# European Social Fund Plus 2021/2027

# FSE+

## PPO 2023 S.P. 22/23

## Support for higher education within the regional university

With Decree No. 17895/GRFVG of April 19, 2023, the Friuli Venezia Giulia Region published the Notice regarding the submission of operations for Specific Program No. 22/23, which aims to support higher education within the regional university system.

### Line A – PhD Programmes

Specific Programme 22/23, through the funding of doctoral scholarships, contributes to the achievement of the objectives of the Sustainable Smart Specialisation Strategy (S4). It supports the development or strengthening of integration with the regional production system and/or research organisations, through coordination and collaboration mechanisms with regional enterprises or research bodies, or by leveraging the potential for technology transfer of processes, products, applications, or, more broadly, research outcomes.

- Notice **2024**
- **40th cycle**
- Unique Project Code (CUP) **J93C23001490008**
- Project **2024/1543/8**

Doctoral Programme in **Applied Data Science and Artificial Intelligence**

### “Generative AI for smart manufacturing”

The project aims to develop generative AI methods to be integrated into manufacturing production processes. Companies that have embraced IoT and digitalization are immersed in a sea of data, which continues to grow. In particular, when process data is combined with unstructured data such as documents, videos, and manuals, its informational potential multiplies—yet much of this information remains unexplored or difficult to access.

The project builds on current generative AI technologies, particularly multimodal foundation models, and aims to specialize these models for use in manufacturing contexts, such as process and product quality, predictive maintenance, and production management. Specifically, the project proposes to integrate neuro-symbolic techniques (e.g., Retrieval-Augmented Generation and knowledge graphs), foundation models—especially language models—and machine learning models trained on IoT data to detect anomalies. The goal is to enable immediate access to information, reduce response times, and guide operators in the actions needed to ensure proper machine functioning.

This will lead to shorter response times, reduced waste and production delays, and both economic and environmental sustainability benefits.

The research will be carried out in collaboration with Beantech, a company operating in the manufacturing IoT sector, which will provide access to data and real-world scenarios.