

Smart specialization and health fields and subfields

No.	Fields/Subfields
1	Bioeconomy
1.1	<i>Agro-food</i>
1.1.1	Safe food products, affordable and nutritionally optimized
1.1.2	Developing new products, practices, processes and technologies in horticulture area
1.1.3	Adapting the zootechnical, veterinary medicine, fishing, aquaculture and sericulture sectors, at the challenges of the 21 st century
1.1.4	Sustainable development of the forest sector, increasing competitiveness and quality of life.
1.1.5	Sustainable production of field crops adapted at the global climate change impact.
1.2.	<i>Bioenergy – biogas, biomass, biofuel.</i>
1.3.	<i>Biotechnology</i>
1.3.1	Bionanotechnologies
1.3.2	Environmental biotechnology
1.3.3	Agro-food biotechnology
1.3.4	Industrial biotechnology
1.3.5	Medical and pharmaceutical biotechnology
1.3.6	Bioanalysis
1.4	<i>Medicinal science</i>
1.4.1	In vitro / in vivo evaluation in the design of generic medication
1.4.2	Mathematical modeling for in vitro and in vivo data correlation , in order to develop alternative methods, biorelevant to in vivo methods.
1.4.3	Pharmaceutical forms with systemic action, local and target delivery and related technologies for biopharmaceutical and pharmacokinetic profile optimization
1.4.4	Molecular design (bio) synthesis, semi-synthesis, high performance screening.
1.4.5	Biodiversity and holistic approach of the microorganisms interrelation with environment, animals and man.
1.4.6	Monitoring cross-border spread of highly pathogenic microorganisms with potential of mass spreading.
2	INFORMATIONAL AND COMMUNICATION TECHNOLOGIES, SPACE AND SECURITY.
2.1.	<i>Informational and communication technologies</i>
2.1.1	Large dimension data analysis, management and security.
2.1.2	The internet of the future.
2.1.3	Technologies, tools and methods for software development.
2.1.4	High performance calculations and new computational models.
2.2	<i>Space</i>
2.2.1	Dedicated space applications (Earth observation, GNSS, Satcom).
2.2.2	Integrated space applications
2.3	<i>Security</i>
2.3.1	Innovative methods and technologies to fight with cross-border terrorism, organized crime, illegal trafficking of goods and people.

2.3.2	Evaluation and reduction of disaster risk – (modeling and simulating dynamics of hazard generating systems; development of monitoring and interactive mapping techniques; optimization of fast evaluation and decision making systems; development of support decision systems for integration in the European networks; development of innovative solutions for seismic protection, which are efficient, functional and economic for Romania’s seismic areas).
2.3.3	Critical infrastructures and services (increasing resilience and reducing vulnerability of “Smart-Grid” systems; industrial control systems protection; the informatics and critical services infrastructure security; intelligence systems).
<i>Note:</i>	<i>For research projects that have a dual use, the proposal evaluation will mainly consider its civil applications.</i>
3	ENERGY, ENVIRONMENT AND CLIMATE CHANGES
3.1.	<i>Energy</i>
3.1.1	Increasing energy efficiency at generation, transmission, distribution and consumer level.
3.1.2	Conventional energy resources, unconventional and renewable.
3.1.3	Innovative technologies of energy storage.
3.1.4	Clean technologies for energy from fossil fuels production.
3.1.5	The new generation of energy installations.
3.2.	<i>Environment and climate change</i>
3.2.1	Optimal use of conventional and unconventional water resources.
3.2.2	Climate change risk management for resources.
3.3	<i>Intelligent systems</i>
3.3.1	Smart city
4	ECO-NANO-TECHNOLOGY AND ADVANCED MATERIALS
4.1	<i>Transport equipments</i>
4.1.1	New-generation vehicles, green and energy efficient technologies
4.2.	<i>Equipment for the production of bio-resources</i>
4.2.1	Technologies, equipments and technical systems for the production of bio-resources
4.3.	<i>Remediation technologies</i>
4.3.1	Remediation technologies and waste recovery
4.4.	<i>Materials.</i>
4.4.1	Substitution of critical materials and increase the material lifespan by functional coatings
4.4.2	Polymeric materials, nanomaterials, nanotechnology.
4.4.3	Materials and technologies for health
4.4.4	Materials for energy
4.4.5	Materials for infrastructure development, construction and means of transport
4.4.6	Advanced materials and technologies for niche economy applications
5	HEALTH
5.1	<i>Early diagnosis, personalized treatment, monitoring and prognostic in oncology area</i>
5.2	<i>Fast diagnosis of emergent infectious and rare diseases, markers identifying</i>
5.3	<i>Healthy aging, lifestyle and public health</i>
5.4	<i>Reproductive health, maternal-fetal and prenatal medicine</i>

5.5	<i>Research of neurodegenerative and neuro-inflammatory diseases.</i>
5.6	<i>Study and diagnosis methods and treatment for the most common causes of mortality and morbidity in Romania</i>
5.7	<i>Personalized / group therapy and therapeutic monitoring</i>
5.8	<i>Personalized medicine therapy based on pharmacokinetic data, pharmacogenomics and pharmacokinetic-pharmacodynamic correlations. Prevention of chemotherapy resistance</i>
5.9	<i>Quality and risk evaluation of wasteful use of medicines and food supplement at society level.</i>
5.10	<i>Pharmacology and quantitative systemic toxicology: correlation, modeling and prediction.</i>
5.11	<i>The new active substances and best in design medicines development, formulation and control.</i>

Economic sector list

(with impact in the evaluation process)

<i>According to the National Strategy of Competitiveness</i>	
Important economic role and with employment influence	Tourism and ecotourism
	Textile and leather industry
	Wood and furniture
	Creative industries
Competitive dynamics	Auto industry and components
	Information and communication technology
	Food and drinks processing
Innovation, technological development and added value.	Health and pharmaceutical products
	Energy and environmental management
	Bio-economy (agriculture, forestry, fishing and aquaculture), biopharmaceutical and biotechnology
Other	