Seminário Luso-Brasileiro “Mobilidade Elétrica”
O cliente da mobilidade elétrica

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The new mobility paradigm will be driven by a combination of emerging needs and motivations, powered by technological advancements...

**Emerging needs and motivations**

- Increasing environmental concerns and regulatory requirements
- Exploding urbanization
- Consumer preference for access over ownership
- Ageing population

**Main technology advancements**

- Digitalization
- Improved batteries
- Smart Charging
- Automated EVs
... this new paradigm will disrupt established value pools and create new ones

Europe profit pools

Examples of classic profit pools  Examples of emerging profit pools

"Classic" components  New car sales (ICE and hybrids)  Financing  Aftermarket  AV and BEV components  New car sales (BEV)  Data and connectivity  On-demand mobility

Source: BCG analysis

2017  2035 Classic  2035 Emerging
There are several business opportunities for a utility, that will significantly evolve in value as EVs grow exponentially in the streets.

**Gives access to bigger share of HH spending**

Average household expenditure (€/month)$^1$

**Increases utility relevance in client relationship**

Relative customer advocacy industry$^2$

**Boosts up/cross sell in new downstream**

Main up and cross sell opportunities

**Can be a growth engine for current/new geos.**

Mobility layers

1. Includes acquisition, maint./repair, components, excludes insurance (Portugal); 2. BCG Brand Advocacy Index

Source: ADENE, INE, BCG Utility Customer Centricity Survey, October 2015; BCG ValueScience; energuide.be; EDP;
It is critical to secure this role as quickly as possible, because the pace at which EVs are growing is accelerating.

Source: Bloomberg New Energy Finance, BP, Exxon, OPEC, IEA.
The business space created by Mobility is disputed by many, from different industries and geographies.

Source: BCG analysis
EDP has the ambition to address the mobility opportunity in a comprehensive way, entering adjacent markets and new geographies.
The general electrification trend, which extends beyond transportation, will create both challenges and opportunities for energy grids...

Power supply and grid are designed to face current demand patterns... 

Devices and power consumed in a typical residential building

- General devices (eg. TV)
- Kitchen appliances
- Lighting
- Common areas
- Electric vehicles
- Heating & cooling

...which will change dramatically due to increasing electrification

Impacts on daily load diagram (in GW)

Sources: REN - Estatística Diária (SEN, 31/01/2019), McKinsey
...and these challenges can be overcome by the increased flexibility & optimization that EVs & other decentralized solutions enable in the overall system.

At all times
- Maximize flexibility and responsiveness to minimise system cost and accommodate intermittent renewables
- Shift demand off-peak to base load generation

Midday solar peak
- Increase flexible charging to absorb excess solar

Evening peak
- Eliminate all charging to possible extent

Midnight
- Avoid spikes in power usage

Source: Decarbonization pathways - European economy, Eurelectric May 2018
EVs play a central role in the future home, becoming a central piece and enabler of “behind the meter” opportunities for companies and customers.
EDP has been positioning itself on each element of the new downstream business...

Solar energy
- Self consumption launched in 2015 with ~9k system sales until now
- Several communication campaigns and commercial innovation
- EDP re:dy for asset management

Electric mobility
- Electric mobility offer launched in 2014
- Offer comprises special tariff, wallbox and 1 year electricity offer
- Partnership with 13 car manufacturers

Distributed storage
- Technical solutions evaluation
- Lithium battery pilot tests
- Battery integration with solar energy solutions
- Commercial launch in 2016

New downstream

Home energy management
- In house development
- All home’s energy management
- Should become an automatic energy optimization tool
- EDP re:dy should require a distinct approach from the traditional one
When looking at EV market, different client segments may emerge

**Client segments**

- **Mobility users (B2C)**
  - Car users

- **Mobility operators (B2B2C)**
  - Professional fleets

- **Corporate clients (B2B)**
  - Corporate fleets
These segments face several pain points, that either prevent them to shift to electric vehicles or worsen their experience as EV owners

<table>
<thead>
<tr>
<th>Mobility users (B2C)</th>
<th>Mobility operators (B2B2C)</th>
<th>Corporate clients (B2B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;I would like to have an EV, but I'm afraid it will make my life harder.&quot;</td>
<td>&quot;I will need to charge my car everyday and I am afraid I will always have to wait too much.&quot;</td>
<td>&quot;Most of my employees need to charge their cars at peak hours, which is much more expensive.&quot;</td>
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<tr>
<td>&quot;How will I charge my car if I don't have a garage at home?&quot;</td>
<td>&quot;If I buy an EV, do I have to buy a home charger separately? How do I choose one?&quot;</td>
<td>&quot;The investment to renew my fleet to electric is too high, especially because I also need to buy chargers&quot;</td>
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Car users

Professional fleets

Corporate fleets
EDP has been working on a set of innovative solutions aiming to address different client needs across the customer journey.

### Customer Journey

<table>
<thead>
<tr>
<th>Research</th>
<th>Acquire</th>
<th>Drive</th>
<th>Charge</th>
</tr>
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<tr>
<td><strong>Smart Mobility Advisory App</strong>&lt;br&gt;• To help clients assess whether an EV is a right choice</td>
<td><strong>EV/Charging integrated offer</strong>&lt;br&gt;• To offer an integrated EV solution (vehicle + charging)</td>
<td><strong>Smart Mobility App</strong>&lt;br&gt;• To advise EV owners to optimize their consumption and charging options</td>
<td><strong>Home charging solutions</strong>&lt;br&gt;• To offer convenient charging solutions at client's home</td>
</tr>
</tbody>
</table>

- **Example**
  - **Public Charging & e-hubs**<br>  • For clients who need to charge quickly at least once a day
EDP has launched a **smart mobility advisory app** to help drivers to understand whether an electric car is a right choice for them.
This new paradigm puts customers in the driving seat of their overall energy footprint, allowing them to become active agents with real leverage in ensuring a more sustainable world.
A ENERGIA DAS PESSOAS