Project Title: Trip Based Modeling of Fuel Consumption in Modern Fleet Vehicles

Project Design Phase-I - Solution Fit Template

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Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

Transport Vehicles Driver/owner

Transport Companies

6. CUSTOMER CONSTRAINTS CC

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

5. AVAILABLE SOLUTIONS AS

Ideations

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

Creating database with data collected using PEMS devices

Explore AS, differentiate

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

2. JOBS-TO-BE-DONE / PROBLEMS J&P

Models are developed to compute the fuel consumption levels of vehicles

The research collects bus fuel consumption data for diesel vehicles

9. PROBLEM ROOT CAUSE RC

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

7. BEHAVIOUR BE

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%

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

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

8. CHANNELS of BEHAVIOUR

CH

8.1 ONLINE

Check current ongoing fuel consumption

8.2 OFFLINE

Identify

	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**	The hyper parameters include the number of hidden layers learning rate and optimization function. r.	Customer can view previous fuel monitoring status