

**Private and Inclusive
Synthetic Medical data for
precision medicine powered
by Swarm learning**



clearbox^{AI}

Since 2019, our mission has been to understand and solve the challenges that companies face when testing and deploying AI projects into production.

OUR COMPANY

Founded by innovators who decided to exploit the newest AI and Data technologies coming from research and the academic world to build reliable, concrete, and realistic AI projects, with the final goal of generating business value.

MANAGEMENT TEAM



A team of Data, Data Science, ML, MLOps, Software and Privacy experts.
Certified CIPP/E.

R&D PARTNERS

OXFORD
INTERNET
INSTITUTE

Fraunhofer



DATA && AI
ASSESSMENT
+
ACADEMY

Which client's data assets are AI Ready?
AI training to foster knowledge and identify use cases

Business design

AI FACTORY

Design and implementation of AI projects, following the list of business priorities defined in the previous phase.

- > MODEL DEVELOPMENT
- > MODEL TESTING AND VALIDATION
- > MODEL DEPLOYMENT
- > MLOps PRACTICES

RESULTS

BEP

Financially viable and independent

30+

Projects delivered

ACHIEVEMENTS

The company won the National Innovation Award in the ICT domain and the European Seal of Excellence.

SELECTION OF CLIENTS

BANCO BPM



BNP PARIBAS

REALE MUTUA

Sella

Posteitaliane

ALSTOM

vtlesco
TECHNOLOGIES

Bonfiglioli



HORSA GROUP

CENTRI DENTISTICI
PRIMO
IL TUO DENTISTA PER LA VITA

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What's PRISMS?

A Project with HEAL ITALIA
Spoke leader:
Università di Bologna



Finanziato
dall'Unione europea
NextGenerationEU

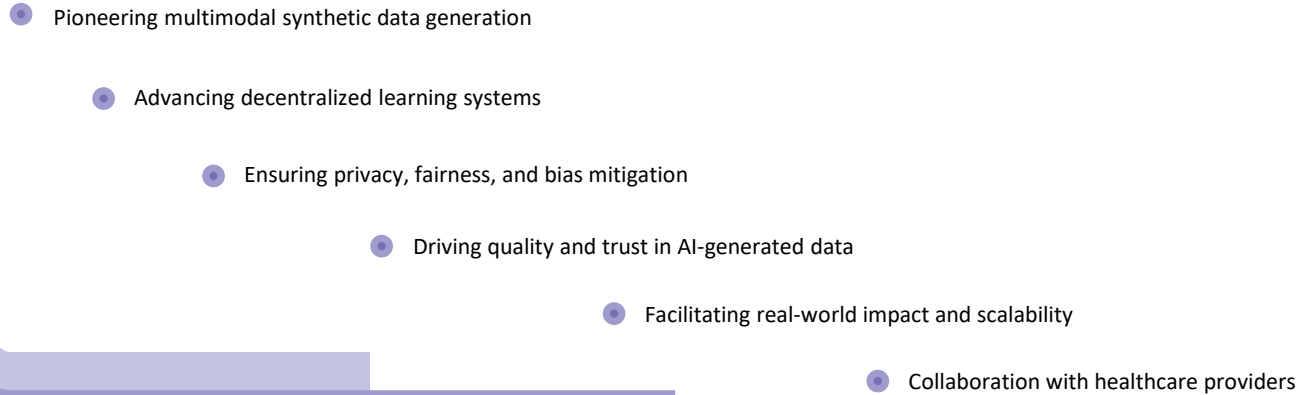


Ministero
dell'Università
e della Ricerca

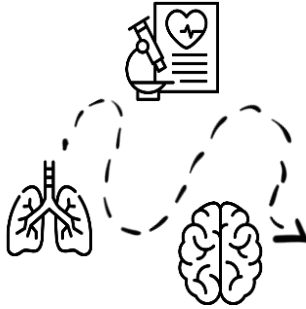


Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

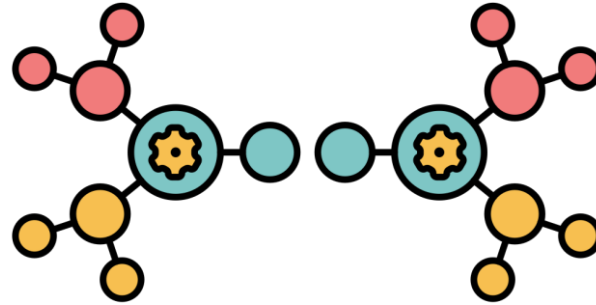
Principal Goals for the PRISMS Project

- 
- Pioneering multimodal synthetic data generation
 - Advancing decentralized learning systems
 - Ensuring privacy, fairness, and bias mitigation
 - Driving quality and trust in AI-generated data
 - Facilitating real-world impact and scalability
 - Collaboration with healthcare providers

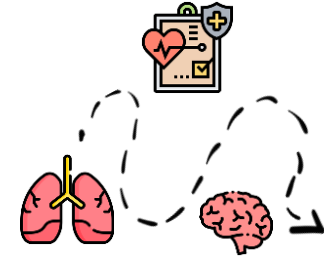
Focus on Multimodal synthetic data model



Generate contextual synthetic medical images (MRI, CT) and tabular clinical data / time-series



Joint learning of a multimodal and shared data space



Verification and Validation of the multimodal synthetic dataset



Key Gaps in AI Precision Medicine and Our Solution Pathways



- Limited meaningful and general data
- Privacy and bias risks
- Need for high-performance models
- Slow precision medicine models adoption



- Generation models for multimodal and minority-driven clinical synthetic data.
- Checking and debiasing toolkit, training via swarm learning
- Quality assessment toolkit through ensemble of metrics
- Provision of representative and regulatory-compliant datasets

What PRISMS will bring to table:

Models, datasets, assessment, toolkit



WP1:

Design of multimodal synthetic data models



WP2:

Privacy, Bias, Fairness and synthetic data quality assessment
Library Design and Implementation



WP3:

Deploying on Swarm Learning Frameworks



WP4:

Testing, Validation, and Iteration of the developed systems



WP5:

Project Management, Communication, and Exploitation

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
WP1	█	█	█	█	█	█	█	█	█						
WP2		█	█	█	█	█	█	█	█						
WP3						█	█	█	█	█	█	█	█		
WP4							█	█	█	█	█	█	█	█	█
WP5	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

- ML Engineers, Data Scientists, Data Management, Communications, Project Manager
- 15 month time frame

ClearboxAI synergy with Heal Italia

- Enhanced Data Privacy Compliance
- Medical Regulatory Expertise
- Advanced integration of synthetic data in state of the art clinical research
- Profound expertise in medical procedures, analysis and dataset processing

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Thanks

Feel free to contact us:



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