# Precision at pace enables safer military air drops

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**ACE developed a data gathering and analysis proof of concept for more accurate air drops that lays the groundwork for predictive modelling.**

## Impact: A secure data capture and analysis proof of concept for more accurate air drops that lays the groundwork for predictive modelling, developed in just nine weeks.

In high-stakes environments like combat or crisis zones, the UK military needs to be able to safely and reliably drop personnel and machinery from aircraft to the ground.

Live testing aerial deliveries with parachutes is costly and time-consuming but significant variables depending on the cargo mean manual predictions are challenging.

The Ministry of Defence's Joint Air Delivery Test and Evaluation Unit (JADTEU) came to the Accelerated Capability Environment (ACE) to see if data from previous trials could be used to predict future load behaviour, dramatically reducing the number of physical trials needed.

A rapid commissioning process over the Christmas period resulted in Applied Data Science Partners (ADSP) being selected as the supplier.

## A significant improvement

In just nine weeks, ACE and ADSP developed a proof of concept (PoC) for an aerial transport load analysis system that uses sensor integration to capture physical data such as G-force, oscillation and descent patterns during live drops.

A web-based interface allows users to configure key variables such as parachute type, payload weight and aircraft

This PoC, a working tool ready for use in live flight trials, has been acknowledged as a significant improvement on current approaches.

It also lays the groundwork for a future predictive modelling tool, where drop outcomes could be simulated based on load parameters and parachute configurations, moving the system from reactive testing to proactive validation.

## Flight trials

The solution will now be tested in real-world flight trials. Subject to successful data capture and evaluation, a future phase is planned to build out the predictive modelling engine using machine learning techniques, reducing reliance on repeated live tests and opening up safer, faster operational decision-making.

This work shows how ACE can help government and defence teams overcome procurement barriers

and deliver innovative capability fast.

By bringing in the right expertise and working with agility, ACE enabled the development of a high-impact solution in weeks - not months.

[https://www.gov.uk/government/case-studies/precision-at-pace-enables-safer-military-air-drops](https://www.gov.uk/government/case-studies/precision-at-pace-enables-safer-military-air-drops)