

Transforming Mobility: Converging Autonomous, Connected, and Shared Transportation for Improved Fleet Management

Abstract

With evolving customer demand for holistic mobility, the convergence of four revolutionary forces - connected, autonomous, shared, and electric - are crucial in transforming how users commute from one place to another.

This has resulted in transportation services transitioning from a product-oriented mobility model to a service-oriented one, where fleet mobility services take precedence over vehicle ownership. As customer demands evolve due to COVID-19 alongside changing global dynamics, fleet mobility services offer a resilient and adaptable way to fulfil customer requirements. Fleet services offer innovative and first-hand solutions to enable the customers to make the best out of their journey. However, enabling these services will require an improved fleet management environment coupled with a strong integration in mobility services to serve the customer with utmost safety and care.

This white paper discusses how innovative business models in fleet management, backed by a connected ecosystem, can manage disruption in the transportation industry and cater to customer needs in the future in the most efficient, safe, and secure way.

Future of Transportation: Three Key Business Models

Travel in the future will be more dynamic and innovative than ever before with vehicle fleets consisting of electric, hybrid, connected, and autonomous cars¹. However, to deliver secure, reliable, safe, and enjoyable transportation, managing the technology and communication that underlie mobility will be crucial.

This requires traditional mobility players to bridge the gap between physical and digital models. Bringing ecosystem stakeholders together, including technology enablers, platform and carrier providers, fleet owners, financial institutions, and telecom service providers, can enable mobility players to create new models².

Boosting Revenue with Shared Autonomous Vehicles

A fleet of shared autonomous vehicles (SAVs) can offer a low-cost, efficient, and safe mobility option to travelers. SAVs are driverless cars which combine various car-based mobility services such as car sharing, cabs, and ride sharing into a single mode of transportation, eliminating the need for a driver to move around. However, as the model grows, more vehicles are added on to the platform, making fleet management a challenge. Fleets must be carefully planned and scheduled precisely to cater to the varied demands and preferences of customers to provide complete customer satisfaction. Autonomous vehicle fleets should be maintained through continuous software updates, faster turnaround times between rides, cleanliness, and routine checks³. This will create demand for an additional set of service providers in the ecosystem or will require existing providers to extend their services.

In addition, the data created by SAVs based on vehicle parameters, passenger preferences, and the surrounding environment should be managed and analyzed to provide enhanced services to the customer. This can help leverage a wider connected ecosystem for additional revenue streams.

[1] Forbes; Fireworks About ACES As Key Acronym For The Future Of Mobility And Self-Driving Cars; July 4, 2019; <https://www.forbes.com/sites/lanceeliot/2019/07/04/fireworks-about-aces-as-key-acronym-for-the-future-of-mobility-and-self-driving-cars/#419f1440654e>

[2] Business Wire; Mobility as a Service Markets, 2030 by Service, Solution, Transportation, Vehicle, Application - ResearchAndMarkets.com; August 14, 2019; <https://www.businesswire.com/news/home/20190814005495/en/Mobility-Service-Markets-2030-Service-Solution-Transportation>

[3] International Journal of Sustainable Transportation; Shared autonomous vehicles and their potential impacts on household vehicle ownership: An exploratory empirical assessment; March 15, 2018; <https://www.tandfonline.com/doi/abs/10.1080/15568318.2018.1443178>

However, with the rise of TCM, optimizing costs means identifying the overall cost of a user as he/she completes the journey between two or more points. This requires managing the cost of vehicles, related services, and peripheral expenditures such as services used by the drivers, parking, travel management, and regular safety and sanitary measures taken for customers. In addition, TCM will help optimize the way employees travel and choose their mode of transport. For example, companies can choose from car usage in busy areas, public transport for sub-urban areas, and e-bikes for much shorter distances⁷. This will enhance fleet management and make alternative transportation attractive to employees. The end result: enhanced fleet availability through better monitoring and utilization of vehicles.

The Future of Transportation is Neural, Personalized, and Connected

The convergence of the different forms of mobility has introduced innovation in transportation services, which are driven by the demands of consumers for a more accessible, reliable, environmentally responsible, and safe form of transportation. The new transportation models of the future will help users identify the best possible way to commute from one place to another and will ensure more efficient, safer, and hygienic journeys. These intelligent models will enable a connected ecosystem driven by the personalized needs of customers. However, for the new transportation models to be successful, they need to be agile, resilient, and adaptive to the changing dynamics of customer demands. They also need to be responsive towards any unexpected hurdles, while equally ensuring the safety and security of customers. As this ecosystem grows, managing the fleet will become increasingly complex thanks to the vast amounts of data these connected and shared vehicles will generate. Drawing insights from this data using advanced technologies like artificial intelligence and machine learning will create a neural network of a connected, adaptive, and personalized transportation ecosystem. This ecosystem will help fleet managers fulfill the needs of their customers, while opening numerous opportunities in the form of direct revenue generation, cost savings, and enhanced fleet safety or security, to revolutionize the mobility industry.

[7] *Travel Behaviour and Society; Creation of mobility packages based on the MaaS concept; June 11, 2019; <https://www.sciencedirect.com/science/article/pii/S2214367X18301030>*

About The Authors

Tushar Tatawat

Tushar Tatawat is a Business Analyst in the Aero and Process division of the Manufacturing and Utilities Business Unit at Tata Consultancy Services. He has more than six years of experience working across different functions, such as production, supply chain, process improvement, and consulting, in the manufacturing and IT domains. He holds an Management degree in International Business from the Indian Institute of Foreign Trade (IIFT), New Delhi and a Bachelor's degree in Production and Industrial Engineering from Delhi College of Engineering (DCE).

Sandeep Behera

Sandeep Behera is a Business Analyst in the Aero and Process division of the Manufacturing and Utilities Business Unit at Tata Consultancy Services. He has over two years of experience in the IT industry and is responsible for marketing, business analysis, research in supply chain, and logistics. He holds a Bachelor's and Master's degree in Electrical Engineering from the National Institute of Technology (NIT), Rourkela, India and a Post Graduate Diploma in Industrial Safety and Environmental Management from the National Institute of Industrial Engineering (NITIE), Mumbai, India.

Contact

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