CASE STUDY

Rotterdam The Hague Airport and Vanderlande are ideal innovation partners
Established in October 1956, Rotterdam The Hague Airport (RTHA) is a regional airport located in the southwestern part of The Netherlands. During the 1990s, strong economic growth caused an increase in passenger numbers and in 2001 it was decided that the airport’s current location would be maintained for the foreseeable future.

RTHA is a part of the Royal Schiphol Group (alongside Schiphol, Eindhoven and Lelystad airports) and serves almost two million passengers per year. Its biggest customer is Transavia (approximately 70% of air traffic), while British Airways operates a popular London City connection.

“Although we are a regional airport, we strive to be more than a place where planes and passengers simply come and go,” says RTHA’s Managing Director Ron Louwerse. “We also have a desire to be of importance to the metropolitan region of Rotterdam The Hague and to the cities that we connect to, and we’re trying to achieve this with one of our strategic themes – innovation. With this in mind, we’re always looking to give industry partners a platform from which to introduce or pilot their innovations on site.”

A spirit of innovation
Despite its ambition to realise the ultimate passenger experience and further develop itself as an innovation partner, RTHA had to balance a number of considerations. These included the ability to handle the expected growth in traveller numbers and the optimisation of its business performance. The airport’s levels of automation were also not sufficient enough to handle expected future passenger flows or increasing security screening requirements.

“Being a regional airport, one of our unique selling points is that we offer short windows in which to process passengers,” confirms Ron. “Our aim is to get them from the parking lot into the airplane within 30-40 minutes. Regardless of what the future holds, it’s essential that we continue to provide a smart and reliable baggage handling process.”
RTHA also has a strong focus on meeting its sustainable objectives, as Innovation Lead Carlijn van der Wild adds: “We started an innovation programme in 2017, because we wanted to do something different and exciting as an airport. To begin with, we realised that we could create many opportunities to position ourselves as an innovation partner and develop new business processes. We developed five themes within the programme, of which ‘sustainability’ was one of the most important.

“In my role, I act as the link between external parties and the internal organisation. On any project, I’m always looking at the aspects of sustainability. Alongside any benefits we can offer to our passengers, any change to our baggage handling processes has to deliver an ergonomic improvement for the airport’s employees, as well as the ground handlers. This was the starting point for several meetings we had with the Vanderlande team in order to assess the potential opportunities.”

With fluid and unpredictable passenger numbers, a flexible and scalable solution was essential for RTHA to maintain its competitiveness. In line with the airport’s vision of creating the airport of the future, a reliable system was needed that didn’t rely on fixed infrastructure, but could adapt to ever-changing operational environments and the demands of passengers who are increasingly becoming more tech-savvy.

**Setting the scene**

For RTHA to be able to meet its objectives, Vanderlande proposed FLEET, its flexible and sustainable baggage handling solution. In March 2018, a letter of intent was signed between Vanderlande and RTHA with the purpose of improving the baggage handling process at the airport through the use of intelligent autonomous vehicle technology.

A subsequent pilot project was initiated to trial FLEET in a live operation. In line with its forward-thinking approach, the trial would allow RTHA to gain valuable insight into the potential applications for innovative technologies such as FLEET, as well as improve its performance.

As the airport’s handler, Aviapartner stood to benefit from the efficiencies of automatic sortation, while its employees would feel the positive impact of an ergonomic baggage loading process during flight make-up. For Vanderlande, the pilot project offered the perfect opportunity to validate FLEET’s reliability in a live, real-world environment and make this solution an essential part of daily airport activities.

By using intelligent autonomous vehicle technology, FLEET replaces the need for fixed conveyors and sorting systems. Each individual vehicle – or BAGRUNNER – carries a single bag and can determine the most optimal route through RTHA’s baggage hall. Due to FLEET’s configuration, adding BAGRUNNER vehicles or changing routes is easy, resulting in a scalable and flexible solution.

It has been designed to seamlessly grow alongside RTHA’s business activities, match its operations and peak flows, and allow it to adapt to changing security and screening
regulations – without interrupting operations. In addition, FLEET offers the airport a comprehensive service solution, which enables it to benefit from its flexible and adaptive capacity for the lifetime of the system.

A Vanderlande team is overseeing all maintenance activities and ensuring that every vehicle is working optimally. Asset and software updates, combined with cloud-based management, are also part of the overall service. The local control room receives real-time insights into how the FLEET system is performing and its current condition. This allows Vanderlande to continuously monitor site performance and take action when required.

The existing layout at Rotterdam was the perfect platform for FLEET, according to Ron: “We spoke to Vanderlande about our new baggage hall, where we thought FLEET could have an ideal home. In fact, the hall was built to potentially house innovations and trial new ideas, so the FLEET pilot was mutually beneficial to both organisations.

“We were excited that it was a first for the aviation industry, because we enjoy being involved at the forefront of new technologies. FLEET’s green credentials also stood out, especially in the way it could draw energy from solar panels on the roof of the baggage hall. It was this combination of factors that appealed to us. The scene was set.”

Carlijn also recalls the early days of the pilot: “I had several meetings with the Vanderlande team to assess the available opportunities, which is how FLEET came into our scope. Innovation in itself is quite a vague word, but this project really made it tangible. It allowed us to show everyone at the airport the progress we were making and what our theme of innovation is truly capable of. On occasion, I have presented our work at international congresses, and it has been invaluable to share this with the world.”

**Rising to the challenge**
The trial has been a success for all parties involved, and due to its configuration, FLEET has delivered a range of operational benefits to RTHA. For example, vehicles can be added to increase system capacity without affecting operations, while spare parts consumption is decreased due to the commonality of components.
In terms of maintenance, any BAGRUNNER vehicle can be pulled from the system at any time. It can be repaired at a more convenient or scheduled time, while the rest of the vehicles remain operational. One of the many advantages of FLEET is that resets are also easy to execute. If an error occurs, a handler can reset the vehicle and only one bag is ever affected, not the entire system.

In addition, there is a decreased dependence on manual intervention, resulting in less bag damage and a reduced risk from internal threats. In terms of energy efficiency, RTHA only uses precisely what it needs with FLEET. In a traditional system, every conveyor needs to run to transport one bag from A to B. However, with FLEET transporting only the bags that are necessary, only one vehicle is used.

Investing in state-of-the-art technology was a wise decision according to Carlijn: “All parties are completely satisfied by the progress we've made: the ground handlers, Vanderlande, and RTHA. There were some challenges, but that's perfectly acceptable. After all, that's what it means to innovate! We needed to learn from these important lessons in order to further develop.

“We guided the handlers through the implementation process and they quickly saw how it helped them in their daily activities, as well as the ergonomic benefits. FLEET has also helped us to realise our sustainable targets, because it is powered by solar energy. It’s satisfying to show the world that RTHA is taking responsibility in this respect.”

Ron has also been impressed by the impact that FLEET has had on the airport: “Vanderlande has an excellent track record in the market and its solutions are known for being reliable. And when such a reputable company innovates in this way, it reinforces its track record.

“The cooperation between the three teams was excellent and the airport staff are proud that we executed a project such as this. The most satisfying aspect was that FLEET immediately connected to our daily operations. It represents the future and what is already possible! Over the coming years, there will be further uses for autonomous transport, so we're delighted that we can show the potential for this type of technology and where the aviation industry might be heading.”

**A shared vision**

Now that the pilot project has neared its completion, there is an expectation that it will serve as a platform for further success. “The pilot is a showcase for innovation and shows how reliable it can be to have an autonomous system for baggage,” concludes Ron. “No one likes to leave their luggage behind, and I think the pilot shows that it’s possible to look after passengers without introducing an element of risk.

“As soon as the project started, we immediately wanted to extend its timeframe, because we saw the value of FLEET. Vanderlande, RTHA and Aviapartner also share a vision of the future, in which the vehicles could be involved with operations out on the apron. I previously worked at Schiphol Airport for many years, so I knew Vanderlande from that time. They have consistently demonstrated their reliability, and continually work on the basis of partnership and mutual interest. For me, that’s vital.”