

## Port Botany automates straddle carriers 24/7

*Case Study - Port Botany, Australia*

*Port Botany are enabling the full automation of their straddle carriers with Navtech Radar's sensors, allowing for unmanned navigation 24 hours a day in all weather conditions. The automation is increasing productivity at the port.*



# The Challenge

## *Improving the Efficiency of Port Operations*

### **Port Botany**

Port Botany is the second busiest container port in Australia. As a gateway to the country's trade, it was vital that port managers, owners and local government worked together to make the operation as efficient as possible, to keep the nation's competitive edge.

In 2012, it was decided that a solution to improve the efficiency of the port was required. It was agreed that an automated solution would offer the best economic benefits, as well as reducing the number of work-time injuries.

In order to implement this strategy, Cargotec recognised that industrial automation was necessary to fully optimise the port. This port automation required precision and accuracy, as well as needed to be relied upon 24 hours a day, 7 days a week. Any pause in operations, due to environmental conditions affecting sensors, could not be tolerated due to the huge losses associated with unplanned downtime.

As such, radar was selected as the most reliable technology, capable of sensing even through thick fog, rain, dust and dirt, in all light conditions - from direct sunlight to total darkness.



The objective of Navtech Radar's sensors was to improve the efficiency of port operations. Traditional manned shipping operations consist of a team of 20-30 people which is costly and inefficient. The operations are subject to frequent disruptions as a result of human error.



The sensors' ability to work automatically 24/7, 365 days a year improves the shipping process. By automating the straddle carriers, the port is able to operate all year round with no downtime.



The sensors are used to provide accurate location information that is not reliant on any third party infrastructure or service, such as GPS.

# The Solution

## *Industrial Automation Sensing*

### **Sensors that enable automatic port operations**

Navtech Radar's state of the art sensor technology now enables the full and reliable automation of the port's straddle carriers, allowing for unmanned navigation 24 hours a day, in all weather conditions. Each straddle carrier is equipped with a 360° scanning sensor able to map the entire area by using targets positioned around the port, triangulating the straddle carrier position to within just a few millimetres.

Due to the straightforward installation of the system, it took only four days for Port Botany to transfer from a manual port to a fully automated one, meaning operation disruption was kept to a minimum. There are many benefits in having a fully automated operation. These include reduced diesel consumption; reduced wear and tear on vehicles and the port surface; reduced costs as no lighting is necessary; reduced work-time injuries, as well as manpower costs. The sensors perform uninterruptedly in all weather conditions, with no cleaning required, increasing Port Botany's efficiency.



"[It] has made Port Botany 30% more efficient than their competitors."

"The automation of port activity enables our stronger participation on the global stage. We have increased our productivity levels and simultaneously minimised operational costs."

**John Mullan,  
Chief Executive  
Office, Asciano**



## Summary

"This industrial revolution has made Port Botany 30% more efficient than their competitors, DP World and Hutchison. The port automation takes the waterfront from an old-fashioned manual combat environment, to one of the most sophisticated robotic operations in the world.

To our knowledge, this is the most sophisticated robotic port operation in the world now. The crane gangs in the United States

are still between 20 to 30 people per crane, a manual operation in Australia would use 9 to 10, whilst Port Botany is able to run with only 4 people per crane.

Port Botany represented a gateway to trade and competitiveness for the country. It was Australia's access to the global market. As a result, there was huge earnest on us as well as governments and owners to make the most efficient operations as possible.

The automation of port activity enables our stronger competition on the global stage. We have increased our productivity levels and by simultaneously minimising operational costs, we can manage more business in the port, ultimately increasing our profits."

**John Mullan**, *Chief Executive Office, Asciano*

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