STEP TECHNOLOGY SECTORS AND AREAS

SECTOR	DIGITAL TECHNOLOGY AREAS
1 **Digital technologies and deep tech innovation**	➢ **Advanced semiconductors technologies**: Microelectronics, including processors; photonic including high energy laser technologies; high frequency chips; semiconductor manufacturing equipment at very advanced node sizes; spacequalified semiconductor technologies.
	➢ **Artificial intelligence technologies**: AI algorithms; high performance computing (HPC); cloud and edge computing; data analytics technologies; computer vision, language processing, object recognition; privacy-preserving technologies (e.g., federated learning).
	➢ **Quantum technologies**: Quantum computing; quantum cryptography; quantum communications; Quantum Key Distribution (QKD); quantum sensing including quantum gravimetry; quantum radar; quantum simulation; quantum imaging; quantum clocks; metrology; spacequalified quantum technologies.
	➢ **Advanced connectivity, navigation, and digital technologies:** Secure digital communications and connectivity, such as RAN (Radio Access Network) & Open RAN (Radio Access Network), and 5G and 6G; cyber security technologies including cybersurveillance, security and intrusion systems, digital forensics; internet of things and virtual reality; distributed ledger and digital identity technologies; guidance, navigation, and control technologies, including avionics and maritime positioning, and space-based PNT; satellite-based secure connectivity.
	➢ **Advanced sensing technologies:** Electro-optical, radar, chemical, biological, radiation and distributed sensing; magnetometers, magnetic gradiometers; underwater electric field sensors; gravity meters, and gradiometers.
	➢ **Robotics and autonomous systems:** Autonomous habited and uninhabited vehicles (space, air, land, surface, and underwater), including swarming; robots and robotcontrolled precision systems; exoskeletons; AI-enabled systems.
	➢ **Deep tech innovation:** Innovacions transformadores basades en la ciència, la tecnologia i l'enginyeria d'avantguarda. Es troba en les tecnologies digitals, les tecnologies netes i eficients i en l'ús de recursos i les biotecnologies. Potencial transformador quant a tecnologies com semiconductors avançats, tecnologies quàntiques, tecnologies solars o robòtica o àmbits de la comunicació segura basada en l'espai.

SECTOR	TECHNOLOGY AREAS AS DEFINED UNDER NZIA
2 **Clean and resource efficient technologies**	➢ **Solar technologies**: Solar photovoltaic technologies; solar thermal electric technologies; solar thermal technologies; other solar technologies.
	➢ **Onshore wind and offshore renewable technologies**.
	➢ **Battery and energy storage technologies**.
	➢ **Heat pumps and geothermal energy technologies.**
	➢ **Hydrogen technologies:** Electrolysers; hydrogen fuel cells; other hydrogen technologies.
	➢ **Sustainable biogas and biomethane technologies:** Sustainable biogas technologies; sustainable bio-methane technologies.
	➢ **Carbon capture and storage technologies:** Carbon capture technologies; carbon storage technologies.
	➢ **Electricity grid technologies:** Electricity grid technologies; electric charging technologies for transportation; technologies to digitalise the grid; other electricity grid technologies.
	➢ **Nuclear fission technologies:** Nuclear fission energy technologies; nuclear fuel cycle technologies.
	➢ **Sustainable alternative fuels technologies.**
	➢ **Hydropower technologies.**
	➢ **Other renewable energy technologies:** Osmotic energy technologies; ambient energy technologies, other than heat pumps; biomass technologies; landfill gas technologies; sewage treatment plant gas technologies; other renewable energy technologies.
	➢ **Energy system-related energy efficiency technologies:** Energy system-related energy efficiency technologies; heat grid technologies; other energy system-related energy efficiency technologies.
	➢ **Renewable fuels of nonbiological origin technologies.**
	➢ **Biotech climate and energy solutions.**
	➢ **Transformative industrial technologies for decarbonisation:** Transformative industrial technologies for decarbonisation.
	➢ **CO_2 transport and utilisation technologies:** CO_2 transport technologies; CO_2 utilisation technologies.
	➢ **Wind and electric propulsion technologies for transportation:** Wind propulsion technologies; electric propulsion technologies.
	➢ **Other nuclear technologies.**

SECTOR	TECNOLOGY AREAS
3 **Biotechnologies** 	➢ **DNA/RNA**: Genomics; pharmacogenomics; gene probes; genetic engineering; DNA/RNA sequencing/synthesis/amplification; gene expression profiling, and use of antisense technology; large-scale DNA synthesis; new genomic techniques; gene drive.
	➢ **Proteins and other molecules**: Sequencing/synthesis/engineering/manufacturing of proteins and peptides (including large molecule hormones); improved delivery methods for large molecule drugs; proteomics; protein isolation and purification; signalling; identification of cell receptors; developing polyclonal products.
	➢ **Cell and tissue culture and engineering**: Cell/tissue culture; tissue engineering (including tissue scaffolds and biomedical engineering); cellular fusion; marker assisted breeding technologies; metabolic engineering; cell therapies; bioprinting of cells/replacement organs.
	➢ **Process biotechnology techniques:** Fermentation using bioreactors; biorefining; bioprocessing; bioleaching; biopulping; biobleaching; biodesulphurisation; bioremediation; biosensing; biofiltration and phytoremediation; molecular aquaculture; protection and decontamination including human decontaminating agents; biocatalysis, novel test techniques suitable for high throughput screening; process improvement and delivery optimisation for biopharmaceuticals and advanced therapy medicinal products.
	➢ **Gene and RNA vectors:** Gene therapy; viral vectors.
	➢ **Bioinformatics:** Construction of databases on genomes; protein sequences; modelling complex biological processes; including systems biology; developing personalised genomics.
	➢ **Nanobiotechnology:** Application of the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics, manufacturing.