

Questions

What is important to customers (users)?

- What specific **needs** does the EV&Hybrid EV charging station or service fulfill?
- Needs:
 1. How to pay? Does the customer pay IPFW?
 - a) Do they pay AEP?
 - b) Cash, Credit, Billed, Pre-Pay?
- How many EV cars drive to IPFW? (Greg)
- Where could the EV station be placed? Where do consumers want the EV spaces to be built.
- What are the PV charging voltages for various EV/Hybrid plug-ins? (Bob creates a table)
- What are the various charging connectors for EV vehicles?
- Work with Office of Research, Engagement, and Sponsored Programs.
<http://www.ipfw.edu/research/>
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How is our product perceived compared to those of competitors?

- How do customers (users) perceive the features of our new product (new service) compared to the features of our competitors's product? (**features differentiation**)
- Is the **major feature** that differentiates our product (service) from the competition **value by customers?** (**value**)
- What is the carbon footprint saved by using 1 EV station compared to combustion engine parking spot? (Ryan)
- Would this product **replace usage of other similar product (service)** in the marketplace? (**substitutability**)
- Features

How do customers make decision when purchasing this service?

- What are the **key criteria** that people use when selecting this service? (**criteria**)
- What **2-3 criteria** are the most important?
- Criteria
 - Cost to use/ Cost to operate?
 - Accessibility
 - Convenient Location
 - Ease of use
 - Weather sealed charging
 - 2 hour time limit?
 - 'Waiting spaces'
 - A 'full charge' guarantee, with no over-charge.

Robotic Trellace, Automatic Car mover, Text Message the user when the car is fully charged.

What do customers think about this potential new product?

- How likely would customers be to purchase this product (use this service) as it is currently envisioned?
- How likely? 0 to 100%

What do customers think about this new service?

- What do customers specifically like and dislike about this service?
- What are the unmet needs this service would fulfill?

What is the most power-efficient EV&Hybrid EV charging system in America?

- **Research charging systems around the country (Greg)**
 - **High voltage: Ann Arbor's electric vehicle charging stations see growing demand**
http://www.mlive.com/news/ann-arbor/index.ssf/2013/09/high_voltage_ann_arbors_electr.html

What are the major components (subsystems) of the desired EV & Hybrid EV charging station?

Estimated costs

- Cost of installation of power line and metering from AEP,480 volts (Ryan)
- Cost kw/h

Subsystems of EV & Hybrid EV Charging Stations (Peter, Bob search existing EV stations)

- AC power supply, metering and wiring
- AC-DC rectifier, power electronics
- Charging metering subsystem
- Payment subsystem
- Parking space, vehicle counter, etc

Why IKEA Solar Panels are a Great Idea, by Kasey Panetta,

http://www.ecnmag.com/blogs/2013/10/why-ikeas-solar-panels-are-great-idea?et_cid=3528686&et_rid=281026305&type=cta