**Project Title: Trip Based Modeling of Fuel Consumption Project Design Phase-I** - **Solution Fit Template Team ID:** PNT2022TMID28314

**in Modern Fleet Vehicles**

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

**Explore AS, differentiate**

**Deﬁne CS, ﬁt into CC**

Providing data and research analysis of fuel economy potential by country and region

Creating database with data collected using PEMS devices

**AS**

**5. AVAILABLE SOLUTIONS**

Ideations

Experiment and simulation are combined on the diesel engine with asymmetric turbocharger

**CC**

**6. CUSTOMER CONSTRAINTS**

**CS**

**1. CUSTOMER SEGMENT(S)**

Transport Vehicles Driver/owner

Transport Companies

**Explore AS, differentiate**

**Define CS, fit into CC**

i

**BE**

**7. BEHAVIOUR**

A new asymmetric twin-scroll turbocharged engine with two EGR circuits is first presented

The new system has the maximum EGR rate and fuel economy improvements of 8.59% and 1.98%

**RC**

**9. PROBLEM ROOT CAUSE**

The model is more consistent with empirical observations compared to the MOVES and CMEM models

**J&P**

**2. JOBS-TO-BE-DONE / PROBLEMS**

Models are developed to compute the fuel consumption levels of vehicles

The research collects bus fuel consumption data for diesel vehicles

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

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**Identify sng TR & EM**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Identify strong TR & EM** | **3. TRIGGERS TR**  Performing correlation analysis on the input parameters selected to eliminate multi-colinear variables. | **10. YOUR SOLUTION SL**  Developing the neural networks and identifying the network with best-performing hyper parameters  The hyper parameters include the number of hidden layers learning rate and optimization function.  r. | 1. **CHANNELS of BEHAVIOUR CH**     1. **ONLINE**   Check current ongoing fuel consumption   * 1. **OFFLINE**   Customer can view previous fuel monitoring status |  |
| **4. EMOTIONS: BEFORE / AFTER EM**    **before customer can only monitor the fuel consumption**  **after developing the model customer can anti-siphoning devices update on fuel amounts in trucks**  **They incorporate data about fuel transactions into analytics** |