

# Operator Performance Lab: CATS

The Cognitive Assessment Tool Set or CATS is a cost effective tool to capture and evaluate cognitive performance in a wide variety of applications. CATS is a multi-sensor, body-worn, fully self-contained and untethered physiological-based data collection and analysis system. It assesses crew cognitive performance in real-world and simulated situations under a large range of mission parameters, such as long endurance missions, fatigue, stress, or thermal comfort.

## Applications

- Flight crew skill improvement
- Battle manager multi-task capability assessment
- Race car driver capability ratings
- Law enforcement high-speed chase improvement
- Long haul trucking research for cognitive decay
- High risk surgical procedure assessment
- Guide training programs for all applications



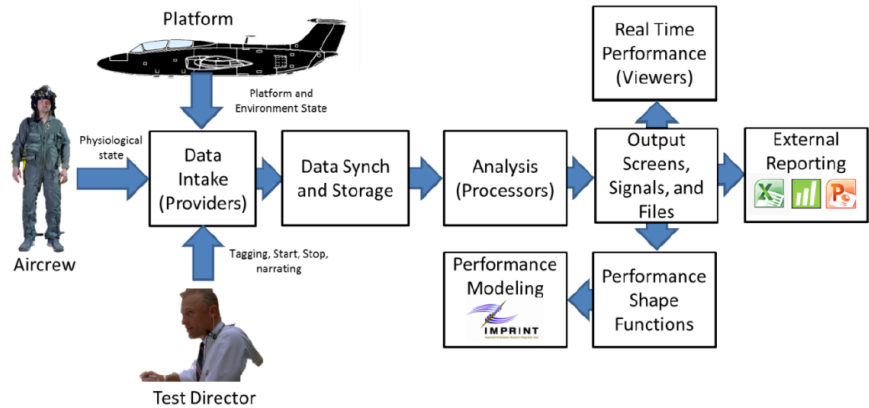
**LET OPL SERVE YOUR  
FLIGHT TEST NEEDS**

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# FULL SERVICE FLIGHT TESTING

## How CATS Works

**Sensor Kit:** Multiple sensors and data collection hardware enable use in operational environments. Operators wear the sensor kit, which is fully contained on their person, for untethered physiological-based data collection. CATS can collect data from additional sensors separate from the body-worn sensors that are part of the core system, typically installed in the vehicle with data transmitted by Wi-Fi. In the L-29 testbed, an F-35 helmet-mounted display has a Polhemus Scout head tracker. In the MI-2 testbed, the BAE Striker helmet-mounted display with an Airbus optical head tracker is integrated in the airframe.



**Analytics Application:** The analytical software and its user interface aggregates, synchronizes, tags, analyzes, and visualizes human and aircraft data in real time.

**Learn More Online:** [TI.uiowa.edu/our-technologies/core-technology/cognitive-assessment-tool-set-cats](http://TI.uiowa.edu/our-technologies/core-technology/cognitive-assessment-tool-set-cats)

## Advantages

**Cost Savings:** The CATS system is sensor agnostic allowing customers their choice of sensors, which can eliminate the cost for expensive, manufacturer-specific, data collection system licenses. CATS providers translate sensor manufacturer proprietary protocols into the CATS provider protocol.

**Ease of Integration:** CATS integrates a highly sophisticated system of accessing, storing, and synchronizing data. Data can come through any data network from anywhere in the world, to be stored within CATS. This allows CATS to be integrated into complex systems, such as the Time-Space-Position-System, which comprises a Global Positioning System and an Inertial Navigation System, air data computers, Flight Management System, mission computers, etc. The CATS data management system synchronizes and sorts incoming data by time and stores it in a relational database with the time stamp as primary key.

**Data Manipulation:** Data queries can extract combinations of data from the storage system for view on graphs in CATS or for exportation as Tab Delimited Text File. Graphs in CATS can be directly copied and pasted into external applications such as PowerPoint or Word. Through CATS, researchers have a hand in organizing the mass quantities of data and can focus on the scientific aspects of the data.

