and best practices to optimize the EV sales process for retail networks.

- Retailers should be prepared with facts to counteract customer prejudices.
- They should be passionate and act as ambassadors for the new technology.
- The press and social media primarily focus on challenges related to EVs. To offset this, sales and aftersales teams need more training in benefits including:
  - Zero-emissions, access to city centers, free parking, the use of bus and taxi lanes
  - Lower maintenance costs through fewer wear and tear parts
  - Safety - no combustible fuel; batteries disconnect in an accident
  - Monetary tax benefits, especially for fleet customers
- Salespeople should be trained in technology and daily upkeep such as where to find charging stations, home charging options, charge cards, driving programs and cleaning.
- The retail network should receive different training content for ICE vehicles, EV B2C and EV B2B vehicles.
- Lead management processes for EVs must be as well-developed as those for traditional ICE engines.
- EV-focused training should be separate from product training and traditional sales training. Digital and micro-learning tools help ensure the network isn't overloaded.
- OEMs should integrate new EV standards, such as a consistent, digitalized audit structure, to reflect customer expectations.
- Sales teams should demonstrate confidence in EVs to reassure potential customers.

Prepare for impact: E-mobility in the aftersales market

Complex maintenance is among the most common concerns that affect the adoption of electric vehicles (EVs). But in reality, the intervals between each service on an EV remains roughly the same as with a regular vehicle, and the services themselves are usually far less complex.

Regular vehicles contain hundreds of mechanical and moving parts, whereas an EV contains far fewer. The parts on an EV are also generally easier to replace and don't wear out as quickly.

The only big "potential" cost when it comes to EV maintenance is replacing the battery. A battery may have lost up to 20% of its range by the time the vehicle reaches 100,000 miles. Some batteries have been designed in such a way that modules can be replaced, as opposed to the entire battery itself, however, this is highly dependent on the way the vehicle has been manufactured.

While a service on an EV can take significantly less time to perform, there are other differences in the service process which can have an impact on the aftersales business for an OEM.

Heiner Prümper
Global Strategic Account Executive

Heiner is an expert in supply chain management and the EV sales and service business. With 26 years' experience in the industry, he is fundamental to MSX's future in the areas of digitalization and e-mobility. Heiner is highly successful in the management and alignment of international organizations, and has successfuly deployed new organizational strategies delivering operational excellence and improvements. Heiner studied at Aachen University of Applied Sciences, gaining a degree in Business Administration, and can be reached at **HPruemper@msxi-euro.com**.

"A large proportion of dealers clearly see EVs as a potentially significant disruptor for the future as they start to appear in volume in the used market over the next few years."

Paul Burgess, CEO at Startline

Service processes need to change

An EV service will generally comprise more checks and fewer replacements; for instance, there will be no oil or filter change. The electric engine is contained within a unit and difficult to access, therefore it's more cost efficient to replace the entire unit than it is to repair it. The drivetrain of an EV is also significantly different to that of a regular vehicle which will affect how it's repaired and maintained. Regular vehicles use brake discs and brake pads, which can be replaced without affecting any other components of the vehicle, whereas an EV has an electronic braking system which uses the energy generated by braking to recharge the battery. This means that any repair to the braking system could then affect a range of other functions within the vehicle.

The built-in, online connectivity systems play a huge part in the maintenance of an EV. One of the standard elements of an electric vehicle's maintenance service is to update software. These updates may improve range or braking distance, for example. While some of these updates are performed in a workshop by qualified technicians, it won't be long before customers can benefit from regular software updates that occur automatically via the internet from the comfort of their own home.

Service areas will have to adapt

In order to accommodate EVs in the aftersales market, dealers are having to adapt their workshops and processes significantly, and many have installed charging points to ensure vehicles sustain enough power for maintenance work to be carried out.

Dealers must also consider technicians' safety when repairing electric vehicles. Many dealers are creating dedicated service bays fitted with the equipment needed to perform maintenance work on EVs, as well as the safety equipment needed, such as rubber mats, to offer extra protection from the risk of electric shock.

Electric car motors have less wear and tear, and less downtime

ICE moving parts

100+

Vehicles with conventional engines have more than 100 moving parts.

EV moving parts

4

Pure electric vehicles have as few as four moving parts.

SMR savings

23%

Over a three-year/60,000-mile period, the average service and maintenance cost for electric cars is 23% less than the petrol equivalent.

First service

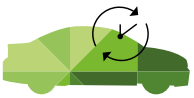
2 years

Unlike petrol and diesel vehicles which require an oil change every 12 months or 10,000 miles, EVs typically don't require a first service until 18,000 miles or 2 years.

Wear & tear

Less

Regenerative braking and optimal EV driving style contribute to reduced wear on brakes and tyres.



Downtime

Less

Fewer servicing requirements means less vehicle downtime.

Source: Cap HPI

However, technicians will still be required to carry out regular work including bodywork repairs, windscreen replacements or wiper blades. While EV maintenance is largely based on electronic components, a huge volume of vehicles in workshops will remain hybrid, with a combustion engine, and therefore bays must continue to be multifunctional.

Technicians adopt new skills

Dealers are starting to invest heavily in training for their employees. They must provide the knowledge and understanding of different vehicles, and adopt new channels through which to communicate information. These technicians and dealer staff also need to be able

Europe 2018 – Cost benefit analysis of an EV vs ICE diesel

Cost of owning a diesel internal combustion engine vehicle

VEHICLE ACQUISITION
$41,500 (€36,587)
Including VAT and taxes

FIXED COSTS
$15,880 (€14,004)
Including taxes, parking fees and insurance

OPERATION COST
$8,530 (€7,524)
12,000 annual miles with periodic maintenance

REMARKETING/ DEPRECIATION
$15,410 (€13,588)
Depreciation at the end of 3 years

COST OF OWNING A DIESEL ICE
$81,320 (€71,703)
Cost per mile €5.98

Cost of owning an electric vehicle

VEHICLE ACQUISITION
$48,150 (€42,452)
Including rebates, charging infrastructure installation

FIXED COSTS
$2,440 (€2,152)
Including insurance, exempt on taxes and parking fees

OPERATION COST
$5,080 (€4,481)
12,000 annual miles with periodic maintenance

REMARKETING/ DEPRECIATION
$18,650 (€16,445)
Depreciation at the end of 3 years. Owing to degradation of Li-ion battery losing 10% of its efficiency

COST OF OWNING AN ELECTRIC VEHICLE
$74,320 (€65,530)
Cost per mile €5.46

Source: Frost & Sullivan & MSX

to explain the mechanics of an EV to customers and build up enough knowledge to deliver pertinent detail where it's needed. For example, they might need to inform a customer that his vehicle's range will become reduced in winter if he uses a heated steering wheel, or in summer if he uses air conditioning.

Customer care is paramount, and therefore dealers need to carefully consider how they offer breakdown services to EV owners. Standard roadside assistance is not an option for EV customers because their vehicles need to be brought into a dealership to repair. And when a vehicle is brought in, dealers must ensure they can provide the customer with a suitable EV courtesy car while theirs is out of action. A customer who is used to an electric vehicle may not be comfortable driving an alternative.

There is a huge learning curve ahead for both dealer staff and their customers, and OEMs need to provide the support needed to ensure a smooth transition. MSX can offer support during this transition by helping define dealer training requirements and managing customer engagement. Every touchpoint with the customer provides data that helps the OEM and its dealer network truly understand their customers' needs. With this data, manufacturers can embrace this transition and continue to offer their customers the best possible aftersales service.

Cost of leasing an electric vehicle

VEHICLE ACQUISITION

$4,820 (€4,251)

Initial fee + processing fee

FIXED COSTS

$13,300 (€11,723)

+ parking and other taxes (~€326/month)

OPERATION COST

$369,750 (€326,000)

On fuel price, maintenance cost is covered by the leasing company

REMARKETING/ DEPRECIATION

NOT APPLICABLE

Covered by the leasing company

COST OF OWNING AN ELECTRIC VEHICLE

$18,490 (€16,300)

Cost per mile €1.36

Norway - Leading the way with zero-emission transportation

Norway is, without question, the biggest success story to date when it comes to the transition to zero-emission transportation. The country has gradually introduced incentives since 1990 and has now set a target for 2025 - for 100% of vehicles sold to be 'zero-emission'.

Around 40 years ago, Norway discovered it was sitting on one of the world largest oil reserves and has used this resource to boost the economy, making Norway the largest sovereign wealth fund in the world. This wealth plays a vital role in financing the e-mobility movement and has allowed the government to speed up the transition to zero-emission transportation by offering a wide range of incentives to those investing in e-mobility solutions.

They include tax deductions on new electric vehicles (EVs) – a VAT exemption of 25% offsets the additional cost of a new EV. Larger cities are also offering free parking and the use of bus lanes for zero-emission vehicles.

As a result of these incentives, almost 60% of new vehicles sold in Norway in 2019 were electric or hybrid, bringing the total EV vehicle parc to an impressive 300,000, according to the latest Frost & Sullivan report.

"Norway shows the whole world that the electric car can replace cars powered by gasoline and diesel and be an important contribution in the fight to reduce C02 emissions."

Christina Bu, the Norwegian Electric Vehicle Association's general secretary

Norway has also invested heavily in charging points and infrastructure. There is currently a charging point every 31 miles in the country, and there are further plans to install at least two multi-standard, fast charging stations every 50km on all main roads. Considering Norway's low population of 8 million, and its huge land mass, this amounts to an excellent distribution of available charging points for drivers.

In 2017, the Norwegian government implemented a rule dictating that EV owners cannot be charged more than 50% of the price charged for ICE vehicles to access public ferries, toll roads and parking facilities. This mandate was given a period of execution but was expected to be fully implemented by 2019.

Felix Serrano
Vice President Europe

Felix is currently based in the UK and responsible for MSX Retail Network Solutions operations in Europe. As a leading MSX automotive retail expert, Felix has more than 20 years' hands-on experience improving retail networks' business performance, customer satisfaction and retention in Europe and Latin America. He can be reached at **fserrano@msxi-euro.com**.

Norwegian EV incentives

- No purchase/import taxes (1990-present)
- Exemption from 25% VAT on purchases (2001-present)
- No annual road tax (1996-present)
- No charges on toll roads or ferries (1997-2017).
- Maximum 50% of the total amount on ferry fares for electric vehicles (2018-present)
- Maximum 50% of the total amount on toll roads (Introduced 2019)
- Free municipal parking (1999 – 2017)
- Parking fee for EVs was introduced locally with a maximum limit of a 50% of the full price (2018-present)
- Access to bus lanes (2005-present)
- New rules allow local authorities to limit the access to only include EVs that carry one or more passengers (Introduced 2016)
- 50% reduced company car tax (2000-2018).
- Company car tax reduction reduced to 40% (2018-present)
- Exemption from 25% VAT on leasing (Introduced 2015)
- Fiscal compensation for the scrapping of fossil vans when converting to a zero-emission van (Introduced 2018)
- Allowing holders of driver's license class B to drive electric vans class C1 (light lorries) up to 4250 kg (Introduced 2019)

Source: elbil.no/norwegian-ev-policy

The increase in the number of EVs on the roads in Norway has also affected the car tax system, with political parties agreeing on a 'polluter-pays' principle. High emission vehicles will pay higher taxes, whilst low and zero-emission vehicles will pay lower, or no taxes. Introducing these higher tax brackets on high-emission vehicles has also helped fund incentives without any impact on public funds.

Norway has the highest income per inhabitant in Europe, with average earnings of €60,931 - almost double that of the UK. This means that a higher volume of the population is able to make the transition to an EV. A study by Forbes identified that post-purchase, with the high cost of fuel and daily use of toll roads, owning a petrol car works out considerably more expensive than the monthly payments and electricity costs of an electric car. This has led to some criticism that Norway is offering tax breaks to the rich, some suggesting that it's simply a discount on a second car for the wealthy. While the used car market remains dominated by petrol vehicles, those who cannot afford to invest in a new EV are unable to take advantage of the lower cost of driving.

Incentives so far are targeting vehicle sales. And while the volume of EVs in the market is rapidly increasing, there is still a huge parc of internal combustion engine (ICE) vehicles. The variation in vehicle types is starting to increase workshop traffic and technicians are having to demonstrate multifunctional skills to work on traditional ICEs, EV and hybrid vehicles at the same time. But as the parc of ICE vehicles decreases in Norway, dealers will have to further adapt their retail business models and aftersales processes to accommodate EVs as their main business.

As the Norwegian government continues to invest heavily in infrastructure to support this new wave of mobility, it

may struggle to sustain consumer incentives long term. But manufacturing and maintenance costs will inevitably decrease as the number of EVs on the road increases. Over time, these cost reductions will offset the incentives offered by the government and make EVs a more affordable solution for consumers.

In addition, to support these investments and allow incentives to run for longer, Norway is turning to private investors to fund charging infrastructure in larger cities, meaning that only low-density areas are reliant on support from public funds. A report from the EVS30 International Battery, Hybrid and Fuel Cell Electric

European EV readiness index 2020

Country	Total scoring	E-vehicle maturity	Charging maturity	Government incentives
Norway	27	12	9	6
Netherlands	26	11	8	7
United Kingdom	24	7	7	10
Sweden	23	10	5	8
Ireland	22	8	5	9
Austria	22	8	4	10
Luxembourg	20	9	6	5
Finland	20	8	6	6
Germany	20	8	5	7
Belgium	18	8	5	5
Portugal	18	7	4	7
Denmark	17	8	5	4
France	17	5	5	7
Hungary	17	5	4	8
Switzerland	17	9	6	2
Spain	16	5	5	6
Italy	15	5	5	4
Czech Republic	13	4	5	4
Greece	13	3	2	8
Poland	10	3	2	5
Slovakia	10	3	4	3
Romania	9	4	3	2

Source: Lease Plan

Vehicle Symposium reports that there are two national charging operators in Norway, Fortum Charge & Drive and Grønn Kontakt, who both have a payment model for fast charging. Customers pay for charging by the minute, not by units (kWh) of energy received. This means fast charging is comparatively less expensive than using home charging. However, with some consumers showing a preference towards the 'payment-per-unit' model, based on the state of charge, battery temperature and on-board charger, there's more work to be done in order to find a compromise that combines time and kWh.

The Norwegian EV Association has also shown great support in the electrification of road transport in Norway, supporting its members in sharing information on charging facilities and helping to alleviate myths surrounding EVs. The market share of battery-operated electric vehicles (BEVs) in Norway has reached 80.7% of total EV sales. The Tesla Model 3 accounts for 29.2% of these. Tesla is the largest player in EV sales in Norway, and, as the first manufacturer to build a brand wholly dedicated to electric vehicles, the organization has built a desirable product that helps instill customer confidence. Speed of adoption will largely depend on vehicle cost, and with manufacturers like Tesla building vehicles that customers want, we could soon see an increase in EV adoption across Europe.

The transition to zero-emission transportation and the amount invested to boost sales will vary from country to country. Smaller, more wealthy countries, like Norway, can afford to offer incentives to consumers, while larger countries such as the UK - with a larger population and half the average income - can afford to spend much less. Any incentive offered becomes a huge advantage, and the momentum for EVs seems to be spreading. A report from Transport & Environment (T&E) estimated that there will be 44 million EVs in Europe by 2030, and with that the European Union (EU) plans to install 3 million charging points to support its target of becoming carbon-neutral by 2050. There is a lot to be learned from Norway's model, in particular, that wealth is not the only driving factor in the popularity of EVs, and a commitment to clean energy is at the forefront of this movement.

Can OEMs endure the effects of EVs on their parts business?

The automotive industry is unquestionably anxious about the transition to electric vehicles (EVs), especially because of its impact on manufacturers' highly lucrative parts businesses. EVs have fewer mechanical parts to repair or service, so OEMs are bracing for a considerable loss in revenue. While there are some new components, such as plugs and sockets, inverters and powerpack coolers, that don't appear on conventional cars, profits from parts and routine maintenance are still expected to suffer. MSX research suggests the value of ordinary service maintenance and parts repair will fall by around 60% with EVs compared to traditional internal combustion engines (ICEs).

It's a very different process to repair an EV than it is to repair an ICE vehicle, and this is a major challenge for OEMs and their dealerships. The cost to produce an EV is already significantly higher, and the battery is a major part of that - in some instances, the battery can cost in

"Once EVs enter the mainstream, they will account for around 20% of R&M workshop operations in 2030 in Europe."

Source: ICDP

Andy Mills
Director, Parts and Service

Andy is an economics graduate and qualified management accountant. He joined Impetus Automotive in 1998 and built its software development, insight and analytics services. As a consultant, Andy has delivered high-profile assignments for OEMs including BMW, VW and JLR. In 2019, Andy became responsible for the Global Technology Services division of MSX, and is now Parts and Service Product Director, responsible for launching digital product initiatives that deliver profitable parts sales growth for OEMs. He can be reached at **amills@msxi-euro.com**.

the region of $30,000. In the case of the Jaguar I-PACE, for example, that amounts to 45% of the price of the car. The battery is not just costly to replace if damaged, but also heavy, with some models weighing 600kg. This means more secure and robust support systems will need to be implemented, not just within the vehicles themselves, but at the repair centers that maintain them.

Smart OEMs will find new opportunities

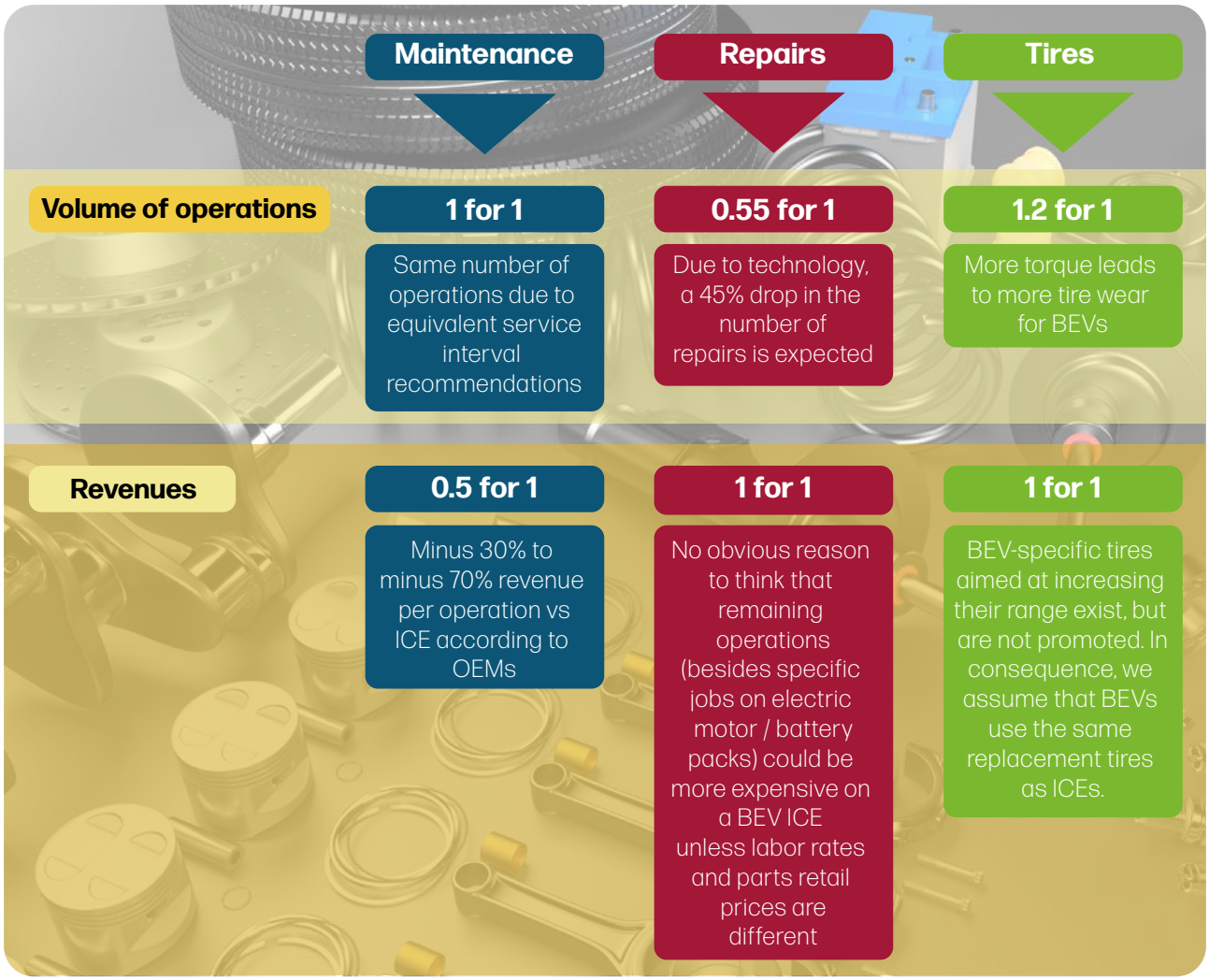
Some batteries permit modular repair, but many are only available in one piece. Understandably, this makes consumers nervous about the expense of a potential battery failure, so manufacturers are exploring ways of mitigating these fears. Typically, batteries are reliable and proven to last many years, so some OEMs offer battery guarantees or long periods of warranty. Others are exploring options to sell the vehicle to the consumer but lease the battery within it, so drivers pay a regular fee for the reassurance of a quick replacement if the need arises.

But it's not all bad news for repairers. Damage or crash repair is one of the largest areas of parts sales, so this revenue should remain largely unaffected because EVs and hybrids are just as prone to collision damage as traditional ICE vehicles. A McKinsey report believes collision parts and service profits may increase from $13 billion in 2017 to between $14 - $15 billion in 2030. This is due to the increase in miles driven and the rise in parts prices.

Meanwhile, OEMs can invest in total loss avoidance (TLA) schemes to improve the likelihood of a vehicle's repair after a collision, subsequently ensuring that the vehicle continues its serviceable life on the road. TLA schemes, with parts substitution technology, intervene in the insurance estimate process and help manufacturers ensure the parts chosen for repair are genuine OE parts.

The industry has also seen an increase in OEM network loyalty, largely because independent vehicle repairers haven't yet extended EV services to consumers.

Derived from these assumptions, our model assesses the impact of BEVs on each aftermaket segment, both on the volume of jobs and on revenues



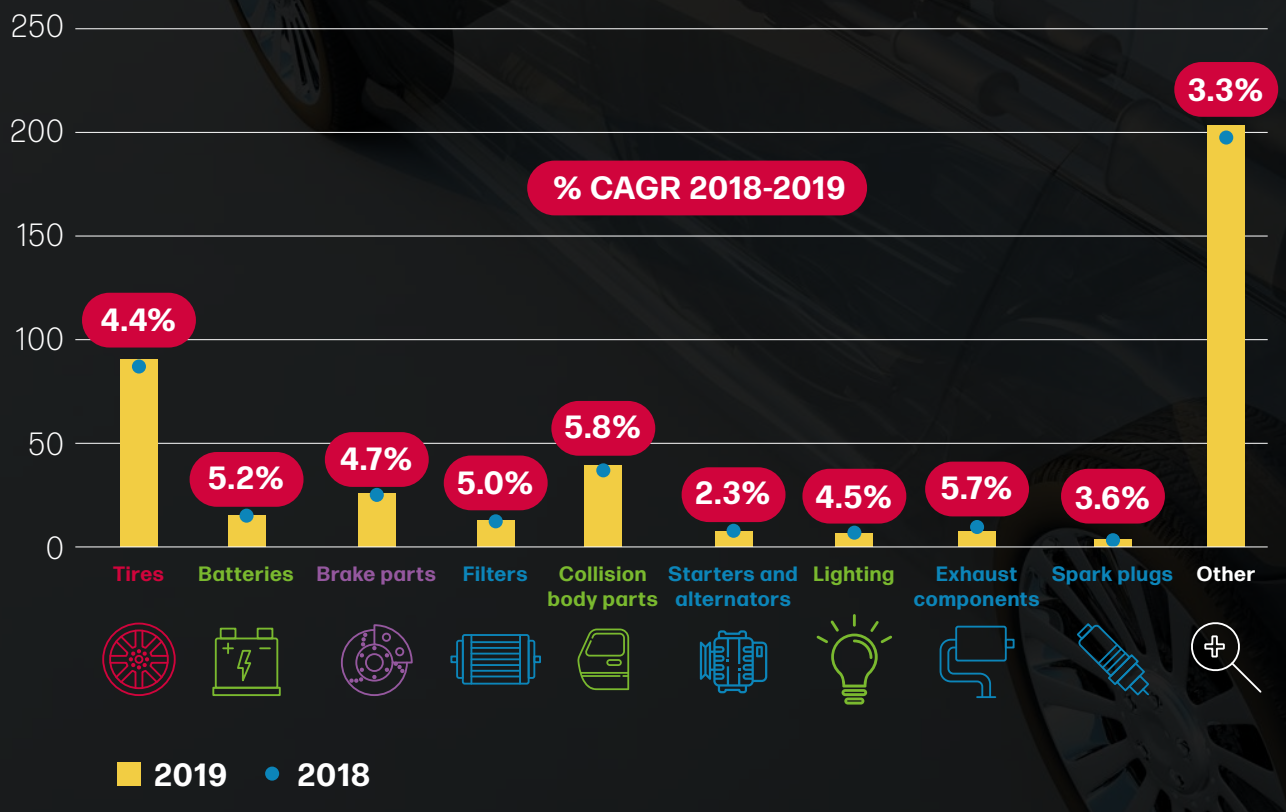
Source: ICDP estimates

Because EVs are so specialized, many independents have yet to undergo the right training for working with high-voltage electricals. And according to research carried out by the ICDP, a survey of France revealed 89% of battery EV owners only trust the dealer or authorized repairer because of the technological content of their car.

Eventually, manufacturers will refine the software delivery methods that provide upgrades to EV vehicles to improve their performance and range. The over-the-air nature of connected vehicles and EVs lends itself to regular modifications, and it's likely that consumers would be willing to pay for those benefits.

Equally, there may be a market for low-energy accessories. Drivers of ICE vehicles take for granted that they can run lights, screens, heaters and music, because it makes little difference to the vehicle's power and performance. However, in EVs these features reduce power and range. Manufacturers may choose to invest in the development of low-energy, EV-compatible devices, as well as portable chargers and inverters. Meanwhile, there may be increased profit to be found in selling tires. Because EVs are heavy and powerful, they'll need replacing more often.

Global replacement parts revenue by type ($bn)



Source: MSX estimation based on ICDP, Statista, Frost & Sullivan, and LMC data

At some point, OEMs will need to make EVs more accessible to the millions of potential customers who live in blocks of flats, or who don't have a garage or can't afford expensive charging wall-boxes and cables. Consumer challenges like these could translate into business opportunities for manufacturers, who may choose to develop easy-charge facilities for their EV models to help generate greater sales and increased loyalty.

Manufacturers and their dealerships must continue to protect their existing parts operations while negotiating alternative, EV-specific business models. But for now, they hold the advantage, because EV components are still too specialized and expensive for many independent repairers to compete with. It's up to forward-thinking OEMs to be among the first to take advantage of the new opportunities and revenue streams EVs generate.

Overall aftersales demand for BEVs is claimed to be far lower than for ICEs, but this does not apply to all components, and so does not impact market segments equally.

ICE index: 100

BEV index: 0	BEV index: 60-70	BEV index: 70-80	BEV index: 100	BEV index: 100 and +
Gearbox and coupling	Brake pads	Braking system	Air conditioning	Tires
Engine lubricants		Shock absorbers	Steering and axis	
Timing belt, ignition			Electrical system (wires, dashboard, electric devices, etc.)	
Exhaust system			Cooling system	
Engine electrical system (starter, generator, etc.)				

Source: ICDP estimates

Commercial training is essential for effectively selling EVs

> **"If you're competitor-focused, you have to wait until there is a competitor doing something. Being customer-focused allows you to be more pioneering."**
>
> Jeff Bezos, CEO Amazon

While more and more consumers have started thinking about buying an EV, the industry is still finding it difficult to convince people to make the leap towards EV-ownership. Research carried out by McKinsey & Co demonstrates that improving dealer sales techniques is critical if OEMs are to meet their sales targets.

But there's still a lot of work to do. McKinsey's 2019 EV mystery shopping survey revealed product knowledge is still lacking - many dealers across regions could list only a single EV benefit from the broad spectrum of possibilities available. And dealer knowledge about total cost of EV ownership in some markets lacked detail on key maintenance-related questions, such as battery life and charging.

Battery replacement costs, charging concerns and range anxiety are among the reasons many consumers are reluctant to buy EVs, yet many of these fears could be alleviated with good commercial training. OEMs have a responsibility to provide retailers with the right support. A 2019 NFDA survey reports that, on average, retailers showed decreasing satisfaction levels with their manufacturers' support through training and material in the EV sector. Getting retailers on board is vital if manufacturers are going to remain competitive.

Rise in millennials' annual spend highlights the sales potential

A United States-based survey by Accenture highlights the spending patterns of millennials - usually defined as people born between 1981 and 1996. It states that there are 80 million millennials in the US and predicts that by 2020, their combined annual spend will grow to $1.4 trillion, representing 30% of total retail sales.

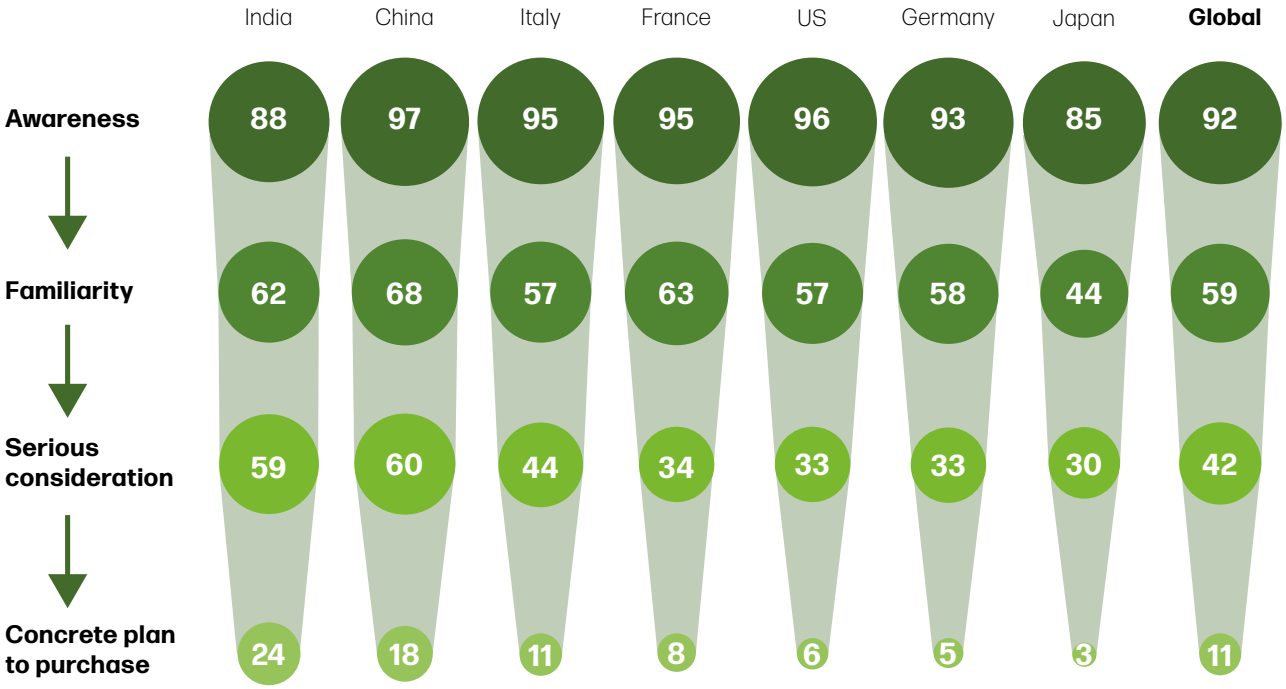
Lois Valente
Director of Training, North America

Lois leads the MSX North American Performance Improvement Team. In this role, she is responsible for the learning and development strategy and operations. She works alongside the account teams to bring her love of learning and combine it with technology to yield innovative and effective client solutions. Lois is based in Michigan, USA and can be reached at **lvalente@msxi.com**.

Automotive companies must recognize the potential of this market and factor it into their sales and service strategies, not just in the US, but worldwide. Major brands such as Apple and Tesla have proven, through their success, that consumers respond to a buying journey focused on convenience, efficiency and continued support after the sale. By delivering these experiences, OEMs and their dealer networks can help encourage millennial buyers – who, according to Forbes, are already more technologically savvy, ethically conscious and committed to sustainability than other consumer groups - to purchase EVs.

There is a gap between consumers who would seriously consider the purchase of a battery electric vehicle and those with concrete purchase plans.

Stages of purchase for battery electric vehicles, [1] % of respondents



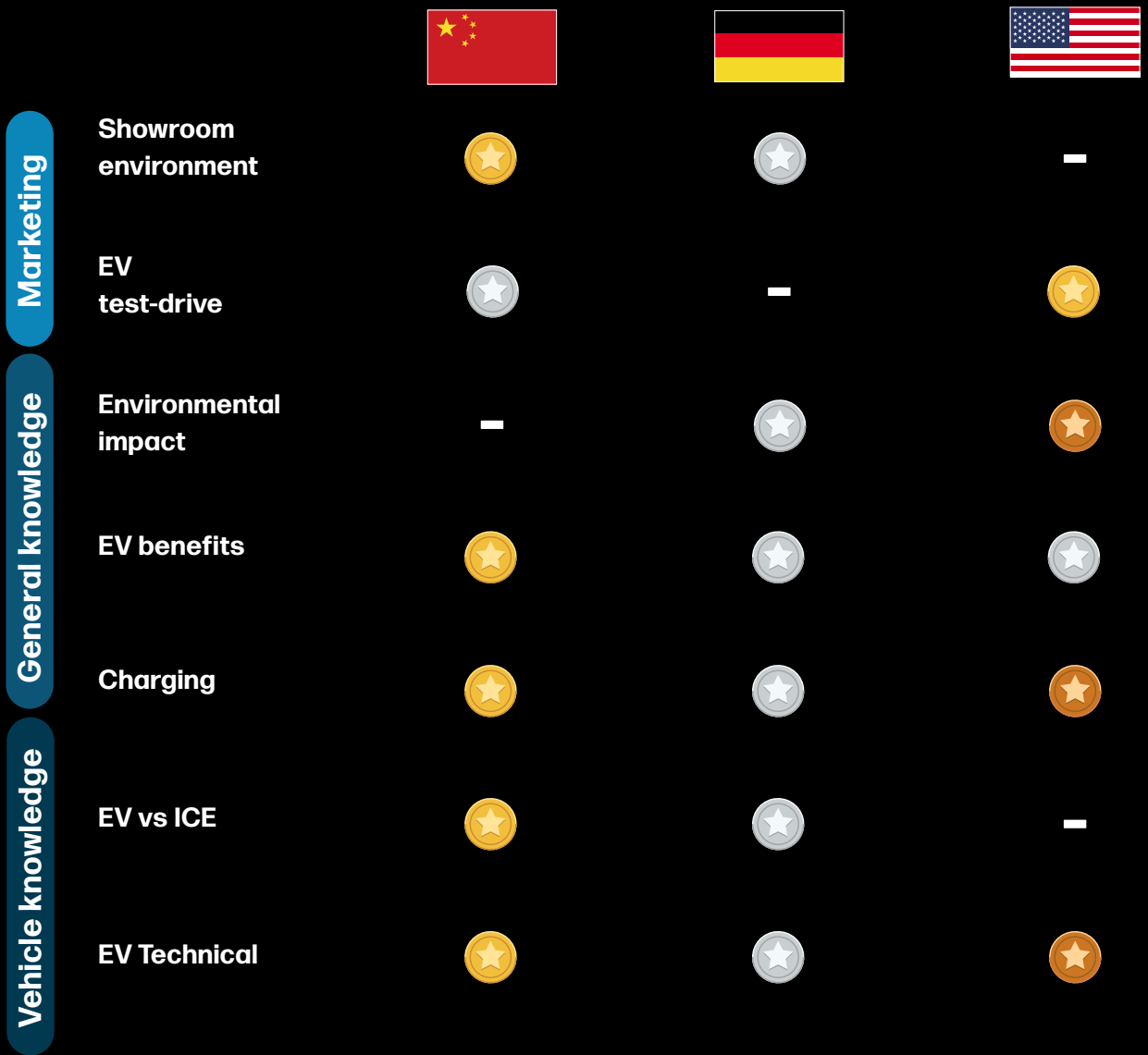
[1] Self-rated survey

Source: McKinsey ACES Consumer Survey, 2019

EV training programs should focus on customer needs

A successful, non-technical training program should focus on four major areas of the customer experience: education, empathy, emotion and engagement. The first area refers to educating customers – providing them with the knowledge they need to feel confident in making a purchase. Today's OEMs can deliver general information about EVs to customers via both online and offline channels. But a well-trained salesperson can alleviate a customer's range concerns, for example, face-to-face. They can answer questions on local charging options, the unique driving experience, lifestyle and financial benefits, and ongoing maintenance – all information that the customer might struggle to find elsewhere.

The race to develop EV sales skills



Source: MSX Research & analysis

Retailers should also be trained to show empathy towards their customers. This requires additional skills, such as prioritizing and responding to the customer's personal interests. A good salesperson can listen to customers' needs, such as their commuting requirements, and understand their situation, such as their home environment and whether it's suitable for EV ownership.

The third focus is emotion, whereby 'need' is not necessarily a factor, but criteria such as pride or envy come into play. EV retailers need to learn to recognize buyers' emotions, especially where millennial consumers are concerned. A recent NerdWallet survey reveals that 49% of American consumers say emotions have led them to spend more than they can reasonably afford. Among millennials, the figure is closer to two-thirds (67%), making this the generation most likely to emotionally overspend. While salespeople should not encourage overspending, an emotional purchase can still result in a positive buying experience, in which the customer is comfortable and happy with the outcome.

Finally, dealers must be trained in engagement, specifically, engaging with their customers before, during, and after the customer visit. Dealerships are now an extension of a wider, digitalized sales process. OEMs have a duty to train dealer salespeople to understand their position in the buying journey in relation to other channels, such as websites and social media, and interpret consumers' engagement across these channels. Salespeople who follow a brand's social media activity, for example, can preempt an influx of potential EV customers because of a recent promotion or upcoming event. Salespeople must extend their knowledge in these channels to better interact and engage with customers after completion of the sale and encourage them to remain loyal to the brand throughout the lifecycle of the vehicle.

EVs will inspire a new age of technical training

The evolution of the electric vehicle (EV) has profound implications on the way vehicles are serviced and the competencies technicians need to operate in an all-electric environment. There are five major factors that will affect how technical training will be designed and delivered in the age of EVs.

Characteristics of electric vehicles

EVs currently represent a large financial and technological leap for consumers, whereas hybrid vehicles may be considered a more attainable compromise. Because of this, it's likely that before the battery electric vehicle (BEV) comes of age, the industry will see a proliferation of hybrid electric vehicles (HEVs) and plug-in hybrid electric vehicles (PHEVs). While BEVs have far fewer components and are less complicated than internal combustion engine (ICE) vehicles, HEVs and PHEVs are more complex. This rise in hybrid vehicles will mean OEMs need to invest in more technical training to ensure dealership technicians can service and repair them.

"It is a significant commitment of time and resources to get a tech through the curriculum."

JeSean Hopkins, Nissan North America's senior manager of EV infrastructure and sales operations.

Jayesh Jagasia
Global Executive Director

Deeply passionate about the automotive industry, Jayesh helps leading automotive brands improve their retail performance and customer experience. His previous venture was an innovative business that aimed to radically transform the used-car purchase experience in emerging markets. Jayesh has an interest in artificial intelligence, mobility and learning technology, and offers valuable knowledge and skills to the wider MSX team. He can be reached at **jjagasia@msxi-euro.com**.

Technical training needs will change again when BEVs become more prevalent. BEVs have a less complex drivetrain but are often equipped with advanced driver assistance systems (ADAS). OEMs may have to invest more on a per-vehicle basis to ensure technical employees have the necessary skills to carry out repairs.

Repair profile of electric vehicles

The age of EVs is likely to prompt closer collaborations between automotive manufacturers and electric motor and battery suppliers. BEVs will be designed with more black box components that need to be replaced rather than repaired. These components will be shipped to supplier partners for repair or refurbishment before re-entering the parts supply chain. As a consequence, it's unlikely OEM service technicians will need the same extensive technical expertise to repair components as they do today. Instead, supplier factory technicians will carry out these repairs at supplier plants. It means OEMs may invest in technical training for the supplier's technicians, rather than their own dealership employees.

Aftersales network and service model in the EV era

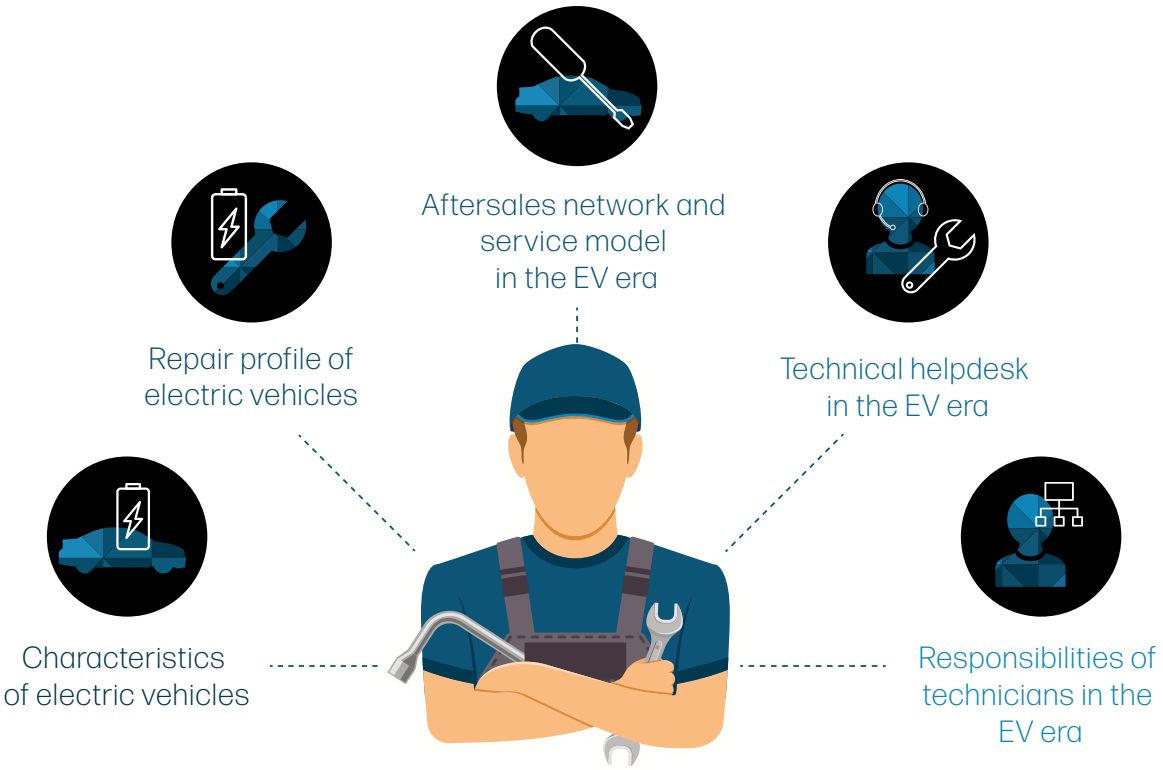
The increase in BEV numbers will also affect the traditional, dealer-led service model. The lower powertrain complexity and a higher number of 'replace versus repair' components may encourage the rise of doorstep service providers. These providers could potentially deploy mobile technicians to unlock a customer's connected vehicle without a key, but instead by using near field communication (NFC) technology, and carry out a routine service or maintenance at the driver's home or workplace. Services such as these will resolve a major obstacle to customers requiring vehicle servicing – having to deliver the vehicle to a service center, go without it for a day and then pick it up again when it's ready.

Currently, multiple brand dealerships have to train large numbers of technicians in a range of locations, but this doorstep model allows manufacturers to deliver centralized training at scale more effectively. This will also support a rise in technology-led learning instead of traditional, classroom-led training.

Technical helpdesk in the EV era

Today's technical helpdesks are almost entirely manual, offering support to dealer technicians on unique, non-routine issues that they may find challenging to diagnose or fix by themselves. Future technical helpdesks are likely to feature much higher levels of automation, thanks to the rapid evolution of natural language processing (NLP) and the rise of artificial intelligence (AI) and machine learning algorithms. AI chatbots are common in a number of customer-service industries, and are becoming more sophisticated, to the point where some chatbots can now exceed human performance levels.

Technical training in the future



Source: MSX Research & analysis

In addition, highly connected BEVs will have the intelligence to diagnose problems themselves, and even offer step-by-step repair instructions for technicians on their display screens, significantly reducing the need for traditional support.

Responsibilities of technicians in the EV era

The next generation of BEVs will see a significant increase in ADAS and autonomous driving (AD) capabilities. These features require specialized hardware such as autonomous driving detectors, radars and lidars (light detection and ranging), ultrasonic sensors and high-

Microlearning suitability assessment

General knowledge and skill

Replace

Little to no specialized / technical knowledge and skill required

Receptionist
Customer Relationship Executive

- Replace traditional learning with microlearning
- Cost and time saving

Realign

Some specialized / technical knowledge and skill required

Sales Executive,
Service Advisor

- Replace certain competencies to be delivered via microlearning
- Cost and time saving

Reinforce

High level of specialized / technical knowledge and skill required

Technician,
Sales / Aftersales Manager

- Use microlearning to reinforce knowledge and skill delivered via other methods
- Improved quality

Specialized knowledge and skill

Source: MSX research

definition cameras. Vehicles will also rely more heavily on software than the current generation of vehicles. And technicians will need to be as comfortable working on the electronic components of a vehicle as they are working on the traditional mechanical components, which will influence the training required to ensure they fulfil their responsibilities.

Technical training in the EV era

Technical training is likely to evolve in three ways, the first being the need for employees to learn entirely new skills and competencies. Technicians' tasks will include downloading data from a vehicle, analyzing it and identifying patterns for diagnosis, as well as diagnosing and communicating problems with specialized hardware. Meanwhile, the rise in doorstep servicing will demand new customer service and administrative skills.

The second focuses on technology-led learning. Current technical training models rely on methodologies such as instructor-led training. Many OEMs have experimented with virtual reality, augmented reality and mixed reality, but the high costs of these technologies mean they're less viable for large-scale adoption. More accessible and proven methods such as microlearning, web-based learning, peer learning and social helpdesks will play an important role in the design of next-generation technical training.

Finally, there is a responsibility for OEMs to focus on health and safety training, especially as technicians will work with high-voltage batteries and power supplies. Most western markets have an established framework of health and safety accreditation, and it's likely the automotive industry will rely on these to create their own industry-wide standards, which will, in turn, guide technical training in the EV era.

A case for microlearning

Microlearning is an exciting new learning methodology that reimagines how we deliver training and competence development. It is based on our understanding of how the human brain absorbs, processes, retains and retrieves information.

Microlearning relies on small capsules of information to deliver learning. Learners are exposed to 'micro' format content at a higher frequency (typically once a day for a few minutes). Research has established that the human brain absorbs and processes information far better in this manner, rather than receiving a large volume of information within a short period of time.

Microlearning promises to deliver meaningful benefits when integrated into your learning initiatives:

Efficient: Microlearning forces learning design to focus on solving a well-defined business problem. This ensures that the learning investment is focused and efficient.

Engaging: By understanding and implementing brain theory and how we absorb and process information, and combining this with game mechanics, microlearning often reports far higher levels of learner engagement.

Enabling: Microlearning lends itself really well to 'learning in the flow of work', enabling learners to apply their newly acquired knowledge and skills in the real world, straightaway.

Microlearning offers the flexibility to be implemented as a methodology by itself, as well as in conjunction with other learning methods to deliver higher levels of absorption, retention and application.

'Replace', **'Realign'** or **'Reinforce'** strategies are a great starting point to integrate this exciting new learning methodology into your competence development initiatives.

China – The powerhouse of EV development

"With competition in the EV market becoming increasingly intense, high-quality battery manufacturing and technological maturity are fundamental to reducing the price of EVs."

Ronnie Xu, Head of Greater China

Sales in the Chinese electric vehicle (EV) market rose 78.3% year-on-year from 2017 to 2018. EVs are highly popular in China, and numbers are expected to grow even further by 2025.

China's government has played a key role in the growing numbers of consumers buying EVs through the introduction of incentive schemes. These incentives vary by region but include tax deductions on EV purchases as well as free registration for new vehicles. The government has also offered incentives to OEMs in different regions to develop their charging infrastructures, including the installation of personal charging points in residential areas.

China's EV push has, without doubt, attracted some big automotive players. Global OEMs are agreeing to source batteries in China, for example, and are even starting to think about using China as their lead market for EV development.

For now, foreign brands maintain a small presence here, with a small share of about 5%. But with global manufacturers seeking to expand into China, it's likely there will be a rise in competition for China-based EV manufacturers, putting pressure on vehicle prices.

The McKinsey 2019 China Auto Consumer Insights Survey suggests that Chinese consumers tend to have only two to three brands in mind when they set out to buy a car, demonstrating that positive brand perception is vital. With competition in the EV market becoming increasingly intense, high-quality battery manufacturing and technological maturity are fundamental to reducing the price of EVs.

Ronnie Xu
Head of Greater China

Ronnie Xu joined MSX in February 2020 as Head of Greater China. She has been working on ICT and enterprise applications in manufacturing and automotive industries for 20 years, engaging in business development, sales and operations. In her previous role as Regional Executive, Ronnie was responsible for providing dealer solutions, IT services and system integration for automotive retailers, independent aftermarkets, OEMs and dealer groups. Ronnie can be reached on **rxu@msxi.com**.

It's time to cut incentives

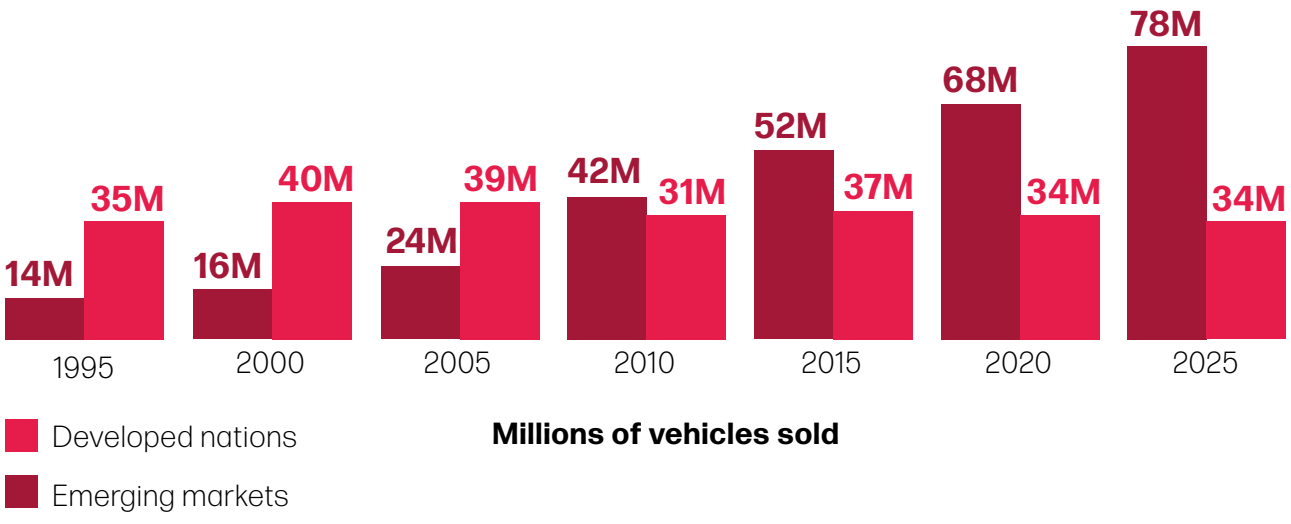
The Chinese government introduced incentives in 2010 to promote EV sales, driven by rising pollution levels and environmental concerns. These incentives were reduced in early 2016, and the government plans to eliminate them altogether in 2020 and shift support to EV manufacturers, allowing them to reduce manufacturing costs and make EVs more affordable to consumers.
However, without these government incentives, manufacturers will have to be innovative and produce more affordable technologies and vehicles that can continue to drive EV sales in China.

Battery development and technology

Until recently, manufacturers sourced batteries built in Japan or Korea to produce EVs. However, government regulations now mandate that batteries purchased for the production of EVs must be sourced in China, so Chinese manufacturers can no longer source cheaper alternatives from overseas. This presents new opportunities for local businesses to expand into the production of automotive components, including EV batteries and powertrains.

Emerging markets dominate future growth

As per-capita incomes rise, emerging markets will account for an ever-growing share of the world's new purchases.



Source: Goldman Sachs

However, because safety regulations and other standards vary across the globe, it's unlikely that these parts will make it into the export market to be shipped around the world anytime soon. Instead these parts will remain in circulation in China.

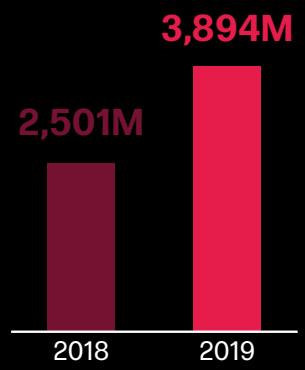
BYD, the current global leader in electric vehicle sales in China, owns complete manufacturing capability for all elements of its vehicles. The organization has built a complete product portfolio focusing on electric vehicles, battery offerings and autonomous driving technology. In doing, it has built strong collaborations with global technology organizations such as Samsung, enabling it to offer a higher level of technical maturity than other automotive manufacturers. With this technological advantage, BYD can enhance the performance of its vehicles and reduce manufacturing costs and subsequent sales prices for its customers.

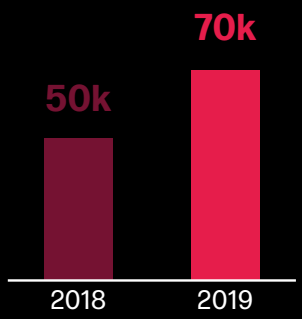
Manufacturers look for alternative revenue sources

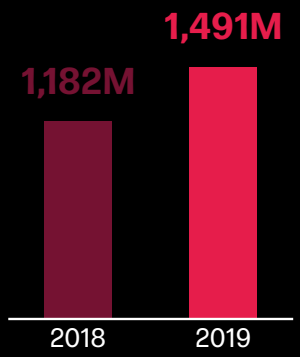
The 2017 TomTom Traffic Index revealed that 10 of the 25 most congested cities in the world were in mainland China, highlighting the need for other forms of transport. So, while manufacturers struggle to compete in the thriving EV market, many are looking to alternative mobility solutions as a source of additional revenue.

China has become the fastest-growing mobility market in the world, according to the 2017 China Internet Mobility Market Report by Analysys. With Chinese consumers leading the way in the adoption of new mobility practices,

Market outlook - China





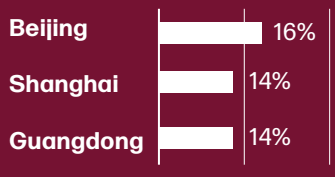


Car parc

- 56% car parc growth from 2018 to 2019
- China is the largest electric vehicle market in the world, with its EV parc being more than half of the worldwide total
- The EV parc is expected to continue to grow with China's increasing EV sales

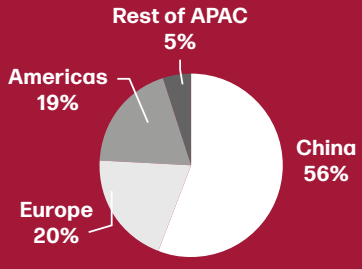
Charging stations

- 40% annual growth in fast charging stations between 2018 and 2019
- Public charging points are concentrated in the eastern cities



Sales

- 26% growth in annual sales
- China accounted for 56% of global electric vehicle sales in 2018

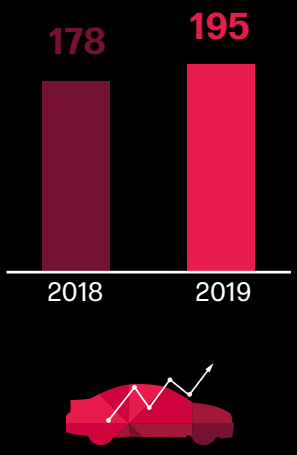


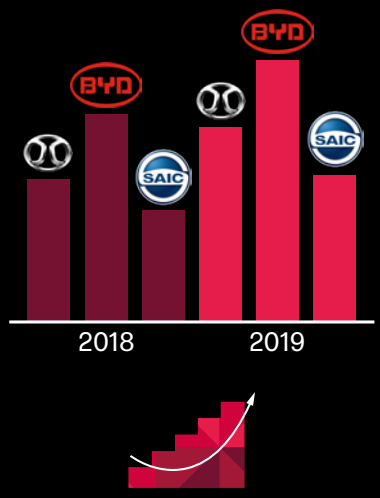
Source: Frost & Sullivan

it's no wonder organizations are looking to introduce their next mobility innovation in China and bring it to the mainstream.

Deloitte describes mobility in China as highly connected, electrified and intermodal, however the organization adds that many of these solutions work in isolation, whether they address parking, public transportation, or car sharing. So, in response to these issues around traffic congestion and isolated mobility solutions, the Chinese government plans to work with regional government bodies to create a mobility ecosystem that offers more sustainable transportation and helps reduce congestion in China.

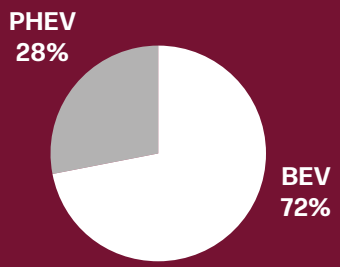
As more and more manufacturers expand their product portfolios into electric transport, and collaborate with alternative electric mobility services in China, the shape of the industry will be somewhat different than it is today.





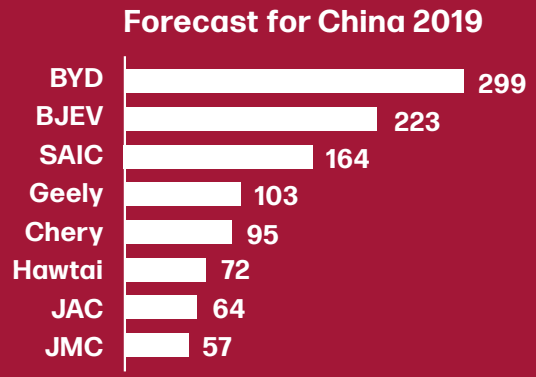
Models for sale

- 17 new models anticipated for 2019 (10%)
- The 2018 EV portfolio consisted of 128 BEVs and 50 PHEVs



Top selling brands

- BYD sold the most EVs in China in 2018 and is predicted to sell the most in 2019



New touchpoints – digitalizing the automotive customer journey

"Consumers don't differentiate between OEM and dealer web presence. More than 50% of people expect sales and service offers to be available on both dealers' and OEMs' websites."

Philip Junge, Global Director, Customer Engagement

The changes in consumer behavior and technology breakthroughs are creating a fundamental shift in the automotive customer journey. New insight from McKinsey & Co revealed that these changes are giving rise to disruptive technology-driven trends including alternative forms of mobility, autonomous driving, electrification and connectivity.

Digitalization, paired with an increasing end-customer affinity with e-commerce, has led to the emergence of new touchpoints throughout the customer lifecycle. By digitalizing their traditional business processes, OEMs and their dealer networks can engage and interact with their customers in many new ways.

As they do with most other retail experiences, consumers demand online platforms that enable product searches and comparisons, and ultimately enable them to finalize the buying decision online. Interestingly, so far the automotive industry has not adopted e-commerce to the level that other industries have achieved.

Philip Junge
Global Director, Customer Engagement

Philip Junge is responsible for creating and managing the global MSX product portfolio for customer engagement activities. He joined MSX with 15 years of customer engagement experience in the automobile industry at both OEM and dealership levels. Previously he was a lecturer of marketing at the Munich University of Applied Sciences. He was formerly Managing Director of VEACT, which he co-founded, and has published several papers on his areas of expertise. He can be reached at **pjunge@msxi-euro.com**.

Where other industries have already fully digitalized their customer journeys, automotive is lagging behind. This situation creates unique opportunities for brands to differentiate and to position themselves as digital innovators. To identify these opportunities, OEMs must look at the entire customer journey and evaluate the level of digitalization at a brand, market and dealership level.

As more and more consumers begin their buying journeys using online retail channels, manufactures and their dealer networks must integrate their online strategies to remain competitive.

Online vehicle configuration supports the initial stage of the buying process without the customer having to set foot in the dealership. However, these processes are more commonly available on brand websites than on dealers' own online channels. Similarly, customers can often only book a test drive on the dealer site but not on the OEM webpage. Brands and their dealer networks need to combine their processes to create a more unified customer experience.

By combining online and offline journeys and creating a digital customer profile, OEMs can further streamline the customer journey. Using innovative technologies such as facial recognition, dealers can continue the customer journey when the customer enters the dealership.

It is crucial to combine online and offline journeys by creating digital avatars and personas for website visitors and connecting device IPs to physical persons. Detecting these customers and connecting their online journeys can then be achieved through facial recognition in the dealerships.

MSX Customer Engagement solutions include a Digital Readiness Assessment (DRA), comprising multiple questionnaires designed to identify the status-quo of a digitalization efforts. It enables industry experts to work closely with manufacturers and their retail networks to implement digital solutions that integrate processes and data sources to significantly improve performance and satisfy customer needs.

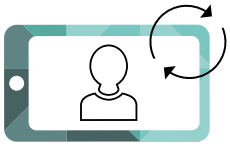
These applications are modular, meaning they can evolve into larger, more complex solutions over time. Using scalable technology, MSX applications act as building blocks, linking data and processes to create valuable new efficiencies and opportunities.

MSX has recently started to perform a wider DRA approach across 13 markets and 10 brands. The figures shown in this article represent a subset of the initial results from the German market. More detailed and holistic statistics will be published later this year.

If you require additional information regarding DRA, please don't hesitate to contact Philip Junge.

The expectations of a digital consumer

As part of MSX's DRA solution, we are collecting consumer expectations on digital processes throughout the customer journey. The information below is based on a subset of German consumers:



73%

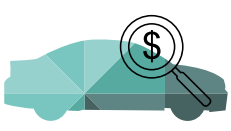
of consumers expect real-time communication (e.g. text or voice chat) to be available during working hours when they have a general question about a vehicle.

41%

of consumers expect to be able to video chat with an agent who can demonstrate a vehicle online.

95%

of consumers expect to be able to see real time availability of vehicles and make a fixed booking for a specific time slot when booking a test drive online.



60%

of consumers expect their current trade-in value to be part of their online financing calculation.

95%

of consumers expect prices for vehicle services to be displayed online.

63%

of consumers expect to have the option to pay for vehicle services online.

Source: MSX Research , MSX Customer Expectations Online Survey

*80 Respondents, Margin of Error of ± 10.9% for a 95% confidence level.

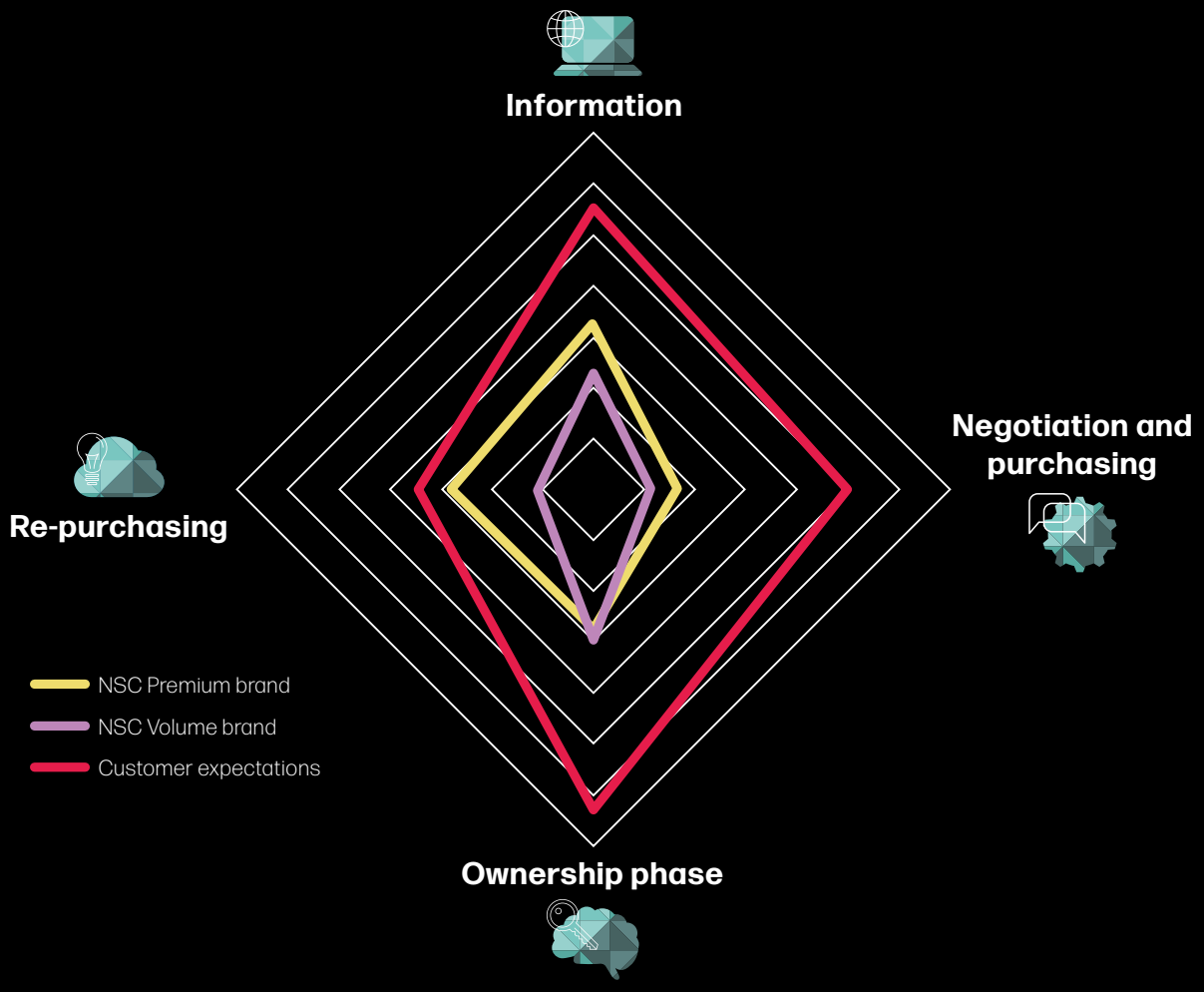
From the initial stage of configuration and financing options, through owning, servicing and repurchasing a vehicle, the processes involved must be evaluated and improved.

Manufacturers looking for to a neutral source for identifying opportunities to introduce technology and digitalize parts of the customer journey can benefit from MSX Digital Readiness Assessment. This performance analysis can help find actionable insights that support business decisions in this digital transformation.

By evaluating the current customer journey, manufacturers can gather impressive intelligence enabling them to compare their performance in one market against consumer expectations and competitors. This helps them understand which areas of the process are affecting the performance of a particular market. As

Exposing the gap between consumer expectations and reality

Following a recent study by MSX, we have exposed the gap between the digitalized customer journey for both premium and volume brands, and compared the results to customer expectations.



Source: MSX Research and Qualitative Interviews with subject matter experts.

"88% of respondents expect to be able to choose available appointments based on workshop availability when making a service appointment online."

Philip Junge, Global Director, Customer Engagement

elements of online performance depend on variables such as customer expectations, data protection regulations and other legal requirements, it's not possible to make direct comparisons between regions and countries. The calculation of global results can only be achieved by adding, not averaging, individual market scores.

It's also important for OEMs to explore whether their technical capabilities support their digitalization efforts. Being able to identify whether an OEM can connect to - or even access - the dealer management system data, can influence the requirements for an effective resolution. Real improvements can only be made if the two parties work together.

Technological advances mean drivers can now enjoy the benefits of a connected vehicle, making driving safer and less stressful. While increased connectivity has improved the overall driving experience, the vehicle now gathers, processes and generates vast amounts of data. This data is extremely valuable and can provide OEMs with insights into driver behavior and vehicle health.

Some of this data presents live opportunities for the service network of OEMs. It's crucial to benefit from these hot leads and to streamline and automate end-customer communication.

However, this connected car data is not as readily available as one might think. In many cases, cars are connected to the wrong dealership, customer information is missing, or contact data is not available. Case studies show that OEMs can achieve an uplift of up to 75% in lead conversion by integrating dealer data into the connected car process, and by applying automated communicaton processes.

By digitalizing the customer journey, manufacturers can use this data to achieve higher retail intelligence for better decision making, increased revenue and long-term customer loyalty. Manufacturers can identify additional customer touchpoints, better understand what motivates customers to defect to other brands before it happens, and find resolutions for these issues.

Is America ready for electric vehicles?

With electric vehicles (EVs) accounting for just 1.8% of the 17 million vehicles sold in the US in 2019, it seems America is adopting the transition to EV mobility at a much slower rate than other markets. A number of factors contribute to this:

Regulatory affairs – Several US states offer incentives for the purchase and operation of EVs, but the regulatory push towards electrification is still not enough to encourage a large number of consumers to make the jump.

Most US states charge drivers fuel taxes to fund infrastructure projects. To ensure EVs contribute, 26 states are also applying these fees to EV drivers. According to a study by Consumer Reports, EV fees in 11 out of the 26 states are higher than the fuel taxes that an equivalent internal combustion engine (ICE) vehicle pays every year. Another 10 states are in the process of introducing similar EV fees.

Federal bodies are not actively promoting new generation powertrains, which puts additional pressure on individual states to act. Federal tax credits of up to $7,500 per EV are made available to the first 200,000 vehicles sold by a manufacturer since 2009. This favors new players in the EV market, but manufacturers like Tesla, who have already surpassed that figure, are unable to offer this incentive to their customers. It seems unlikely that the current administration will issue an extension to these incentives.

Charging Infrastructure – The average distance driven by an individual consumer in the US is significantly higher than in Europe. Since the collapse of fuel prices in the US in 2014, it's likely that the annual mileage has grown even further. Higher mileage contributes to range anxiety

"Within a year, I hope, we shall begin the manufacture of an electric automobile. I don't like to talk about things which are a year ahead, but I am willing to tell you something of my plans."

Henry Ford, Financial Times, January 11, 1914

Andrea Sorrenti
Vice President, Americas

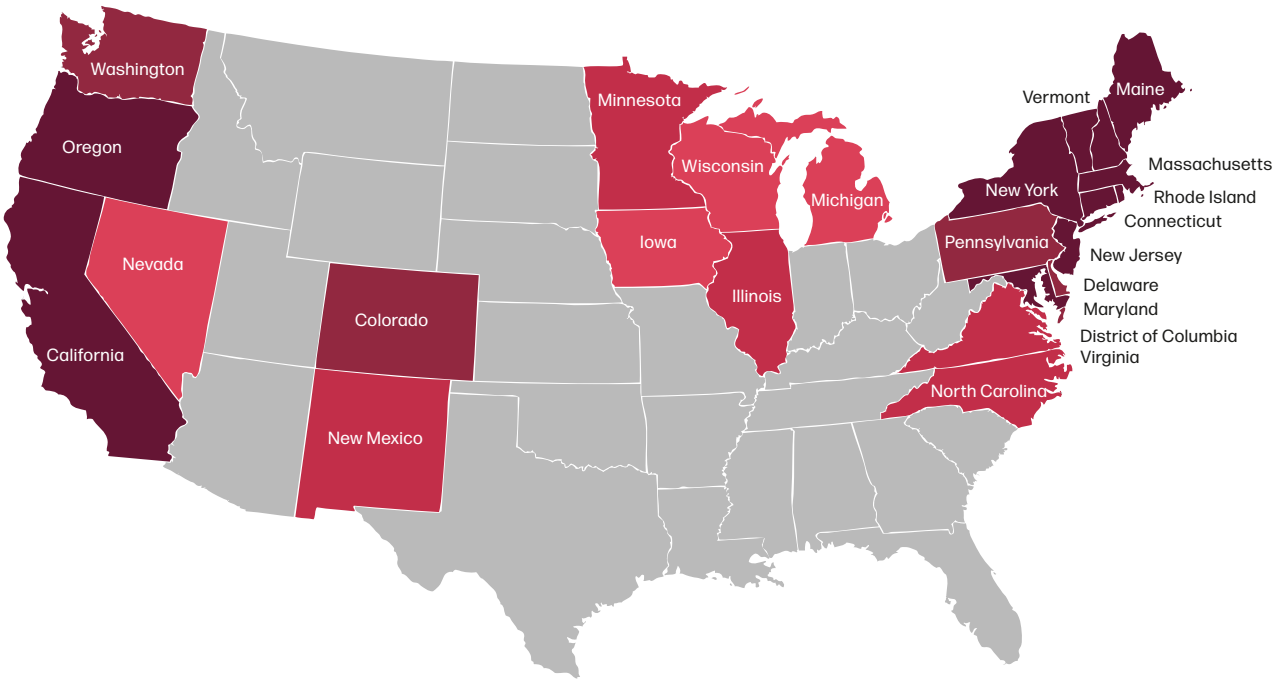
Andrea has been Vice President of Retail Network Solutions in North and South America since October 2010. In this role, Andrea is responsible for managing operations and customer relationships. Andrea is also a Global Account Executive, coordinating worldwide sales and operations for one of MSX's major customers. He can be reached at **asorrenti@msxi.com**.

and increases the importance of a fast and convenient charging infrastructure. With a number of private equity firms investing heavily in the charging infrastructure, the US is still falling behind other European markets. There are approximately 24,000 charging stations in the US, with 6,000 of those in California – a relatively small number when compared to the 170,000 throughout Europe.

The adoption of higher megawatt chargers will increase the convenience of EVs in the eyes of American consumers who will be able to charge their EV in the same amount of time it takes to re-fuel their ICE vehicle.

Convenience and consumer sentiment – Many US states have built an infrastructure favorable to drivers, for example, wide roads to reduce congestion, and free and convenient parking. Because consumers here are not as affected by traffic problems, the need for improved mobility is not considered significant.

US vehicle policy developments



Source: theicct.org/publications/state-city-clean-car-20190419

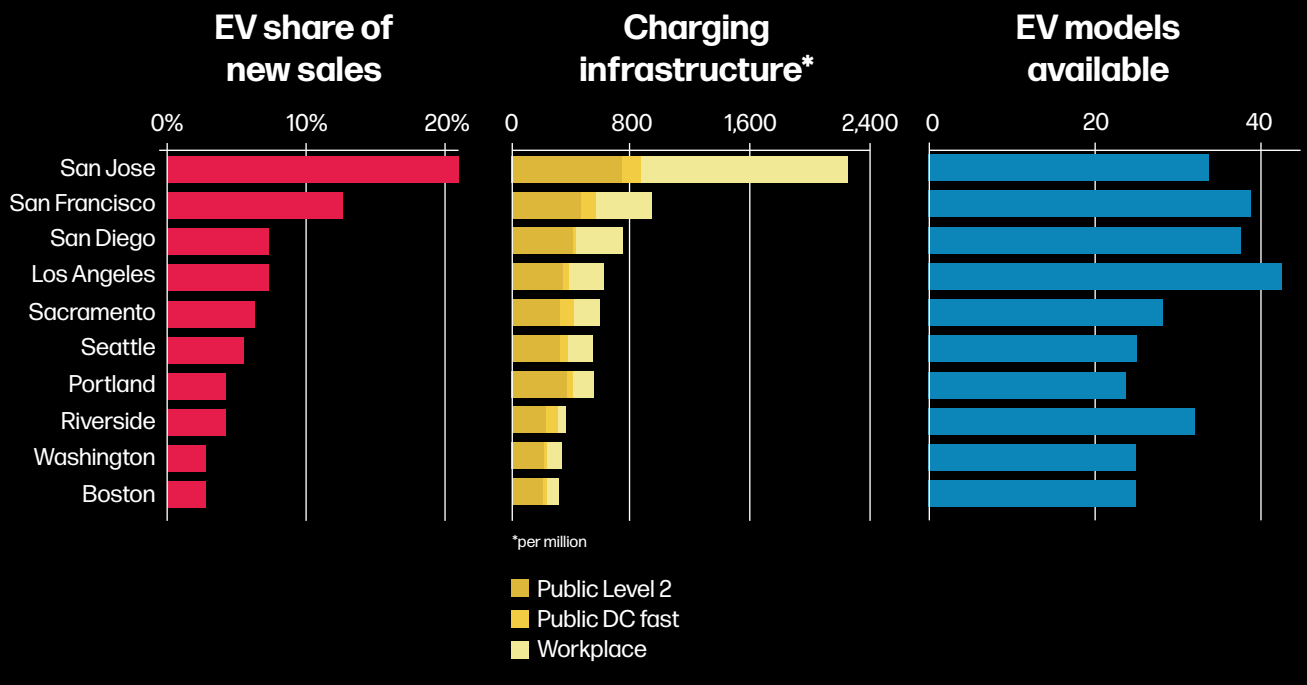
According to a study by Deloitte, only 41% of consumers in the US would consider purchasing a vehicle with an alternative powertrain. This compares to over 50% in Germany, China and Korea. In the same study, only 47% of these US consumers listed lower emissions as their primary reason to consider an EV or hybrid vehicle, suggesting that there may be less sensitivity to environmental challenges than in other areas of the world.

Free parking, priority parking spaces and access to high occupancy vehicle (HOV) lanes are used in some states to entice consumers to consider the transition to EV ownership. These measures have proven to be successful, allowing drivers to save a significant amount of time on their daily commutes in busy urban areas. The increased adoption of these conveniences could influence the choice of more consumers in the future.

Operating cost – Local fuel prices have a direct impact on the perceived cost advantage of EVs when compared to ICE vehicles. The average cost per gallon of fuel in the US is approximately $3, while in countries like Norway, which has the highest penetration of EVs, the cost is over $7. In Norway, driving 10,000 miles per year in an ICE vehicle can cost $2,000 more in fuel than in the US. Consequently, in the US, the lower operating costs of owning an EV may not be enough to offset the higher cost of buying the vehicle.

US electric vehicle sales: Underlying factors

Most EV sales are in markets with policy, incentives, charging, local action.



Source: theicct.org/publications/continued-EV-transition-us-cities-2018

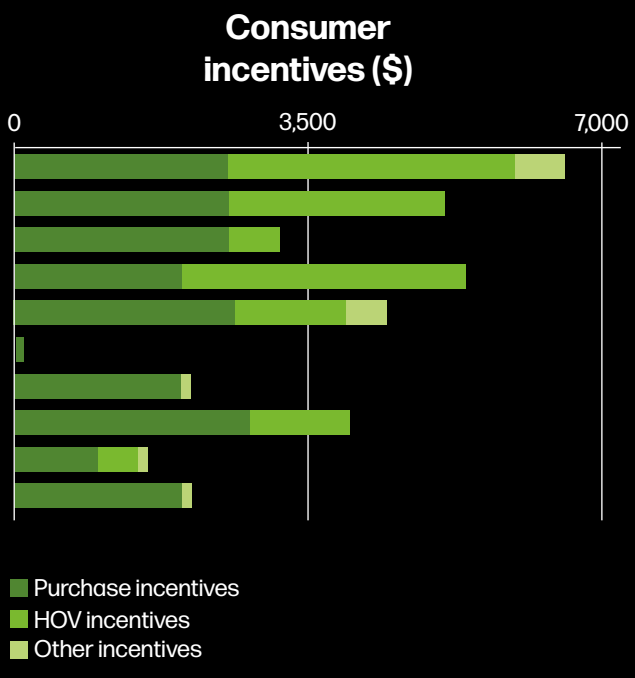
The effects of EVs on US sales and aftersales

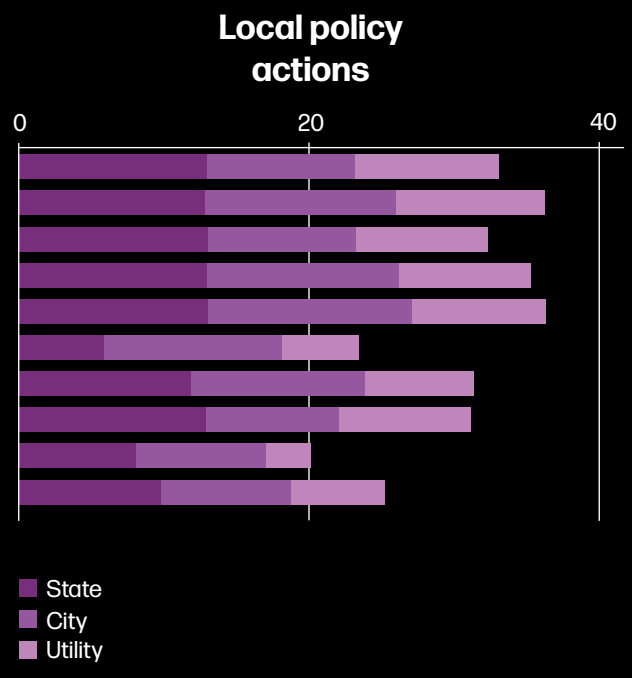
The regulatory environment, different customer needs and reduced advantages in operating costs are some of the key factors contributing to the slower adoption of EVs in North America. Despite these challenges, the penetration of vehicles with new powertrains is growing. Changes to any of these factors could contribute to a rapid acceleration in the adoption of EVs.

As volumes grow, dealers and OEMs must be prepared to align their business models to the new technology and to the changing needs of consumers.

EVs are significantly less complex than traditional ICE vehicles from a mechanical standpoint. Less complexity means fewer moving parts that can break or require replacement, consequently reducing service needs significantly. North America is no different to other markets in that OEMs and their dealer networks rely heavily on the profits of their parts and service sales. They too will have to adapt their business models to refocus on the advantages of the new technology. But connected vehicles will offer dealers the opportunity to better understand the needs of their customers, and branch out into mobility related services such as charging, car sharing and rentals.

In the meantime, while new EV manufacturers explore direct-to-consumer sales models, traditional OEMs can gain competitive advantage from their existing dealer networks which continue to provide a strong local presence.





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