# beep™

## 20 25 TECHNOLOGY INNOVATION LEADER

*Enhancing Customer Impact Through Powerful Technology Integration*

*RECOGNIZED FOR BEST PRACTICES IN THE NORTH AMERICAN AUTONOMOUS SHUTTLES INDUSTRY*

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## Best Practices Criteria for World-class Performance

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



RECOGNITION CRITERIA

| Business Impact | Technology Leverage |
|---|---|
| Financial Performance | Commitment to Innovation |
| Customer Acquisition | Commitment to Creativity |
| Operational Efficiency | Stage Gate Efficiency |
| Growth Potential | Commercialization |
| Human Capital | Application Diversity |

## The Transformation of the Autonomous Shuttles Industry

The autonomous shuttle market is expanding rapidly as cities, campuses, airports, and private communities seek low-emission, demand-responsive circulators that fill the first-/last-mile gap and replace short, high-frequency routes more cost-effectively than traditional buses. Analysts project strong multi-year growth, with the market currently in the low billions and expected to exceed $10 billion by 2035.[1] This expansion reflects high compound annual growth rates driven by electrification, smart-city investment, and growing municipal interest in automated mobility.

This growth follows clear demand signals: agencies want scalable alternatives for short-haul service, institutions seek safer and more reliable campus circulators, and airports and senior communities prioritize predictable, low-footprint people-movers that integrate with broader multimodal networks. At the same time, the market faces durable headwinds, fragmented regulation across jurisdictions, persistent public trust and safety concerns, high up-front hardware and integration costs, and the need for roadside and digital infrastructure improvements, all of which complicate procurement cycles and slow widespread adoption. These structural barriers create opportunities for suppliers that can reduce operational complexity, guarantee safety and compliance, and offer predictable, contractable service economics.

Against this market backdrop, suppliers that combine a supervisory-first software stack, repeatable operations, and demonstrated live deployments gain a clear commercial advantage. Investors and

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[1] *Global Autonomous Shuttle Growth Opportunities* (Frost & Sullivan, May 2023)

procuring agencies reward firms that show repeatable pilot-to-contract pathways, demonstrable oversight, and the ability to manage multi-site fleets from centralized command centers; industry moves illustrate this pattern, with firms moving from dozens of pilots into multi-year municipal contracts as regulators and operators gain confidence. Consequently, the competitive landscape will likely consolidate around vendors that prove two things at scale: they can lower the cost and risk of integration for customers, and they can deliver dependable, revenue-grade services that fit transit procurement models. Suppliers that offer modular, vehicle-agnostic supervisory platforms, standardized service bundles for common verticals (e.g., airports, campuses, communities), and turnkey operations and maintenance capabilities position themselves to capture the shift from experimental pilots to mainstream shuttle services.

## Driving Innovation

> *"Beep proves that autonomous mobility can function as a multi-purpose, multi-environment solution rather than a niche experiment—an achievement made possible only through the deliberate, multi-year progression of its platform and services."*
>
> *- Ana Victoria Dominguez,*
> *Best Practices Research Analyst*

In this competitive landscape, Beep delivers a comprehensive platform designed to transform autonomous mobility into a scalable, service-oriented solution for public and private transit environments. Its core offering, AutonomOS, enables agencies and operators to supervise, orchestrate, and optimize fleets across campuses, airports, communities, and dense urban corridors. AutonomOS provides full-stack service lifecycle management, allowing operators to configure every layer of the service profile, from vehicle and cabin supervision to fleet orchestration, safety monitoring, and data integration. These profiles extend beyond routing logic to encompass accessibility, Americans with Disabilities Act readiness, and integration with General Transit Feed Specification (GTFS) and GTFS-real time feeds, ensuring interoperability with existing transit networks. Supporting various environments, Beep deploys AutonomOS within centralized command centers, such as the Jacksonville Transportation Authority's Autonomous Innovation Center, and connects it to live, revenue-service operations like NAVI, the nation's first fully autonomous public transit system launched in June 2025. These tools work in concert to deliver a uniform supervisory framework that adapts to diverse operational requirements across the mobility ecosystem, representing the culmination of years of systematic development and refinement.

Designed for flexible adoption, AutonomOS extends its capabilities through partnerships that align software intelligence with advanced vehicle platforms. By decoupling service orchestration from the underlying automated driving system, Beep can integrate with a wide array of hardware providers, from Ford's E-Transit vans equipped with Oxa's Automated Driving System (ADS), Karsan Mini-Buses powered by ADASTEC, to purpose-built autonomous movers developed with HOLON powered by Mobileye. This vehicle-agnostic approach distinguishes Beep from earlier autonomous shuttle deployments that tied operations to a single Original Equipment Manufacturer or ADS vendor, limiting scalability and service design flexibility. In contrast, Beep empowers transit agencies to select the right platform for each deployment without lock-in while maintaining centralized oversight and service consistency. This modular

structure ensures that mobility services remain adaptable as technology evolves, reflecting a deliberate strategy Beep has pursued to avoid the pitfalls of vendor lock-in and rigid, short-lived pilot programs.

Beep's commercialization track record reflects its ability to transform emerging technology into sustainable public transit infrastructure. In 2024, the company operated autonomous shuttles at Honolulu International Airport[2], Mississippi State University[3], and the Rossmoor senior community, demonstrating versatility across user demographics and environments.

Beep also demonstrates significant application diversity by deploying its supervisory stack across multiple operating environments. Its technology powers shuttles in nine states and more than 35 distinct service locations, spanning airports, universities, age-friendly communities, and municipal corridors. This breadth shows the adaptability of AutonomOS to environments with differing passenger profiles, infrastructure maturity, and service objectives. Whether serving international travelers at an airport terminal, students on a university campus, seniors in a community circulator, or commuters in an urban downtown loop, Beep delivers integration with broader mobility networks. By applying a unified platform across such varied contexts, Beep proves that autonomous mobility can function as a multi-purpose, multi-environment solution rather than a niche experiment—an achievement made possible only through the deliberate progression of its platform and services.

## Scaling Smart

> *"The combination of strong financial backing, repeatable customer acquisition, lean operations, and proven expansion strategies positions Beep for durable growth as autonomous shuttles transition from pilots into core elements of public and private transit systems."*
>
> *- Geraldine Priya,*
> *Research Manager*

Beep's sustained momentum is rooted in a business model that balances disciplined growth with strong financial backing. By mid-2025, Beep scaled from these pilots into NAVI, supported by $52.7 million in new funding led by Intel Capital and Blue Lagoon Capital.[4] This financing brought Beep's total capital raised to nearly $100 million, underscoring strong investor confidence in its ability to deliver real-world autonomy at scale. The company's evolution from early pilot deployments launched in 2020 to contracted, city-scale services illustrates a disciplined trajectory from experimentation to repeatable, large-scale

mobility systems. The multi-year nature of this agreement provides predictable recurring revenue and showcases Beep's ability to secure large-scale contracts that reinforce financial resilience. Rather than relying solely on pilot programs, Beep has structured its growth around contracted services with clear funding and operational visibility, building a foundation that strengthens investor and customer confidence alike.

Customer acquisition follows a repeatable path that converts transit agencies, municipalities, universities, and private communities into long-term partners. Beep streamlines this process by aligning its offering with pressing needs such as accessibility and sustainability. In the transcript, Beep emphasizes how its team works directly with local stakeholders to design service models that fit existing infrastructure and

[2] https://ridebeep.com/press-releases/beep-launches-at-honolulus-international-airport Accessed August 2025
[3] https://ridebeep.com/locations/starkville-ms Accessed August 2025
[4] https://www.intelcapital.com/beep-launches-navi-the-nations-first-fully-autonomous-public-transit-system/ Accessed August 2025

community priorities. Once deployed, the integration of AutonomOS into customer ecosystems makes the company's services indispensable, reducing churn and enhancing retention.

Beep reinforces operational efficiency with its centralized service model. Beep manages fleets through remote command centers, integrating supervisory control, diagnostics, and safety monitoring. This architecture allows a small operations team to oversee multiple deployments across states without the cost burden of site-by-site staffing. By automating routine functions such as incident reporting, route adjustments, and vehicle health monitoring, Beep reduces manual workload and ensures that staff time is directed toward higher-value tasks like optimization and customer engagement. The company's lean operating model enables it to scale service without proportional increases in headcount, a critical factor in managing costs while maintaining quality standards.

Beep's growth potential is anchored in its ability to expand both within existing accounts and across new markets. The transcript outlines how the company positions its platform to scale with customer needs, adding routes, vehicles, and service layers once initial deployments demonstrate success. NAVI illustrates this trajectory: what began as a series of pilots under the JTA's Ultimate Urban Circulator program evolved into a fully operational 14-vehicle, 12-stop network managed under a multi-year contract. This model demonstrates how Beep can replicate its approach elsewhere, leveraging proven pilots to win customer trust and unlock larger-scale opportunities. By partnering customer focus with a track record of delivery, Beep reinforces loyalty while simultaneously opening pathways for geographic and sectoral growth.

Together, these factors create a compound advantage. The combination of strong financial backing, repeatable customer acquisition, lean operations, and proven expansion strategies positions Beep for durable growth as autonomous shuttles transition from pilots into core elements of public and private transit systems.

## Conclusion

Beep stands out as a pioneer in autonomous shuttle services by transforming development into scalable, revenue-generating mobility networks. Through its proprietary AutonomOS platform, the company delivers fleet supervision, passenger safety assurance, and service orchestration that adapt seamlessly across airports, university campuses, senior communities, and urban corridors. Its vehicle-agnostic strategy, strengthened by partnerships with original equipment manufacturers and automated driving system providers, ensures flexibility and long-term relevance as technology evolves. By consistently converting pilot programs into contracted, multi-year operations such as Jacksonville's fully autonomous public transit network, Beep demonstrates both operational excellence and customer trust. This combination of innovation, disciplined execution, and commitment to accessibility secures Beep's position at the forefront of the autonomous shuttle market. With its strong overall performance, Beep earns Frost & Sullivan's 2025 North American Technology Innovation Leadership Recognition in the autonomous shuttles industry.

# FROST & SULLIVAN

## What You Need to Know about the Technology Innovation Leadership Recognition

Frost & Sullivan's Technology Innovation Leadership Recognition is its top honor and recognizes the market participant that exemplifies visionary innovation, market-leading performance, and unmatched customer care.

### Best Practices Recognition Analysis

For the Technology Innovation Leadership Recognition, Frost & Sullivan analysts independently evaluated the criteria listed below.

#### Technology Leverage

**Commitment to Innovation:** Continuous emerging technology adoption and creation enables new product development and enhances product performance

**Commitment to Creativity:** Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

**Stage Gate Efficiency:** Technology adoption enhances the stage gate process for launching new products and solutions

**Commercialization:** Company displays a proven track record of taking new technologies to market with a high success rate

**Application Diversity:** Company develops and/or integrates technology that serves multiple applications and multiple environments

#### Business Impact

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

**Customer Acquisition:** Customer-facing processes support efficient and consistent new customer acquisition while enhancing customer retention

**Operational Efficiency:** Company staff performs assigned tasks productively, quickly, and to a high-quality standard

**Growth Potential:** Growth is fostered by a strong customer focus that strengthens the brand and reinforces customer loyalty

**Human Capital:** Leveraging innovative technology characterizes the company culture, which enhances employee morale and retention

## Best Practices Recognition Analytics Methodology

### Inspire the World to Support True Leaders

This long-term process spans 12 months, beginning with the prioritization of the sector. It involves a rigorous approach that includes comprehensive scanning and analytics to identify key best practice trends. A dedicated team of analysts, advisors, coaches, and experts collaborates closely, ensuring thorough review and input. The goal is to maximize the company's long-term value by leveraging unique perspectives to support each Best Practice Recognition and identify meaningful transformation and impact.

**VALUE IMPACT**

| STEP | | WHAT | WHY |
|------|------|------|-----|
| 1 | Opportunity Universe | Identify Sectors with the Greatest Impact on the Global Economy | Value to Economic Development |
| 2 | Transformational Model | Analyze Strategic Imperatives That Drive Transformation | Understand and Create a Winning Strategy |
| 3 | Ecosystem | Map Critical Value Chains | Comprehensive Community that Shapes the Sector |
| 4 | Growth Generator | Data Foundation That Provides Decision Support System | Spark Opportunities and Accelerate Decision-making |
| 5 | Growth Opportunities | Identify Opportunities Generated by Companies | Drive the Transformation of the Industry |
| 6 | Frost Radar | Benchmark Companies on Future Growth Potential | Identify Most Powerful Companies to Action |
| 7 | Best Practices | Identify Companies Achieving Best Practices in All Critical Perspectives | Inspire the World |
| 8 | Companies to Action | Tell Your Story to the World (BICEP*) | Ecosystem Community Supporting Future Success |

*Board of Directors, Investors, Customers, Employees, Partners

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## About Frost & Sullivan

Frost & Sullivan is the Growth Pipeline Company™. We power our clients to a future shaped by growth. Our Growth Pipeline as a Service™ provides the CEO and the CEO's growth team with a continuous and rigorous platform of growth opportunities, ensuring long-term success. To achieve positive outcomes, our team leverages over 60 years of experience, coaching organizations of all types and sizes across 6 continents with our proven best practices. To power your Growth Pipeline future, visit Frost & Sullivan at http://www.frost.com.

### The Growth Pipeline Generator™

Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.

Learn more.

***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***:

- **Megatrend (MT)**
- **Business Model (BM)**
- **Technology (TE)**
- **Industries (IN)**
- **Customer (CU)**
- **Geographies (GE)**