



A perspective on (premium) charging hubs

A next-level charging experience for EV-drivers

What exactly is a charging hub?



Definition of charging hub

- › **Charging Hubs** are designated areas that provide multiple **EV charging stations**.
- › These hubs may incorporate **supplementary technical installations**, such as **stationary batteries** or **photovoltaic systems**, in addition to the conventional charging infrastructure.
- › Furthermore, they can offer **various amenities** such as restroom facilities, comfortable waiting lounges, and food and beverage services.
- › Charging Hubs can be **strategically positioned** in urban centres or along high-traffic routes, similar to rest stops commonly found on highways.

Main & potential Players



OEMs

e.g. Audi (see above) and Tesla (see right) already planning and building charging hubs



New Entrants

e.g. “The Stack Charge” plans future EV charging hubs in the US



Service Station and (Charging) Infrastructure Providers

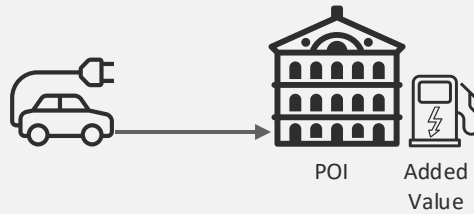
e.g. Autogrill, ASFINAG, ENBW, ...



Why is charging at a charging hub different?

Classic charging infrastructure approach

If not at home or at work, EV-users **primarily visit their point of interest (POI)** such as a mall or restaurant, and **then choose to charge their EVs** if a charging station is available. (opportunistic charging)



EV chargers are spread across various points of interest and installed at home and workplaces



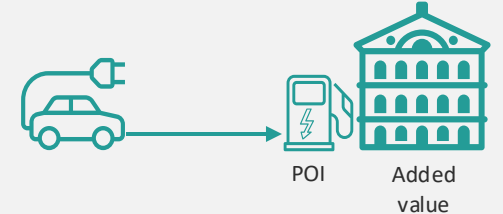
Drivers can charge their EVs while doing activities they had planned at the destination



Charging stations at popular destinations can attract more EV users to visit and spend time there

Charging hub approach

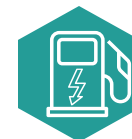
EV-users **proactively drive to a dedicated charging hub** to charge their vehicles, **where different amenities and services are provided** by the hub. (planned charging)



Strategically placed charging hubs at advantageous locations (e.g. grid availability, high traffic, ...)



Drivers charge their vehicles and use their waiting time for productive or sensible things



Amenities and offerings at busy charging hubs can see high demand due to multiple EV drivers visiting

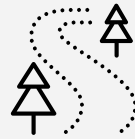
What is the benefit and use cases of charging hubs?

Two main use cases and customer groups are relevant



(Urban) charging for EV-drivers **without fixed charging opportunities** (e.g. home, workplace charging, or various POI* charging locations)

*POI: Point of Interest



In between charging for EV-drivers on **long distance trips** (e.g. on highways)

Benefits and value for both customers and business are delivered

Customer perspective

- Waiting time during charging can be used for something useful and overall, more convenient experience
- New charging opportunities are created at useful locations

Business perspective

- Higher customer satisfaction for EV-drivers
- Opportunity for additional revenue streams
- Possibility to offer reduced charging power (e.g. for grid stability) as time can be used usefully

Facts & Figures

44%

Of EV-drivers don't have the opportunity to charge at home¹

50%

Of business EV drivers receive employer-provided charge cards¹

20 – 40min

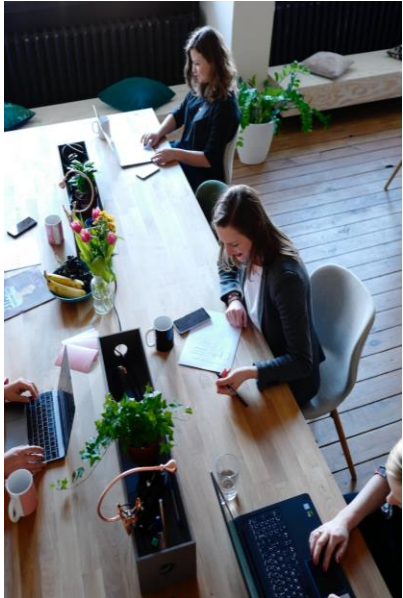
Is the average duration of DC- fast charging²

4

Weeks are required to build a charging hub with lounge³

¹EV Driver Survey Report 2023, ²Infrastructure for charging electric cars is too sparse in the EU, ³ Audi Charging hub

What type of additional services can be offered at charging hubs?



Workspaces:
Boosting the productivity of business travellers by offering workstations

Food & Beverage:
Offering a selection of food and beverage offerings or grocery delivery options



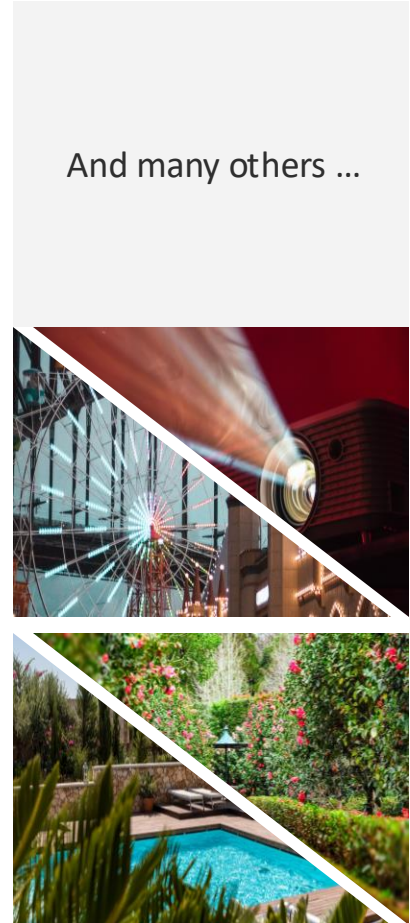
Personal Services:
Offering personal services that can be consumed during the charging time



Fitness & Wellness:
Incorporating health, fitness and wellness facilities for drivers to visit



Resting areas:
Resting lounges or powernap offerings for drivers to rest while charging



And many others ...

How to start in order to offer a premium charging experience with a charging hubs



Product Definition & Feasibility Study

- › Develop an initial target picture your charging hub (amenities, location, size, ...)
- › Develop personas and customer journeys to better understand your potential clients
- › Identify necessary partners for the realization of a charging hub



Business Model & Business Case

- › Detail your business model based on the feedback you gained in the previous step
- › Calculate the economic feasibility with a business case
- › Elaborate additional values you can deliver (e.g. customer loyalty)



Pilot Project & Partnering

- › Find a suitable location for a first pilot project
- › Partner up with service providers and other suppliers (e.g. for technology or infrastructure)
- › Secure funding or financial support for innovative charging solutions

Sounds interesting?

Let's discuss charging hubs!



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