

Technology for tomorrow's healthcare challenges:



### **Diagnostics**

Medical imaging, performance enhancement (faster test results, higher resolution, more accurate positioning, etc.), cost cutting, diagnostics for new diseases



environment
Air, water, and food

Air, water, and food quality



Sports and wellness Personal monitoring, smart textiles HEALTHCARE CHALLENGES



#### **Imaging**

Data processing and analysis

Sensor systems and labs-on-chip

Expert systems and advanced decisionassistance software

Medical systems

Characterization

Cobotics



#### Personalized medicine

Monitoring services and devices, biological profiles of patient populations, individualized treatment, risk analysis



#### **Treatment**

Targeted drugs, tumor treatment, production processes, medical systems, assisted surgery



#### E-healthcare

Remote healthcare monitoring, remote assistance, data storage and security, costing the transition to e-healthcare



#### Rehabilitation

Post-traumatic rehabilitation systems, in-home assistance



## **CEA Tech can help the following businesses:**

- Pharmaceutical companies
- Medical equipment manufacturers
- Medical systems manufacturers
- Rehabilitation systems manufacturers
- Athletic equipment manufacturers

# Here are some of the ways CEA Tech can support your development:





**Imaging systems** 

Low-cost or high-performance medical equipment (like scanners); assisted surgery; lensless characterization of biological environments from virus to tissue

Micro-energy-sources integrated into systems

Vibration-energy recovery; microbatteries for implanted devices like pacemakers

Micro-medical-systems for healthcare

Smart bandages; instrumented textiles; Parkinson's treatments; vision systems

Physical and biochemical sensors

Pacemakers, industrial bioprocess control, physiological testing (blood, urine, sweat, skin), and position, geolocation, and motion sensors

Sensor systems for environmental monitoring

VOC measurement; detection of molecules in water; gas measurement; industrial emissions monitoring

Labs-on-chip

Fast fluid analysis for testing and diagnostics

**Software** 

Biological profiling of patient groups for clinical testing; decisionmaking assistance for diagnostics and treatment

**Data security** 

Data storage and security; data encryption; smart card security

**Robotics & cobotics** 

Exoskeletons; assisted surgery

**Vision systems** 

In-home patient monitoring and security

Advanced manufacturing

Energy optimization; process monitoring; training; manufacturing scenarios

Treatment simulation and calibration

Support for in-hospital tumor treatment

Drug delivery systems and equipment

Biocompatible encapsulation for cellular therapy; lipid nanoparticles to carry drugs

**Materials and characterization** 

Biocompatible encapsulation for implanted systems; structural weight reduction of implants like prostheses