

MUSA a year on

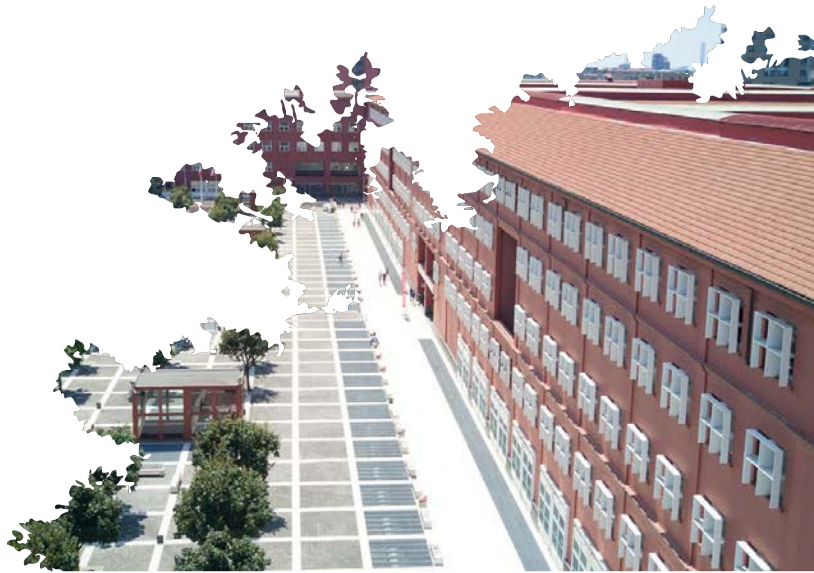
6 settembre 2023

Università degli Studi di Milano-Bicocca
Aula Magna – Edificio U6-AGORÀ
Presidente Giovanna Iannantuoni



MUSA

MULTILAYERED URBAN SUSTAINABILITY ACTION





BNP PARIBAS

Unicredit

Spina 21

“...together, you will design the city of the future, powered by clean energy and with clean transport for all, that will host high-tech companies and create new, well-paying jobs. So I am very proud that Europe is investing in such an ambitious and good project.”

Ursula von der Leyen, about MUSA - december 2022

Vision

We ARE BUILDING an **ecosystem model for urban regeneration and sustainability** that will scale at regional and national level starting from Milan, and that challenges the future to become a European example of excellence.

Milan is a multi-layered metropolitan city that is undergoing large transformations, adapting to social changes, restructuring its shape, services, industries and academia.

Through a **novel model of public/private collaboration** and the citizens' involvement, MUSA tackles innovation from multiple perspectives, from social to technological aspects.

To respond to the needs of a **sustainable and inclusive growth** through research, human capital empowerment and knowledge and technology transfer.



The partnership



UNIVERSITÀ
DEGLI STUDI
DI MILANO



POLITECNICO
DI MILANO



Università
Bocconi
MILANO



Comune di
Milano



Regione
Lombardia



Fondazione
Politecnico
di Milano

Fondazione
CARIPLO



FONDAZIONE
RICCAGIOIA



Consiglio Nazionale
delle Ricerche

HUMANITAS
UNIVERSITY



FONDAZIONE
BRUNO KESSLER

Almaviva
CONTACT



Automation



AstraZeneca



EDISON
EDF GROUP

TIM



NOVARTIS

Deloitte.



Bio4Dreams
The Business Nursery for Life Sciences



HUAWEI

ThalesAlenia
Space

infineon

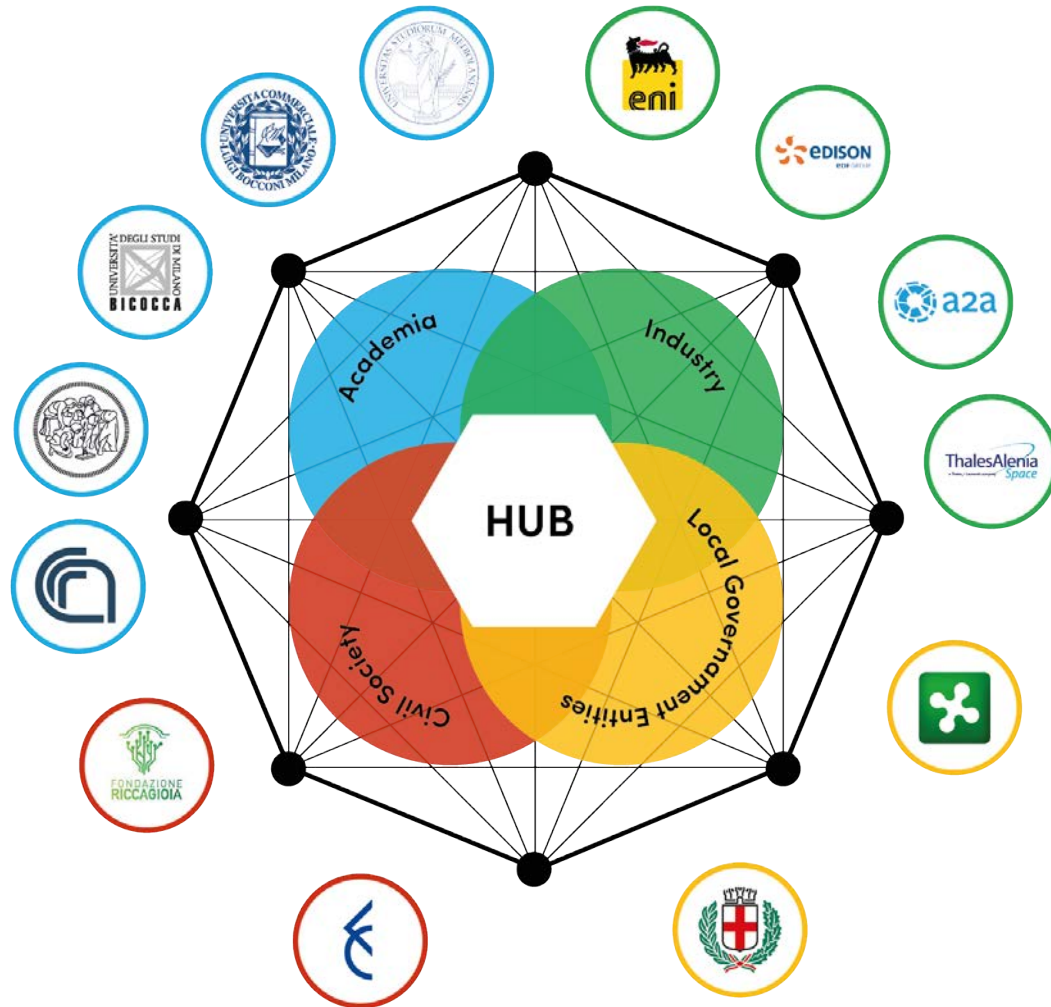
RCS
MEDIAGROUP



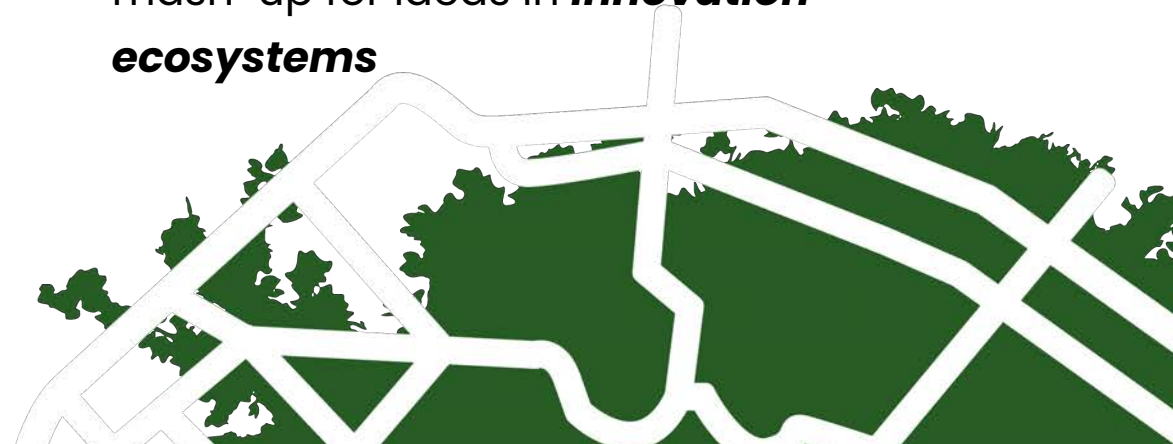
LUMSON
Cosmetic Packaging Industries

Innovation Ecosystem

Open Innovation and Quadruple Helix Model

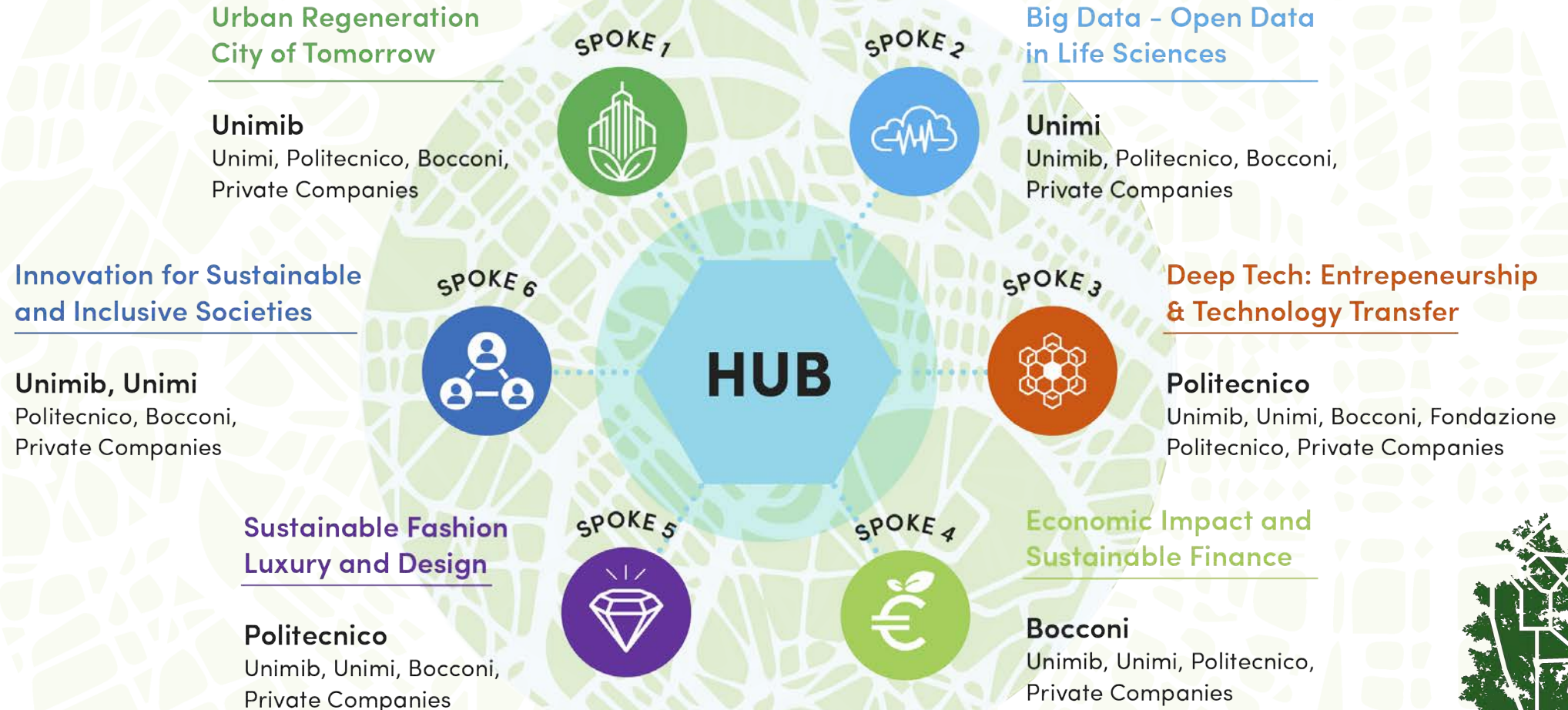


- In the *Quadruple Helix Model* government, industry, academia and society **work together to co-create the future and drive structural changes**
- Open Innovation involves all stakeholders need and create seamless interaction and mash-up for ideas in **innovation ecosystems**



Innovation Ecosystem

MUSA Structure



**where
are we?**



Design



- Launch of MUSA
 - RTDa call 1st cycle
 - PhD call 1st cycle
 - R&I programme: Needs analysis and Design
 - Design of Education and training programme
 - Stakeholder engage
 - Dissemination Events and networking (Year 1)
 - Identification, selection and design Labs/ Use cases/ Incubation & Acceleration programmes
 - Design of Observatories
- ✓ checked

Research and development



- RTDa call 2nd cycle
- PhD call 2nd cycle
- R&I programme: Test & Implementation Phase 1

- Open calls defined and launched for Year 2
- Identification, selection and design of Living/ Joint/ Fab Labs/ Use cases for Year 2
- Testing and validation of Labs; Incubation & Acceleration Program activation - 1st cycle
- Education and training programme: 1st cycle

- R&I programme: Test & Implementation Phase 2
- Dissemination Events and networking (Year 2)

- Territory monitoring by Observatories
- Open calls defined and launched for Year 3
- Identification, selection and design of Living/ Joint/ Fab Labs/ Use cases for Year 3
- Testing and validation of Labs; Incubation & Acceleration Program activation - 2nd cycle

- R&I programme: Validation Phase
- Dissemination Events and networking (Year 3)
- Testing and validation of Labs; Incubation & Acceleration Program activation - 3rd cycle
- Education and training programme: 2nd cycle
- Future strategy for transfer to the territory

Proof of concept

Human Capital



Human Capital

979 Researchers involved

785 faculty members

315 women (41%)

194 recruited

108 women (56%)



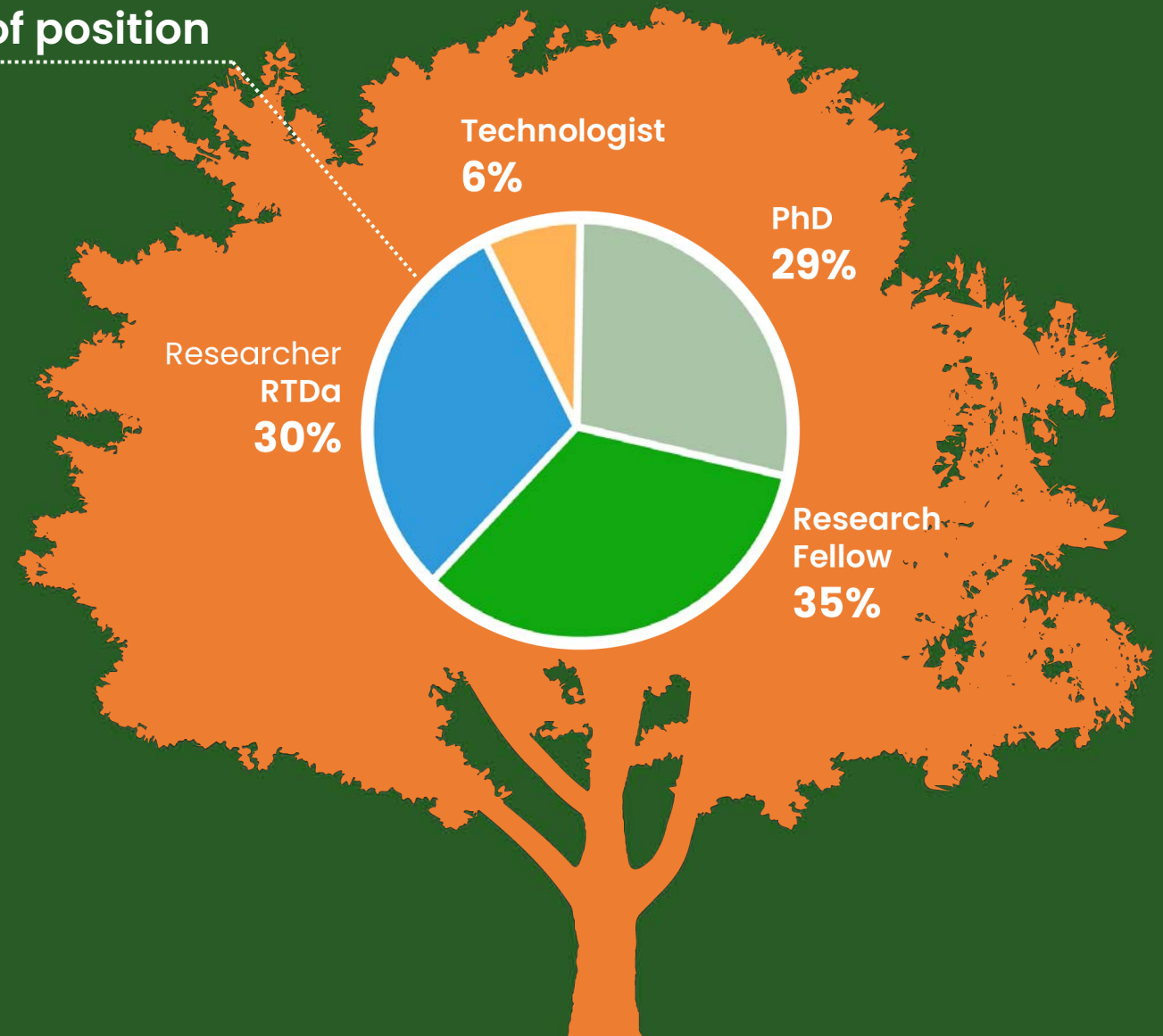
Human Capital

194
new recruitments

Average age
32,3 years old

18% of recruited PhDs
are foreigners

Type of position





MUSA

Urban
regeneration

Digital transition

Living Labs

Future societies

Urban regeneration



Urban regeneration

Piazza della Scienza

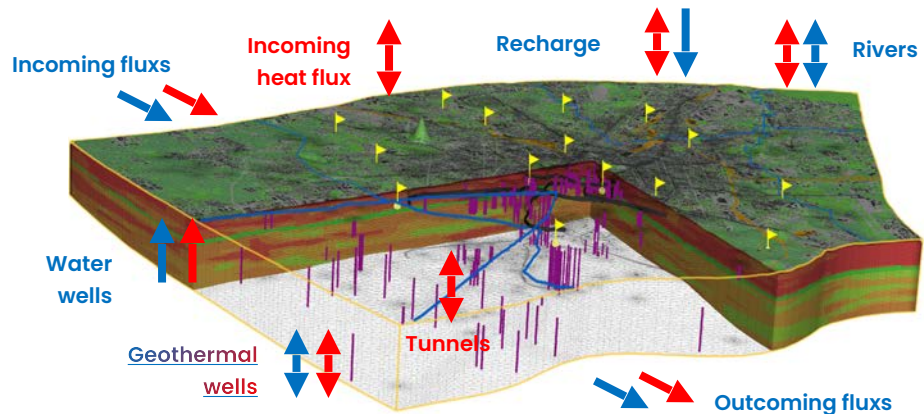
1. Urban and social requalification
2. Increased aesthetic quality
3. Adaptation to the climate change:
reduced heat islands
4. Functional biodiversity
5. Replicability of the model



Piazza della Scienza

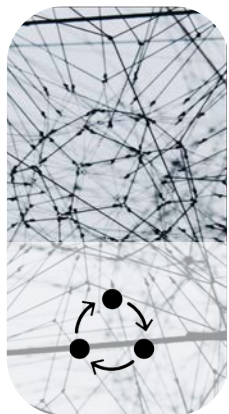
economic and financial analysis of the energy transition

Management Model: 3D Geothermal Digital Twin



Geothermal & Solar Energy for existing Buildings

Definition of a model



integrated and smart grid

- ◇ Definition, analysis and comparison of business models for:
 - geothermal use of urban water resources and district heating
 - smart mobility



Comfort and energy efficiency

- ◇ Evaluation of the economic advantages and generated value of nature-based solutions for:
 - urban forestation and depaving
 - efficiency of air conditioning systems



Distributed renewable resources

- ◇ Business models and barriers analysis; economic, social and environmental impact evaluation for:
 - energy production and sharing
 - creation of Positive Energy District and energy communities

Proof of concepts, Pilots and Living Labs



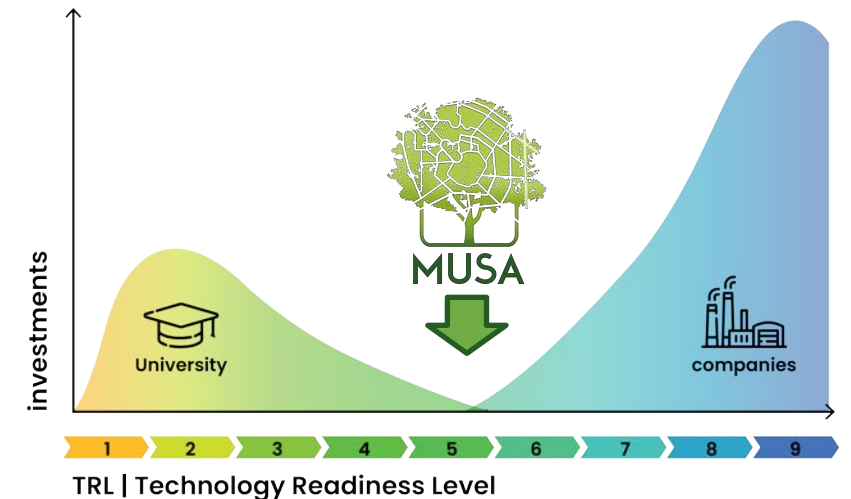
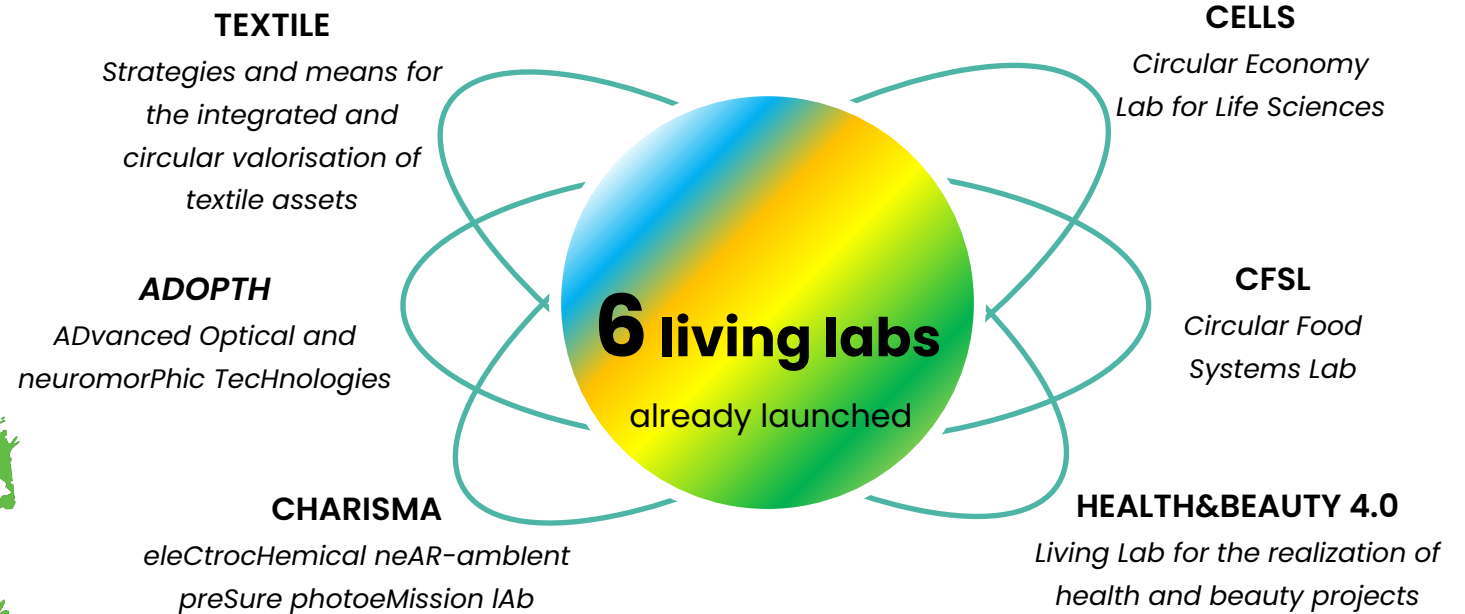
Proof of concepts, Pilots and Living Labs

MUSA
Sustainable innovation from the **collaboration** among researchers, students, citizens, firms and institutions
Proofs of Concept, Pilots, and Living Labs to generate and develop new solutions with an **open innovation** approach

17 research projects

high potential increase of TRL and opportunities for startup formation

Results from the **idea scouting process**:



Proof of concepts, Pilots and Living Labs

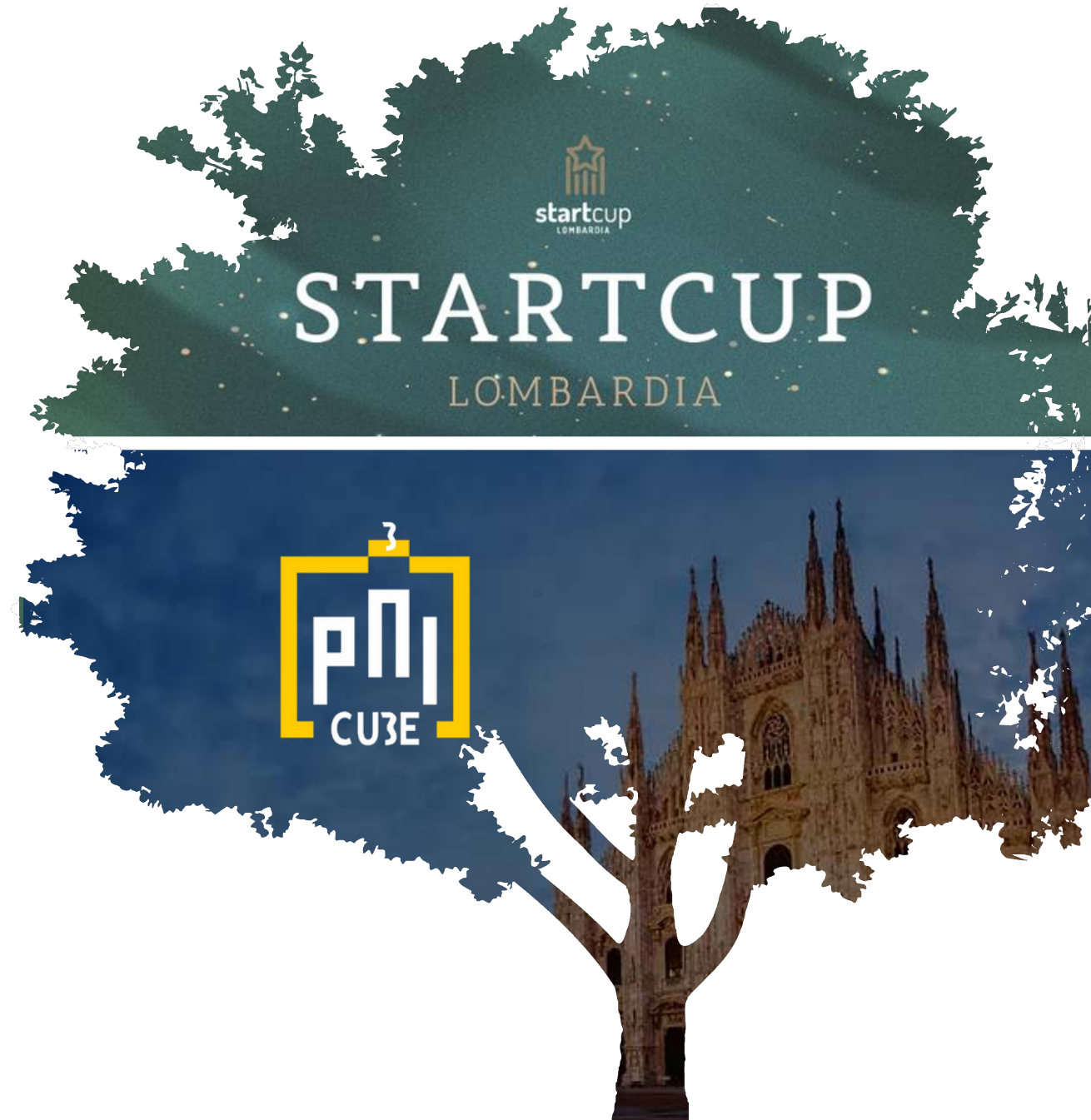
From idea scouting to entrepreneurship

Start Cup Lombardia

- **The 2023 edition is co-organized by MUSA**
- Strong emphasis on MUSA-related themes

Premio Nazionale per l'Innovazione

- **Co-organized by MUSA**
- **MUSA-related awards** will be offered



Digital transition



Digital transition

The infrastructure

IDEAS

Mobile services:

Use 5G technology to move AI-based services close to access points, for certified access time and availability

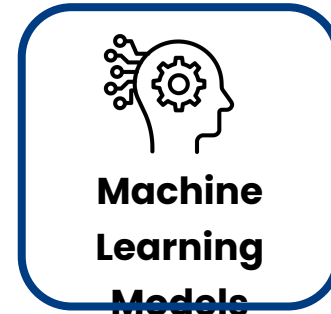
AI-driven service placement:

Use Artificial Intelligence for deciding energy-optimal placement of services to guarantee infrastructure sustainability

Certified security and privacy:

Rely on *private* 5G networking for confidentiality, integrity and authenticity of data in transit

MUSA Operation Dashboard



OTHER PLATFORMS



Transportation



Green energy



EV chargers



Connected machines

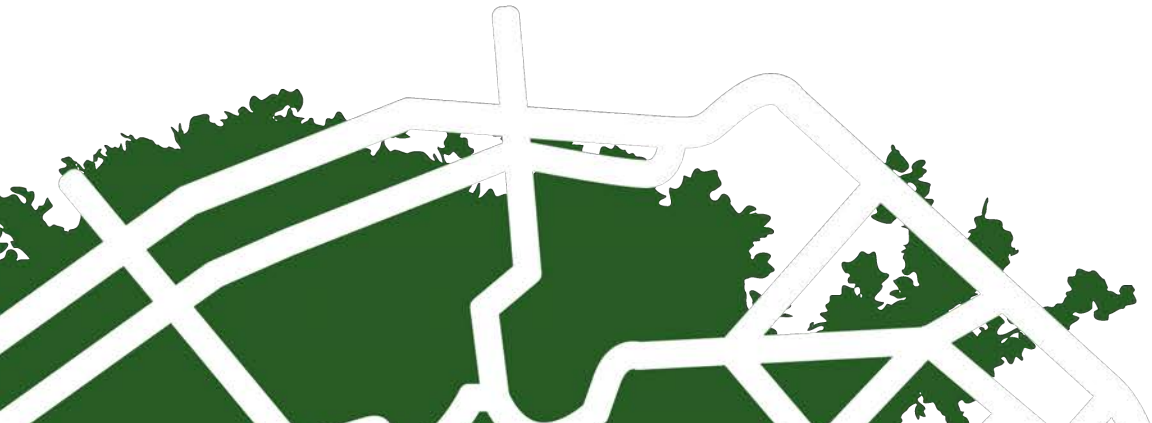


Digital transition

What is ready now

- **MUSA Dashboard** for Service Development, Testing, Containerization and Placement
- **Manual Control** of Service Placement
- **Service Orchestrator**

MUSA Operation Dashboard



Future Society

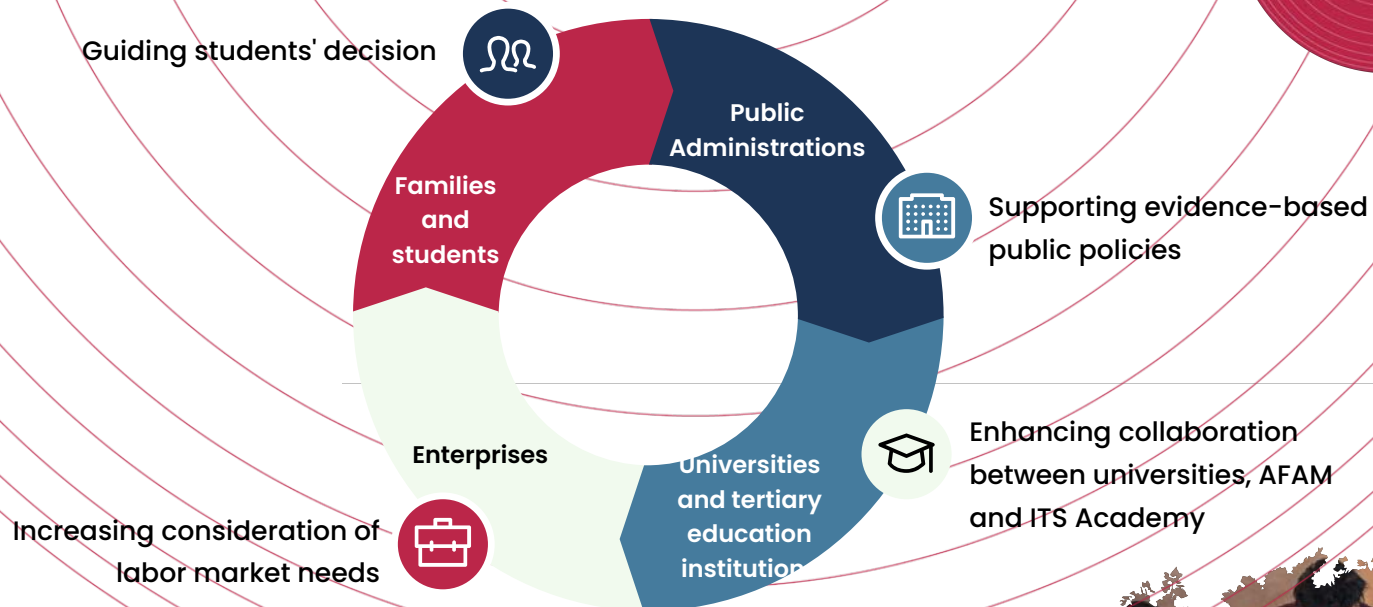


MHEO

Milan Higher Education Observatory



- **Observatory on the tertiary education system in Milan and Lombardy**
- Collect and analyze data to monitor the scenario and its interactions with stakeholders



	Enrolled students		%	
	Milan	Lombardy (incl. Milan)	Milan wrt Lombardy	Lombardy wrt Italy
UNIVERSITY	211759	321768	66%	18%
AFAM	14754	18780	79%	23%
ITS	1443	5126	28%	24%

Human Hall

Human Rights Hub

H^(uman) All

RESEARCH
TOWARDS
INCLUSION

Physical and virtual space to develop social inclusion projects for academic research, advocacy, public engagement and social interaction

interdisciplinary research teams, in joint collaboration with national and local institutions, third sector, NGOs, and private companies

promote concrete actions for inclusion, equality and non-discrimination; protect categories at risk of discrimination



B-YOUTH Forum

- ◇ **Permanent forum of young citizens** (14-25 years old) **as a laboratory for participatory research and training on public engagement and civic participation**
- ◇ Engagement of the young people on the theme of youth participation in the public space to facilitate the participation of young people in decision-making processes
- ◇ Theme 2023: **the square as a public space**
- ◇ interdisciplinary approach, peer to peer methodologies and different languages, intergenerational dialogue, negotiation with institutions

Summer School "B-YOUTH"
(for PhD students and young researchers)



B-YOUTH Forum
In a public event on sustainable mobility



Just Youth Summer Camp
(for high school and university students)



GENERAZIONI

Communication and Dissemination



Communication and Dissemination

Web page



Over 120
dissemination events



MUSA

Social profiles

Podcast
Sustainability and
the City
Open-Air Lab



MUSA
Open to
the world.



MUSA open to:

- ◆ **stakeholders**
- ◆ **NextGenerationEU**
projects
- ◆ **Europe and beyond**



Towards
scalability



*"A city is not gauged by its length and width, but by the
broadness of its vision and the height of its dreams."*

Herb Caen

Grazie

Project funded by the European Union – NextGenerationEU, under the National Recovery and Resilience Plan (NRRP) Mission 4 Component 2 Investment Line 1.5: *Strengthening of research structures and creation of R&D “innovation ecosystems”, set up of “territorial leaders in R&D”*



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NextGenerationEU



Ministero
dell'Università
e della Ricerca



Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA