

User Research Summary & Sprint 1 Planning



Agenda

10:00 - 11:00: User Research Summary

11:00 - 12:00: Sprint 1 Planning

Electric Vehicle User Research Summary



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2. Who we spoke to
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12. UPDATE: Driver/Hirer Research summary & recommendations

Objectives

PROJECT OBJECTIVE:

To explore the commercial viability of Blockchain in relation to personal energy micro-usage.

The use-case for initial focus is peer-to-peer hiring of EVCPs.

Objectives

RESEARCH OBJECTIVE: To explore and understand...

The experience of owning and charging an EV.

How and why people are currently sharing their parking spaces.

How users wish to charge and pay for EVCPs.

Who we spoke to and why

- 5 EV owners (EDF staff): Hybrid and Pure EV
- 4 Online Parking Marketplaces (OPM) users who rent out their parking space (some with an EVCP)
- TBC - 4 EV Drivers who hire parking spaces with an OPM
- We envisage peer-to-peer usage of people's EVCPs, possibly with parking space hire.
- Learning from those who do this already will give us insights.
- Just park is a market leader and their experience is close to our model.

What we already know

- 3 types of EV: Pure EV, Plug-in Hybrid and Range Extender Vehicle
- 80% of UK car journeys are less than 25m
- Currently more expensive than their ICE (internal combustion engine) equivalent
- Prices are dropping (as battery technology matures) - 2022 parity with ICE
- Battery efficiency and range will increase approximately 20% each year
- By 2020, 200m range vehicles will be commonly available and at cheaper prices

What we already know

- By 2020, 200m range vehicles will be commonly available and at cheaper prices
- Currently very few models per Brand, but it is expected that models (with varying ranges) will be provided to appeal to all segments
- EV car sales are on the rise (doubled year-on-year to 75,000 at Oct 2016)
- Trends strongly suggest Plug-in Hybrids dominate sales over PEVs
- 2050 Emission goals will require EVs to be widespread - UK has signed Paris Climate Agreement
- Government grants currently exist for EV and EVCP purchases (may change with Brexit)

About Batteries & Charging

- 3 main ChargePoints for EV cars are commonly in use:
 - Slow (13/16A/3kW) - 6hrs to charge a Leaf (30kWh) (10hrs for 13A)
 - Fast (32A/7kW) - 3hrs to charge a Leaf
 - Rapid (63A/43kW) - 30-60m = 80% (mostly found on motorways)
- Slow and Fast are estimated as being evenly split across UK households with Fast overtaking as new EVCPs are being installed.
- Rapid and 22kW Fast charging at households won't be available in the short term.

About Batteries & Charging

- Connectors come in many types: domestic 3-pin, Commando, Type 1 (Jap/US), Type 2 (Euro)
- Fast and Rapid chargers can be tethered (therefore you must have the correct inlet for the charger outlet) and no adaptors exist
- 13Amp 3-pin domestic plug sockets have specific safety requirements
- EDFE policy that we do not recommend 13Amp charging
- Away-from-home charging is controlled by a number of paid-for Networks
- Free charging with Networks is still possible but is increasingly less common

About Networks and EVCP parking spaces

There are a number of ChargePoint providers, all with differing price models and network access



About Networks and EVCP parking spaces



Rapid charge £6/30 mins



£4/month. Rapid £1.80 session fee + £0.30 per kWh, 3/7 kWh 3.6p/min - 20m min charge



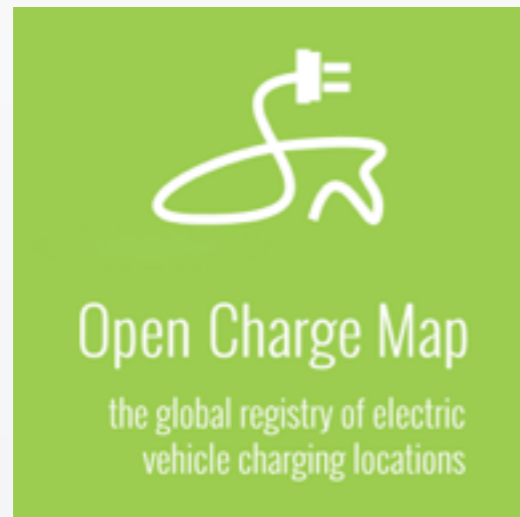
Paid membership - 6 months free, £7.85/month, EVCP free or 9p/kWh



£20/year with free or paid EVCP

About Networks and EVCP parking spaces

Some networks are non-commercial and provide
EVCP location and status



Positives of owning an EV

- Cheap 'fuel' prices - approx. 2p/mile compared to 14p for ICE
- Cheap running costs (PEV & REV) - less moving parts and simpler engines require less maintenance. Road tax/Congestion Charge exempt.
- A nicer drive - silent, smooth drive with automatic gear changes. Great for city driving.
- Environmentally better - low/no fossil fuel emissions
- Technical cool stuff - EVCP planning routes, automatic efficiency mapping, auto-charging batteries, automated off-peak charging, pre-warming the vehicle...
- Community feel. A sub-culture who empathise with each other... owners stop and talk about their cars when they're charging.

Negatives of owning an EV

- Range anxiety
- Winter - range decreases
- Batteries take up a large amount of space - fuel tank and boot capacity can be smaller
- Damage to battery/motor can mean the vehicle is written off
- EVCPs are an unreliable experience - out-of-service or occupied
- Out-of-service CPs - not assessed automatically - relies on users contacting networks
- Inconsistency and fragmentation of the CP networks. Users have multiple apps and multiple memberships fees and access cards.
- Online EVCP searches unreliable - ZapMap has the best search and info functionality but lag on status
- No way of reserving spaces

NEGATIVES

Users thoughts on ChargePoint Networks

"Wow, this is all so confusing...I had no idea there were so many options! This is really going to put more people off going for a pure EV"

Chris Kemp, Ampera owner

"I started to look at charge networks... what a nightmare!"

Huw, EV owner

"I still think one charge card, whichever one you have, should work at all charge points, imagine going to petrol stations and one only takes cash, another Visa, then Mastercard, Amex, debit card etc, I have three different cards and still can't use all the local charge points"

Skezza, Nissan Leaf owner

"I don't understand, in a day where we have Oyster-cards and pay-as-you-go, why I can't just turn up at an EVCP and pay with my debit card"

Tracey Coughlan, Nissan Leaf owner

A day in the life of a Plug-in Hybrid owner

- I own a BMW 330e Hybrid (range of 16m) which covers 80% of my journeys. It's my only car.
- I chose my EV based on my most common journey - I live 10m from work so chose a small range
- I'm concerned about going on longer journeys - so I chose the Hybrid which allows me to use fuel too
- I don't have range anxiety due to it having a fuel backup
- I'm amazed by its technology. It's only got 16m range but the battery recharges itself en route so I get more 'free' energy. When I charge at home it chooses the cheaper times and it heats the vehicle for me before I leave.
- I don't use networks or other ChargePoints that much. I occasionally charge at my destination and to do this I usually google the area to search for one.
- My friend owns a pure EV and is really clued-up about all of the networks. He says they 'ABC' (Always Be Charging) and he tries to take advantage of as much free charging as possible. He uses a lot of apps to find CPs but sometimes when he arrives he finds they're out-of-service - it doesn't seem to be very reliable. They used to be free too but that's changed with some so he avoids those networks altogether. His glovebox is full of different membership cards which he needs for each network - I don't understand why we can't have one system or just pay with a debit card.

A day in the life of a Pure EV owner

- I own a Nissan Leaf (range of 90m) which covers 90% of my journeys.
- I chose my EV based on my most common journey - I live 30m from work so 90m is ideal.
- It was so cheap - £500 deposit and £200/month hire... and the running costs are tiny.
- For longer journeys I use the train, a work carpool and also the Nissan garage give me a free ICE hire car for 14 days each year
- Some of my friends who own Pure EVs have a 2nd ICE car which they tend to use for longer journeys.
- I've only had the vehicle for 6 months and charge mainly at home. I know there are ChargePoints out there but knowing whether they're available and joining each Network is confusing. I've joined a local network but only used it a couple of times. Occasionally it is occupied so I have to wait. I had to pay £3.50 for the first 10mins and 50p for the next - its OK but its very pricey compared to home.
- Owning a Pure EV and being confused by Networks means I get 'range-anxiety: I've almost run out twice - It's a nervous experience, especially as my kids rely on me! I will have to plan a lot more than with my ICE and I often have to wait around at home waiting for it to charge.

About renting-out a parking space & EVCP

- Motivations:
 - To increase the number of EVCP's available, making it easier for EV owners
 - To bring in some easy, extra money
 - To give drivers better options than overpriced city/station parking
- There are a number of OPM's (Parklet, Justpark, Parkonmydrive) but only 2 promote EVCPs. For many people, JustPark was the only one that bought in any customers. Users say they prefer it's site and app too.

JustPark parkonmydrive

yourparkingspace
the online parking marketplace

parklet

About renting-out a parking space & EVCP

- There may be tax and legal requirements around renting spaces and charging for energy however these laws are often bypassed without issue. At most we should be aware of them and if any are updated that could impact the product.
- Insurance/legal requirements for having a member of the public on your property
- Tax requirements for receiving income over a threshold
- Regulations regarding supplying electricity and charging for it
- City bookings can be very popular (100s over 2 years), Regional can be less (10 over 2 years) which can be dissatisfying.
- Some Vendors are not EV owners (even if they have an EVCP) they don't fully understand connectors and CP types.

About renting-out a parking space & EVCP

- Some Vendors rarely meet or communicate with their guests however Vendors who do tend to get more positive ratings/reviews.
- Many Vendors were not interested in making a profit from their guests' charging and were motivated more by increasing the EVCP's in their area. They were unsure how to measure the amount of energy being used however they would like to know exactly what they used and charge accordingly. Having an EVCP was seen as a draw for people to book.
- A Vendor (no EV) had no idea how much it cost to charge an EV and felt £5 was reasonable. Charge cost misconceptions exist. (NB. she always met guests so has high effort per booking)
- One user mentioned about changing his prices in relation to demand (higher when less local availability existed) .
- Some people's EVCPs are open access, some have a key access.

The experience of Vendors receiving a booking

- A vendor's space can be 'instant-booking' or 'request-booking'
- They receive a text and email notification that a booking has been made/requested
- Sometimes a guest has questions that need responding to
- Once accepted, they receive confirmation of the booking with details about the user and vehicle (car make, model, colour and registration)
- Many Vendors rarely see the guest, sometimes they just see the car appear in the drive (in which case its reassuring to verify it's the correct guest)
- Users can see their booking calendar and history online
- The proceeds become available 24hrs after booking

Key Features of JustPark and the benefits of renting-out spaces

- The search and map are the key features
- The app allows it to be easily used whilst on the move
- To begin with, it can be a disconcerting experience having a stranger on your property. The following features help assuage fears and help new Hirers and Vendors become active users:
 - Messaging - helps users find out how the scheme works, who they will park with and what the space is like. (even with an Instant booking option some new users contact a Vendor to ask questions)
 - Seeing photos and Streetview helps users scope-out the space
 - Reviews qualify Vendors and Hirers

Key Features of JustPark and the benefits of renting-out spaces

- It's one of the few OPMs who allow filtering to show EVCPs
- Users can filter spaces by cheapest p/hour and cheapest p/day
- JustPark have installed EVCP's in their users homes for free/low cost (Gov. backed initiative?)
- It provides free Public liability insurance to it's users (and is the only OPM to do this)
- Customer services help answer concerns and resolve issues
- Printed ticket (not common with p2p spaces but is required for some monitored carparks i.e. council carparks)

Key Features of JustPark and the benefits of renting-out spaces

- They charge 20% to the guest. They take money and hold it from the point of booking then issue it 24hrs after the booking. They have a £10 minimum withdrawal.
- They allow you to withdraw money manually or via monthly debit
- Vehicle ID: make, model, colour and registration let Vendors verify the guest
- Instant-booking (no hassle option) as well as request-booking
- Allows hourly/daily/weekly bookings and prices. Hirers can book what they need and Vendors can take multiple daily bookings.

What JustPark doesn't do so well

- Most hosts have never (or rarely) rented-out their EVCPs (even though JustPark promoted and filter EVCPs)
- Some Vendors have had way less bookings than they expected. Having an EVCP didn't boost bookings.
- No way for adding a specific fee for EVCP usage.

Constraints on measuring usage

- We currently have no method of measuring the energy usage at a ChargePoint.
- We cannot measure how long a vehicle has been charging for so we will make a calculation based on the booking duration and car/battery type. This will most likely be 1hr, 4hr and 10hr periods.
- Due to the above we will need to work on the messaging of usage/billing so it is easy for the user to grasp.
- When methods for measuring usage are devised we will integrate them into the product.

Recommendations

- Provide a map and search tool to allow users to easily find EVCPs.
- Allow drivers to easily see if an EVCP is available.
- Provide up-to-date information on EVCP status (whether it is in service or not).
- EVCP type and connector:
 - Prompt Vendors to indicate what type they have
 - Provide visual information of types to help users understand what kind they have.
 - Provide filters (consider automating based on a Hirer's car profile).

Recommendations

- Allow price-based filtering - users want to find the cheapest options
- Allow Vendors to separately price their EVCP and parking space.
- Provide guidance (or automated fees based on car type/duration) on how much Vendors should bill.
- Allow varied time slots from 1hr to a day (multiple days being booked consecutively). NB. 30min slots maybe an option in the future.
- Reassurance for new users can be achieved through messaging, ratings, user profile images and streetview/drive photos. Research suggests messaging is the most effective.
- Tie-in with GPS/Satnav features to guide Hirers to the EVCP they have booked.

Recommendations

- Utilise popular UX patterns from Uber, Airbnb and JustPark.
- Undercut JustParks fees (minimum withdrawal and commission) to increase appeal.
- Offer Free Public Liability Insurance - being connected to someones energy supply has the potential for more risk than simply parking at someone's property.
- Account for 'low stock':
 - We won't have any EVCPs for launch so show OpenChargeNetwork's data so the product is useful (and in general showing more EVCPs is of benefit).
 - Launch a marketing campaign and an MVP sign-up site to get Vendors onboard before product launch. Promote 'Vendor sign-up' over 'Hirer search' on the homepage.
- Utilise community shows (LCV Milbrook) and forums to recruit Vendors.

UPDATE:

Driver/Hirer Research summary & recommendations

- Users that have already charge their EV's at a member of public EVCP are a very small % and are hard to assess and recruit
- We spoke to 3 users who have hired EVCPs/spaces using Gumtree and JustPark
- This far from decent number to draw solid conclusions nevertheless some anecdotal insights arose which are well worth noting

Drivers insights: Security

Owners are concerned about having a stranger on their property... likewise, Drivers are concerned about leaving their vehicle in new areas with unknown people where their vehicle is perceived to be prone to car crime or damage.

Features help users overcome concerns: messaging, streetview, photos, 'secure parking' tagging (CCTV or gated access). Users even go offsite to check streetview and Police crime rates for the area.

Drivers insights: Charging connectors

Connecting isn't as big an issue as we had assumed.

Many people have never reported issues with connecting, although some owners allow internal 3-pin plug sockets to be used which could be a risk.

Some drivers want to know if a socket is in or outside of the property as this means access is required.

Drivers insights: Cost

Vendors and Drivers are vague about what to charge/pay for EV charging. Many users do not know how much energy is used and the sheer variety of variables makes it hard to estimate.

Some users feel JustPark is expensive (they add 25% commission) this means Vendors spaces are more expensive than they indicate. Some drivers wish to suggest a lower price to an owner (and do this on Gumtree via messaging) but there is no way of overriding prices in JustPark

Drivers anecdotes: Josh

- He has used EVCPs in London for 3 years and NEVER come across one at a household. He feels they'd only exist in suburbs/regions. This may be due to urban areas not being residential or residential urban properties being multi-storey/apartments which means that EVCPs are on-street and accessed via access codes
- Positives of OPM:
 - he can reserve a space (unlike with CP Networks)
 - he can prepay (no fumbling with coins in the rain)
- He uses the street name and postcode to both retrieve an EVCP he's searched for and to direct him to that EVCP (plugs it into his phone/satnav)

Drivers anecdotes: Josh

- He wants to know CCTV is available so he feels his vehicle is safe
- Access codes can be given for on-street charging. Are these one-time or could they be abused?
- He often has to complete his journey via public transport so knowing walking times to those is important
- He expects the OPM to tell him how much he should charge/pay for an EVCP (he'd expect that time is the influencer of cost)
- he wants to feel secure about the person parking at his house - the website could do a security check of sorts, he mentioned if he could tell if the person was friendly that would help (achieved via messaging and reviews)

Drivers anecdotes: Ajay

- He mainly uses Gumtree - he likes being able to negotiate the price. He can easily email/call the person to negotiate and also run checks (and this is why he prefers it to JustPark/Parklet which he would use more if they had flexible pricing)
- He ALWAYS charges in an interior 3-pin socket - he runs the cable through the window
- He runs his own checks to know if the space is genuine, safe and not a scam - he asks for:
 - photos of the space (is it genuine? can my car be trapped in?)
 - a copy of a utility bill (picture of) to prove address is correct
 - contact details of people who've stayed before - he checks these as 'referees'

Drivers anecdotes: Ajay

- His opinion about our proposition of peer-to-peer charge-sharing:
 - wants to know if the socket is inside or outside of the property
 - would like a message when his battery is full
 - wants to know Vendors are genuine - to read reviews from other guests
 - wants to negotiate on price
 - perhaps a loyalty scheme for return guests?
 - likes officially tracked payments (safer than cash and can use it for tax returns)
 - unsure of exactly how much to charge but would charge a lower hourly rate for longer stays (£8 for 8hrs, £3 for 1hr)

Drivers anecdotes: Ike

- Frequent user of Parkopedia and JustPark (3-4 times a week)
- Always searches by postcode
- Always contacts the owner (via messaging) to ask if they have a CP and cables and after booking he communicates to organise them meeting him on arrival (98% of the time they meet him)
- Does his own online research to check whether a space is safe for his vehicle
 - check met police crime stats of area
 - uses streetview to look at the space and surrounding area
 - he'd like links to these (or the info) on the website (but understands why JustPark wouldn't want to deter a booking by showing negative info)

Drivers anecdotes: Ike

- He wants a small private car park (1 or 2 spaces) - he doesn't like big 50-car carparks as his vehicle could get damaged
- Uses pictures to assess the space and local area. He wants more (8) pictures of each listing (the space, street and charge point etc)
- Price is also an important factor for him
- Confirmation text/email tells him access details
- He's never had a problem connecting to any Charge Point

Key take-aways

- Pictures, Streetview, messaging, reviews, crime rates, secure parking and CCTV all help drivers feel safe about leaving their EV in a new area with a stranger
- Vendors WILL rent out their domestic 3-pins - infact it creates an opportunity to rent multiple Charge Points (if their drive allows). This conflicts with EDF recommendations and will often be inside a property and thus require access.
- People do not know what to charge/pay so we must recommend prices
- Research into urban CP's must be undertaken (that support housing developments)
- Display walking distances to destinations/transport links - these are important
- JustPark's pricing is expensive and inflexible. Allow driver price-offers and reduce/remove commissions
- 'Favourites' feature will allow easy retrieval and a 'GPS directions' allows easy locating

Sprint 1 Planning



Agenda

- Review the Solution Blueprint
- Consider the Business Model and who our end-customers are
- This will help define what product we are to design
- Plan Sprint 1

