

# TESEO

technologies and systems on electronics and optics

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## STEER BY WIRE AND TESTING

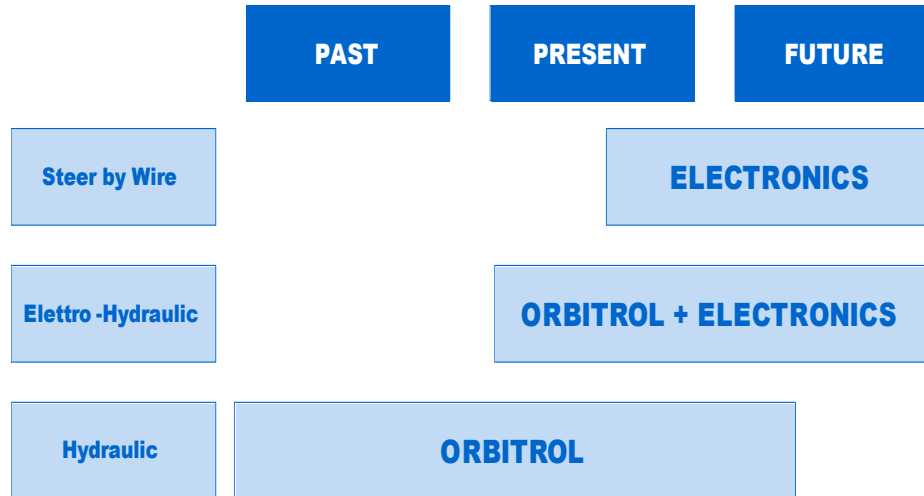
*Unlocking potential with  
Advanced Mechatronic Test Bench*

## ENABLE YOUR INNOVATION DRIVEN CHANGE

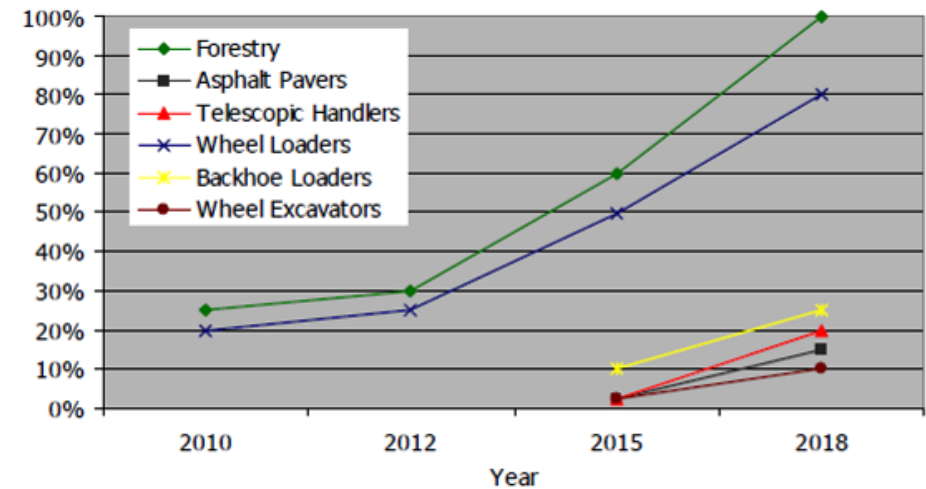


NOTIFIED BODY N.2124  
ACCREDITED EMC TEST  
LABORATORY

# WHAT'S ACTUATION FUTURE ?



## Construction Machines Implementation Steer-by-Wire in %



Source: Stieler Technologie- und Marketing-Beratung

## GO TO MARKET & INVESTMENT

### PRODUCT DESIGN

- TIME, KNOWLEDGE, RESOURCES

### DURABLE MANUFACTURING

- ADVANCED MANUFACTURING



**ELECTRONICS, OPTICS, RF SOLUTIONS**  
**TEST & MEASUREMENT - EMBEDDED SYSTEMS**

# GET THE RIGHT PRODUCT !



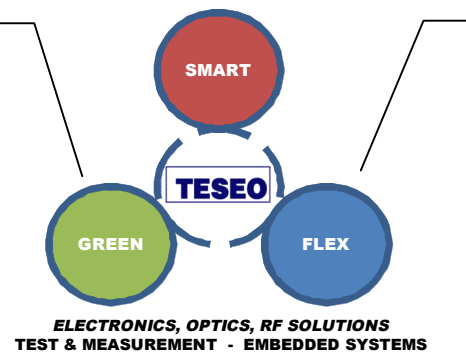
## SMART

- 1 Product, many features
- 1 Product, many application
- Adaptive & Resilient



## GREEN

- Avoid Oil & Hydraulics
- Hybrid Vehicle Ready
- Electrical Vehicle
- Save Energy



## FLEXIBLE

- 1 Product, many markets  
*Cars, Trucks, Nautical, MWM*
- 1 Product, many customers
- Product as a Platform



# OPTIMISE: DELIVER SIMULTANEOUSLY PRODUCT DESIGN & ADVANCED MANUFACTURING ?

## SMART

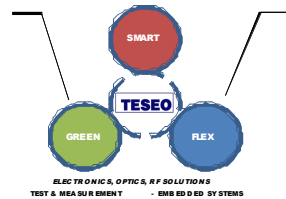
- ⌘ 1 Product, many features
- ⌘ 1 Product, many application
- ⌘ Adaptive & Resilient

## GREEN

- ⌘ Avoid Oil & Hydraulics
- ⌘ Hybrid Vehicle Ready
- ⌘ Electrical Vehicle
- ⌘ Save Energy

## FLEXIBLE

- ⌘ 1 Product, many markets  
*Cars, Trucks, Nautical, Bulldozer*
- ⌘ 1 Product, many customers
- ⌘ Product as a Platform



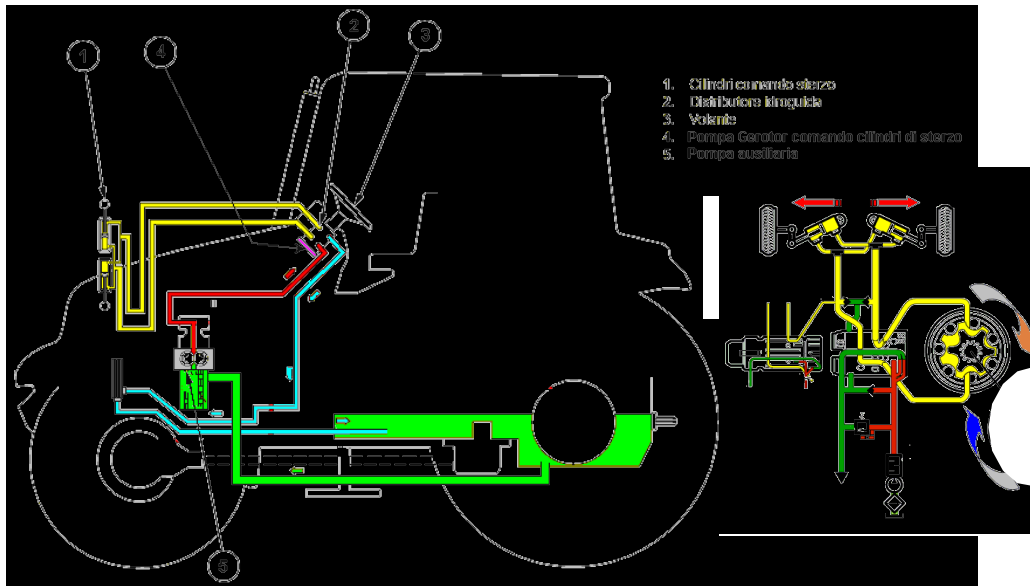
**ELECTRONICS, OPTICS, RF SOLUTIONS  
TEST & MEASUREMENT - EMBEDDED SYSTEMS**

**EQUAL  
PRODUCT COMPLEXITY**

**WHICH REQUIRES  
MANUFACTURING  
EXCELLENCE**

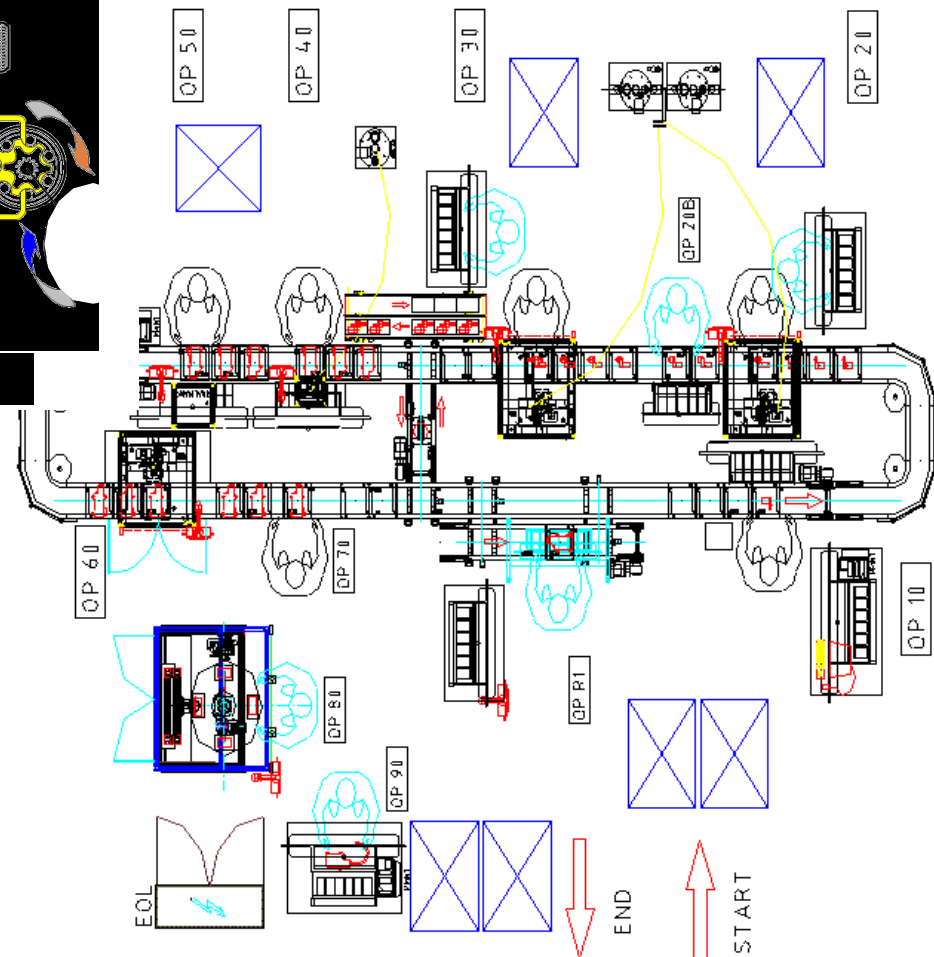
**INADEQUACY OF  
EXISTING PARTNERS  
WHICH BROUGHT TO**

# PARTNERSHIP IN CONCURRENT ENGINEERING PRODUCT DESIGN + ADVANCED MANUFACTURING

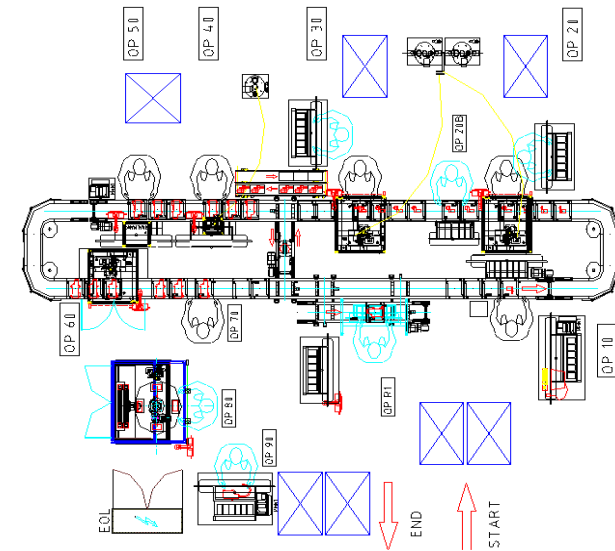
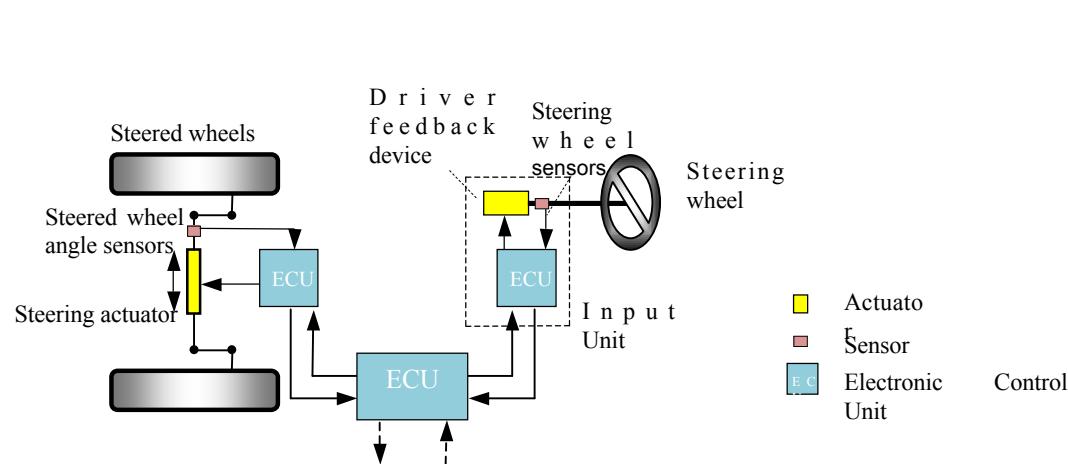


*The development of an innovative product in a challenging market such as Mechatronics requires a very effective time to market.*

*For this reason, the OEM's require technology partners able to concurrently co-engineer cost effective test and measurement systems which are a critical item in the design/development phase and the Value Added Tool of the manufacturing line.*



# LEAP-FROGGING INTO ADVANCED MANUFACTURING



## CONSTRAINTS OF A GREEN, SMART & FLEX MANUFACTURING WITH AN EMBEDDED EXTENDED LIFE EXPECTANCY

### PRODUCT

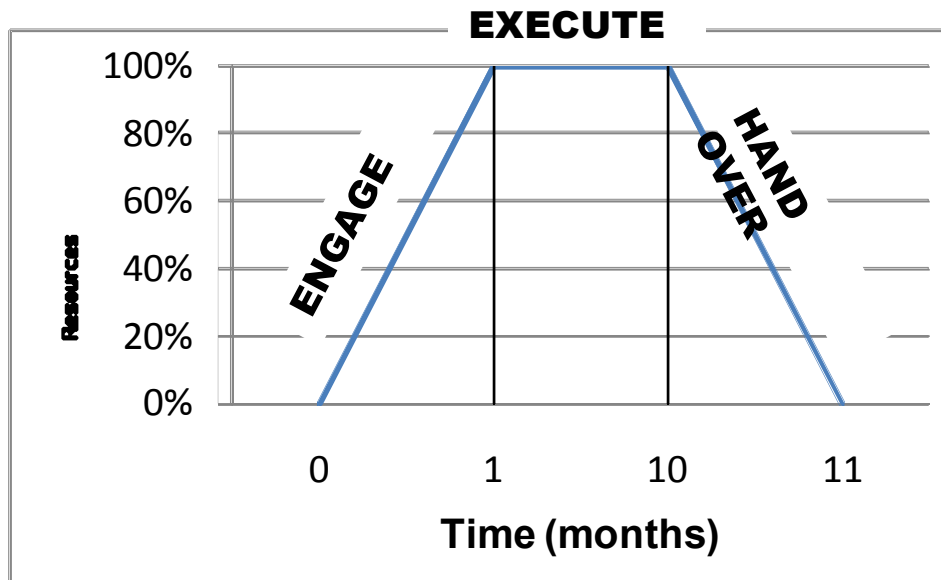
- Family driven design (size, mechanical, power)
- Multibus (customer driven)
- Firmware independent (customer driven)



### MANUFACTURING

- Compact & Fast
- Modular & Standardised
- Extended Traceability
- Testing managed by AME

# LEAP-FROGGING INTO ADVANCED MANUFACTURING

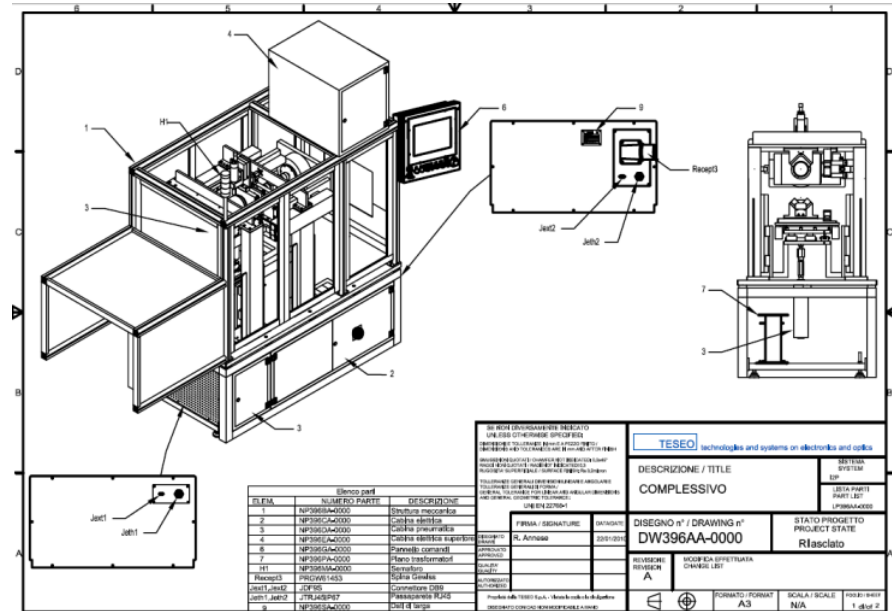
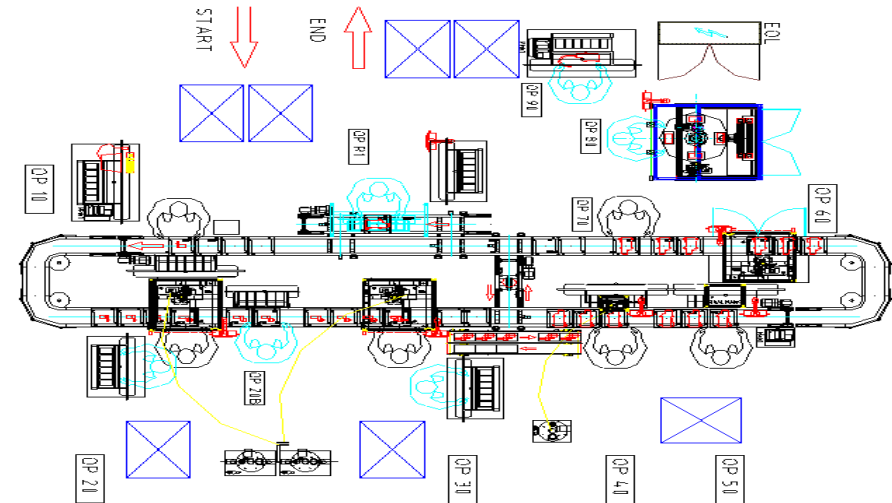


## DESIGN TEAM

- System Integration PM (1)
- Mechanical Engineer (1)
- Electronic Engineer (1)
- Software Engineer (2)
- CAD Specialist (1)

## EFFORT

- Around 8000 h/m



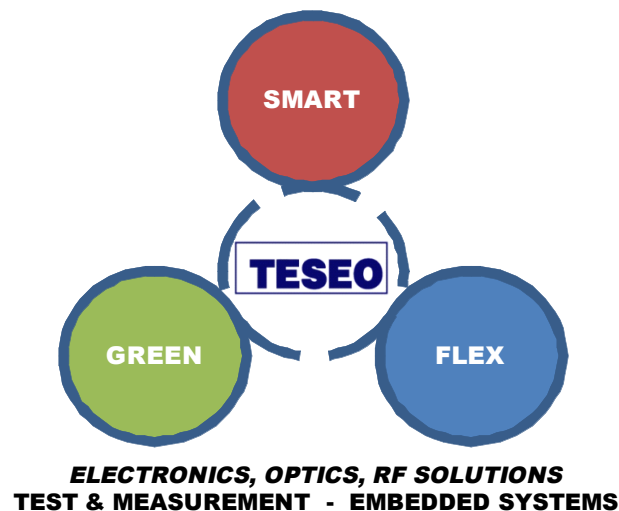


## AM-TB STEER-BY-WIRE



**AM-TB** is now part of TESEO solution's family Advanced Mechatronic Test Bench.

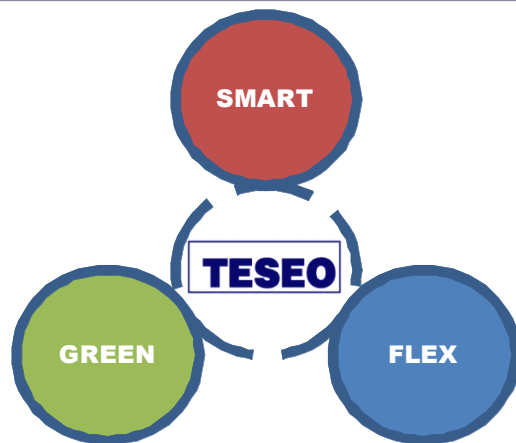
**AM-TB STEER BY WIRE** solution is dedicated to rotary actuators typically used in on-road and off-road drive by wire applications, including in nautical and vessels.



**AM-TB STEER BY WIRE** has been developed to for serving families of SBW products, passive and active feed-back, small to large sizes, from R&D to Manufacturing and to Quality, testing and characterising product performances (software, electrical, electronics, mechanics)



## AM-TB STEER-BY-WIRE



**ELECTRONICS, OPTICS, RF SOLUTIONS**  
**TEST & MEASUREMENT - EMBEDDED SYSTEMS**

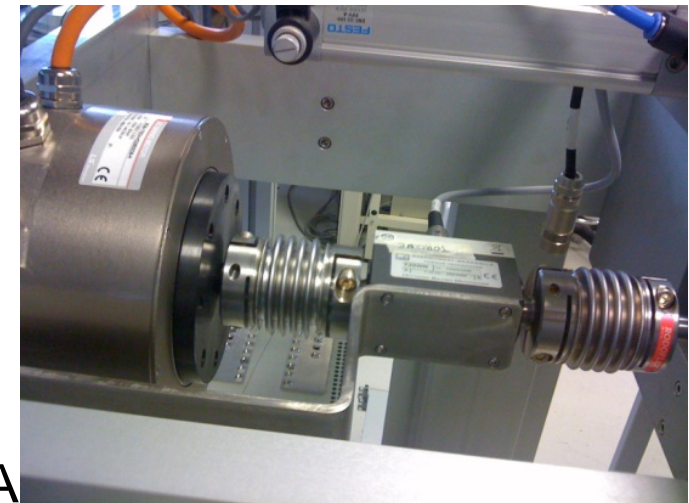
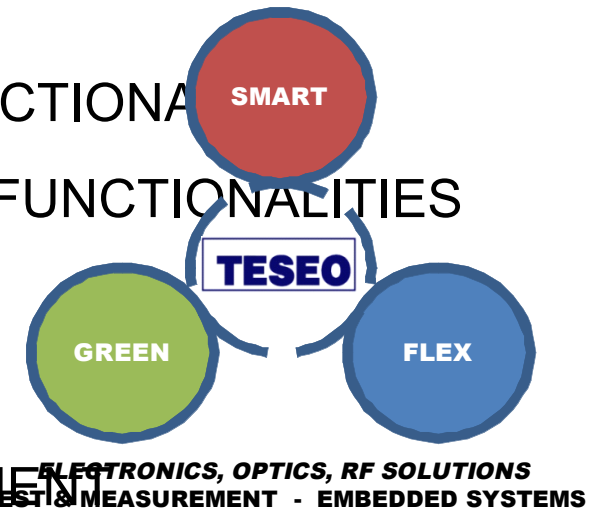
**AM-TB** is an flexible architecture that can be easily managed and maintained by the user thanks to the **OPEN SOFTWARE ARCHITECTURE** for developing test sequences and managing test automation and reporting.

The **NATIVE EMBEDDED HIL** simulation application provides unbeatable intelligence flexibility.

This Automated Test Equipment is conceived and designed for providing competitive advantage to advanced, compact and highly flexible manufacturing lines.

## BEING SMART & FLEX MEANS ?

- HARDWARE IN THE LOOP AND SIMULATION FUNCTIONALITIES
- ACTUATORS TUNING AND CHARACTERIZATION FUNCTIONALITIES
- ACTUATORS MECHANICAL PARAMETERS TEST
- SIMPLE AND FAST RECONFIGURATION
- EMBEDDED TEST REPORT AND DATA MANAGEMENT
- HASSLE-FREE INTERFACE SET-UP WITH MANUFACTURING LINE (HARDWARE & SOFTWARE)
- MULTI-PRODUCT/FIRMWARE MANAGEMENT
- MULTI-BUS MANAGEMENT
- DUT EXTENDED TRACEABILITY
- HMI USER-FRIENDLY PROOF
- QUICK ACCESS INSTRUMENTATION
- EASY PREVENTIVE MAINTENANCE & CALIBRATION

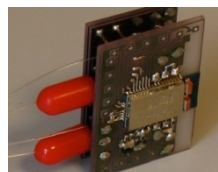
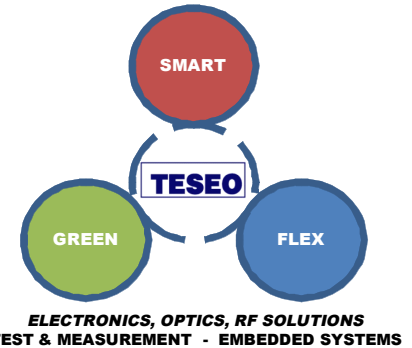


# APPLICATIONS

**AM-TB** Steer By Wire could be adopted as a COTS solution or tailored as a Modified Off The Shelf.

**AM-TB** Steer By Wire is designed for automated functional testing & characterization of SBW mechatronic products characterised by multiple discrete manufacturing batches which is a common choice in optimising stock and working capital.

**Scalable and flexible hardware and software architecture**, plus a fast pay-back due to limited non recurring costs are the core of **AM-TB**, which is integrateable with existing manufacturing lines, enables faster set-up time and increased productivity due to faster and more flexible test execution.



# SERVING DISTRIBUTES ADVANCED MANUFACTURING

## DRIVE BY WIRE ACTUATORS



**ELECTRONICS, OPTICS, RF SOLUTIONS**  
**TEST & MEASUREMENT - EMBEDDED SYSTEMS**

## EMBEDDED ACTUATORS

