

FutureBridge

MOBILITY Look-back Trends 2024

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CASES : Navigating Mobility's Transformation

CONNECTED MOBILITY



Connected mobility advances with EU mandates on DMS, Level 3 ADAS, advanced infotainment and cockpit innovations

AUTONOMOUS MOBILITY



Autonomous mobility accelerates through expansions, regulations, investments and sensor advancements

SHARED MOBILITY



Shared mobility thrives with aerial, micro and shared solutions, while collaborations digitize bus transit

ELECTRIFIED MOBILITY



Electric mobility expands as battery technologies improve, prices drop, alternatives emerge, and hybrids gain focus

SUSTAINABLE MOBILITY



Sustainable mobility progresses with EU's CO2 cut mandates, advances in materials, hydrogen and remanufacturing

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In 2024, the CASES trends were propelled by a confluence of regulatory mandates, technological advancements, strategic partnerships and investments.

- FutureBridge analyzed pivotal developments in mobility, highlighting 2024's defining CASES trends.
- Using extensive databases, global tracking, expert validation and a benchmarking model based on innovation impact, market scalability, technological feasibility and sustainability alignments we have identified the most critical trends.
- With the mobility sector evolving rapidly, OEMs, suppliers, and technology companies must adapt to shifting consumer demands, sustainability goals, and market dynamics.
- These insights equip stakeholders with a strategic edge to tackle challenges and seize opportunities in this transformative landscape.

Connected Mobility 2024

Regulations, SDVs and Telematics redefine the future of driving

Key Trends

- Rising Adoption of Driver Monitoring Systems (DMS):** EU mandates DMS in all commercial vehicles; Collaborations such as Roadzen-Bosch and Omnisvision-Philips add health monitoring in passenger vehicles.
- The Shift to Software-Defined Vehicles (SDVs):** Mercedes Benz gains Level 4 AV approval; Xpeng continues to invest in advanced s/w systems while Toyota and NTT partner to develop driver-assist technology.
- Infotainment Advancements:** Audi and Mercedes-Benz launch advanced voice assistants for better user experience, whereas Apple updated CarPlay features.
- Semiconductor Collaboration Fuels Digital Cockpit Evolution:** Qualcomm-Google, MediaTek-Nvidia and Huawei-Nissan advance cockpit technologies.

FutureBridge Perspective

- Collaborate for Scalable Innovation:** Build partnerships to co-develop DMS, SDVs, and semiconductor solutions, ensuring cost efficiency, faster innovation and compliance.
- Invest in Differentiation:** Focus on modular software, advanced personalization and smart ecosystems to create unique user experiences.
- Secure and Monetize Connectivity:** Standardize cybersecurity, monetize features via subscriptions and ensure regulatory compliance for future-ready solutions.



Autonomous Mobility Trends 2024

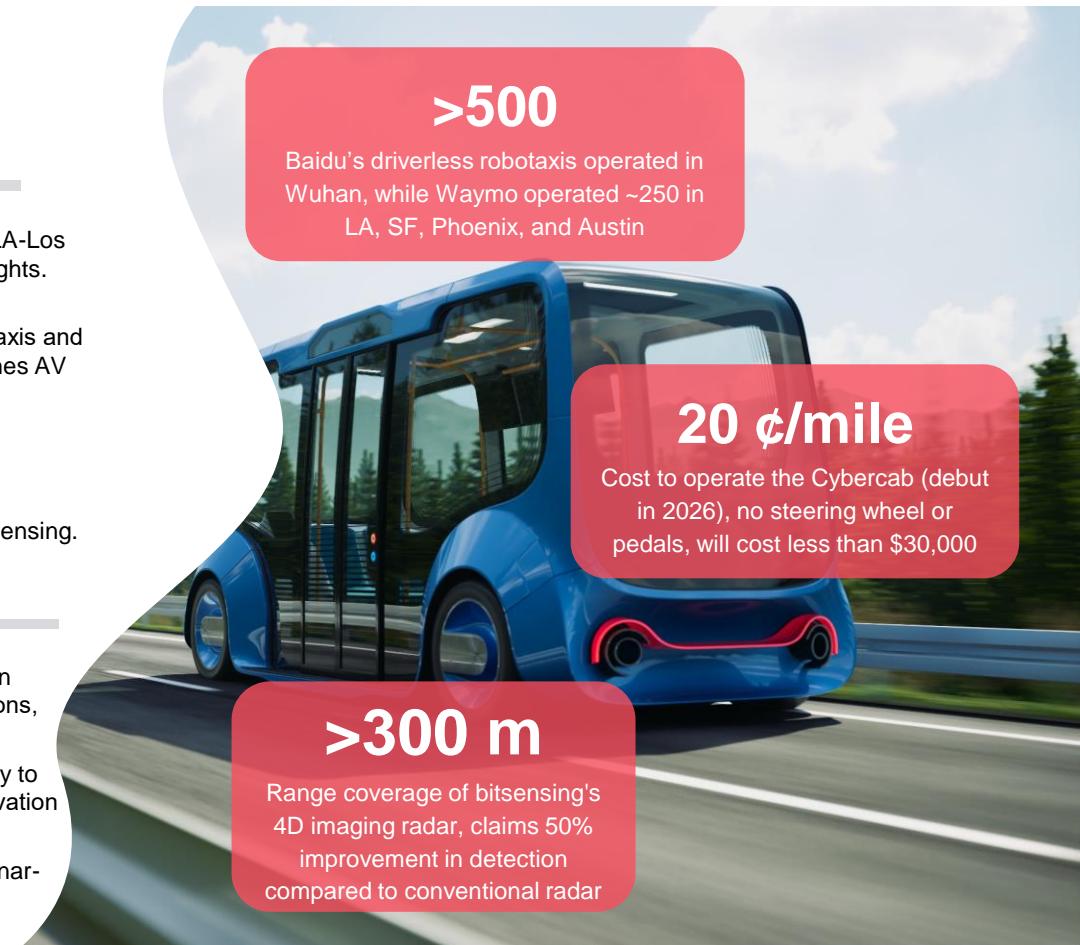
Investments, Regulations and Advanced Sensors

Key Trends

- Robo-Taxi Renaissance:** Waymo to enter Tokyo, expand in Phoenix, LA-Los Angeles, and SF-San Francisco, while Baidu secures Hong Kong test rights. Tesla unveiled Cybercab and Robovan.
- Regulations Paving the Way:** China's new rules enable autonomous taxis and buses in Beijing and Wuhan; Baidu and Tesla lead trials. NHTSA launches AV STEP, easing driverless exemptions despite safety concerns
- Investment Dynamics:** GM exits Cruise to refocus on ADAS; Motional postponed robotaxi service plans after Aptiv withdrew investment.
- Sensor Synergy:** Luminar acquired Gooch & Housego's optoelectronic division, expanding semiconductor operations, while NXP partnered bitsensing.

FutureBridge Perspective

- Accelerate Robo-Taxi Adoption:** Leverage regulatory advancements in China and Waymo's expansion model to scale autonomous taxi operations, ensuring profitability and user trust in urban markets.
- Shape Regulatory Frameworks:** Collaborate with policymakers globally to influence AV-friendly regulations like NHTSA's AV STEP and align innovation with compliance for market leadership.
- Invest in Sensor Ecosystems:** Form strategic partnerships (e.g., Luminar-Gooch & Housego) to advance sensor technologies, enhancing safety, scalability, and cost-efficiency in autonomous vehicles.



Shared Mobility Trends 2024

A Year of Transformation and Resilience in Mobility

Key Trends

- Aerial Mobility Takes Off:** Joby Aviation and Archer plan electric air taxi and have announced the launches for 2025, raised \$1.45 billion in-total, while Volocopter faces financial struggles.
- Micromobility Consolidates:** Tier has merged with Dott, Lime has advanced sustainability, and Joco has achieved profitability with docked e-bikes.
- Mobility-as-a-Service (MaaS) Expansion and Growth:** Uber grew trips by 25% to 2.7 billion in Q3 2024, diversifying with Uber Boat and Shuttle. India's ONDC has partnered with Namma Yatri, advancing MaaS by integrating auto-rickshaw hailing citywide.
- Digital Bus Revolution:** In Europe and the US, partnerships RideBTA-Modeshift, Horisen-Vodafone, and Volvo-Optibus-Stoneridge have transformed bus transit with advanced ticketing and efficiency solutions.

FutureBridge Perspective

- Expand Multimodal Ecosystems:** Adopt MaaS strategies using Uber and ONDC models, integrating micromobility, ride-hailing and public transport to optimize urban mobility.
- Invest in Aerial Mobility:** Support eVTOL initiatives like Joby and Archer to pioneer air mobility infrastructure, ensuring alignment with city networks and consumer expectations.
- Sustain Micromobility Profitability:** Focus on sustainable and docked micromobility solutions, following Lime and Joco's profitability-driven approaches, to strengthen market share and efficiency.



Electric Mobility Trends 2024

From Battery Breakthroughs to Automaker Shifts

Key Trends

- Record Low Battery Prices:** Lithium-ion prices plummeted, driven by China's demand, cost-effective LFP batteries and production efficiencies.
- Emergence of Lithium-ion Alternatives:** Solid-state, lithium-sulfur, and sodium-ion batteries redefine EV performance with advantages like improved safety, high energy density and cost-effectiveness.
- Automakers Shift Focus:** Slowing EV growth prompted Ford, GM, Volkswagen, Volvo Cars, Mercedes Benz, Toyota, and Hyundai Motors to prioritize hybrids, counter Chinese competition, and optimize profitability.
- Gigafactory Dynamics:** Northvolt paused projects, while CATL and LG Chem expanded into the U.S., leveraging Inflation Reduction Act incentives.

FutureBridge Perspective

- Advance Battery Innovation:** Invest in solid-state and sodium-ion batteries to enhance energy density, safety and cost-efficiency, mitigating reliance on traditional lithium-ion solutions.
- Balance EV and Hybrid Focus:** Shift towards hybrid vehicles to counter competition and ensuring profitability while maintaining leadership in electrification.
- Capitalize on U.S. Gigafactories:** Leverage IRA incentives to expand production with CATL and LG Chem, ensuring resilient supply chains and cost advantages.



Sustainable Mobility

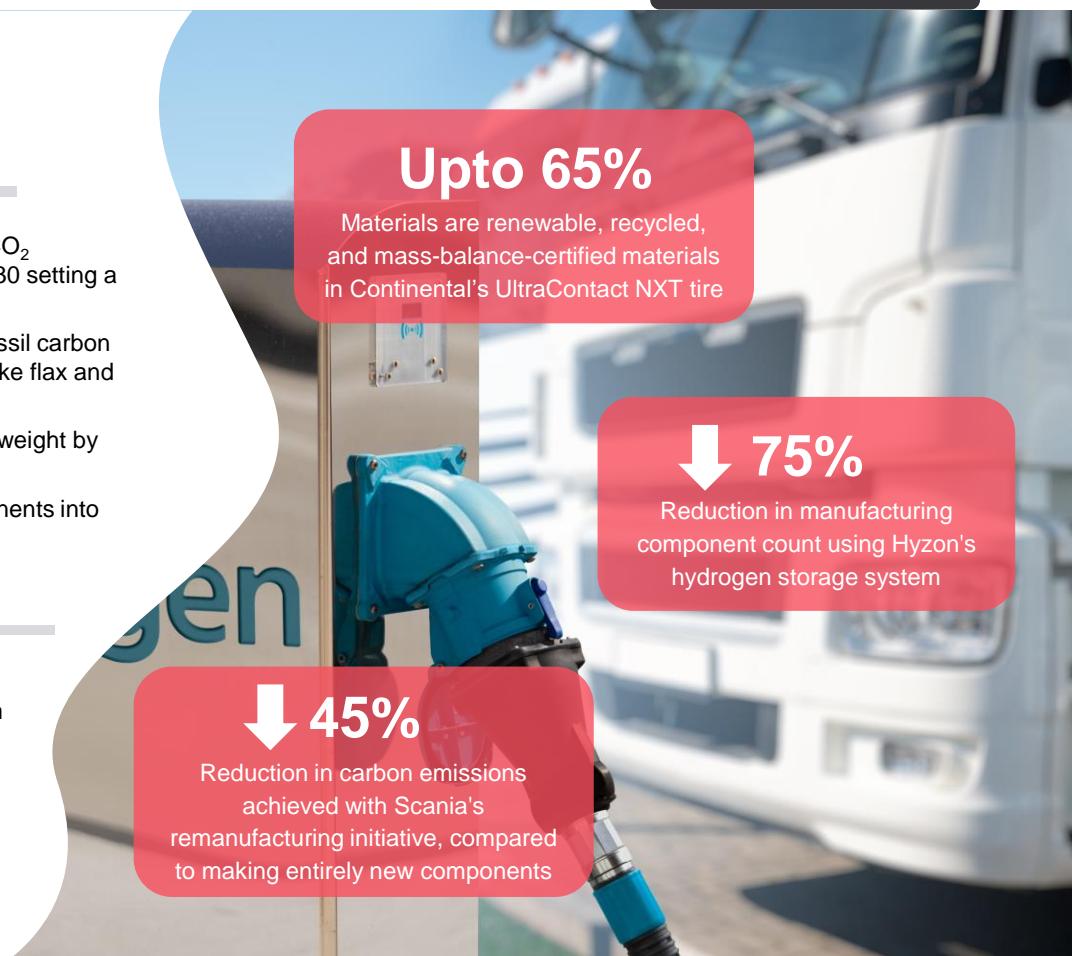
A 2024 Look-Back at New Targets and Innovations

Key Trends

- CO₂ Emission Reduction Targets:** In 2024, the EU mandated a 90% CO₂ emission cut from new trucks by 2040, and interim targets of 43% by 2030 setting a robust climate framework for heavy-duty vehicles.
- Bio-materials Revolution:** Nokian Tyres' Green Step Ligna replaces fossil carbon with renewable lignin. Continental's CONTI NXT belt and natural fibers like flax and jute drive lightweight composites for vehicles.
- Hydrogen Fuel Breakthroughs:** Hyzon Motors' hydrogen storage cuts weight by 43% and costs by 52%. Toyota's cartridges expand hydrogen use.
- Remanufacturing Success:** Scania integrates remanufactured components into its main assembly line, bringing material use and emissions to ~50%.

FutureBridge Perspective

- Implement CO₂ Reduction Technologies:** Adopt lightweight materials and hydrogen fuel innovations to align with EU's stringent truck emission targets, ensuring compliance and sustainability leadership.
- Integrate Bio-Materials in Vehicles:** Embed bio-materials in core components, collaborating with Nokian and Continental, to reduce environmental impact and drive cost-efficient sustainability.
- Expand Hydrogen Adoption:** Adopt Hyzon and Toyota's hydrogen innovations to accelerate low-carbon transport, ensuring diverse energy strategies across vehicle segments.





**2024
Set The Stage;
Stay Tuned As We
Unveil What's
Driving Mobility
In 2025!**

Thank you



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