Mobility Ecosystem 4.0

The road ahead

VONTIER

ENABLING THE WAY THE WORLD MOVES™

Table of contents

CHAPTER 1:

Defining the mobility ecosystem

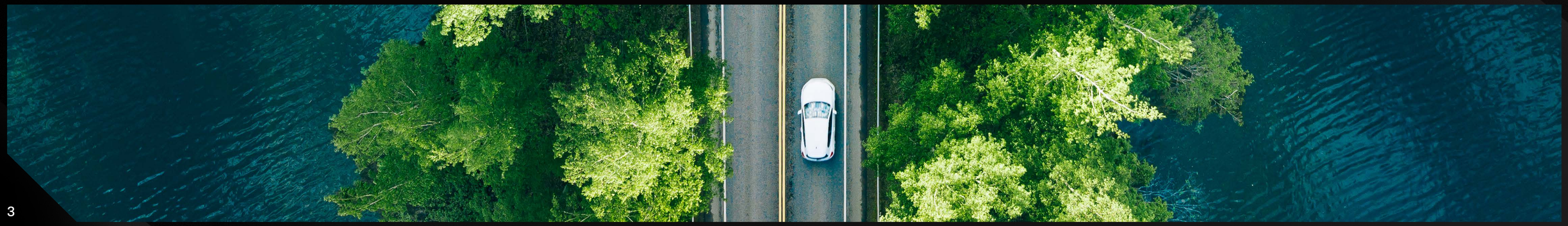
Think about your car: your dog's head out the window, kids' cracker crumbs in the seat cushions, fueling it up, washing it, or charging it. Imagine pulling into a convenience store for a bathroom break on a long road trip or grabbing cold drinks and sandwiches on your way to a day at the beach. Picture the Amazon delivery driver in your neighborhood daily and the garbage truck making its weekly rounds.

All these daily, weekly, and monthly interactions are part of the broader mobility ecosystem. As a consumer, you easily recognize convenience stores, fueling and charging stations, car washes, and auto repair shops. Equally vital are the business owners keeping this ecosystem running smoothly: the convenience store owner, car wash operator, fleet manager of those garbage trucks and delivery vehicles, and suppliers of essential tools for maintaining traditional and modern vehicles.

Combined, these components are the critical infrastructure that we know and expect to enable private and commercial vehicles in operation all over the world. This is the mobility ecosystem.

Mobility Ecosystem: the critical infrastructure, physical and digital, that touches people's lives every day and where vehicles get fueled, charged, washed, serviced, and repaired, and travelers get their essentials: food, beverages, and other necessities.

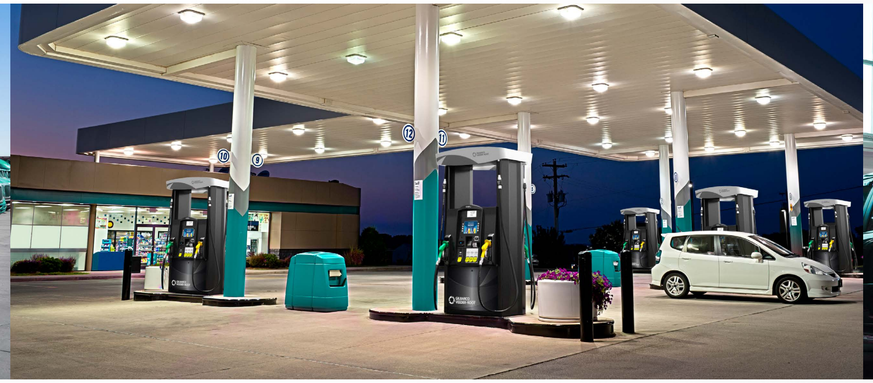
Why It Matters: Our industry is undergoing an unprecedented transformation. Rapid changes, driven by customer demand and technological advances, are sweeping through all sectors of the mobility ecosystem.

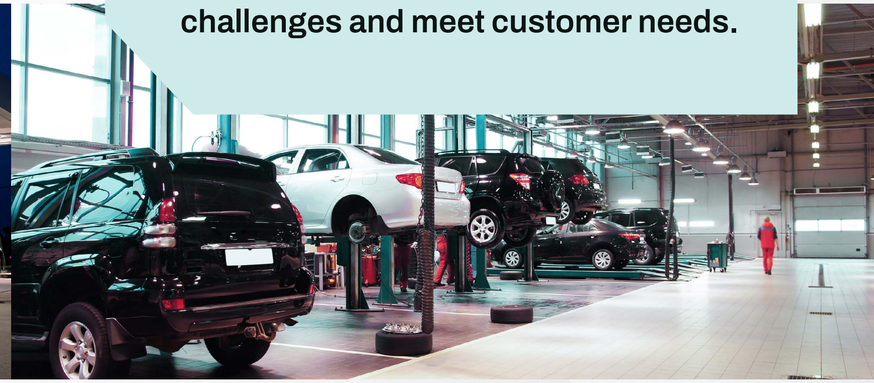


Embracing the digital transformation

Challenges with increasingly complex customer demands, the energy transition, and labor shortages mean productivity and automation are a must for those working in the mobility ecosystem.

The solution is clear: embrace digital transformation to address these challenges and meet customer needs.





Fleets:

Global trade, urbanization, and growth in the delivery economy has meant complex fleet systems are on the road every hour of every day. Fleet operators face challenges as they navigate the transition from diesel to biofuels, renewable natural gas, or in some cases electric or hydrogen for a cleaner, more sustainable future. Various regulatory changes, including driver safety and emissions reductions, require compliance. They are also contending with labor shortages and rising operating expenses.

Convenience:

The definition of convenience has shifted, influenced by new consumer expectations, generational divides, and the availability of on-demand access to almost anything. A generation ago, convenience stores were primarily fuel pumping stations with tasks involving filling underground fuel tanks and restocking soda and snacks. Now, convenience store owners must juggle decisions about installing EV chargers, managing energy costs, maintaining compliance on gas pump credit card readers, point of sales systems, and keeping up with customer demand for fresh food, contactless payments, and bespoke loyalty programs. Labor issues can compound these problems for owners.

Repair & Diagnostics:

Our personal cars, trucks, and commercial vehicles are becoming smarter and more technologically complex, and we're holding onto them longer. Auto mechanics need advanced training and diagnostics to handle the complex calibrations and sensors in modern cars and trucks, as well as safer tools and equipment to work on electric vehicles. There is a significant shortage of qualified technicians and expertise.

About Vontier

Combined, the mobility ecosystem is on pace to become a ~$50B industry worldwide by 2030. Vontier (NYSE: VNT) is the only corporation who hears and solves challenges across this **entire** ecosystem.

Vontier enables the way the world moves. We leverage leading market positions and brands, decades of domain expertise and unparalleled portfolio breadth to deliver smart, safe, and sustainable solutions which advance the convenience store, fleet, and repair & diagnostic industries.

#1

Hardware and software solutions for fueling infrastructure

#1

Underground automated tank gauges and leak detection systems

#1

CNG and RNG fueling solutions in North America for commercial and industrial vehicles; emerging leader in hydrogen

#1

Car wash point-of-sale technology; used by 18 of the 20 largest car wash chains In North America

TOP 10

Provider in the global fleets IoT space with 750,000 fleet vehicles maintained by Vontier software

#2

EV charging software; 100,000 EV plugs under management, and growing

#2

Auto repair diagnostic tools; ~1,900 mobile distribution franchises

#2

Point-of-sale solutions; used by ~65,000 convenience stores

Industry 4.0, meet Mobility Ecosystem 4.0

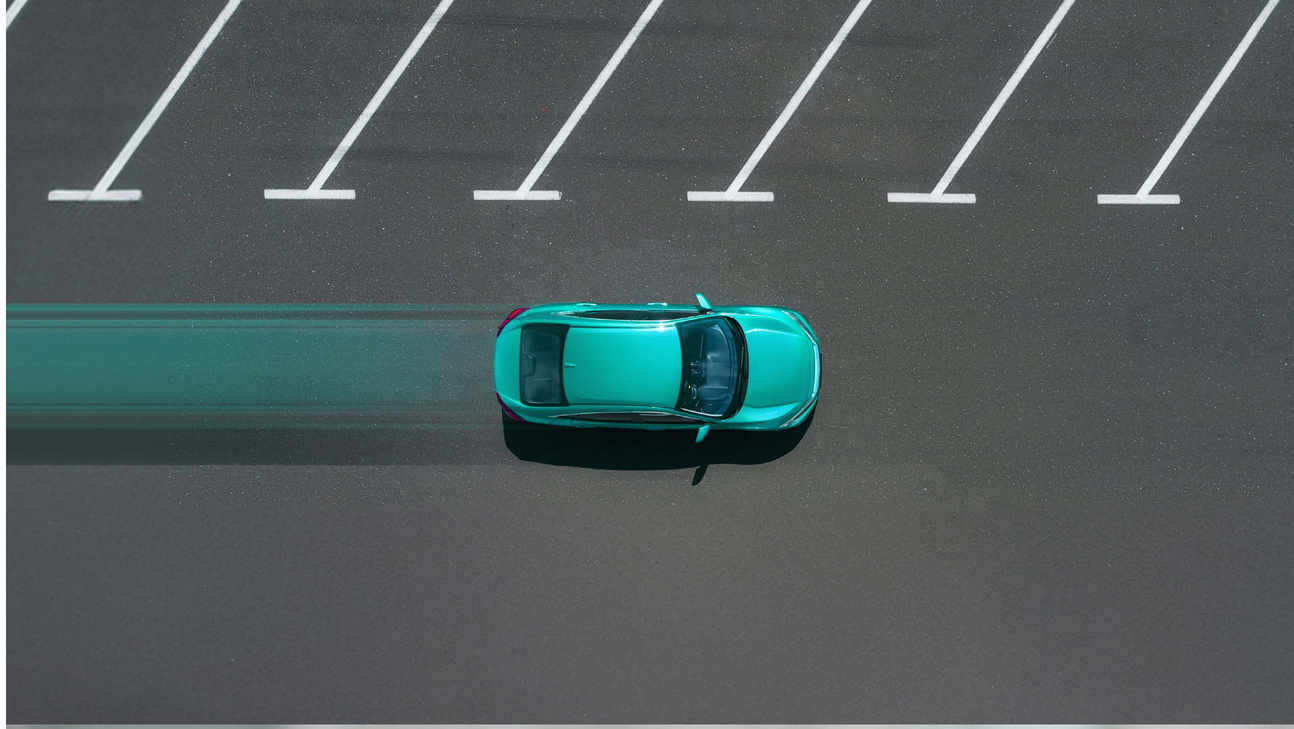
In Industry 4.0, a new era of connected devices – the Internet of Things (IoT) – brought dramatic transformation to manufacturing and supply chain operations. Suddenly, sensors were everywhere, from the plant floor to all the places where we work and live. Connecting historically separate systems to create massive advancements in productivity, efficiency, and asset management through automation. The integration of these smart devices and software represents one of the biggest leaps forward since the Industrial Revolution itself.

The mobility ecosystem is today in the early innings of a similar transformation.

At the core of this is the concept of the **connected mobility ecosystem:** how technologies powering the critical ecosystem infrastructure talk to each other, to the owner, to the customer, and beyond. Vontier is currently helping build Mobility Ecosystem 4.0, our connected mobility ecosystem future: one that does not yet exist.

Now and more so in the coming years:

- Using artificial intelligence, the repair shop will know when a consumer's vehicle is due for a repair or tune-up, and have the part already ordered and ready the moment the customer arrives.
- The car wash will diagnose the type of wash needed by quickly scanning how dirty a car is upon arrival, using visual AI.
- The convenience store will know exactly who a customer is when they pull up to the pump or charger, and push dynamic, real-time promotions to continue incentivizing their loyalty. It's all part of the necessary connected future and it's being built right now.



CHAPTER 2:

A convenient future

Imagine you own 140 convenience stores in the greater Las Vegas area, with some in Nevada and a few reaching into California. This is a “small” footprint compared to some of the retailers out there who own thousands nationally or even globally. Your enterprise requires an increased amount of coordination: hiring staff, managing turnover (the industry average is ~140% annually), keeping up with differing environmental and tax regulations in both states, and managing payments from tens of thousands of transactions a day – be it by QR codes, cash, mobile pay, or credit. You manage delivery and inventory of millions of gallons of fuel per year. Most of your sites have a car wash, but when it goes down, the staff is unclear who to call so they put an orange cone in front of it and call it a day.

More and more you see Amazon drivers coming in for lunch, liking the sandwiches made-to-order, instead of the pre-packaged food you used to sell, and a freshly brewed cup of coffee.

Parents are looking for a quick and easy, freshly made hot meal to bring home for dinner. In your newer stores, which are equipped with kitchens, you’re managing ‘order ahead’ options for hot pizzas that customers are ordering via food delivery apps, but you have no idea how to encourage those customers to come back and order again because you don’t know who they are. Your bespoke loyalty program requires an app to get started and you’re frustrated that customers must manually log their fuel stops to get points instead of an automatic option.

The rampant complexity of the convenience store is a product of the modern mobility ecosystem. In the pages ahead, we’ll explore which opportunities are still to come and predictions for evolution in this space across the next three,

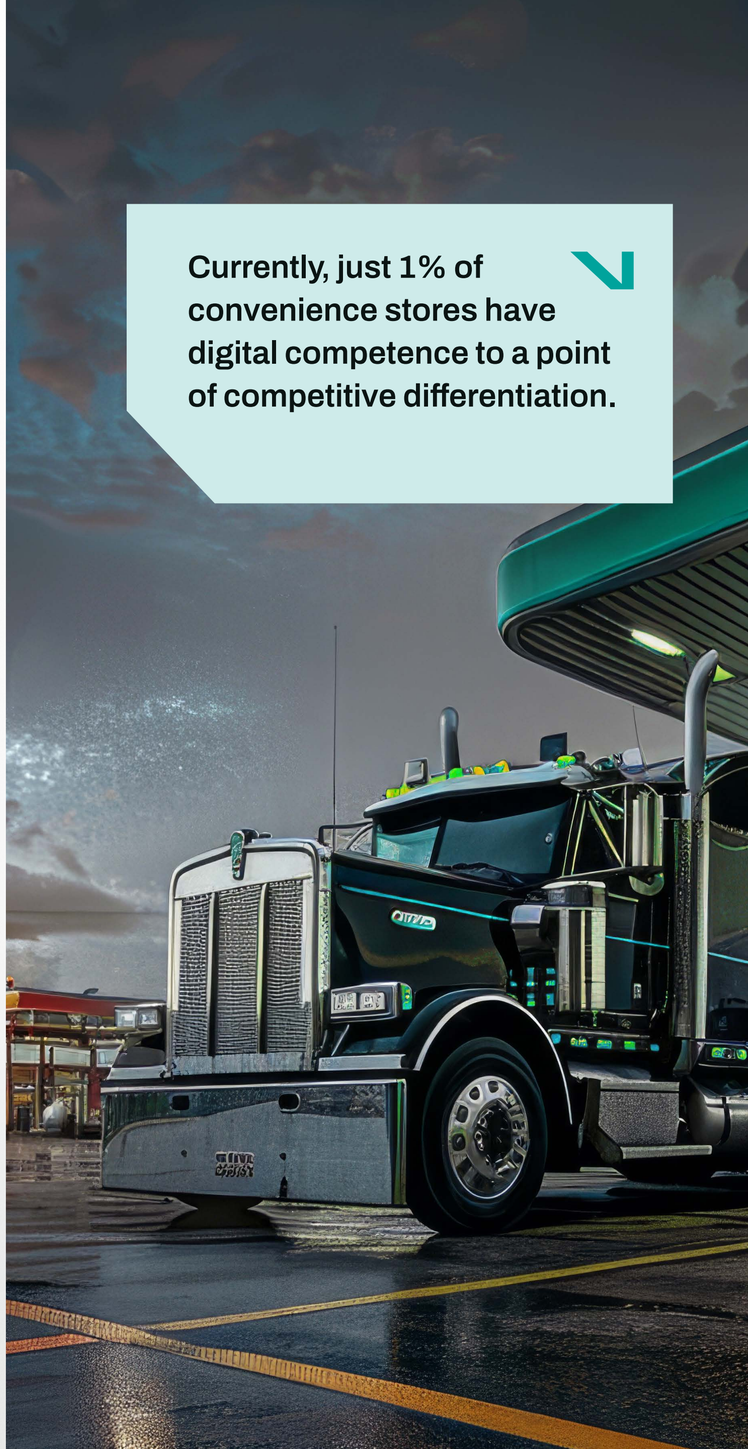
Opportunities for convenience stores

The United States leads the global convenience store industry, boasting a vast network of over 150,000 stores that cater to the fast-paced lifestyle of American consumers. The signs of Mobility Ecosystem 4.0 are clear.

- Technologically, the industry is rapidly evolving, with stores increasingly adopting advanced Point-of-sale systems, contactless payments, and mobile app integrations to enhance customer convenience.
- The customer experience is also transforming, driven by the demand for quick, personalized service and a broader range of products, including healthier food options and on-the-go meal solutions.
- Convenience stores in the United States are not just about fuel and snacks anymore; they are becoming mini hubs of innovation, focusing on creating seamless and efficient shopping experiences for their customers.

However, a recent look shared:

~51%	of convenience stores in the United States lack digital capabilities to support contactless payments, loyalty, etc.
38%	of convenience stores have a functional and predictable digital presence
5%	have a custom platform on which to do business
5%	use data and insights to facilitate an omni-channel experience
1%	have digital competence to a point of competitive differentiation, finding unique ways to engage their customers and drive revenue



Currently, just 1% of convenience stores have digital competence to a point of competitive differentiation.

CASE STUDY:

Leading the EV revolution with Mobility Ecosystem 4.0

Challenge

Modern convenience stores are in a prime position to lead in EV charging infrastructure because they are looking for ways to accelerate growth and improve productivity, they have the existing footprint (over 90% of Americans are within 10 minutes of a convenience store), and they have the safe, contemporary, craveable food and personalized guest experience consumers prefer to improve the EV charging experience.

Convenience store owners require a turnkey solution to install enough EV chargers to meet demand, while ensuring reliability, high-utilization, and profitability.

Solution

Turnkey EV charging infrastructure ecosystem provides seamless integration with existing fueling, payment, and service offerings; the fully integrated suite of market leading EV charging hardware and software solutions enables businesses to install their own infrastructure, including EV chargers, EV charging software, payment terminals that seamlessly integrate with the customer's existing fuel and point of sale systems, and a service and support network.

The system offers a modular architecture which enables rapidly growing convenience store operators to connect and scale easier, faster, and with lower cost.

Result: Ease of use — and a turnkey, connected solution.

10-15%	increase in store traffic
15%	average uplift in shop sales
20%	average uplift in shop margins
10-15%	average uplift in car wash customers
20-25%	uplift in shop and wash margins

Where the convenience industry is going

These advancements will significantly enhance the convenience store forecourt experience, making it more efficient, customer-friendly, and environmentally sustainable.

Within 3 years

Frictionless Shopping Experiences:

The shift toward contactless and cashier-less technology will be widespread. Self-checkout kiosks, mobile payments, and AI-driven checkout-free solutions will be the norm in convenience stores. Shoppers will walk in, pick items, and leave without any manual payment process, with the system automatically charging their accounts.

Personalized Promotions via AI:

AI-powered analytics will be heavily used to tailor promotions and product offerings to individual customers based on their shopping behavior, preferences, and even location-based data. This will lead to highly personalized offers delivered in real time through mobile apps.

Enhanced Delivery and Pickup Services:

The pandemic has accelerated demand for delivery and curbside pickup services, and in the next three years, this will become a core part of convenience retail. Partnering with delivery platforms or developing their own apps, retailers will focus on last-mile delivery efficiency, allowing customers to order and receive items within minutes.

Sustainable and Health-Conscious Products:

Consumer preferences will increasingly favor healthy, organic, and locally sourced products. Convenience stores will stock more plant-based snacks, eco-friendly packaging, and health-conscious options to align with changing consumer values.

Within 5 years

Smart Forecourt Technology:

Implementation of Internet of Things (IoT)-enabled devices, and AI-enabled algorithmic software for real-time monitoring of fuel levels, charging equipment condition, asset uptime, and predictive maintenance through machine learning.

Micro-Fulfillment Centers:

Convenience stores will begin evolving into micro-fulfillment centers, acting as hubs for online grocery deliveries and same-day e-commerce orders. This will optimize inventory management, allow for rapid delivery, and offer a broader product range. Some stores may dedicate part of their space to handling online orders and delivery logistics.

Smart Shelves and IoT Integration:

Internet of Things (IoT) sensors and smart shelves will track inventory in real time, ensuring that stock is always optimized. This will reduce stockouts, prevent overstocking, and automate reordering. These smart shelves will also monitor customer interaction with products to gather behavioral insights.

Expansion of Convenience into Mobility Hubs:

With electric vehicles (EVs) and autonomous vehicles becoming more prevalent, convenience retail will extend into mobility hubs. Charging stations will feature convenience stores with fast snacks, beverages, and essential items, making them a natural stop for drivers recharging their EVs. Stores will offer mobile vehicle services (car washes, basic maintenance) while customers shop.

Autonomous Delivery Systems:

The rise of autonomous delivery will begin reshaping convenience retail. Drone and autonomous vehicle deliveries will become more common for delivering food, snacks, and essentials within urban areas. Some stores may deploy these systems directly from their locations, integrating convenience with speed.

Within 10 years

Hyper-Personalized Experiences:

By 2034, AI will deliver ultra-personalized shopping experiences. Customers entering a store will be recognized by facial recognition or mobile data, and personalized offers, product suggestions, and promotions will be immediately presented to them. Stores will also use AI-driven virtual assistants that interact with customers, answering questions, recommending products, and guiding them to specific sections.

Full Automation and Staff-Free Stores:

Some stores will move towards full automation. Robots will manage stocking, cleaning, and even food preparation, while AI handles customer interactions and checkout. Staff will only be needed for specialized tasks, maintenance, or customer service support. These fully automated stores will be open 24/7 without human intervention, increasing accessibility and convenience.

Sustainability as Core Strategy:

Convenience retail will fully embrace sustainability. Stores will aim for zero-waste operations, reducing plastic packaging, offering biodegradable or reusable alternatives, and implementing closed-loop recycling programs. The supply chain will become more transparent, focusing on locally sourced, ethically produced products to appeal to eco-conscious consumers.

Hybrid Retail and Service Models:

By 2034, the distinction between retail and services will blur further. Convenience stores will become hybrid models, offering a mix of retail, dining (in-store cafés or grab-and-go fresh meals), and even wellness services (health kiosks or fitness equipment rentals). Stores will also serve as community hubs, where customers can access banking services, pickup lockers, or even small workspace pods.

Autonomous, On-Demand Mobile Stores:

Autonomous vehicles powered by AI may turn into mobile convenience stores that come directly to the customer. These mobile units, equipped with essential goods and snacks, will roam around urban areas or be dispatched to specific locations based on demand. They could be ordered through apps, offering a completely new level of on-demand convenience.

CHAPTER 3:

Meet better fleets

Imagine you are the fleets management executive at one of the country's largest waste disposal companies, serving millions of customers daily with critical services that require no services skipped or delayed: ever. Your organization is strong and capable and has been in business for 50 years. But times are changing. Your contracts are only for three-to-five-year periods and require massive infrastructure investments. To make your investments worthwhile, you now need portable infrastructure solutions you can take with you when the contract ends.

Each county that you serve has its own laws and regulations, so you must navigate compliance with the state as well as each local municipality. Any updates to environmental regulations – such as a switch to battery power – will completely upend the logistics you have in place on a collection schedule due to the nature of fueling. Your business is waste management, so you rely on partners who are energy-agnostic to provide complete recommendations for how to best fuel your fleets while staying efficient, compliant, and in the black as you work to meet your aggressive sustainability goals.

A connected mobility future for this fleet executive means having someone entrenched in the industry, who serves as a trusted partner to help bridge the "now" to "next." Your business is high profile, and your technology must be trusted, connected, and secure.

In the pages ahead, we'll explore which opportunities are still to come and predictions for evolution in the space across the next three, five, and 10 years.

Opportunities for fleets

Fleet operations are becoming more sustainable and automated. Fleet managers are planning their transition to alternative fuels to reduce emissions.

They're exploring cleaner fuel options but are still hesitant to make the switch due to concerns around vehicle availability and maintenance, fueling infrastructure, and costs.

They're using GPS, sensors, and onboard diagnostics to provide real-time data on vehicle health, location, and performance.

They're also exploring video telematics and computer vision technology to enhance driver safety and satisfaction. However, they're not yet using artificial intelligence including machine learning to their fullest potential.

CASE STUDY:

Managing fleets with Mobility Ecosystem 4.0

Challenge

One of the United States' largest fleets – and largest in its industry, with more than 20,000 vehicles – was challenged with adopting zero-emission vehicles in their operations, including those run on hydrogen and electric. Energy requirements, site infrastructure, safety, reliability, and efficiency all played large parts in the transition.

Solution

Due to the company's prior relationship with Vontier's portfolio of compressed and renewable natural gas solutions, the fleet furthered the trusted partnership as it expanded into new sustainability territory. It used Vontier in an advisory capacity and trusted partner in hydrogen, and EV charging hardware, management software, and service and support.

Results:

30-40% potential reduction in demand charges and significant savings on total energy expenses

80% possible reduction in EV charger hardware issues remotely via software-driven self-healing algorithm

Where the fleet industry is going

Overall, fleet management will evolve significantly over the next decade, driven by advancements in technology, AI, analytics, and sustainability efforts, leading to more efficient, safer, and environmentally friendly operations.

Within 3 years:

Enhanced Connectivity with 5G:

The widespread adoption of 5G networks will lead to faster data transmission, allowing fleet managers to access real-time information more reliably. Telematics systems will offer enhanced GPS accuracy, low latency, and more immediate vehicle tracking, enabling better decision-making.

Advanced Driver Assistance Systems (ADAS):

Integration of ADAS with telematics will improve safety monitoring. Systems will become more proactive, not just reporting incidents but predicting potential risks (e.g., collision warnings, lane departure, fatigue detection).

Data-Driven Optimization:

AI including machine learning will continue to optimize routes, fuel consumption, and maintenance scheduling. Real-time analytics platforms will increasingly leverage telematics data to improve fleet efficiency and lower operational costs.

Sustainability Focus:

Fleet management will increasingly integrate electric vehicle (EV) monitoring and telematics solutions that manage the charging, battery health, and optimal route planning for EVs.

Within 5 years:

Autonomous Fleet Elements:

While fully autonomous fleets may still be years away, semi-autonomous features such as self-parking, automated driving in controlled environments, and platooning (vehicles traveling in a convoy) will become more common, supported by telematics for centralized control.

Predictive Maintenance with IoT:

The use of IoT sensors in vehicles will deepen, allowing predictive maintenance to reach new levels of accuracy. Telematics systems will track not just engine health but vehicle wear-and-tear across various components, optimizing repair schedules to prevent downtime.

Mobility-as-a-Service (MaaS) Integration:

Fleet managers will increasingly embrace MaaS models, combining telematics with broader transport solutions. This shift may lead to more dynamic fleet compositions, with shared or pooled vehicles operating across different logistics needs.

Blockchain for Fleet Transparency:

Blockchain will start playing a larger role in ensuring data transparency and security across fleets. This is particularly relevant in the logistics and supply chain industries, where provenance tracking and data accuracy are critical.

Within 10 years:

Sustainability:

Increased adoption of low carbon and zero carbon fuels like EV, renewable natural gas, green hydrogen, and e-fuels. As sustainability becomes a key concern, telematics will integrate environmental monitoring. This includes tracking emissions, optimizing energy use, and integrating with carbon-offset systems. Fleets will be required to report environmental impact, and telematics will facilitate this data collection and reporting.

Fully Autonomous Fleets:

The development of fully autonomous commercial fleets will transform telematics. Systems will evolve to monitor and control entire fleets remotely, providing real-time coordination for driverless vehicles. This will be especially important for long-haul trucking and large logistics operations.

AI-Driven Fleet Management:

AI will become the dominant force in fleet decision-making, predicting demand, optimizing routes, and reallocating resources autonomously. Fleet management platforms will leverage machine learning models to dynamically adjust fleet size, routes, and scheduling in real time based on changing conditions.

Quantum Computing for Complex Logistics:

While still speculative, quantum computing could revolutionize fleet management by solving complex logistical problems that are beyond the capabilities of classical computing, such as optimizing global supply chains in real time with massive datasets.

CHAPTER 4:

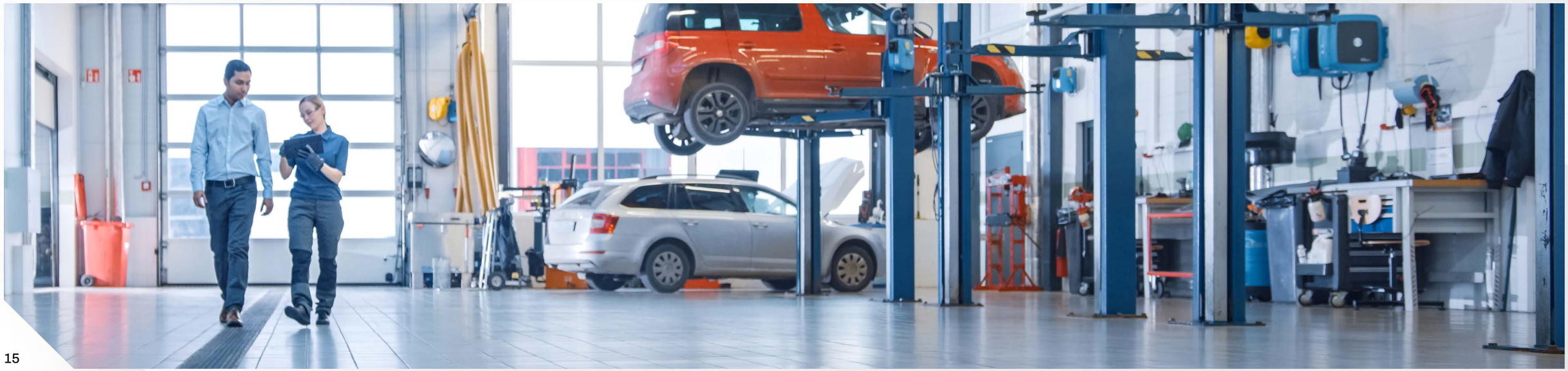
Tech or technician?

Imagine you are the proud service technician at a local auto mechanic, going on 11 years on the job. Your customers are loyal and steady, but the cars they're bringing in are much different than they were even 10 years ago. More and more, you need advanced diagnostic tools to service today's vehicles.

For example, the sensors in the bumper of a 2022 vehicle mean that you have to charge $1,000 to replace a dinged bumper and explain to your customer why it doesn't cost $200 like it did a few years ago. You need to purchase new insulated tools for your toolbox to prevent electrical accidents when working with EVs. These – and all your tools & diagnostics – are critical to booking more jobs, getting them done efficiently, and therefore keeping you paid.

Your coworkers in the old guard are retiring - often frustrated that their work is more like that of fixing a computer instead of a car - and the boss is having a hard time replacing them. Since you're in high demand, you're able to command higher wages, but inflation is rising, costs at home are high, and you must buy all your own tools and diagnostics.

The proliferation of sensors, diverse drivetrains, complexity of repair and the fact that Americans are holding on to their vehicles for longer are many of the issues facing those in the repair segment of the mobility ecosystem. **In the pages ahead, we'll explore how it evolved, which opportunities are still to come and predictions for evolution in the space across the next three, five and 10 years.**



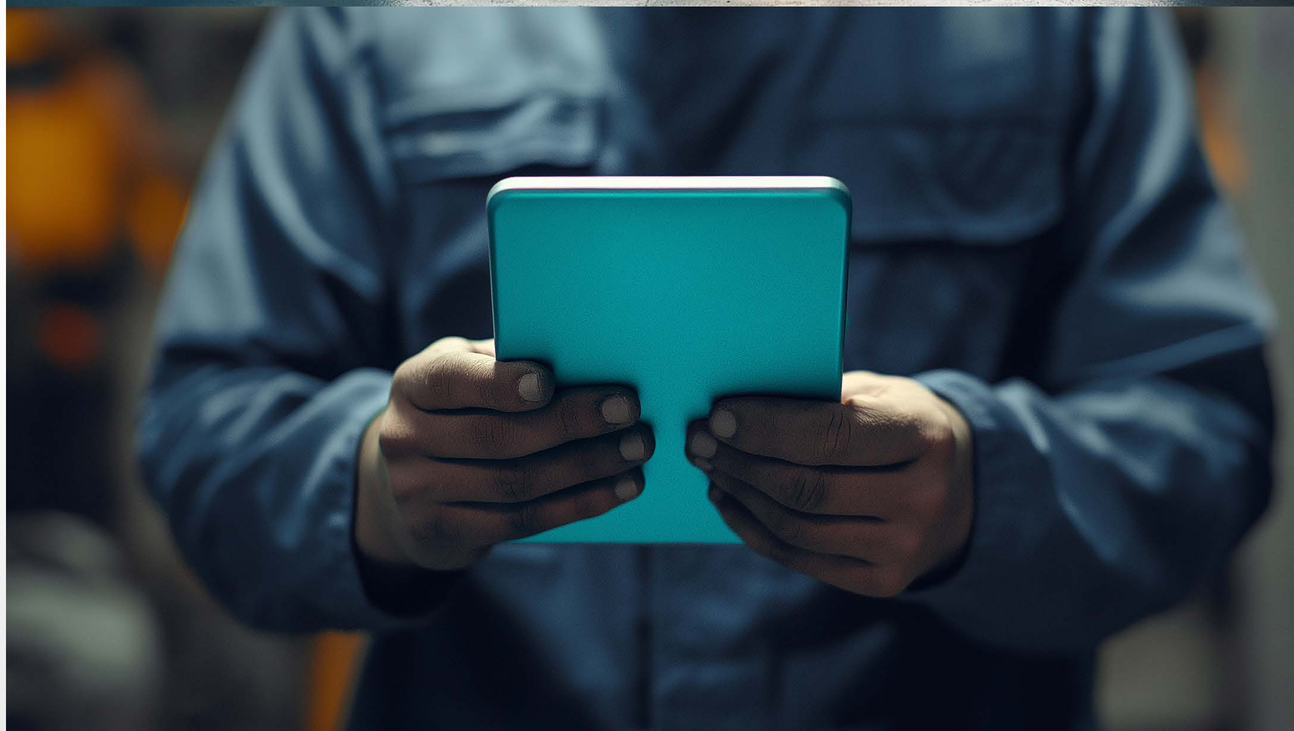
Opportunities for repair technicians

The modern car is now more like a computer, and maintaining and repairing it may look more like a trip to the iPhone's Genius Bar than to the neighborhood garage shop.

With the proliferation of sensors, complexity of new traditional or electric vehicles, calibrations and diagnostics…modern tools need to be able to support such a variety of tasks and solutions. An auto mechanic's tools are the number one driver of their productivity.

Additionally, the shop itself has the opportunity to modernize. With remote diagnostics being able to accurately and automatically order and ship parts, modernization of inventory will improve productivity for the shop and increase customer satisfaction.

Continuous education to upskill workers as well as the redefining of outdated stereotypes of the job can lead to lucrative opportunities for those seeking employment in this field. Investment in quality tools – which mechanics are expected to own outright and bring with them from job to job – is a hallmark of the pride these tradespeople have in the work they do. Premium tools and diagnostics will increase their efficiency at work, leading to an opportunity for more business, more income, and a better work-life balance.



CASE STUDY:

Repair case study

Challenge

A customer based in Georgia operates a fleet repair service, utilizing their own fleet of service trucks to deploy technicians to various field locations. However, the service trucks frequently encounter transmission issues. These recurring problems not only escalate repair costs but also lead to increased downtime, significantly impacting their repair revenue. Addressing these transmission issues is crucial to enhance operational efficiency and maintain profitability.

Solution

By investing in Matco's Maximus 5.0 diagnostic tool, the shop is now capable of handling all flashing needs in-house for their own fleet of service trucks. Additionally, this investment enables them to provide services for vehicles from third-party clients. This enhancement not only reduces reliance on external service providers but also improves operational efficiency and expands their service offerings.

Results:

~60% reduction in downtime by performing service on time vs sending out to dealership

$20K per month saving on vehicle repair

What the auto mechanic garage of the future will look like

According to the Bureau of Labor Statistics (BLS), employment of automotive service technicians and mechanics is projected to grow 1% from 2020 to 2030, with an estimated 69,000 job openings each year due to workers retiring or transferring to different occupations.

Overall, the auto mechanic industry will see significant advancements driven by technology, sustainability, and user-centric innovations, leading to more efficient and effective automotive repair and maintenance processes. Workforce development will be crucial, with a strong focus on training, certifications, and continuous learning to adapt to the evolving landscape.

Within 3 years:

Increased Automation:

The first significant wave of automation will streamline routine maintenance tasks. Robotics will handle basic functions like tire rotations, wheel alignment detection, etc. Technicians will shift towards supervising and maintaining these machines rather than performing the manual tasks themselves.

Data-Driven Diagnostics:

The use of onboard telematics and vehicle sensors will become more widespread, allowing garages to remotely monitor vehicle health in real time. This will enable predictive maintenance, with analytics identifying issues before they cause breakdowns. Customers will receive alerts for service, and appointments will be scheduled automatically through integrated apps.

Electric Vehicle (EV) Infrastructure:

As EVs continue to grow in market share, garages will increasingly specialize in EV service, offering high-speed charging stations and tools designed to diagnose and repair electric drivetrains, battery systems, and related electronics.

Within 5 years:

Advanced Robotics and AI:

More sophisticated robotic systems, powered by artificial intelligence (AI), will be able to perform complex diagnostics and repairs on both traditional and electric vehicles. These robots will be equipped with machine learning algorithms, enabling them to learn and adapt to different vehicle models, leading to faster and more accurate repairs.

Sustainable Materials and 3D Printing;

Automotive garages will incorporate eco-friendly practices using sustainable materials in repairs and recycling parts more efficiently. Refurbished parts and 3D printed parts will replace many traditional components, leading to a more circular economy in auto repair.

Augmented Reality (AR):

AR will become more prevalent in training and real-time repair assistance, providing mechanics with detailed overlays and instructions.

Digital Platforms:

Use of digital platforms will grow to manage the entire service workflow – from digital vehicle inspections to scheduling labor to parts ordering, billing and invoicing to consumer relationship management (CRM) – vastly improving efficiency and consumer experience.

Training Programs:

Increased focus on training and upskilling in new technologies and advanced diagnostics. Certifications and credentials to be able to work on modern electrical and electronics architectures and software defined connected vehicles will become important.

Within 10 years:

Fully Automated, AI-Powered Garages:

Entirely automated garages will be common, with AI overseeing the diagnosis and repair process from start to finish. These AI-driven systems will use real-time data from vehicles, automatically order parts, and deploy robots to carry out repairs. Human technicians will primarily handle specialized tasks and oversee complex AI diagnostics.

Personalized, Predictive Maintenance:

Vehicles will be so connected that every aspect of their performance will be tracked continuously. AI will predict the exact moment a part will need replacement based on driving habits, weather conditions, and real-time wear analysis, resulting in personalized maintenance schedules for each vehicle.

Mobile Service Capabilities:

Remote, mobile service platforms will become more prevalent, leveraging AI and telematics to perform diagnostics and even some repairs via connected tools and drones without the vehicle needing to visit a physical garage.

Lifelong Learning:

Continuous education will become a norm, with mechanics regularly updating their skills to keep pace with rapid technological advancements.

Conclusion

A connected mobility ecosystem strategy: necessary for Mobility Ecosystem 4.0

As you've read, the future of the mobility ecosystem is intricately tied to the development and implementation of a robust connected mobility ecosystem strategy. This strategy is essential for integrating the various components of the ecosystem, among and within the sectors of convenience stores, fleets, and auto repair services. Leveraging advanced technologies such as IoT, data analytics, and cloud computing, a connected mobility ecosystem strategy creates seamless, efficient, and intelligent mobility solutions. By fostering real-time communication and data sharing, businesses can optimize operations, reduce downtime, and enhance customer experiences across all sectors.

For convenience stores, a connected mobility ecosystem strategy enables efficient fuel management, inventory control, and personalized customer engagement. Fleets benefit from enhanced route planning, predictive maintenance, and real-time tracking, which collectively improve operational efficiency and reduce costs. In the auto repair sector, connected diagnostics and remote monitoring facilitate quicker, more accurate repairs, thereby increasing service throughput and customer satisfaction.

As the mobility ecosystem continues to evolve, the adoption of a connected mobility ecosystem strategy will be pivotal in driving innovation, sustainability, and growth, ensuring that all sectors remain competitive and responsive to the dynamic needs of the market. Vontier is building this future now. We are the only player with a unique vantage point to see how these disparate parts today can become part of a connected ecosystem tomorrow, solving customers' high value problems for decades to come.

We are the only player with a unique vantage point to see how these disparate parts today can become part of a connected ecosystem tomorrow, solving customers' high value problems for decades to come.

Scale

Manage

Connect

Cloud + apps/analytics

Universal data hub

Tank gauge

Gas pump

Payment terminal

C-store POS

Car wash POS

CNG/RNG dispenser

Energy storage

EV charger

H2 dispenser

Diagnostic scan tool

Four takeaways and insights for the Mobility Ecosystem 4.0

Embrace digital transformation

Why It Matters: The mobility ecosystem is undergoing significant changes driven by technological advancements and shifting consumer expectations. Digital transformation is essential to address these challenges and meet customer needs effectively.

Actionable Insight: Business owners should invest in digital tools and platforms that enhance operational efficiency, customer experience, and data analytics capabilities.

Manage increasing complexity

Why It Matters: The ecosystem has grown more complex, involving new technologies like electric vehicles, contactless payments, and sophisticated loyalty programs.

Actionable Insight: Invest in architectures that help manage complexity while future proofing innovation; organize innovation into meaningful clusters that are focal points to create value/reshape experiences.

Focus on sustainability and innovation

Why It Matters: Environmental concerns and sustainability are becoming central to the mobility ecosystem. The shift towards electric vehicles and hybrids and a multi-energy future is a clear indicator of this trend.

Actionable Insight: Businesses should take a thoughtful approach that balances economics of different technologies, availability, and regulations with sustainability goals.

Leverage data for personalized customer experiences

Why It Matters: Personalization is a significant driver for customer loyalty and satisfaction. Advanced analytics and AI can provide valuable insights into consumer behavior.

Actionable Insight: Implement data-driven strategies to offer personalized services, enhance the overall customer experience, drive revenue growth, improve productivity, and reduce costs.

VONTIER

ENABLING THE WAY THE WORLD MOVES™