Project Design Phase-I - Solution Fit **Team ID:** PNT2022TMID38044

Predicting the energy output of Wind Turbine based on Weather conditions

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

CS

Who is your customer?

- Individuals
- Electricity suppliers
- Industrialist
- Government

6. CUSTOMER CONSTRAINTS

CC

What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.

1. Illiterates may feel difficulty in accessing the website.
2. Network connection
3. Feeding missing or wrong inputs

5. AVAILABLE SOLUTIONS

AS

Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking

Manual calculations based on past climatic conditions which consumes large amount of time were tried in the past.

Pros:
Consumes less time
Cost-effective

Cons:
Network connectivity

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.

Since there's no proper platform for wind energy prediction, we predict the energy output of wind turbine in order to earn some revenue and to locate a better place for wind farms.

9. PROBLEM ROOT CAUSE

RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?
i.e. customers have to do it because of the change in regulations.

Failures occur because of locating wind farms in unsuitable environment.

7. BEHAVIOUR

BE

What does your customer do to address the problem and get the job done?

Since wind speed is constantly changing, so is the wind's energy content. The amount of fluctuation depends on the local surface conditions and obstructions as well as the weather.

Focus on J&P, tap into BE, understand RC

Identify strong TR & EM

3. TRIGGERS TR

What triggers customers to act?

Prediction of wind energy helps individuals and electricity suppliers to locate better location for wind farms and let them earn revenue.

4. EMOTIONS: BEFORE / AFTER EM

How do customers feel when they face a problem or a job and afterwards?

Before:

1. Stress, frustration
2. Fear of loss of investment

After:

1. Confidence, Happiness
2. Satisfaction, Relaxation

10. YOUR SOLUTION SL

A prediction system is developed with a method of combining statistical models and physical models. In this system, the inlet condition of the wind farm is forecasted by the auto regressive model.

Large turbine blades help capturing more of the available wind.

8. CHANNELS of BEHAVIOUR CH

8.1 ONLINE

What kind of actions do customers take online?

Checking on data updation

8.2 OFFLINE

What kind of actions do customers take offline?

Monitoring and maintaining wind farms.