Developing Market Driven Charging Networks: Lessons from Turku´s Charging Masterplan

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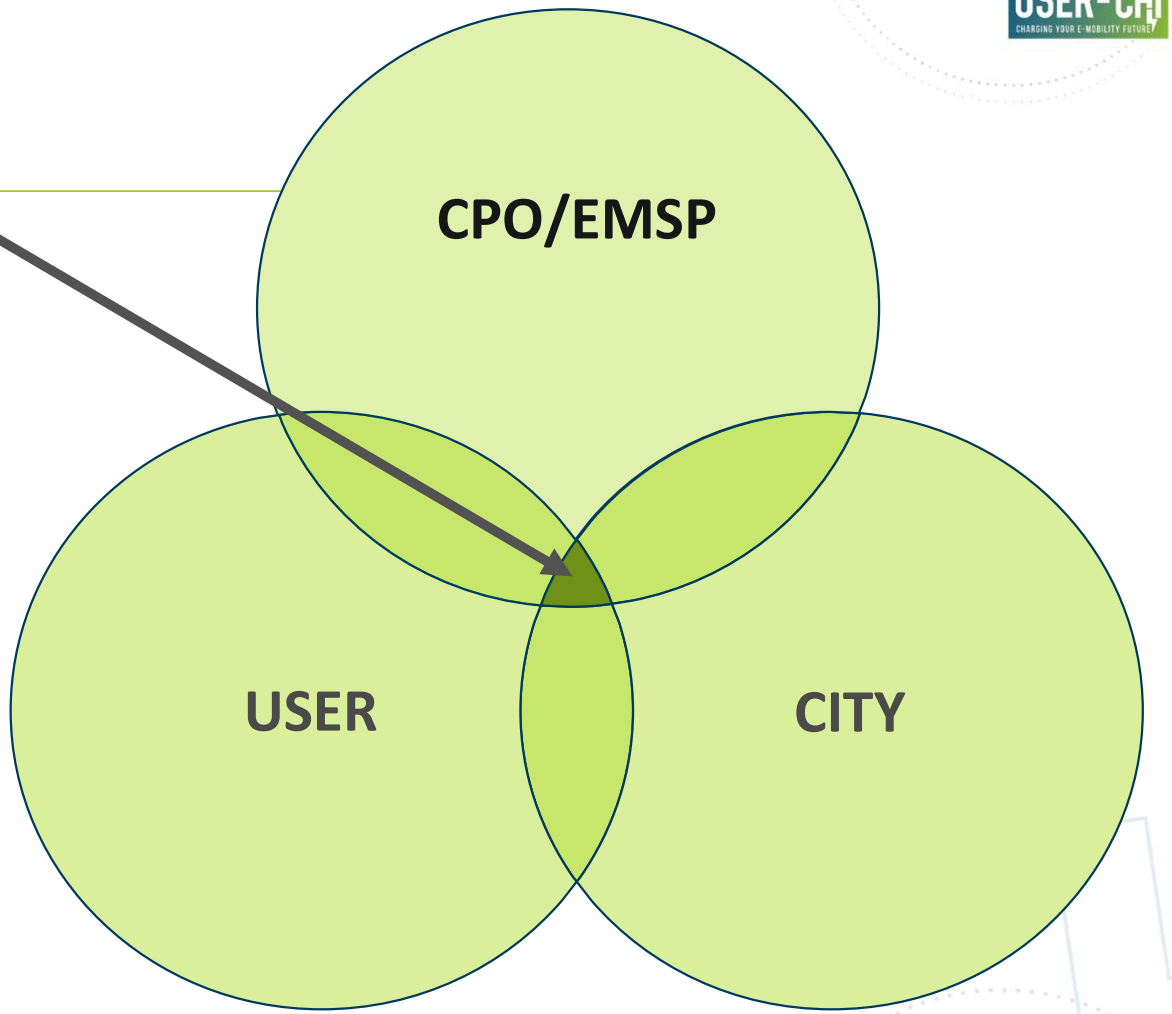
Is Turku somehow different?

200 000 Citizens
80 000 Cars
9 % Electric or PHEW
50% of new cars are EV
300 Charging points 2023

- Most of the charging network has developed without public funding or guidance, especially outside the city center.
- Large charging point manufacturers and CPOs that want to invest into charging infrastructure.
- Large distances: many people travel long distances between work and home.
- Robust electric network that can handle fast development of charging network.

Finding the sweet spot

- Electric charging industry is still young and users are quite few.
- But as EV numbers are accelerating rapidly and we need to stay ahead.
- Finding the sweet spot where needs of CPOs, users and municipalities meet is quite difficult.
- Data is important:
  - ➢ Stakeholder analysis
  - ➢ Market dialogue with CPOs and EMSPs
  - ➢ Understanding your citizens and EV drivers



Needs of different stakeholders

Citizens, professional drivers and EV end users

Large Maptionare survey with over 500 answers + specific discussions with taxi operators and car sharing companies.

- Location, price and power over services.
- Need for over night charging, 30% EV owners do not have overnight charging at their home.
- Need for fast and easy payment method.
- Reliability and availability important.

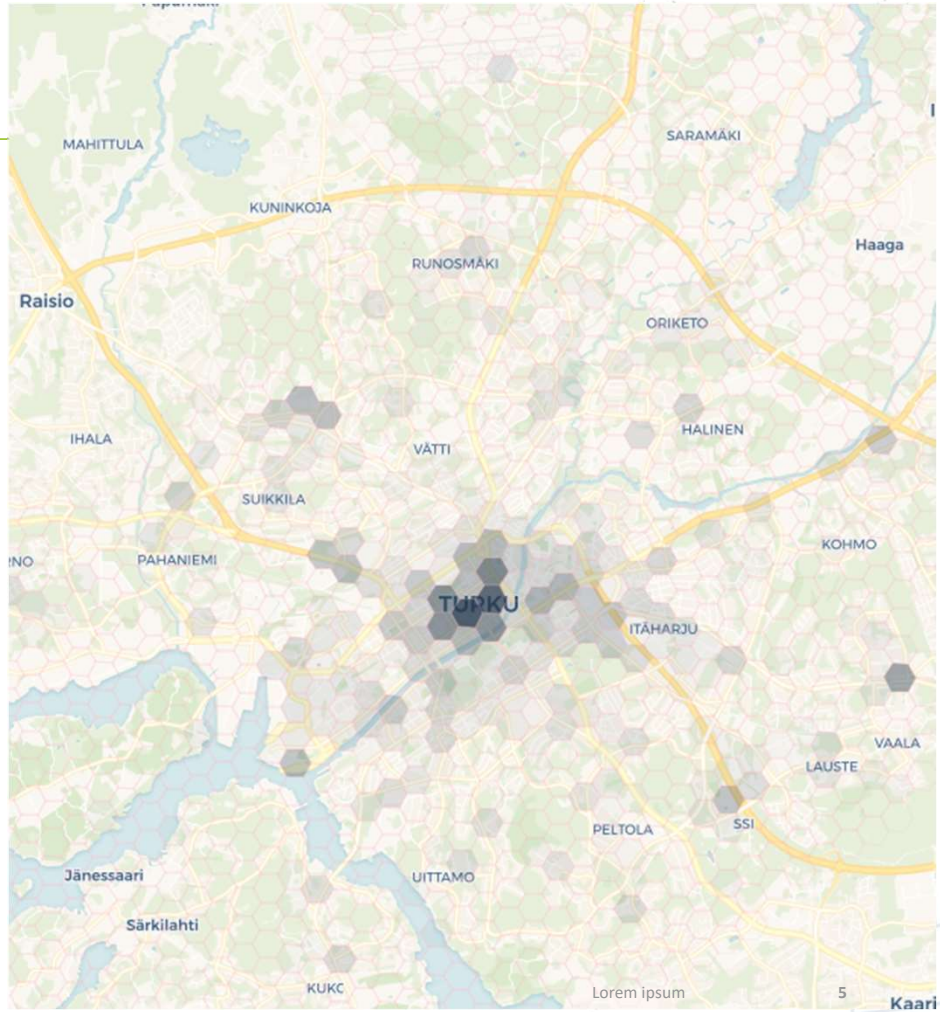
CPOs and EMSPs

Market dialogue with 7 largest CPOs in Finland, one hour each.

- Longer contracts 10-15 years.
- Faster chargers, AC chargers do not have enough turnover.
  - ➢ Do not restrict upper limit for power.
  - ➢ Parking monitoring and payment, more turnover.
- More charging points in one place, not 1 or 2 points.
- Reasonable size tenders 10-40 points at once.
  - ➢ Investment size and more responsive to growing market.
- Tender quality, not only price.
  - ➢ Up-time %, customer service, payment methods.

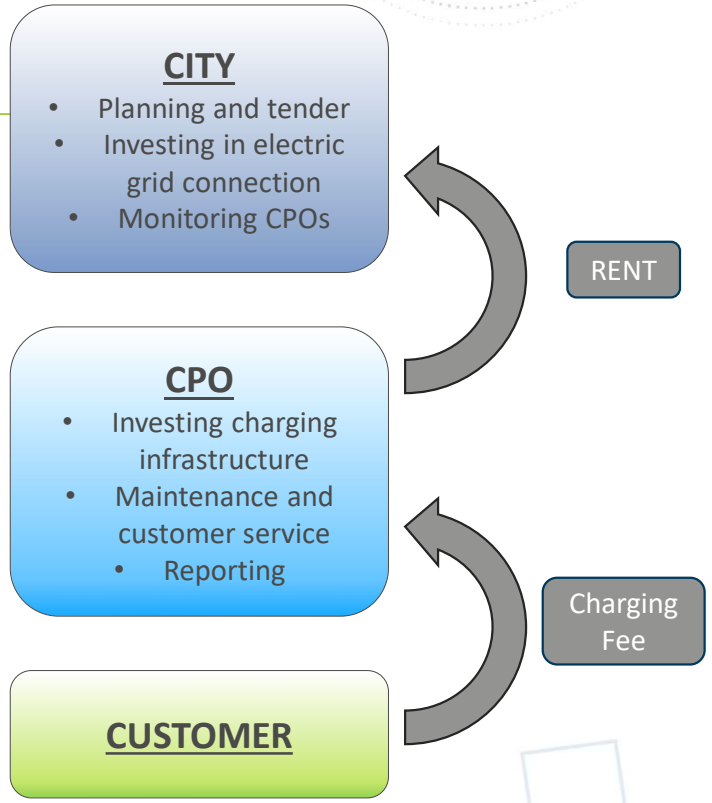
Charging point placement and CLICK

- CLICK tool is developed in User-Chi project.
- Tool to help in charging point placement.
  - Uses geo information about road network, existing charging network, parking information and all sorts of services.
- All information can be added manually or uploaded from OpenStreetMap.
- ”Attraction model” that will determine how many and what kind of charging points could be installed in 0,1km^2 area.
- Chargers are divided to AC-chargers (22kW), DC-chargers (22-150kW) and HPC (+150kW)
- CLICK and Maptionare Survey are used to determine charging point placement.



Masterplans implementation

- Charging street model, 6-20 charging points in same location. (Stockholm is a good example)
- Implementing contactless payment in every charging station.
- Fast charging + normal charging in same locations.
- Combining most attractive charging locations to less profitable in same tender package.
- ➢ City can create wider network to those places that are not that profitable to CPOs
- Maximum 2 block walk from charging points in city central.
- Parking fees remain under city control: only way to efficiently surveillance charging point usage.
- Monitor charging point usage and open new locations accordingly.
- Few HPC points for most crowded taxi locations.
- Freight logistic and car charging still unsolved.



Thank you!

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