



Case Study 2023

LastMile and Clevon Deliver IKI Supermarkets' Groceries with Fleet of Delivery Robots

CLEVON



Overview

In 2022, Lithuania saw the launch of a unique service, where Clevon's delivery robots began home deliveries of goods from IKI stores. This service, operated by the last-mile transportation platform LastMile, represents a significant stride in the integration of driverless delivery within the retail sector. The three-way collaboration between Clevon, IKI, and LastMile was first launched in Vilnius, setting a new standard in delivery services. IKI and LastMile are part of the extensive REWE Group family.



REWE Group is the project initiator and sponsor. Interested in validating Clevon's technology for deployment in Germany and in other European countries where they have business interests. REWE is also a leading player in the European retail market with a diverse portfolio that caters to a wide customer base. Known for prioritizing customer service and innovation, REWE has built a reputation for excellence and reliability in the retail sector.

The Rewe Group's retailer, **IKI**, has been operating in Lithuania since 1992 and is now one of the country's leading retailers with 242 stores and around 5500 employees. The company recently introduced five autonomous stores in Vilnius. The retailer also operates LastMile, a home delivery start-up, and an own-brand e-store.

LastMile has provided the last-mile transportation platform for this service. The company offers fast home delivery of goods in several major Lithuanian cities through an app that has quickly reached the phones of more than 300 000 registered users in Lithuania.

Clevon is not just reimagining the delivery of groceries but also helping shape the future of urban living by driving efficiency and sustainability in our communities, all while reducing delivery costs for businesses.

The Challenge

Efficiency, driver shortages and eco-friendly delivery were at the heart of Lithuania's need for an advanced logistics solution. The initiative also aimed to tackle the challenges of noise pollution and carbon emissions, integral to creating sustainable urban environments.

A crucial part of the project's challenge was navigating the regulatory and practical aspects of bringing driverless delivery robots onto Lithuanian public roads. With the active support and collaboration of the **Ministry of Transport and Communications**, the project was able to overcome these hurdles, paving the way for a successful implementation.



The approach of innovative companies towards Lithuania as a reliable and promising partner proves once again that we have a voice in the international technology arena and we are interesting to the world. Self-driving couriers are especially relevant in the context of the Green Deal, as they are environmentally friendly and choose the most optimal route at the lowest energy consumption. Autonomous transport is not a vision of the future, but a current phenomenon in greener and more interconnected cities.

Marius Skuodis

Minister of Transport and Communications of Lithuania





The Solution

To address these challenges, Clevon's delivery robots were introduced into the daily rhythm of the busy city life. The project unfolded in two phases, focusing on effectively integrating these robots into Lithuania's urban delivery system.

Phase 1 – Proof of Concept. Running from September to December 2022, this phase focused on testing the core functionalities of CLEVON 1 in Vilnius' urban settings. This phase was critical for demonstrating the practicality of unmanned delivery robots in a real-world environment. The all-electric zero-emission delivery solution navigated the suburban areas easily, helping to reduce emissions and noise pollution in the area.

Phase 2 – Fleet Service Piloting. Spanning from June to September 2023, aimed to test a full-service fleet across a broader downtown

area, the old town's narrow streets and pedestrian areas. It was designed to validate the robots' performance in delivering a variety of order sizes, managing the fleet's operations efficiently, and testing remote operation capabilities from another country. The success of this phase was crucial for moving towards mass implementation and identifying viable business models.



After our initial success, we knew we could scale. Our collaboration with Clevon has allowed LastMile and IKI to enhance our commitment to innovation, customer satisfaction and sustainable delivery. These robots have now secured themselves a firm position within our strategy roadmap.



Tadas Norušaitis

CEO & Co-Founder of LastMile





System Integration

The project combined LastMile's Planner with Clevon's Vehicle Management System. This integration facilitated real-time updates on orders and delivery logistics, allowing for efficient route planning.

The main functionalities of the API Gateway embraced the exchange of dynamic information about the robots' availability, size of orders, customers' locations, PIN-codes for the MultiBox and much more.



Through the real-world test of Clevon's delivery robots in Vilnius we have learned a lot and made quite a shift in just a short time. I would like to see us able to get similar pilot projects quickly on the road in other countries, too. After all, the potential of this technology is enormous – for society, but also for Europe as a business location.



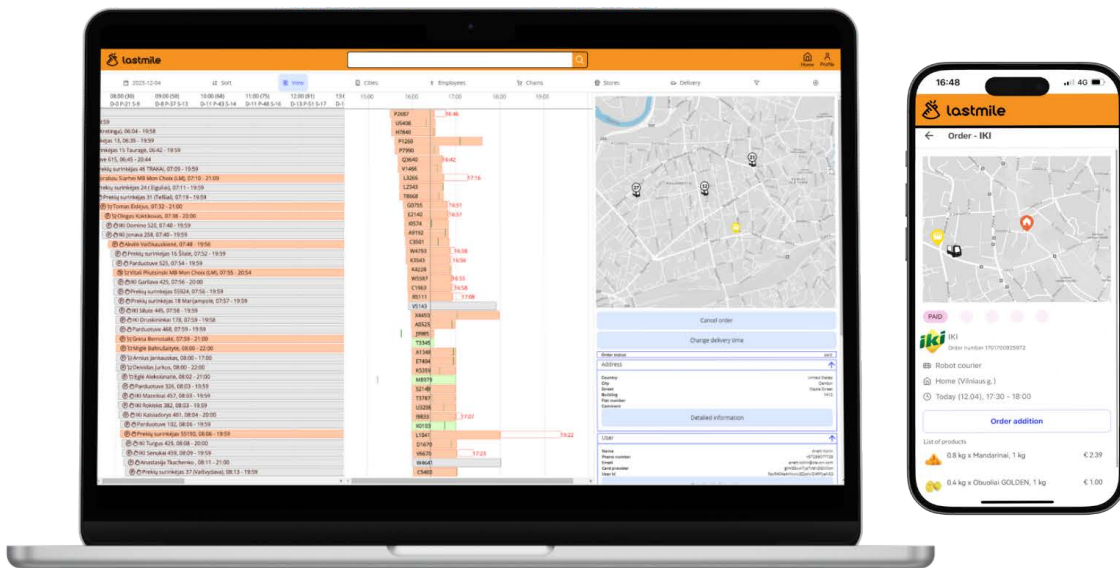
Christoph Eltze

Chief Digital and Technology Officer at REWE Group

Despite early system hiccups, including days with missed orders, the potential for a robust e-store integration was seen.

The robots were operated from Estonia, showcasing the ability to operate and monitor the fleet remotely across borders. From the technical point of view, this setup was proven fully functional and safe – no issues occurred in relation to the physical distance of the network. This added an impressive layer of flexibility and demonstrated the scalability of robotic delivery operations.

During the pilot, more than 500 deliveries were fulfilled, with a peak of 18 orders in a single day. The trend of orders steadily increased, although they did not meet the initial projections. Some system issues temporarily affected order processing, and while these were quickly resolved, the impact on the overall order fulfillment is unknown.





The Results

Throughout the project, LastMile's adoption of Clevon's delivery robots has not only yielded significant achievements but also garnered widespread attention.

The Numbers Behind the Service:

136

days of operation

500+

end-customer deliveries

5100+

kilometers (3200+ miles) driven
in all weather conditions



0

safety incidents

98.7%

service uptime
(5.5 days of downtime
accumulated over all robots)



Achievements

Vilnius became the first city in Europe to launch a fleet of driverless delivery robots on its public roads. Following this achievement, both Clevon and LastMile received recognition for leading the way in delivery innovation.

LastMile was awarded “**Innovation of the Year**” at the Green Mobility Awards.

Clevon won the “**Transport Innovation of the Year**” award at the Parcel & Postal Technology International Awards 2023.

Key Learnings

Customer adoption grew gradually, indicating an initial period of familiarization with robot deliveries.

While clients liked the robot courier experience, they're adjusting to picking up deliveries from the robot instead of direct handovers.



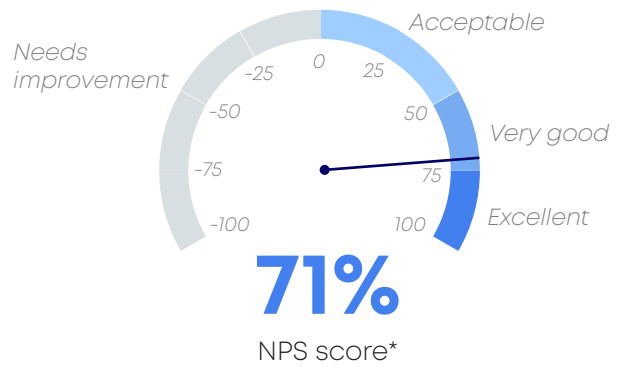
End-Customer Feedback

A telephone survey conducted by the LastMile customer support team revealed a high level of customer satisfaction with the innovative service.

The survey results were overwhelmingly positive, with more than 95% of respondents finding the robot courier both intuitive and comfortable to use. Customers praised the service's clarity and ease of use, appreciating the fresh approach to delivery.

While the feedback was largely favorable, some customers mentioned the handover location as an area for improvement, preferring a more personalized delivery approach. However, there was unanimous satisfaction with the freshness and condition of the delivered items.

The likelihood of recommending the robot courier service was also high, achieving a Net Promoter Score (NPS) of 70.8%. It's a clear testament to the strong acceptance and positive reception among the users. However, based on previous NPS scores that Clevon has achieved, the ambitions remain even higher.

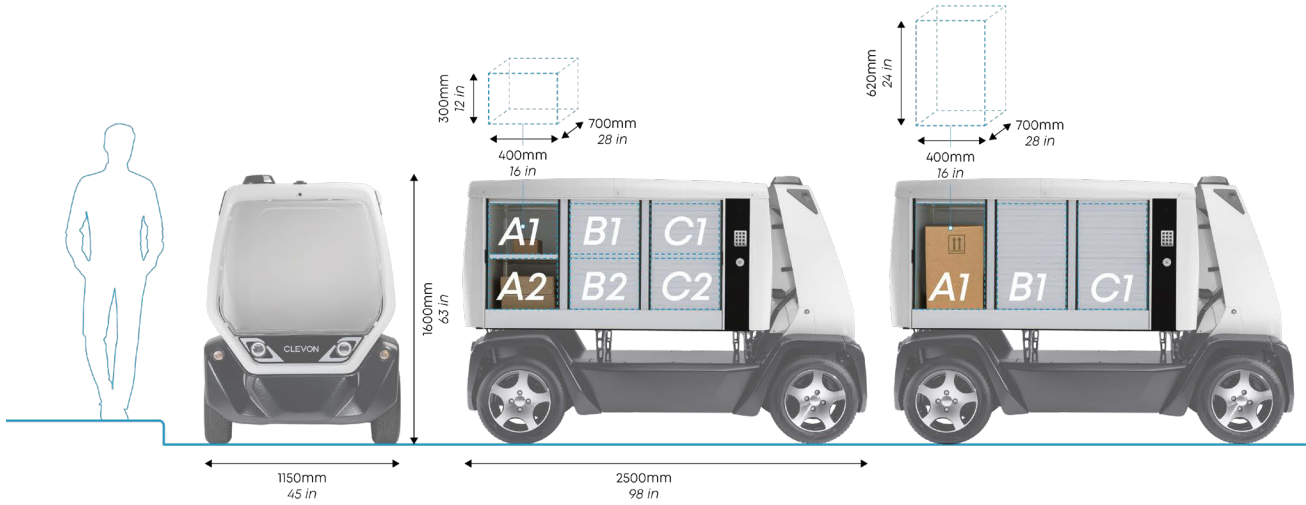


*Net Promoter Score (NPS) is calculated based on customer feedback indicating on a scale of 0 to 10 the probability of recommending the service. The percentage of detractors (below 7) is subtracted from the the percentage of promoters (9 or 10) based on responses, resulting in a score that ranges from -100 to +100.



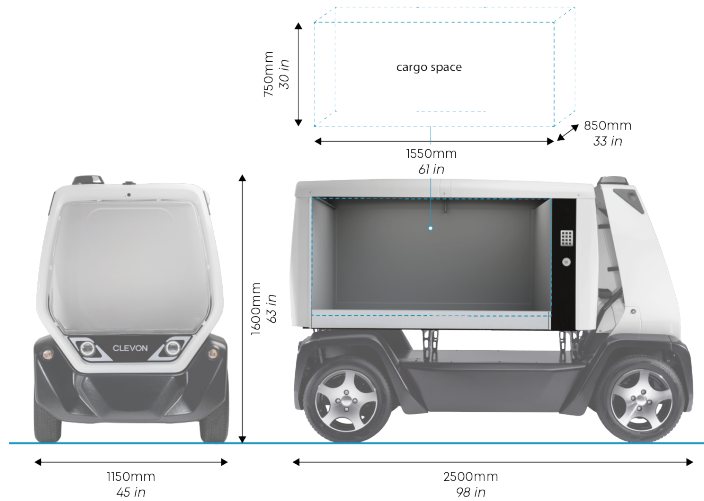


Top-Applications Used in the Project



MultiBox		Locker dimensions	In 3 locker version	In 6 locker version
Length	1850 mm (73 in)	Depth	700 mm (28 in)	700 mm (28 in)
Width	1000 mm (39 in)	Width	400 mm (16 in)	400 mm (16 in)
Height	900 mm (35 in)	Height	600 mm (24 in)	300 mm (12 in)
Payload	75 kg (165 lbs)			

Both versions are interchangeable with each other



CargoBox		Cargo space	
Length	1850 mm (73 in)	Depth	850 mm (33 in)
Width	1000 mm (39 in)	Width	1550 mm (61 in)
Height	900 mm (35 in)	Height	750 mm (29 in)
Payload	Up to 100 kg (220 lbs)	Internal volume	1 m ³ (35 ft ³)