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218 - EV Legislation & Incentives Guide

The EV Legislation & Incentives Guide provides indepth analysis of how and where legislation is impacting electrification in the automotive industry. It aims to help OEMs and lawmakers understand the regulations and incentives surrounding EVs today, as well as the legislation being worked towards by governments in different regions. The guide is released guarterly to provide the latest updates and offers an accompanying Excel version featuring deep, data-driven, analysis.



Optimizing the EV User Journey

Electric Vehicle

EV

Through the era of conventional ICE cars, the user journey and their role in the vehicle lifecycle has largely remained the same – as has the understanding that the user experience of the vehicle involves much more than the journeys it will take. As governments around the world begin enacting their zero-emissions targets and legislation, with many banning combustion vehicles, EV uptake has subsequently grown as a result.

EVs can, however, pose several unique challenges for both consumer and automaker, especially in the planning and execution of the EV user journey when compared to the ICE user journey. These issues can arise first when the customer considers buying or leasing an EV, though, if unchecked, can continue and become exacerbated further along the lifecycle.

In the Optimizing the EV User Journey report, our experts highlight the best practices OEMs have implemented to support new and prospective EV customers. In addition to recommending solutions that mutually benefit the OEM and consumer, the report outlines how automakers can leverage partnerships to strengthen customer journeys. It likewise profiles the most valuable in-vehicle and in-app features for EV drivers around the world.

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ANNUALLY

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PAGES



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Key questions answered

- > What issues affect new EV drivers the most?
- > What solutions can automakers implement to improve the transition to an electric driving experience?
- How can automakers partner with charging networks to improve the customer journey?
- > What in-vehicle and in-app features are most valuable to EV drivers?

This research supports









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July 2023 Optimizing the EV user journey

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- Dealership experience
- OEM education and tools
- Discounted charging periods

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Introduction

Introduction

Globally, the EV market is rapidly growing as the benefits of EV ownership realised in conjunction with government incentives. Despite this growth, there are key challenges before the purchase process, during the life of the vehicle and at the end of the vehicle life that should be optimized to encourage adoption and improve satisfaction of consumers.

Consumers receive information on EVs from sources of mixed quality and bias. There are also many barriers and motivators, some of which are true and other misconceptions. These misconceptions must be tackled through tools education which can help consumers realise the benefits and understand the realities of EV ownership. Furthermore, these same methods can be used to promote the benefits of EV ownership.

During ownership, pain points surrounding range anxiety and charging are the most significant challenges in the EV user experience.

In this report, key outcomes from SBD's 2023 global EV survey are highlighted. Over 1,600 consumers from critical global markets took part in the survey. The factors involved in the purchase decision, purchase process, EV use and environmental concerns, as highlighted by the survey, are explored.

By adopting best-practices, the industry can optimize the EV user journey to create a positive feedback loop where market uptake accelerates, leading to reduced costs and prices.

Section	Content
Barriers to EV adoption	What are the key barriers to EV adoption for EV owners and EV considerers?
Motivators to EV adoption	What are the key motivators to EV adoption for EV owners and EV considerers?
Personas	How do the barriers and motivators change between different consumer segments?
Purchase process	What is the dealership experience like for consumers buying EVs?
Daily life of EV ownership	How do owners of EVs use and charge their vehicles? And what are the pain points with EV ownership?
Companion app experience	What companion app features are most useful to consumers and what is the consumer experience?
In-vehicle experience	What is the in-vehicle experience for EV drivers and what are the best practices to optimize this experience?
End of life and sustainability	What happens at the end of life of an EV and are consumers concerned? Are consumers willing to pay for green tariffs?
OEM charging solutions	What charging partnerships strategies are OEMs pursuing?
Survey methodology	How is the survey structured and what techniques were used to analyze the responses?



Example slides from the report



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The Electric Vehicle User Journey



Pre-sale

Sustainability considerations

Factors	Details	Survey
	• The main sustainability concerns with ICE vehicles are the tailpipe emissions that are produced from burning gasoline or diesel whilst running the car. Vehicles with an internal combustion engine produce tailpipe emissions which contribute to pollution which can be toxic to humans and climate change.	 According to the survey, the environmental benefits of EV ownership are the most important motivating reason for buying an EV in Europe and
	 The emissions of greatest concern are Carbon Dioxide, Carbon monoxide, Nitrogen Oxides, Sulfur Dioxide, Hydrocarbons, Benzene and particulates. 	• 20% of USA respondents and 23% of
	 The main sustainability concern with electric vehicles are those associated with producing the car. Electric vehicles require the manufacture of large lithium-ion batteries. To create the batteries, rare metals must be mine, often in environmentally unfriendly and sometimes unethical ways. 	European respondents, respectively ranked the sustainability of EVs as the most motivating reason; significantly higher than any other motivator .
Sustainahility	 The main advantage of electric vehicles is that they are very sustainable to run. Electric vehicles have the benefit of producing zero tailpipe emissions. 	 In China, only 10% of respondents indicated that environmental factors are the most motivating reason. The range of
Sustainability	 However, they are powered by electricity which may be produced using fossil fuels. Despite this, as the energy grids develops to become ever more reliant on renewable power sources, the sustainability benefit of driving an electric car will greaten 	new technologies available in an EV was the most motivating reason (14%).
	 Polestar have indicated that in the EU, the breakeven point for the carbon footprint of base Polestar 2 would be 58,000 km, compared to an ICE XC40. 	 According to the survey, respondents perceive Tesla as the leading automaker in sustainability. 31% of
	• End of life is key part of battery sustainability as batteries take a considerable amount of energy and rare metals to manufacture. In order to improve the sustainability of the electric vehicle market, battery recycling and battery reuse have become vital environmental aspects to the EV user journey. These methods can reduce the need to acquire rare earth metals.	respondents ranked Tesla as the leader, followed by BMW at 11%.
		 Furthermore, 33% of Tesla owners indicated that Tesla being more environmentally friendly than other brands was a reason for purchasing a Tesla.

Pre-sale

OEM online calculators - Volkswagen Cost of Ownership

Volkswagen offer a comprehensive online calculator for consumers to enable them to **quickly and simply identify key metrics of EV ownership** that may encourage EV adoption. The calculator enables consumers to determine these metrics based on various lifestyle factors such as annual milage, travel scenario and frequency of charging at home and in public.

The Volkswagen calculator targets some of the top concerns and barriers for EV adoption. The following key metrics are provided:

- Estimated annual costs Promoting the reduction in running costs are a great way to encourage EV adoption. In the SBD survey, 28% of respondents indicated that lower running costs are a motivating factor for buying an EV as their next vehicle. Furthermore, this was the second most motivating factor overall.
- Estimated annual CO2 emissions More consumers have indicated than the environmental benefit of selecting an EV as their next vehicle purchase as a motivator (37%) than any other factor.
- Charging frequency Battery range is the most widely reported barrier to EV adoption, indicated by 29% of respondents. Providing the charging frequency can help to mitigate fear of battery range.

New ID.3



Electricity Combined fuel consumption 15.2 kWh/62mi ³ · Electricity CO₂ emissions

Estimated costs and CO₂ emissions (whilst driving) per year

Costs diesel from

£1,068

1.92 t CO.

local CO₂ emissions diesel

(i)

(Ľ

S

combined 0 g/km 3 · Efficiency class A 3

Show technical data

Show technical data

Cost of electricity from:

£1,258

Ot CO₂ local CO₂ emissions petrol

Charging frequency Based on your driving profile: 2 x / Week

2 t CO₂

£1,360

Cost based on We Charge Plus

local CO₂ emissions electricity



Select your charging location with typical charging costs.	(i)
Reset values to default values	
I charge at home: Sometimes	
• • •	
I charge at work: Sometimes	
• • •	
I use public charging: Sometimes	
• • •	
I charge on at motorway services: Sometimes	
• • •	
Patrol and diesel prices for comparison vehicles	
Petrol: 1.43 £/I Diesel: 1.47 £/I	

1 Estimated costs are calculated based on the multiplying the price of electricity

Personas



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Consumer personas - Distribution of demographics

The latent class analysis produced three consumer segments – early adopters, mainstream and laggards. Early adopters are the most receptive to new technologies and are typically younger and make. Furthermore, early adopters in the survey were represented more by EV owners and considerers. Laggards were the least receptive to new technologies and were typically older than the other personas, were evenly balanced by gender but were heavily skewed towards EV considerers than owners. The mainstream respondents skewed to younger, male and EV owners.

A detailed explanation of latent class analysis can be found in the survey methodology section.



Barriers



Dealers as a barrier to EV ownership

There is a range of dealer experiences among EV owners, but their influence is clear to see with at least a third of EV owners claiming the dealers advised them to buy electric during an in-person visit. Furthermore, this a comparable level can be seen with virtual appointments with dealerships with 39% of respondents indicating that the dealer encouraged them to buy an EV.

- Dealerships in Europe had the most negative influence on EV adoption, with 24% encouraging buyers to buy an ICE vehicle over an EV during an in-person visit. The Chinese dealers are far less likely to push traditional ICE cars, whereas one in five US dealers are doing this and one in four European dealers.
- During virtual appointments, Chinese dealerships pushed EV ownership over ICE the most at 43% compared to 38% and 37% in USA and Europe, respectively. Dealerships in the USA most frequently dissuaded EV ownership during virtual appointments with 35% in the USA, compared to 30% and 28% in China and Europe respectively.

During SBD's own visits to dealerships, it was found that electric vehicle knowledge and promotion was very hit and miss across multiple regions in Europe and the USA. Some dealerships kept EVs separate in the showrooms to avoid confusion, whereas some had very little information on display for consumer to distinguish between ICE and EV models that were shown together.

Premium OEMs visited seemed to be consistent in their EV knowledge and sales ability towards EVs, with dealers confirming that selected salesmen are trained to be able to communicate effectively with consumers about all aspects of electric vehicles. Other OEM dealerships were the complete opposite and presented a big barrier to EV ownership, having salesmen that were unable to talk or communicate about the statistics or benefits of owning an electric vehicle over an ICE vehicle.

Experiences with dealers' advice on ICE vs BEV (in-person visit)

■ I set out to buy electric and the dealer encouraged me to buy petrol/diesel instead

I set out to buy electric and dealer did not try to encourage me to get a petrol/diesel instead

I set out to buy a petrol/diesel, but dealer encouraged me to get electric

Question from report "208 Overcoming the barriers to EV adoption" When you were looking to buy your electric vehicle did you feel the dealer may have preferred to sell you a traditional petrol/diesel car, rather than an electric car? n=516



Experiences with dealers' advice on ICE vs BEV (virtual appointment with dealer)

- I set out to buy an EV and the dealer encouraged me to buy an ICE vehicle
- I set out to buy an Electric car and the dealer didn't encourage me to buy an ICE vehicle
- I set out to buy an ICE vehicle, but the dealer encouraged me to get an EV

Question: When you were looking to buy your electric vehicle did you feel the dealer may have preferred to sell you a traditional petrol/diesel car, rather than an electric car? n=132



Over 50% use companion apps to search for charging stations

In general views are similar across respondents with vehicle navigation systems being the preferred choice for route planning and charging station searches. The OEM companion app is the next most used tool.

Region viewpoints are similar with a few notable differences:

- US respondents state they use more tools than other markets. The most used tool is the OEM's companion app
- European respondents do not use a web-based planning system often
- Chinese respondents do not use smartphone apps from charging operators as much as other tools

Frequent & always used tools by region			
Tool	USA	Europe	China
Vehicle navigation system	70%	59%	60%
Smartphone application (e.g Google Maps/Waze)	70%	55%	51%
Web-based planning system	58%	42%	51%
The smartphone app from OEM	75%	54%	50%
A smartphone app provided by a charging company	63%	48%	45%



Question: When planning your route, how often do you use the following tools to find charging stations? n=797



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Do you have any questions?

If you have any questions or feedback about this research report or SBD Automotive's consulting services, you can email us at info@sbdautomotive.com or discuss with your local account manager below.



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