

Project Design Phase-I

Problem – Solution Fit Template

Date	02 October 2022
Team ID	PNT2022TMID29843
Project Name	Developing a flight delay prediction model using machine learning.
Maximum Marks	2 Marks

Problem – Solution Fit Template:

The Problem-Solution Fit simply means that you have found a problem with your customer and that the solution you have realized for it actually solves the customer's problem. It helps entrepreneurs, marketers and corporate innovators identify behavioral patterns and recognize what would work and why

Purpose:

- ☐ Solve complex problems in a way that fits the state of your customers.
- ☐ Succeed faster and increase your solution adoption by tapping into existing mediums and channels of behavior.
- ☐ Sharpen your communication and marketing strategy with the right triggers and messaging.
- ☐ Increase touch-points with your company by finding the right problem-behavior fit and building trust by solving frequent annoyances, or urgent or costly problems.
- ☐ **Understand the existing situation in order to improve it for your target group.**

Template:

Define CS, fit into	1. CUSTOMER SEGMENT(S) <small>Who is your customer?</small>	6. CUSTOMER <small>What constraints prevent your customers from taking action or limit their choices of solutions</small>	5. AVAILABLE SOLUTIONS <small>Which solutions are available to the customers when they face the problem</small>	Explore AS.
	Passengers who use air transport for their travelling purpose are the customers.	Not knowing the delay and the purpose of delay makes the customer limit their choices of solutions.	To solve the passengers problem, we should predict the flight delays accurately and should be updated to passengers priorly. In past flight delays are only predicted. In this pros are passengers will only know the delays, Cons are they will not know the purpose of the delay and accuracy.	
Focus on J&P, tap into BE, understand	2. JOBS-TO-BE-DONE / PROBLEMS <small>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.</small>	9. PROBLEM ROOT CAUSE <small>What is the real reason that this problem exists? What is the back story behind the need to do this job?</small>	7. BEHAVIOUR <small>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)</small>	Focus on J&P, tap into BE, understand
	Predicting the delay of the flight will be the job to be done to address the customers.	The main reason for the delay are weather, runway visibility, navigation part, radio signal, mechanical issue, air traffic control restrictions, Security clearance.	Customer will look for the alternative solution in case of delay and If not an emergency passenger will wait for the flight.	
Identify strong TR & EM	3. TRIGGERS <small>What triggers customers to act?</small>	10. YOUR SOLUTION <small>Using a machine learning model, we can predict flight arrival delays. The input to our algorithm is rows of feature vector like departure date, departure delay, distance between the two airports, scheduled arrival time etc. We then use decision tree classifier to predict if the flight arrival will be delayed or not. A flight is considered to be delayed when difference between scheduled and actual arrival times is greater than 15 minutes. Furthermore, we compare decision tree classifier with logistic regression and a simple neural network for various figures of merit</small>	8. CHANNELS of BEHAVIOUR <small>8.1 ONLINE What kind of actions do customers take online? 8.2 OFFLINE What kind of actions do customers take offline?</small>	Extract online & offline CH of BE
	4. EMOTIONS: BEFORE / AFTER <small>How do customers feel when they face a problem or a job and afterwards?</small>		Customer will know all the delay related information in online. In important situation customer choose an alternative way to travel or otherwise will wait for the travel.	