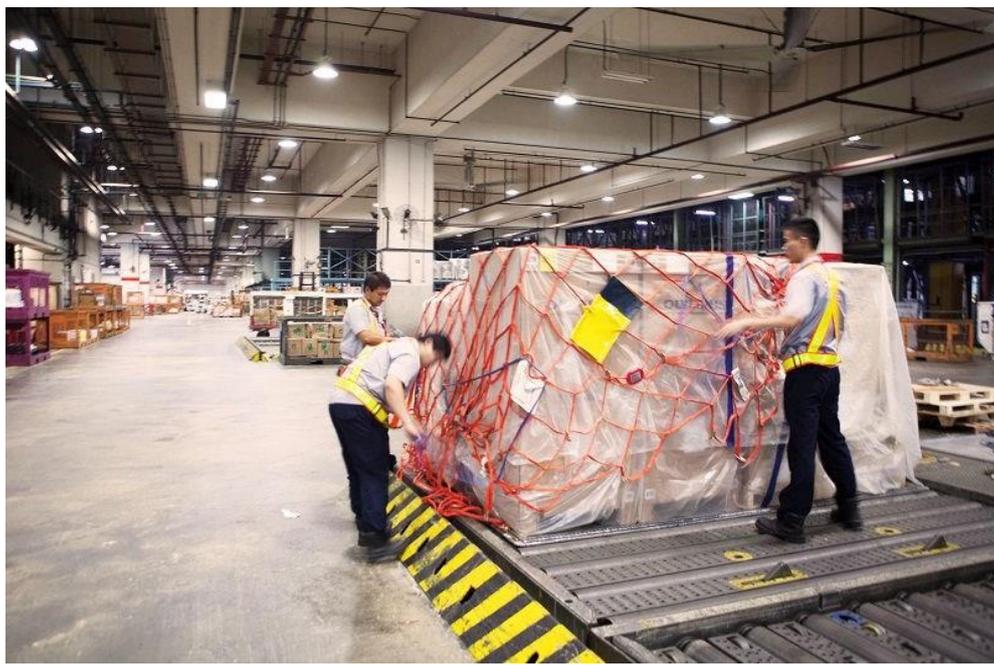


TRANSFORMING CARGO HANDLING AT CHANGI



The Aviation Challenge 2 seeks suitable proposals that can help automate the build-up and breakdown process of cargo pallets and containers.

Understanding Cargo Build-up and Breakdown

Before any piece of cargo is put onto a plane, it has to be packed securely to ensure that it does not move around during the flight to prevent damage to the valuable cargo on board. At the same time, airlines seek to maximise their revenue by carrying as much cargo as they can. This implies that cargo needs to be packed as densely as possible while adhering to the contours of the plane's maindeck or bellyhold space.

The process of consolidating cargo onto flat aluminium sheets called pallets, or into standardised containers that are shaped to fit into different parts of the aeroplane, is known as the cargo build-up process. Conversely, for every cargo pallet or container that has been built up and transported on a plane, there is also a cargo breakdown process to unpack the individual cargo shipments.

The role of packing cargo securely and optimally falls upon the cargo handlers. Many of them are industry veterans who can call on years of experience to tell whether more cargo can be squeezed onto a pallet or container, or if a pallet or container is overweight. With a quick scan, many of them can also tell if the built-up pallet can pass through the tight cargo doors or fit within the constraints of the aeroplane.

Tackling the Challenges of Cargo Handling at Changi Airport

As cargo comes in various shapes, sizes, weights and packaging materials, the cargo build-up and breakdown process requires a high degree of human judgement and input. Hence, there are challenges to automating it and the process remains as manual as it was since cargo was first flown commercially about a hundred years ago.

Cargo build-up and breakdown is also manpower intensive and physically demanding. Each build-up or breakdown requires 3 to 5 five men to move the cargo around for 20 to 45 minutes. The cargo handlers are also required to secure the cargo with shrink-wrap to keep the cargo compact and weather-proofed. For the pallets, there is also the step of securing it with a large cargo net.

Today, the industry relies heavily on foreign manpower to do cargo build-up and breakdown. It is also increasingly difficult to attract Singaporeans to become cargo handlers. With the tightening foreign manpower supply, there is a need to reduce the physical demands of the job and improve the productivity of the current build-up and breakdown process through automation. This will ensure the sustainability of Changi Airport's cargo operations as the cargo volume grows with the expansion of Changi.

The challenge is launched as a series of competitions where the shortlisted proposals will receive funding support to develop a prototype and an extra cash prize for a winning prototype. CAAS hopes to spur the competitive and entrepreneurial spirit of the industry to inject new solutions for the aviation industry in Singapore.

Are you up for the challenge?

Download the call-for-proposal document for the Aviation Challenge 2 [here](#), and both application forms [here](#) and [here](#).

Aviation Challenge 2

To tackle this challenge, CAAS is calling interested parties to submit proposals to automate the build-up and breakdown of cargo pallets and containers.

Up to three proposals will be selected and S\$2 million in funding will be given to each selected proposal with a cash prize of S\$300,000 awarded to the winning prototype.

The selected proposals will be given 24 months to develop the prototype. The deadline for proposal submission is 31 March 2015.

For more information on the Aviation Challenge, you can write to CAAS at caas_ai@caas.gov.sg.