CEA TECH SERVICES FOR THE FACTORY OF THE FUTURE

Technology for tomorrow’s factories

**CHALLENGES FOR THE FACTORY OF THE FUTURE**

**Productivity and flexibility**
Virtual factories, production line design and modelling, cost and space optimization, multifunction production lines

**Energy and the environment**
Waste and emissions treatment and recycling, biomass, energy efficiency, integration of renewables, lifecycle analysis, water quality and savings

**Ergonomics**
Handling assistance, information and communication, human-machine interfaces, interactive decision-assistance tools, “companion robots”

**Security**
Worker security, securing the working environment, emissions control, traceability

**Training**
Virtual training workshops, robotically-assisted training, virtual protocols, distance learning, “school at work”

**Continuous product design and quality**
Customer feedback management, information logistics, collaborative design, defect detection, quality control and monitoring

**CEA Tech technology**
- Thermal systems
- Robotics and cobotics
- Non-destructive testing
- Data processing and knowledge management
  - HMI, virtual and augmented reality, interactive simulation
- Sensor networks
- Vision systems

**CEA Tech can help the following businesses:**
- Manufacturers in all industries
- Production-line equipment manufacturers
- IT services companies
- Technical certification centers
Here are some of the ways CEA Tech can support your development:

- **Robotics and cobotics**: Reduce repetitive stress injuries, provide handling and palleting assistance.

- **Non-destructive testing (x-ray, ultrasound, etc.)**: Quality control simulation and strategy development, weld and composite material characterization.

- **HMI (virtual and augmented reality)**: Maintenance assistance, virtual training workshops, real-time information eyeglasses, multi-mode interfaces (programmable buttons, haptic feedback interfaces).

- **Vision systems**: Worker safety, product control via color or shape recognition, quality control of production inputs.

- **Sensor integration**: Gas detection, emissions control, water quality, worker safety and geolocation.

- **Thermal systems**: Heat-energy recovery, storage, and recycling; heat networks.

- **Interactive simulation**: Assistance designing production lines and workstations to reduce RSIs and increase productivity; training.

- **Energy production**: Energy systems for industrial handling equipment, factory energy efficiency, energy recovery.

- **Materials**: Surface treatment to improve production tools, mold coatings to boost productivity, materials for reactors, paint durability.

- **Big data and data analysis for e-services**: Optimized data flows for logistics, continuous design and quality control via social networks, quality feedback for purchasing and procurement (inventory optimization).

- **Connectivity and protocols**: Remote administration of sensor networks and communication protocols.

- **Data mining and expert systems**: Information management and expert systems for more efficient factories.

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