'The Outlook': Schiphol's first SMART office

On 1 December 2018, the renovated Outlook building opened its doors, becoming the first SMART office building on the Schiphol site. The building, which houses Microsoft's Dutch headquarters, was extensively redeveloped by the company in collaboration with Schiphol Real Estate. The renovated building uses SMART technology to understand and improve the experiences of both Microsoft employees and building visitors, while also providing a number of important sustainability benefits.

'The Outlook' is equipped with an intricate network of sensors. These gather information on how users interact with the building, measuring occupancy rates and energy usage, as well as key ambient conditions such as noise levels, temperature, CO_2 levels and light. Greater insight into these processes will allow Microsoft to use its workspaces in a way that is healthier and more energy-efficient. The information generated by the building will also assist Schiphol in expanding the SMART concept to other properties around the airport site.

Digital

High-quality digital processes have become increasingly central to our way of working, and data can now be considered the oxygen of Schiphol's day-to-day airport operations. Working closely with different aviation partners, in 2018 we were able to build on the success of 2017's Digital Airport Programme (DAP) by embedding technology and data even more deeply into our chain of processes. In this way, we are striving to create better experiences for our customers and a smoother operational flow, so that Schiphol remains a safe and pleasant environment for all those who use the airport.

Schiphol's digital strategy is empowering our employees and customers, enabling us to leverage data and technology and introduce new ways of working that directly benefit both of these user groups. In 2018, we took steps to simplify our digital organisational structure and align our digital value streams with key strategic objectives:

- Excellent customer experiences, resulting in improved NPS and passenger revenues.
- Airport and airline performance, supporting on time and safe performance.
- Smart assets and buildings, optimising asset utilisation and sustainability.

Our digital principles

Further digitisation and digital innovation are crucial in 2019 and beyond if we are to create value and achieve our ambitions. We will continue our transition towards a fully futureproof, value-driven digital airport, by improving how we collect, use and share our data, and by continuing to integrate and embrace new technologies across our different operations.

Our employees stand to play a key role in this transformation, and it is important that, collectively, we welcome this change and feel comfortable working with new tools and technologies. To this end, our Digital Transformation team has been working with different business units across the Group to accelerate their digital knowledge and competences. In October 2018, Schiphol's digital teams hosted the latest instalment of Schiphol's annual Digital Week: a series of different workshops and events aimed at informing employees of the value of digital solutions and new ways of working. Our ultimate vision is for digital solutions to become fully intertwined with our business processes, so that each team or unit takes end-to-end responsibility for its own digital processes.

Schiphol's Chief Digital Officer is responsible for developing a fully sustainable, digital organisation, and is directly supported by the Data & Analytics team, as well as the Transformation team and Innovation hub.

A seamless passenger experience

As highlighted, one of the core aims of our digitisation programme involves improving how travellers and other users experience our airport. The Seamless Flow project, which we began piloting in 2017, is helping us to streamline the customer journey at Schiphol, from arrival through to check-in, security and boarding. Seamless Flow involves the use of biometrics (the science and technology of analysing human body characteristics) to recognise passengers based on their passports and a facial scan. This allows them to pass swiftly through the various touch-points in the airport terminal without having to show their passports and boarding passes each time.

Working closely with our airlines, as well as the government, Customs and various Schiphol teams, we have continued trialling the technology to better understand its use and the potential benefits. We will expand the pilot in 2019 with a view to eventually making permanent, widespread use of the technology. Importantly, Seamless Flow is GDPR compliant by design and meets the highest standards regarding data protection and privacy. In December 2018, an agreement was reached in principle between Schiphol and the government whereby all costs attributed to the Seamless Flow project will be divided equally between the two parties.

Meanwhile, we are supporting the migration of passengers to digital platforms where they can obtain travel information, plan journeys and make the most of the services provided at Schiphol. In 2018, 38% of passengers made use of the newly redesigned Schiphol.nl website and Schiphol app to access important travel information, while 50% of those using airport parking services reserved their space online. As part of this process, we have taken the decision to close a number of physical information desks in the Schiphol terminal and replace these with a more varied, multichannel approach.

Schiphol as a data hub

Data is now the starting point for understanding and guiding our different airport processes. As we become increasingly data-driven as an organisation, the information collected via our daily activities has, in turn, become a valuable resource for our aviation partners. By effectively gathering and storing information regarding aircraft movements, passenger flows, security wait times, and countless other data points, Schiphol has become a 'data hub' that other organisations can use to inform and enhance their own processes. For example, through the use of application programming interface (API) software, airlines are able to obtain real-time information around the movements and timings of departing passengers in a process known as 'SmartGate' planning. In total, more than 1.5 billion 'API calls' on our data were made during 2018 by airlines, travel agents and other external parties.

2018 also saw further integration of 'Wilbur' into our planning processes. Wilbur is a customised application developed in-house

Rolling out the new mobile network

In October 2018, we began the rollout of a comprehensive indoor multi-operator mobile network at the airport, in collaboration with network operators KPN, T-Mobile and VodafoneZiggo. Using a system of more than 30 antenna installations, the new network will ensure excellent mobile coverage throughout all public areas and non-public areas of the airport.

Installation will take place in stages over the course of 2019, with the new network scheduled to be fully operational in 2020. Once in place, all mobile operators will use the same mobile network across Schiphol's terminal and piers, offering users improved reception and quality while also saving space and energy. The network will support new-generation communications systems, such as 5G, and will be integrated with the emergency services network and the radio system used at Schiphol.

An omnichannel approach to traveller information

From 2019, Schiphol will be using new communication channels to better assist passengers in the terminal who have queries or problems. Our recent customer survey reveals that passengers are keen to make greater use of online channels and chat facilities when looking to access information. They would like to be able to communicate with Schiphol irrespective of their location.

Going forward, passengers will be able to reach a Schiphol member of staff 24 hours a day via a combination of telephone, WhatsApp, chat and 16 physical terminal self-service points. Mobile assistants are also able to attend to passengers in person regarding complex queries or problems. With passengers making less and less use of the seven information desks permanently installed in the terminals, we have decided to begin phasing out this approach from April 2019 onwards. The function of the desks will gradually be taken over by the new 24-hour information services during the course of 2019.

at Schiphol that allows us to harness real-time and predictive information to anticipate potential queues or bottlenecks in different parts of the airport terminal. This insight enables us to adapt the required staffing capacity in real time and up to four hours in advance in order to better manage passenger flows and avoid congestion. We have embedded Wilbur permanently into our chain of processes and will be exploring ways to expand its use over the months ahead.

Looking after assets and buildings

Increasingly, we are using digital solutions to tackle the physical infrastructure problems encountered in daily airport life. In particular, a core element of Schiphol's digitisation programme involves using smart technology to monitor the state of properties and assets throughout the airport site. We now have 70,000 sensors positioned strategically within the terminal from which we are able to collect real-time information on the performance of elevators and walkways. Any malfunctions are immediately identified and resolved to minimise disruption to passengers, while maintenance can be planned better through analysing how these devices perform over a wider timeframe.

Our Digital team is also working closely with the Real Estate division as well as commercial tenants to integrate smart infrastructure into the built environment at Schiphol.

Information security and GDPR

In 2018, Schiphol continued its GDPR implementation project in accordance with the General Data Protection Regulation (GDPR), which came into force on 25 May 2018. The project, which is centred on the '10 steps roadmap' developed by the Dutch Data Protection Authority, sets out a series of actions for Schiphol and our regional airports to follow. These include organising a communication programme to raise employee awareness, creating an overview of all processing activities, updating contractual agreements with external parties, running risk assessments on both new and existing processes, and developing procedures regarding the rights of data subjects.

A new governance model has also been introduced to ensure future compliance with GDPR across our Group operations, with more than 25 'privacy champions' assigned to various business units. A new Data Protection Officer has been appointed to oversee the final elements of GDPR implementation in 2019.

Customer appreciation

Schiphol wants to remain one of Europe's top airports; however, we can only ensure this by continuing to offer quality, comfort and service. Using the Schiphol Perception Monitor as well as individual customer appreciation studies at Eindhoven and Rotterdam The Hague Airports, we monitor our travellers' appreciation levels over time. Schiphol also participates in the