

# Opportunities for applied R&D&I, industry projects implementation, prototyping and manufacturing with CASTRA

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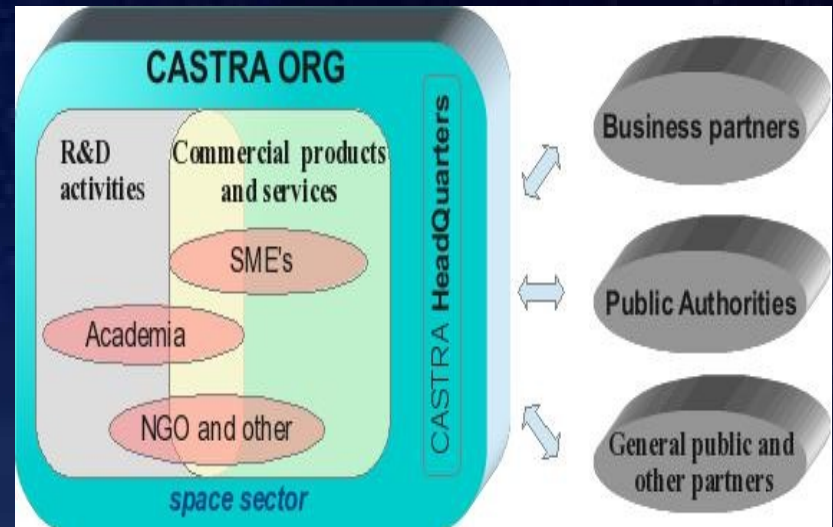




# Who we are?

CASTRA is an independent NGO industry-driven consortia (cluster) of high-tech SME's, academic institutions and other interested stakeholders with expertise and capacity to jointly develop technologies, products and services in the aerospace domain and its applications serving society.

CASTRA's *vision* is to promote the research, innovation, technology and business developments in the aerospace sector to the benefit of society and to act as a major industry player.




**“Together we are stronger” - Bulgaria's strategy to success**

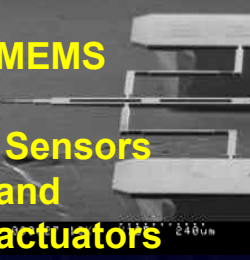


# Examples of our high-tech SMEs industrial products and services with application in space projects

**RADIATION HARD ASIC Design & Test**

A detailed image of a radiation-hard ASIC chip with various components and labels.

**MEMS Sensors and actuators**

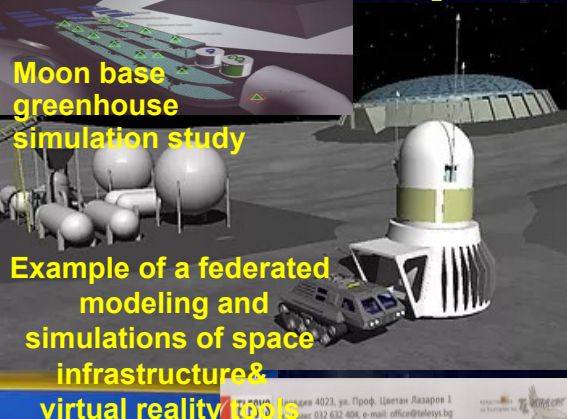
A close-up image of a MEMS sensor or actuator component.

**GNSS tracking solutions**

An image of an eagle with a GNSS tracking device attached to its back.

**Moon base greenhouse simulation study**

**Example of a federated modeling and simulations of space infrastructure & virtual reality tools**

A 3D simulation of a moon base with a greenhouse and various structures.

**Embedded IoT systems**

A collection of various IoT devices and sensors.

**High-reliability digital electronic systems**

EMP - phase Nuclear explosion

Induced electrical discharges and over-voltages

50,000V/m for 200ns - E1  
2kV for 20-300nsec - E2

3-12 GHz - 10kW  
500ns pulses - 10MW

Images showing EMP effects, lightning, and a solar flare.

**UAV systems**

Vertical takeoff and landing Low profile disc shaped UAV

**Satellite communication systems**

Images of a UAV, a satellite, and a satellite communication system.

**Jet UAV shooting targets**

A jet UAV in flight, shooting targets.


**RF systems design**

**MW Antennas**

Images of RF systems, antennas, and a color calibration chart.

**Dron detection and counter measures system**

Visual-MWIR camera, laser range finder, spectral analyzer, jammer

Images of a dron detection system, a laser range finder, and a spectral analyzer.

**Multi-spectral camera prototype with integrated high-speed downlink**

A multi-spectral camera prototype with a high-speed downlink.

**Small Sat platform & missions design. EO imaging and data comm payload development**

Images of a small satellite platform and its missions design.

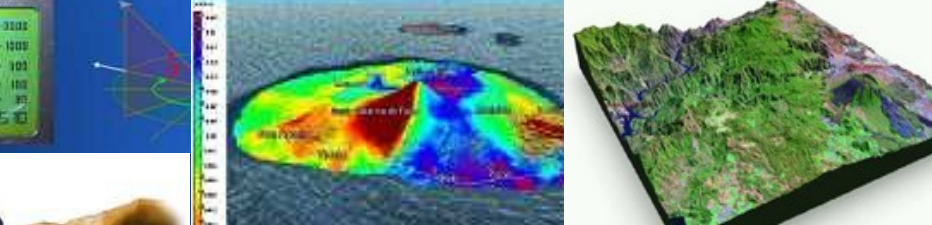
**carbon fiber products for automotive, space, robotics, consumer**

Images of carbon fiber products, including a helmet and a car part.

**FMCW panoramic drone radar**

Images of FMCW panoramic drone radar systems.

**Multispectral and SAR remote sensing processing from air/space born sensors**

Images of multispectral and SAR remote sensing data and processing results.

**Design & manufacturing of specialized equipment and industrial systems**

Images of specialized equipment and industrial systems in a factory setting.

**Software tools for multi-satellite systems analysis**

**AI & BigData tools for satellite based ICT systems**

Images of software tools and AI/BigData tools for satellite systems.

# CASTRA's APPROACH TO COOPERATION

- ✓ IDENTIFY MATCHING / COMPLIMENTARY BUSINESS VALUE CHAINS OF COMMON INTEREST
- ✓ ESTABLISH JOINT R&D AND B2B INTERACTION BASED ON THE CAPACITY AND EXPERTISE OF THE PARTNERS
- ✓ DEVELOP JOINT B2B AND B2C PROJECTS IN THE TECH VALUE CHAIN
- ✓ DEFINE AND IMPLEMENT A JOINT PRODUCT/SERVICE

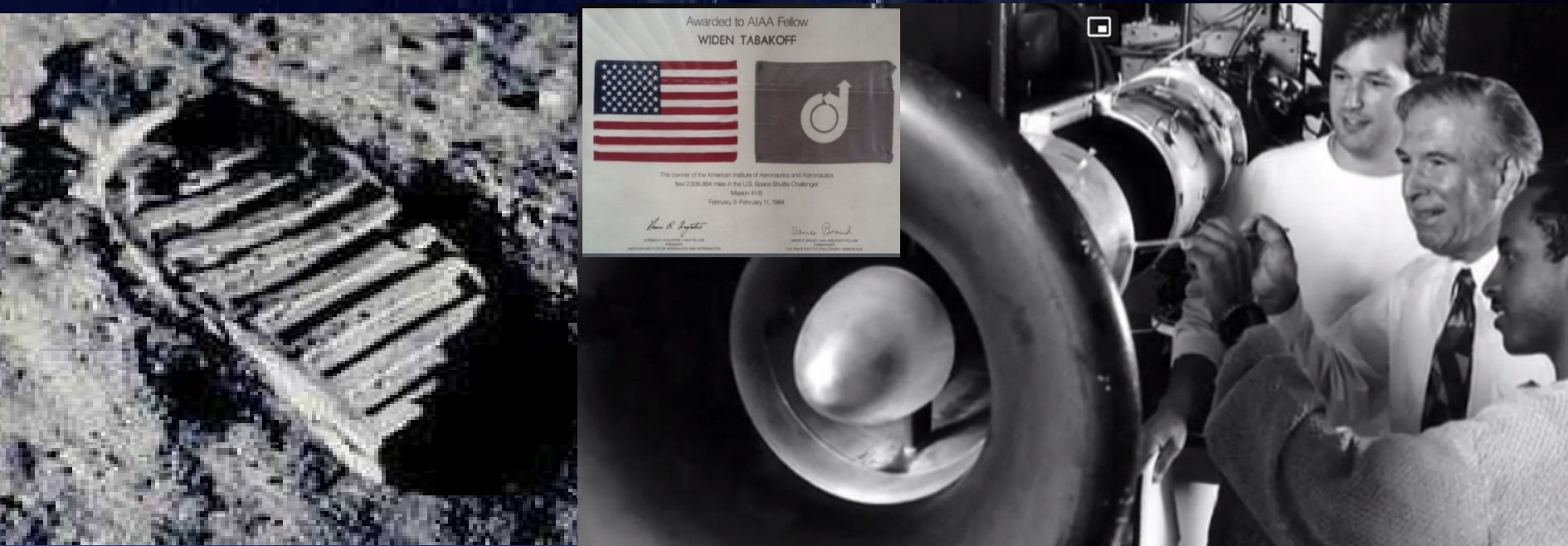
**"Together we are stronger" - Bulgarians strategy to success**



**A journey of a thousand miles begins with a single step !** 千里之行，始於足下 (qiānlǐ zhī xíng, shǐ yú zúxià)

*Laozi*

***LET US DO IT TOGETHER !***



**Neil Armstrong, the first man on the Moon, has never visited Bulgaria but the Bulgarian space engineer Prof. Widen Tabakoff was a key contributor to the Apollo program**