

A Comprehensive Approach to Flight Testing

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Contents

- 01** Introduction to AEROSET
- 02** Our Method: 7-Phase Approach to Flight Testing
- 03** Case Study: Business Jet FFS Data Collection
- 04** Our Unique Value Proposition



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01 Introduction to Aeroset

Company Overview

- **European roots with worldwide reach**

- HQ in Lebring, Austria
- Site office in Pécs, Hungary
- Q4 2025 site office in the U.S.

- **Crew Setup**

- 2 CAT-I Test Pilots with more than 20 years of experience each
- 5 Flight Test Engineers with PPL licenses
- Active consultants from Spain, USA, Canada, etc.

- **Expertise in Testing**

- Tests conducted under both FAA and EASA supervision.
- Close cooperation with Design Organizations and Approved Maintenance Organizations to facilitate testing for clients.
- Past disclosed projects: CL350, CL650, King Air C90, XLS, XLS+, CJ1+.

- **Part of the AXIS Group**

- Direct access to a unique pool of experts and assets covering all aspects of general and business aviation.



Main Focus Areas and Services Offered

● Gathering flight data

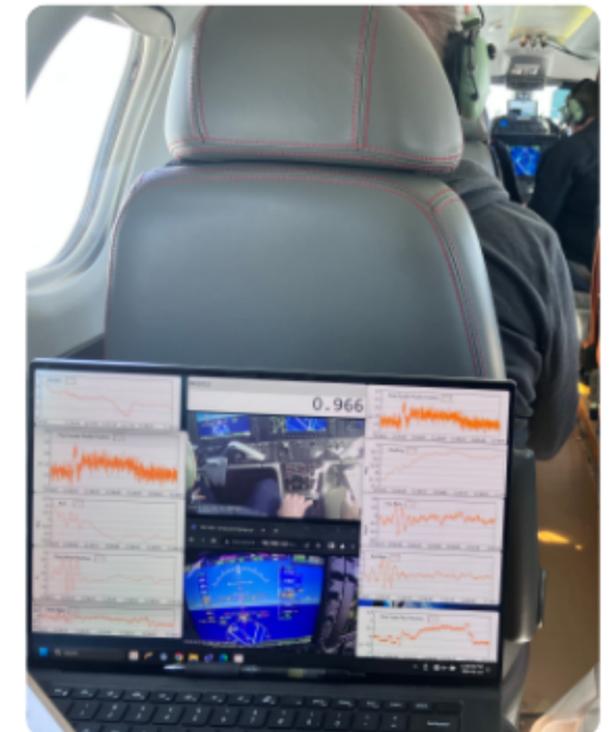
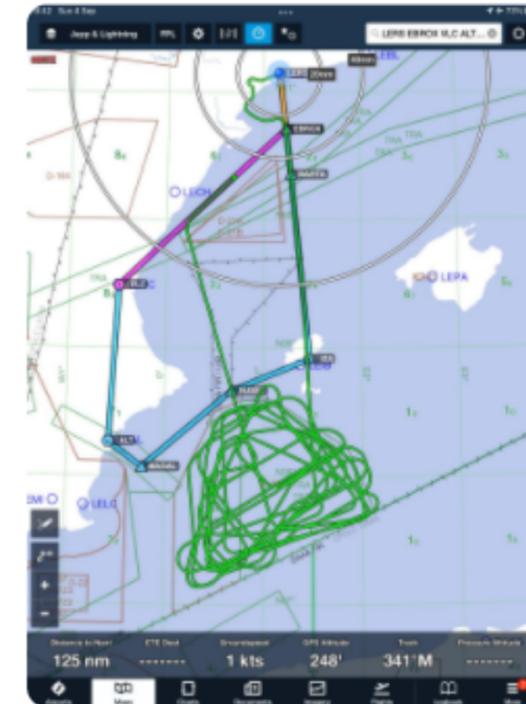
- Planning the instruments
- Providing test pilots and flight test engineers
- Preparing a list of test maneuvers
- Identifying measurement parameters
- Processing data afterwards

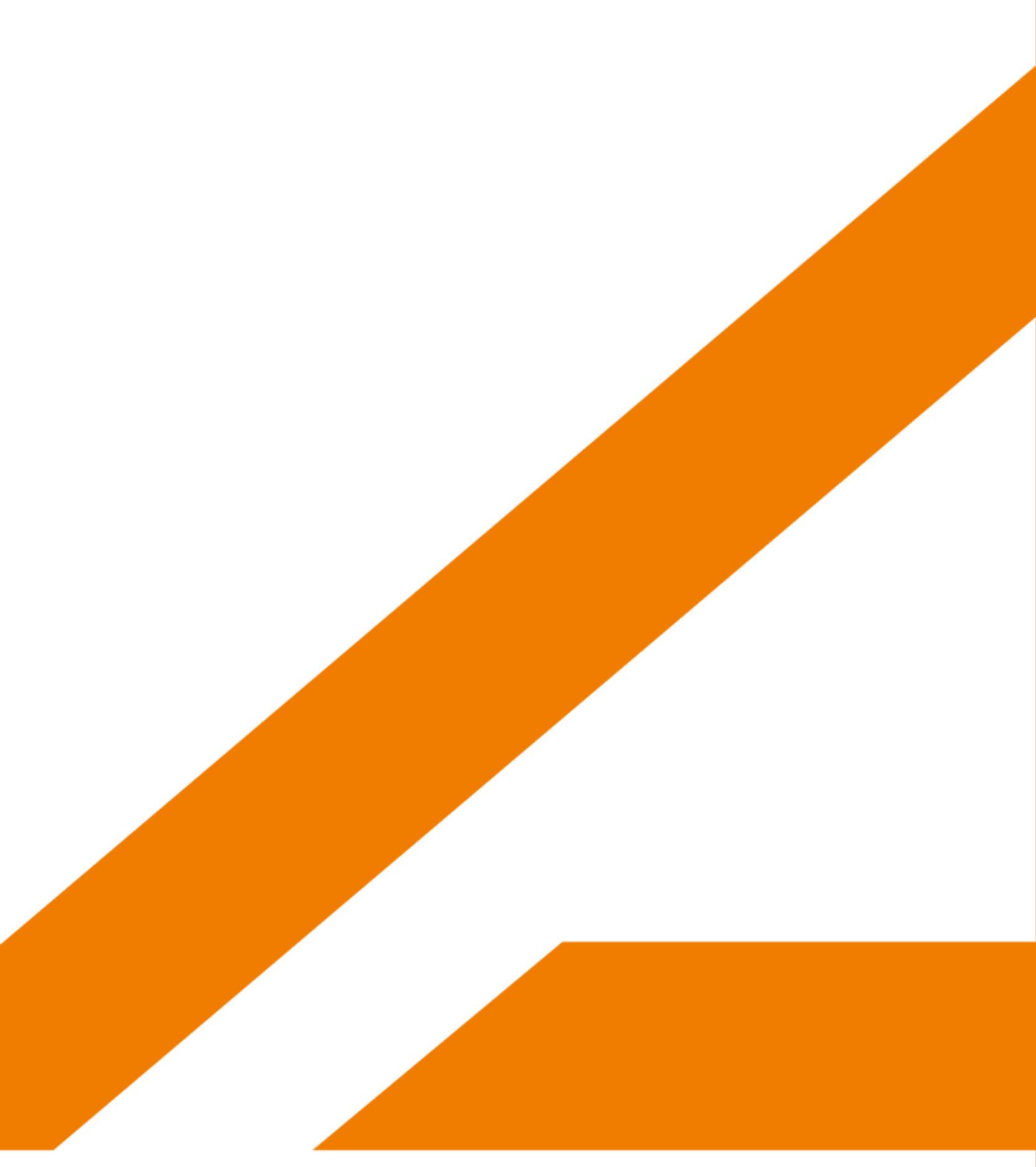
● Managing flight test campaigns

- Setting up airspace and lodging for the campaign
- Locating maintenance services
- Handling equipment for testing
- Making contracts for leasing aircraft

● Engineering Support

- Support with **testing and certification** for both **initial and supplemental type certificates (STC)**
- for almost **all types of aircraft** (gliders, single-engine planes, multi-engine planes, piston engines, jet engines, aerobatic planes)



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02
Our Method:
7-Phase
Approach to
Flight Testing

Phase Descriptions



Requirement Gathering

The process begins with a comprehensive assessment of client needs, identifying critical factors such as Full Flight Simulator (FFS) Level-D data or any Supplement Type Certificates (STC) validation requirement.

A meticulous maneuver list is developed to cover the aircraft's flight envelope, determining the test conditions, and specifying the various aircraft configurations to be utilized during testing.



Instrumentation Planning

The next phase involves a careful determination of parameters based on the planned maneuvers, ensuring all relevant data sources are incorporated.

The regulatory path is identified, deciding between pursuing a Service Bulletin approach under EASA or applying for an Experimental Certificate of Airworthiness (CoA) from the FAA, which drives the entire testing strategy.



Test Card Development

Aeroset's experts create detailed test card documents that define objectives for each maneuver, presenting pilot step-by-step instructions.

Risk analysis is conducted to identify potential hazards associated with the planned maneuvers, alongside mitigation strategies to minimize safety concerns during the actual testing phase.

Coordination and Execution Phases



Pre-Test Coordination

Pre-test coordination is essential and involves comprehensive planning, including airspace management with Air Traffic Control, securing insurance, and confirming aircraft configurations.

Maintenance checks and instrumentation calibration must be verified to ensure all systems function correctly and meet regulatory standards before flight execution.



On-Site Pre-Flight

During the on-site pre-flight phase, extensive checks are performed on the instrumentation system to guarantee accurate data collection and function.

The team participates in thorough briefings involving pilots, engineers, and technicians to review both risk points and emergency procedures, fostering a culture of safety.



Flight Execution

The flight execution stage is coordinated by a Test Director who oversees each maneuver, ensuring pilots execute operations with precision and adherence to the Flight Test Cards and related Procedures.

Real-time data marking allows for immediate adjustments and responses to any unexpected variables during flight, enhancing data quality and calling for repeatability if required.

Post-Flight Procedures



Post-Flight Analysis

After each flight, a detailed debriefing occurs where test sorty is analyzed against the test objectives, identifying any discrepancies for further review and study.

If necessary, repeat flight planning is conducted to address any incomplete data or to explore additional test parameters that may enhance the overall understanding of aircraft performance.

Restoration and Reporting

The final step involves removing all testing equipment and restoring the aircraft to its original airworthy condition, ensuring that everything meets safety standards and regulatory guidelines.

Documentation of the entire process is compiled into a comprehensive report that includes findings, insights, and recommendations for future flight testing or modifications to aircraft performance.



03 Case Study: Business Jet FFS Data Collection

Preparation – Instrumentation and Test Planning

AircraftType: Bombardier Challenger 350

Objective: Support FFS development through a comprehensive performance and handling quality flight test campaign

Aircraft Setup

- Instrumented with a high-resolution DAS system, supported by synchronized video and audio recording
- ARINC 429, analog, and force sensors connected to aircraft avionics, control surfaces, and pilot input paths.

Documentation

- Flight Test Plan and Test Matrix aligned with FFS development needs
- Parameter List drives the the Instrumentation Plan
- Service Bulletin and Engineering Orders defined and tracked all modifications.



Execution – Test Sorties & Daily Ops



General Overview

- Total Duration: ~4.5 weeks
- Flight Sorties: 26 (including 6 ground tests)
- Airborne Time: ~69 hours

Test Types

- Over 200 test conditions successfully executed
- Stalls
- OEI dynamic tests, VMCA
- Ground Effect
- Rejected Take-Off, VMCG,

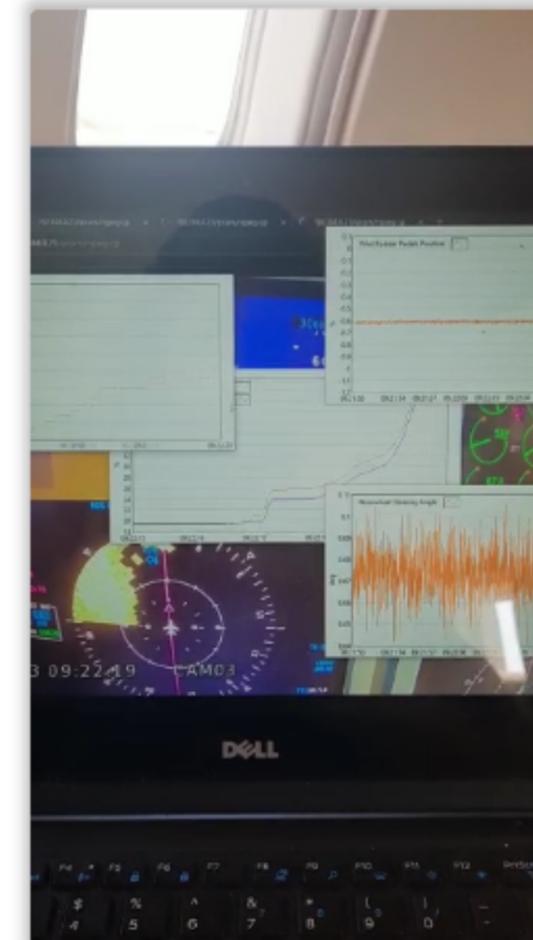
Example of a Test Day

- 07:00 – Daily briefing with crew, weather, airspace updates
- 09:30 – Aircraft preflight & data checkout
- 11:00–16:00 – Airborne testing block (~4.5–6 hrs)
- 17:00 – Post-flight data debrief, run list review
- 18:00 and on – Data offload, initial analysis, next day prep

Challenges & Lessons Learned

Starting with French ATC strike it quickly became clear that FLEXIBILITY IS KEY...

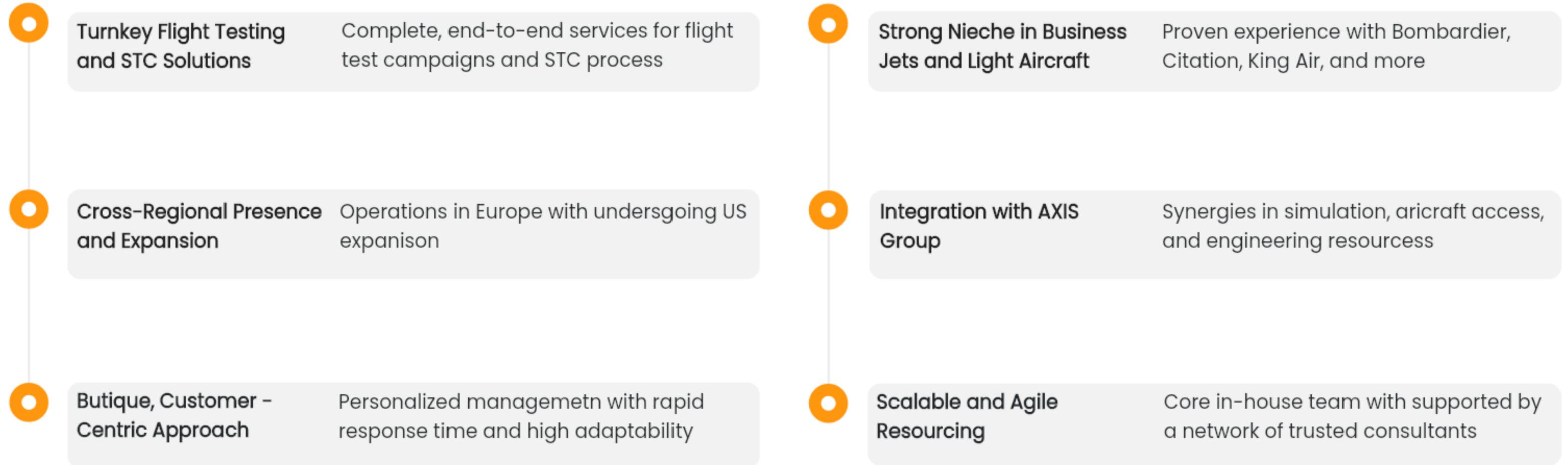
- Nuremberg, Germany: Instrumentation installation and shakedown flights.
- Granada, Spain: Main base for flight tests.
- LED26 (test area near Ibiza): Primary airspace for airborne tests south of Ibiza.
- Ciudad Real, Spain: Runway tests (VMCG, VMU, etc).
- Murcia, Spain: Crosswind tests.
- Basel, Switzerland: Urgent hydraulic pump repair.
- Linz, Austria: Test stopover due to wet runway and unfavorable weather at Basel.
- Baden-Baden, Germany: Late campaign test destination; Basel did not approve local patterns for lightweight aft CoG tests.



The image features a large, abstract geometric design on the left side, composed of several thick, orange-colored shapes. A prominent diagonal bar runs from the bottom-left towards the top-right. Below it, there's a horizontal bar that is partially offset to the right. The right side of the image is a solid orange background. On this background, the text '04 Our Unique Value Proposition' is written in white, sans-serif font. The number '04' is significantly larger than the text that follows.

04
Our Unique
Value
Proposition

Unique Value Proposition



AEROSSET

FLIGHT TEST

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