# Phase 3

## Customer Mapping

### **1. Primary Customer:**

**Plant Managers / Operations Engineers**

* **Goals:**
  + Ensure optimal flow across all pipelines
  + Detect clogs or pump issues early
  + Maintain high production uptime
* **Pain Points:**
  + Lack of real-time visibility into flow anomalies
  + Delayed detection of equipment failure
  + Reactive maintenance leads to production loss
* **What They Get:**
  + Real-time alerts for abnormal flow
  + Dashboard visualization for easy decision-making
  + Historical data for audit, forecasting, and planning

### **2. Maintenance Teams / Technicians**

* **Goals:**
  + Fix flow-related issues before failures occur
  + Perform scheduled preventive maintenance
  + Reduce downtime and emergency repairs
* **Pain Points:**
  + No early warning system for component degradation
  + Relying on manual inspections
* **What They Get:**
  + ML-based anomaly predictions
  + Alerts for suspected clogs or pump performance drops
  + Access to trend data for targeted maintenance

### **3. Data Analysts / Process Engineers**

* **Goals:**
  + Analyze flow behavior under varying conditions
  + Forecast demand/load on fluid systems
  + Optimize chemical mixing, pumping schedules
* **Pain Points:**
  + Disconnected data from sensors
  + No unified dataset for ML or statistics
* **What They Get:**
  + Structured flow rate data via MQTT
  + Clean time-series logs for ML model training
  + Ability to derive insights for process improvement

### **4. Plant Executives / Management**

* **Goals:**
  + Increase ROI through automation and efficiency
  + Minimize unplanned shutdowns
  + Justify investment in smart technologies
* **Pain Points:**
  + High maintenance cost
  + Unpredictable process failures
* **What They Get:**
  + Dashboard KPIs on flow performance
  + Reports showing reduced downtime
  + ML-driven preventive maintenance planning

### **5. System Integrators / Automation Consultants**

* **Goals:**
  + Provide plug-and-play monitoring solutions
  + Help clients with digital transformation
  + Scale systems across plants/sites
* **Pain Points:**
  + Complex sensor setups
  + Incompatibility across platforms
* **What They Get:**
  + Lightweight, MQTT-based flow sensor system
  + Easy integration with Node-RED, Grafana, or cloud IoT
  + A starting point for larger IIoT (Industrial IoT) rollouts