

*Research Paper***The electric car charging market in Latvia: Business recommendations for new players in the market***Submitted in 04, November 2022**Accepted in 16, November 2022**Evaluated by a double-blind review system***PATRICIJA AURYLAITÈ**¹**RICARDO FONTES CORREIA**^{2*}**ABSTRACT**

Purpose: This study aims to understand the Latvian electric car owner's charging behaviour, needs, and preferences in order to develop business recommendations for new players in the market to successfully market their services in this Baltic country.

Methodology: There is very little to no research about electric car charging and electric car owner behaviour in Latvia. Hence, due to its exploratory qualities, the qualitative research method was chosen. The data collection method was selected to be semi-structured interviews conducted between 8 and 16 November 2021 with 10 electric car owners in Latvia. Content analysis was applied to extract and organize the interview's main insights.

Results: The research gave diverse insights about Latvian electric car owners, their charging behaviour, needs, and preferences:

- Most Latvian electric car owners bought an electric car because of the financial aspect, thus, when making such decisions, they do not only look at the short-term benefits but also assess the long-term effects.
- Electric car owners in Latvia charge their cars through a home socket, a home wallbox, or fast public chargers.
- During the research it was evident that the Latvian market is still relatively uneducated about electric car charging, which was concluded from the still-existent myths and unawareness of the risks involved with charging an EV through a home socket, as well as unawareness of the possibility to install a wallbox near an apartment building.
- Electric car owners, who did not have a charging station, said that they either did not have a possibility to install it or did not have a need for such a device. However, most of them were willing to buy a charging station in the future if they moved to a house, drove longer distances daily, or bought an electric car with a bigger battery.
- Recommendations play a huge role in the Latvian EV owners' community.

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- When it comes to choosing a specific charging station company, pricing is important for Latvian EV owners, as well as the flexibility of the company, customer-centric approach, and all-in-one service.

Research limitations: The main limitation is related to the number of interviews that were conducted: 10. Although qualitative research values more depth analysis than quantity, it could still benefit from having more respondents. The search for interviewees, as well as the interviews themselves, were made in English. Some people might have not responded just because they were not confident in their English skills for an interview. For further research, it is suggested to approach people, as well as conduct the research in a language that the respondents are most comfortable with.

Originality: The research about electric car charging and electric car owner behaviour in Latvia is nearly none or none. In fact, as far as we know this is the first study intended to characterize the electric car charging market in Latvia so this research provides an important information input to the market in Latvia.

Keywords: Electric car charging, Charging station, Latvian market, Marketing Strategy, Electronic

1. Introduction

The world is facing environmental issues which are serious as never before. One of them is climate change, and the transportation sector is one of the biggest contributors to this threatening problem. The European Union seeks to have zero greenhouse gas emissions by 2050 (European Commission, 2016) and is putting pressure on the Member States to develop a network of environmentally friendly transportation. Strict actions towards developing a wide network of green transportation, are being made by the EU and electricity-powered vehicles are on the table. Together with the rapidly increasing number of electric vehicles, charging solutions are needed.

Market penetration for electric vehicles in Latvia is still very slow - only 1,5 percent of Latvians who bought a car in 2021 chose to buy an electric vehicle (eng.lsm.lv, 2021). In 2013 there were only 10 EVs registered in Latvia, in 2014 – 15 Evs, and in 2015 – 188 electric vehicles (Barisa et al., 2016).

According to Amsterdam Roundtable Foundation and a global management consulting firm McKinsey (2014), 80 percent of all EV charging takes place at home while the market is still relatively new, and the public charging infrastructure is not yet built up densely. Therefore, at least 8 in 10 electric car purchasers in Latvia will also buy a charging station, unless they will choose to charge their car directly from a household socket which is highly not recommended.

In August 2021, the Latvian Ministry of Environmental Protection and Regional Development (2021) announced subsidies of up to 5500 euros for electric cars. New electric cars can be subsidized with 4500 euros, whereas the cost of used electric cars and plug-in hybrids will be covered by 2250 euros (ibid.). Electric car buyers in Latvia can

increase their subsidy by 1000 euros if they scrap their old car (ibid.). This subsidy will be available from the beginning of 2022 and will encourage people to purchase electric cars, especially those who already considered buying an electric car.

Considering the lack of knowledge about this new and rising market of EV in Latvia, this study intends to increase the knowledge about Latvian electric car owners' charging behaviour, needs, and preferences in order to suggest business recommendations for new players in the market. This knowledge might be useful not only for the companies but also for the country authorities in order to comprehend and support the electric charging market. Since the study assumes an innovative character, being among the first to explore electric car charging behaviour, an exploratory method was selected as the more appropriate for its guidance.

The paper is structured as follows. Section 2 outlines the literature review exploring the main concepts that will be addressed in the research. After that, the main methodological decisions are presented in Chapter 3. The fourth section is devoted to the presentation of the research main results. Section 5 presents the discussion followed by section 6 where recommendations for new players in the market are suggested. The paper ends with section 7 dedicated to the study's limitations and suggestions for further research.

2. Literature Review

From a marketing standpoint, electric cars satisfy the same needs as conventional cars – they help a person travel from point A to point B. However, they should be seen as a new market rather than the development of an established product (Cherubini et al., 2015).

2.1. Electric car buyers' characteristics

In 2015, Cherubini et al., distinguished two groups of electric car purchasers, one being high-spending individuals who view electric cars as status symbols, and another – customers who exhibit environmental consciousness but are also concerned with minimizing operating expenses.

To better understand the potential electric car chargers' purchasers, it is important to dive into the reasons why they bought an electric car in the first place. One of the reasons which were evident in many researches was economic factors i.e. savings in fuelling costs (Azadfar et al., 2015, Plenter et al., 2018; Hardman et al., 2018). Furthermore, the important reasons behind such purchases were comfort and the environment (Skippon & Garwood, 2011). However, according to Plenter et al., (2018) practical EV characteristics such as fuelling costs, charging time, and driving range were far more important than emission reduction for EV drivers.

On the other hand, there are still quite a few reasons why some people are not yet deciding to switch to an electric car. Many studies show that low driving range (Azadfar et al., 2015), coupled with relatively high prices of these cars and poor public charging infrastructure are the main reasons why consumers are hesitant to buy an electric car (Skippon & Garwood, 2011; Azadfar et al., 2015; Plenter et al., 2018). Furthermore,

according to several studies, one of the biggest obstacles to buying an electric car is the inability to charge it at home (Ajanovic and Haas, 2016).

Even though the range is one of the biggest reasons for slow electric car market penetration, research shows that for most EV users the battery range of their cars is more than enough, since most of them complete their daily commutes with a charge still left in the battery (Propfe et. al, 2011). In addition, a research made by Azadfar et al. (2015), analysing the charging and traveling behaviours of 11 EV owners in Western Australia observed that more than half of all trips completed over a period of six months were less than 5 km. Furthermore, Jakobson et al. (2016) observed several consumers' driving behaviours in Sweden when driving a traditional car (with an internal combustion engine) and driving an electric car. GPS data during the three months of research showed significantly low changes in the driving distances of the participants compared to pre-trial measurements.

2.2. Knowledge about charging

The general public's understanding and awareness of electric car charging, as well as their knowledge of charging infrastructure and potential charging options, is considerably low. Consumers who have bought an electric car or are considering buying one are the only ones with a strong knowledge of charging infrastructure (Hardman et al., 2018).

Most electric car charging happens at home followed by charging at work, these charges were completed mostly with slow (AC) chargers (LaMonaca & Ryan, 2022). According to Plenter et al., (2018), research participants preferred charging their electric cars at home or at work because of the greater convenience and potential to utilize one's own generated renewable energy from a solar panel on the house. However, not all consumers have the possibility to install home charging. This can prevent them from buying an electric car (Hardman et al., 2018).

2.2.1. Charging patterns at home

Most charging events happen at home (Tal et. al., 2020). Most users only need to recharge their electric car every two to three days and they do that mostly overnight (Azadfar et al., 2015; Hardman et al., 2018). One of the important reasons for overnight charges is lower electricity prices during this part of the day (Azadfar et al., 2015). However, not all consumers have the possibility to install home charging which can prevent them from buying an electric car (Hardman et al., 2018). In fact, having the possibility to charge at home is one of the most important factors behind the motivation to buy electric cars (Plotz and Funke, 2017).

2.2.2. Charging at public charging stations

The least used, but still, important charging way for electric car users is public charging stations (Hardman et al., 2018). Plenter et al., (2018) argued that those who demonstrated a preference for public charging were only frequent travellers. However, in case of fast (DC) chargers being free, consumers could shift from charging at home to more frequent

DC charging (Hardman et al., 2018). When it comes to electric car charging pricing, green energy produced from renewable resources often has a positive impact on consumers' willingness to pay (Plenter et al., 2018). This gives suppliers the chance to stand out from the competition and improve their value proposition to the consumer.

3. Methodology

This study intends to increase the knowledge about Latvian electric car owners' charging behaviour, needs, and preferences in order to suggest business recommendations for new players in the market. It is very little to no research about electric car charging and electric car owner behaviour in Latvia. Hence, the qualitative research method was chosen due to its exploratory potential.

A big part of the research was devoted to understanding the charging behaviour of Latvians and the reasoning behind this behaviour. Qualitative research helps to get to the core of what influenced the research participants to make the choices they made (Kalu & Bwalya, 2017).

When it comes to data collection methods, semi-structured interviews were conducted. Qualitative research methods, specifically, semi-structured interviews, provide more freedom and flexibility than quantitative methods. There is a possibility to make additional questions if the interviewer thinks that it will add useful information to the research. Contrary to quantitative research methods, during interviews, it is likely that the researcher will get rather unexpected answers from the respondents. As a result of this, much more creative ideas can come from doing interviews and creativity is crucial to marketing.

Furthermore, since there are no predetermined answers to choose from, individual interviewee answers are more accurate. Lastly, interviews were chosen as a data collection method also due to the scope of the target audience. As mentioned before, there are slightly less than 2000 electric cars registered in Latvia, and access to EV owners is limited.

Due to the global pandemic situation, as well as the physical distance between the interviewer and interviewees, interviews were chosen to be conducted online.

3.1. Research Sample and Sampling Procedure

In order to decipher electric car charging and EV owners' behaviour in Latvia, a sample of 10 electric car owners in Latvia was selected.

The main criteria for interviewees are rather simple: (1) the interviewee must be Latvian / live in Latvia and (2) use an electric car as the main means of transportation.

Interviewees were searched in a Lithuanian electric car group on Facebook named "Elektromobilių mėgėjų klubas", Latvian electric car group "Latvijas elektroauto klubs" and with an inquiry to Kārlis Mendziņš, a passionate electric car enthusiast, who is also a CEO of "Uzlādēts.lv", as well as CEO and chairman of the Latvian division of "Eleport".

3.2. Research Instrumentation

All questions were designed to correspond with research objectives which were set in the aim and objectives section. Questions can be seen in the Table 1 below. Some questions were only directed to a specific group of people, depending on their electric car charging behaviour.

If a question was only asked a specific group of people, it has an abbreviation next to it. **[H]** means that the question was directed to people who *charge their cars through a home socket*, **[C]** – *charge with a charging station*, **[P]** – *charge with public charging stations*

Table 1. Interview questions with corresponding research objectives

Question	Research Objective
What made you choose to buy and drive an electric car?	To get to know the potential customer.
What car model do you have?	
<p>How are you mostly charging your car?</p> <p>[C] Why did you choose to install a charging station?</p> <p>[H] Why did you choose to charge your car through a home socket?</p> <p>[P] Why don't you charge your car at home?</p>	To find out if and why Latvians still charge their electric cars through a home socket and what would make them choose a home charger instead.
<p>[H] What are the advantages and disadvantages of charging an electric car through a home socket?</p>	
<p>[H] [P] What do you think about charging stations for electric cars at home?</p>	
<p>[H] [P] Do you think about buying a charging station in the future? (if answered "yes", the respondents were asked the following three questions)</p>	
<p>[H] [P] What would help you to transition to a charging station?</p>	

<p>[H] [P] If you decided to buy a charging station, where would you first search for such a device?</p>	<p>To find out a few channels which would be the most suitable to reach Latvian customers.</p>
<p>[H] [P] Would you trust a company more to install a charging station if you heard a recommendation from someone?</p> <p>[H] [P] Would you be willing to recommend a company to others, if you enjoyed its services and everything went smoothly?</p>	
<p>[H] [P] What would make you choose a certain charging station company instead of another?</p>	<p>To find out ways how to stand out from other electric car charging companies.</p> <p>To find out what is important to electric car owners in Latvia while choosing a charging station with an installation service.</p>
<p>[C] When you decided to buy a charging station, where did you look for it?</p>	<p>To find out a few channels which would be the most suitable to reach Latvian customers.</p>
<p>[C] What were the most important aspects when choosing a charging station?</p>	<p>To find out if and why Latvians still charge their electric cars through a home socket and what would make them choose a home charger instead.</p>
<p>Now that you have an electric car, do you feel like you're a part of some kind of community? Do you feel connected to others who drive electric cars?</p>	<p>To find out a few channels which would be the most suitable to reach Latvian consumers.</p>
<p>How do you spend most of your free time?</p>	<p>To find out a few channels which would be the most suitable to reach Latvian consumers.</p>
<p>Which social medias are you using the most?</p>	
<p>How old are you?</p>	<p>To get to know the potential customer.</p>
<p>What are you doing for work?</p>	

Where do you live? Flat / house / cottage?	To find out if and why Latvians still charge their electric cars through a home socket and what would make them choose a home charger instead.
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Source: Own elaboration

3.3. Data Analysis Methods

A qualitative content analysis was applied to the data from interviews. That data was compared and systematically analysed. Repeating patterns were explored, and the main ideas were summarized and studied.

4. Results

4.1. Reasons Behind Buying an Electric Car

Before exploring the respondents' charging behaviour, it was important to ask about the reasons behind buying electric cars. The respondents' reasoning gave good insights into their preferences, beliefs, and even personalities.

Financial aspect: The most popular reason behind purchasing an electric vehicle, mentioned by seven respondents, was lower "fuelling" costs. Three respondents also named maintenance costs – it is cheaper to maintain electric cars, and they do not break so much as gas-powered cars, so it minimizes costs in the long run, compared to non-electric cars.

Additional benefits: Free public parking, being able to drive a bus lane, no road taxes on electric cars – electric car owners in Latvia are enjoying all these benefits. Even six respondents mentioned these benefits as part of the motivation for why they bought electric cars.

Ecology: Five respondents mentioned ecology, environmental reasons, and minimizing CO2 footprint as part of the reason. However, for at least three of these respondents, the argument about ecology was just an additional reason next to other, possibly, more important reasons.

Technology: Interestingly, four respondents stated that probably the main reason why they bought an electric car was that they love technology. Respondent 1 said, "I love new technology and EV is all about that". Respondent 5 explained that he is into gadgets and new technology, so an electric car was like a new gadget for him.

4.2. Charging behaviour

Three respondents mentioned that having an electric car requires changing one's habits. Respondent 1 said that he plans his daily routine so that he can charge his car while doing something else. For example, he chooses a shopping mall that has a charger, so that he could buy groceries while charging his car.

Three respondents charge their electric cars through a wallbox (home charging station), three – with public charging stations (mostly fast, DC chargers), four respondents charge their EV through a domestic socket at home, and also, use public fast chargers when in need.

Two respondents who charge their cars through a home socket live in a private house. The remaining two live in flats. They both have exclusive access to an apartment building's domestic sockets. Due to the lack of length of their cars' adapters, they plug in extension cords to the sockets and charge their cars like that. Below is a respondent's nr. 3 quotes about how he charges his car:

"I have a good relationship with the owner [of the apartment building] so I'm allowed to get an extension cord from the basement and get it through a ventilation dock into the yard where I'm parking. So basically, I just need to drive up in the yard, there's an extension cord in the bushes and I just attach my adapter to it, and I charge like that. So, I don't need to do all of the shenanigans you can see when you drop down from the window a cord or something like that."

The quote above illustrates three important points about charging an EV in the apartment building: myths, access to domestic sockets, and convenience, or, rather, lack of it.

Myths: firstly, there are still a lot of myths related to charging an electric car at home when living in an apartment building. A phrase about dropping down a cord from a window to charge a car was used not only by respondent 3 but also by respondent 7, after being asked why she does not charge her car at home:

"We live in an apartment, and we would need to hang a charging cable outside the window [laughing], so that's not an option."

This is a classical myth about electric car charging when living in flats, however, electric car owners mostly do not charge their cars like this.

Access to Domestic Sockets: Respondents who live in a private house and charge their EVs through a home socket, do not have any problems with access to their domestic sockets. However, in the apartment building case, access to the domestic sockets outside of the building is limited. The quote above illustrates that the respondent nr. 3 can charge his car at home just because of his good relationship with the apartment building's owner.

However, most building owners/managers will not allow such behaviour, since it is not safe and difficult to measure the electricity used for charging the car, or it requires additional management – measuring the electricity used, monitoring, writing out bills, etc. A charging station, on the other hand, tracks how much electricity is used for charging, so the administration of electricity bills is much easier.

Convenience: Charging an electric car at home through a home socket can be inconvenient - there are usually additional steps required, especially when wanting to charge an electric car near the apartment building. The quote by respondent 3 above perfectly illustrates the additional struggle. The respondent did not see all these steps as an issue; however, some respondents were looking for an easier way to charge their cars.

4.3. Safety

After being asked about the advantages and disadvantages of charging a car through a home socket, only one respondent (respondent 1) mentioned a safety issue. He then explained that some charging adapters provided by the car producer have a heat meter trigger - if a home socket gets overloaded and heats up, it will discontinue the charging. However, when an extension cord is used, the socket might heat up, but the extension cord will not, so, even if an adapter has a heat meter trigger, it will not work – this creates a risk of an overload or even a fire.

No respondent who was charging their car through a home socket even mentioned a safety issue. There might be two reasons behind this – either safety was irrelevant for them while charging their cars, or, more realistically, they were not aware of the risks associated with charging a car through a home socket.

4.4. Speed

Charging through a home socket usually requires much more time than charging through a charging station. All respondents, who were asked about the disadvantages of charging a car through a home socket, mentioned speed as the main issue. However, respondents, who charge their cars through a home socket, tolerate the charging time because they do not drive long distances – for them, the amount of energy that charges overnight is usually enough for the following day. In case they need more battery, these respondents use public fast-charging stations.

4.5. Price

When asked about the advantages of charging a car through a home socket, the respondents accentuated price as the main point. One respondent mentioned that it is very cheap, and two respondents explained that it does not require additional investments – they just use their domestic sockets without any devices installed.

4.6. Infrastructure

Although according to the respondents, the public charging network needs some improvements, they are generally happy with the public charging infrastructure. Respondent 3 mentioned that public charging stations are mostly not occupied and are evenly distributed throughout Latvia.

While fast (DC) chargers are a convenient way to quickly charge one's electric car, constant fast charging can lead to battery degradation. Respondent 1 raised this issue in the interview and further explained that DC charging puts a lot of stress on the battery, thus, damaging lithium cells that are used in EV batteries. Other respondents, who were charging their cars through fast chargers, did not mention this issue.

4.7. Charging with a Wallbox

All three respondents, who installed a charging station at home, gave almost identical answers to the question of why they bought a wallbox. It was a matter of convenience and speed.

Charging stations (wallboxes) at home differ from other means of charging by being very convenient. Respondent 2 said that convenience was the first reason why he bought a charging station, now he does not need to take out cables to charge. Respondent 10 adds:

“When I come home, it’s just one movement [to charge a car]”. Respondent 4 simply states: “it’s very easy to charge at home with a wallbox”.

Speed is undoubtedly a big advantage of wallboxes compared to domestic sockets. Respondent 4 explained that when charging through a home socket, his car needed 20 hours to charge to 80 percent, it was simply too long for him. Respondent 2 said that sometimes, after getting home from work, he wanted to go somewhere in the evening, but he did not have enough battery and the home socket was too slow to charge the car until the departure.

Regarding the Wallbox place of purchase one respondent purchased his charging station from a charging station company together with an installation service. However, the other two respondents bought their charging stations in a used items marketplace. One respondent asked his electrician to install the charging stations. Another respondent installed the charging station by himself, however, it is important to mention that he is an entrepreneur in an EV charging company, so he most probably has knowledge about electricity. Interestingly, both respondents who bought used charging stations, had rather inexpensive electric car models.

4.8. Charging and Type of Housing

One of the most interesting findings in this research was that charging station installation and a type of housing (apartment versus a private house) was undoubtedly related. The respondents who had charging stations installed were living in private houses. However, no respondent living in a flat had a wallbox. Most respondents, who live in apartments, said that the reason behind them not having a charging station at home is simply because they live in an apartment building. The respondents did not think it was possible to have a charging station (wallbox) in/near the apartment building.

4.9. Need / Want Recognition for Charging Stations

Respondents who did not have a charging station at home (wallbox), were asked questions about their willingness to buy one and preferable features.

Firstly, the respondents were asked what they thought about wallboxes. Five out of seven respondents said that they simply do not have a need for a wallbox now. The remaining two respondents had a very positive opinion about charging stations at home. Respondent 8 brought up a point about convenience. She said that such a device provides a “great option not to spend any time on charging at all”. Respondent 1 explained why wallboxes are a great choice for EV charging from a technical point of view:

“I think that those [wallboxes] are the best which we should choose for electric vehicle charging because it will take off the stress from the battery pack and it will give longevity to the battery pack and to the vehicle as such.”

Even though five respondents did not have a need for a wallbox now, all respondents said that they would be willing to buy a charging station in the future, however, depending on some circumstances. Three respondents said they would be willing to buy a charging station when / if they move from a flat to a house. Two respondents said they would need a wallbox if they had an EV with a bigger battery. Two remaining interviewees said they would buy a charging station if they started driving longer distances.

Respondents gave various answers when asked about the important features of a charging station. The most mentioned feature was the price, others were performance, brand name, trustability, and robustness. The features highly depend on a specific person's needs and preferences. Interviewees were also asked what would make them choose a certain charging station company instead of another. Interviewees mentioned pricing, recommendations, flexibility, and a customer-centric approach. Respondent 1 also pointed out that he would choose a company with all-in-one service:

"I would love to have it like a one-stop-shop, meaning that I approach one company, they provide me with the charger, they also install it, they maintain it, and if something happens - warranty or whatever."

4.10. Potential Marketing Channels

After getting to know the respondents' willingness to buy a charging station, it was important to determine some marketing channels that would fit best with the potential customers.

The respondents were asked what questions they had about EV charging when they bought an electric car. Some of the questions were:

- How do I charge an electric car?
- What do I need to charge it?
- Where can I charge it?
- How long does it take to charge it?
- Can I charge my car at home?

If a respondent was considering buying a charging station in the future, he/she was asked where he/she would search for it. Three respondents would search on Google / the Internet, two respondents would ask a car dealer, and three respondents would search for a charging station in "Uzlādēts.lv".

Seven respondents (all males) read a lot about EVs and EV charging industry, whereas three of them (all females) – did not much. The places where respondents mostly search for the news include Facebook, Youtube channels, and specialized websites, such as "Elektrek", "Inside EVs", "Uzlādēts.lv". Among many topics about the industry that interest the respondents, mostly mentioned were: battery technologies, new EV models, and general trends.

The respondents mostly used social media is Facebook (nine mentions). The less-mentioned social medias were Instagram (four mentions), LinkedIn (three mentions), and Twitter (two mentions).

Most respondents, when asked if they would trust a company to install a charging station if they got a recommendation from someone, answered very positively – "definitely", "sure". Respondent 1 determined that "a recommendation in the EV environment plays the main role". Respondent 9 answered: "of course, I always read the reviews". What is more, the only respondent who installed a charging station through a company that specializes in charging stations was led to this company by a recommendation.

When asked if they would be willing to recommend a company to others, if they enjoyed its' services, all respondents answered very positively.

The answers to the question “Now that you have an electric car, do you feel like you're a part of some kind of community?” were very mixed. Four people agreed that they felt there was an electric car owners' community. Three people felt that only to some amount - respondent 3 said: “you have a lot to talk about, but I wouldn't say I'm there for the community”. Three respondents did not feel like they were a part of the community. Respondent 5 mentioned that electric car owners have quite a good online community.

5. Discussion and Conclusion

The number of electric cars in Latvia is increasing, and together with it, a need for EV charging solutions. The tendency will continue going upwards because of European Union's efforts towards becoming a carbon-neutral continent and, simultaneously, Latvia's policies to switch to electric transport.

It is very good timing for new players to enter the Latvian market while it is still relatively young and has a big potential to grow. However, according to the results of the research, not all respondents had a need for a charging station – some of them charged their cars through a home socket or with public charging stations.

To grasp a bigger chunk of the market, new players will have to contribute to creating a need to use charging stations instead of other means of charging an electric car. Until the need is created for a larger market, new players would focus on a specific part of the EV owners' market in Latvia.

The study gave an insight that some respondents were not willing to spend a big amount of money to install a charging station. When asked about the advantages of charging a car through a home socket, two respondents accentuated that it does not require additional investments. Also, one respondent mentioned that, since he was starting a freelance type of work, he wanted to pay a steady amount of money every month.

For this kind of consumer, new players in the market should offer to rent a charging station with relatively small monthly payments. This option would give all benefits associated with wallboxes but would not require a big investment. It would include a full service described above with an additional benefit for EV owners having a wallbox in the apartment building, - New players will administer all electricity bills associated with EV charging through a wallbox. The apartment building's managers will get the bills directly, thus, the EV owner, as well as the building manager will not need to worry about monitoring, calculating, and writing out bills.

The still existent myths, as well as the lack of knowledge about electric car charging, which was evident during the study, suggest that the Latvian market is still not educated enough about electric cars and EV charging.

It can be assumed that charging stations are mostly not a question of affordability for EV owners in Latvia. Usually, electric cars are quite expensive, at least, more expensive than

alternative gas-powered cars. Furthermore, most respondents from the research had well-paid jobs. Thus, charging stations would have to be a matter of convenience.

New players will have to create a need so that a larger EV owners' audience would be willing to use a charging station. A need will have to be created by educating the Latvian market that there is a better, more efficient way to charge an electric car, compared to the alternatives - home sockets and public fast-charging stations. Therefore, a big part of new players marketing efforts in Latvia should be focused on education.

During the interviews, when respondents were asked *where they would search for a charging station*, two respondents said that they would enquire about such a device at a car dealership. Moreover, people, who will buy a new electric car in Latvia will have to buy it through a dealer – this will be an inevitable step in their electric journey. This information makes car dealerships a perfect marketing channel for new players in Latvia. It was evident that recommendations play a huge role in the EV environment in Latvia. Furthermore, all respondents, who participated in the study, said they would be willing to recommend a company to others if they enjoyed its services.

6. Recommendations for New Players in the Market

Acting upon the results of the research, relevant recommendations for new players' marketing strategy can be suggested.

- The market is considerably small and young, however, has a big potential to grow. It is good timing for new players to enter the market.
- Since the electric car market is still very small in Latvia, different service packages were suggested to grasp a bigger EV owners' market.
- A charging station with an all-in-one service is suggested to target busy and relatively wealthy EV owners.
- A charging station rent with an all-in-one service was suggested to appeal to those who do not want to make big investments in electric car charging.
- To serve those, who buy a charging station for cheaper somewhere else, an installation service (only) is recommended to be included in the company's offered services in Latvia.
- New players would first have to contribute to creating the need for charging stations in the market, they should do that by educating EV owners about charging stations and their advantages compared to other means of charging an electric car.

7. Limitations and Direction for Further Research

The main limitation of this study is related to the reduced number of respondents. This was mainly due to the objective of the study and the methodology followed. The reduced number of EV Drivers in Latvia also played a role in this number. Another limitation is related to the language in which the interviews were performed. All the respondents were Latvians, but the language used was English, which could have limited their capacity to express their ideas. As further research will be interesting to know more about the

motivations of EV car owners in Latvia and to understand in more detail the role of the recommendations, as it emerged as one of the most important foundations for the charger equipment decision.

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