



## CASE STUDY



# Emirates Airline Adds Another Dimension

## Airline Turns to 3D Software to Protect Their Fleet From Conflicts at Airports Around the World

*By Chris Johns, Transoft Solutions*

Imagine a pilot at the controls of an Emirates A380. He's just landed at Sydney International Airport and can't wait to park the aircraft and relax after a long flight from Dubai. Does he turn left or right when he gets to the edge of the apron?

With all the Emirates flights that crisscross the globe on any given day, there is an established plan for moving planes from the runway to the gate at airports all around the world. As Emirates added aircraft to their fleet, they added destinations to their roster of cities with the help of a team of flight operations staff evaluating the apron plan of each airport. At airports from Tokyo to Toronto, Emirates staff has identified issues such as infringements on minimum clearances from landing gear to edge of taxiway fillets, wingtip obstacle clearance, and maneuvering capability in very narrow taxiways and runways. What they needed was a software solution to tell their pilots how to move from the runway to the gate with no obstacles. In 2008, the Flight Operations Performance department at Emirates chose AeroTURN from Transoft Solutions.

In the five years since Emirates purchased their first AeroTURN licenses, they have added over a hundred planes to their fleet, including A380s and B777s. Because airports around the world are constantly changing taxiways and adding features to their aprons, the Flight Operations

team has a full-time staff member to ensure the multi-billion dollar fleet can safely navigate all the runways on their destination list. The ability to account for conflicts and obstacles on the apron in 3D as opposed to just 2D was a motivating factor.

"It was only a matter of time to move to the 3D environment," says Daniel Wong, Vice President - Flight Operations Performance at Emirates Airline. "With this software, our analysis of the airside is further improved as we now can also measure vertical clearances to objects such as gates, servicing vehicles, anti-icing equipment, hangars, fences, terrain, other aircraft wingtips and (aircraft) tail to service road vehicle traffic. With the 2D version it was not possible to look at vertical clearances."

Many airport planners and operators are finding that the 2D environment doesn't provide the full picture when it comes to vertical clearances. They need 3D to achieve high reliability for reducing ground time while still ensuring safety of the aircraft. With large aircraft and ground service vehicles interacting in the tight confines of the tarmac, knowing how each vehicle moves and turns as well as the clearance under the aircraft's surfaces is critically important. An advancement aircraft manufacturers like Airbus and Boeing have made in recent years are changes to the

steering capabilities in their larger categories of aircraft to make them easier to turn in smaller apron spaces.

“There are several airports in our network that are challenging when it comes to accommodating aircrafts such as the A380 and the B777,” says Wong. “That is why the requirement to check for wingtip clearances and maneuvering is so important.”

Smaller aircraft in the Emirates fleet also have to navigate the apron at both big and small airports around the world. When aircraft are moving across the tarmac and also when stationary, wingtip clearance is just one conflict the Emirates Flight Operations team has to solve. Do the new aircraft and their engines have enough space to clear existing infrastructure that could potentially become an obstacle on the taxiway? Will there be a conflict with adjacent ground service equipment when one aircraft is pushing back from the gate?



With taxiways and aprons constantly changing at airports around the world, the Flight Operations group at Emirates uses AeroTURN Pro 3 to plan turning maneuvers to ensure safe operations for all of their aircraft.

Airports everywhere want to maximize the efficiency of their ground service operations to keep more planes in the air. With 30 A380s in their current fleet, it's important for Emirates to have an accurate picture of catering trucks, baggage trains, moveable passenger stands, and fuel trucks within the aircraft envelope at every airport they fly to. A 3D view gives the Planner and the Operations Managers a complete picture of all the potential conflicts. For example, Dubai International Airport designed a concourse entirely for the A380, so they had to build the apron and tarmac with all the moving pieces in mind. Transoft has worked with airlines

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**at Emirates Airline**

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like Emirates for years to put the most accurate aircraft movement software in the planners' hands.

“We are very pleased to have Emirates Airline onboard as an early adopter of AeroTURN Pro 3D,” says Michael Frost, business development manager for aviation at Transoft Solutions. “When Emirates first purchased AeroTURN, their primary need was to use the software to complete 2D airport compatibility checks for their A380 aircraft. I’m certain that the new 3D capabilities will be extremely valuable for their flight operations group as they work to identify and mitigate potential conflicts for their entire fleet of aircraft and look further to increase their efficiencies on the tarmac as well as to support refinements to their Standard Operating Procedures. We are looking forward to maintaining a close working relationship to celebrate their successes in 3D planning and for the sharing of software improvements for future releases.”

From Emirates' perspective, they were looking for a software company that could quickly respond to their questions and concerns. AeroTURN Pro 3D from Transoft delivers the computational power they need.

“It’s been a successful collaboration all these years we have been using the product,” says Wong. “This reinforces our confidence in upgrading to the 3D version as well as ordering more licenses of the software. The service has been prompt and extremely responsive which matches our adaptive needs as a fast growing company in an ever changing environment.” ■