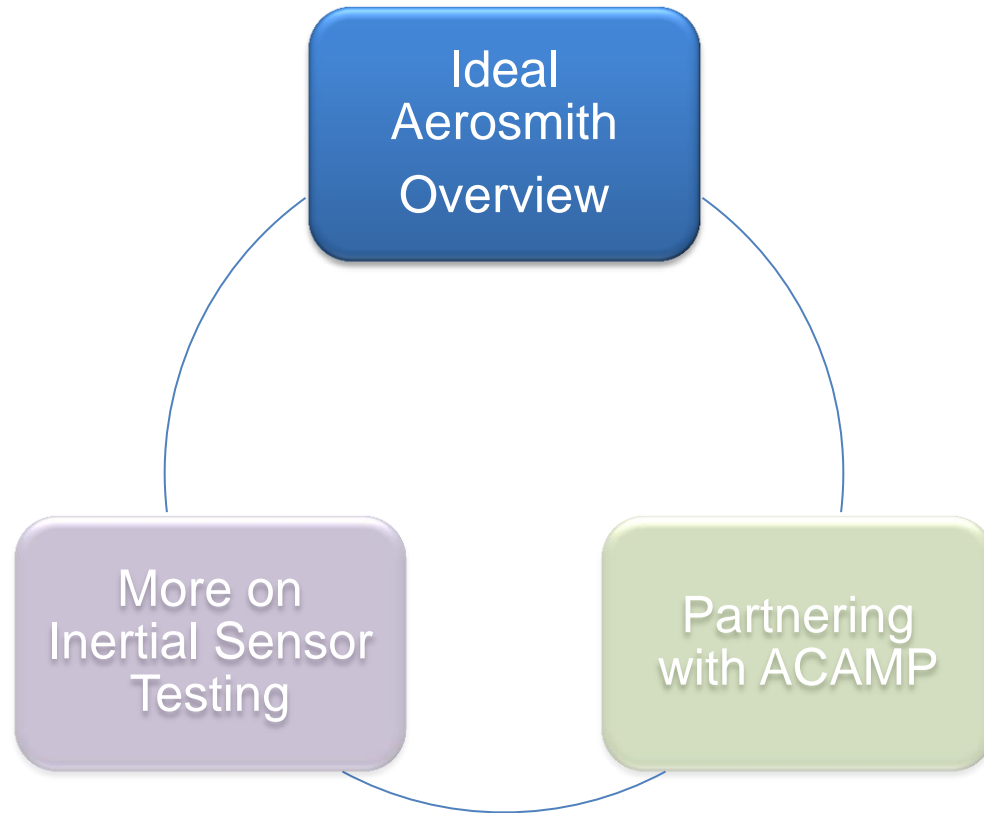


Testing Inertial Guidance Devices

ACAMP Workshop, June 2013



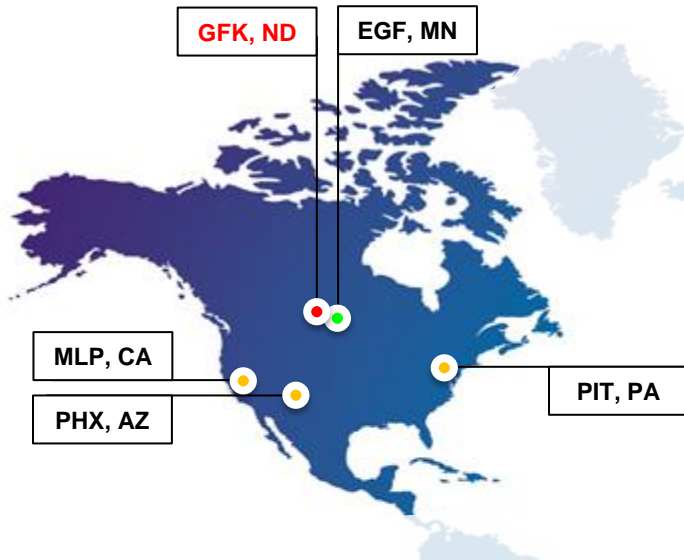
Agenda



Locations and Facilities

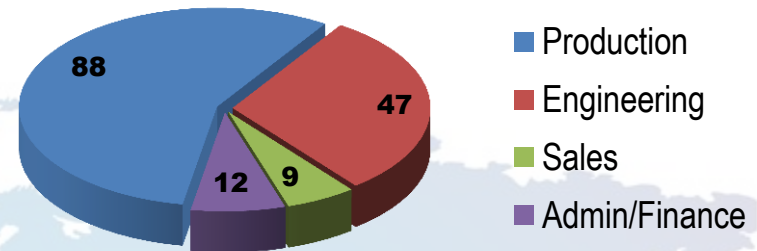


Domestic Locations



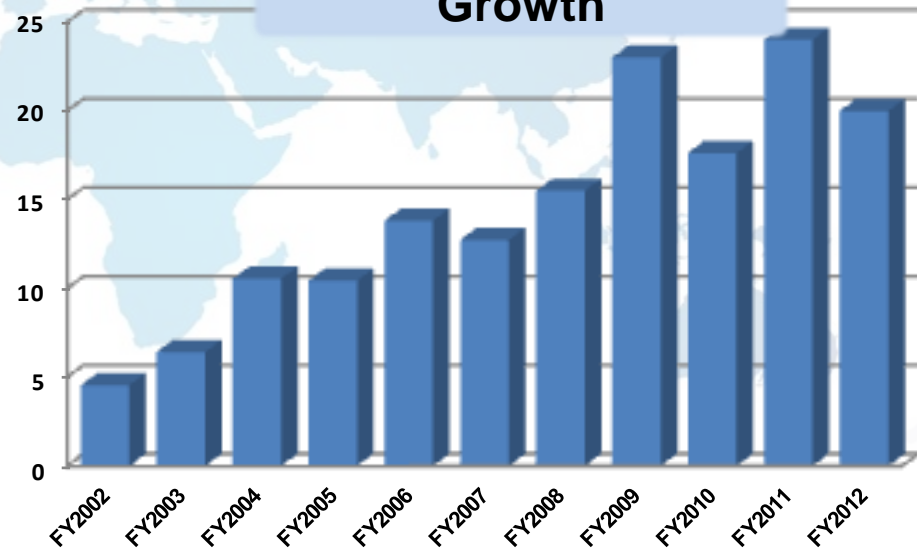
<http://www.ideal-aerosmith.com>

Employees



Employees: Total 156

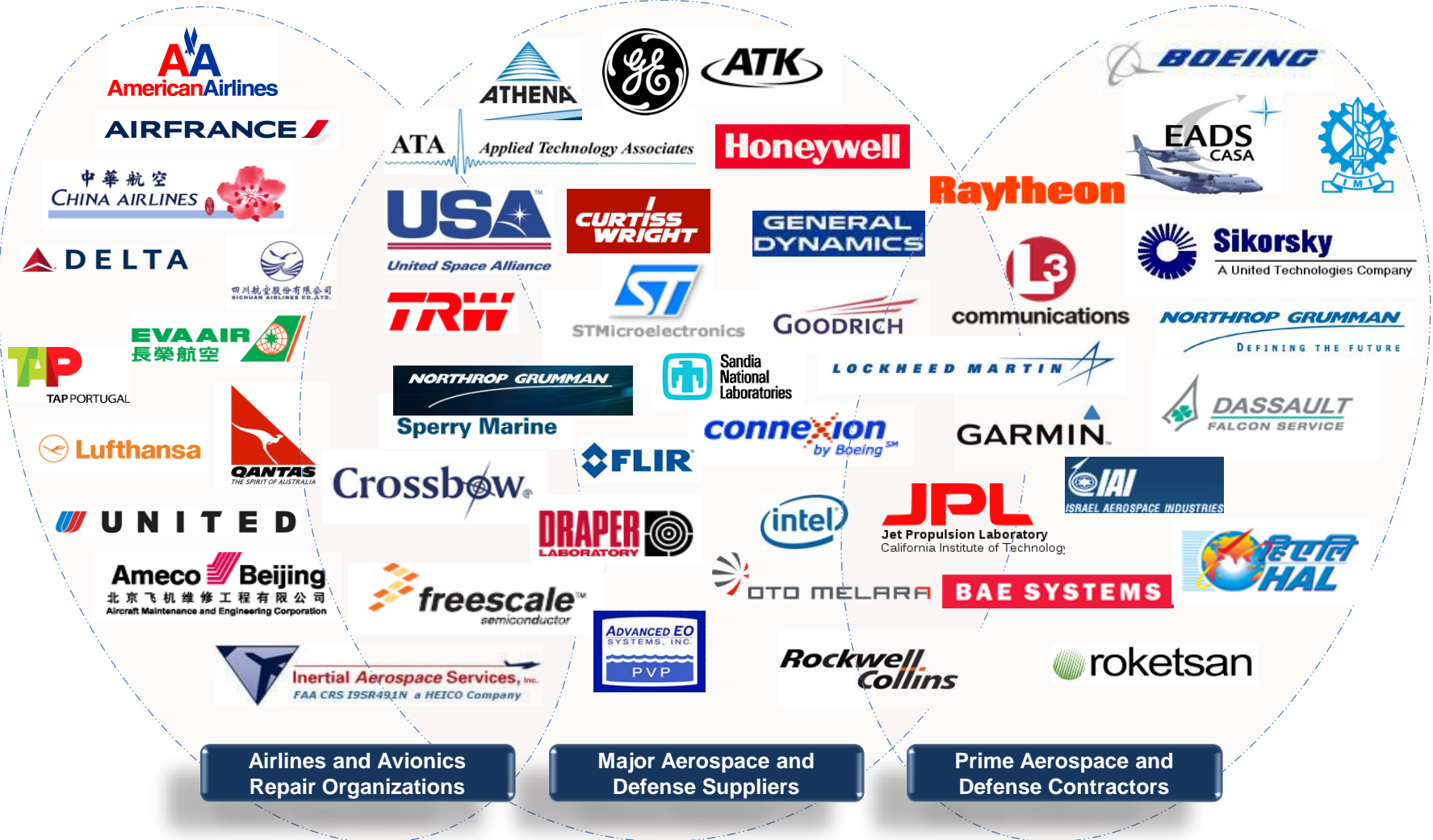
Growth



Worldwide Customer Base



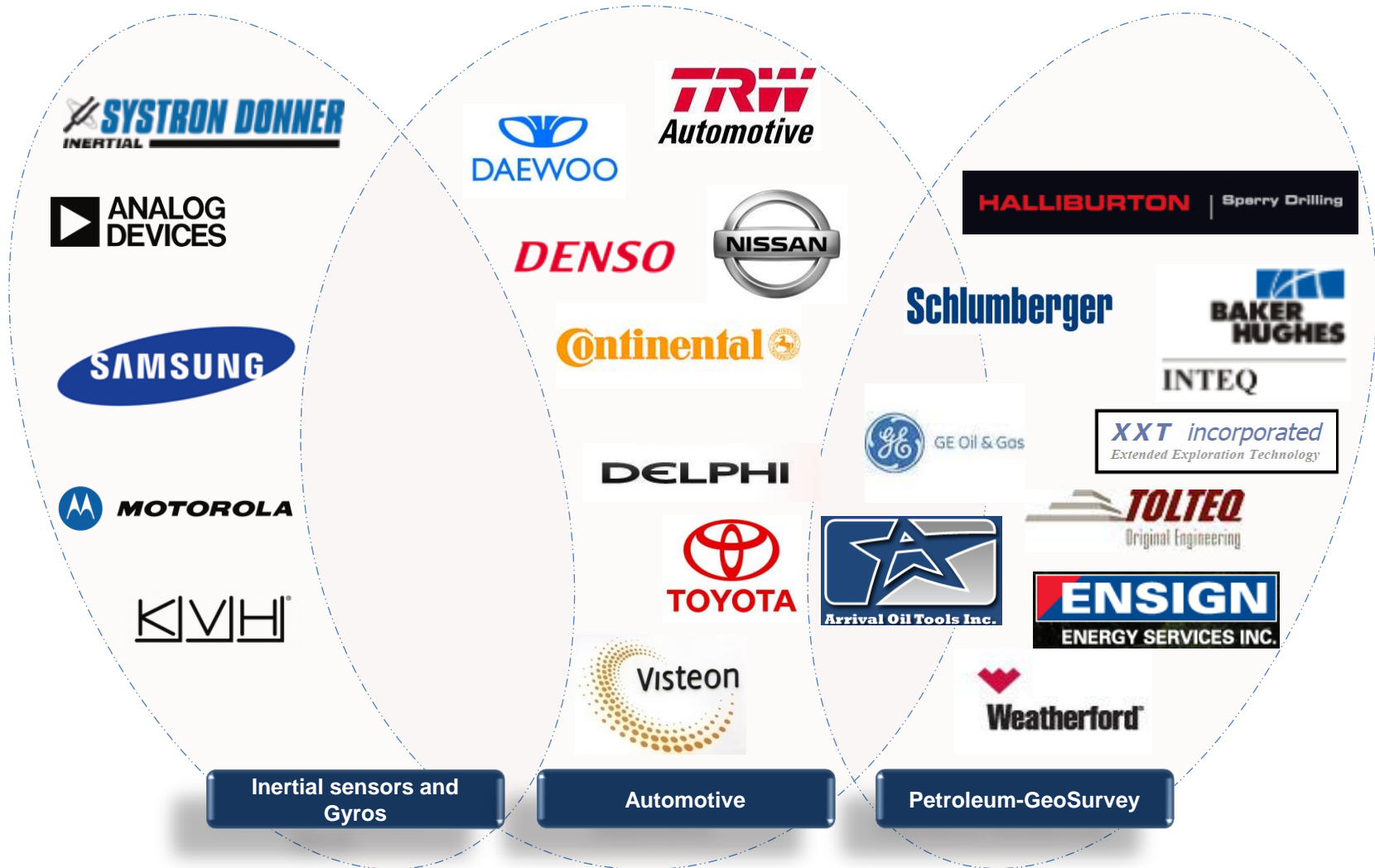
Competitive Advantage to High-Tech Industry Leaders



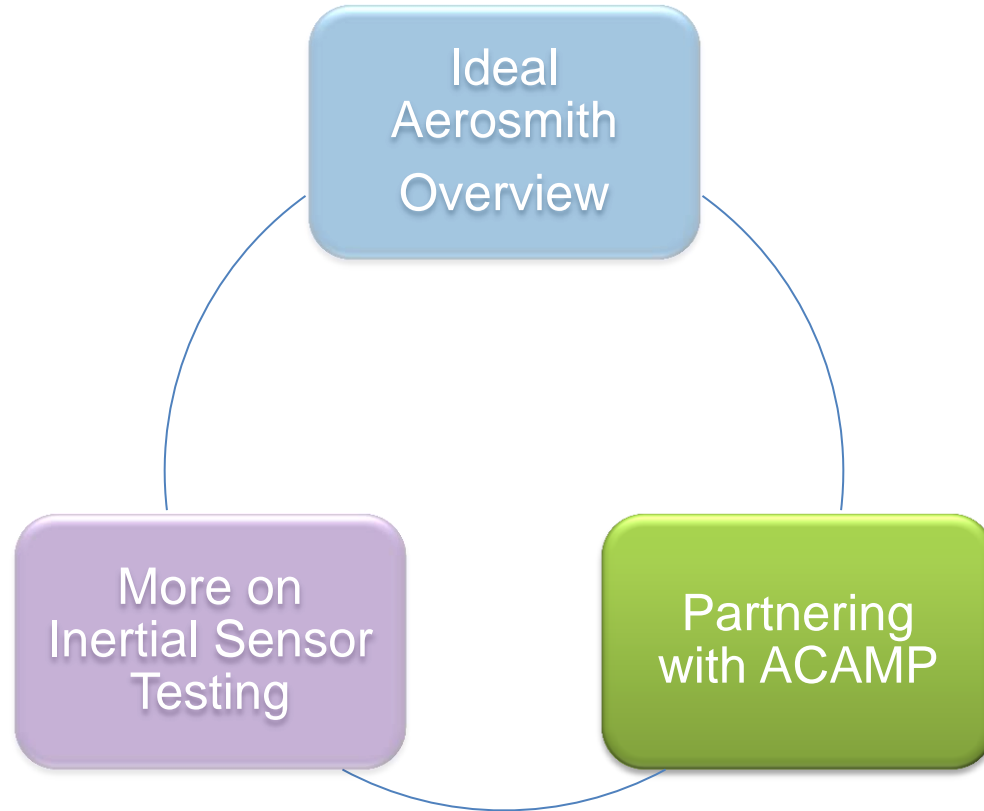
Gyro-Automotive-Oil



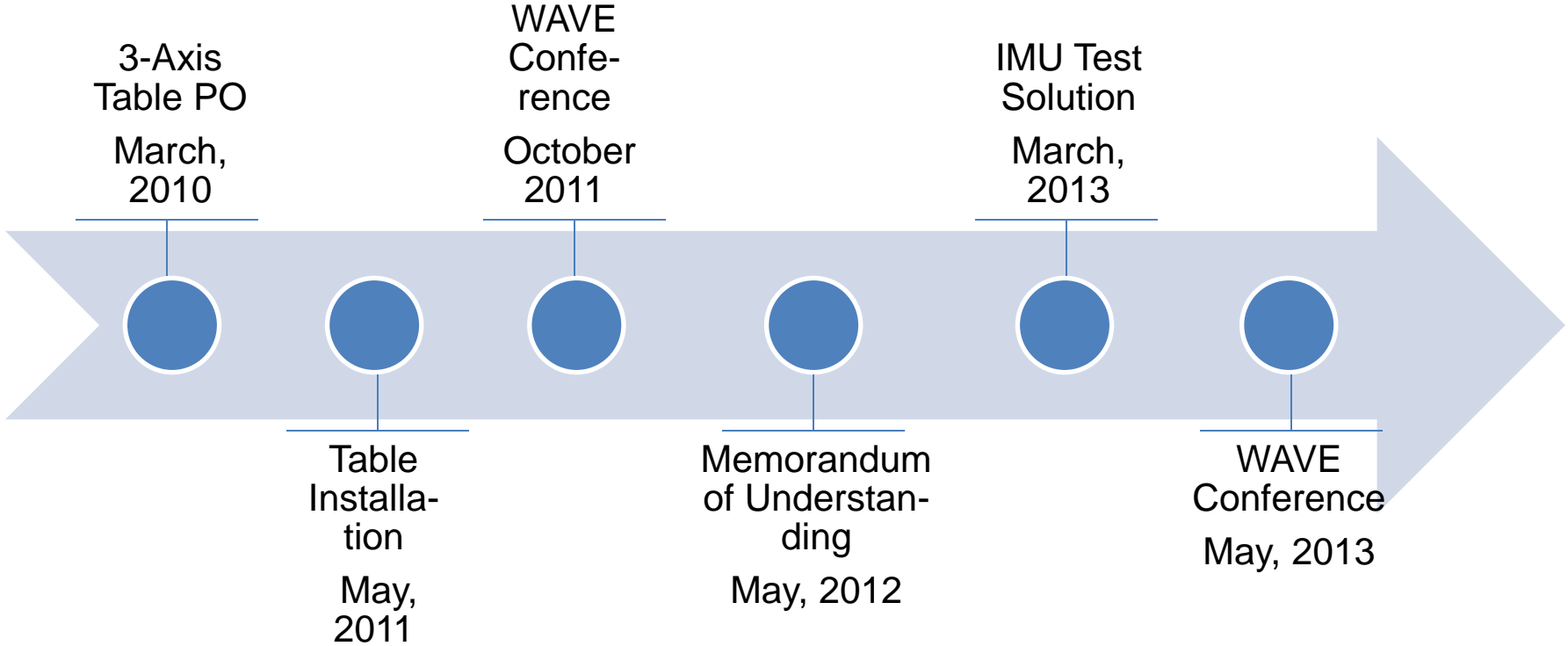
Innovative Engineering for Reduced Time-to-Market



Agenda



Ideal/ACAMP Timeline



Ideal/ACAMP Project Objectives



Flexibility
for current
and future
UUTs

Finalize the
hardware
architecture

Define
software
architecture

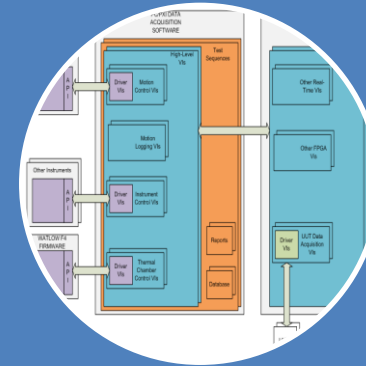
Implement
Landmark
and ADIS
IMUs

Test Solution Description



Hardware:

- 3-axis table
- NI cRIO for UUT interface
- NI PXI chassis for data logging
- Time synchronization

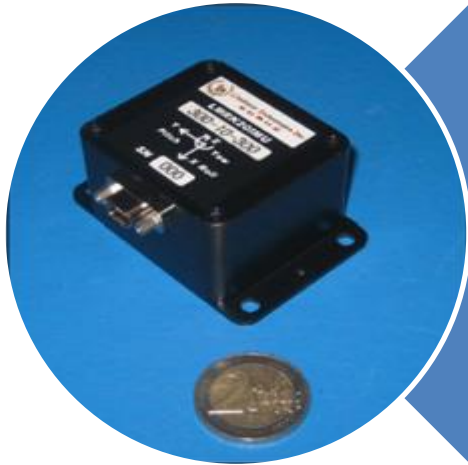


Software:

- NI FPGA LabView for UUT interface
- NI RT LabView for data streaming
- NI LabView for data logging
- NI TestStand for test sequence control

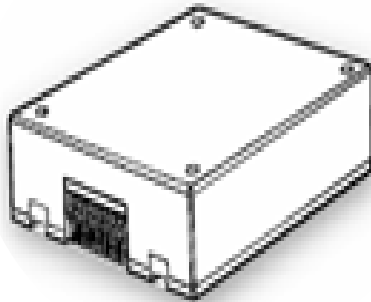


Subject UUTs



Landmark 40

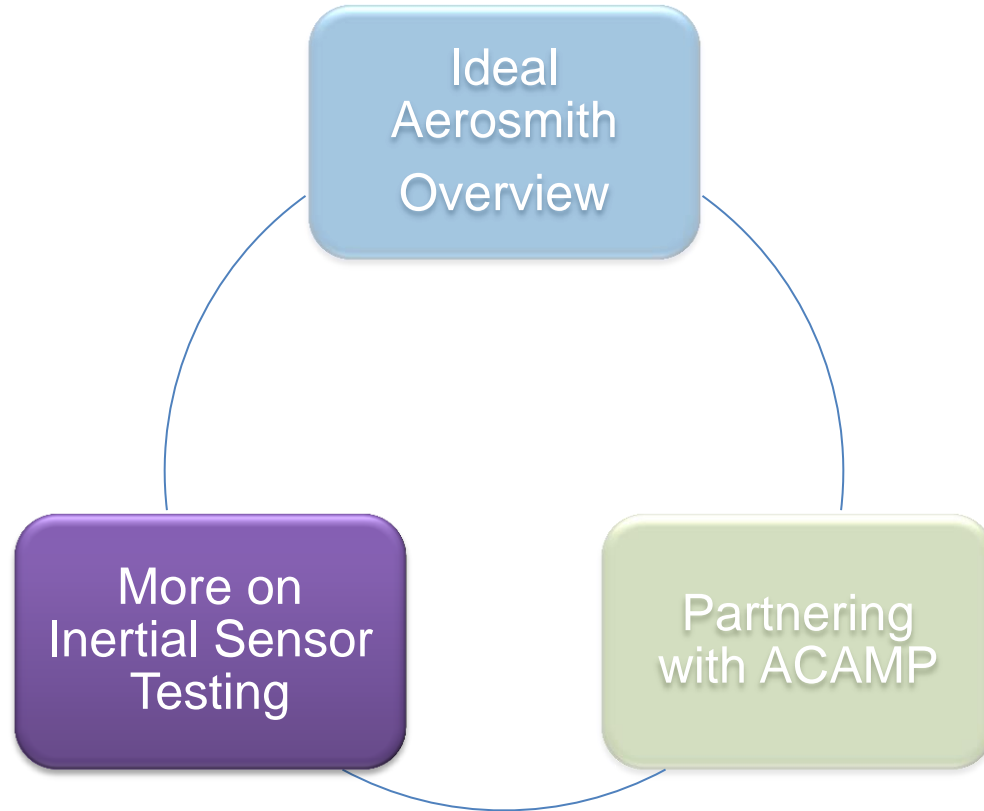
- 3-axis gyroscope + 3-axis accelerometer
- RS485 interface
- Low-noise, low-bias drift
- Applications:
 - Commercial automotive and motorcycle testing
 - Motorsports racing
 - Aircraft applications
 - Sea applications



ADIS 16375

- 3-axis gyroscope + 3-axis accelerometer
- SPI interface
- Applications:
 - Precision instrumentation
 - Platform stabilization and control
 - Industrial vehicle navigation
 - Downhole instrumentation
 - Robotics

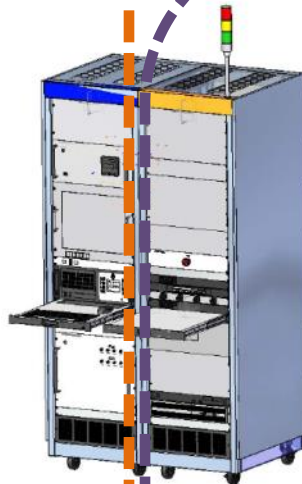
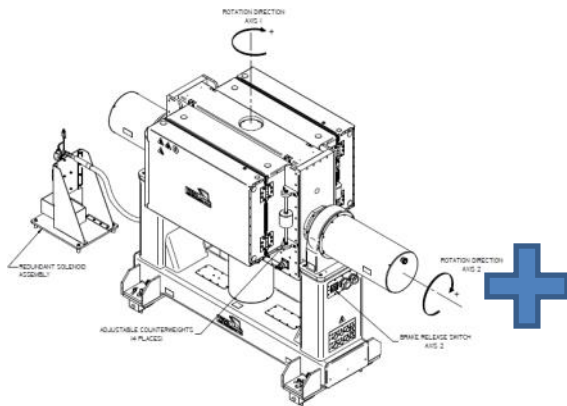
Agenda



Inertial Test Solutions

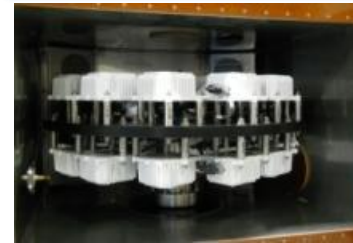


Motion Domain



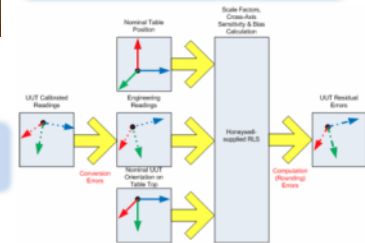
Test Application Domain

Test Fixtures



etc.

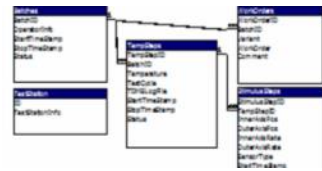
Algorithms



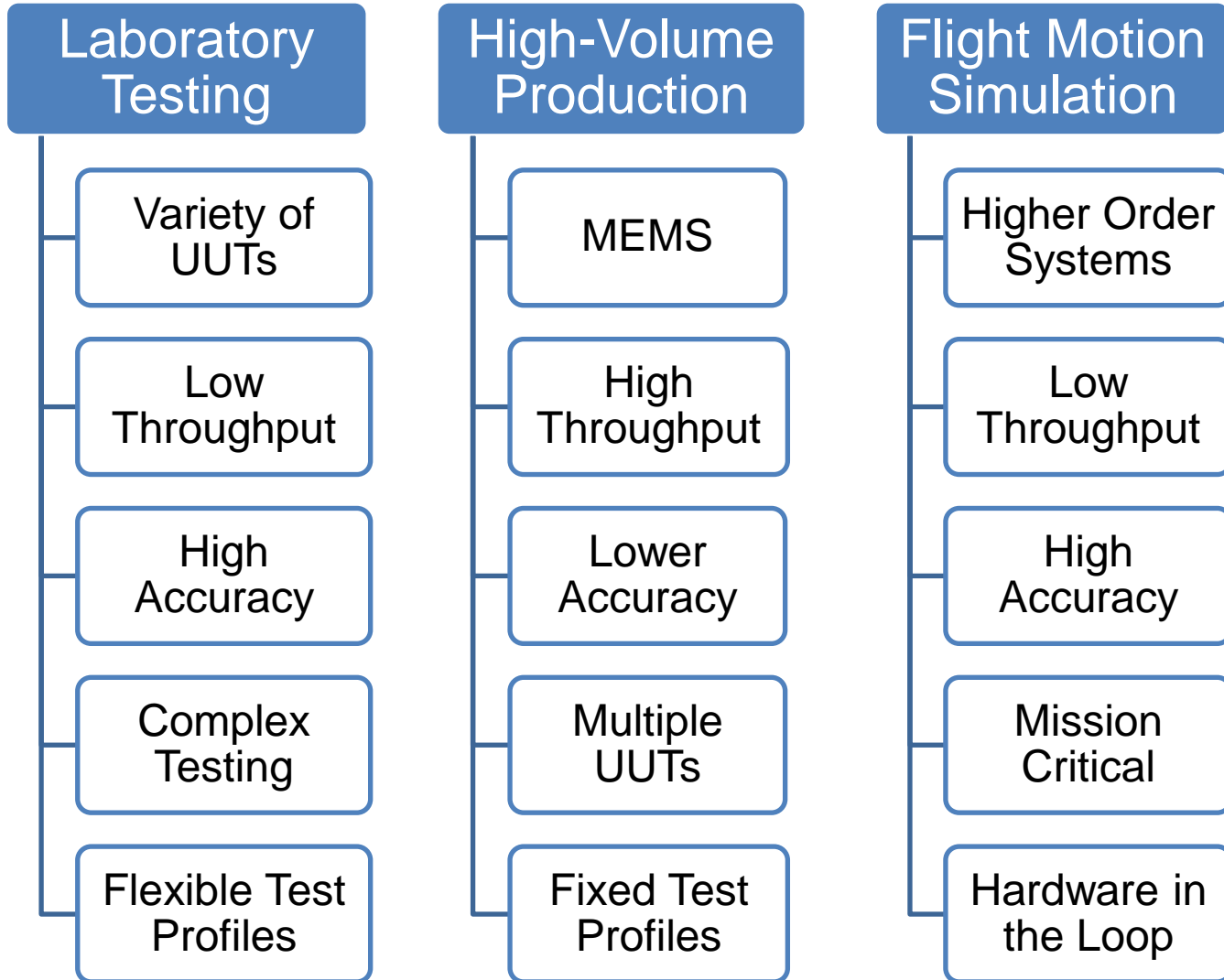
Data Acquisition



Test Software



Inertial Guidance Test Applications



IMU

Test System Example



- Position and rate table
- Data acquisition and processing
- Features that reduce cycle time
- Concurrent testing of up to 30 IMUs
- Innovative high-precision fixture design

Smart Weapons Test System Example



- Flight motion simulation
- HIL (hardware in the loop)
- 3-axis motion
- High dynamic response
- Special geometry
- Controlled by UUT as response to external stimuli

Non-Magnetic Test System Example



- Automatic, non-magnetic
- 3-axis precision positioning
- High-temperature thermal chamber
- Directional drilling tool verification and calibration
- Gyroscopes, accelerometers and compasses