

"THE - TUSCANY HEALTH ECOSYSTEM"

HEALTH



TARGET:

“THE - Tuscany Health Ecosystem” aims at boosting and supporting the growth and consolidation of the life sciences (LS) ecosystem of Tuscany, a major scientific and economic sector of the region. The partners (see section B and C for details) are the main regional research organisations of the field, and will provide the required critical mass, expertise, infrastructures, connections and integration to address the innovation needs of the relevant stakeholders, such as companies and the regional health system.

The LS sector (i.e. pharmaceutical, biotech, medical devices, digital health, nutraceutical, healthcare in general and related activities sector) is a strategic area at the national and international level for Italy ,from an economic and innovation point of view, with a continuously growing trend for employment, manufacturing and exports, even during the pandemic, worth over 41 billion euro as production value, 2.5 billion euro invested in R&D, more than 4.500 companies with more than 160.000 employees, just considering the pharmaceutical and medical devices sectors.¹ The added value of the value chain and related activities in the sector, including processes ranging from the production of drugs and medical devices, biotech research services, all the various intermediate stages, up to the delivery of health services, corresponds to about 10% of the national GDP.²

In the LS Italian landscape, Tuscany stands out as one of the most competitive regions, thanks to a rich, diverse and specialized industrial landscape, relevant academic institutions, public and private research and a highly performing regional health system, compared to the national context, and hosting numerous clinical trials. Tuscany ranks third in Italy as LS products manufacturer, the sector being quite diversified and consisting of about 400 companies, mainly pharma and medical device companies, followed by digital health and nutraceuticals ones, covering several technological fields and applications (see the Tuscany Life Sciences Cluster report³), with a total annual turnover of about 9 billion euros (of which 63% is export) and about 17,000 employees, concentrated in the areas of Florence, Pisa, Siena and Lucca. The estimated incidence of the sector on the regional GDP is about 10.3%, including the related activities and healthcare services.

the life science sector has been experiencing a growing and rapid evolution in the last decade, driven by scientific breakthroughs and technological innovations in many fields, such as in gene editing, DNA sequencing, advanced therapies, bioinformatics, artificial intelligence (AI), data transfer, biorobotics, photonics, materials, and many more, supporting the shift from the conventional medicine to the predictive, preventive, personalized and participative medicine approach (4P medicine). Some of those innovations allowed the effective response to COVID-19, with the development at an unprecedented speed of vaccines.

The doctor-patient relationship and patient’s needs and expectations are also changing, powered by the opportunities given by the digital technologies, whose adoption has been enormously accelerated by the COVID pandemic, paving the way to the functional and effective digitalization of the Italian healthcare system, which in turn will allow the transition to value-based approach and reimbursement models, improving quality of care for patients and the sustainability of the healthcare providers.

In this rapidly evolving scenario, keeping the pace of the high level of competitiveness requires multiple players in action, closely cooperating to develop proper and innovative solutions and to turn them into successful commercial products, services or activities.

The value chain of life science innovation goes from the identification of unmet needs, in a 360° perspective, regarding prevention, diagnostics, treatments and also manufacturing, quality, management issues, and so on; to R&D activities, looking for possible solutions and taking into

account also the later stage of development as much as possible, e.g. scale-up, regulatory, quality, user experience, market issues; then to prototyping, validation and eventually go to market and creation of new business activities.

Many actors are thus involved in the process (medical personnel, researchers, companies, institutions, consultants, investors) that should operate in close interaction in a seamless workflow, sharing opportunities and critical issues, leading to knowledge spillover and, possibly, to new innovative ideas. In that regard, facilitating actors supporting knowledge and technology transfer, stimulating and promoting the interaction and helping in “connecting the dots” among all the players involved are essential to get an effective and impactful innovation ecosystem.

More than ever today’s health innovation keywords are “patient at the center” (or citizen regarding prevention), “specialized competences”, “multidisciplinarity”, “quality”, “data exploitation and management”, “integration”, “ecosystem”. Life science is one of the most important economic and scientific sectors for the Tuscany Region, which is also reflected in the regional RIS3. THE consortium objective is then to connect all the regional life sciences stakeholders in a structured ecosystem, where innovation may thrive and flow seamlessly from research to market, bench to bedside, in line with the regional RIS3, which in turn is aligned with the 2021-2027 National Research Programme area of intervention “Health and Well-being” and the cluster “Health” of Horizon Europe. Consistently, institutions of the regional healthcare system, several companies, and private research centers showed great interest in the proposed ecosystem, as witnessed by the more than 120 expressions of interest to THE proposal collected.

To become an integrated regional ecosystem, all the above reported “pieces” must come together in a structured, coordinated, and rationalized way, stimulating and supporting a pro-active and continuous interaction among all the relevant stakeholders in the life science value chain (companies, research centers, educational institutions, clinical centers, incubators, local institutions). The objective is to provide companies with opportunities and fast responses to innovation needs, together with support for smart transition and adoption of the enabling technologies and develop and acquire the required new skills to manage and exploit them.

In that regard, in order to provide a highly qualified, focused and integrated response to the innovation needs of the regional sector, expertise, laboratories and facilities will be connected through specific technology or focused thematic units (spokes), mirroring the regional RIS3 domains and coordinated by a central hub. Two spokes will provide systemic support to activities of cross-relevance for the other spokes, such as technology transfer, business ideas evaluation, startup support, actions to respond to training needs, development and implementation of innovative solutions to be closer to the market, acting as facilitator with companies and the regional health system, and in monitoring opportunities and potential issues of interest to the hub community.

SECTION PARTNERS

TOTAL NO. OF PARTNERS: 23

Proposer: Università di Firenze

Participants

PUBLIC SUBJECTS

Universities

Università di Pisa

Università di Siena

Scuola Superiore Sant'Anna di Pisa

Scuola Normale Superiore

Università per stranieri di Siena

Scuola IMT Alti Studi Lucca

Research Institutes

Consiglio Nazionale delle Ricerche

Istituto Nazionale di Fisica Nucleare

PRIVATE ACTORS:

Research Organisations

Istituto Italiano di Tecnologia

Confindustria Toscana

Fondazione Pisana per la Scienza

Toscana Life Sciences

Digital Innovation Hub Toscana

Museo Galileo

Companies

- Esaote S.p.A. (ESA)
- Orthokey Italia S.r.l. (ORT)
- Medea S.r.l (MED)
- WEART S.r.l. (WRT)
- Dedalus (DED)
- QBROBOTICS SRL (QBR)
- WEARABLE ROBOTICS SRL (WEA)
- IUVO S.r.l. (IUV)

SPOKE

Spoke n. 1 – Advanced radiotherapies and diagnostics in oncology

Leader spoke: Consiglio Nazionale delle Ricerche

Spoke members:

Università di Firenze

Università di Pisa

Istituto Nazionale di Fisica Nucleare

Spoke n. 2 - Preventive and predictive medicine

Leader spoke: Università di Firenze

Spoke members

Università di Siena

Università di Pisa

Spoke n. 3 - Advanced technologies, methods and materials for human health and well-being

Leader spoke: Università di Firenze

Spoke members:

Università di Pisa

Università di Siena

Consiglio Nazionale delle Ricerche

Scuola Superiore Sant'Anna di Pisa

Scuola IMT Alti Studi Lucca

Esaote

Museo Galileo

Spoke n. 4 - Nanotechnologies for diagnosis and therapy

Leader spoke: Università di Pisa

Spoke members:

Università di Firenze

Università di Siena

Consiglio Nazionale delle Ricerche

Scuola Normale Superiore

Scuola IMT Alti Studi Lucca

Spoke n. 5 - Implementing innovation for healthcare and well-being

Leader spoke: Università di Firenze

Spoke members:

Università di Pisa

Università di Siena

Consiglio Nazionale delle Ricerche

Università per stranieri di Siena

Toscana Life Sciences

Digital Innovation Hub Toscana

Spoke n. 6 - Precision medicine & personalized healthcare

Leader spoke: Università di Siena

Spoke members:

Università di Firenze

Università di Pisa

Fondazione Pisana per la Scienza

Spoke n. 7 - Innovating translational medicine

Leader spoke: Università di Siena

Spoke members:

Università di Firenze

Università di Pisa

Spoke n. 8 - Biotechnologies and imaging in neuroscience

Leader spoke: Scuola Normale Superiore

Spoke memberse:

Università di Firenze

Università di Pisa

Consiglio Nazionale delle Ricerche

Scuola Superiore Sant'Anna di Pisa

Scuola IMT Alti Studi Lucca

Spoke n.9 - Robotics and automation for health

Leader spoke: Università di Pisa

Spoke members

Università di Firenze

Università di Siena

Scuola Superiore Sant'Anna di Pisa

Medea

Orthokey

IUVO srl

Qbrobotics srl

Wearable Robotics

WEART

Spoke n. 10 - Population health

Leader spoke: Scuola Superiore Sant'Anna di Pisa

Spoke members:

Università di Firenze

Università di Pisa

Università di Siena

Università per stranieri di Siena

Dedalus

FINANCIAL DATA (by concession decree)

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Project calls: 37% of project amount