

Simulating New Customer Services



Virgin Atlantic, one of the UK's best known and most successful airlines, has improved customer service for passengers and reduced costs by reorganising existing, and introducing new, check-in services at airports around the world. The airline used the WITNESS business process simulation and modelling application from Lanner Group to identify opportunities for reorganising its check-in services, assess the potential impact of proposed changes and support the business case for the investment.



"Simulation has proved to be a highly useful and successful component of Virgin Atlantic's business planning operation," says Mark Rappitt.

"Simulation shows us what is worth doing," says Mark Rappitt, Senior Business Consultant at Virgin Atlantic. "It's now a very successful part of our service to passengers."

Operating 28 wide-bodied aircraft on routes between 23 airports around the world, Virgin Atlantic is a successful and dynamic airline with a reputation for customer service and innovation. The diversity of destinations and routes creates a number of potential problems associated with different local working practices and culture that can impact on the smooth operation of check-in, departure and arrival services. The airline recognised that passengers would benefit from improvements in services and the introduction of new facilities that meet the needs of the modern business and leisure traveller.

Business process modelling and simulation is widely used in the airline industry and Virgin Atlantic had some experience of the benefits it can offer.



- Virgin Atlantic
- Airline
- Introducing New Check-In Services
- Improved Customer Service and Reduced Costs

The airline started working with Lanner in December 1999, when it selected the WITNESS application as its strategic tool to help plan and implement new services. "The key to successful simulation is the ability to show information visually," says Mark Rappitt. "This is one of the strengths of the WITNESS application."

Variety of check-in facilities

One of Virgin Atlantic's first WITNESS projects involved streamlining business check-in at London Heathrow, Terminal Three. The airline operates a 'drive thru' check-in, where passengers simply drive to a special station and check in. This was designed to eliminate the time needed to visit the conventional desks in the departures building. As Virgin's operation out of Heathrow has grown, WITNESS has been used to provide BAA, which operates Heathrow, with information on the number of cars that would be using external roads to use the LHR Drive Thru'.

The airline then began looking at ways of reducing the burden on economy check-in facilities at Gatwick Airport in early 2000, as part of plans to introduce new routes to Las Vegas and San Francisco in the USA later that year. Simulation was used to predict the impact on existing check-in desks and identify times that queues would increase when the routes were launched. However, when the airline extended the assessment to include simulations of its check-in operations at other airports, the results showed a variety of effects caused by localised conditions. For example, a number of students pass through Newark Airport, New York when entering and leaving the US. These tend to have different types and amounts of baggage than other passengers and their check in times are not as consistent or predictable. In this example, check-in levels were harder to predict but did not always result in longer queues and the major issue was one of overall capacity.

"The model was based around a number of 'entities' which made it easier to change parameters and treat each flight individually," says Mark Rappitt. "This led to seeing the

impact of some interesting innovations for the airline."

The results of this economy class check-in simulation was used by Virgin Atlantic to build business cases for implementing new processes designed to streamline check-in at each airport. It was also used to communicate to staff, third party service providers and Airport Authorities the implications and impact of delaying the opening of check-in on queues and capacity as well as reliability of airport equipment and systems.

Identifying Passenger Profiles

Simulation and modelling of the economy class check-in enabled the airline to identify a series of passenger profiles and provided new insight into the operation of desks and their value to the business. For example, managers could see the impact of an extra desk on the length of queue and check in time. This is important because, apart from affecting passenger perceptions of service quality, there is a cost associated with keeping a desk open.

"Simulation has shown the value of check-in desks, which is very useful, although it was not the original reason for adopting it," says Mark Rappitt. "We see it as a way of meeting challenges, not dealing with problems."

The model helped to verify an idea that introducing a 'twilight' check at Gatwick for transatlantic flights would improve customer service and help balance the work load for check-in desk staff. Passengers scheduled on an early morning flight can now check in the night before, go to their hotel and simply turn up in time for boarding the next day. Many passengers appreciate the extra time this gives them and peak check in rates in the morning have been lowered.

Worldwide Solutions

WITNESS models have also been used to view the impact of various initiatives around the world. For example, holiday makers at Disney in Orlando can check in and leave their bags with Virgin Atlantic staff as they leave their hotels on the morning of their departure. This means they can enjoy a few more hours at the



theme park without worrying about luggage and belongings before going directly to the airport for their flight. Virgin Atlantic passengers effectively have a longer holiday than people using other carriers and it frees airline staff at the airport to deal with conventional passengers. A similar scheme has also been introduced for holidaymakers in Barbados, St Lucia and Antigua. The 'Check-In, Chill Out' service allows passengers to spend more time on the beach before catching their flights home later in the day.

Simulation also more precisely defines the impact of variations in check-in patterns around the world. Passengers departing for Delhi, for example, tend to have above average amounts of luggage and are more likely to be accompanied by well wishers to see them off. This can create a bottleneck at the check-in desk and slow the overall process. In Tokyo, the majority of passengers arrive exactly two hours before their flight at the start of the check in period. This is a completely different pattern than at other airports and presents a unique staffing problem on the check-in desks. In both these examples, understanding and predicting local behaviour has enabled Virgin Atlantic to organise its facilities and ensure staffing is matched to the different peak levels anticipated so that customer service expectations can be exceeded throughout the entire check in period.



For its new "Revivals" service at London Heathrow, Virgin Atlantic used simulation to review the resources required. Revivals aims to provide Upper Class passengers arriving on flights with services such as a shower,

breakfast, massage and laundry. Simulation helped to identify resource capacities for the new facility and showed how pass-through rates vary with arrival times. This highlighted that the popularity of the shower facility could cause potential bottlenecks. The airline was able to use this information to identify peak demand and eliminate any potential problems caused by cubicles temporarily out of commission.

Using simulation highlighted some interesting business challenges for Virgin's staff. Data collection is the most critical aspect of building a successful simulation model because the better the information, the better the model. A range of information was available from computerised check-in systems and BAA was able to help with other areas. But most information has to be collected the hard way, by full time staff and student temps taking time to observe passengers and their behaviour at check-in and departure areas and recording minute details on clipboards. It was during this exercise that staff realised that some passengers in the Revivals lounge were spending up to an hour in the shower, which was much longer than had been expected.

The airline intends to use WITNESS in the future to help design more facilities and justify ideas for customer service innovation and new flights.

"Simulation has proved to be a highly useful and successful component of Virgin Atlantic's business planning operation," says Mark Rappitt.

