

## **Spoke 2 – Big Data-Open Data in Life Sciences**

Big Data-Open Data in Life Sciences will develop an innovative digital platform for the transmission and secure storage of big data related to life sciences, for the translation of basic research into applications that aim to improve the nutritional status, care and environment in which citizens live, organising and processing data so that they are usable to artificial intelligence systems.

Spoke 2 will have an impact on the well-being of citizens by improving their lifestyle, by structuring the collection of big data for biomedical research in Lombardy, and by developing the pharmaceutical and life sciences industries. These actions will also be implemented through interaction with the other Spokes of the MUSA project: Spoke 1 for sustainable lifestyle, Spoke 6 for social inclusion, Spokes 3 and 5 for the industrial transfer of research results and developed solutions, as well as for technology transfer and economic impact.

The scientific impact of Spoke 2 will consist in the creation of the digital infrastructure for the exchange of data relating to life sciences and medicine, which will allow the realisation of advanced research in the preclinical, clinical and diagnostic fields, as well as increasing interest for all territorial stakeholders.

Spoke 1, Spoke 2 and Spoke 6 have the common objective of building an urban and neighbourhood infrastructure that can promote a healthy and sustainable lifestyle, in addition to well-being and social inclusion. In particular, Spoke 2 aims at significantly improving social sustainability, encouraging social inclusion, bridging inequalities and improving health status. In addition, environmental sustainability impacts are expected from the overall improvement in lifestyle habits. The future of the sustainability of health care, and more generally, of welfare, depends not only on the introduction of innovative technologies and methods of service delivery, but also on the involvement and responsibility of all stakeholders in achieving the designated objectives.

### **Specific activities**

In Spoke 2, we aim to create the digital structure for the exchange of data related to life sciences and medicine, starting from the 5G infrastructure that will support the transmission of broadband and low latency data, ensuring the security needs that must accompany the transmission of medical and life sciences data.

On the basis of the 5G infrastructure and the existing infrastructures, we will further develop the telemedicine platform of the University of Milan already operational in important Socio-Sanitary structures of the Lombardy Region. We will test the potential of the platform in innovative clinical pilots on the issues of remote diagnostics, remote monitoring, also in partnership with major pharmaceutical companies such as Novartis and AstraZeneca. All the data collected will be enriched and interpreted through artificial intelligence systems, in order to support clinical decisions for current and future patients.

In Spoke 2, we will also develop new technologies and customised tools for continuous remote monitoring, for the promotion of well-being and health, increasing awareness in the population about important health issues. This action will also involve kindergartens for the management of teaching and the prevention of learning disabilities.

In Spoke 2, we will support the development of start-ups with high technological impact, encouraging the implementation on the territory of the technologies that will be produced by the research, and we will analyse the general economic impact of a structured collection of big data related to life sciences.

**Participants:**

PUBLIC ENTITIES

PRIVATE ENTITIES

<b>UNIVERSITY OF MILAN*</b> , UNIVERSITY OF MILAN-BICOCCA, POLYTECHNIC UNIVERSITY OF MILAN	BOCCONI, ALMAVIVA, TIM, NOVARTIS FARMA, BIO4DREAMS, ASTRAZENECA, BRACCO
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