Office for Low Emission Vehicles

Electric Vehicle Energy Taskforce

Work Package Two:
Engaging EV users in smart charging and energy services

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Agenda

- The task and structure of Work Package Two
- Emerging Findings
- Open Questions

The task and structure of Work Package Two

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Work Package Two Task

Engaging EV users in smart charging and energy services

- Work Package 2 considers the education, enablement and engagement of EV users to participate in smart charging and aims to provide a perspective on the following:
  - How best to deliver consumer engagement with smart charging?
  - Adapting the energy system to engage EV users and the opportunities that might arise from this.

The Work Package Two leader is **Energy UK**.

The Work Package Two Sponsor is Jillian Anable from the Leeds University Institute for Transport Studies.

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Work Package Two Task

Work package two is considering the following specific questions:

1. How can the EV user be engaged to maximise the benefits and minimise the negative impact on the electricity system of the growth in EVs (e.g. through mechanisms that utilise price signals for shifting demand or procuring flexibility, including V2G) in the short, medium and longer term?
    i. What does a good end-user experience look like?
    ii. What is the most effective way of educating consumers about EV smart charging and who would be the best at doing this? How do we reduce the amount of technical knowledge needed by the consumer to participate in smart charging?
    iii. Could the ‘green credentials’ of smart charging (i.e. charging at times when more generation is from renewables) be similarly powerful to the consumer as price signals? If so, how can this be best utilised?

Work Package Two Task

Work package two is considering the following specific questions:

2. What happens if not enough EV users participate in smart charging? Should it ever be made mandatory or are there other options?
3. How much do consumers need to be protected from being locked-in to specific companies or products (e.g. do we need to require that chargepoints can switch operator companies)?
4. What are the roles and responsibilities of parties involved in the installation and operation of smart EV chargepoints and services, particularly in relation to the consumer (e.g. data breach)?

Work Package Two Task

Work package two is considering the following specific questions:

5. What are the potential benefits or disadvantages to the EV user of using the smart meter infrastructure as the communications system for smart chargers?
6. How will depot based fleets, dispersed fleets and owner operators of EVs differ in their engagement with smart charging?
7. What other consumer benefits could or should be built into smart charging? V2G would be one, but are there others?

Work Package Two Structure

Work package two is broken down into four topic areas:

A. Communicating the Benefits of Smart Charging – led by ChargePoint
   - Consumer education, promoting the benefits of smart charging, messaging, hard and soft incentives.

B. Customer Acceptance – led by Scottish and Southern Electricity Networks (SSEN)
   - The potential role and acceptability of managed charging, longer term solutions, using the smart meter infrastructure.

C. The User Experience and Customer Protection – led by Citizen's Advice
   - The user experience, roles and responsibilities, customer switching and lock-in, customer protection.

D. Engaging Fleets with Smart Charging – led by Shell
   - Fleet operators' needs and what that means for engagement, ensuring the same benefits are delivered.

Work Package Two Structure

Organisation	Type	Organisation	Type	Organisation	Type
Imperial College London	Academic	**Citizens Advice**	Customer	**UPS**	Fleet
TRL	Academic	**Which?**	Customer	**Waitrose**	Fleet
BMW UK	Auto	**Octopus Energy**	Energy	**Zenith**	Fleet
Nissan Motor GB	Auto	**OVO Energy**	Energy	**Ofgem**	Gov
RAC Foundation	Auto	**ScottishPower**	Energy	**National Grid (SO)**	Grid
Tesla	Auto	**npower**	Energy / Charge	**Scottish and Southern Electricity Networks**	Grid
ChargePoint	Charge	**Shell**	Energy / Charge	**Western Power Distribution**	Grid
Pod Point	Charge	**Auto Lex**	Fleet	**Greater London Authority**	Local Authority
Vattenfall	Charge	**British Gas**	Fleet	**ABB**	Tech
Smart Energy GB	Consultant	**BT**	Fleet	**BEAMA**	Tech
CGI	Consultany	**Royal Mail**	Fleet	**geo**	Tech

Emerging Findings

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Engaging Fleets with Smart Charging

- Fleets should be categorised by location type (depot based or dispersed) as well as by usage type (vehicle optimisation or driver optimisation).
- Communication to fleets around smart charging should be not just from commercial parties, but also industry associations and other bodies.
- There should be forward looking regulation around smart charging to encourage fleets for whom financial incentives are not enough.
- Half hourly settlement should be extended to allow all fleets to take advantage of time of use pricing.
- Local flexible demand markets should be extended to allow depot based fleets to smartly manage infrastructure upgrades.
- Technical requirements for smart charging should recognise locations outside of the single family home.

Customer Acceptance of Managed Charging

What happens if not enough EV users participate in smart charging? Should it ever be made mandatory or are there other options?

- Setting default settings can be a friendly way of making opt-out;
- Education is essential – show customers the minimal impact to them, but the benefits for them/neighbourhood/UK, etc.
- Exerting effort to engage users who will be last adopters of EVs runs risk of diminishing returns – education key once again; make principles simple enough for all to get and adopt the key messages;
- If ever to be mandated, needs to be very clear process of what steps have been taken before it is called upon – i.e. flexibility services procured/attempted to be procured, CBA carried out, reinforcement process started, etc. Governance on usage will be essential.

Communicating the Benefits of Smart Charging

How can EV users be engaged to maximise the benefits and minimise the negative impact on the electricity system which may result from the growth in the number of EVs?

Consumers are not motivated by one factor alone. They will act based on a combination of motivations, financial and non-financial incentives.

- **Price** is thought to be the most effective means of changing behaviour. The majority of late movers and mainstream consumers are expected to be financially driven.
- **Green credentials** are a motivator for early adopters but expected to be much less so for mainstream adopters. Marketing and social pressure could mainstream the nudge.
- **Social conscience** can be effective if consumers have information about the broader reasons why they are being asked to act.
- **Civic duty** has been found to be a driver for e.g. recycling, provided there is a co-ordinated and long-term awareness campaign around it and a base level of consumer understanding

Communicating the Benefits of Smart Charging

What is the most effective way of educating consumers about EV smart charging and who/which organisation should do this?

A **multi-organisation, ongoing consumer information campaign** with the government as the provider of the overarching nudge and key motivator, with the industry campaigns galvanised around it, would be the most effective way of educating consumers about smart charging. Key considerations:

- Pre-campaign education;
- The message;
- The messenger;
- Transparency and trust.

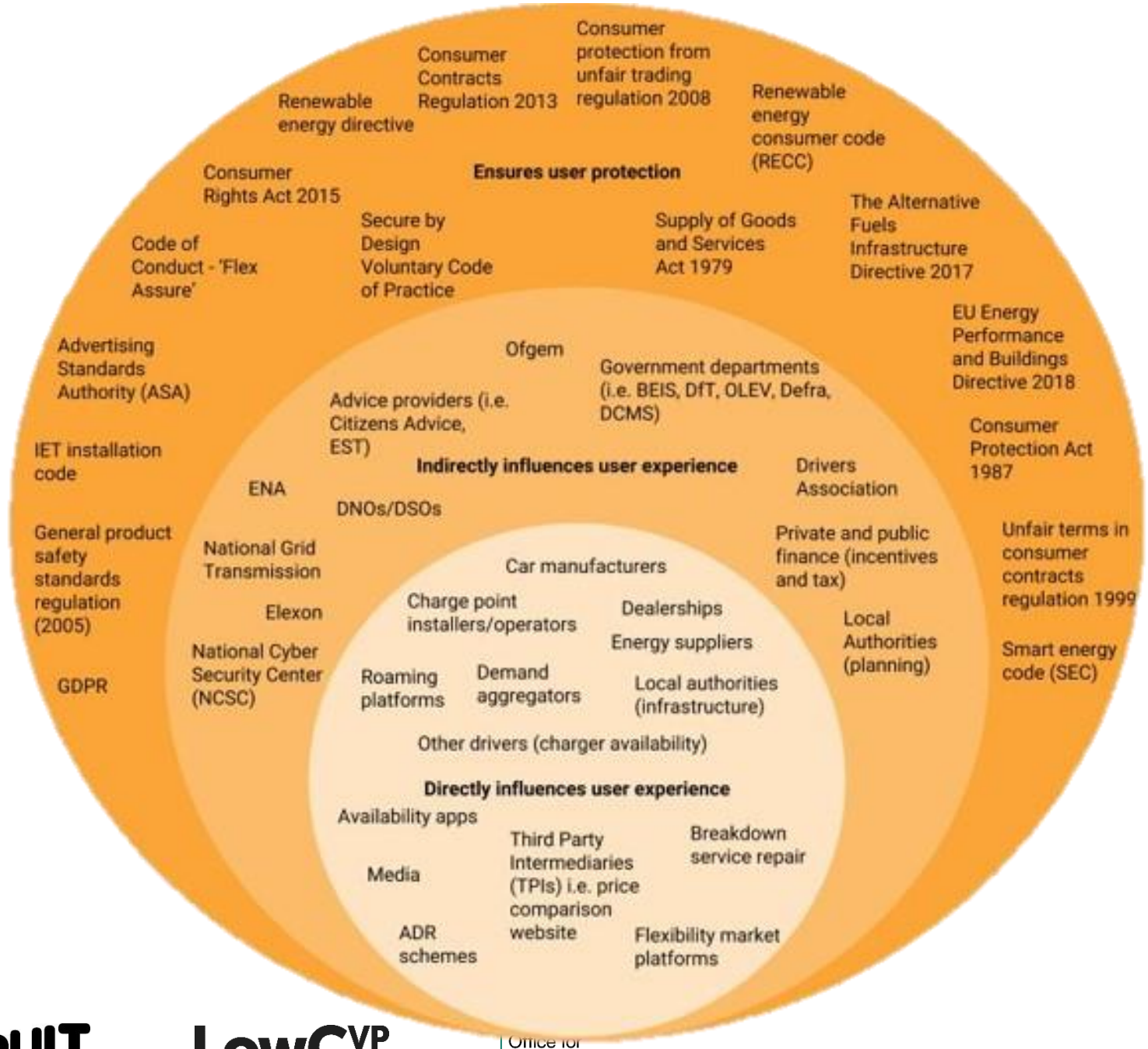
Communicating the Benefits of Smart Charging

How do we reduce the amount of technical knowledge needed by the consumer to participate in smart charging?

- **Key messages:** It is important to get right the base level of information and key message for consumers, and make the rest of the information clear, transparent and accessible to all.
- **Transparency** and availability of information is a key part of building trust between the consumer and the messenger – the energy and/or automotive industries or the government - where trust is lacking in many cases.
- **Design** – of devices. Information within devices is important to reduce the amount of technical knowledge consumers need to access; there is precedent with smart meter device design.
- **Data and privacy:** However, all parties must note that the reduction of technical knowledge does not mean reducing data privacy information, this must always be available to consumers.

USER EXPERIENCE AND CUSTOMER PROTECTION

Roles and Responsibilities



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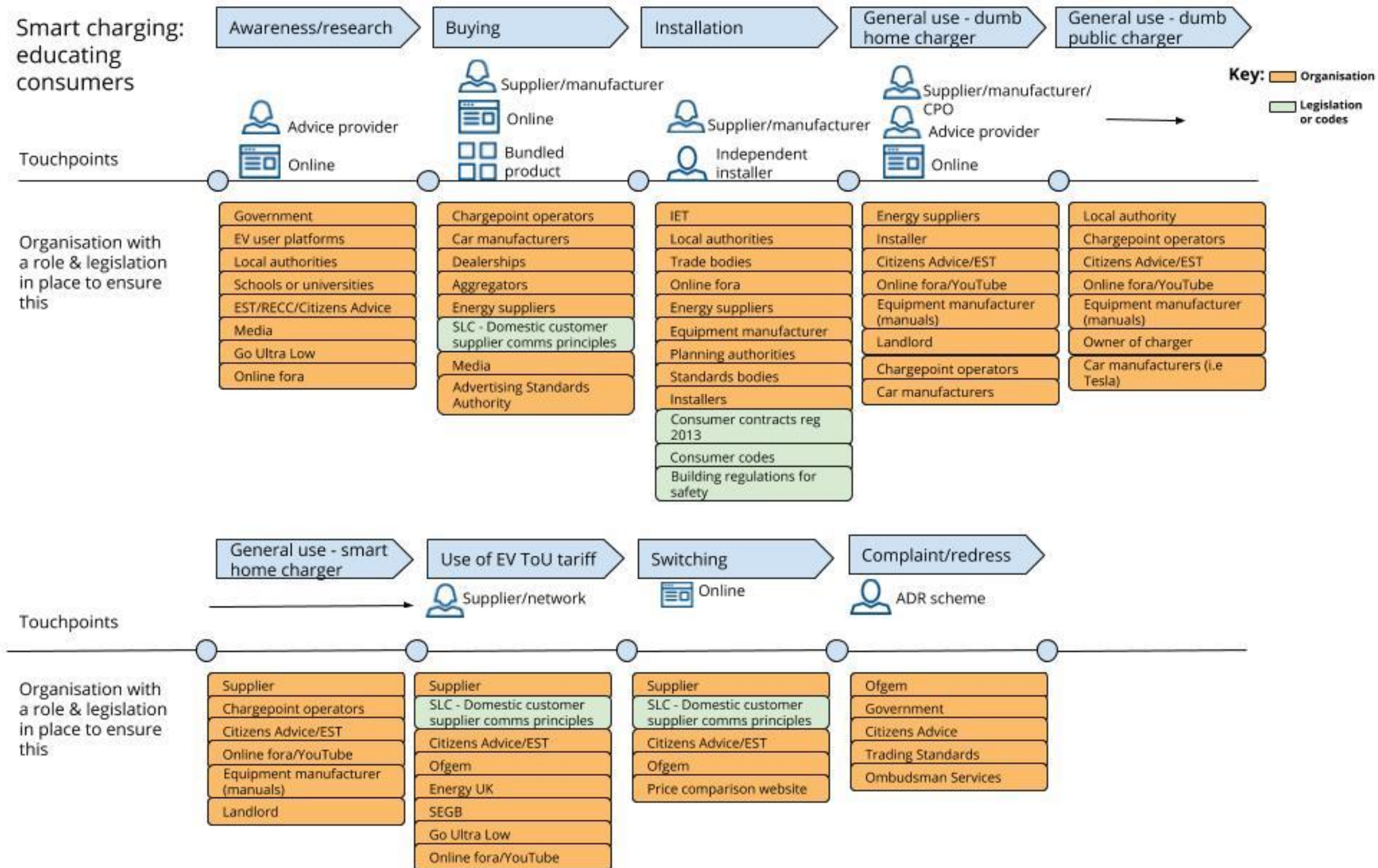
Smart charging: educating consumers



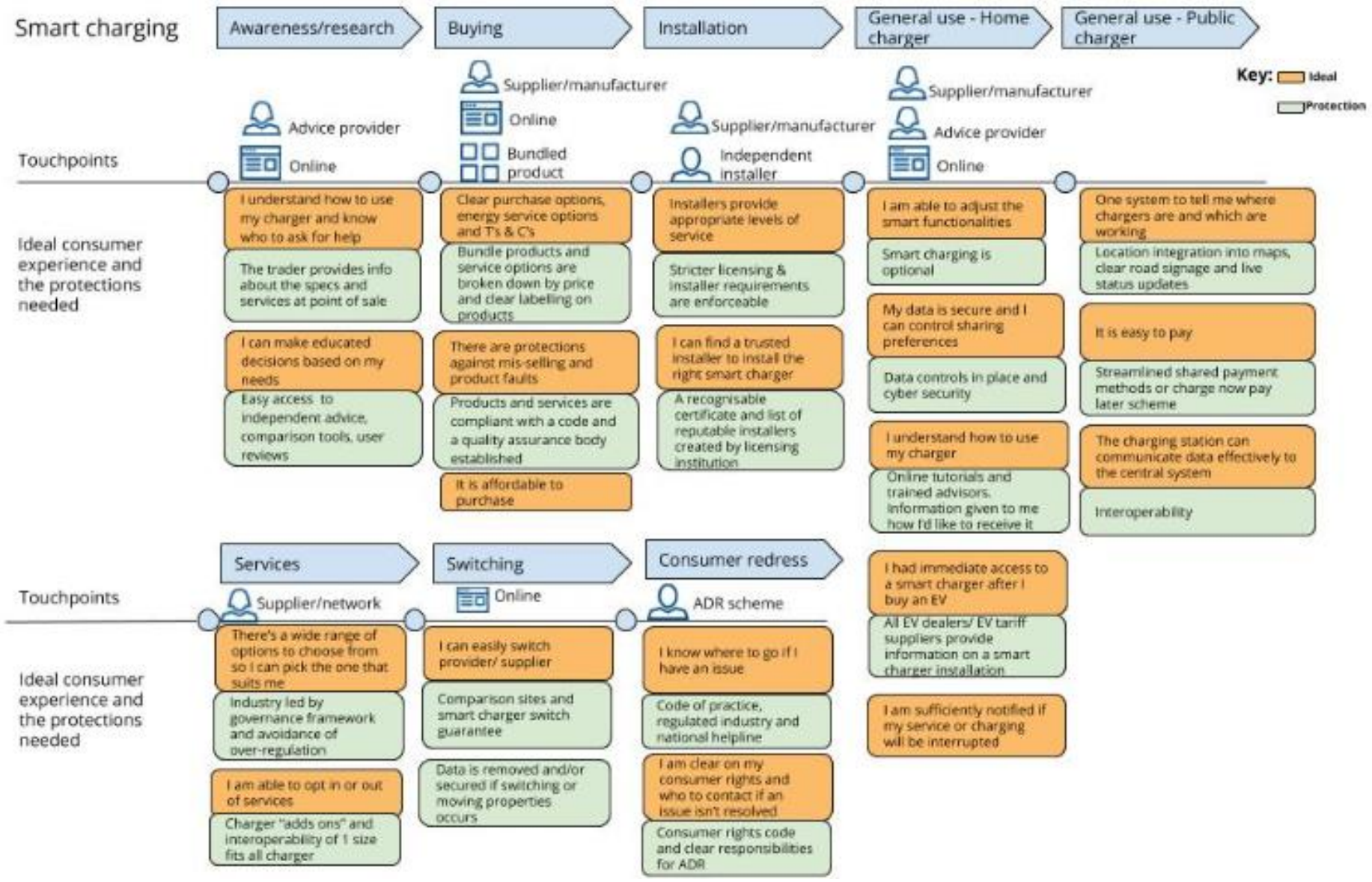
WHAT'S MISSING?

01	Educating	• No one is responsible holistically • Lots of organisations could do it but hardly any of them have an obligation to • Even those who have an obligation, might not be able to discharge it if they are not informed about an EV purchase
02	Informing and advising	• Many organisations could provide the same information - risk that the information lacks consistency or isn't correct • Lack of product comparison websites for EV smart chargers • Consumers may not get the right information at the right time
03	Ensuring safety	• Need reliable information and better enforcement when installations don't meet minimum standards • Need clarity about the responsibility over smart charging safely (especially as multiple organisations could control)
04	Providing a quality service	• No audits on quality of installation • No protections for those installers without OLEV accreditation • Lack of certification/standards risks poor quality products • No reliability to ensure public chargers work • Interoperability of payments results in poorer experience
05	Being inclusive, considering vulnerability and access	• Need sales of products/services available in range of ways • No nationwide strategy for chargepoint installation or mapping • No designs for chargers that are wheelchair accessible • If smart meters are used for smart charging, risk to those without a smart meter
06	Controlling levels of charge	• Multiple organisations could seek to control the charger at the same time. Lack of responsibility over how this affects the end consumer • No domestic consumer code of conduct

Customer Journeys

CURRENT

IDEAL?



Customer Journey Feedback

- Stronger consumer advocate
- Independent source of consumer education
- Common language for EV charging
- Better EV tariff comparison
- Better labelling (both at charging points and digitally)
- Managing parking spaces better
- OCCP - standard method of payments
- Better accessibility of charge points
- Clear signaling where things go wrong

Early Views on Interoperability

Seeking to understand how much stakeholders agree with the following:

- Drivers should be able to use any charger at any public chargepoint, for any EV (we are considering the physical charger type /socket here).
- Drivers should be able to access any public chargepoint without having to sign up to become a member or having to download an app.
- Drivers should be able to pay with a range of payment methods at any public charge point. For example, pay as you go (both contactless and cash payments) as well as direct debit.
- Drivers should be able to access data about different charging or discharging events on one platform, even if they use different operators.
- Drivers should be able to update their car or their smart charger, without affecting the ability to charge.
- Drivers should be able to participate in EV services and switch, without being locked into a service provider.
- Can you do power sharing?
- Are there any other interoperability outcomes you would want for consumers?

Open Questions

Q&A

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