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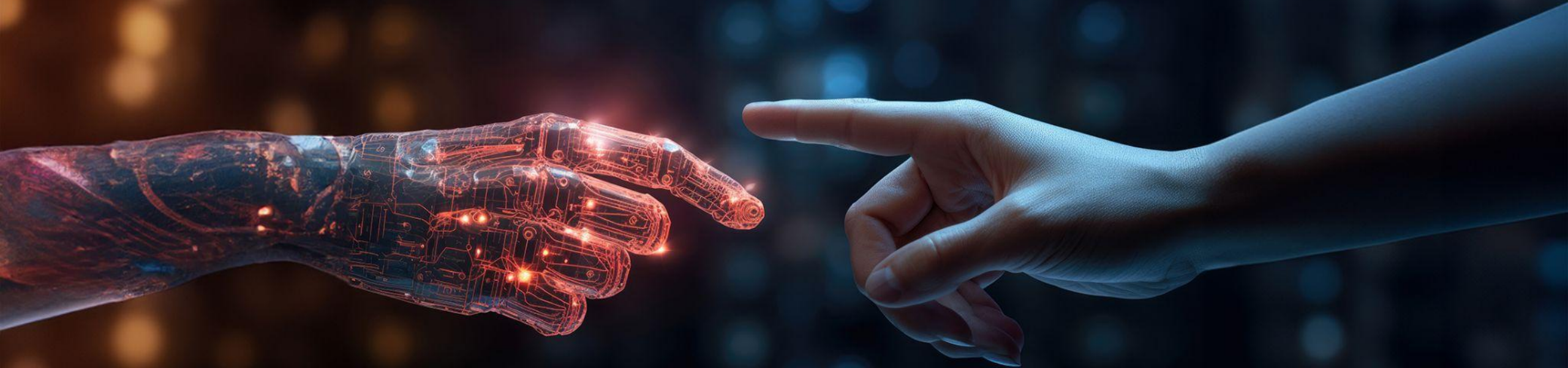


Ministero  
dell'Università  
e della Ricerca



Italiadomani  
PIANO NAZIONALE  
DI RIPRESA E RESILIENZA

**RAISE**



IL PROGETTO RAISE

# Robotics and AI for socio-economic empowerment

The Ligurian innovation ecosystem, based on the scientific and technological domains of AI and Robotics.

# Raise: the Ligurian innovation ecosystem

The Ligurian innovation ecosystem "RAISE" - Robotics and AI for socio economic empowerment - was selected by the Ministry of University and Research as part of the NextGenerationEU. The project aspires to evolve into a highly attractive ecosystem for businesses, investors and researchers, both at national and international level.

The project is coordinated by the **Università di Genova** and was conceived together with the **Consiglio Nazionale delle Ricerche** and the **Istituto Italiano di Tecnologia**.

**RAISE**



# The characteristics of the ecosystem

The idea behind this ecosystem is to **coordinate and enhance the multidisciplinary** of the projects with a **logic of integration** of the technology transfer system, using the **local market as an immediate experimental laboratory**.

The **link between Raise and the territory** is essential. In Liguria there are some of the **largest robotics and AI research laboratories** in Italy, with scientific programs that explore the co-presence of intelligent machines alongside humans, to **improve the quality of life and work**.

**RAISE**



# Some figures

The project started its activities on **1st October 2022**.

There are **25 partners involved**, including research organisations, foundations, scientific hospitals and small, medium and large companies, with a total of **1.042 researchers**.

A total funding of **110 million euros**, 15 million for the **South of Italy**, 30 million for **cascade funding (open calls)**, dedicated to subjects external to the Ecosystem and 20 million for the **recruitment of young researchers**.



# Goals

RAISE aims at **enhancing and strengthening research and development** (based on ethical and human-centred design) for 5 different areas of interest, including healthcare, environmental sustainability, smart ports and accessible and inclusive smart cities.

The project aims at **enhancing strengths and helping reduce weaknesses** by leveraging existing resources and capabilities, as well as generating new opportunities through effective and efficient knowledge transfer.

# The results achieved

In the first year of activity, **important results have already been achieved.**

Once the executive planning phase has been concluded and **researchers have been recruited**, the ecosystem is currently in a **fully operational phase**, which has seen the issuing of cascade open calls for SMEs, the launch of the training plan, the implementation of activities of communication and dissemination.

# Recruited Staff



**Number** - 233 recruited

**Gender** - 42% female

**Average age** - 34 years

**Origin** - 18,5% from 22 foreign countries

# Hub & Spokes

RAISE is organized according to the **Hub & Spoke governance system** and is divided into **5 areas of intervention** on individual topics. The HUB is the implementing body and responsible for the governance of the project.

Each spoke brings together teams of researchers from different research centers under common coordination and collaborates with the 23 affiliated entities to create the ecosystem's strategic plan.

**Spoke 1** - Consiglio Nazionale delle Ricerche

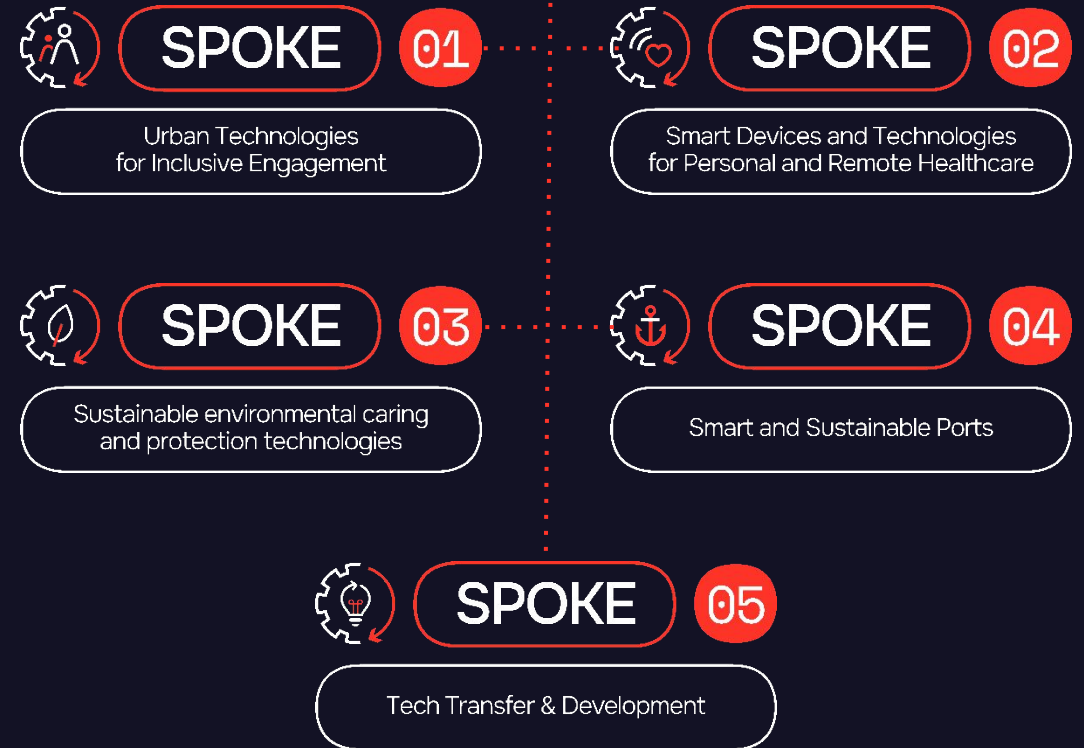
**Spoke 2** - Istituto Italiano di Tecnologia

**Spoke 3** - Consiglio Nazionale delle Ricerche

**Spoke 4** - Università di Genova

**Spoke 5** - Istituto Italiano di Tecnologia

# HUB





# Spoke 1 - Urban Technologies for Inclusive Engagement

Spoke 1 is focused on the design and development of technologies, devices and services enabling inclusive use of the services offered in the urban context and throughout the environment.

Spoke 1 wants to heighten the concept of Smart City for better shaping urban spaces and services considering the needs of citizens. The aim is to develop technologies that are effective for improving the well-being perceived in the activities of city life.

A highly innovative and multidisciplinary approach is promoted, in order to personalize the offer of urban services with respect to the specificities and abilities of individual citizens interacting with the city and with each other and the city.

To respond to the real needs of people, Spoke 1 actively involves citizens and stakeholders in the design and evaluation process of the proposed technologies and services.

Spoke 1's technological objective /The technological objective of Spoke 1 is to highlight how robotics and artificial intelligence are today effective tools for building a vision of a smart, accessible and inclusive city capable of grasping the needs of the citizens, through the design of intelligent devices and services that can be responsive to the context of use.



# Spoke 2 - Personal and remote healthcare

Spoke 2 addresses the development of innovative solutions aimed at the field of healthcare by leveraging expertise in artificial intelligence and robotics.

The goal of Spoke 2 is to create the technological conditions for a shared, connected and personalized care system, by addressing four main challenges: providing home care through the creation of intelligent and interactive environments, fostering the personalization of medical treatments through digital twins, supporting the creation of rehabilitation ecosystems and improving future image-based diagnostics.

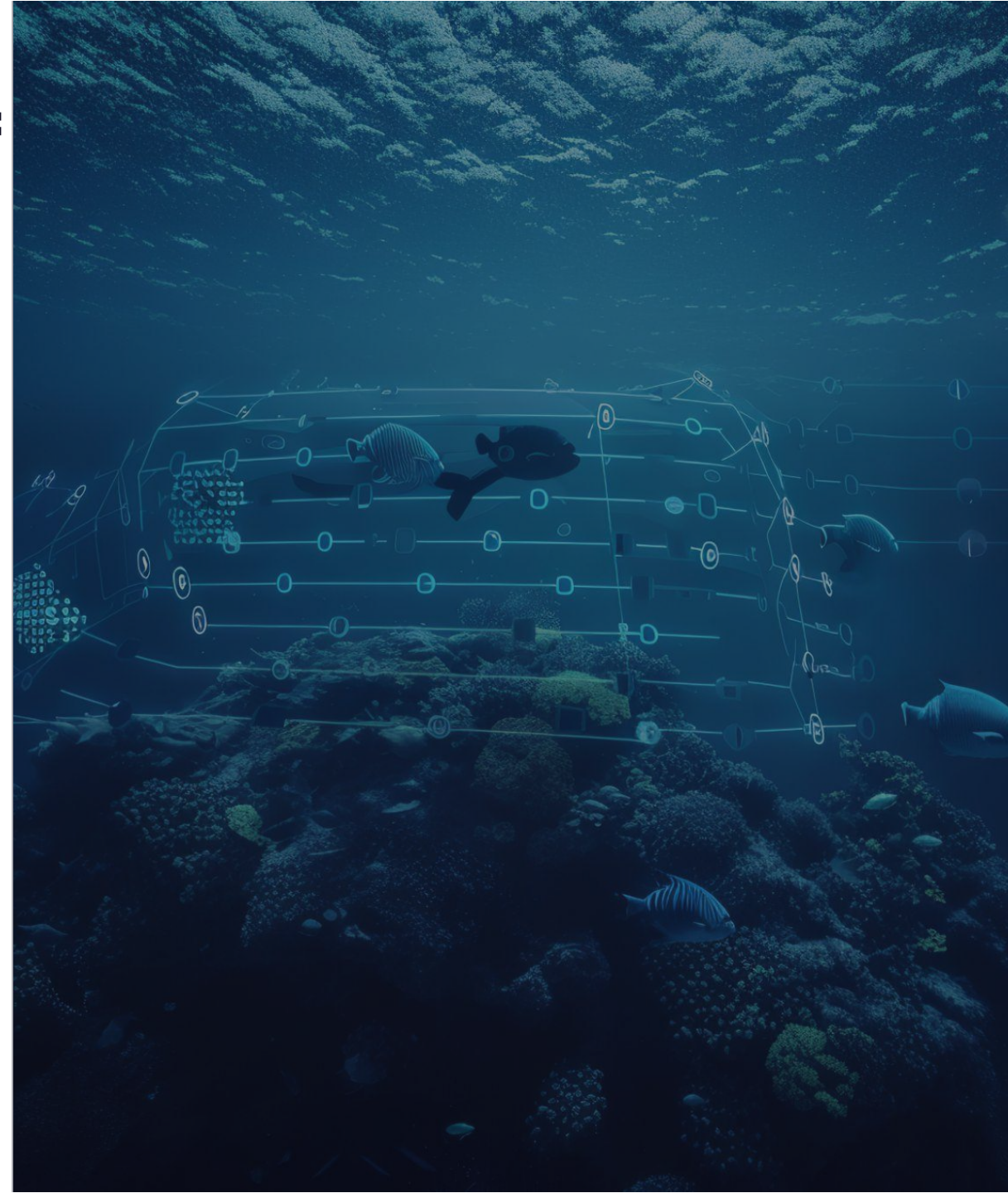
The development of innovative devices and technologies and the commercialization of the solutions developed by Spoke 2 will bring added value to hospitals and national health services, benefiting Ligurian and Italian citizens.



# Spoke 3 - Protection and care of the environment

The main challenge of Spoke 3 is to create innovative robotic systems, managed by AI, capable of making punctual and widespread monitoring that are also coupled and synergistic. Another goals of Spoke 3 are to increase the efficiency of data collection and their dissemination, to extend the duration and energy saving of monitoring missions and to improve the quality and timing of the various forecasting systems (early warning systems) dedicated to the protection and continuous monitoring of the environment (widespread, integrated and dynamic-adaptive monitoring).

SPOKE 3's research and development activities aim to develop a new discipline, ecorobotics, which puts robotics and AI at the service of the environment, imagining new strategies for planning and implementing sustainable land management .



# Spoke 4 - Smart and sustainable ports

Spoke 4 aims to create smart and sustainable ports through the introduction of robotic technologies (land, sea and underwater, aerial) and artificial intelligence systems to improve the safety of the activities in the port area and make them more efficient and sustainable, both in reference to cargo and passenger traffic.

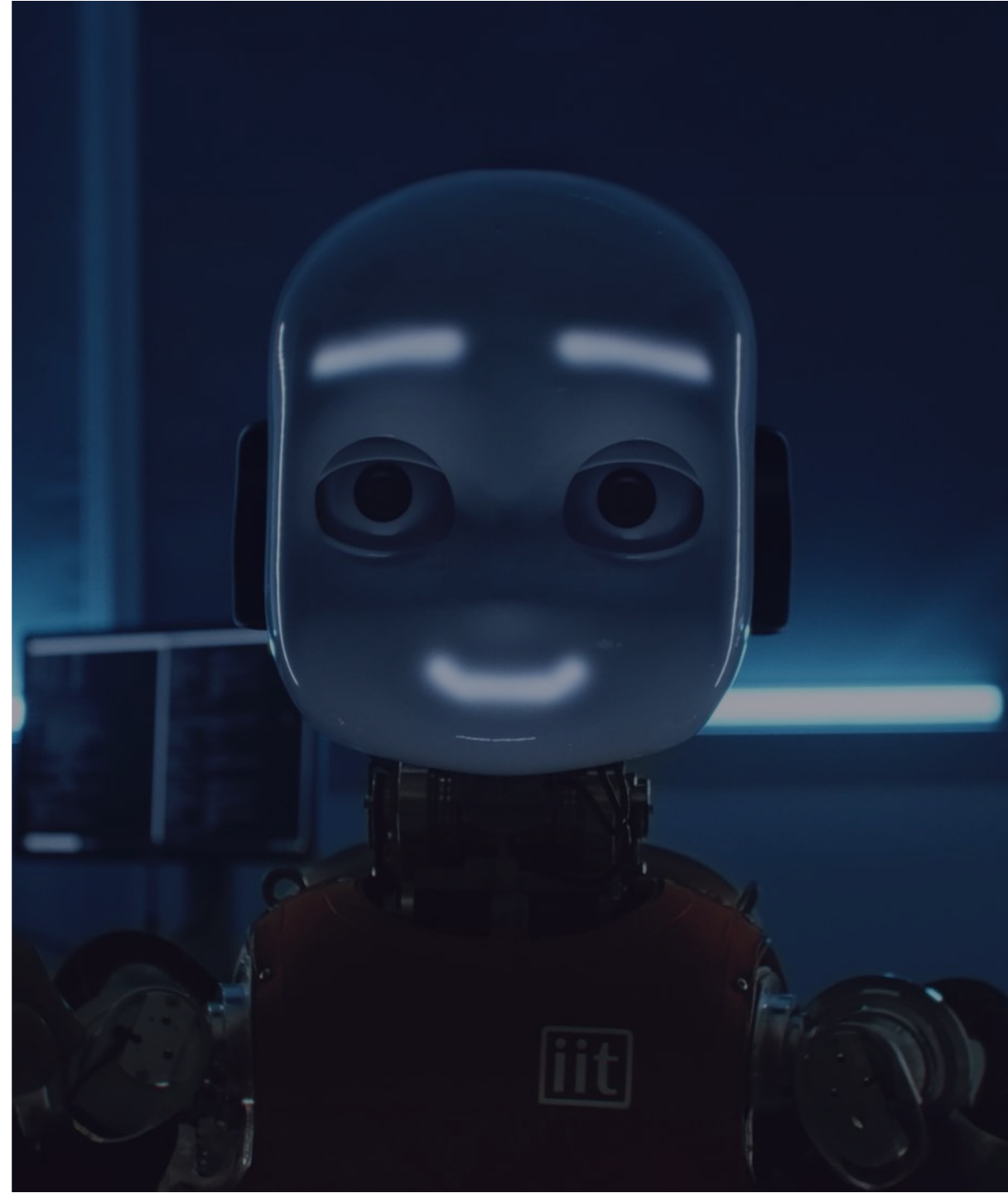
The goal of the innovation projects under Spoke 4 is to introduce new autonomous systems capable of performing critical operations; machine learning technologies and real-time data for monitoring and security of port infrastructure and assets; models and methods for making the logistics chain and transport network more efficient; tools for reducing pollution and environmental impact; services based on robotics and artificial intelligence for small and medium-sized ports.



# Spoke 5 - Transfer of knowledge and technology

Spoke 5 stands at the intersection of research and market acting as a mediator between research and market, unleashing the potential of scientific discoveries and allowing companies to enhance technological progress, promoting collaboration, knowledge exchange and technology transfer.

Spoke 5 plays a fundamental role in promoting innovation and economic growth within the robotics and artificial intelligence ecosystem. With this purpose Spoke 5 has built an acceleration journey program which provides a schematic representation of the technological road to market through five programs to create a seamless path to help researchers and SMEs to successfully bring their ideas and technologies to market, ultimately fostering a thriving innovation ecosystem.



# **RAISE** PROGRAMS

A black robotic hand is shown in the upper right quadrant, reaching towards a human hand. The human hand is positioned in the lower right quadrant, with its index finger pointing towards the robotic hand. The background is white.

Program 1

# **RAISE** Training Plan

The RAISE training activity is developed through a **Training Programme** composed of **eight projects, each with specific characteristics and target groups**. The design of these initiatives, promoted and coordinated by Spoke 5, involved the RAISE ecosystem community in order to effectively respond to the needs of the Project's main stakeholders.

- P1** - Raise knowledge transfer & entrepreneurship academy
- P2** - Basic ai & robotics applications4smes
- P3** - Officinae raise for phd and university students
- P4** - Basic ai & robotics skills at university level
- P5** - AI for public administration
- P6** - Basic ai & robotics skills for secondary school
- P7** - Advanced ai & robotics applications4smes
- P8** - Boosting phd students' career

## Program 2

# RAISE Mentorship Program - RAISE UP.

Programme aimed at teams of innovators in the RAISE Ecosystem who wish to strengthen their skills in the exploitation of research results. The programme promotes the development of entrepreneurial ideas based on the results of research conducted in the RAISE spokes, in order to foster the transfer of innovative solutions to the market for the benefit of the economic and social system. The delivery of the RAISE up programme will be carried out by Spoke 5 supported by professionals from PwC Italia and I3P - Incubator of the Politecnico di Torino.

### Technological Innovation

Allowing researchers to develop their own innovative solutions balancing a curiosity-driven approach with a market-driven one.



### Strategic innovation

Supporting the transfer and valorization of technologies developed within the Spokes by promoting the development of sustainable business models.



### Market innovation

Creating a bridge between the demand and supply of innovation, stimulating and facilitating the dialogue between the research community and the market.



### Territorial innovation

Enhancing the region's excellence by actively engaging the various actors within the innovation ecosystem.





## Program 3

# RAISE Cascade funding

**Five cascade calls** have been issued by RAISE, aimed at implementing experimental development projects that are complementary with the lines of activities conducted within the spokes.

**A first call for proposals** was aimed at funding project proposals submitted by SMEs with operational headquarters in Liguria and southern regions. The projects were all launched on March 1, 2024.

**Four additional calls** were allocated to research organizations located in southern regions and focused on specific experimental and technology transfer challenges.

**43** Projects

**104** Companies

**18** Research organization

# Dissemination e Communication

KPIs related to scientific dissemination activities (events and papers): **51** call for papers, **13** invited talks, **4** workshop proposals, **18** contributions in journals, **7** contributions in conference proceedings, **34** participations in international conferences, **16** participations in national conferences.

Added to this is the intense activity of science dissemination and outreach, which reached **more than 8,000 people** (children, families, schools, etc.) through numerous initiatives organized by RAISE, including **RAISE Village**, held as part of the 2023 edition of the Genoa Science Festival, and the **Robot Valley** event, (<https://www.robotvalley.it/>) held last April in Genoa, which connected robotics and artificial intelligence with art and territory, to represent the human being at the center of technological progress.

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