



Rotary Training Solutions for Military Requirements

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AgustaWestland Products

Topics

- Military Synthetic Training Challenges
- Fidelity – the balance of realism v training delivery
(Needs versus Wants [aka Essential versus Desirable])
- UK AW159 Wildcat – a case study providing a blueprint for a delivery solution

Military Flying Training Requirements/Challenges

- **Transfer the Dangerous, Difficult and Expensive to Synthetic**
 - Critical Emergencies
 - Tail Rotor, Flying Controls, AFCS
 - Mission Equipment Training
 - Weaponry, Own & 3rd Party
 - Defensive Aids Suite (DAS)
 - Sensors (Radar, EO, AIS)
 - Radios (HaveQuick, Saturn, Crypto, Data, ...)
 - Environmental Training
 - Hot & High, Pre-Deployment
 - Training requiring support from other Assets
 - Deck Landing Training
 - Collective Training
- **Training Solution in place coincident with Live aircraft fielding**
- **Maintain contact with the Live Environment**
 - Some exposure is essential – polemic but in military context essential
 - Is Zero Flight Time mission training a possibility?



Military Maintenance Training Requirements/Challenges

- **Complexity of modern Aircraft Systems**
 - Normal & Malfunction modes
- **Multitude of Role Equipment fits**
- **Weapon Systems**
- **Access to Live Aircraft**



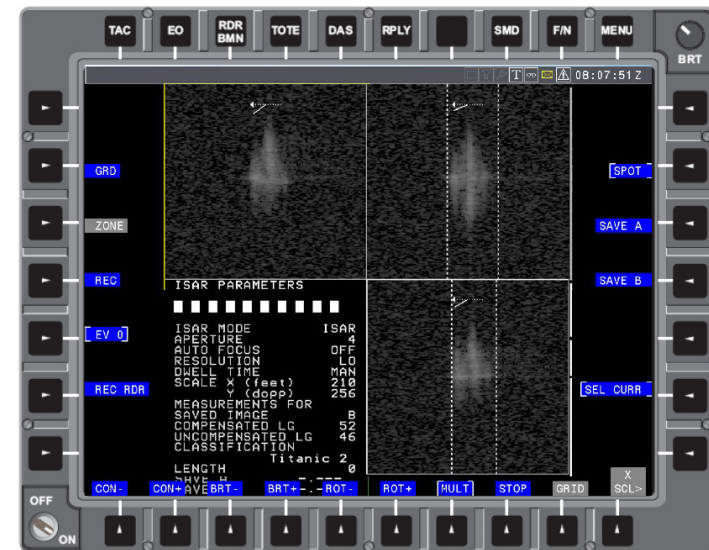
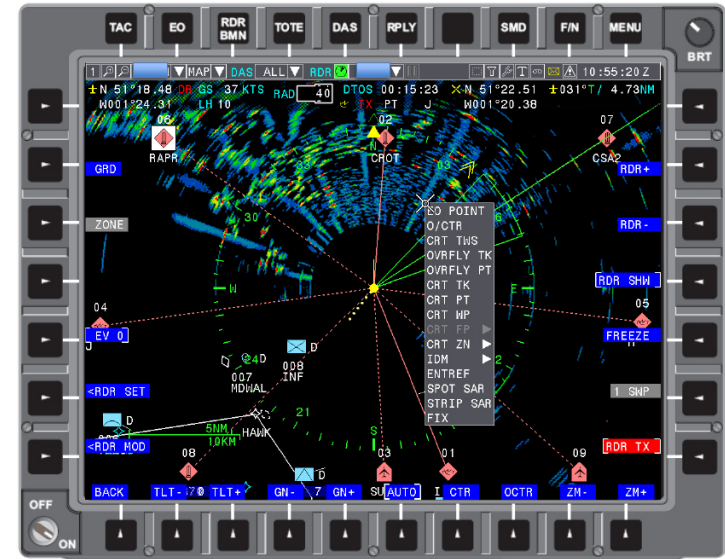
Fidelity - Balance of Realism v Training Need

- Instinctive End User insistence upon replication of reality
 - *Natural desire to replicate the real world*
- What extent is replication essential for delivery of a training task ?
 - *Reality can detract*
 - *Simulation easier or harder than live?*
- Requirements Definition is essential, with reference to the training objectives/tasks (TNA)
- Technical limitations
 - Parallax
 - IG capabilities



Mission Equipment Fidelity

- IPR, ITAR & Security considerations make data provision problematic for integrated 3rd party capabilities
- Simulation v Stimulation debate
- Emulations
 - Generic models enhanced with End-User expertise
 - Reproduced functionality
- Rehost of core OEM provided Systems (Flight, Tactical Processor, Engines)



Wildcat Training Centre (WTC)



Wildcat Maintenance Training Devices

Aircraft Systems Trainer - AST



High Fidelity devices developed from the aircraft digital design data allow certification of trainees without access to the 'live' aircraft.



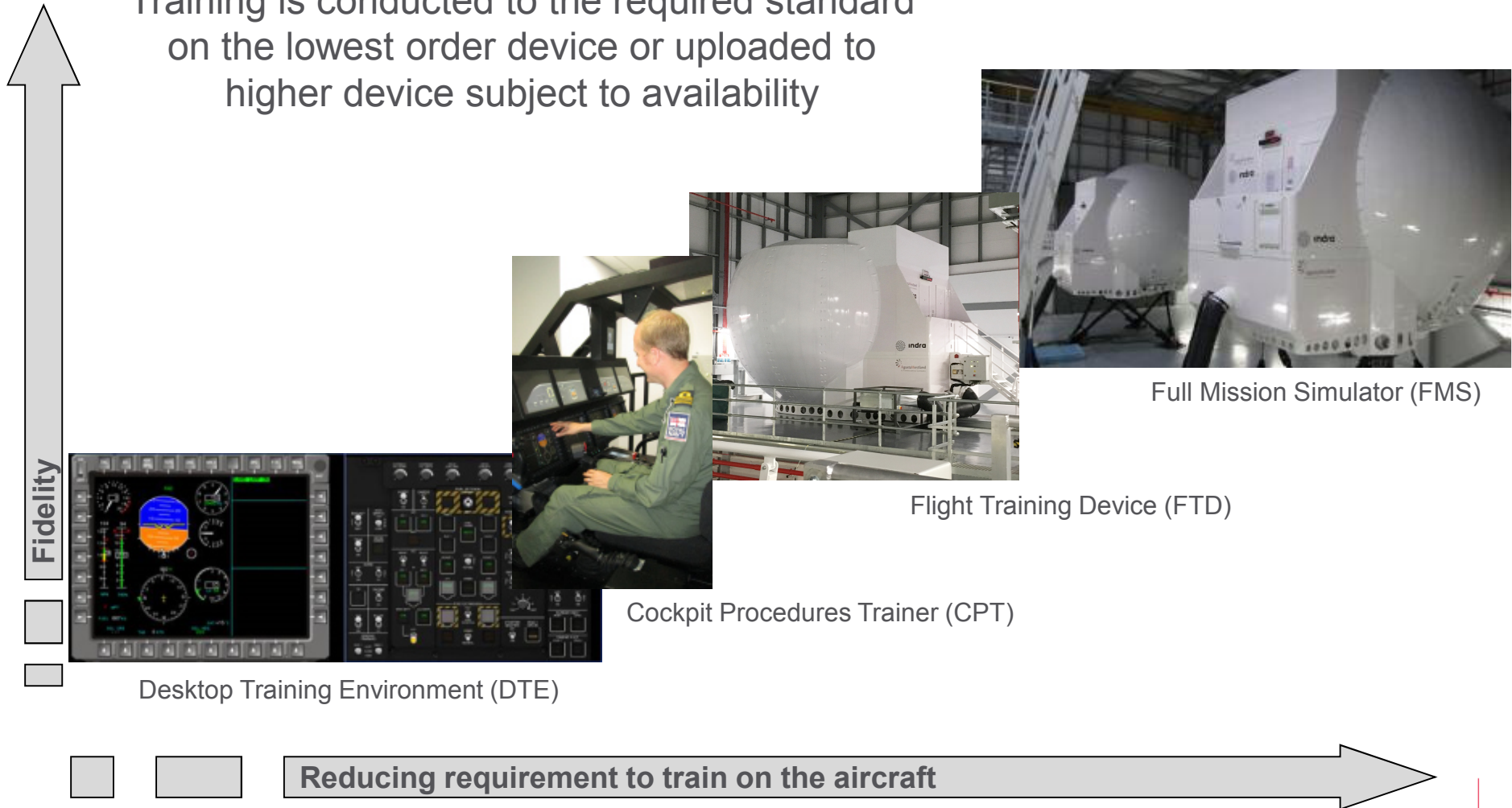
Wildcat Maintenance Training Equipment (MTE)

Weapons & Avionics Trainer - WAvT



Wildcat Aircrew Training Capability

Training is conducted to the required standard on the lowest order device or uploaded to higher device subject to availability



Full Mission Simulator

- **Visual Models**
 - Enable realistic mission-based scenarios
 - Expanded training task list when compared to 'legacy' simulators e.g. Deck Landing Training
 - Complex Tactical environment – 400 entities, crowds, AI behaviours
- **Visual Display System**
 - 16 Channel 4-LED Projectors – direct projection
 - IR LED enables simultaneous realistic NVG and unaided Out of the Window scene
 - 240°x 170° Field of View (all transparencies filled)
- **Motion Cueing**
 - 6-DoF Motion System
 - Vibration platform
 - Dynamic Motion Seats
- **Mission System Simulation**
 - Tactical Processor
 - Defensive Aids Suite
 - Radar
 - EOIR
 - AIS
 - Advanced Communications (Havequick, Crypto, RDF)
- **Internally Networked using HLA**





Continued and increasing demand for enhanced realism and simulation fidelity requires strong partnerships between the aircraft OEMs and simulation TEMs.

Multiple use of SW at various levels of devices exploiting modelling already performed within the prototype aircraft programme provides a cost effective approach to achieve the high fidelity simulations demanded by the modern Warfighter.

THANK **YOU** FOR YOUR ATTENTION



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