

## Challenge: climate action, resource efficiency and raw materials

### Related emerging industry: green economy / sustainable development

Related sector	Related emerging technology areas	Related key enabling technologies	Related traditional clusters	Related services
Energy efficiency	Sustainable construction: • zero energy balance of buildings	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Nanotechnology</li> <li>• Microsystems</li> <li>• Mechatronic systems</li> </ul>	<ul style="list-style-type: none"> <li>• Materials</li> <li>• Construction</li> <li>• Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Engineering</li> <li>• Design</li> <li>• Architecture</li> </ul>
Energy storage				
Renewable energies	<ul style="list-style-type: none"> <li>• Photovoltaics/Solar</li> <li>• Wind</li> <li>• Water</li> <li>• Thermal energy / heat pumps</li> </ul>	<ul style="list-style-type: none"> <li>• Nano/Micro</li> <li>• Embedded systems</li> </ul>	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Materials</li> </ul>	<ul style="list-style-type: none"> <li>• Engineering</li> <li>• Design</li> <li>• Architecture</li> <li>• Energy counselling</li> </ul>
Renewable energies	Chemical fuels	<ul style="list-style-type: none"> <li>• Biotechnology</li> <li>• Microsystems</li> <li>• Photonics</li> <li>• Embedded systems</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical industry</li> <li>• Agro-Tech</li> </ul>	
Green production	Material efficiency	<ul style="list-style-type: none"> <li>• Photonics</li> <li>• Embedded system</li> <li>• Microsystem</li> <li>• ICT</li> <li>• Robotics</li> </ul>	<ul style="list-style-type: none"> <li>• Materials</li> <li>• Manufacturing</li> </ul>	Engineering
Green production	Waste handling (solid and sewage)	<ul style="list-style-type: none"> <li>• Recycling</li> <li>• Biotech</li> <li>• Photonics</li> <li>• Embedded system</li> <li>• Microsystem</li> <li>• ICT</li> <li>• Robotics</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental technologies</li> <li>• Sanitary engineering (water, air ...)</li> <li>• Process engineering</li> </ul>	Engineering
Sustainable development	Technologies for Factories of the Future (FoF): • Intelligent production systems, • Digital companies	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Flexible Manufacturing systems</li> <li>• Self-configuration systems</li> <li>• Cognitive systems</li> <li>• Robotics</li> </ul>	<ul style="list-style-type: none"> <li>• Manufacturing platforms</li> <li>• Engineering &amp; Design</li> </ul>	<ul style="list-style-type: none"> <li>• E-learning and e-education</li> <li>• Training and learning</li> <li>• Knowledge engineering</li> <li>• Research &amp; Development</li> </ul>
Sustainable development	New generation of robotic systems for	<ul style="list-style-type: none"> <li>• ICT for Robotics</li> <li>• Mechatronic</li> </ul>	<ul style="list-style-type: none"> <li>• Robotic platforms</li> </ul>	<ul style="list-style-type: none"> <li>• E-learning and e-education</li> </ul>

	<p>production and services:</p> <ul style="list-style-type: none"> <li>• Self adapting systems</li> <li>• Navigation</li> <li>• Sensing and Perception</li> <li>• Locomotion</li> </ul>	<p>systems</p> <ul style="list-style-type: none"> <li>• Human-machines interface</li> <li>• New materials</li> </ul>	<ul style="list-style-type: none"> <li>• Mechatronics</li> <li>• Engineering &amp; Design</li> </ul>	<ul style="list-style-type: none"> <li>• Training and learning</li> <li>• Engineering &amp; service</li> <li>• Research &amp; Development</li> </ul>
Sustainable development	<p>Advanced components for intelligent machines and automation production</p>	<ul style="list-style-type: none"> <li>• Mechatronic components</li> <li>• Actuators</li> <li>• Sensors</li> <li>• New materials</li> <li>• Driving modules</li> <li>• Positioning modules</li> <li>• End effectors</li> <li>• Embedded systems</li> </ul>	<ul style="list-style-type: none"> <li>• Mechatronics</li> <li>• Manufacturing</li> <li>• System integrators</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing</li> <li>• Research &amp; Innovation</li> <li>• Training and learning</li> <li>• Engineering &amp; service</li> </ul>

## Challenge: smart, green and integrated transport

### Related emerging industry: sustainable mobility

Related sector	Related emerging technology areas	Related key enabling technologies	Related traditional clusters	Related services
Alternative engines	F-Cell	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Microsystems</li> </ul>	<ul style="list-style-type: none"> <li>• Materials</li> <li>• Construction</li> <li>• Manufacturing</li> </ul>	Design
Alternative engines	E-cars	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Microsystems</li> </ul>	<ul style="list-style-type: none"> <li>• Materials</li> <li>• Construction</li> <li>• Manufacturing</li> </ul>	
Public transport	Intermodal transport systems			
Intelligent transport	Driver assistance systems			
Intelligent transport	Traffic control systems			
Intelligent transport systems	Reconfigurable transportation for production processes: <ul style="list-style-type: none"> <li>• Mobile inter-operation transport and handling</li> <li>• Robotic urban freight transport</li> </ul>	<ul style="list-style-type: none"> <li>• Robotics</li> <li>• Flexible manufacturing systems</li> <li>• ICT</li> <li>• Mobile technics</li> <li>• Navigation systems</li> </ul>	<ul style="list-style-type: none"> <li>• Manufacturing</li> <li>• Materials</li> <li>• Construction</li> <li>• Process engineering</li> <li>• Automotive</li> <li>• Transport</li> </ul>	Design Engineering & service R&D Logistics Energy

## Challenge: health, demographic change and wellbeing

### Related emerging industry: active aging

Related sector	Related emerging technology areas	Related key enabling technologies	Related traditional clusters	Related services
Health care	e-health	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Photonics</li> <li>• Surface techn.</li> <li>• Nanotechnology</li> <li>• Microsystems</li> <li>• Biotechnology</li> <li>• Bionic</li> </ul>	<ul style="list-style-type: none"> <li>• Medical technologies</li> <li>• Manufacturing</li> <li>• Materials</li> <li>• Textiles</li> </ul>	<ul style="list-style-type: none"> <li>• Tailored health care services</li> <li>• Counselling</li> <li>• Design</li> <li>• Media / marketing</li> </ul>
Health care	Mechatronic systems and robotics for health care	<ul style="list-style-type: none"> <li>• Biomedicine technologies and engineering</li> <li>• Motor-driven tools for rehabilitation of extremities</li> <li>• Rehabilitation systems</li> <li>• Robotic Stretchers</li> </ul>	<ul style="list-style-type: none"> <li>• Medical technologies</li> <li>• Manufacturing</li> <li>• Materials</li> </ul>	<ul style="list-style-type: none"> <li>• Tailored health care services</li> <li>• Design</li> <li>• R&amp;D</li> </ul>
Nutrition	Bio-active foods	<ul style="list-style-type: none"> <li>• Biotechnology</li> <li>• Advanced manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Agrofood</li> <li>• Manufacturing</li> <li>• Materials / packaging</li> <li>• Medicine</li> </ul>	<ul style="list-style-type: none"> <li>• Nutrition counselling</li> <li>• Media / marketing</li> <li>• Design</li> </ul>
Wellness	Creative industries	<ul style="list-style-type: none"> <li>• ICT</li> <li>• Nanotechnology</li> <li>• Microsystems</li> <li>• Biotechnology</li> </ul>	<ul style="list-style-type: none"> <li>• Tourism</li> <li>• Manufacturing for sport / training</li> <li>• Materials</li> <li>• Medicine / Health</li> </ul>	<ul style="list-style-type: none"> <li>• Health</li> <li>• Coaching / training</li> <li>• Therapies</li> <li>• Media / marketing</li> </ul>
Wellness	Digital marketing / social networks	ICT	<ul style="list-style-type: none"> <li>• Materials</li> <li>• Printing</li> </ul>	
	Health diagnostics	Photonics Industrial biotechnology Microelectronics Nanotechnology Advanced materials	Life Sciences	

**Types of data for Desk Research :**

- ✓ Technology development strategies and plans (regional, national)
- ✓ Innovation strategies (regional, national)
- ✓ Strategies of economic efficiency (regional, national)
- ✓ Characteristics of innovativeness and economy of the regions
- ✓ Statistical data concerning:
  - Entrepreneurship incubators
  - Technology transfer centres
  - Clusters
  - Industrial parks
  - Technology platforms
- ✓ Reports on the socio-economic development (regional, national)
- ✓ Cluster policies and strategies (regional, national)
- ✓ Patent programmes and registration
- ✓ EU projects' best practices, reports, analysis, strategies etc.
- ✓ Eurostat
- ✓ Cluster Observatory
- ✓ Think tank