Project Title: Exploratory Analysis of Rainfall data in India for Agriculture **Project Design Phase-I - Solution Fit** **Team ID:** PNT2022TMID21508

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

CS

(1) Farmers and farming industries

(2) Government departments and agencies

(3) Scientific journals.

6. CUSTOMER CONSTRAINTS

CC

- Budget
- Network connection in rural areas
- Basic statistical knowledge

5. AVAILABLE SOLUTIONS

AS

An Exploratory Study on Occurrence and Impact of Climate Change on Agriculture in Tamil Nadu, India - examine the occurrence of climate change in Tamil- -Nadu, and its impact on rainfall pattern which is a primary constraint for agricultural production

Flood forecasting using Internet of things and artificial neural networks - India is one of the worst flood-affected countries in the world based on the annual rainfall. They use number of IOT and based techniques but the challenge is that no one has attempted the possibility of occurrence of flood rainfall intensity.

Explore AS, differentiate

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

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

- To create customer value by satisfying needs of a farmer (i.e.) predicting when the rainfall is high and providing early warning.
- Marketing the product among farmers and farmers associations.

9. PROBLEM ROOT CAUSE

RC

An important aspect to be understood regarding the relationship between rainfall and agriculture is that rainfall is the major factor in the growth and production of food crops both at the germination and fruit development stage. But with a change in the world's climate, temperatures will rise and rainfall will increase in some places. In other places, rainfall will decrease.As a result of global warming, the world's climate is changing and its effect is being felt the world over. And one of the most important parameters of climate is rainfall. So inorder to find an effective solution for finding the right time for the cultivation of crops ,an algorithm is needed to predict the rainfall rate and derive an useful model out of it.

7. BEHAVIOUR

BE

The model's high-performance computing can support agriculture by delivering more accurate predictions, using higher resolution and more complex modelling, greater use of ensembles and vastly increased volumes of data of all forms.

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

3. TRIGGERS TR

By monitoring the data and metrics mentioned above, farmers find a wealth of benefits, including higher production quality and quantity. Other benefits include: Save costs: smart farming leaders to lower costs on labor, water, and nutrients for crops. Save water resources: knowing the exact rainfall for each crop can help optimize watering, thus preventing overwatering, which can impact not only crop health, but the environment.

4. EMOTIONS: BEFORE / AFTER EM

Anxious > Clear and calm

(i.e) the farmers can be pre-prepared to face the heavy rainfall and can reduce the destruction of crops.

10. YOUR SOLUTION

SL

In our analysis we are trying to understand the behavior of rainfall in India over the years, by months and different subdivisions. The trend analysis of Annual rainfall considering India as whole, shows that it is important to study subdivision for better forecasting. We can also extend the scope of the project by predicting the probability of flood.

8. CHANNELS of BEHAVIOUR CH

8.1 ONLINE

The prediction is done online through a server-client model.

8.2 OFFLINE

The predicted result can be downloaded and made offline.