

Project Design Phase

Problem – Solution Fit Template

Date	26 December 2025
Team ID	LTVIP2026TMIDS83736
Project Name	Rising Waters: A Machine Learning Approach to Flood Prediction
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:

1. CUSTOMER SEGMENT(S) <small>Who is your customer? i.e. working parents of 0-5 y.o. kids</small> Residents in flood-prone areas Families living near rivers and coastal regions Disaster management officials Local government authorities	6. CUSTOMER CONSTRAINTS <small>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.</small> No technical knowledge for data analysis Limited access to scientific prediction tools Time constraints during emergencies Cannot afford expensive monitoring systems Need simple, immediate information Internet connectivity in rural areas	5. AVAILABLE SOLUTIONS <small>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</small> Weather news and TV alerts (generic) Manual observation of water levels (subjective) Government evacuation notices (delayed) Traditional seasonal predictions (unreliable) Weather apps (no flood-specific prediction)
2. JOBS-TO-BE-DONE / PROBLEMS Get timely flood warnings to evacuate safely Protect family and property from flood damage Make informed decisions about flood risk Plan emergency response in advance Access reliable flood prediction information Heavy rainfall notifications Monsoon season arrival News reports about nearby flooding Past flood experiences River water level rising Weather warnings BEFORE: Anxious and worried about unpredictable floods Helpless without reliable information	9. PROBLEM ROOT CAUSE Lack of accessible predictive analytics tools Traditional methods are reactive, not proactive Historical flood data not utilized effectively No simple interface for common people Complex environmental factors not considered together Climate change making traditional Rising Waters: ML-Based Flood Prediction System Web-based platform for instant flood risk assessment Input 8 key parameters (monsoon, topography, drainage, river mgmt, deforestation, urbanization, climate change, dam status) ML model trained on historical flood data	7. BEHAVIOUR Check weather forecasts during monsoon Monitor river water levels visually Listen to local news for flood updates Ask neighbors about past flood patterns Keep emergency supplies ready Evacuate only when water enters homes (too late) ONLINE: Web browser to access prediction system Weather websites and apps Social media for community alerts Government websites OFFLINE: Word-of-mouth from neighbors Local government announcements TV and radio news Community meetings