

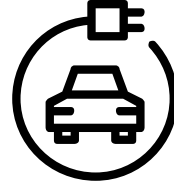
MANAGING THE CHARGING OF ELECTRICAL VEHICLES



WHO WILL OWN THE EV CHARGING CUSTOMER?



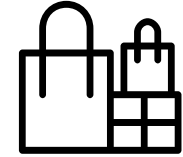
GRID COMPANIES & RETAILERS



AUTOMOTIVE OEMS



FUELS RETAILERS



LARGE SUPERMARKETS

CHALLENGES / OPPORTUNITIES

- Utilities already sell electricity to businesses and customers
- Increased demand for EV chargers at home, at work and on the go
- Increased demand for electricity on the grid

- Producing EVs but don't know how their customers use them
- Poor customer experience of charging
- Tesla have shown a new model of ongoing consumer interaction

- Customers moving away from purchasing ICE fuel
- Ultra fast chargers able to charge 75 miles in 5 mins
- Lots of real estate sites in place for ICE vehicles

- Have large car parks and existing EV charge post infrastructure
- Moves to make the industry more sustainable
- Customers are fickle with their loyalty to supermarkets

HOW MIGHT WE

- Provide energy holistically across home and car?
- Help business adjust to EVs?
- Help existing customers switch to EVs?
- Manage the grid in 2030/2050?

- Engage with our EV customers beyond sale?
- Make travel part of the client experience?

- Keep our customers as they switch from ICE?
- Leverage our existing retail sites?
- 'clean up' our brand?

- Make better use of our EV infrastructure?
- Find out more about what our customers want and need?
- Retain our customers and build loyalty?

MARKET ROLES IN THE PUBLIC CHARGING MARKET



Objective: service the **end user (EV driver)**

Qualities (amongst others):

- Billing and invoicing of charging events (indirect payment).
- Single point of contact for the EV driver.
- Authentication of drivers (RFID or other)

Objective: **Connect EMSPs and CPOs**, so EV Drivers can charge at any charge point.

Qualities (amongst others):

- Provide easy integration between CPOs and eMSPs.
- Provides open communication protocols
- Push for further standardization

Objective: operate the **charging point network**

Qualities (amongst others):

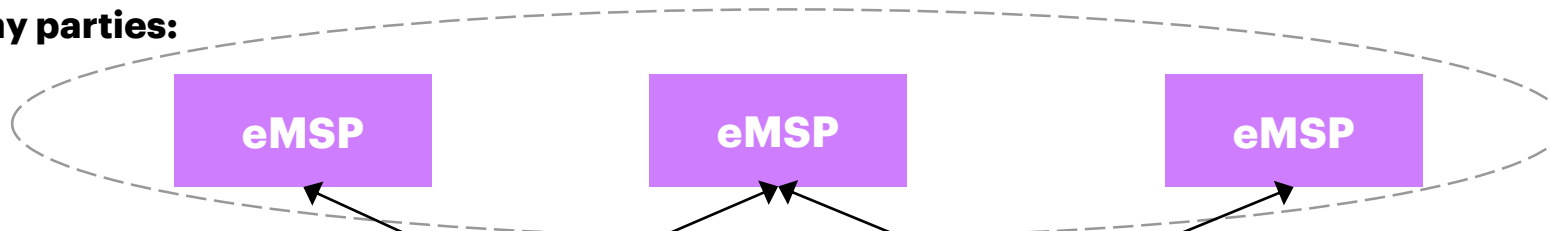
- Keeps network operational: maintenance, issue resolution for charge points.
- Commissioning & Provisioning of Charging Points
- Optional: Direct Payment



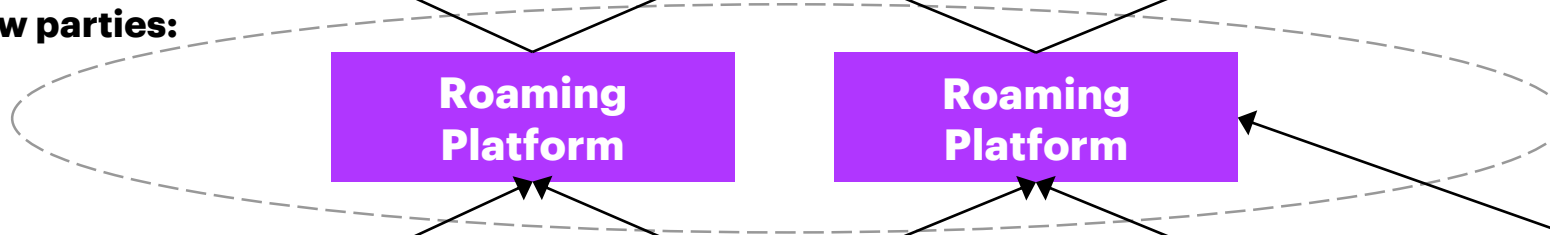
*not exhaustive

THE EUROPEAN MARKET IS FRAGMENTED

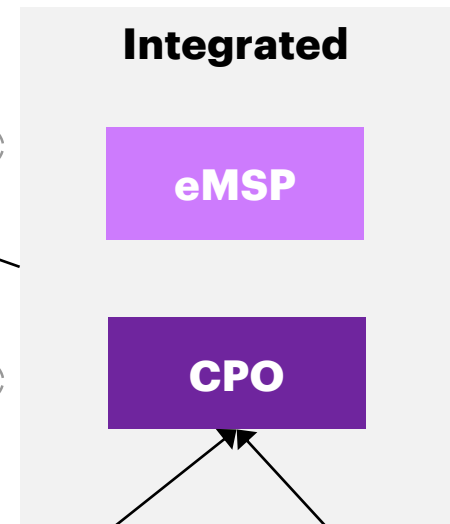
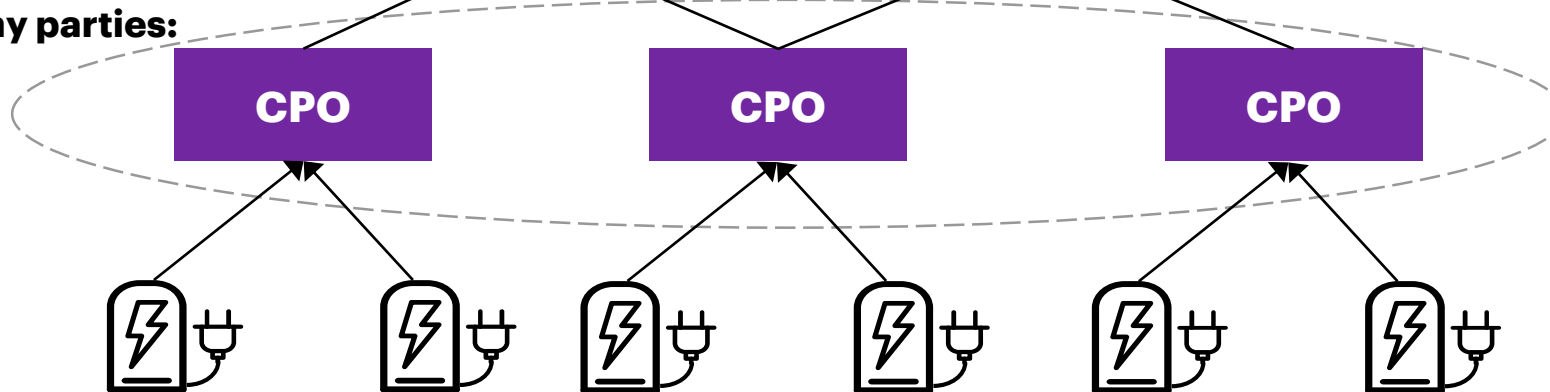
Many parties:



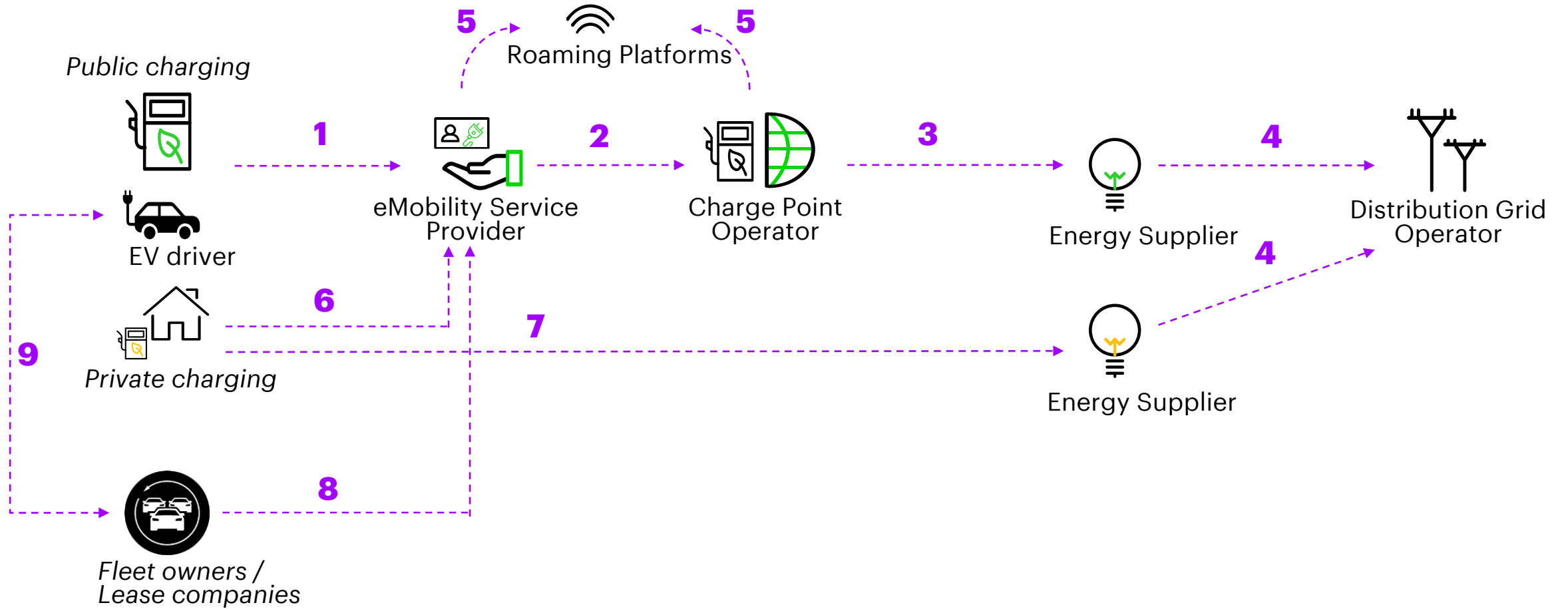
A few parties:



Many parties:



FINANCIAL FLOWS IN EV CHARGING – A COMPLEX PLAY



CAPABILITIES TO MANAGE EV CHARGING

- EMERGING SOLUTIONS

