



Dedicated to innovation in aerospace

AEROSPACE OPERATIONS DIVISION

TRAINING, SIMULATION & OPERATOR PERFORMANCE

# Operator Performance Measurements

PRODUCTS & SERVICES



## Our customer-oriented approach delivers useful answers to operator performance questions

Human error remains a stubbornly persistent problem in aviation, which is implicated in a great number of aviation accidents. One way to address aviation safety is to focus on the operator performance.

NLR is skilled in a wide range of operator performance measurements and offers a complete toolbox plus related services to verify operator performance in several aeronautical settings. These settings include civil and military cockpits, air traffic controller working positions, and operator stations for unmanned aircraft vehicles. The toolbox can be applied at NLR's validation environments like our simulation facilities and research aircraft or other environments.



### WHAT YOU NEED

Do you need to make a decision on a foreseen change in technology or procedure that might impact the operator? Do you want find the root cause and have guidance on existing operator difficulties?

### WHAT WE DELIVER

With a customer-oriented and pragmatic approach, we deliver useful answers to operator performance related questions. A solid scientific foundation and a variety of measures support our findings. Our long standing experience in aviation enables us to deliver a well-founded practical advice on:

- Validation methodology
- Human-machine interfaces
- Human behaviour, human factors
- Operator training
- Operational and test piloting
- Aircraft and system certification
- Air traffic management and systems
- Avionics systems and integration
- Safety and accident prevention
- Instrumentation and testing
- Simulation technology
- Data analysis

### MEASUREMENT EQUIPMENT

Operator performance assessments require specific measurements and methodologies. For each study a dedicated measurement suite to answer the research question is selected from our toolbox. A general characteristic of such a selection is that there will always be a mix of performance measures against which the objective data (like eye scanning patterns) can be compared while subjective data can be used to further interpret the results and to put them into perspective. This approach of comparing data from several sources is what we call converging evidence. Questions about new technologies or procedures, performance, efficiency, (mental) workload, fatigue, situational awareness, user satisfaction and many more can be answered with this toolbox.

### DATA PROCESSING AND ANALYSIS

The converging evidence principle of data recording results in large amounts of data from different sources and recorded on different systems. Without effective software tools, data processing and analysis can be a cumbersome process. NLR offers the capability of combining these different data recordings into one single data processing application. This provides straightforward correlation of effects observed in the various data sources.

### VALIDATION ENVIRONMENTS

Operator performance data from a validation environment should naturally resemble those that would be obtained in real operational setting. Therefore we offer a range from desktop environments via mock-ups to medium and high-fidelity facilities and even real aircrafts that can be used for human-in-the-loop evaluations.



### PRODUCTS & FEATURES

Operator performance measurements will provide the customer with both qualitative and quantitative evidence whether a foreseen change (new technology, procedure, etc. has an impact on the behaviour of the operator. The customer can use this evidence to make a well informed decision about whether he wants to implement this change or not.