



Dedicated to innovation in aerospace

ATM Concept Evaluation and Validation

PRODUCTS & SERVICES



Validation of new ATM concepts, procedures and controller tools

Have you ever implemented a costly solution to an Air Traffic Management (ATM) problem that did not provide the anticipated benefits? The major key to successful implementation of changes to ATM lies in a coherent approach to development and validation of ATM operational concepts and technology. Clearly, the ATM environment is a complex combination of people, technology and procedures. Most functions are interdependent and modifications and upgrades to one function could have an unexpected impact on others. This makes it intricately difficult to predict the impact of new procedures and tools.



NLR offers dedicated experts, platforms and tools

Currently, ATM is undergoing major changes on a global scale through programmes like SESAR and NextGen and locally in modernisation and upgrade programmes. Goals have been set in terms of safety, efficiency and the environment. Realising these goals in such a complex environment requires thorough validation of the proposed solutions before implementation. And this is exactly what NLR has to offer: flexible validation tools and dedicated experts for validation in each key performance area.

Relevant NLR expertise is centred in the NLR Aerospace Operations (AO) Division, which employs about 180 experts in the areas of Air Traffic Management and Airports, Cockpit and Flight Operations, Human Factors and Training, Safety and Environment.

NLR's ATM concept validation projects address improvements that range from new controller support tools, such as Arrival Manager (AMAN), Departure Manager (DMAN), and Electronic Flight Strips (EFS), to fully integrated advanced ATM concepts, and from new procedures to an upgraded Communication, Navigation and Surveillance (CNS) infrastructure. In its approach to ATM concept validation NLR follows internationally recognised guidelines, such as the European Operational Concept Validation Methodology (E-OCVM). Guidelines and methodologies offer a solid structure to carry out concept validation. In the early phases of concept maturity, NLR sets the scope of validation activities by elaborating stakeholder aims, concept descriptions, goal settings, so-called case building activities (e.g. safety case) and initial analyses for possible show-stoppers, such as cost-benefit analyses. Both fast-time simulations and human-in-the-loop real-time simulations can be appropriate means to further evaluate feasibility, acceptance and performance of the changes under investigation.

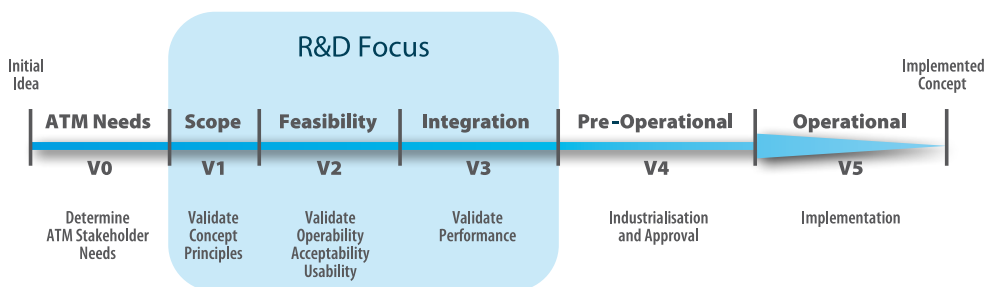
NLR uses two of the most sophisticated fast-time simulation tools presently available: Airtopsoft's AirTop (Air Traffic Optimizer) and Jeppesen's TAAM (Total Airspace and Airport Modeller).

In real-time simulation, the most prominent facility is the in-house developed NLR ATC Research Simulator (NARSIM), which is also used for R&D activities at the German Aerospace Centre (DLR) and as SESAR validation platform at Swedish Air Traffic Control (LFV). The NARSIM Radar facility at NLR features 8 highly flexible air traffic controller working positions for both Area Control Centre (ACC) and Approach Centre (APP) operations. The NARSIM Tower facility can be configured with 6 controller working positions. Real-time simulations carried out at NLR provide help in specifying tool requirements and validating the tools in highly realistic simulation environments.

NLR has an extensive track record in the design, development and validation of new ATM concepts, procedures and Air Traffic Controller support tools and helped customers worldwide in improving their ATM operation through applied Research and Development. Customers include the European Commission, Eurocontrol, Air Navigation Service Providers, Airports and both local and foreign government.

CONTACT US ANY TIME

for support in finding, developing and validating solutions for your particular ATM problem or for validating feasibility and performance of your changes in ATM operations.



Operational Concept Life Cycle Phases (V0 to V5)