OPTIMIZING INVESTMENTS IN EV CHARGING THROUGH DATA SHARING

How data sharing and collaborative digital solutions can improve and accelerate transport electrification and the deployment of charging infrastructure

Electrification will play a considerable part in decarbonizing transport, a sector accounting for a fifth of global carbon emissions.[1] Despite projected growth in both electric vehicles (EVs) and electric vehicle charging infrastructure (EVCI), the sector is still not on track to meet its climate targets.[2]

Data sharing and the collaborative development of digital solutions can increase predictability, allow better forecasting of infrastructure value and reduce the risk of investment in EVCI to meet the growing demand for EVs.

Findings by World Business Council for Sustainable Development (WBCSD) members show that by pooling data, companies operating charging infrastructure and fleets can **reduce emissions from EV charging by 15% and improve both grid capacity usage and capital efficiency when deploying charging points.** To reap the benefits of data sharing, businesses must agree on a common framework to identify relevant data needs, improve the quality of accessible data and solve issues of ownership and competition.

We need better charging infrastructure, faster

Large-scale EV uptake is underway. Unprecedented industry investments, carbon pricing, taxing measures and regulations on the sale and circulation of internal combustion engine vehicles create exponential growth.

By 2030, EVs are set to make up more than 55% of new vehicle production in China, Europe and North America.[3,4,5,6]

Still, current efforts are insufficient to meet the forecast demand for EVs, and the number of charging points needs to increase more than twenty-fold by 2030 compared to 2020 levels to meet the Paris Agreement climate goals. **Electrification requires more investment in infrastructure and the collaborative development of digital solutions that improve grid capacity usage and charging efficiency**.[7,8]

Applications of data sharing for the deployment of charging infrastructure

Fujitsu and Arcadis highlight two digital solutions based on data sharing that can accelerate the deployment of efficient EVCI, and how these solutions work in practice:

FUJITSU: EV FLEET CHARGING PROCESS ENERGY MIX

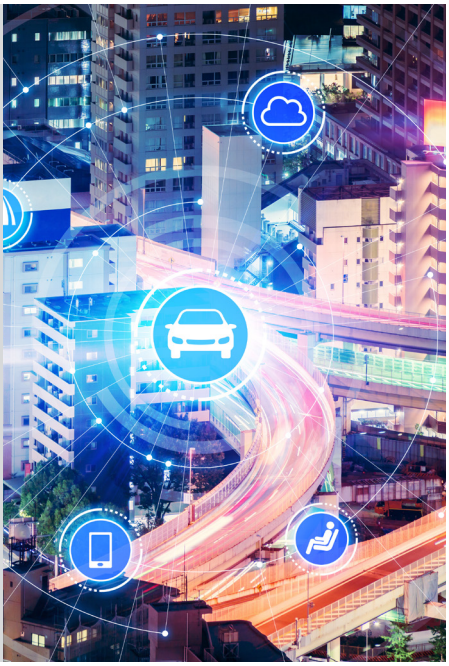
Fujitsu demonstrated by modeling scenarios on the charging process of an EV fleet that a **reduction of nearly 15% of carbon dioxide (CO_2) emissions from EV fleet charging can be achieved by simply shifting the charging schedule to align it to the lowest carbon intensity at the station.**

- In this scenario, EVCI required at depots reduces by about 85% when several vehicles can be charged at the same station in an optimal sequence, reducing the capital investment necessary for fleet decarbonization.
- Additional emissions reductions can be achieved by directing vehicles to either depot or public charging infrastructure to aim for lower carbon intensity – but this is operationally difficult and would increase the cost of charging.
- In future scenarios where it costs more to emit (e.g., under a carbon tax), reducing emissions from charging will become more economically attractive. Until then, small, incremental reductions in CO_2 emissions can be made with marginal cost increases.
- To deliver these results, Fujitsu developed a digital twin model and scenarios by combining shared data from Arcadis, National Grid, LEVL Telematics and Milk & More.

ARCADIS: BLUEPRINT FOR PLANNING EVCI

Arcadis showed how **infrastructure providers and operators can optimize their investments in EVCI through data-based and efficient planning** by using a blueprint outlining data needs, modules and key data-sharing stakeholders.[9]

- Charging infrastructure planners can derive a more precise picture of forecast EVCI needs and optimal locations for new installations from aggregating, mapping and predictive analysis of core spatial data. This data should include current and predicted EVs in circulation, charger locations, transport networks, mobility patterns or spatial and development constraints.
- All participants can benefit from more efficiency and accessibility of the charging grid at a lower level of capital expenditure.
- Sharing data held by different stakeholders (fleet operators, infrastructure and utility providers, governments, open data sources, etc.) according to the highest standards of quality and integration is a key enabler for efficiently planning EVCI, as data is currently scattered and a lack of standards for measurement hinders quality and aggregation.



Businesses can foster data sharing for transport decarbonization

Data reaches its highest potential when it is combined with other data. Data sharing can unlock new insights, reduce costs and facilitate charging infrastructure deployment. It can promote innovation and foster competition. A coalition for data sharing could help harmonize data standards, facilitate aggregation and lower the cost of data collection and storage.[10] Businesses in transport decarbonization must join forces to:

1. **Identify mutually beneficial opportunities** to unlock through new digital solutions, such as charging infrastructure optimization.
2. **Set a common data sharing framework** defining the parameters of data sharing, including data ownership and standards for security, privacy and ethical use; and **establish an operational model** detailing what data is collected, how, at what scale, how long it is stored, and for what purpose it is used to maximize value
3. **Advocate for the right policy environment** to standardize data sharing while safeguarding business value and competition.

What's next

WBCSD's Transport Decarbonization project mobilizes companies for an inclusive and safe transition to zero emission vehicles. 13 of our member companies are building a data sharing coalition to bolster new digital solutions pushing decarbonization in the transport sector. If you want to join or learn more about our work, please contact Thomas Deloison, Director, Mobility (deloison@wbcsd.org).

Read our report on Policymaking for data sharing or consult our website.

Acknowledgments

Contributors: Arcadis, Fujitsu, National Grid, LEVL Telematics, Milk & More.
Coordination: WBCSD

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