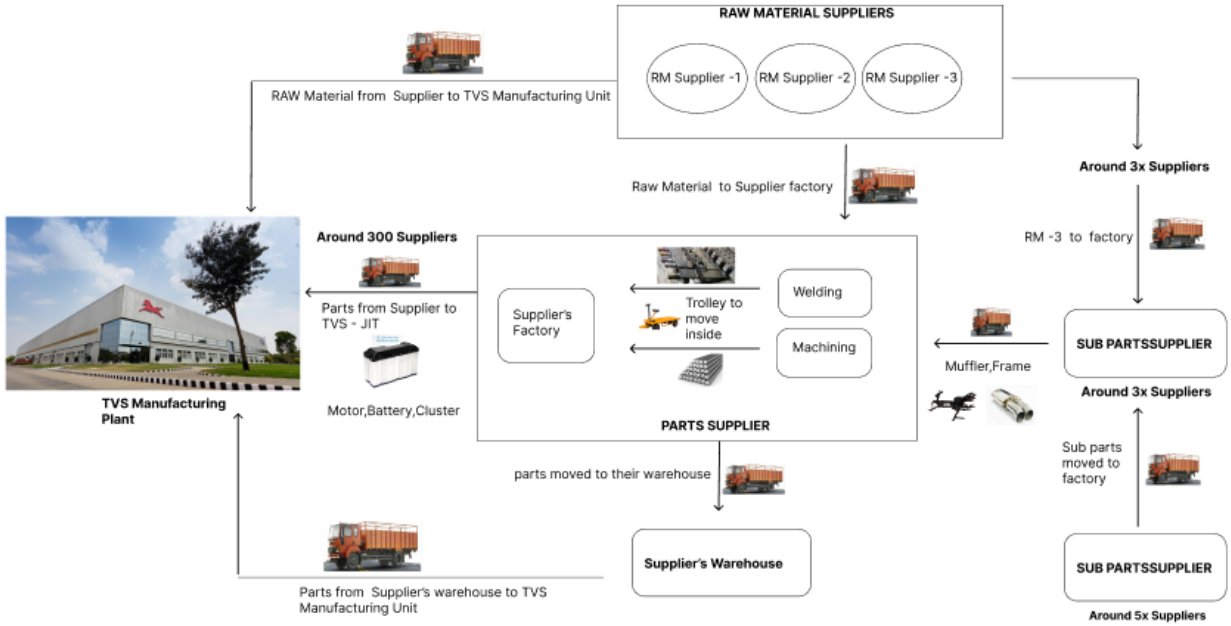
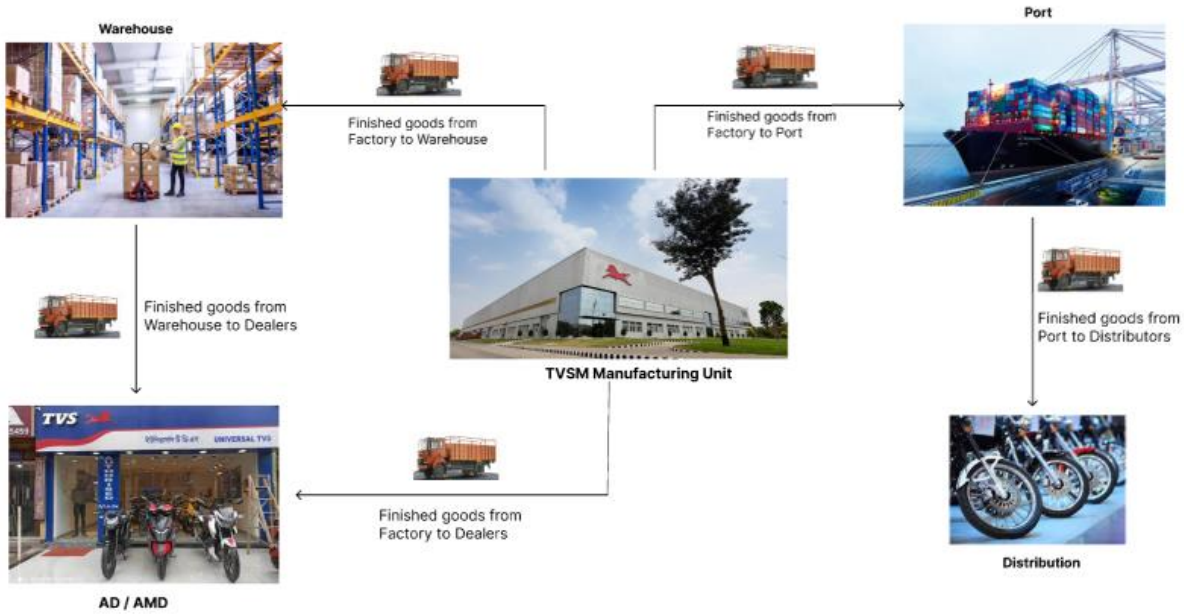
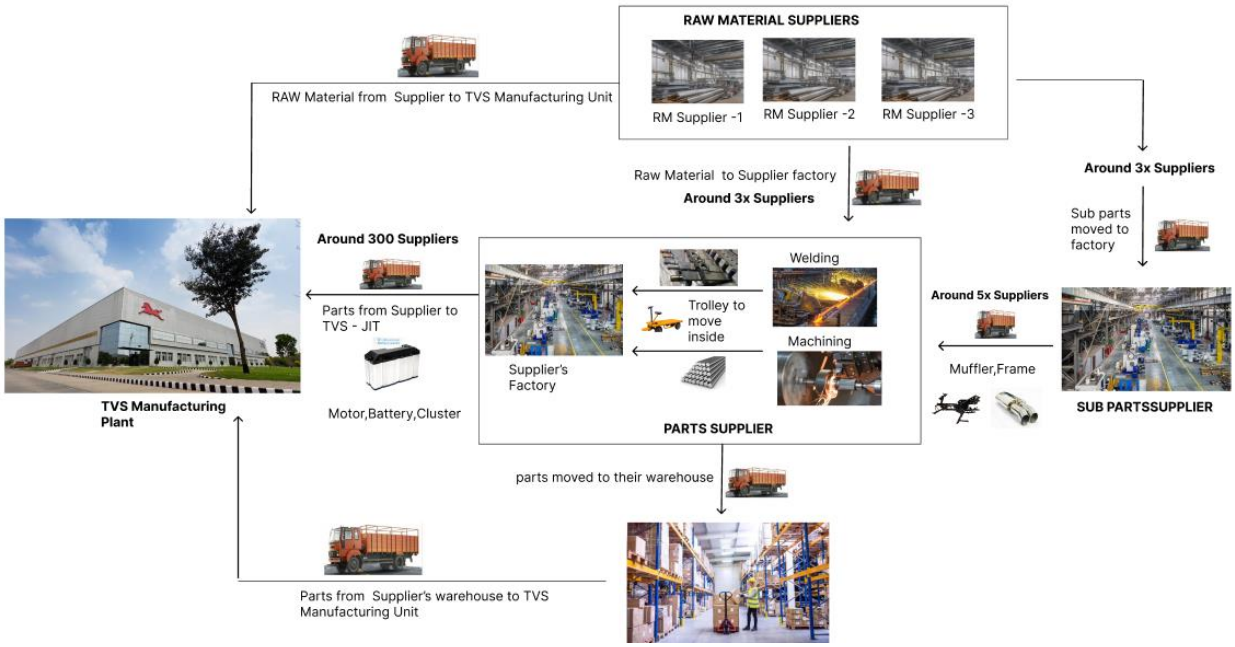
Upstream Transportation



Downstream Transportation



Upstream Transportation



SCOPE 1,2&3 CARBON EMISSION

	Scope 1	Scope 2	Scope 3
Definition	Direct emissions owned or controlled by the company.	Emissions from the energy purchased by the company.	Indirect emissions from other activities related to the company, such as supply chain, product lifecycle, and disposal.
Phase of Production Cycle	During Production	Upstream	Both upstream and downstream.
Activities	**1.Stationary combustion** Emissions from on-site fuel combustion for power. **2.Mobile combustion** Fuel consumption from TVSM-owned trucks and vehicles. **3.Process emissions** Emissions during metal forging or painting and other operations **4.Fugitive emissions** Refrigerant leaks from air conditioning units and other cooling systems in factories	**1.Purchased electricity** Energy used to run manufacturing lines, etc. **2.Purchased Steam** Steam used in heating and manufacturing processes.	**1.Employee Commuting** Emissions from business travel (flights, company-provided vehicles). **2.Upstream transportation** Transportation of raw materials from suppliers to TVSM plants. **3.Downstream transportation** Distribution of finished vehicles to dealerships. **4.Waste disposal** **5.Product use** Emissions from the use of TVSM vehicles by customers (fuel combustion in vehicles). **6.End-of-life treatment**: Emissions from disposal or recycling of vehicles.

Data Capturing methods	**1.Automated fuel tracking**: Using IoT sensors on fuel storage and consumption systems. **2.Emission monitoring systems**: Continuous monitoring devices measuring emissions. **3.Refrigerant tracking**: Sensors that log refrigerant levels and detect leaks in real-time.	**1.Smart meters**: IoT-enabled meters measure energy consumption. **2.Utility invoices**: Automated capture of energy bills.	**1.Supply chain tracking**: Using blockchain to capture data on transportation methods **2.Usage tracking**: Data from telematics in vehicles.
Blockchain Role	**1.Secure fuel data**: Blockchain securely records data from fuel logs and production meters. **2.Emission compliance**: Real-time data on emissions enables transparent reporting and regulatory compliance.	**1.Energy consumption tracking**: Blockchain can log electricity consumption and for verification.	**1.Supply chain traceability**: Blockchain provides transparency by tracking emissions through the supply chain. **2.Lifecycle data tracking**: Blockchain records vehicle usage and emissions throughout the product's lifecycle, ensuring accurate end-to-end carbon footprint.
Reduction Measures	**1.Cleaner fuels**: Transition to natural gas or electric alternatives for on-site machinery and vehicles. **2.Efficiency upgrades**: Optimize manufacturing processes for lower emissions. **3.Carbon capture**: Install carbon capture technology for process emissions.	**1.Renewable energy**: Transition to solar or wind energy for manufacturing facilities. **2.Energy-efficient technology**: Install energy-saving devices and upgrade machinery.	**1.Logistics optimization**: Work with suppliers to use eco-friendly shipping methods. **2.Vehicle efficiency**: Design more fuel-efficient models and encourage eco-friendly driving among customers.