**PMOD Request for Information**

GB-Bristol:

1. Contract Title: Large Aircraft Crew Virtual Reality Training Aid

2. Contracting Authority:
FsAST Project Team

Ministry of Defence, Air Support OC,

MOD Abbey Wood, Bristol, BS34 8JH, United Kingdom
Email: Edward.winterbottom505@mod.gov.uk

3. Object of the Request for Information:

Contracting Authority's file Reference number: 701228377

**Short description of requirement**:

RAF Brize Norton is looking for a Virtual Reality Training Aid to support large aircraft cargo hold procedural and team training. The term Virtual Reality also includes Augmented or Mixed Reality (collectively XR) options.

**The Authority is requesting information on one topic**:

Market information on existing products, or solutions suitable for rapid development, including the ROM cost. It is anticipated that this project will span different aircraft types and be phased to reflect the introduction of new capability. The ROM should highlight major cost drivers resulting from individual requirements.

**CPV Codes**:

34152000 – Training simulators

80650000 – Training and simulation in aircrafts, missiles and spacecrafts

**Time-limit: 20/11/2021**

**Information Requested:**

Please note that this is a Request for Information (RFI) only. This request is not a commitment by the Authority to launch a formal procurement process and the requirement, described below, is subject to change, the objective of this RFI is to explore existing or potential solutions available in the market.

Information shared at RFI may be used at an Invitation to Tender (ITT) or Invitation to Negotiate (ITN) stage of procurement, should an ITT or ITN be pursued by the Authority. Information may be shared in relation to how the Requirement was prepared and developed. However, information resulting from any RFI, marked 'Commercially Sensitive' by the respondent, will not be shared outside of the Authority. The Authority shall reserve the right to reject submissions marked as 'Commercially Sensitive'.

**The Requirement**:

RAF Brize Norton fields 3 Tactical Air Transport aircraft types; the C130J-30, A400M and C17. There are a number of high-fidelity training aids available, including flight and cargo hold simulators. However, during an initiative to increase and improve synthetic training, a gap has been identified in relation to cargo hold crew training, particularly concerning individual and team training during dynamic training scenarios. These primarily concern aerial delivery operations. Often these training objectives cannot be achieved in a static simulator or in the live aircraft in flight. It is anticipated that an XR Training Aid that meets the prime Requirement, might also be used for extending crew currencies by replacing some live training events. Development of the XR training aid is expected to be iterative, not least because the full data pack for the A400M will not be available for several years. The following top-level Requirement is the starting point for ROM determination purposes, although potential expansion areas are indicated:

* + Two independent systems are required.
	+ Each system should be able to admit at least 5 participants for team training, plus an instructor operating station.
	+ Three aircraft type cargo holds should be modelled: C130J-30, A400M and C17.
	+ Each system should be able to host all 3 aircraft specific to type training scenarios.
	+ A number of air drop loads, vehicles and personnel would need to be modelled, many of which would be applicable to all platforms. For the initial capability, the following should be costed:
		- Paratroopers in 2 equipment and parachute configurations, specifically high altitude free fall and static line exiting from the Cargo Ramp. Potential for a further 3 configurations.
		- Container Delivery System (CDS) Loads, simple cuboid items that can be placed singly or in multiples as required in a Training Scenario.
		- Extracted Platform in 2 load and parachute configurations. Potential for a further 3 configurations.
		- Mixed load of 2 AFV and 40 military personnel for an engine running Rapid Offload on the ground. Potential for further personnel/vehicle combinations.
	+ In addition to aerial delivery loads, ancillary equipment will be required to demonstrate the release of the load, with parachute activation and opening being modelled. Furthermore, for high altitude Training Scenarios, additional despatch personnel and oxygen equipment (consoles) are required.
	+ Dynamic Training Scenarios are required, some of which will demonstrate normal equipment behaviours, but the prime use will be to simulate abnormal conditions associated with an equipment malfunction. User interaction is required to carry out emergency procedures in order to counter the malfunction. An initial indicative list of 6 Training Scenarios is as follows, with a potential to expand to 20+ in the future:
		- For A400M:
			* Despatch of 20 CDS Loads in a single stick. The scenario should include a normal despatch sequence, and when activated by the instructor, a jammed load condition mid-stick. The despatch team would then carry out the approved malfunction procedure to either release or make safe the load.
			* Despatch of up to 12 static line parachutists from the aircraft Cargo Ramp. Full pre-drop preparation sequence, including use of ancillary oxygen equipment. Potential to expand this scenario to include a Hung-Up Parachutist Malfunction and Procedure.
		- For C130J-30:
			* Despatch of Extracted Platform (containing a RIB type boat), with 12 static line paratroops following from the Cargo Ramp. The scenario should include a normal despatch sequence, and when activated by the instructor, a drogue/extractor parachute malfunction.
			* Despatch of 20 CDS Loads in a single stick. The scenario should include a normal despatch sequence, and when activated by the instructor, a jammed load condition mid-stick. The despatch team would then carry out the approved malfunction procedure to either release or make safe the load.
		- For C17:
			* Despatch of up to 12 military free fall parachutists from the aircraft Cargo Ramp. Full pre-drop preparation sequence, including use of ancillary oxygen equipment. Potential to expand this scenario to include a variable number of parachutists.
			* Rapid ground offload, under engine running conditions. The offload would comprise 2 light AFV’s and 40 combat troops. The scenario should include all preparations commencing from 10 minutes before landing.

**Information Requested**

Based on the information above, there are key questions the Authority would like information and feedback on:

1. What COTS (Commercial Off-The-Shelf) and/or MOTS (Military Off-The-Shelf) options are available and what are the ROM costs for the initial capability described? Costs to include licence/support options

2. What are the incremental costs associated with the modelling of each of the 3 aircraft types?

3. What are the incremental costs for the modelling additional loads?

4. What are the incremental costs associated with additional Training Scenarios

5. What options are available for further consideration, particularly in relation to Augmented or Mixed Reality applications?

 Any responses should be sent via email to edward.winterbottom505@mod.gov.uk. Responses should be limited to a maximum of 4 pages of A4 in pt11 Arial font, and be sent by 12:00hrs on 20 November 2021.