Project Title: Predicting the energy output of Wind Turbine based on Weather Conditions

Project Design Phase-I – Solution Fit Template

Team ID: PNT2022TMID35748

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) — CS

Who is your customer?
i.e. working parents of 0-5 y.o. kids

Large wind energy companies looking for a solution to boost their productivity and income

People are ultimately the client, consuming more renewable energy.

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.

It costs a lot of money, materials, and time to increase the size of wind turbines.

Employing people to provide mentoring is ineffective and misleading.

Regular upkeep is necessary.

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

There are previous records that can be used to establish the power output.

Calculating the wind mill's power production only based on the direction and speed of the wind

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.

Loss of revenue results from the company's inconsistent power supply.

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.

One of the most unpredictable sources of electricity is wind.

It is highly challenging to integrate into the grid since it is impossible to predict the power output at any given moment in time.

Due to this, it is an inconvenient and unreliable source of energy.

7. BEHAVIOUR — BE

What does your customer do to address the problem and get the job done?
i.e. directly related: find the right solar panel installer, calculate usage and benefits; indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)

Before using the model, test it out.

Examine the model's performance and accuracy.

Computes the gains and earnings related to it

Describe the challenges involved in putting the solution in place.

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

Identify strong TR & EM

3. TRIGGERS — TR

What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.

This gives companies a way to boost efficiency without making many modifications to their current architecture, as all industries are shifting away from updating hardware in favour of improving efficiency.

4. EMOTIONS: BEFORE / AFTER — EM

How do customers feel when they face a problem or a job and afterwards?
i.e. lost, insecure > confident, in control - use it in your communication strategy & design.

BEFORE: The corporation is under a lot of pressure since they can't please their consumers if they can't estimate the power output.

AFTER: When they can anticipate the power output, they can satisfy the needs of their clients.

10. YOUR SOLUTION — SL

If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality.
If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.

Utilizing Machine Learning to anticipate energy output using historical performance data and current weather parameters will aid in grid integration and help it reach its full potential.

8. CHANNELS of BEHAVIOUR — CH

8.1 ONLINE
What kind of actions do customers take online? Extract online channels from #7

8.2 OFFLINE
What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.

A single control station can be used to monitor the performance of every single wind turbine. It will be linked to a specific network.

A technician at the location can also perform manual maintenance on it.

Identify strong TR & EM