



# EV CHARGING BUSINESS FUNDAMENTALS & ROAMING PLATFORMS

## WHAT DOES THE EV CHARGING VALUE CHAIN LOOK LIKE?



- The main roles in the EV charging ecosystem are hardware manufacturers, Charge Point Operators (CPO) (owners and/or operators of EV charging stations), software providers, mobility service providers (MSP), roaming platforms, and service/maintenance and recycling companies. Companies often combine several roles. The sector is innovating rapidly and new business models and services regularly emerge.
- The EV charging sector is part of a broader value chain, with utilities on one end and car manufacturers on the other end. Utilities, EV charging companies and EVs operate as an ecosystem with high dependencies. The success of the EV charging sector goes hand in hand with EV uptake; they are two sides of the same coin. Ensuring this ecosystem operates with fluidity is one of the top technical and commercial tasks of the sector today.
- EV charging company structures and maturities vary. There is a significant share of start-ups and scale-ups, along with larger companies that are diversifying their historical activities.

## WHAT STAGE OF DEVELOPMENT IS THE EV CHARGING SECTOR IN TODAY?



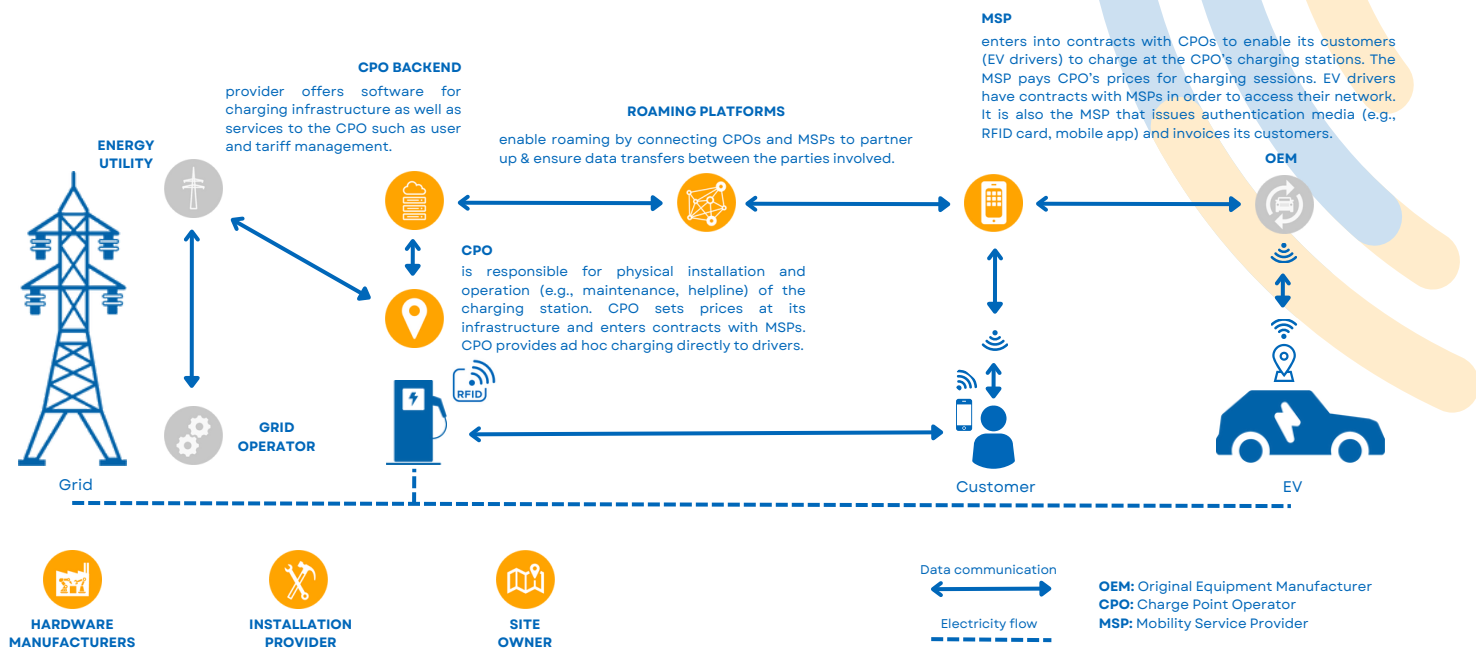
- The industry is in a period of significant growth and maturation. Companies are currently investing heavily. Investments into charging Infrastructure will grow from €5 billion in 2021 to over €15 billion in 2030. Of this, private charging infrastructure is estimated to account for 2x the investment costs of public infrastructure.

- The sector is increasingly treated as a classic infrastructure business – high initial investment with returns over a long period, increasing as EV market share increases in each Member State.
- On average, the EV charging industry in Europe will require about 15,000 new positions per year through 2030. This will lead to the creation of more than 118,000 new jobs from 2022 to 2030, i.e. a growth of approximately +270%. The sector currently experiences labour shortages across skill ranges (technical, digital etc.).
- The industry is very dynamic and standards are under development. Standards are expected to play an outside role in ensuring a seamless experience for EV drivers in coming years and to catalyse system integration along the value chain.

## WHAT ARE SOME OF THE MAIN DIFFERENCES BETWEEN CHARGING & REFUELING?



- Whereas refueling can only happen at 'petrol stations', EV charging can take place wherever there is electricity – at home, work, destinations like restaurants & shopping malls, along the highway, and for fleets, buses, and trucks, depots. In most of these use cases, users charge where they are already parked, not going somewhere specifically to recharge.
- When an electric vehicle is plugged into a charging station, communication takes place between the battery in the vehicle and the charging station. In this way, the EV charging sector integrates transport and energy by digital means.



## ROAMING PLATFORMS

- Roaming is the ability for an EV driver to recharge on multiple CPO charging networks via the single subscription provided by their MSP. It implies a technical connection between the MSP and the CPO backends, as well as commercial and legal contracts between them.
- A roaming platform is a specific operator that helps develop EV roaming by facilitating and simplifying data exchanges between MSP and CPOs. A roaming platform gathers the demand for and the offer of EV charging services. It handles technical connections and provides operators with commercial, legal and financial tools related to roaming.
- As opposed to CPOs and MSPs which are numerous, there are few players on the market, because the underlying economics of platforms and hubs is to centralise and aggregate.
- With a single connection to a roaming platform, MSPs and CPOs can manage their contractual, operational, financial and technical relations. From that one technical connection, an MSP will be able to create multiple contracts with CPOs across the world. Though each hub has its own IT protocol, some are also OCPI standard users.
- Some hubs also offer additional services such as business agreement solutions, financial and clearing services, or National Access Point compliance.
- Some technical operators offer roaming by aggregating other CPOs and/or MSPs through their backends. They set contractual conditions for their customers. Though this solution is less flexible, it requires less technical integration and operational management.