WHILL

WHITE PAPER

One Million Rides Later: How WHILL Is Redefining Airport Mobility Assistance

FROM ASSISTANCE TO AUTONOMY: WHILL'S LEADERSHIP IN SCALABLE AIRPORT MOBILITY

2026



Executive summary

As the demand for mobility assistance continues to grow, airports must balance support across a wide range of passenger needs. Autonomous mobility can help ensure travelers who require hands-on assistance receive dedicated support, while providing an independent option for those who primarily need help navigating long distances.

Since 2020, WHILL has been a global leader in autonomous mobility and accessible travel as the first commercial operator in the industry. With more than 200 autonomous devices in active service and over 1 million rides delivered, WHILL remains the only provider operating autonomous mobility services at scale, with zero injury claims to date.

No other provider has reached comparable scale in autonomous airport mobility. That track record is the product of years of live deployment across three continents, and it is why the performance data behind this paper exists at all.

WHILL Autonomous Service gives airports and airlines a way to absorb that demand where it is most concentrated: among the large share of passengers who need help navigating long distances and complex terminals. The service is operational, has a verified safety record, and is running at commercial scale across three continents.

28

airports and facilities

supported across three continents through real-world deployments

1M+

autonomous rides

delivered through WHILL's commercial mobility service across live airport environments

WHILL has maintained

zero injury claims

across more than one million autonomous rides

Commercial autonomous mobility operations since 2020

with proven deployments across North America, Europe, and Asia

The mobility assistance challenge: Demand is growing faster than traditional operations can scale

Requests for airport wheelchair assistance have been increasing faster than passenger growth, creating operational strain. According to data from Open Doors Organization, these requests climbed an average of 17% between 2010 and 2018. IATA also recorded a 30% jump in requests from 2016 to 2017 alone.

Between April 2023 and March 2024, UK airports logged 4.45 million assistance requests, up from 3.68 million the prior year. That is a 21% increase in 12 months. Large US airports are already processing more than one million wheelchair assists annually, driven largely by an aging population.

17% average increase in airport wheelchair assistance requests between 2010 and 2018

30% increase in assistance requests recorded by IATA from 2016 to 2017 alone

4.45M assistance requests logged by UK airports between April 2023 and March 2024, up from 3.68 million the previous year

1M+ wheelchair assists processed annually by large US airports

At an airport handling one million annual wheelchair assists, that translates to roughly 2,700 requests every day. Those requests do not distribute evenly across a 24-hour day.

The longer-term driver is demographic.

By 2030, every baby boomer in the United States will be 65 or older, per the United States Census Bureau, putting one in five Americans at retirement age simultaneously. The 85-and-older population, which accounts for the highest rate of airport mobility assistance use, is also expected to rapidly grow over the next two decades.

And these travelers are not withdrawing from air travel. Older adults today are traveling more than ever and remain active well into later life, which means airport mobility demand will keep rising.

Disability travel adds a separate and growing layer of pressure. Between 2022 and 2024, 25.6 million travelers with disabilities took 77 million trips and generated nearly $50 billion in annual travel spending. With companions included, that figure rises above $100 billion per year (Open Doors Organization, 2024).

It's estimated that 1.3 billion people globally, approximately 16% of the world's population, live with disabilities or reduced mobility. Airports and airlines that treat this as a niche passenger category are misreading both their current and future passenger base.

Evolving the traditional assisted travel model

Traditional mobility assistance programs play a critical role in supporting travelers. However, as demand increases, maintaining consistent service levels can become more challenging during peak travel periods. Airports are increasingly exploring technology-enabled solutions that help complement existing teams and expand service capacity.

People-Led Assisted Travel Service	WHILL Autonomous Service
Maintaining consistent service levels can become more challenging during peak travel periods as demand increases	Helps complement existing teams and expand service capacity
A one-size-fits-all approach may not always provide the most efficient or personalized experience	Provides an independent option for passengers who primarily need help navigating long distances
Staff perform long terminal runs	Staff are free to assist other passengers while the chair navigates independently
Existing teams may need additional capacity as demand grows	Adds capacity alongside existing teams, helping staff focus their expertise where it's needed most

An important consideration is that travelers requiring mobility assistance have diverse needs, and a one-size-fits-all approach may not always provide the most efficient or personalized experience.

Between 70% and 80% of people who request wheelchair assistance can walk short distances unassisted, but they still need support with long distances and wayfinding.

When that capacity is stretched, passengers requiring intensive physical support face longer wait times because total demand can exceed what existing staffing levels were designed to absorb.

It can also be difficult to rebalance capacity in real time when one terminal is overwhelmed and another has slack capacity in the same airport. Expanding the workforce alone does not necessarily address the underlying allocation challenge.

A viable solution would be to create additional capacity that works alongside existing teams to serve a wider range of passenger needs, all backed by airport data.

70% to 80%

of passengers requesting wheelchair assistance can walk short distances independently but still need support with long distances and wayfinding.

What WHILL Autonomous Service is

Autonomous mobility has greatly changed how the world moves. The growing need for it has also shifted conversations toward how companies and organizations should implement solutions that create better experiences in places like airports.

For instance, a passenger approaches a WHILL Autonomous Service chair. They confirm a destination on the multilingual touch-panel interface, and the chair navigates there independently using pre-mapped terminal routes and real-time obstacle detection.

With the chair being able to handle navigation, staff are free to assist other passengers at the same time. When the passenger arrives, the chair returns on its own and is ready for the next user.

Operations teams dispatch chairs through integrations with existing resource planning platforms, which removes manual device management and allows chairs to be staged at arrival gates before flights land. Battery status, current location, and dispatch queue are visible, thanks to the chair's fleet monitoring capabilities.

Staff remain central to the service. They assist passengers at the point of boarding. They help confirm the passengers are settled and supervise the fleet remotely.

At large airports where a single terminal run can take 20 minutes or more, that reallocation has real operational weight.

The multilingual interface removes a friction point that compounds across hundreds of daily interactions at international hubs. Communication challenges in multilingual airport environments can create delays and misunderstandings that are difficult to quantify individually but significant in aggregate. Multilingual guidance on the interface removes that variable entirely.

HOW WHILL AUTONOMOUS SERVICE WORKS



1. Sit down and get settled

Staff assist the passenger at boarding and make sure they're ready for the journey.

2. Confirm the destination

The passenger selects their destination using the multilingual touch-panel interface.

3. Travel autonomously

The chair navigates independently along pre-mapped terminal routes using real-time obstacle detection.

4. Arrive at the destination

The passenger reaches their destination while staff remain available to assist other travelers.

5. Return for the next rider

After the journey, the chair returns autonomously and is ready for its next passenger.

Operational efficiency and labor support

What WHILL changes for operations is where attendant effort goes. Staff shift toward passengers with complex physical needs rather than performing the long terminal runs that occupy the bulk of current working time. Chairs handle transit independently during peak periods, which can help reduce the impact of demand spikes on service levels.

Fleet monitoring gives supervisors a live picture of where chairs are and where they are needed. Battery level, current location, and dispatch status are accessible from a single interface rather than being coordinated over the radio across a facility that may span several buildings. When late inbounds or gate changes compress transfer windows, operations can redirect the fleet in real time, which can provide additional capacity without relying solely on additional personnel.

WHILL Autonomous Service integrates with your existing resource management platform, whether you're an airline operator or a PRM service provider. This interoperability creates a seamless experience that fits into your existing operations.

The deployment process is structured to transfer operational knowledge rather than just hardware. Pre-launch work covers facility mapping, system configuration, hardware validation, staff training, and passenger flow simulation specific to that terminal. Post-launch support covers routing updates, performance reporting, coordination protocols, and ongoing maintenance. Partner airports receive a working system and an accountable operational partner, and not just a device with a manual.

Most operators need to know not whether autonomous mobility works in the abstract, but whether it will function at their terminal, given their layout, passenger volume, and staffing model.

Operation portal: Fleet management system

The WHILL Operation Portal gives facility operators a single management interface for the entire fleet that includes features such as:

- **Real-time fleet visibility** that lets you monitor the live location and status of every device at a glance.
- **Direct dispatch** that enables devices to be directly sent to a passenger's location using the portal.
- **Assistant call/help button** that ensures all urgent passenger requests create instant notifications for staff. This allows for quicker responses instead of letting passengers wait until an attendant passes by.
- **Centralized dashboard** that visualizes your daily operational data, allowing you to track usage patterns, peak demand, and service metrics over time.
- **Gate change** feature that allows operators to update a device's destination remotely in case a passenger's gate changes.

Change station capability lets operators remotely adjust a device's station depending on changing conditions.

Robot orchestration is a unique feature in WHILL's fleet management system that allows it to accommodate non-WHILL robots. With this, WHILL and non-WHILL robots can move in coordination and act as a coordinated fleet, giving you seamless cross-robot fleet management capabilities.



Advanced routing and operational controls

The autonomous driving system also includes a robust set of operational configurations that give facility operators granular control over how the fleet behaves:

One-way routing lets you set different paths for outbound and return trips to optimize terminal flow.

Intersection and narrow passage traffic control manages device flow safely at intersections and tight corridors.

Waiting lane management feature that provides designated queue areas that allow multiple devices to hold and wait in sequence instead of blocking traffic.

Speed limits by area let you configure maximum speeds per zone to better match passenger safety requirements.

Elevator integration allows WHILL to connect with elevator systems so you can expand autonomous service across multiple terminal floors.

Load balancing enables the system to automatically select the optimal return station for each device. This maximizes fleet efficiency while reducing wait times.

Stop-by points let devices make intermediate stops, such as a restroom or retail location, en route to a destination without disrupting the trip.

Safety, reliability, and compliance

Passengers with reduced mobility encounter challenges that affect their quality of life when traveling, which can limit accessibility and create negative, unsafe experiences for them, per a qualitative exploratory study published in the journal *Spinal Cord Series and Cases*.

Live terminal environments are demanding places to operate autonomous equipment. Passenger movement is unpredictable at scale as people stop without warning and groups cluster at bottlenecks. Any autonomous device operating in those conditions has to function around real human behavior at volume.

WHILL has completed more than one million autonomous rides across its global network. Across every one of those rides, the injury claim count is zero. In 2023, the WHILL Autonomous Model A power chair won the CES Innovation Award. WHILL Autonomous Service devices are CE certified, and the service undergoes third-party security assessments.

The safety architecture includes collision avoidance sensors with automatic braking, pre-mapped routes validated for each specific terminal layout, an emergency stop on every chair, backup systems, and continuous remote supervision along with human override options.

That architecture rests on a core stack of independent safety layers that include:

Auto-braking and collision avoidance where sensors continuously scan for obstacles and choose a safe alternative route in real time.

Intrusion prevention feature that allows the system to prevent autonomous devices from entering restricted or hazardous zones, including escalators and moving sidewalks.

Stair detection lets the device stop automatically at stairs, notifies the operator, and prompts staff assistance for the passenger, instead of letting them attempt to navigate the hazardous zone on their own.

Localization detection and re-localization. If a device loses positional accuracy because of terminal congestion, it stops safely and resumes automatically once the path clears.

Seat belt detection. The device monitors whether the belt is fastened and slows to a stop if it becomes unfastened during transit.

Standing detection. If a passenger stands on the footrest while in motion, the device detects the change and brings itself to a gradual stop.

Each new facility requires mapping, testing, and operational sign-off before the service goes live, which is part of how performance stays consistent across terminals with very different physical layouts. These features were developed for the environments where WHILL operates and have been tested across all 28 commercial deployments.



Passenger experience: Independence, dignity, and confidence

Traditional wheelchair assistance provides valuable support for millions of travelers each year. At the same time, some passengers may prefer options that offer greater independence and control over their journey through the terminal.

The experience is typically coordinated around operational workflows designed to serve large volumes of passengers. While effective, some travelers may prefer a more self-directed option that allows them to move at their own pace.

Even if airports do offer these accessibility options, they can be inconsistent. According to a study published in the journal *Frontiers in Rehabilitation Sciences*, while travel can be an important part of the lives of people with disabilities, barriers such as limited accessibility are making them reluctant to travel. Per the study, there is a sense of dehumanization brought about by the disregard for the unique needs and capabilities of passengers with reduced mobility.

Research has shown that some travelers with reduced mobility value solutions that promote greater independence and direct engagement throughout their journey.

Wayfinding support is also extending earlier into the journey. Through system integration, the service automatically selects the passenger's gate and route based on their flight, and updates the destination automatically when real-time flight information shows a gate change. Boarding pass scanning can also be used to verify the passenger's identity.

For passengers whose needs can be met through autonomous mobility, the addition of autonomous wheelchairs provides another service option. This gives passengers greater independence, choice, and control over their journey according to their individual needs, while passengers who require or prefer hands-on support continue to be supported by assisted travel colleagues.

WHILL changes the dynamic at the point of departure by giving passengers more options when it comes to their airport journey. The passenger confirms a destination, and the chair moves. They're able to travel independently without waiting for an attendant's schedule to open up. This gives passengers greater independence and control over their journey while maintaining a strong focus on safety.

WHILL's design philosophy goes beyond transportation. The chair is meant to be a companion through the terminal, not just a machine that moves: it communicates with the passenger through voice and visual cues, responds in their preferred language, and keeps them informed and reassured throughout the ride. WHILL builds its chairs to be experienced as friendly partners rather than equipment.

"The shift is subtle but powerful: people speak directly to the user, ask questions, and recognize capability. From this positive attention, users gain a sense of pride, creating a ripple effect that encourages more frequent use of mobility devices."
– Josie Byzek, Senior Director of Communications, United Spinal Association (representing 5.5M wheelchair users)

For airports and airlines, passenger experience in accessibility also carries measurable reputational consequences, which can help improve satisfaction and perception. For example, Haneda Airport was named the world's best PRM and Accessible Facilities for 2026 by the Skytrax World Airport Awards. WHILL's Autonomous Service is a big part of that operation, and the recognition reflects what happens when accessible travel investment goes past compliance minimums and becomes part of how a facility defines its service standard.

"The shift is subtle but powerful: people speak directly to the user, ask questions, and recognize capability. From this positive attention, users gain a sense of pride, creating a ripple effect that encourages more frequent use of mobility devices.

– JOSIE BYZEK, SENIOR DIRECTOR OF COMMUNICATIONS FOR THE UNITED SPINAL ASSOCIATION



Global scale and real-world deployment



WHILL Autonomous Service currently operates at 28 airports and facilities across North America, Europe, and Asia, run by a fleet of 200+ autonomous units in active service.

North American deployments include:

- Ted Stevens Anchorage International Airport
- Los Angeles International Airport
- Seattle-Tacoma International Airport
- Healthcare Clinic, Rochester, Minnesota
- Chicago O'Hare International Airport
- Detroit Metropolitan Airport
- Miami International Airport
- Winnipeg Richardson International Airport, Manitoba, Canada

European deployments include:

- Heathrow Airport, United Kingdom
- Paris Orly Airport, France
- Barcelona El Prat Airport, Spain
- Munich Airport, Germany
- Leonardo da Vinci–Fiumicino Airport, Rome, Italy

Japanese deployments cover airports, alongside hospitals and public facilities, including:

- Haneda International Airport
- Osaka Itami International Airport
- Narita International Airport
- Kansai International Airport
- Chubu Centrair International Airport

- Keio University Hospital
- Shimane University Faculty of Medicine
- Yokohama Municipal Citizen's Hospital
- National Center for Child Health & Development
- Special Nursing Home Lasoeur Nagasawa
- Kanigaya Nursing Home
- National Museum of Ethnology

APAC deployments include:

- Singapore Changi Airport
- Sydney Airport, Australia
- Melbourne Airport, Australia

Each one required site-specific work, including terminal mapping, route validation, operational integration, staff training, and passenger flow simulation. As an innovation partner, WHILL also provides post-launch assistance through services like map updating and routing, autonomous oversight, performance metrics, staff coordination, and monitoring and maintenance.

WHILL has been the only commercial operator in this space since 2020. No comparable large-scale deployment has occurred elsewhere in the industry during that period.



Partner validation and deployment examples

The following feedback reflects perspectives from WHILL and deployment partners across three continents, each running active live commercial operations.



Marilyn Romano,
Regional VP Alaska for Alaska Airlines

"By bringing autonomous mobility assistance to the Anchorage airport, we're advancing accessibility and the guest experience. As a vital hub for Alaska, this innovation ensures Alaska Airlines guests have safe, dependable options from curb to gate and complements the accessibility services we provide today."

Migdoel Rosa,
Envoy Vice President of MIA Hub

"The Envoy team at MIA supports thousands of customer service requests every day, and we're thrilled to partner with WHILL to pioneer the introduction of this autonomous mobility service in the U.S."

Deesha Desai,
Envoy Vice President of LAX Hub and Western Region

"Ensuring accessibility and safety for our customers are top priorities for our team. Our team and WHILL are committed to listening to customers and addressing their needs, which will result in an improved experience for individuals with accessibility challenges."

Atsushi Maeda,
Executive Officer, Airport Division, Japan Airlines — Haneda Airport

"We aim to bring to life 'smart airports' where a seamless travel experience is a reality for everyone, including those with mobility issues. Airport travel can cause feelings of stress for customers with mobility issues, and our goal is to alleviate these stresses with the autonomous Personal EVs."



Stéphane Barrault,
GSF at Orly Airport, Head of Performance and Development

"Our partnership with WHILL marks an important milestone in our commitment to smoother and more inclusive mobility at Paris-Orly. Since the service was launched, thousands of journeys have already been completed, with a particularly high uptake rate and remarkable satisfaction among passengers using the service.

Beyond the figures, these results confirm a firm belief: when designed for everyone, technological innovation becomes a real driver for improving the passenger experience. Greater independence, smoother journeys and greater peace of mind for passengers with reduced mobility: this is the value we strive to create every day.

This success is, above all, the result of a collective commitment. Congratulations to all the teams involved, and thank you to WHILL for their trust and innovative spirit.

Together, we are helping to advance mobility and support solutions for the travellers of tomorrow."

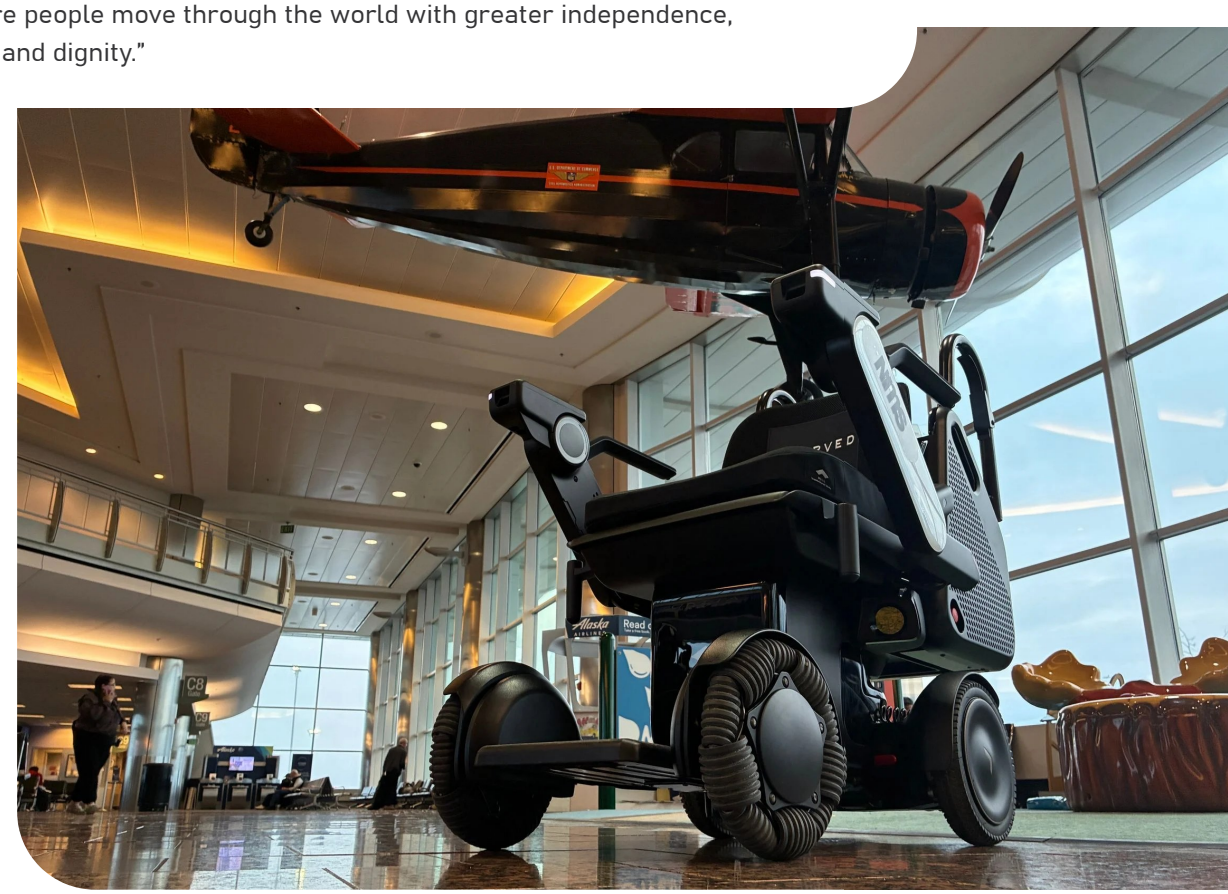


Kelly Parish,
Vice President Transport and Aviation, ABM

"Innovation is central to how ABM continually improves the passenger journey. Through our collaboration with WHILL, we are exploring how autonomous mobility solutions can enhance accessibility, empower passengers with greater independence, and support operational efficiency. As airports evolve, technologies that improve both customer experience and service delivery will be increasingly important in creating more inclusive and seamless travel environments."

Satoshi Sugie,
CEO, WHILL

“Every new airport and facility launch is more than growth for WHILL. It represents a future where accessible mobility is becoming a seamless part of everyday travel. As demand continues to rise globally, we’re proud to see our Autonomous Service helping more people move through the world with greater independence, confidence, and dignity.”



The future state: From autonomous service to the WHILL airport robotics OS

Everything above describes the service WHILL operates today. The roadmap ahead builds on that same foundation, extending a single mobility service into a platform that would coordinate activity across the entire terminal floor. WHILL frames this as a three-horizon plan.

The immediate vision: Door-to-door passenger journey

The near-term goal is closing the gap between booking a trip and leaving the airport, so the service covers more of the journey than just the walk from gate to gate. Planned capabilities include:

- Curbside dispatch that would trigger automatically on arrival, thus eliminating extended wait times at the airport entrance.
- Gate routing that reads a scanned boarding pass and adjusts automatically if a flight's gate changes.
- Real-time voice and visual guidance in a passenger's preferred language throughout the journey.
- Seamless security handoffs that are coordinated between the autonomous system and staff.
- System-integrated arrival dispatch that syncs with flight data to pre-position autonomous devices at arrival gates.

The platform vision: WHILL airport robotics OS

Beyond the passenger journey, WHILL's longer-term plan is to become the coordination layer for everything moving through a terminal, not just its own chairs. WHILL describes this as three connected functions: **Move**, **See**, and **Engage**.

Move — fleet orchestration: Positioning chairs based on where demand is building and giving priority to passengers over other robot traffic when paths cross.

See — terminal sensing: Equipped with cameras and LiDAR, a moving chair would become a roving set of eyes, feeding back live conditions, such as detecting congestion and potential hazards. This helps build a comprehensive and always-current map of the terminal.



Engage — the in-ride experience: Each ride gives the service 15 to 30 minutes of a passenger's undivided attention. The display uses that time first for the passenger, with live wayfinding, gate information, and flight updates in their preferred language, and also opens new revenue channels, from context-aware retail offers to airline ancillary sales completed before boarding.

Underneath those three functions, WHILL provides a detect-share-act-close loop. When a WHILL camera detects an issue, that information gets routed to whichever unit that can act on it. The outcome is recorded so the system gets more accurate the next time something similar happens. WHILL itself wouldn't be doing the cleaning or hauling. Instead, it coordinates floor operations, with benefits spanning four areas:

- Lower staffing pressure and better fleet utilization
- Faster and more dignified data-personalized passenger journeys
- Automated hazard detection that reduces liability exposure
- Operational decisions grounded in live data rather than estimates

The rollout: A phased, low-risk deployment model

WHILL's plan introduces these visions in phases rather than all at once so that you can build the confidence in the solution among your stakeholders while receiving its benefit quickly with reduced risks.

For example, at each site, the first six months would focus on the core mobility service plus a unified dashboard for coordinating the fleet.

The following six months would add enhanced camera and LiDAR infrastructure, providing more data or revenue streams, along with in-terminal wayfinding for passengers.

Beyond the first year, the plan calls for bringing other vendors' robots into the same coordinated system, working toward a terminal where ground operations run as one connected platform instead of several disconnected ones. WHILL works side by side to make it happen at your facility.

The long-term strategic arc: Dots → Network → Platform → Core

Individual deployments of our autonomous service continue to prove that our service works at a given airport. As we expand to more locations and reach more passengers in need, WHILL is growing into a network of all these deployments where we standardize how data and operational best practices are shared with our partners. WHILL then grows into a platform where not just its own fleet but other vendors' robots and services across a facility can be managed on.

At full maturity, WHILL becomes part of the airport's core operating infrastructure, with its data feeding decisions well beyond passenger mobility alone.

Conclusion: The future of mobility assistance is scalable, autonomous, and passenger-centered

Airport mobility assistance demand is not approaching a ceiling. The aging population that drives most of it is growing faster than airports are building capacity to serve it. The disability travel market has been underserved for years and is now large enough that airlines and airports are paying attention for commercial reasons, not just compliance ones.

WHILL has the only commercial-scale track record in autonomous airport mobility with more than a million rides, zero injury claims, and live operation across 28 facilities on three continents today.

As demand continues to rise, airports that invest early in scalable mobility solutions may be better positioned to meet future traveler expectations while maintaining high levels of service and accessibility.

Aviation is good at absorbing disruption in theory. In practice, the airports and airlines that will handle the next decade of personal mobility demand well are the ones making operational decisions about it now.

To learn more about WHILL Autonomous Service, visit whill.inc/us/autonomous-service.

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About WHILL

WHILL was founded in 2012 with a mission to provide fun and innovative mobility solutions that redefine personal transportation. Operating in over 20 regions, WHILL offers a range of mobility products, from electric wheelchairs to autonomous mobility services, designed to give users greater independence through advanced technology and human-centered design. The company's award-winning devices have received recognition, including the iF Design Award, Red Dot Design Award, Good Design Award, and Best of CES Innovation Award.

For more information, visit whill.inc/us/.