KARSAN

2025 COMPANY OF THE YEAR

Driving impact across the customer value chain

RECOGNIZED FOR BEST PRACTICES IN THE EUROPEAN MINIBUS AND AUTONOMOUS INDUSTRY

FROST & SULLIVAN

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Karsan excels in many of the criteria in the minibus and autonomous space.



Addressing Unmet Needs

Sustainable transportation is gaining popularity in major cities worldwide. As of 2024, over 73% of Europe's population lives in cities, and urban vehicles account for more than 40% of carbon dioxide (CO_2) emissions. In many European countries, narrow city roads make it difficult for large buses to maneuver, leading to delays and greater use of personal transport. The influx of vehicles is worsening traffic conditions and pollution. As cities struggle to control emissions and comply with increasingly stringent regulations, many public transit operators are adopting electrification.

> *"The next wave of zero-carbon cities will focus on autonomous vehicles to address the critical challenges of improving safety and lowering operations costs. The company's bus, Autonomous e-ATAK, provides zero-emission transit and eliminates human errors in traffic. The vehicle detects road and environmental conditions on defined routes, removing the need for human control. It can also perform driverless operations, such as approaching stops; managing stop times, passenger boarding and alighting; and responding to intersections, crossings, and traffic lights."*
>
> ***– Saideep Sudhakar***
> ***Analyst***

Founded in 1966, Türkiye-based Karsan is a commercial vehicle manufacturer committed to leading the transition toward more sustainable

transportation. Its energy-efficient e-JEST electric minibus is compact enough to ply Europe's narrow roads, providing public transportation companies and people with an opportunity to shift to climate-friendly commuting options.

The next wave of zero-carbon cities will focus on autonomous vehicles to address the critical challenges of improving safety and lowering operations costs. Karsan's bus, Autonomous e-ATAK, provides zero-emission transit and eliminates human errors in traffic. The driverless electric bus detects road and environmental conditions on defined routes, removing the need for human control. It can also perform driverless operations, such as approaching stops, managing stop times, passenger boarding and alighting, and responding to intersections, crossings, and traffic lights. The company's robust product development of minibuses and autonomous buses effectively addresses pollution and traffic congestion challenges in European cities. Passenger comfort and safety are other areas in which Karsan excels. For example, the low floor of the minibus enables parents with strollers and elderly adults to get on and off with ease, providing an additional transportation avenue for these users.

Visionary Scenarios Through the Use of Megatrends

Karsan aligns closely with the electrification and autonomous vehicles global megatrends to cement its leadership in sustainable public transportation. On the electrification front, Karsan focuses on its extensive product line-up of fully electric and fuel cell-powered buses as a comprehensive solution for cities transitioning to greener fleets. For battery electric options, it delivers a broad portfolio of 6-meter to 18-meter fully electric buses to meet the public transportation demand of congested cities. Karsan's wide range of electric, low-emission vehicles minimizes environmental impact by entirely reducing emissions and reducing carbon footprint in urban areas.

Karsan is advancing energy efficiency further through the introduction of zero-emission hydrogen-powered buses. Hydrogen fuel cell technology acts as a carbon-free energy solution that promotes environmental sustainability. Karsan develops and adopts sustainable business models in terms of the utilization and production of electric vehicles to reduce waste and resource consumption in compliance with circular economy principles while encouraging energy efficiency and the use of renewable resources.

On the autonomous front, Karsan is focused on two noteworthy innovations: Platooning and Remote Driving. The platooning technology enables two or more 8-meter Autonomous e-ATAK vehicles to operate like a single articulated bus during rush hour. Platooning enables multiple Autonomous e-ATAK vehicles to move synchronously by following each other, stopping at each bus stop before continuing their route. Public transport operators can better plan capacity demands during peak hours using platooned units rather than having to purchase larger buses. Remote driving technology enables transport operators to remotely monitor vehicles and intervene instantly during unexpected roadworks or accidents, eliminating the need for a safety driver onboard. Autonomous e-ATAK serves as a future-ready option for cities seeking efficient, driverless public transportation solutions.

Leadership Focus

Karsan's impressive growth over five years since its inception largely stems from its technological and design excellence in the bus industry. e-JEST has held the market leadership for five consecutive years with majority share more than 37% in 2024 Europe's electric minibus market. Following this success, the

company is actively exploring right-hand drive countries, including Japan and the United Kingdom, to drive the next growth phase of e-JEST electric minibuses. One of every four electric buses sold in Europe is an e-JEST, highlighting its prominence in France, Romania, Portugal, Bulgaria, Spain, and Italy. Karsan buses also outshine competitor brands in their compact design, high maneuverability, and passenger comfort. Its 60-year heritage in Türkiye's minibus market and extensive knowledge of European countries' transportation needs further contribute to its success in developing climate-friendly minibus products. Karsan manages the entire automotive value chain from R&D to production, marketing, sales, and after-sales activities, enabling it to accelerate the development and commercialization of innovative products and services in the public transportation sector. Karsan's heavy investments in distribution and after-sales services have ensured repeat orders from most European countries.

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Analyst

As of 2024, Autonomous e-ATAK projects have been commissioned in eight cities, including Switzerland, the United States, Romania, France, Norway, the Netherlands, Finland, and Türkiye. Karsan has achieved 100,000 kilometers of autonomous driving experience, transporting over 35,000 passengers and validating its autonomous technology leadership in public transportation. The global expansion of Karsan's automated public buses marks a significant step toward smarter, more connected, and sustainable mobility.

Brand Equity

Karsan envisions being one step ahead in defining the future of mobility. At the forefront of building passenger vehicles and buses since 1966, Karsan has maintained its core bus design and manufacturing business and undertook contract manufacturing projects to adjust business cycles. Its consistent focus on meeting public transportation needs, agile team, and adaptive manufacturing capabilities have continued to enhance its brand value in the region. Its venture into electric buses began in 2018, with the electrification of its smallest bus, the Jest, in collaboration with BMW. The popularity of its e-JEST zero-emission option, with power derived from the BMW all-electric powertrain, has provided Karsan with a solid foundation for its electric vehicle lineup. Customers' brand loyalty to Karsan electric buses is evidenced by the large number of electric buses plying public roads in Romania, France, Germany, Romania, Portugal, Bulgaria, Greece, Spain, Italy, Canada, Monaco, Mexico, Japan and Norway. e-JEST and e-ATAK have remained Europe's most preferred models in their segments for five consecutive years, a testament to Karsan's innovative approach and e-mobility solutions.

The 12-meter e-ATA vehicle is aimed to be reduced by 600 kilograms in 2024 and to reach 900 kilograms in 2025, using recyclable, lightweight aluminum and carbon fiber materials. The company's steadfast commitment to its "We are where you are" slogan enables it to provide fast and accessible services to customers on demand through dedicated online help desk and international call center teams, remote diagnostic systems, Karsan Flying Doctors, dedicated local after-sales staff, and spare parts hubs in various locations across Europe. With a proven track record of reliability in the electric transit bus segment and six decades of automotive manufacturing, Karsan is well-positioned to meet the autonomous and electrification trends in the transit bus market through brand loyalty and customer relationships.

Customer Purchase Experience

The success of any product or service greatly depends on the quality of the customer purchase experience and ensuring customer challenges are met. To this end, Karsan continuously conducts trials and tests to ensure the best customer purchase experience. For example, in developing Autonomous e-ATAK, Karsan entered a strategic partnership with ADASTEC, which developed modular fleet management software for automated driving and a back-office platform.

For public transport operators, an efficient fleet management platform and product reliability are critical to preventing unplanned downtime. Autonomous e-ATAK's cloud-based platform supports fleet management deployment control and data exchange via APIs. ADASTEC used enhanced sensor fusion and deep learning to ensure a seamless autonomous journey using integrated, fault-tolerant sensors and HD maps. Karsan provides operators with V2X and remote control capabilities depending on their deployment requirements. Additionally, its intelligent transportation system (ITS), including screens or passenger counting features, further enhances Autonomous e-ATAK's Level 4 automation capability and assures customers they are buying an optimal solution for addressing their unique needs and constraints.

Customer Ownership Experience

Karsan delivered Autonomous e-ATAK buses to aid the Norwegian city of Stavanger's transition toward autonomous bus services. Powered by 220 kWh batteries developed by BMW, the 8.3 meter-long Autonomous e-ATAK carries 52 passengers and has a 300-km range. Powered by ADASTEC's flowride.ai, the Level 4 automated driving software platform, Autonomous e-ATAK can reach a speed of 40 km per hour in different weather conditions, apart from routine activities such as pulling into bus stops, managing the passengers getting on/off, and navigating roundabouts, thoroughfares, or traffic lights.

Karsan integrates autonomous software into the Autonomous e-ATAK architecture and EV software. It can make remote changes to data from e-ATAK in real time and provide support in case of unusual road interruptions at intersections or crossings. Karsan ensures data reliability using a well-established, continuous communication and task management system to provide a positive customer ownership experience throughout the product lifecycle. Its remote diagnostic and support application enables transport operators to promptly respond and resolve service issues, ensuring a smooth customer ownership experience. Karsan has expanded its dealer network through strategic partnerships to ensure a robust sales and after-sales service structure alongside establishing spare parts warehouses in Germany and Italy, enabling quick delivery across Europe.

Conclusion

Karsan, with a proven track record of 60 years in Türkiye, is actively progressing from idea to market with innovative products and services in public transportation. Its driverless autonomous electric vehicles facilitate the development of novel public transportation models, optimizing traffic flow and passenger safety. Featuring innovative designs, the company prioritizes the satisfaction of businesses and societies. Karsan's dedication to enhancing sustainability, promoting accessibility, adopting rigorous testing protocols, and championing advanced technology sets it apart from the competition. Robust production capabilities and flexibility for custom designs further reflect Karsan's customer-centric approach and adaptability.

With its strong overall performance, Karsan earns Frost & Sullivan's 2025 European Company of the Year Award in the minibus and autonomous market.

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What You Need to Know about the Company of the Year Recognition

Frost & Sullivan's Company of the Year Award is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

Best Practices Award Analysis

For the Company of the Year Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Visionary Innovation & Performance

Addressing Unmet Needs: Customers' unmet or under-served needs are unearthed and addressed by a robust solution development process

Visionary Scenarios Through Mega Trends: Long-range, macro-level scenarios are incorporated into the innovation strategy through the use of Mega Trends, thereby enabling first-to-market solutions and new growth opportunities

Leadership Focus: Company focuses on building a leadership position in core markets and on creating stiff barriers to entry for new competitors

Best Practices Implementation: Best-in-class implementation is characterized by processes, tools, or activities that generate a consistent and repeatable level of success

Financial Performance: Strong overall business performance is achieved in terms of revenue, revenue growth, operating margin, and other key financial metrics

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

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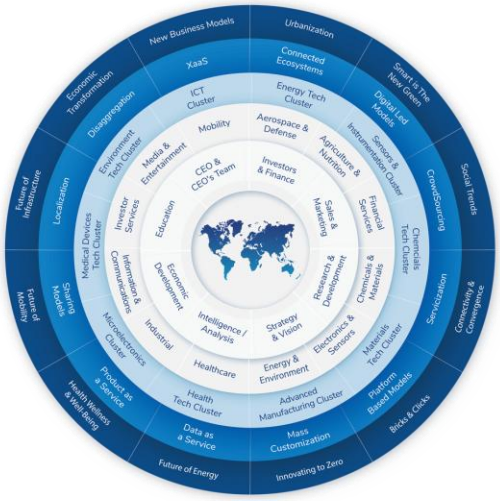
Key Impacts:

- **Growth Pipeline:** *Continuous Flow of Growth Opportunities*
- **Growth Strategies:** *Proven Best Practices*
- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.



Analytical Perspectives:

- Mega Trend (MT)
- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)