



**MUSA**



# The Milan Metropolitan Area:

## Strengths

- Top-level universities and research centres
- Physical and digital infrastructures
- Strong attitude towards entrepreneurship
- Excellence in productive sectors (e.g., fashion and design; cultural industries)
- National financial center

## Opportunities

- International leadership in innovation
- Research-driven innovations reducing environmental pressure
- Novel solutions for mobility
- Former industrial areas to be exploited
- Optimized use of resources/shared services
- Multifunctional networks for a Smart City

## Weaknesses

- Pollution and traffic
- Obstacles to R&I for SMEs
- Limited understanding of emerging problems
- Low perceived quality of life
- Marginalised areas and social inequalities

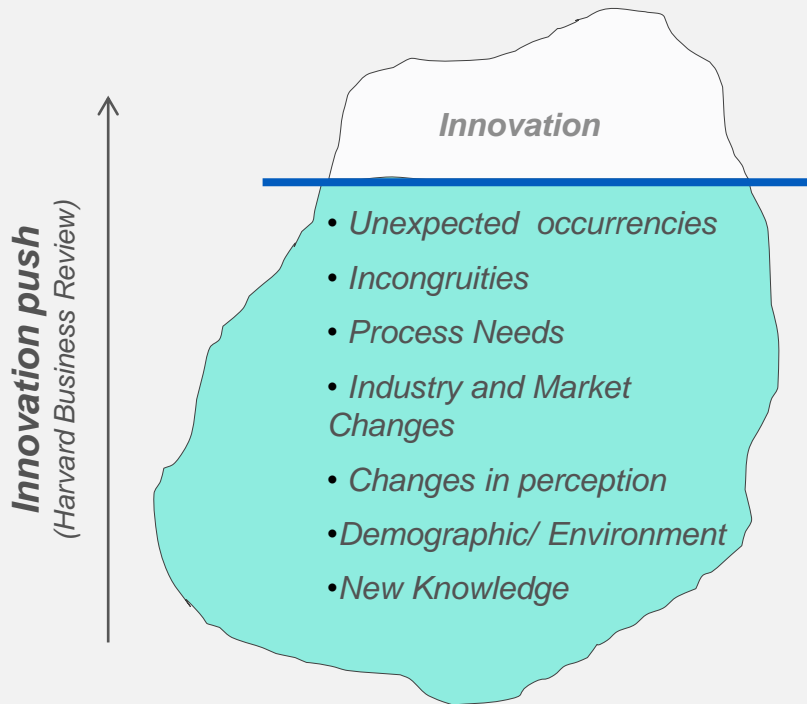
## Threats

- Biodiversity loss/environmental degradation
- Direct European competitors
- Development of new activities limited to selected areas


# Innovation Ecosystems, *Time to Push!* – WIPO Global Innovation Index 2021



Italy ranks 29° worldwide in the Global Innovation Index.



## The seven pillars

-  **Knowledge and technology outputs (rank 18)**
-  **Infrastructure (rank 26)**
-  **Human capital and research (rank 31)**
-  **Business sophistication (rank 32)**
-  **Creative outputs (rank 34)**
-  **Institutions (rank 36)**
-  **Market sophistication (rank 43)**

GII rank	Economy	Score
1	Switzerland	65.5
2	Sweden	63.1
3	United States of America	61.3
4	United Kingdom	59.8
5	Republic of Korea	59.3
6	Netherlands	58.6
7	Finland	58.4
8	Singapore	57.8
9	Denmark	57.3
10	Germany	57.3
11	France	55.0
12	China	54.8
13	Japan	54.5
14	Hong Kong, China	53.7
15	Israel	53.4
16	Canada	53.1
17	Iceland	51.8
18	Austria	50.9
19	Ireland	50.7
20	Norway	50.4
21	Estonia	49.9
22	Belgium	49.2
23	Luxembourg	49.0
24	Czech Republic	49.0
25	Australia	48.3
26	New Zealand	47.5
27	Malta	47.1
28	Cyprus	46.7
29	Italy	45.7
30	Spain	45.4
31	Portugal	44.2
32	Slovenia	44.1
33	United Arab Emirates	43.0
34	Hungary	42.7
35	Bulgaria	42.4
36	Malaysia	41.9
37	Slovakia	40.2
38	Latvia	40.0
39	Lithuania	39.9
40	Poland	39.9
41	Turkey	38.3
42	Croatia	37.3
43	Thailand	37.2
44	Viet Nam	37.0
45	Russian Federation	36.6
46	India	36.4
47	Greece	36.3
48	Romania	35.6
49	Ukraine	35.6
50	Montenegro	35.4

[https://www.wipo.int/edocs/pubdocs/en/wipo\\_pub\\_gii\\_2021.pdf](https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf); <https://hbr.org/2002/08/the-discipline-of-innovation>



## Vision

*We propose an ecosystem model that will scale at regional and national level starting from Milan, a multi-layered metropolitan city that is undergoing large transformations and that challenges the future to become a European example of excellence*

- Milan is adapting to social changes, restructuring its shape, services, industries, academies technology and mobility
- We aim at creating an Ecosystem with a synergy of **4 universities of excellence**, industries, local government and civil society to become a flywheel to foster innovation, also through **Joint and Fab Labs**, and enhance competitiveness and business opportunities and models
- The ecosystem will focus on **urban regeneration and sustainability** and it will have impact on the 4 elements of land, water, air and energy through in depth involvement of the social and digital dimension, health and mobility through science, technology, human sciences and citizenships
- The ecosystem will enhance territorial competitiveness, protect and valorize the territory and citizenship, supporting the achievement of territorial objectives of transformations and thematic objectives of culture

# Academic Participants



Università degli Studi di Milano-Bicocca



Università degli Studi di Milano  
La Statale



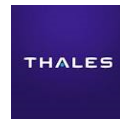
Università Bocconi



Politecnico di Milano

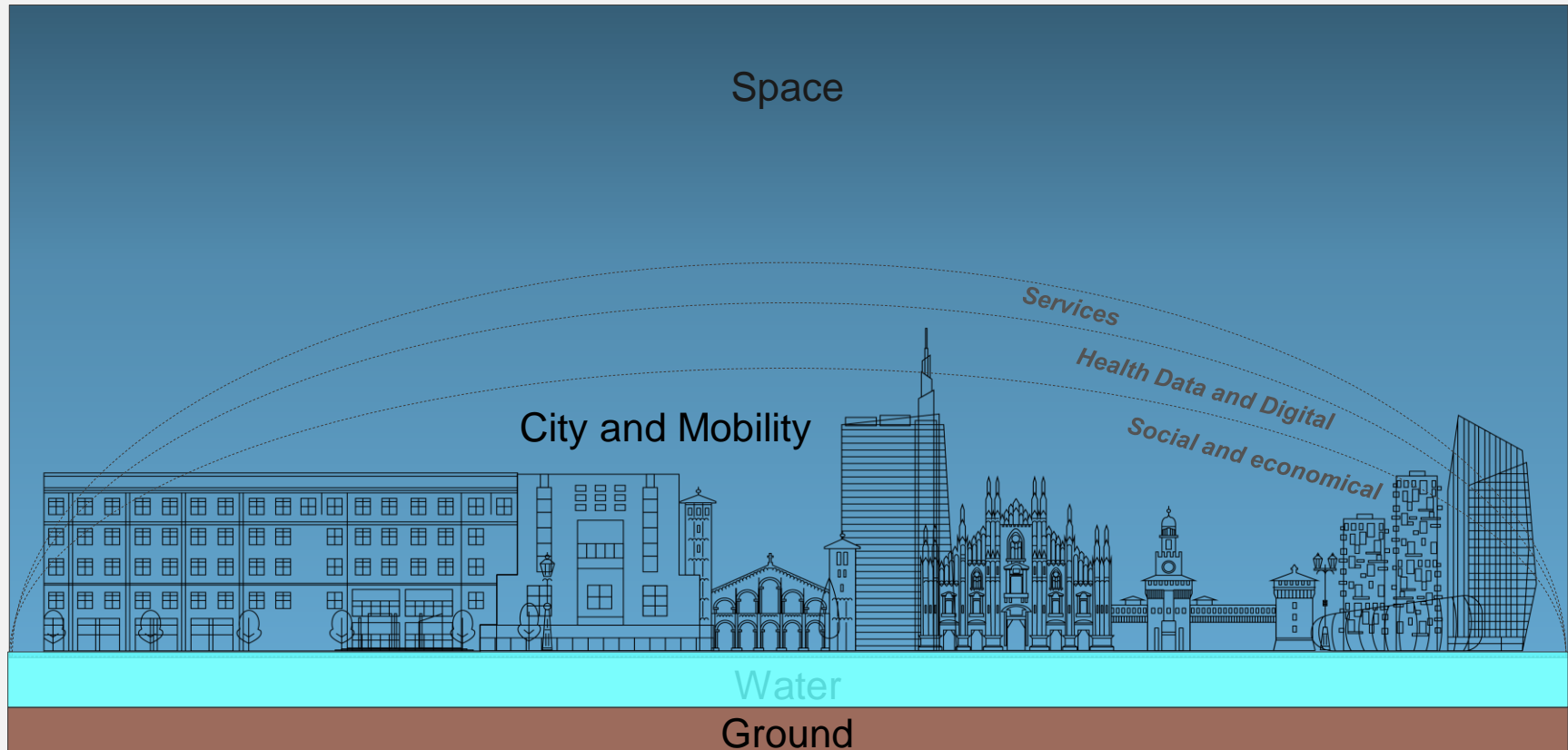


## Potential Partners – ongoing interactions





# Levels and Dimensions of Impact and Intervention



## Thematic Area

The Horizon Europe Cluster 5 **Climate, and Energy, Mobility** will contribute to achieving climate neutrality and the zero pollution ambition of the energy and transport sector while maintaining their competitive leadership and contribution to Europe's prosperity (Horizon Europe Work Programme, 2021)



The Innovation Ecosystem primarily focuses on the area of **Climate, Energy, Sustainable Mobility** with specific reference to the fields of:

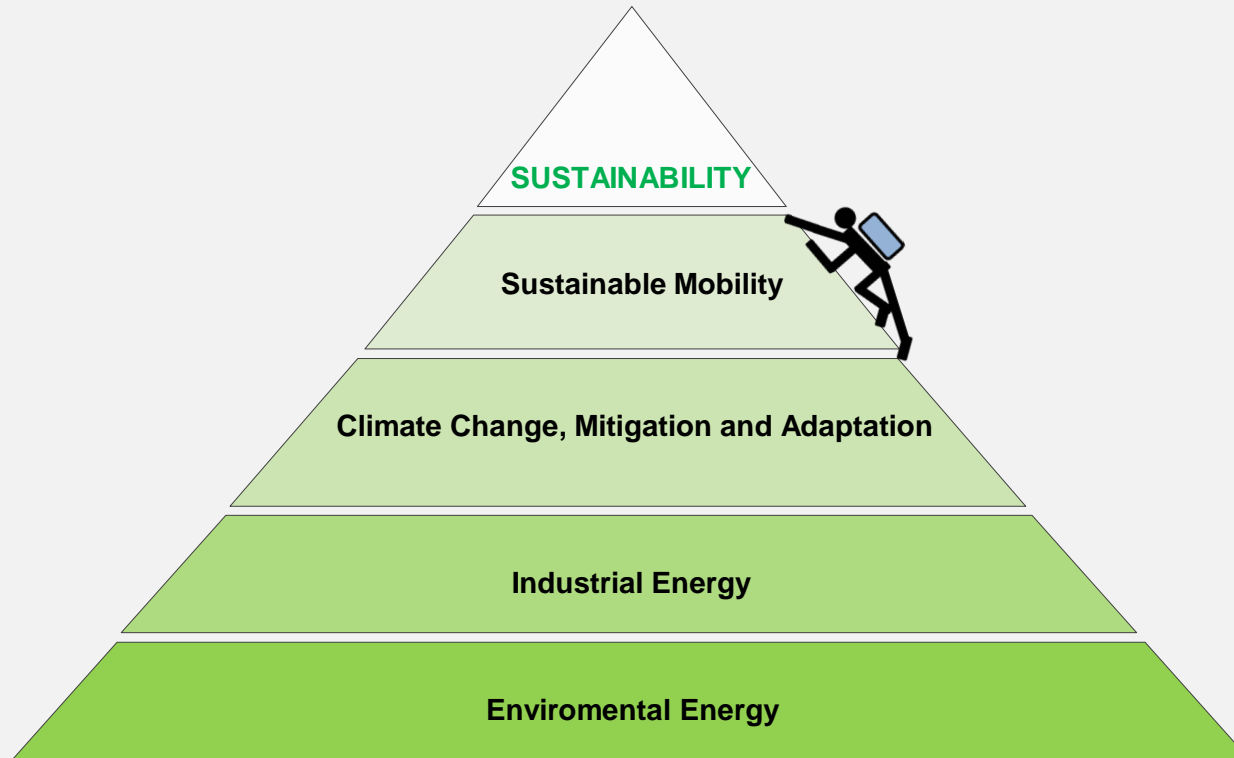
- Resilient cities and communities
- Energy
- Sustainable urban mobility

The characteristics of the Milan Area require the integration of several priorities and sectors for the Ecosystem to be impactful on the territory:

- Digital
- Advanced manufacturing
- Culture and creativity
- Finance
- Data for Health and Wellbeing
- Social transformations



# National Research Plan Field - Climate, Energy, Sustainable Mobility



# Links with the Regional Smart Specialization Strategy

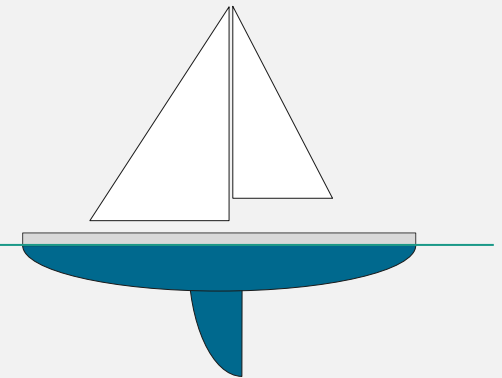
		S3 Ecosystems							
		Nutrition	Health and Life Science	Culture and Knowledge	Connectivity and Information	Smart Mobility and Architecture	Sustainability	Social Development	Advanced Manufacturing
S3 Specialisation Areas	Aerospace			✓	✓				
	Agrifood	✓	✓						
	Ecoindustry						✓		✓
	Cultural and Creative Industries			✓			✓	✓	
	Health Industry		✓		✓		✓		
	Advanced Manufacturing					✓			✓
	Sustainable Mobility					✓			

## Innovation Ecosystem – Some Definitions

- *Achieving and sustaining any development outcome depends on the ability of multiple and interconnected actors – governments, civil society, the private sector, universities, individual entrepreneurs and others – to work together effectively. Each set of interconnected actors whose collective actions produce a particular development outcome is a local system (or ‘ecosystem’). Improving that development outcome therefore requires an ecosystems approach* (idiainnovation.org)
- It is a system composed of *multiple actors involved that change or have different roles accordingly to the stage of development*
- It is not «static» but it *evolves through time enabling different phases of a continuous process*

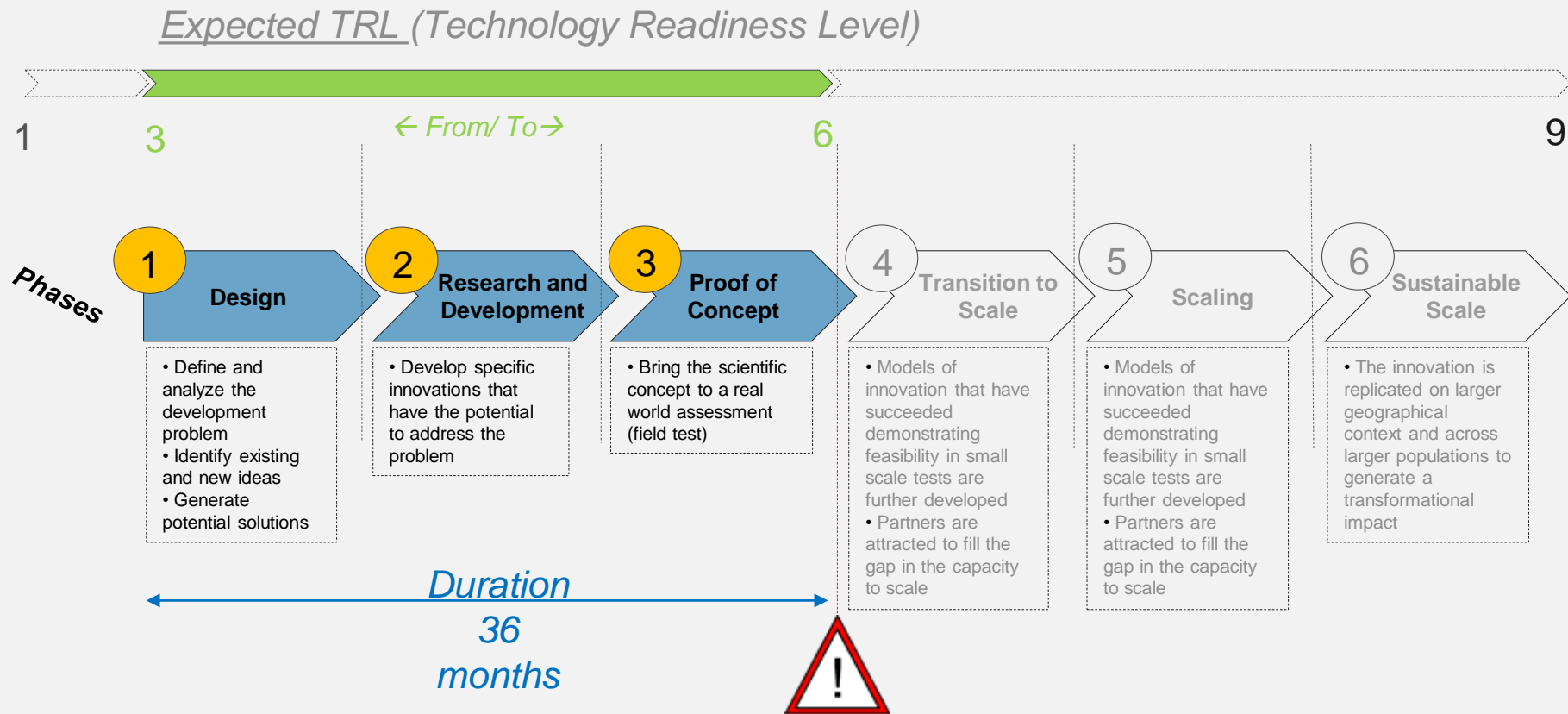
**MAKING EUROPE THE FIRST DIGITALLY ENABLED CIRCULAR, CLIMATE-NEUTRAL AND SUSTAINABLE ECONOMY through the transformation of its mobility, energy, construction and production systems**

**(HE strategic Plan)**





# PNRR Innovation Ecosystem – The Process



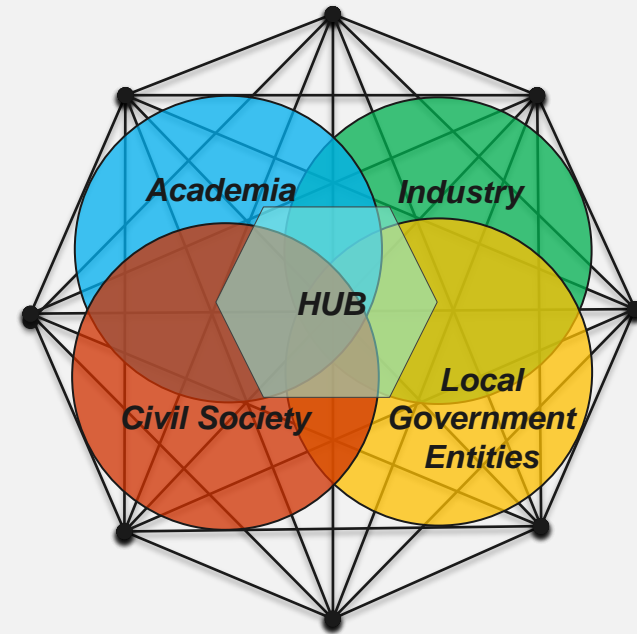


*MUSA: Bridging the gaps to achieve  
ecosustainable urban regeneration*



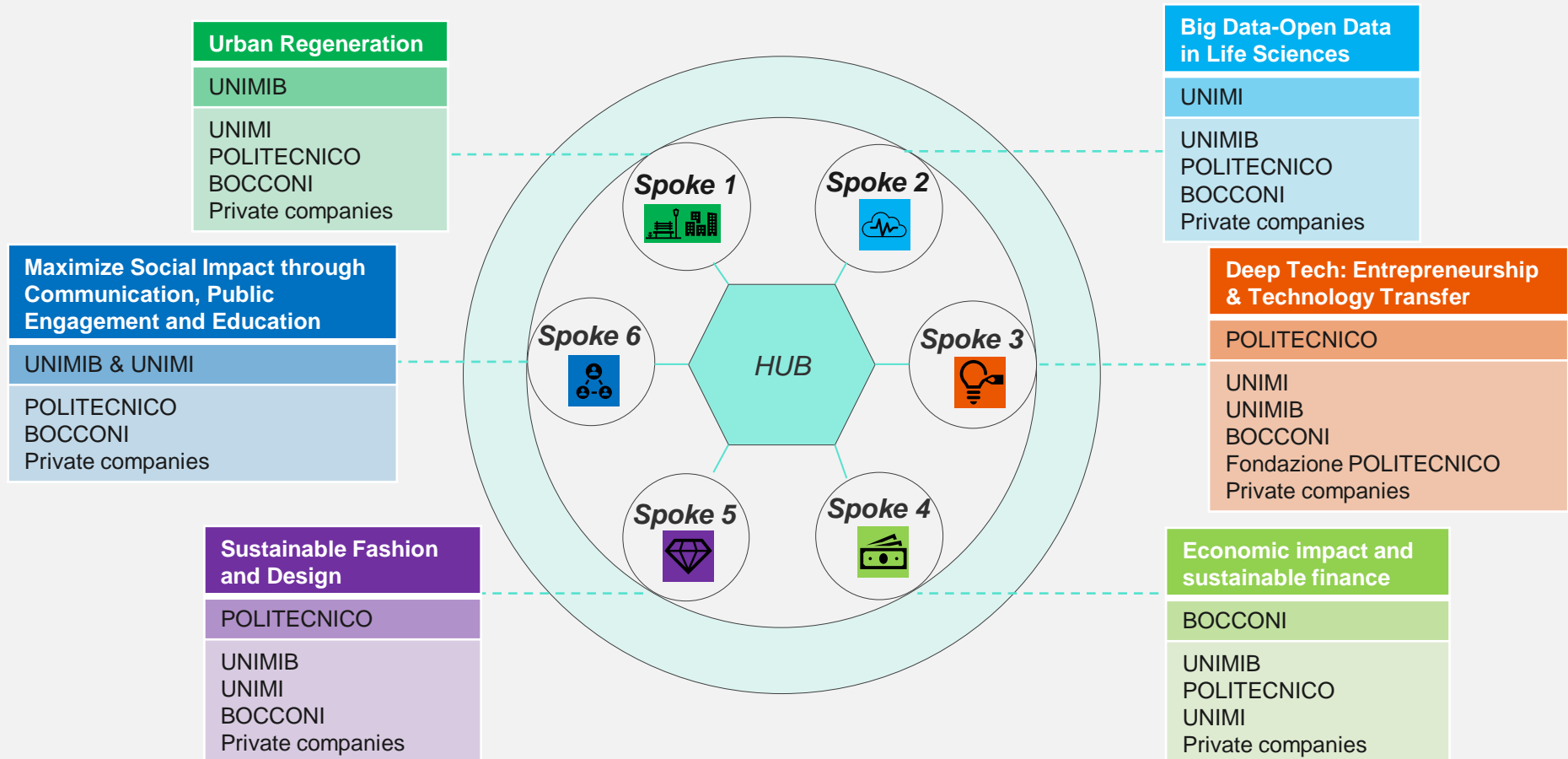
## Innovation Ecosystem – Open Innovation and *Quadruple Helix Model*

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





# Innovation Ecosystem – Spoke Structure (Spoke and Affiliated)



# Areas of intervention



Participation and empowerment of human capital



Inclusiveness and diversity



Circular Economy



Smart Mobility



Biodiversity



Data and digitalization



Design



Urban Regeneration



Sustainability



Wellbeing, Health & sustainable living



Renewable Energy



Contaminants and remediation



Finance and Entrepreneurship

Images freely taken from internet

## Spoke 1: Urban Regeneration

### Objectives

- Development of an ***integrated approach and a Phygital platform for urban regeneration planning*** able to enhance ***human wellbeing and to improve urban sustainability***
- Multiple representations of outcomes to foster a ***multi-stakeholder interaction*** through the platform that acts as a ***Collaborative Decision Support System***,
- To shape sustainable urban regenerations policies and actions with an evidence-based approach

### Methods

- The approach combines the ***elements of urban architecture with the value of ecosystem services and natural resources and with the cognitive behavioral aspects***
- ***The Platform is conceived as an ecosystem (inter-scalar and multi-disciplinary)*** enabling the collection of objective environmental data, subjective personal data in aggregated form, and economic data related to Nature Based Solution

### ***Key contribution to the Innovation Ecosystem***

Drive urban regeneration through industrial innovation and sustainable well being absorbing/integrating data from Spoke 2 to formulate models for healthy and sustainable lifestyle; models of social participation from Spoke 6 will nourish the design of new neighborhoods (RRI approach).





## Spoke 2: Big Data-Open Data in Life Sciences

### Objectives

- **Involvement of citizenship on the territory to foster healthy lifestyles** and behaviours
- Holistic and innovative system for the **fast and secure storage and exchange of big data** in life sciences
- Big data for **new technologies for research in the life sciences and for prevention and well being**
- **Personalized and continuous monitoring of the citizen's state of well-being and prevention**

### Methods

- **Co-production of health: the role of the citizen in the collection of big data**
- **Sustainable services to promote citizens' health and well-being** (including fragile categories)
- **System for the exchange of biological data**; governance, management, regulation of access to in silico data services
- **Technologies for data collection** in pharmacological, preclinical, diagnostic, educational fields; **digital datasets for the production of artificial organs**, planning, surgical training
- **Digital solutions for the risk stratification and prevention of non-communicable diseases; Wearable technology to evaluate responses for the prevention of health risks**; digital twins for complex systems
- **Assessment frameworks for AI and ML-based Tech.**

### Key contribution to the Innovation Ecosystem

**Impact for the citizens wellbeing through the participated transformation of lifestyles;** structured **collection of big data in life science biomedical research** in Lombardy and development of life science and pharmaceutical industry. Interaction with Spoke 1 for **sustainable life styles**; Spoke 6 for **social inclusion and life style**, Spoke 3 and 5 for **industrialization of developed solutions and findings, Tech Transfer, Economic Sustainability.**



## Spoke 3: Deep Tech: Entrepreneurship & Technology Transfer

### Objectives

- Enhance the territorial vocation as *cradle of innovation*
- Supporting entrepreneurship based on technological innovation
- Provide local businesses and SMEs with services for R&D
- Increase technology transfer from Academia to businesses

### Methods

- Support industrial research and TRL increase with dedicated laboratories
- Proof of Concept programme through calls and competitions
- Tutoring programmes and entrepreneurial education
- Development of start-up acceleration and TT strategies
- Living labs, Use cases, Lab flagships

### ***Key contribution to the Innovation Ecosystem***

Bridging the gap between Academic research and business, and opening the Ecosystem to external R&I initiatives to ensure territorial impact.



## Spoke 4: Economic Impact and Sustainable Finance

### Objectives

- Support private and public investment decisions for sustainability
- Inform about cost-effectiveness of sustainable projects
- Spreading the culture of data-driven policy- and decision-making
- Education to finance and economic impact

### Methods

- Applied research to build knowledge capital on sustainability
- FinTech and Tech4Fin
- Involvement of key actors: financial sector and local communities
- Training and best practices for sustainable finance and economic impact
- Application of new technologies to financial products and markets
- Behavioral sustainable finance and nudging

### *Key contribution to the Innovation Ecosystem*

Providing the Ecosystem actors with the framework and the tools to integrate sustainable finance and economic impact analysis in the Twin Transitions actions.





## Spoke 5: Sustainable Fashion and Design

### Objectives

- Develop and disseminate a circular and environmentally sustainable industrial paradigm for fashion, luxury and design system
- Promote novel and sustainable consumer models
- Boost responsible, traceable and short supply chains

### Methods

- Integration of the opportunities brought by digital technologies and new materials in the value chain
- Development of original, sustainability-driven business models
- Shared platform for sustainable luxury
- Co-creation with customers and awareness raising
- Education for companies and professionals

### *Key contribution to the Innovation Ecosystem*

Contributing to the green transition of one of the excellences of the Milan economic system.



## Spoke 6: Maximize Social Impact through Communication, Public Engagement and Education

### Objectives

- Drive the green and digital transitions towards social wellbeing
- Make innovative and emerging technologies more inclusive and accessible
- Support vulnerable groups through digital tools
- Promote gender equality

### Methods

- Permanent initiatives on the territory (cultural district, hubs, platforms, Open-air labs...)
- Awareness raising initiatives
- Citizen Science
- Training activities and innovative teaching and collaboration methods
- Transfer of best practices
- Public engagement and participatory actions
- Monitor the performances of public and private actors through a novel social-inclusion index

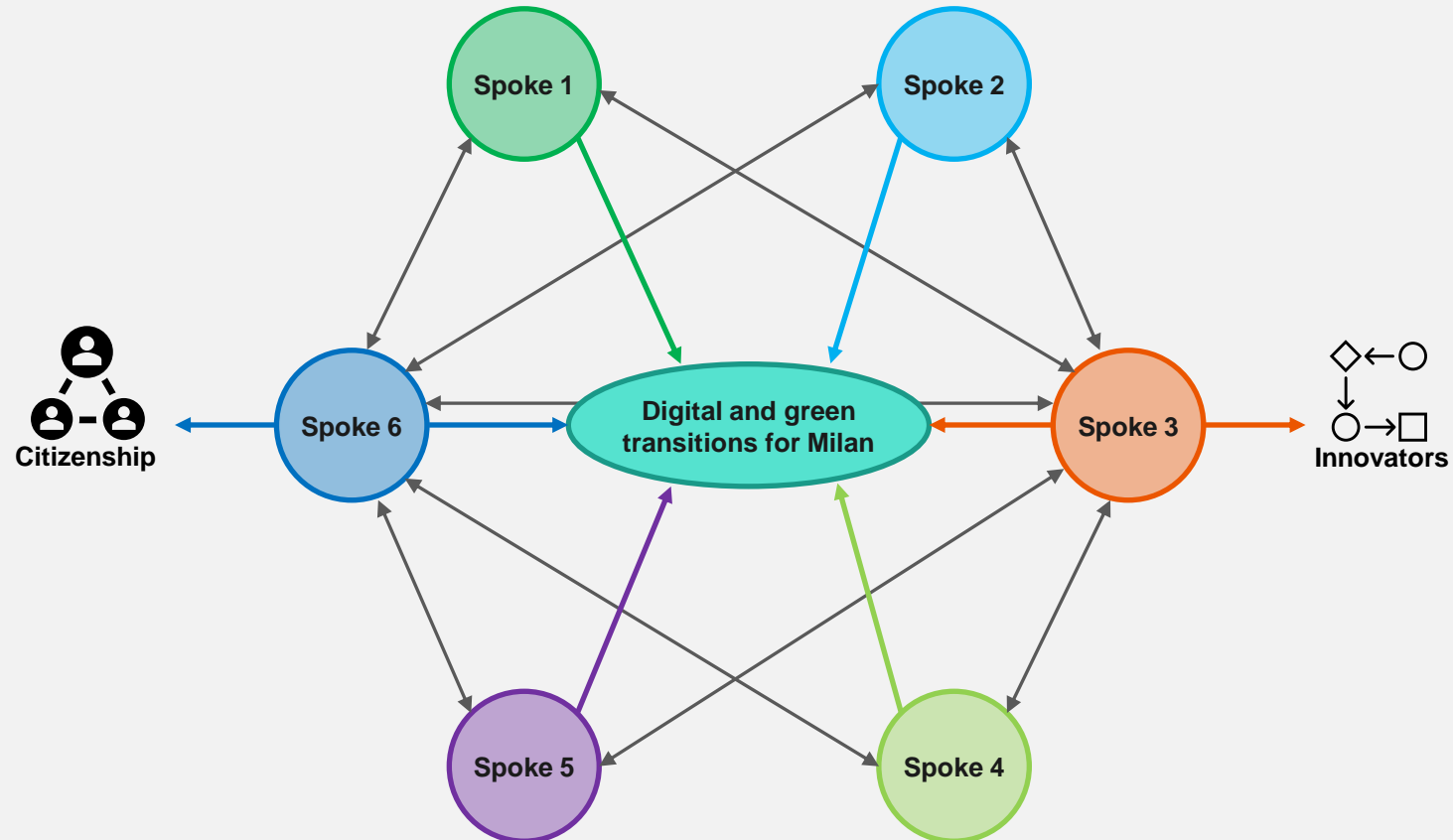
### *Key contribution to the Innovation Ecosystem*

Facilitating the green and digital transition and bring the R&I findings of the entire ecosystem to the citizenship. Shape a resilient society ready to support the transformations.



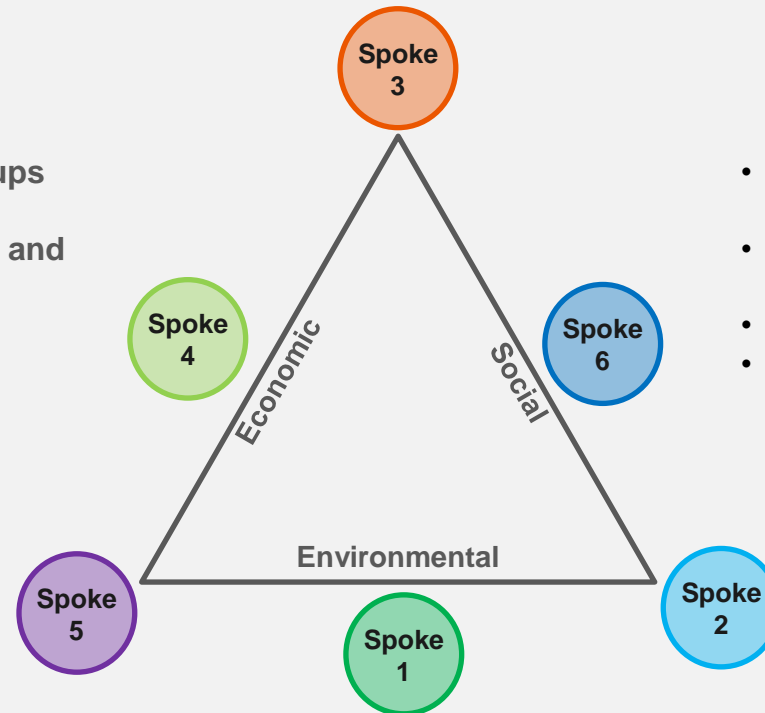
# Pert Like Diagram (dependencies)

*The Ecosystem will work as a whole...*



# Impacting the three dimensions of sustainability

- New technological startups and entrepreneurship
- Economic Sustainability and feasibility
- Economic impact assessment
- Tech Transfer
- Deep Tech



- RRI (Responsible Research and Innovation)
- Social inclusion and Participation
- Training and education
- Gender equality

- Ecosystemic services
- Urban Regeneration (incl. Mobility, waste MgMt and energy)
- Health, data, digital and sustainable living



# The path forward: internationalisation

*Beyond the territorial dimension and the NRRP: a model to be transferred and integrated*



The MUSA Ecosystem is **aligned with key European and international priorities:**

- Twin Transitions & Green Deal
- Horizon Europe's pillars on *Global challenges and European Industrial Competitiveness* and *Innovative Europe*
- UN Sustainable Development Goals (Agenda 2030)

The MUSA Academic partners have **consolidated collaboration networks** across the EU and worldwide.

MUSA ambition is to become a **European and global example of excellence**, exploiting existing links and building new bridges.





*Thank you!*

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