Problem-Solution fit canvas 2.0 — Efficient Water Quality Analysis and Prediction using Machine Learning

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Define CS, fit into CC

Explore AS, differentiate

1. CUSTOMER SEGMENT(S) — CS

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

Industries that provide sanitation facilities and products (water purifiers, quality testers etc.) can deploy this solution to provide more waste water treatment plants, better insights in health concerns and there may also be an increase in awareness and demand for better water quality testing and availability.

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.

Customers need to know about the constraints present in the sample datasets such as temperature, PH and nitrate content.The disease caused by impure water can be avoided by this application. Because there are many disease which is spread or caused by water, so it's user responsibility to ensure the purity.

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

By using Random Forest Regression Algorithm we need to train the dataset and see the incremental improvement in the prediction rate.Some of the available solutions are the quality is analyzed using the color of water, origin of water etc. And the provided solutions from these factors are not guaranteed to be true.

Focus on J&P, tap into BE, understand

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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.

Necessary to analyze and predict the quality of water samples.To detect the contaminants present in those samples patient dataset such as Temperature, PH, conductivity etc..To prevent and control of water borne diseases.

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.

Contamination of water bodies.Due to industrialization, high pollution is the main problem. Environmental changes.

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)

User uses various experimental techniques like analyzing the quantity of chemical present and also analyses physical property of the water.This research work suggests the need for ensuring water quality is important before use.

Identify strong TR & EM

Extract online & offline CH of BE

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.

To drink pure and healthy water.

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.

Customers feel irritated because of the time taken to analyze the water quality is high and expensive.

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.

The data from different sources are taken and with help of a water quality analyst.The solution is derived from the data sets by comparing the accuracy rate with previous data set and the current data set.By using ML algorithms and analysis methods the hardness, conductivity and turbidity are identified and the results are provided.

8. CHANNELS of BEHAVIOUR — CH

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

Python Web Frame Works, Python For Data Visualization, Data Preprocessing Techniques, IBM Watson Studio and Python-Flask.

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

Analyse the water's chemical and physical property using experimental methods.

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