Connected Car point of view within the context of RUC
# The connected car value chain

**Back Office**

### PLAYERS

- **Auto Manufacturers**
  - Embedded hardware to gather, sense, locate and transmit required data

- **Network Provider**
  - Provide comprehensive coverage to transmit hardware data to desired end points

- **Platform Provider**
  - Provide the means to manage vehicle data, orchestrate events, interface with partners

- **Solution Provider**
  - Provide endpoint applications and turnkey solutions for specific verticals

### FUNCTION

- **Hardware**
  - Connectivity
  - Platform and Data
  - Applications & Solutions

### SAMPLE USE CASES

- **Auto Manufacturers**
  - Embedded device
  - White labeled offboard device

- **Network Provider**
  - SIM management
  - Hyper-precise location

- **Platform Provider**
  - Data & analytics
  - Platform as a service

- **Solution Provider**
  - Road Usage Charging
  - Partner solution resale

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*Source: Analysis Mason, ABI Research, Deloitte Analysis*
## Key industry trends shaping the future of mobility

<table>
<thead>
<tr>
<th>Trend</th>
<th>About the trend</th>
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<tbody>
<tr>
<td><strong>Connected vehicle data to be valued at $10.8B in 2030</strong></td>
<td><strong>Total market value for connected vehicle data</strong>, including aggregated anonymized data and consumer-authorized services, is expected to reach $10.8 billion in 2030, with primary buyers being <strong>mapping companies</strong>, <strong>governments</strong>, <strong>insurance companies</strong>, <strong>part makers</strong>, <strong>advertisers</strong>, etc.</td>
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<td><strong>Software-defined vehicles (using E/E architecture)</strong></td>
<td><strong>OEMs are updating their electronic and electrical (E/E) architecture</strong> for their software-defined vehicle which <strong>decouples hardware and software development life cycles</strong>, enabling regular software <strong>updates over the air (OTA)</strong>, with future-state hardware configurations and <strong>remote issue fixing</strong></td>
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<td><strong>High-Speed Communication Backbone for OEMs</strong></td>
<td><strong>Service-oriented architecture</strong> environment would <strong>require high-speed cross-domain communication</strong> as components will be loosely coupled to each other with a service bus as the middleware, and communicate between software and signal nodes</td>
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<td><strong>New service-based revenue &amp; monetization models</strong></td>
<td><strong>By 2027, average annual digital revenue per connected car will grow beyond $400</strong>, up from $40 today, with EV players being more effective in monetizing their connected vehicle programs. E.g., <strong>Tesla already generates $1,177 per car</strong>, per year, from sales of OTA updates</td>
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<td><strong>Battery Technology startups in EV space</strong></td>
<td><strong>Opportunities in the EV space requires overcoming key bottlenecks in battery technology in EV. Startups in this space are coming with altered battery chemistry and focusing on producing advanced battery energy density. Moreover, the first production ready Photovoltaic (PV) paneled EV cars have also been introduced in the market</strong></td>
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<td><strong>Tech giants to become in-vehicle software providers</strong></td>
<td><strong>By 2025, tech giants will own a part of 95% of new cars’ OS</strong> on the road, as they replace existing suppliers in the role of in-vehicle software provider especially for infotainment systems, e.g., <strong>Alphabet’s Automotive Services platform</strong> with android has <strong>seen adoption among leading OEMs</strong></td>
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<td><strong>V2X direct vehicle communication</strong></td>
<td><strong>V2X</strong> (vehicle-to-everything) communication will involve interaction with external environment incl. communication with other vehicles, infra., pedestrians using direct (P2P) or network-based communication with a <strong>mix of 4G, satellite, DSRC and 5G based on latency and reliability needs</strong></td>
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<td><strong>Mobility as a service (MaaS)</strong></td>
<td><strong>Consumer trend is shifting from vehicle ownership to pay as you go</strong> model driving interconnected shared mobility solutions, where a single super app enables riders to <strong>book ride until last mile involving multiple stops and modes of transport</strong> but managed and executed on a single app</td>
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Connected Car – Fleet B2C and B2B (Rental)
Telematics unlocks fleet management capabilities

Fleet Optimization
Right size the type, number, and location of vehicles by tracking utilization, trips, drive time, idling and driving patterns.

Sustainable Driving
Monitor fuel usage, idle time, and schedule the charging of EVs to eliminate inefficient tendencies across the postal organization.

Optimized Routing (EV)
Pre-programming routing, driver location tracking, geofencing and live traffic integration enables safety and efficiency-based routing.

Driver Safety
Harsh driving indicators (braking, excessive speeding, cornering), seat belt warning and accident notifications lead to safer drivers.

Operations and Governance
Leverage a centralized data hub to understand the total cost of fleet operations and uncover areas for improvement.

Predictive Maintenance
Real-time fault codes, manufacturer recalls, engine diagnostics and health metrics enable predictive maintenance actions to reduce costs and downtime.
## Key industry trends shaping the future of connected fleet

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<td>Fleet Electrification on the Rise</td>
<td>- The <a href="#">2022 State of Sustainable Fleets</a> survey found that 85% of fleets that adopted alternative energy vehicles, plan to expand their use for the third year running. 67% of fleets surveyed intend to order BEVs this year.</td>
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<td>Increased Adoption of Video Monitoring</td>
<td>- North American video telematics install base will reach 6.5 million units, a study by Berg Insights. Video telematics helps improve driver safety, monitor driver behavior, and promote on/off-road driver coaching and incentives.</td>
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<td>Automation and AI in Telematics</td>
<td>- Increased leverage of <a href="#">AI in processing large amounts of data</a> to refine use cases around predictive maintenance, asset utilization, driver safety, charging analysis, inventory optimization</td>
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<td>Autonomous Trucking Partnerships</td>
<td>- By 2030, autonomous trucks are expected to contribute to <a href="#">10% of the new heavy class truck sales</a>. Several industry partnerships are driving this change and cost savings including labor, fuel and maintenance costs are expected to accelerate growth in this space.</td>
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<td>Telematics empowered EV fleet management system (FMS)</td>
<td>- Integration of EVs operating system with telematics allows FMS to optimize usage of fleet according to each vehicle’s state of charge. Moreover, charging reports can be generated, creating alerts about nearby charging stations thereby improving reliability and satisfaction</td>
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<td>API based Economy</td>
<td>- There is a need for interconnected data to enable synergies for fleets. <a href="#">Liberalization and standardization of APIs and data structure</a> can help stimulate independent developers to add new solutions and layers on top of existing platforms, turning them into self-sustainable ecosystems.</td>
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