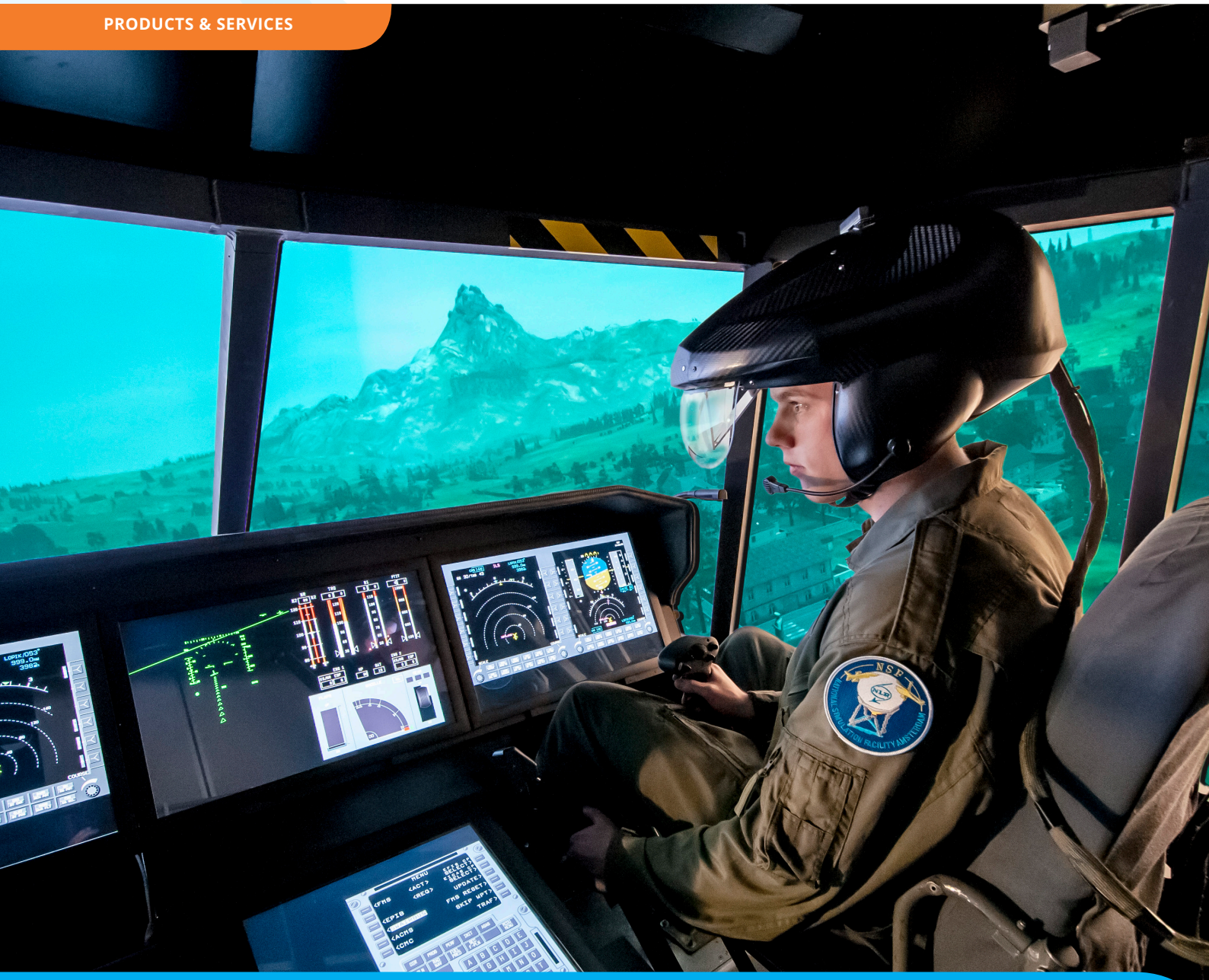
Dedicated to innovation in aerospace

Helicopter Pilot Station (HPS)

PRODUCTS & SERVICES



A reconfigurable research simulation facility

The Helicopter Pilots Station (HPS) is a versatile pilot-in-the-loop helicopter simulation facility. It offers a two crew cockpit environment for testing, evaluation and training. HPS has been developed with particular emphasis on handling qualities and human factors research.

RESEARCH

The flexible model environment and its level of sophistication allow detailed pilot-in-the-loop stability and control analyses for complex tasks such as tactical maneuvering, external load operations or ship deck landings. In-house expertise and tools allow getting grip on human factor issues such as pilot performance, pilot workload and teamwork.

The broad range of research applications include:

- Human factors research
- Accident investigation
- Establishment and assessment of operating procedures
- Evaluation aircrew training equipment and simulator prototyping
- Research towards education and training of pilots
- Research towards avionics, Helmet Mounted Display (HMD) and sensor simulation

CONFIGURABILITY

HPS can be configured for a variety of rotorcraft such as:

- Single mainrotor, tail rotor (e.g. NH90, Apache, Cougar, BO-105)
- Tandem rotor (e.g. Chinook)
- Co-axial rotor (e.g. Kamov 32)
- Side-by-side rotor (e.g. Kaman, tilt rotors)

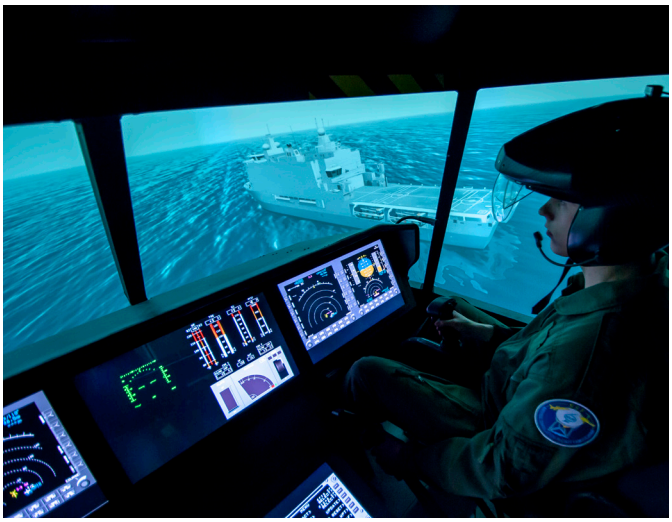
SIMULATION SET-UP

The rotorcraft flight controls consist of a set of mechanical helicopter controls (collective, cyclic stick and pedals) and a high-fidelity four-axis electrical control loading system to generate the control forces. The control loading system is programmable and able to reproduce almost any flight control characteristic.

Cockpit instruments and cockpit displays are simulated using four color touch screens. Software to drive these displays is developed in-house with a rapid display development tool, allowing cost-effective cyclic development of human-machine interfaces.

The outside world is displayed by four projectors providing a high resolution image with a total field of view of 180° horizontally by 70° vertically.

NLR uses ART FlightLab software as the main engineering environment for helicopters and tilt-rotor flight dynamics modeling and simulation. NLR has a great deal of expertise in helicopter modeling and validation. The modular design and the graphical user interface enable users to rapidly modify model definitions.



INTEROPERABILITY

HPS has the capability to flexibly interoperate with other both in-house and third-party simulation facilities, including mission support systems and Computer Generated Forces (CGF). These facilities are:

- VBS3 integration offering interoperability with other facilities used by Ministry of Defence
- NLR's MUST (ground control station simulator for unmanned aircraft)
- NLR's VROOM (virtual reality room with capability to simulate helicopter rear crew stations or ground crew stations)
- NLR's Fighter 4-Ship (generic multi-ship fast-jet simulator)
- NLR's GRACE / APERO (civil research flight simulator)
- NLR's NARSIM RADAR and TOWER (air traffic control simulator)

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