

FUTURE TRENDS ON ELECTRICAL VEHICLES SERVICIZATION DRIVEN BY THE DIGITAL REVOLUTION

Luís Serrano, Marcelo Gaspar, Ricardo Ribeiro & Jorge Julião

RESEARCH MOTIVATION

Servitization in the automotive industry has focused mainly on after-sales servicing to create and capture value. Conversely, car manufacturers refer to servitization as a powerful way to generate revenue by differentiating their products and improving customer loyalty based on after-sales services (Genzlinger et al., 2020; Verstrepen et al., 1999). The current transition towards a more sustainable mobility paradigm allows for discussing new and greener mobility solutions (Fernando et al., 2020). One way to improve such sustainability is by the use of Electric Vehicles (EVs) as a personal mobility system (Faria et al., 2012). Thus, the combined effect of EV mobility and the undergoing digital transformation allows foreseeing new and improved services and related business models for the automotive sector at a scale that transcends the current after-sales automotive servitization model.

The ongoing digital transformation can be considered a key trigger for new servitization business models. Given the relevance of after-sales servicing for the undergoing value proposal related to automotive servitization, alternative services have to be designed to face the impacts and challenges resulting from the undergoing transition to an electric mobility paradigm. These arise mainly because EVs require significantly less maintenance when compared with alternative internal combustion vehicles. Thus, the current digital transformation will promote new and improved servitization business models (Kohtamäki et al., 2019). Considering the relevance of servitization for the automotive sector, and addressing the opportunities that may arise from the digital transformation in the automotive industry (Llopis-Albert et al., 2021), current research focuses on identifying and discussing the future trends envisaged mainly for the EVs servitization driven by the current digital revolution.

CONTRIBUTION TO THEORY AND PRACTICE

In this research, a dedicated prospective conceptual framework is developed and presented. The proposed conceptual framework discussion and validation are supported by empirical data collected based on a dedicated exploratory survey. This survey comprised a set of semi-structured interviews carried out with representatives of manufacturers, companies and organizations that are related to the mobility of people and goods. These interviewees have tackled the main impacts and challenges they perceive and foresee related to the use of EVs and the related services towards the undergoing transition to a new electric mobility paradigm.

The main goals of the proposed framework are centred on identifying and discussing the future trends in EV servitization. According to this framework, these services are foreseen and discussed based on four main categories, namely the experience and use of EVs, their management, the servicing and their end-of-life. As a result, the main trends related to the future EV servitization driven by the digital revolution were based on a new type of after-sales servicing centred on digital connectivity and online consulting. This type of seamless connectivity allows not only for over the air software updates but also for both the user and the servicing company to monitor and process real-time data related to the actual and foreseen use of the EVs. New types of mobility, like micromobility, shared mobility and autonomous driving were also addressed. Finally, a new type of use of public transportation was addressed and discussed based on the integration of multi-modal mobility services.

KEY DISCUSSION POINTS

- Impact of the widespread use of Electric Vehicles on automotive servicing.
- Challenges and opportunities that arise from the reduced servicing needs of Electric Vehicles.
- New services related to the use and the end-of-life of Electric Vehicles.
- New type of after-sales servicing centred on digital connectivity and online consulting.
- New trends of mobility, like micromobility, shared mobility and autonomous driving.
- New type of use of public transportation based on the integration of multi-modal mobility services.

REFERENCES

- Faria, R., Moura, P., Delgado, J., & De Almeida, A. T. (2012). A sustainability assessment of electric vehicles as a personal mobility system. *Energy Conversion and Management*, *61*, 19–30.
<https://doi.org/10.1016/j.enconman.2012.02.023>
- Fernando, C., Soo, V. K., & Doolan, M. (2020). Life Cycle Assessment for Servitization: A Case Study on Current Mobility Services. *Procedia Manufacturing*, *43*, 72–79. <https://doi.org/10.1016/j.promfg.2020.02.112>
- Genzlinger, F., Zejinilovic, L., & Bustinza, O. F. (2020). Servitization in the automotive industry: How car manufacturers become mobility service providers. *Strategic Change*, *29*(2), 215–226.
<https://doi.org/10.1002/jsc.2322>
- Kohtamäki, M., Parida, V., Oghazi, P., Gebauer, H., & Baines, T. (2019). Digital servitization business models in ecosystems: A theory of the firm. *Journal of Business Research*, *104*(June), 380–392.
<https://doi.org/10.1016/j.jbusres.2019.06.027>
- Llopis-Albert, C., Rubio, F., & Valero, F. (2021). Impact of digital transformation on the automotive industry. *Technological Forecasting and Social Change*, *162*(September 2020), 120343.
<https://doi.org/10.1016/j.techfore.2020.120343>
- Verstrepen, S., Deschoolmeester, D., & Berg, R. J. (1999). Servitization in the automotive sector: creating value and competitive advantage through service after sales. *Global Production Management*, 538–545.
https://doi.org/10.1007/978-0-387-35569-6_66

AUTHOR CONTACT DETAILS

Doctor, Luís Serrano, ADAI-LAETA - Polytechnic Institute of Leiria (Portugal), Centre for Smart & Sustainability Mobility (Portugal), luis.serrano@ipleiria.pt

Doctor, Marcelo Gaspar, Polytechnic Institute of Leiria (Portugal), Centre for Smart & Sustainability Mobility (Portugal), marcelo.gaspar@ipleiria.pt

MSc candidate, Ricardo Ribeiro, Polytechnic Institute of Leiria (Portugal), 2192541@my.ipleiria.pt (e-mail institucional de aluno)

Doctor, Jorge Julião, Católica Porto Business School - Universidade Católica Portuguesa, Centre for Smart & Sustainability Mobility (Portugal), jjuliao@ucp.pt