TATA CONSULTANCY SERVICES

Building on belief

Multimodal shared motor pool management

Navigate the alternate way

Abstract

With the foundation of smart mobility at the center, the digital ecosystem with real time information on fingertips is the need of the hour across industries. In today's world, though companies are modernizing their technological landscape and platforms, they must be resilient in the face of continuous disruptions in the business environment.

In the automotive sector, especially, the fleet leasing and management companies are eying solutions that are lean in capital and flexible in operational expenditure. They are facing resistance to long binding contracts, high initial capital expenditure, and maintenance costs. Augmenting fleet capacity and utilization, responding real time to demand, optimizing running costs on routes, and ensuring intelligent maintenance of fleet are some of the factors fleet players should focus on.

This white paper presents a hybrid solution for both fleet leasing companies and their customers, which highlights flexible rightsizing of vehicles and optimized costs along with adherence to government regulations. This paper is a continuation of **"Data-Driven Multimodal Mobility Management"** that highlights the opportunities to leverage mobility ecosystem data in the end-to-end value chain and its key capabilities.

Introduction

The fleet industry is constantly evolving with business and technology advancements, like the emergence of connected fleet, electrification of vehicles, telematics coupled with ride-sharing models, and government regulations driving the industry to become smarter, cost-effective, and futuristic. Complex challenges such as increasing vehicle ownership costs, driver demands, and fleet rightsizing are urging fleet players to look for intelligent transport solutions. As per MarketsandMarkets reports, the global fleet management sector is forecasted to grow from USD 20.6 billion in 2021 to USD 33.9 billion by 2026[1]. The fleet management industry is still recovering from the pandemic sluggishness, and organizations are bound to embrace digital shifts to enhance efficiency and control costs.

Building intelligent transportation solutions

The Fleet Leasing and Management Companies (FLaM) lease and manage commercial vehicles on behalf of their customers. The two primary set of customers for FLaM companies are:

- Business organizations/corporates that lease long-term passenger vehicles for their employees
- Supply chain partners that operate commercial vehicles like trucks, trailers, cargo ships, etc. on a contract basis

[1] https://www.marketsandmarkets.com/Market-Reports/fleet-management-systems-market-1020.html

With acute disruptions owing to socioeconomic conditions, businesses across industries are working in collaboration with their respective ecosystems to continuously innovate and capitalize on contracts that expect lower CapEx and OpEx as well as reduced fixed and variable costs.

Fleet optimization – Envisaging operational excellence

Managing the increasing cost of vehicle ownership

The vehicle ownership cost is increasing every year due to fluctuations in fuel, insurance, and maintenance costs. The Total Cost of Ownership (TCO) analysis for a vehicle owned by FLaM implies a high fixed cost of ownership along with high variable and maintenance costs.

Similarly, corporates and supply chain businesses running the fleet have their expenditure broken down to high fixed lease and fleet management costs along with high vehicle maintenance, accidental coverage, on-road and off-road vehicle charges, loss incurred due to vehicles being idle or no vehicle utilization.

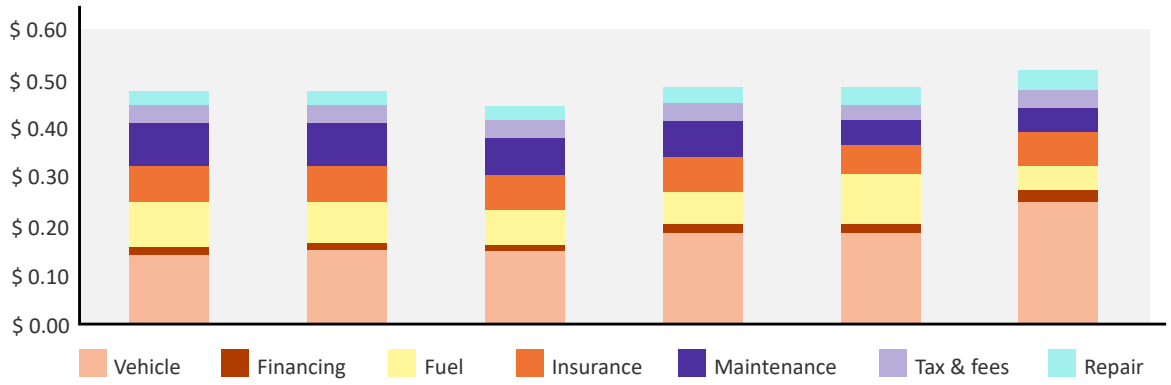


Figure 1: Avg. 15-year per-Mile Cost of Driving - 2025, Small SUV

Improving experience for fleet managers

Fleet managers are increasingly challenged to ensure smart mobility, minimal greenhouse gas emissions, and low fuel and maintenance costs. Fleet managers strive to meet the challenges by ensuring rightsizing of vehicle, reduced idle time, and driver care setup to minimize accidents and thefts. The usage of smart mobility funneled with multiple modes of transport puts a burden on the cost of ownership for the vehicle. The goal is to bring this cost down by sharing the transport across companies.

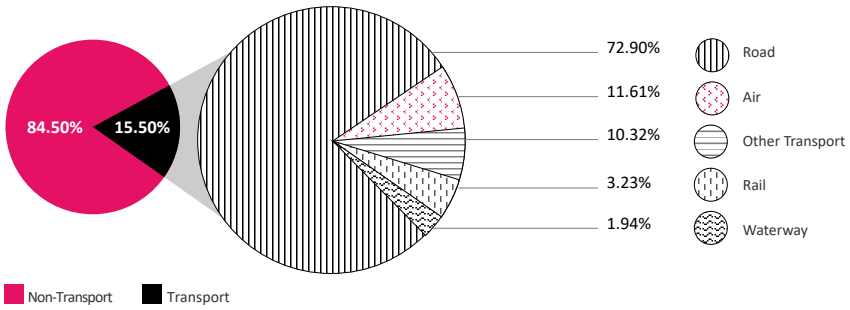
For corporates and supply chain companies, this implies:

- Having partnerships with fleet management companies that ensure the highest mobility through different modes of transport, shared transportation, and mobility as service applications provided to end users, ensuring time and cost savings for the business and its end users
- Ensuring the distribution of cargo through various transportation modes is analyzed by a smart algorithm based on duration, cost, and volume of the cargo to be shipped

Figure 1: *https://publications.anl.gov/anlpubs/2021/05/167399.pdf*

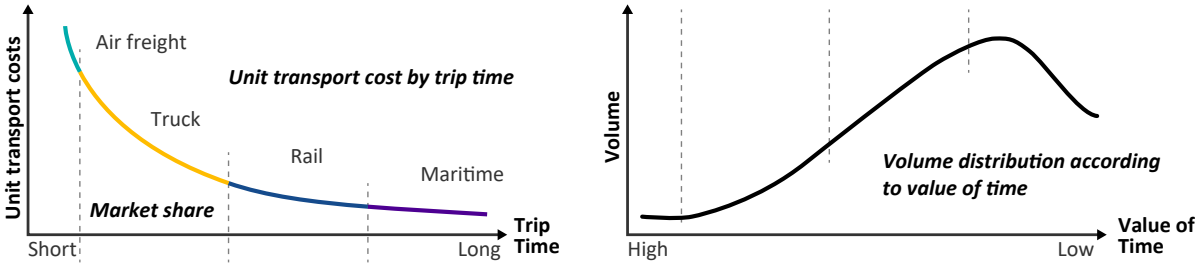
Choosing sustainable transportation

Globally transport sector contributes 23% of greenhouse gas emissions majorly by burning fossil fuels. Among the total greenhouse gas emissions, ~75% are from road transport and this trend is expected to increase in the future[2]. From the fleet industry perspective, this is equally proportionate to volume of the goods loaded in a vehicle. The study below indicates the impact of different modes of transport in green gas emissions (Figure 2), and unit transport cost by volume distribution in Figure 3:



***Source**: https://www.sciencedirect.com/science/article/pii/S1366554520307365#b0025*

Figure 2: CO_2 Emissions



***Source**: https://transportgeography.org/contents/chapter5/transportation-modes-modal-competition-modal-shift/distribution-demand-mode/*

Figure 3: Unit transport cost and volume distribution

Revolutionizing fleet operations – Transport-as-a-service on cloud

One of the ways to reduce the fixed cost of vehicle ownership is to share the vehicle between multiple corporates and supply chain businesses as per the contract. The solution is to enable a shared fleet management contract which is not only flexible and managed completely by FLaMs with transport-as-a-service, but also open-ended, secure, and covered by insurance and/or government laws.

Establishing a multimodal shared vehicle pool management can help both the FLaM and its customer optimize on fleet TCO, and reduce variable and fixed costs within a short period of time.

To enable this, the FLaM business would need to define contracts that are slowly moving toward the goal of multimodal motor pool providing transportation-as-a-service on cloud.

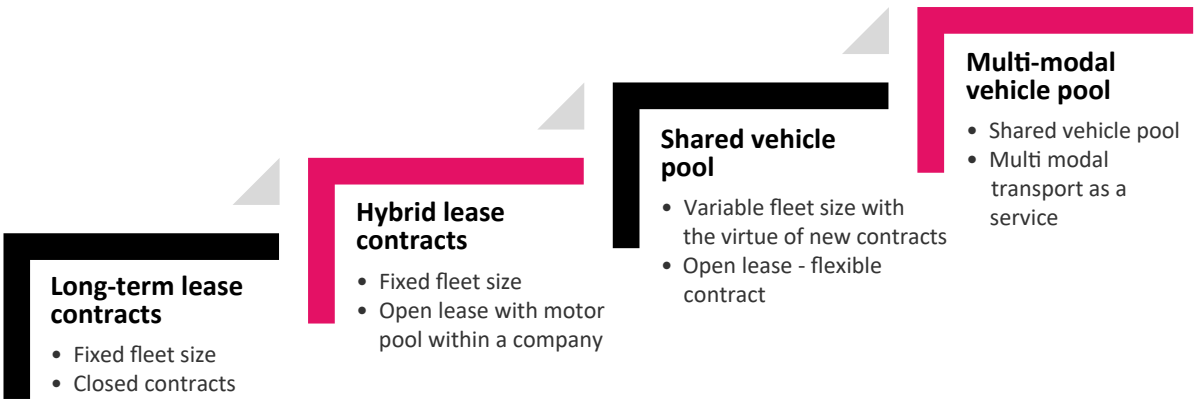


Figure 4: Multi modal shared vehicle journey

[2] https://www.conserve-energy-future.com/modes-and-benefits-of-green-transportation.php#

Note:

- **Motor pool:** Sharing of motor or vehicle within the company by its employees based on the best-fit usage
- **Dedicated fleet:** Fleet contract like closed long-term lease contract
- **Reserved fleet:** Short-term fleet contract booked in advance to support planned peak sizing
- **On-spot fleet requirements:** Quick rentals supported for the companies within the lease program

Features of long-term lease contracts

The table below introduces the various types of contracts which the companies can have with FLaMs with the goal to have high mobility and reduced cost.

	Contract types and its features			
Features	Closed	Hybrid lease	Shared vehicle pool	Multimodal shared motor pool
Vehicle ownership	Vehicle ownership	Customer + FLaM	FlaM	FlaM
Contract definition	Long term / Lease	Long term lease + agile vehicle pool management	Long term lease + reserved booking (short term advanced booking to suit season variability + on spot booking (similar to rentals)	Same as shared vehicle pool supported by multiple modes of transport
Fleet size	Dedicated Fleet	Dedicate fleet shared within the corporate	Flexible fleet size shared across corporates	Same as shared vehicle pool supported by multiple modes of transport
Vehicle maintenance	Customers of FLaM	Customer + FLaM	FlaM	FlaM
Fixed costs	High	High	Low	Low
Variable costs	High	Reduced	Low	Low
Insurance type	Owner	Owner + non-owner	Rental	Rental

Considering the above approach in a corporate setup, the fleet manager will work with FLaM to identify the smallest unit of vehicles that need to operate on a long-term lease.

Example: If the fleet manager has a fleet size of 20 vehicles:

10 vehicles can be assigned on long-term lease

7 vehicles can be utilized for pool and,

3 can be used for reserve i.e. during emergencies or vehicle breakdowns.

With the multimodal shared transport enabled by FLaMs, fleet manager is expected to create a long-term, closed contract (dedicated lease) with only 10 vehicles. The remaining 10 can be divided into two segments, i.e. 7 for reserved pool on short-term contracts, and 3 for spot bookings.
The proposed concept can significantly reduce the CapEx and offer flexibility in variable costs.

Key tenets to enable the multimodal motor pool concept

The success of a multimodal program includes a well-defined strategy and planning. The key tenets listed below is a suggestive checklist, and it can be customized as per the program requirement.

- **Pool management program**
  - To ensure driver/vehicle alignment, billing, cost utilization, and maintenance
  - To leverage predictive modeling to forecast cost-benefit analysis
- **Key management**
  - To assist car key handover from drivers specially for on-spot bookings
- **Maintenance**
  - To minimize idle vehicle time and increase the on-road time for suppliers and vendors for quick turn around on maintenance
- **Fuel refilling/EV charging**
  - To establish partnerships with service card vendors, and fuel supplier network for fuel refilling or EV charging
- **Theft/unauthorized usage**
  - To utilize telematics for real-time tracking and monitoring of vehicles to avoid unauthorized usage or theft
- **Insurance**
  - To partner within the fleet ecosystem, like insurance providers, for requirements based on the contract type, like owners/non-owners/rental insurance.

Conclusion

Innovation in business is vital for survival, especially in the current dynamic market conditions. The future of transportation will be largely driven by multimodal fleet management instead of vehicle ownerships. To enable such services, fleet management needs to strongly conceptualize its multimodal vehicle journeys, i.e. vehicle ownership, contract definition, pool management, and such factors.

The foundation for optimizing the overall TCO will be sharing the fixed cost and reducing the maintenance cost by fleet owners. Multimodal shared transport strategy will steer the fleet players and their customers towards a flexible fleet-sizing model that efficiently caters to both demand and supply.

About the author

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Kavita Darira is a domain consultant and strategic partner for fleet leasing clientele in the USA. She has around two decades of experience in the IT industry, and her experience spans across fleet operation management, web and mobile platforms, customer experience, and digital transformation. Kavita combines her industry and consulting experience to bring in design thinking approach of innovation. Her superior command over disruptive technologies has proven to be instrumental in accelerating multiple fleet transformational projects.

Kavita holds a Bachelor of Engineering from the University of Mumbai, and she is PMP-certified, and an Agile practitioner.

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