

MADES



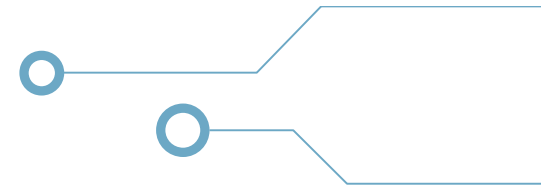
Integrated Electronic Manufacturing Services

25 Right Team
Right Tools
years Right the First Time

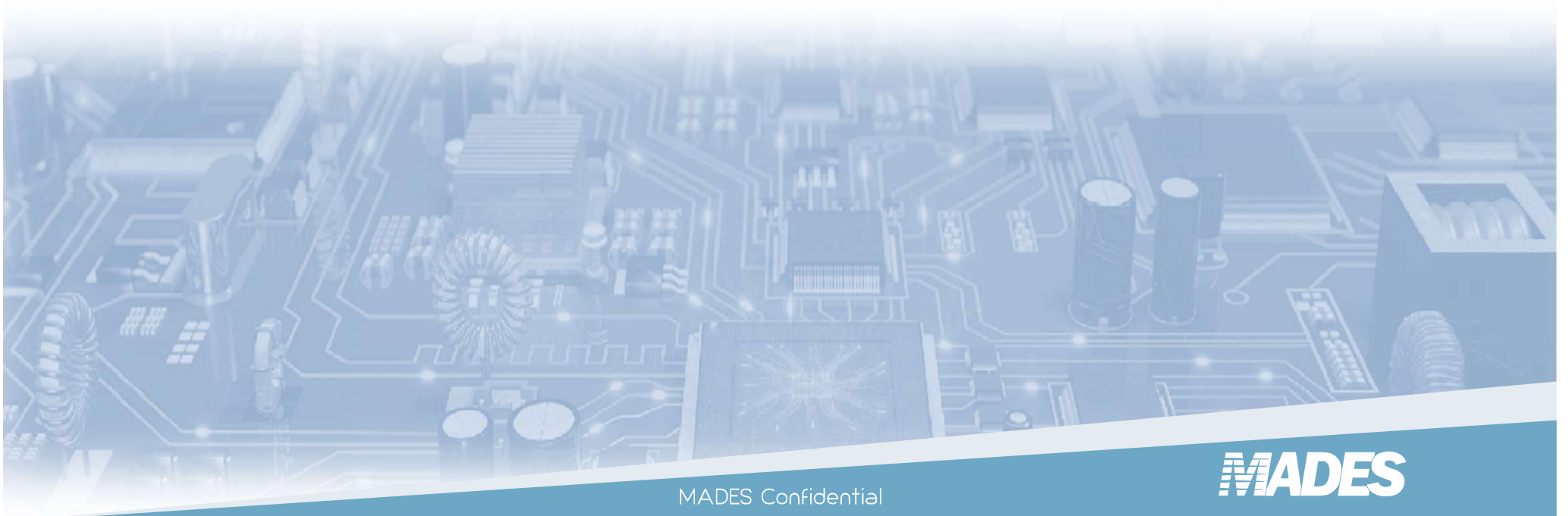
Inspiring, Discovering and Creating
Together for over 25 years

www.mades.es

Introducing MADES

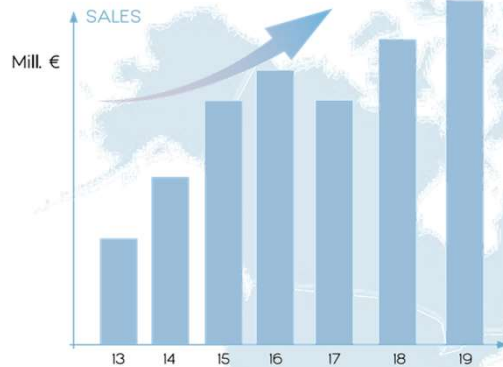


- MADES at a glance
- Applications
- Our Services
- Building Customer Trust & Operational Excellence
- Why MADES ?



MADES at a glance

- > 13 % Compound Annual Growth Rate (CAGR)



- > MADES Six Sigma: a process and culture of continuous improvement

How

Where

- > Technology Park of Andalusia (PTA) in Malaga, Spain

When

What

- > Major supplier of system level electronic assemblies
- > Electronic Manufacturing Services

- > Design From Specs
- > Industrialization
- > Manufacturing
- > Testing & Integration
- > Lifecycle Support

Who

- > More than 100 highly skilled professionals: engineers, technicians and operators
- > Subsidiary of American Industrial Acquisition Corporation (AIAC)

- > Nearly 30 years of experience delivering customer solutions

About AIAC



Over
8,500
employees



\$1.6B
in aggregate
revenues



Industrial
portfolio of
75
companies



20+
years track record

PROCESSES

- Electronics
- Aerostructures
- Metal Work
- Cables
- Pharma

MARKETS

○ Industrial



○ Defense



○ Aerospace



○ Medical

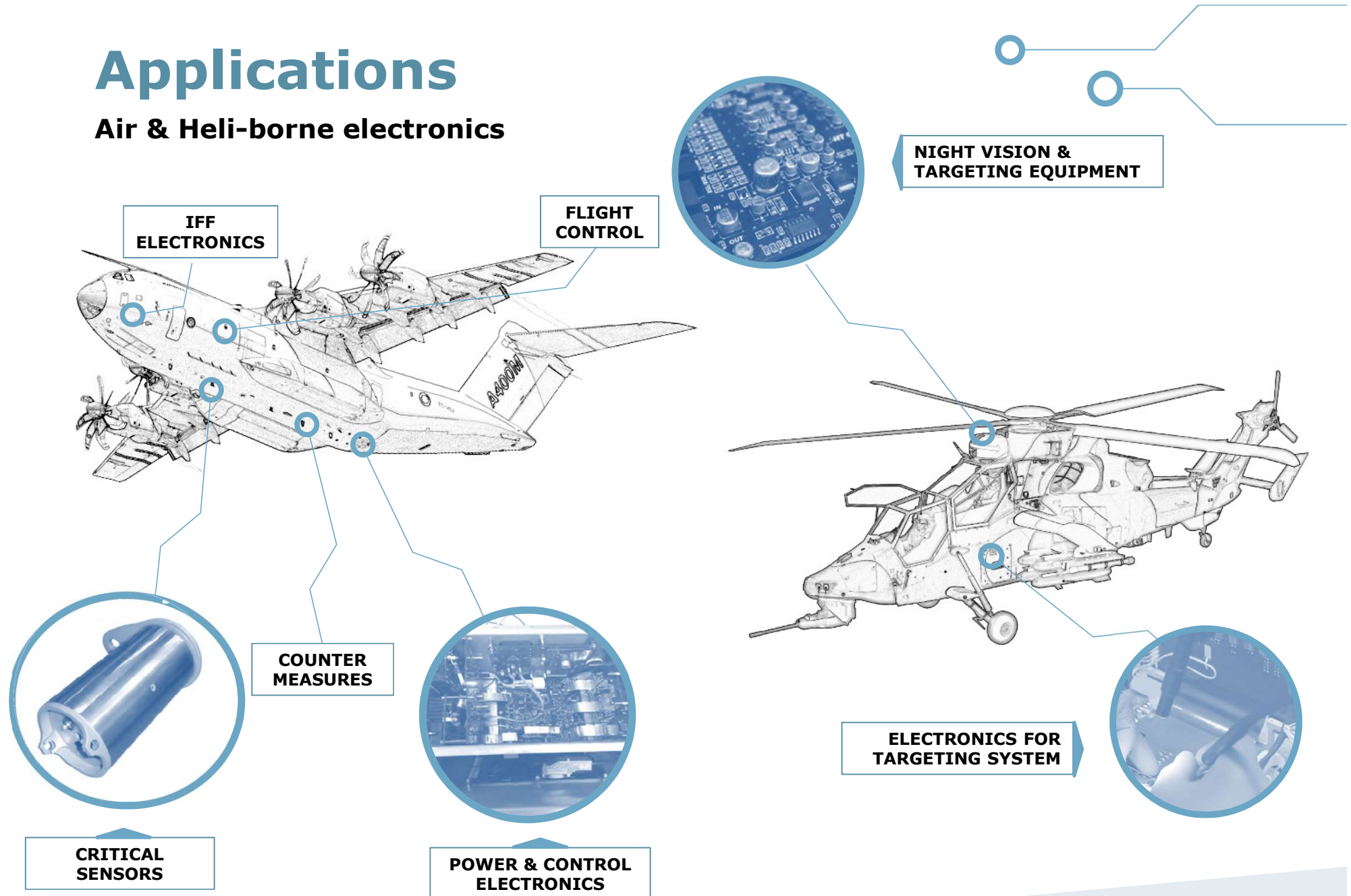


○ Automotive



Applications

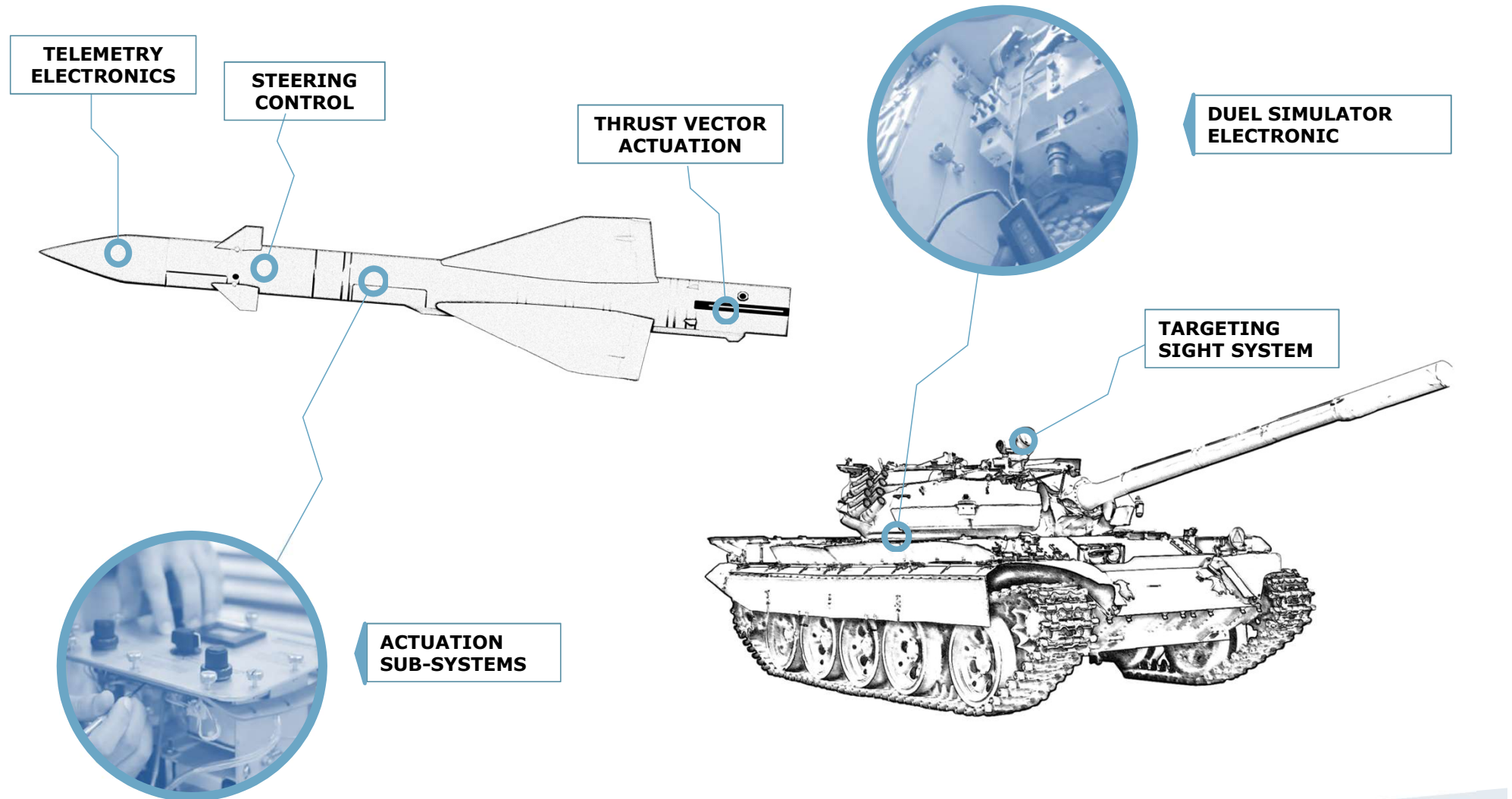
Air & Heli-borne electronics



* Actual platforms are examples for explanation purposes.

Applications

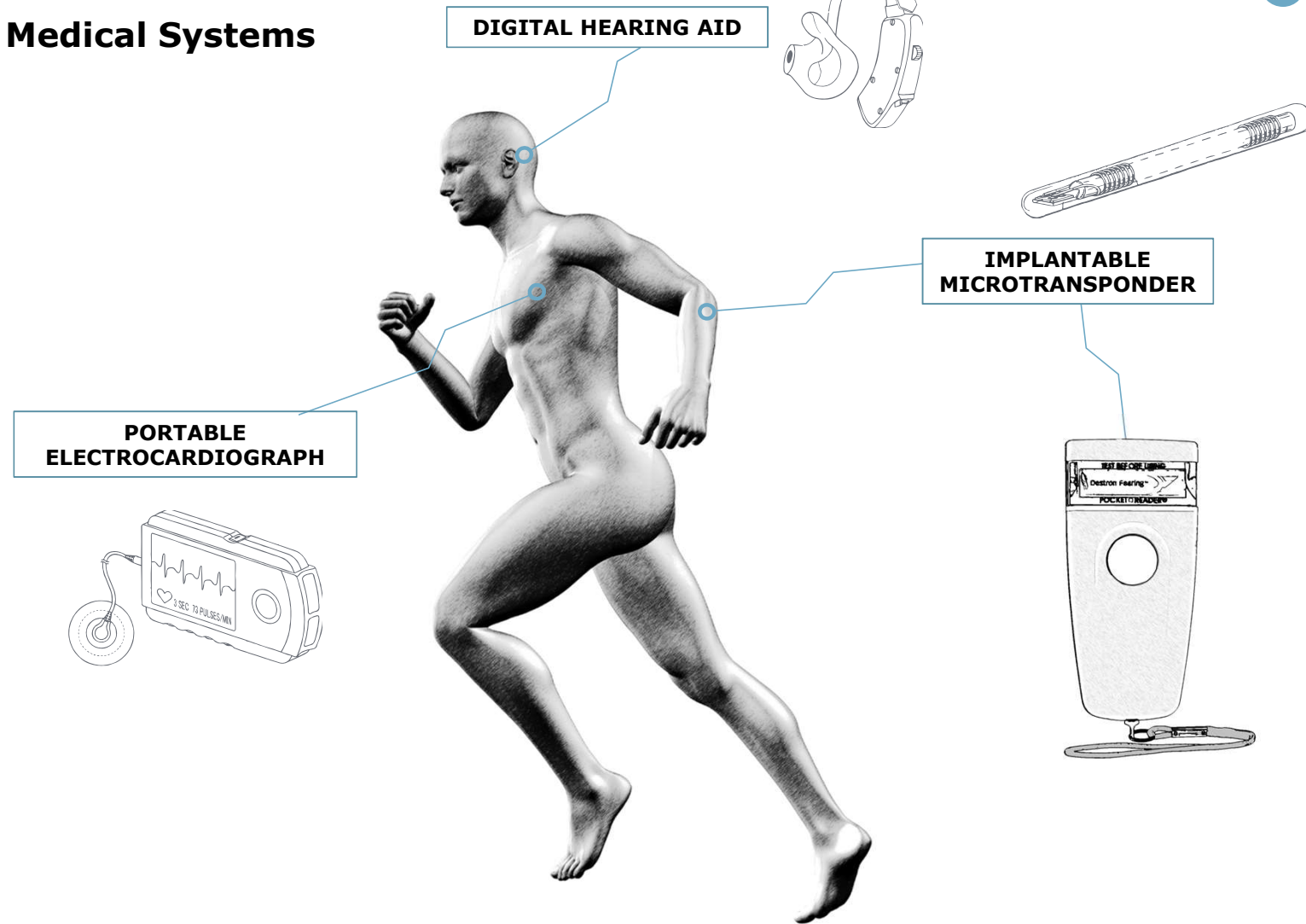
Missile & Tactical Surveillance Systems



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Applications

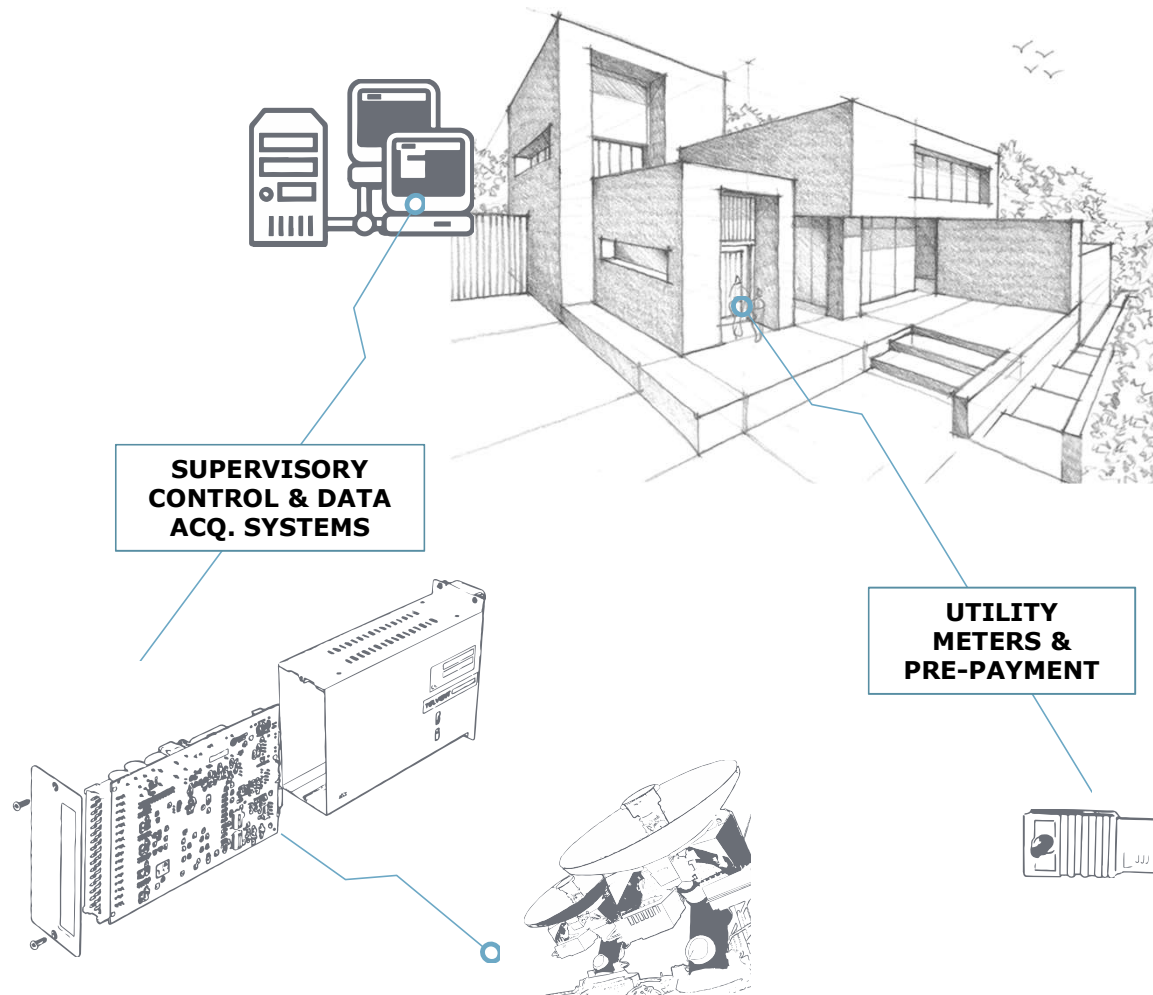
Medical Systems



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Applications

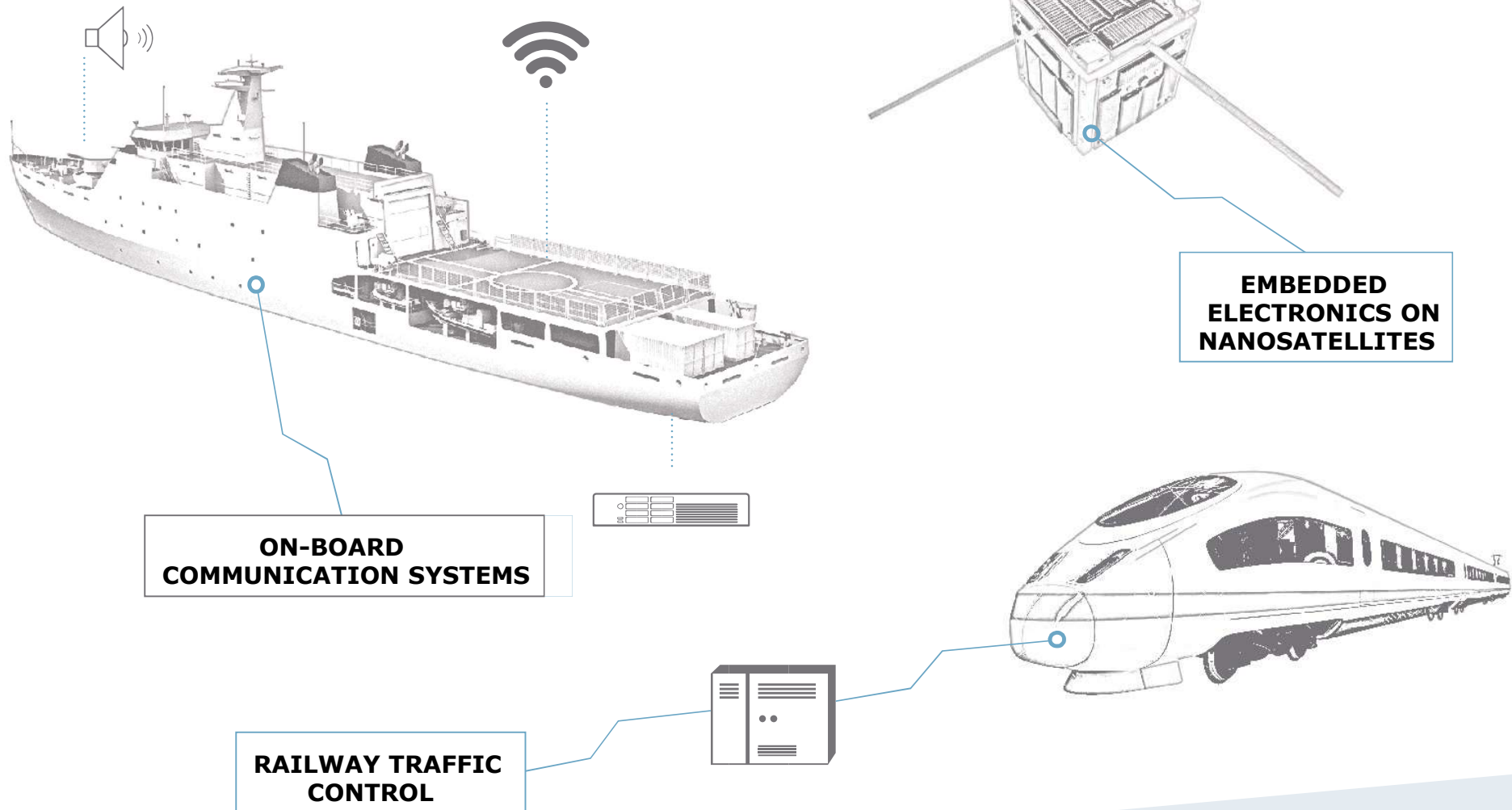
Industrial Systems



* Actual platforms are examples for explanation purposes.

Applications

Other sectors



* Actual platforms are examples for explanation purposes.

"Bringing your products to life"

Our Services



Design From Specs



Industrialization



Manufacturing + Testing



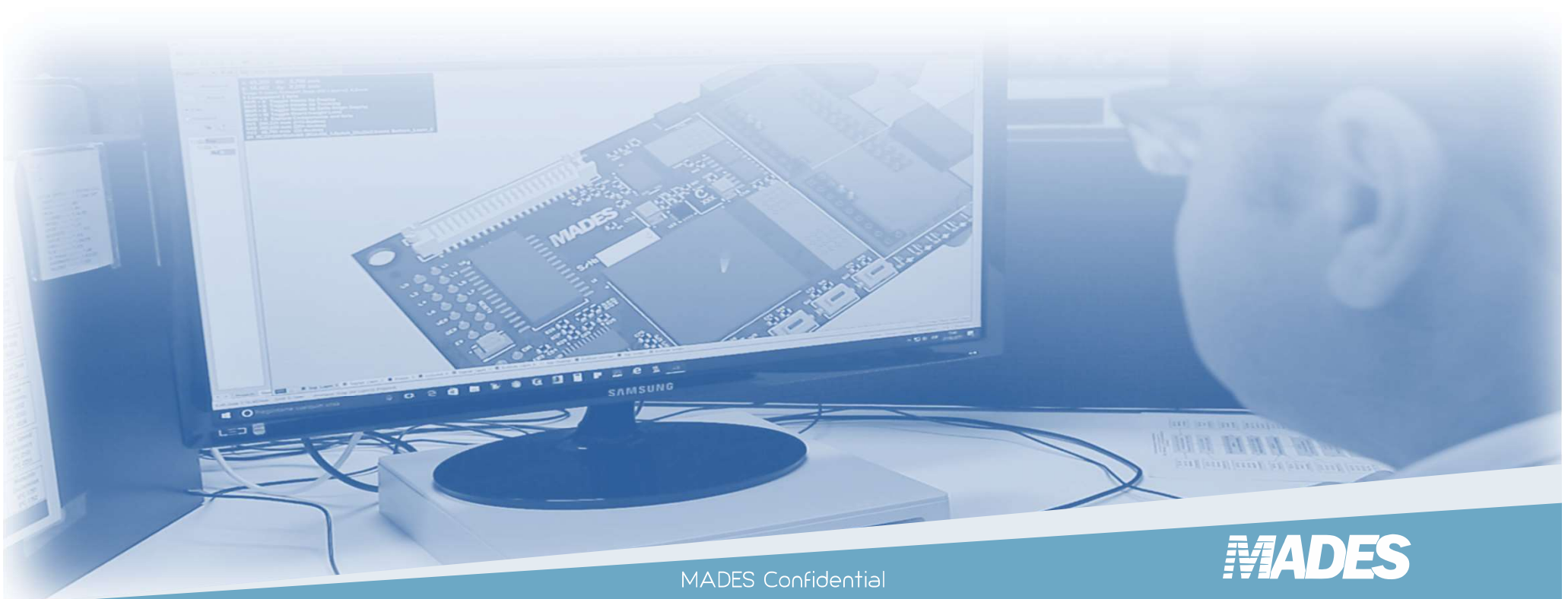
Integration and Other Services

PRODUCT LIFECYCLE SUPPORT

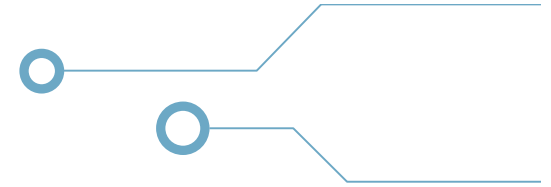
Full Supply Chain Management. Extended Warranty, Obsolescence
& Counterfeit contingency, REACH, Repairs & Logistics Support

Development from Specs

- From Specs through detailed Design and prototyping to volume production and life-cycle support
- Design partner integrated with Manufacturing to minimize time to market & cost
- Internal resources & best selected collaborators to optimize manufacturing, testing and product performance



Industrialization



FAST-TO-MARKET From Design to Prototypes & Qualification



Specs



Design



Rapid
Prototyping



Product
Qualification



Industrialization

PROCESS RELIABILITY

TEST & SYSTEM INTEGRATION

ELECTRONIC ASSYS

1999-2000

2000-2005

2005-2010

2010-2017

+2017

3D X-Ray

IPC Certified IPC-A-600

Ionograph Equipment

Six Sigma

3D AOI

ICT Enhancement

Enhanced Systems Integration: Harness and cabling tooling, fixtures, and test

Industry 4.0

20 GHz

Visual Management

ESS: Climatic Thermal Chamber (15°C/min)

Flying probe Enhancement

RF Test Bench Development

ESS: Thermal Chock Chamber

RF Electrical Design

IPC Certified IPC 7711/7721

Mission Assurance Plan deployment

IPC-A-620

3D SPI

Counterfeit Risk Mitigation Plan

Segregated Silicon coating room

Mobile Thermal Airstream Chamber

8,5 GHz

SMT Line Enhancement

CCA/Parts Dry Room Storage

IPC J-STD-001

Risk Analysis

Obsolescence Management

Repair & Reballing

Harass and cabling integration and test

JTAG Boundary Scan

Wiring & Flex Continuity and Insulation Test

High Accuracy uBGAs, QFNs, 01005 Chips

Vapor Phase Oven

FOD

Tin-Whisker risk Mitigation Plan

Fluorescence X-Ray

Ionic Contamination Tester

ESS: Climatic Thermal Chamber

Functional Test Development

5 GHz

Parylene Vapor phase deposition

CCA Industrialization & optimization (DFM)

Enhanced BGA rework station

IPC-A-610

Component Traceability

X-Ray Inspection

Raytheon Six Sigma®

ICTs with boundary scan + MDA

Device Bonding

Coating Immersion, Spraying, Selective, Brushing

PWB Design & Relayout

Lean Manufacturing

AOI

Flying probe

Machined controlled routing

Co-Solvent Cleaning

BGA Underfilling

Encapsulation

Poka-Yoke

Dedicated Work-Cell

Ball-Grid-Arrays

SemiAut. Insertion

Lead Free Assy

Press fit Connectors

Customized Manufacturing Equipment for Special processes

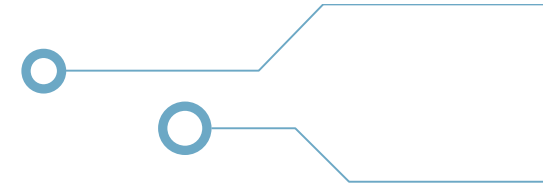
In-Circuit-Test

Chip-On-Board

Wave Solder High Volume

SMT Lines

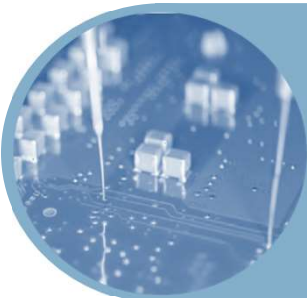
Testing & Integration



PRODUCT RELIABILITY

High frequency testing
High power system testing

PARAMETRIC ELECTRICAL TEST



- In-Circuit Test
- Flying Probe Technology

FUNCTIONAL TEST



- J-Tag Boundary Scan
- Complete systems or CCAs
- Gral. Purpose or Product-Specific customized platform

ENVIRONMENTAL STRESS SCREENING (ESS)

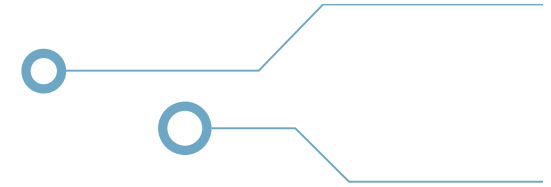


- Wide range of Environmental Screening
- Thermal cycling and shocks
- Stability assurance under humidity conditions

Testing & Integration

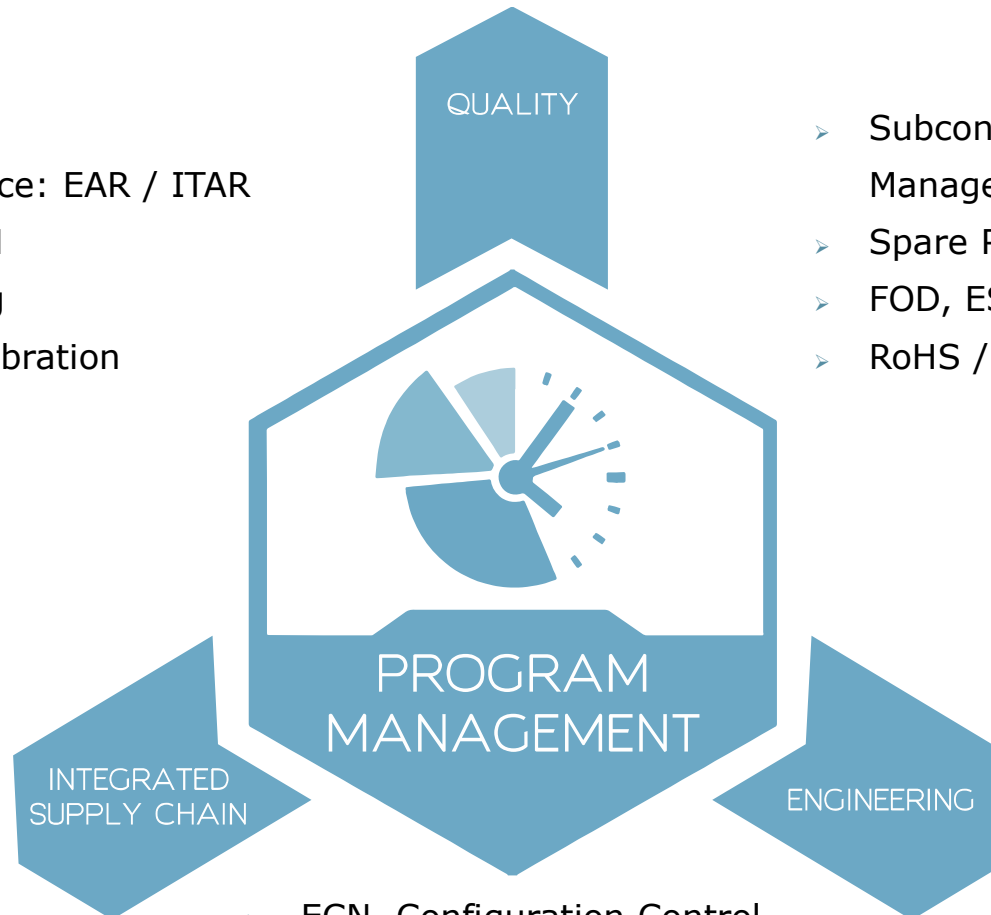
- Customer's Virtual Factory at MADES' premises
- Electro-mechanical Assemblies
- Complete Box-Build - Cables & Harnesses
- Development of custom-made equipment & Special Processes Automatization





Product Lifecycle Support

- Counterfeit
- Import/Export Compliance: EAR / ITAR
- Conflict Minerals, REACH
- Obsolescence Monitoring
- Equipment control & calibration

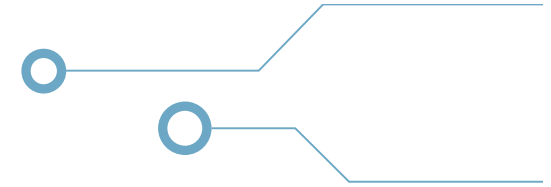


- Subcontract Development and Management
- Spare Parts, Repairs
- FOD, ESD & MSL Programs
- RoHS / No RoHS Control

- ECN, Configuration Control
- Production Planning
- Traceability
- Design Upgrade
- Mission Assurance Plan

“Tailored solutions that best adapt to each customer”

Program Management



Project Planning

Scope Definition

Cost Effectiveness



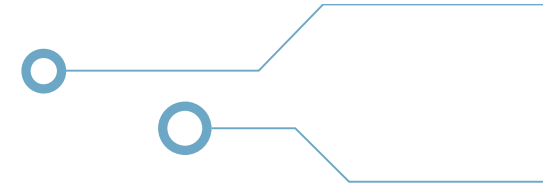
Balanced Resources

Record Time

Risk Management

Building Customer Trust

Examples of long-term customer relationships



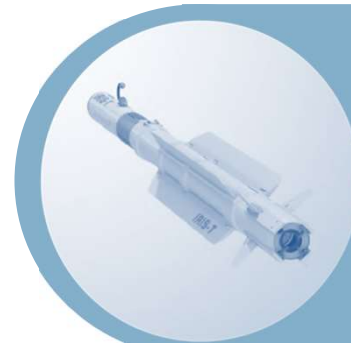
+ 24 Years
+ 105 Million
Transponders
USA & EU



+ 23 Years
+ 23 Million Utility
Meter Applications
UK



+ 20 Years
+ 600 thousand
Automotive
Navigation Aids
EU & USA



+ 15 Years
+ 20 thousand
Actuation Systems
EU & USA

Operational Excellence

- Center of Excellence for Electronic Manufacturing Services
- State-of-the-art technology and continuous investment in talent and R&D
- Member of associations focused on Operational Excellence



Quality Certifications

- ISO 9001
- Nadcap 7120 Electronics
- NATO AQAP 2110
- EN9100 – Aerospace and Defense
- Customer Special Process Facility Qualified
- IATF 16949 – Automotive
- ISO 13485* – Medical

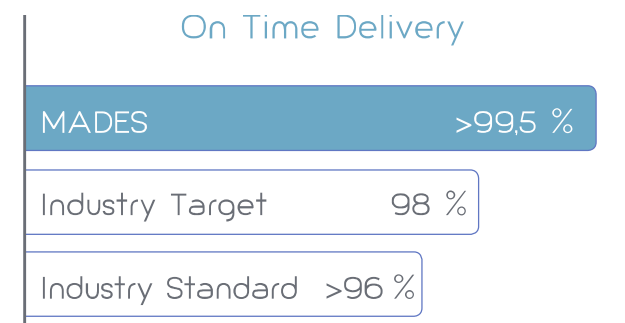


**MADES manufacturing processes and Quality System are aligned with requirements of ISO 13485*

Why **MADES**?



- Mature and strong processes, compliant with industry policies and certifications
- Proven experience in major multinational programs for nearly 30 years



MADES

Strategically located in the Technology Park of Andalucía (PTA), an innovation and development cluster in Malaga.

- Pablo Picasso international airport (AGP)
- High Speed train (AVE) hub
- Malaga port

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