

Predicting the energy output of Wind Turbine based on Weather conditions

|                        |   |   |   |                           |
|------------------------|---|---|---|---------------------------|
| Define CS, fit into CC | <div>1. CUSTOMER SEGMENT(S)<div>CS</div><p>Who is your customer?</p><ul style="list-style-type: none"><li>➤ Individuals</li><li>➤ Electricity suppliers</li><li>➤ Industrialist</li><li>➤ Government</li></ul></div>  | <div>6. CUSTOMER CONSTRAINTS<div>CC</div><p>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.</p><ol style="list-style-type: none"><li>1. Illiterates may feel difficulty in accessing the website.</li><li>2. Network connection</li><li>3. Feeding missing or wrong inputs</li></ol></div> | <div>5. AVAILABLE SOLUTIONS<div>AS</div><p>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 &amp; cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking</p><p>Manual calculations based on past climatic conditions which consumes large amount of time were tried in the past.</p><p>Pros:</p><p>Consumes less time</p><p>Cost-effective</p><p>Cons:</p><p>Network connectivity</p></div> | Explore AS, differentiate |
|                        | <div>2. JOBS-TO-BE-DONE /<div>J&amp;P</div><p>PROBLEMS</p><p>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one; explore different sides.</p><p>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.</p></div> | <div>9. PROBLEM ROOT CAUSE<div>RC</div><p>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.</p><p>Failures occur because of locating wind farms in unsuitable environment.</p></div>  | <div>7. BEHAVIOUR<div>BE</div><p>What does your customer do to address the problem and get the job done?</p><p>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.</p></div>   |                           |

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

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|-------------------------|--|---|--|
| Identify strong TR & EM | <b>3. TRIGGERS</b> <b>TR</b><br>What triggers customers to act?<br>Prediction of wind energy helps individuals and electricity suppliers to locate better location for wind farms and let them earn revenue.   | <b>10. YOUR SOLUTION</b> <b>SL</b><br>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.<br>Large turbine blades help capturing more of the available wind. | <b>8. CHANNELS of BEHAVIOUR</b> <b>CH</b><br><b>8.1 ONLINE</b><br>What kind of actions do customers take online?<br>Checking on data updation<br><br><b>8.2 OFFLINE</b><br>What kind of actions do customers take offline?<br>Monitoring and maintaining wind farms. |
|                         | <b>4. EMOTIONS: BEFORE / AFTER</b> <b>EM</b><br>How do customers feel when they face a problem or a job and afterwards?<br><br>Before:<br>1. Stress, frustration<br>2. Fear of loss of investment<br><br>After:<br>1. Confidence, Happiness<br>2. Satisfaction, Relaxation |   |  |