Allegato 1 - Informazioni sul progetto Rome Technopole (Linee tematiche, Progetti Flagship e Partner)

Rome Technopole è un progetto di ricerca e sviluppo presentato in risposta all'Avviso pubblico n. 3277 del MUR nell'ambito del Piano Nazionale di Ripresa e Resilienza - Missione 4 Istruzione e Ricerca - Componente 2 - Investimento 1.5 (di seguito "PNRR"), finanziato dall'Unione Europea - NextGenerationEU e ammesso al finanziamento con Decreto MUR del 23 giugno 2022 prot. n. 105 (codice ECS 00000024).

Il progetto ha l'obiettivo di creare un ecosistema regionale dell'innovazione orientato allo sviluppo sostenibile, alla 'smart specialization', alla riqualificazione e al rilancio del settore industriale, con focus specifico sulle seguenti tre linee tematiche e otto Progetti Flagship (FP):

Transizione Energetica
FP1 "Decarbonization and digitalization in research on new green energy sources
FP2 "Energy transition and digital transition in urban regeneration and construction"
FP3 "Digital transition in the decarbonization process and in waste recycling processes"
Transizione Digitale
FP5 "Digital transition through advanced or innovative telecommunication technologies"
FP6 "Artificial intelligence, virtual reality and digital twin for advanced engineering and aerospace"
Salute e Bio-Pharma
FP4 "Development, innovation and certification of medical and non-medical devices for health"
FP7 "Advanced and automated innovation labs for diagnostic and therapeutic biopharma solutions"
FP8 "Human-centric AI to deliver empowered customer experiences"

FP1 - Decarbonization and digitalization in research on new green energy sources

Lead industry: ENI S.p.A

Universities and EPR: Università La Sapienza, Università di Roma Tor Vergata, Università degli Studi Roma Tre, Università degli studi di Cassino e del Lazio Meridionale, Università degli Studi della Tuscia, Università Campus Bio-Medico di Roma- UCBM, CNR – Consiglio Nazionale delle Ricerche, ENEA - Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile

Industries and other entities: Aeroporti di Roma, ACEA, Catalent.

This Flagship project covers every aspect of the value chain:

1. Processes Decarbonization: to reduce, capture, transform or store CO2, increasing energy efficiency, reducing emissions and promoting decarbonized energy vectors;
2. Circular & Bio products: to reduce, recycle and reuse products and by-products, transforming wastes to valuable products for bio-refinery, sustainable mobility and green/circular chemistry.
3. Renewables & New energies: to sustain the development of renewable energies and storage solutions and developing breakthrough energy technologies such magnetic fusion.

FP1 involves activities starting from fundamental and applied research, up to development of: training programs focused on the theme of sustainable entrepreneurship through the collaboration with ENI Joule; training programs capable of vertically specializing the best talents and developing resources through an innovative training offer, focused on the new skills needed for green jobs; virtual reality tools, which have the ultimate goal of supporting the energy transition; specific programs with activities that involve employees of partner companies and / or selected companies that correspond to the Technopole mission on intrapreneurship issues, favoring a "contamination" of experiences between the same participants from different companies. Eni Gazometro Ostiense area has been identified as a possible space for the development of the initiative within a dedicated Join Lab.

FP2 - Energy transition and digital transition in urban regeneration and construction

Lead industry: COIMA Rem s.r.l.

Universities and EPR: Sapienza Università di Roma, Università di Roma Tor Vergata, Università degli Studi Roma Tre, Università degli Studi Cassino e del Lazio Meridionale, Università degli Studi della Tuscia, Università LUISS, Campus Biomedico, CNR, ENEA, INFN.

Industries and other entities: Almaviva, BVtech

This project focuses on development and application of digital and green technologies to urban regeneration and building construction, according to the green city approach which assumes ecological quality as a strategic priority in order to ensure sustainability and resilience of programs and intervention projects in the era of the climate crisis, soil scarcity and other natural resources. The project cover all aspects of the open-innovation chain including:

1. Technology development and innovation aimed at implementing digital transition and zero-emission in construction and urban regeneration;
2. scale-up of technology in order to enhance TRL of these technologies and apply it to the design of the new campus and headquarter of Rome Technopole, as a case-study for technology exploitation;
3. development of a model of sustainable mobility integrated in the project of green urban regeneration;
4. educational and training activities on these technologies to be integrated as “minor” courses in the existing ones;
5. outreach and public engagement aimed at disseminating the culture of digital transition and green technology for urban regeneration in society.

FP3 - Digital transition in the decarbonization process and in waste recycling processes

Lead industry: Maire Technimont SpA

Universities and EPR: Università La Sapienza, Università di Roma Tor Vergata, Università degli Studi Roma Tre, Università degli studi di Cassino e del Lazio Meridionale, Università della Tuscia, Libera Università Internazionale degli Studi Sociali Guido Carli (LUISS), Consiglio Nazionale delle Ricerche (CNR), Università Campus Bio-Medico (UCBM)

Industries and other entities: ACEA, Almaviva

The project will involve several building blocks of the innovation ecosystem being truly multidisciplinary, and it is transversal to both the areas of digital transition and energy transition. Main research and technological innovation lines are:

1. Development of AI-based predictive model to forecast the characteristics of the inbound waste as feedstock;
2. advanced waste sorting and characterization based on mechatronic to map waste characteristics and to optimize the control strategies of the gasification reactor;
3. thermodynamic simulation of gasification reactor to optimize the design and its working conditions depending on waster variances;
4. blockchain-based plastic credits certification to track the quantity of plastics removed from environment by converting waste into chemicals.

FP4 - Development, innovation and certification of medical and non-medical devices for health

Lead industry: BVTech, Confindustria Dispositivi Medici

Universities and EPR: Sapienza Università di Roma, Università di Roma Tor Vergata, Università degli studi di Cassino e del Lazio Meridionale, CNR, UCBM, INFN, ENEA, ISS

Industries and other entities: Catalent Anagni, Takis

This project implement the ecosystem chain related to the process of designing, certifying and applying medical devices, starting with professionals and arriving at patients, in the consideration that every activity in the health sector provides for the use of a medical device. The objective is to implement inside Rome Technopole, thanks to the multidisciplinary and wide range of expertise and partnership, the whole value chain involves:

1. development of new medical and non-medical devices for heath application and healthcare: this include all steps starting from applied research to technology transfer and scale-up of technologies;
2. experimental testing and validation of the devices, including the various stages of certification and clinical investigation (e.g. approval by the committee ethics, conducting clinical investigations, etc.);
3. Creation of a new Joint Lab for assist companies in all process of development, testing and certification of medical and non-medical devices, including training for technician and longlife learning.

FP5 - Digital transition through advanced or innovative telecommunication technologies

Lead industry: Leonardo SpA

Universities and EPR: Università degli Studi di Roma "Tor Vergata", CNR – Consiglio Nazionale delle Ricerche, Università degli Studi della Tuscia, Sapienza Università di Roma, Università degli Studi Roma Tre

Industries and other entities: Airbus Italia, MBDA Italia SpA

The project will focus on the development of innovative processing architectures and AESA radars and on new technologies for quantum cryptography & communications, from satellite to ground. Digital transition of the leading theme across this project and it is declined through the following main topics:

1. Neural processing, compressive sensing, waveform optimization, micro doppler detection, sustainability, virtualization, digital twin, with the scope also to set up a domestic line of production and overcome risks connected to a technological dependency and supply shortage, improve costs/performance ratio and increase the competitiveness of the national industry;
2. Multisensor and distributed processing (considering also cyber resilience);
3. Artificial intelligence evolution and big data analytics. Moreover, in the perspective of innovation ecosystem, a Joint Lab will be set up with the scope of analyzing and validating the performance of network components and key exchange protocols in relation to the physical characteristics of the quantum signal, with a view to realize integrated terrestrial / satellite networks. Specific innovative curricula will be activated in existing university courses in order to strengthen and widening knowledge of students in ICT and big-data engineering.

FP6 - Artificial intelligence, virtual reality and digital twin for advanced engineering and aerospace

Lead industry: Thales Alenia Space

Universities and EPR: Sapienza Università di Roma, Università di Roma Tor Vergata, Università degli studi Roma Tre, Università degli studi di Cassino e del Lazio Meridionale, Università della Tuscia, CNR, LUISS, INFN, ENEA, Università Campus Bio-Medico di Roma

Industries and other entities: Airbus Italia, Almaviva, Bvtech, MBDA

This project is centered within the digital transition stream and involved different activities in the innovation ecosystem perspective: applied research, technology development and innovation; Open Research Infrastructures; higher education with industrial collaboration.

The scope is to create a Join Lab to promote a stable cooperation between universities, research centers and industries to develop proof-of-concept level activities in the field of advanced engineering, including space applications, aerospace, satellite technologies, exploiting digital technologies:

1. Artificial intelligence (Machin & Deep learning) and big-data analytics;
2. virtual and augmented reality;
3. robotic collaboration;
4. virtual testing and simulation;
5. Co-design and co-engineering thinking to discover new innovative and creative solutions to be tested, validated and integrated.

FP7 - Advanced and automated innovation labs for diagnostic and therapeutic biopharma solutions

Lead industry: Takis, Catalent Anagni

Universities and EPR: Università La Sapienza, Università di Roma Tor Vergata, Università degli studi Roma Tre, Università della Tuscia, Università Campus Bio-Medico di Roma, CNR, INFN, ISS

The project is aimed to contribute to the development of an advanced open innovation Joint Laboratory focused on the accelerated development of biopharma solutions for enabling innovative characterization and large-scale production of high-affinity monoclonal antibodies for diagnostic and therapeutic applications, and other emerging solutions for relevant pathologies.

This laboratory will be directly shared as Joint Open Lab with the research partners of Rome Technopole specialized on the specific area of bio-pharma and with all the other interested Rome Technopole partners and stakeholders for technology transfer, innovation and training activities.

FP8 - Human-centric AI to deliver empowered customer experiences

Lead industry: Unicredit

Universities and EPR: Unidata

The flagship objective is to foster a more AI-oriented re-design of value chain creation for any digital ecosystem. To this purpose the goals are: devise models, processes and tools that are strongly grounded on the pillars of privacy, robustness, fairness, explainability, sustainability and transparency to stakeholders; and investigate and possibly advance the latest solutions (i.e., those based on the data-as-a-product paradigm), fostering the adoption of privacy, security and sustainability principles by entities and players which are investing in a digital growth.

Lista Partner **Rome Technopole – Innovation Ecosystem ECS_00000024**
Università La Sapienza
Università di Roma Tor Vergata
Università degli Studi Roma Tre
Università degli studi di Cassino e del Lazio Meridionale
Università degli Studi della Tuscia
CNR – Consiglio Nazionale delle Ricerche
Luiss - Libera Università Internazionale degli Studi Sociali Guido Carli
INFN - Istituto Nazionale di Fisica Nucleare
ISS – Istituto Superiore di Sanità
ENEA - Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile
Università Campus Bio-Medico di Roma- UCBM
Airbus Italia S.p.A.
Almaviva – The Italian Innovation Company S.p.A.
BV Tech S.p.A.
Catalent Anagni S.r.l.
Coima REM S.r.l.
ENI S.p.A.
Leonardo S.p.A.
Lventure Group S.p.A
Maire Tecnimont S.p.A.
MBDA Italia SpA
Takis S.r.l.
Thales Italia S.p.A. (TASI)
Unicredit S.p.A.
Unidata S.p.A.
Unindustria

Regione Lazio
Roma Capitale
Lazio Innova
CCIAA Roma
CCIAA FR-LAT
INAIL
Confindustria Dispositivi Medici
Aeroporti di Roma Spa
Acea Spa
Capgemini Italia Spa
Gala SpA
Wsense srl
Westpole Spa