



# Integrated Planning for Resilient Cities – Tools and Approaches

Morgenstadt Smart Cities Global – Expertise Building Webinar 03

*Friday, 11th of June 2021, Moderation: Sophie Mok, Fraunhofer IAO*



*Please mute your microphones and turn off the cameras during the presentations.*



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University of Stuttgart  
Institute for Human Factors and  
Technology Management IAT



Fraunhofer

Supported by:



Federal Ministry  
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and Nuclear Safety

based on a decision of the German Bundestag

# ABOUT MGI

## 树叶 Funding



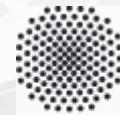
On behalf of



Federal Ministry  
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## 树叶 Coordination



**University of Stuttgart**  
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## 树叶 Implementation



Frankfurt School  
of Finance & Management  
German Excellence. Global Relevance.



National Institute of Urban Affairs  
**NiUA**

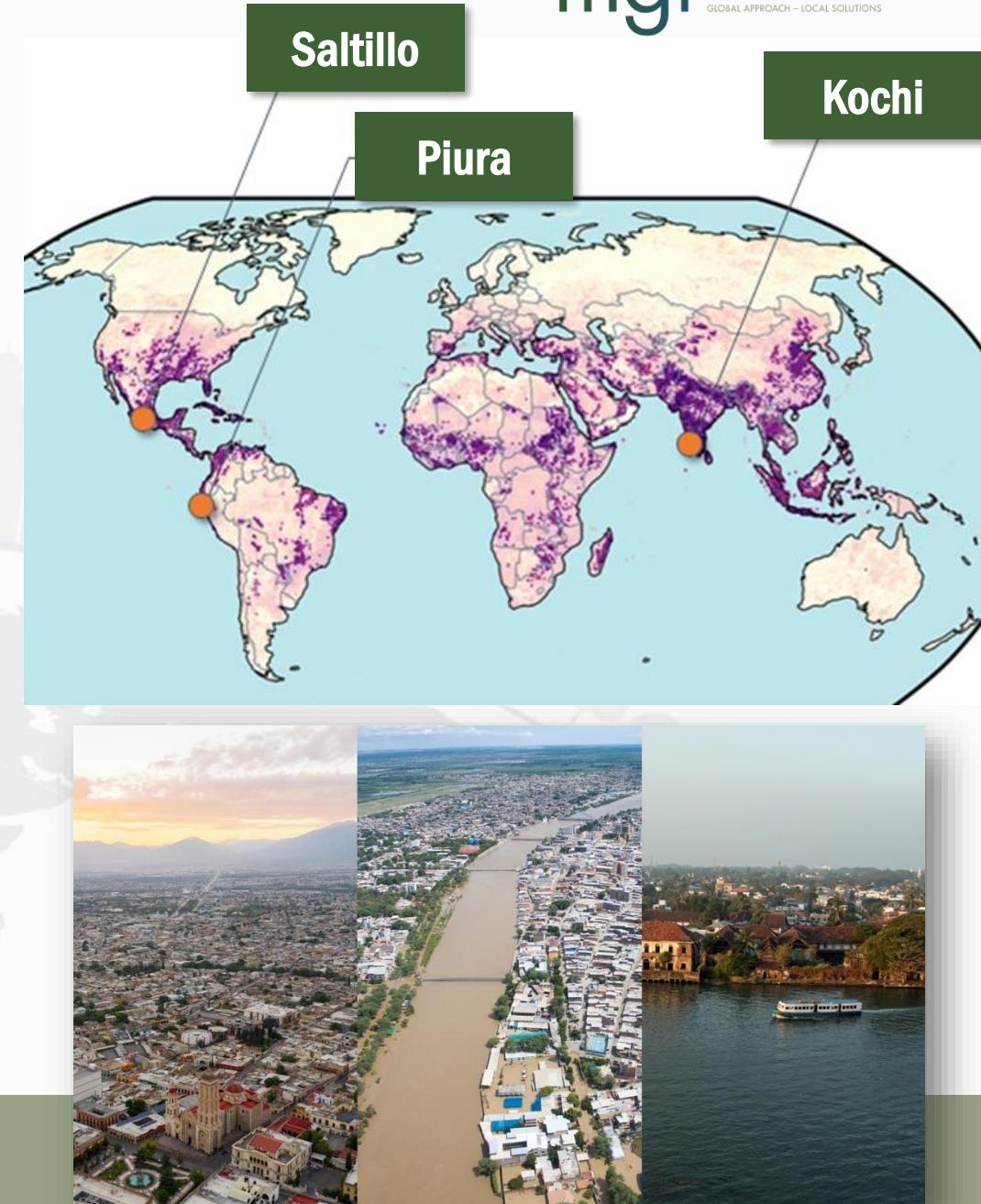


# MORGENSTADT SMART CITIES GLOBAL INITIATIVE

## Mission

- ⌚ Mitigation of and adaptation to climate change impacts
- ⌚ Low-emission, environmentally conscious and innovative urban development  
(Sustainable Development Goals (SDG 11))
- ⌚ Replicable and affordable solutions for the resilient and livable city of tomorrow

[www.mgi-iki.com](http://www.mgi-iki.com)



# Agenda

## 🕒 Co-creation, Participation and Living Labs in Holistic Planning

Dr. Francesca Spagnoli, Head of International Projects ENOLL

## 🕒 Digital Twins, Urban Simulation and Visualization in Planning Processes

Leyla Kern, High Performance Computing Center Stuttgart (HLRS)

## Break

## 🕒 Integrated approaches towards climate-resilient and inclusive cities – experiences from Jakarta

Dr. Christiane Gebhardt, Haris Piplas, Urban Solutions Drees & Sommer Switzerland

## 🕒 Integrated planning for climate resilience – experiences from Milan

Ilaria Giuliani, Deputy Chief Resilience Officer Municipality of Milan

# **European Network of Living Labs**

*Co-Creation and Living Labs in Holistic Planning*

*Dr. Francesca Spagnoli, Head of Projects at ENoLL*

*Morgenstadt Global Smart Cities Initiative, 11 June*

*2021*

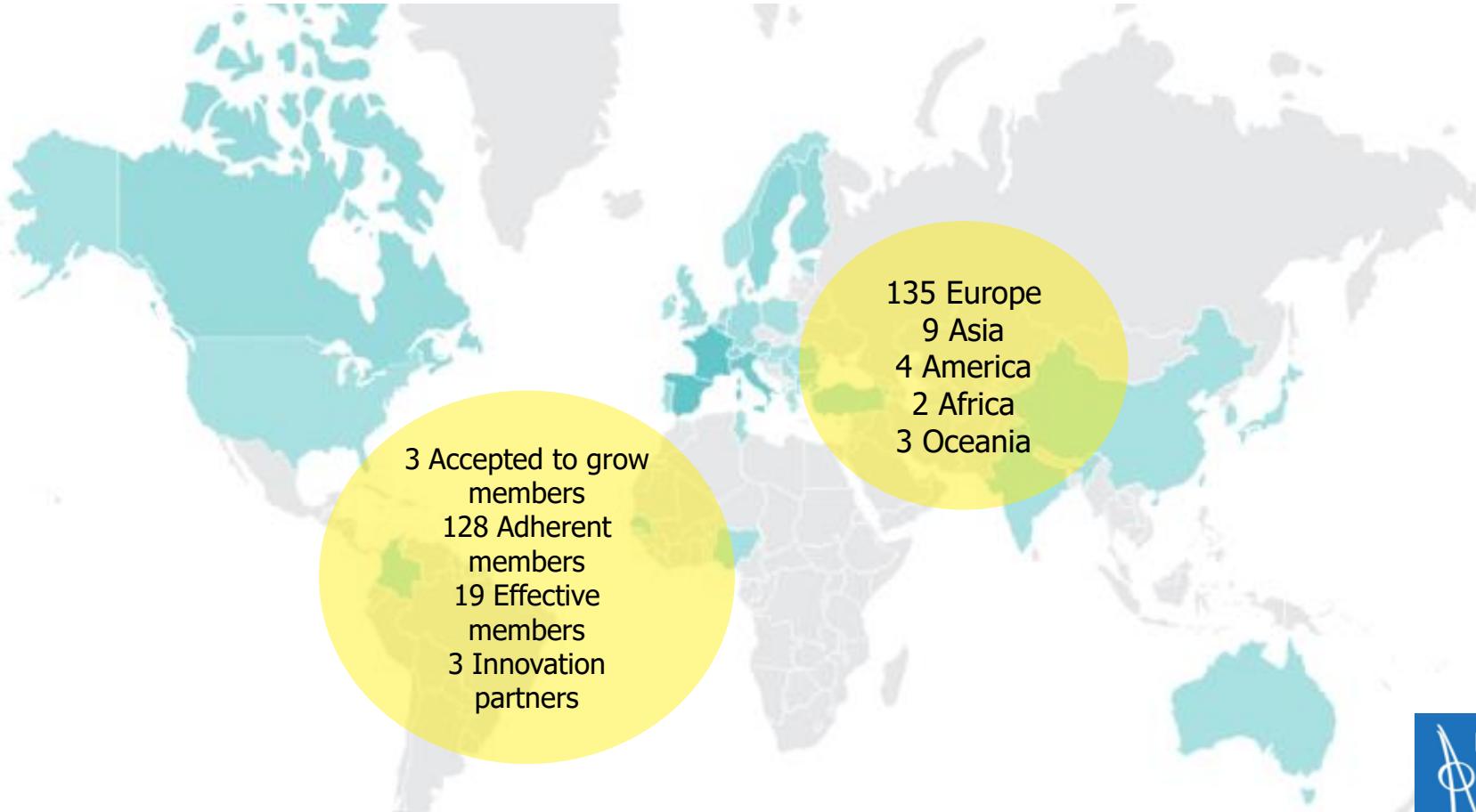
# A few words about myself

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- PhD. In Innovation Management at the Faculty of Economics in the University of Rome La Sapienza (Italy)
- Senior researcher at imec (Belgium) in the Smart Cities unit
- Currently head of Projects at the European Network of Living Labs
- Contributed to create and develop more than 30 European Commission funded projects in the fields of Open Innovation, Energy & Environment, Smart Cities, ICT, etc.
- A true passion for Living Labs and for enacting Open Innovation by implementing user-centric and multi-stakeholder facilitation and co-creation methods



# Our network



# Areas of work



# Our building blocks

## SOCIAL INNOVATION



Function as vehicle for systemic change by experimenting with social innovations. Focusing on people/citizen-oriented strategies to thrive inclusion, engagement, co-creation and collaboration.

Act as multidisciplinary and transversal enabler for Digital Innovation Hubs to bring the human factor in urban and large-scale pilots.

## INDUSTRIAL DEMONSTRATION



Europe needs a **Pan European Large-scale Open Innovation Ecosystem, a Collaboratory**. That is not only about research for innovation but rather about **participative RDI work of experimenting for innovations and their diffusion through scalable RDI activities** including pre-market experimentation, piloting and testing for new open ecosystem-based technologies, services, and businesses.

## OPEN SCIENCE



Scientists, citizens, publishers, research institutions, public and private research funders, students and education professionals as well as companies from around the globe are sharing an open, virtual environment called The Lab”.

(Carlos Moedas, Open Innovation, Open Science and Open to the World. 2016 : 22.)  
Open Science Policy Platform

# Action Oriented Task Forces

European Network of Living Labs



SOCIAL  
INNOVATION &  
DIGITAL RIGHTS

SOCIAL IMPACT OF  
ARTIFICIAL  
INTELLIGENCE

HEALTH  
&  
WELL-BEING

RURAL  
LIVING LABS

ENERGY  
&  
ENVIRONMENT

Website: <https://enoll.org/task-forces/enoll-action-oriented-task-forces-program/>

- + Culture & Creativity
- + Mobility
- + Agriculture & Agrifood

To join a Task Force, subscribe here:  
<http://bit.ly/ENOLLAOTF>

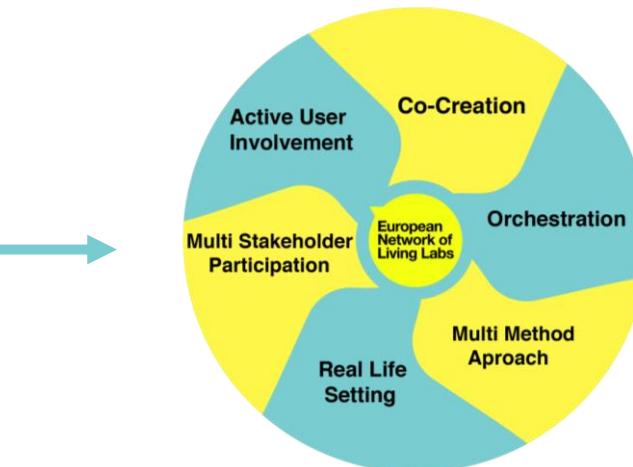
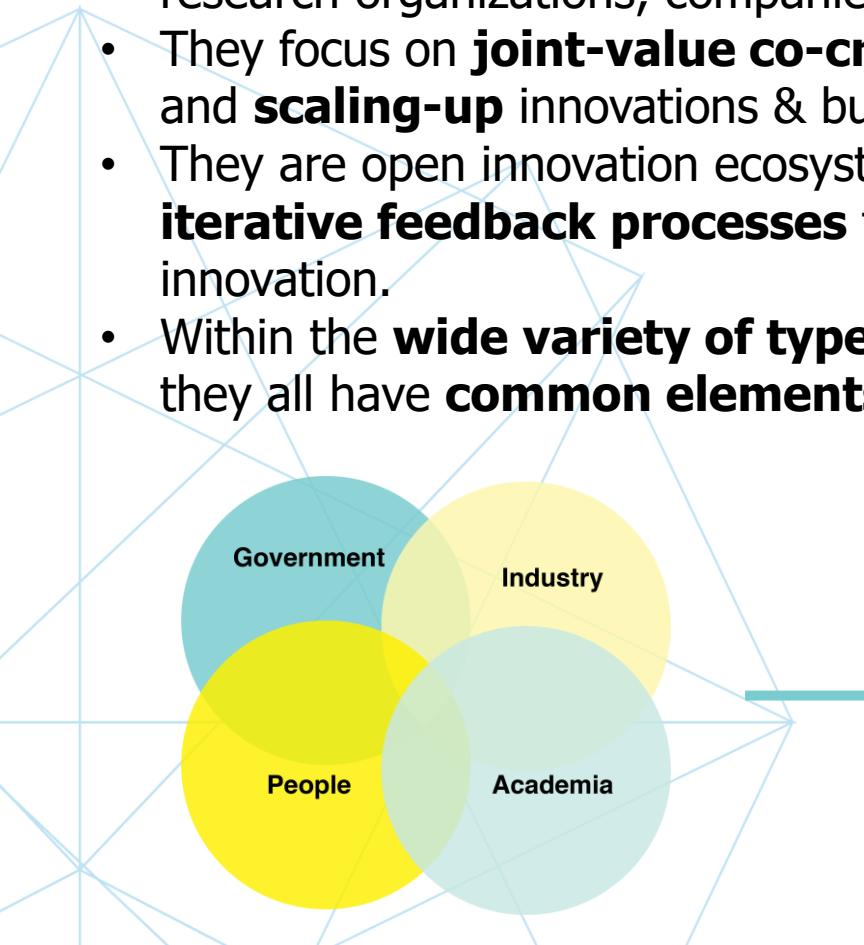
European Network of Living Labs

# What are Living Labs?

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# What are Living Labs?

- Living Labs operates as **intermediaries/orchestrators** among citizens, research organizations, companies & government agencies/levels.
- They focus on **joint-value co-creation**, rapid **prototyping and testing** and **scaling-up** innovations & businesses.
- They are open innovation ecosystems in **real-life environments** using **iterative feedback processes** throughout the **lifecycle approach** of an innovation.
- Within the **wide variety of types of living labs** and their implementations they all have **common elements**.



# LIVING LABS, A THREE LAYER MODEL

	DEFINITION	RESEARCH PARADIGM
MACRO	Living Lab constellation consisting of organised stakeholders (PPP-Partnership)	Open Innovation: Knowledge transfers between organizations
MESO	Living Lab innovation projects using Living Lab methodologies	Open & User Innovation: Real life experimentation, active user involvement, multi-method and multi-stakeholder
MICRO	Individual Living Lab research steps and activities linked to the stakeholders' assets and capabilities	User Innovation: User involvement & contribution for innovation

*Value of Living Labs as a means to structure user involvement*  
Vrije Universiteit Brussel. Faculty of Economic



# Transnational experimentations



Discover ENOLL members via  
<https://enoll.org/network/living-labs/>

# Co-Creation and ULLs in Holistic Planning: the UNaLAB case

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# Urban Nature Labs project (UNaLab) Horizon 2020

2017

2022



## OBJECTIVE

The UNaLab project is contributing to the development of smarter, more inclusive, more resilient and more sustainable cities through the implementation of nature-based solutions.



## PROCESS

Eindhoven, Tampere and Genova - are through the establishment of Urban Living Lab demonstration areas experimenting, demonstrating and evaluating a range of different nature-based solutions addressing climate and water related urban challenges.

ENoLL has trained the cities in Living Lab methodology.



## OUTCOME

The project will guide cities across Europe and beyond in developing and implementing their own co-creative nature-based solutions, using the Urban Living Lab methodology.



European Network of Living Labs

# The UNaLAB Project



## NBS Challenges, UNaLab Solutions, Impacts

### NBS Challenges (City, Society, Technology)

- Inclusion of citizens (their involvement in validation and co-creation of ideas for NBS implementation)
- Co-creation of the quadruple helix & identifying co-creation barriers
- Understanding ULL concept & its correct implementation

### UNaLab Solution(s) (WP Outputs)

- Training in a universally recognized co-creation methodology
- Establishing a common Urban Living Lab Framework and training in Urban Living Lab development
- Set of tools for co-creation developed or tested within the project to organize co-creative activities and ensure a collaborative approach
- Reviewing the success of systems put in place and barriers of implementation - providing recommendations on how to overcome them

### Foreseen Impacts (Cities, Society)

- Creating a more engaging and inclusive society; opening the innovation process to a wide range of actors that would normally not be involved
- Knowledge sharing beyond the project- through publicly available materials
- Social infrastructures in which different stakeholders share the ownership of their city's NBS.

# Co-creation workshops in Tampere



Testing: Vuores 20.5.2018 nature trail and NBS info during Vuores Day Festival



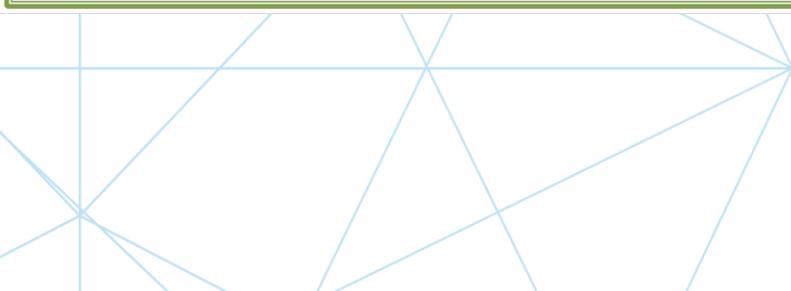
Ideating: Vuores 9.4.2018 session for Kindergarten kids and Elementary School pupils (101 participants)

01/06/2021



Horizon 2020  
European Union funding  
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 730052 | Topic: SCC-2-2016-2017: Smart Cities and Communities Nature based solutions



# Co-creation workshops in Eindhoven



Exploration (workshop 1)



Prototyping (workshop 3)

01/06/2021



Horizon 2020  
European Union funding  
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 730052 | Topic: SCC-2-2016-2017: Smart Cities and Communities Nature based solutions



# Co-creation workshops in Genova



Vision making



Idea generating: Participation and engagement strategy

01/06/2021



Horizon 2020  
European Union funding  
for Research & Innovation

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WP-2

# Co-creation toolkit

## Computer

The screenshot shows a grid of 12 cards, each representing a different co-creation method. Each card includes a small icon, the method name, a category name, a PDF download link, duration (60-120 min or 10-40), and group size (10-40). The methods listed are:

- Walt Disney Method
- Harmonized Cube
- Future Telling
- Blink Testing
- Citizen Participation Ladder
- Roadmapping
- The Mom Test
- Lego Serious Play
- Coal Wall
- First Click Testing
- Six Thinking Hats
- Amplifier Setting

At the bottom left is the UNaLab logo: **UNaLab** URBAN NATURE LABS.

## Mobile device

The screenshot shows the same grid of 12 cards as the computer version, but with a mobile user interface. It includes a header with the URL [unalab.enoll.org](https://unalab.enoll.org), a menu icon, and a back/forward navigation bar at the bottom.

## Online toolkit:

- Selection of tools for co-creation either developed or tested within the project
- Easy to access on any device
- Simple browsing experience
- Use: can be used as a source of inspiration & to prepare a co-creative session

## Dissemination:

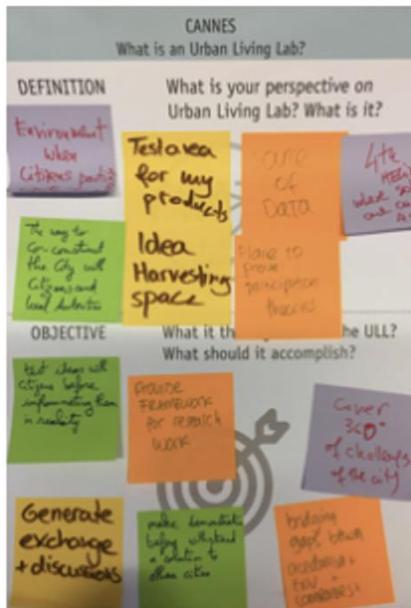
- Events
- Flyers and SM cards
- Social Media

<https://unalab.enoll.org>

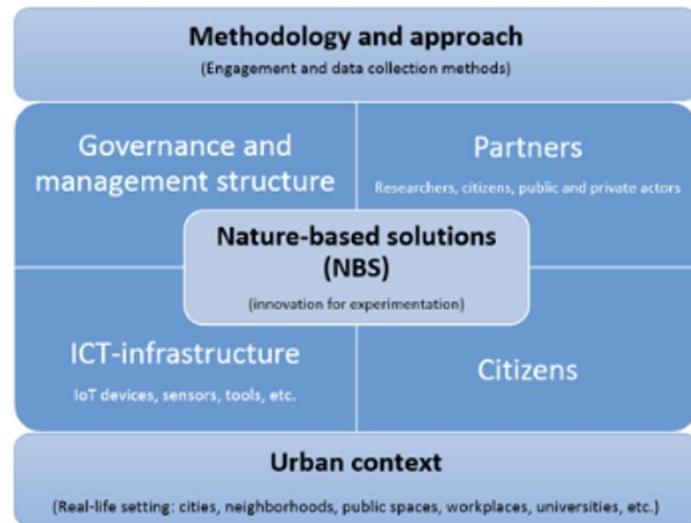
# Urban Living Lab Framework



Templates used with the UNaLab cities



## Urban Living Lab (ULL) Framework



Urban Living Lab Framework

01/06/2021



European  
Commission

Horizon 2020  
European Union funding  
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 730052 | Topic: SCC-2-2016-2017: Smart Cities and Communities Nature based solutions

# Handbook



LIVING LAB HANDBOOK  
FOR URBAN LIVING  
LABS DEVELOPING  
NATURE-BASED  
SOLUTIONS



**01.** p. 04

ABOUT THE  
URBAN NATURE  
LABS PROJECT  
(UNaLAB)

**04.** p. 09

CITIZEN  
ENGAGEMENT

- 4.1. Guidelines on citizen engagement p. 10
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URBAN LIVING  
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- DEVELOP YOUR  
URBAN LIVING LAB

- 7.1. Instructions p. 44
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HOW TO SET-UP  
AND RUN AN URBAN  
LIVING LAB

- 5.1. Planning and setting up p. 23
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WHAT ARE URBAN  
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- 3.1. Seven key components of Urban Living Labs developing nature-based solutions p. 07

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COMMON PITFALLS  
IN SETTING UP A  
LIVING LAB

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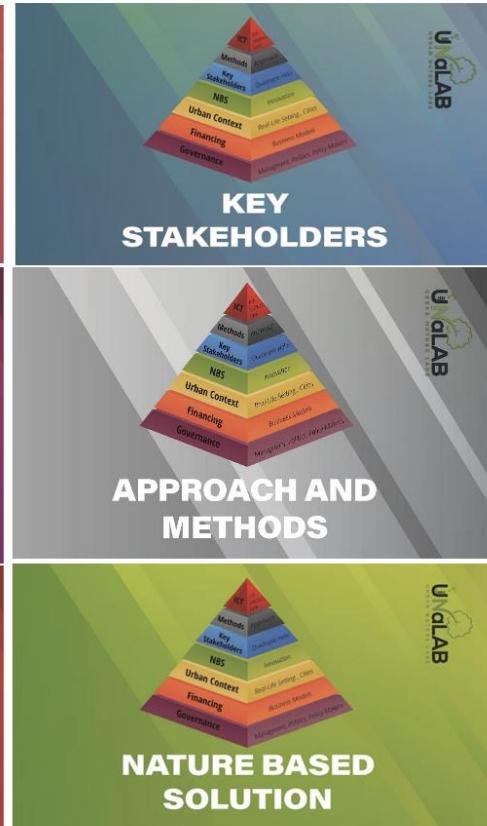
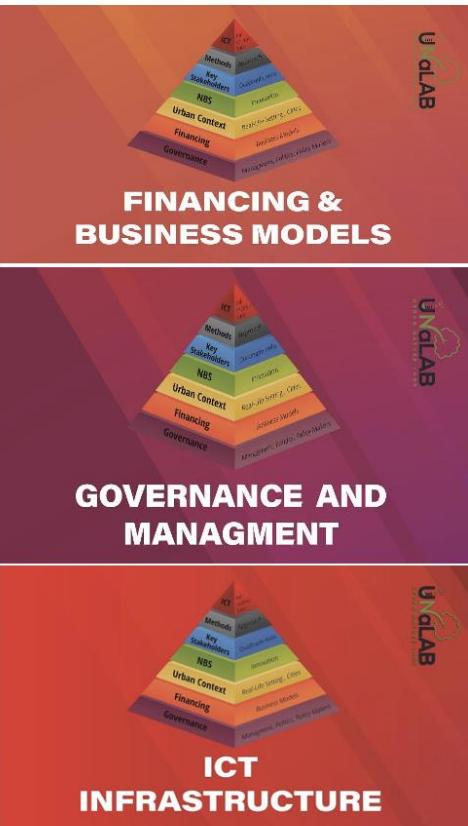
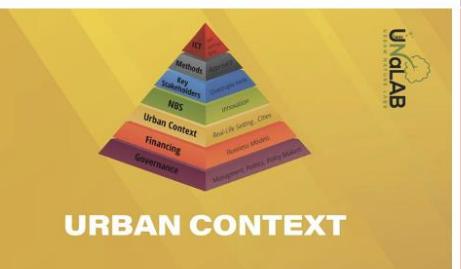
- ULL Framework research
- ULL Training
- FRCs experiences
- Tips – from FRCs & ULLs

# Roadmap for your Urban Living Lab: Framework Toolkit



## Main Cards

- Seven decks of cards, each deck represents one key component of ULL framework.
- Barrier and stop cards.



**UNaLab**  
URBAN NATURE LABS

European  
Network of  
Living Labs



## Co-creation Game





# Urban Living Lab Trainings



Training in Tampere, Eindhoven and Genova by ENoLL experts

01/06/2021



Horizon 2020  
European Union funding  
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 730052 | **Topic: SCC-2-2016-2017: Smart Cities and Communities Nature based solutions**



# Inspirational Stories from Living Labs

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# Hackable City of Things: empowering citizens to create the smart city of tomorrow

[https://www.imeccityofthings.be/en/projecten/hackable-city-of-things\\_2](https://www.imeccityofthings.be/en/projecten/hackable-city-of-things_2)

# HOW? QUADRUPLE HELIX INVOLVEMENT – ACTOR ROLES

## CITY OF THINGS – IOT FOR SMART CITY SOLUTIONS



### CoT for companies

The City of Things is a large-scale and real-life living lab where businesses can test and develop their smart city applications, products and services. We offer a testing ground comprising thousands of citizens, together with a wide range of expertise in the development of smart city applications and business innovation.

<https://www.imec-int.com/en/what-we-offer/innovation-services/city-of-things/the-four-cornerstones-of-the-city-of-things>

### CoT for researchers

Our goal is to advance the state-of-the-art of technology. By granting universities and other institutions access to the unique City of Thing, we aim to combine the unique expert knowledge and push innovation forward.



### CoT for citizens

The true essence of a smart city is not that it is crammed full of new technology just for the sake of doing so. It is first and foremost a city where the quality of living is raised to a new level, capitalizing on the practical needs and expectations of its residents. In the City of Things, citizens are put center-stage during the entire innovation process, from idea

### CoT for governments

City of Things provides the city of Antwerp with a unique infrastructure to develop and test innovative solutions to tackle its urban challenges. To other cities – both locally and internationally – it offers a window to the what's and how's of creating a truly smart city –from a technological, logistical and legal point of view.

imec

European  
Network of  
Living Labs

# EXAMPLES OF VALUE – BAŞAKŞEHİR LIVING LAB

## ❖ SMART RUBBISH COLLECTION SYSTEM



<https://m.youtube.com/watch?v=--KBNwFf-BE>

## ❖ MOBILE HEALTH STATION



Health centers



Buildings



Supper Markets  
and Shopping  
Centers



Elders Care Home



Pharmacy



Home





# NTN Innovation Booster – Living Labs for Decarbonisation

## Let us help you co-design our decarbonised future

LET'S CO-DESIGN OUR  
DECARBONISED FUTURE.  
WELCOME TO THE NTN INNOVATION  
BOOSTER PROGRAM.

<https://www.energylivinglab.com/project/ntn-innovation-booster-project/>



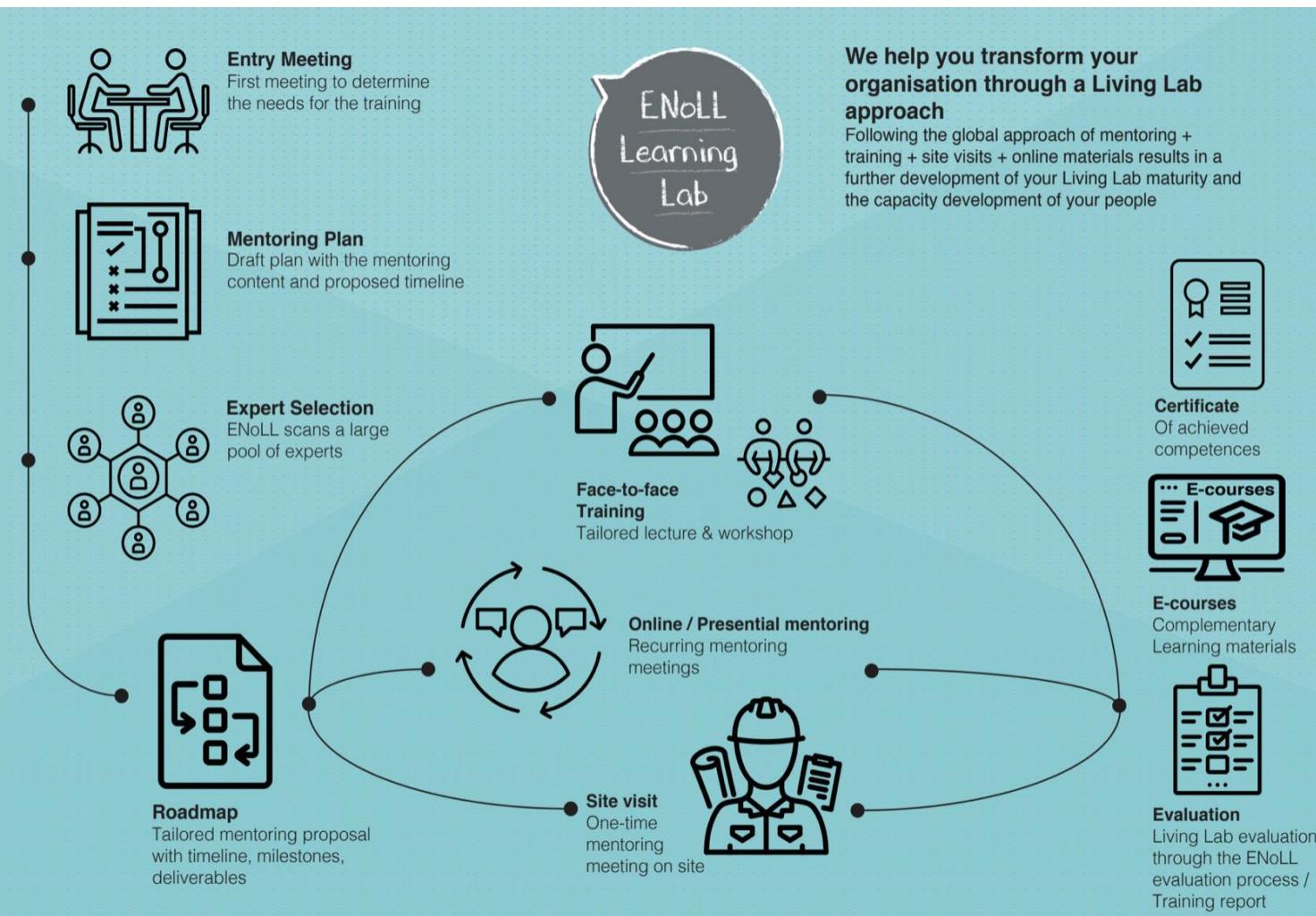
# Two Living Labs at the Joint Research Centre: the European Commission Testbed for Smart Energy and Mobility Solutions



# How to become part of the Living Lab community

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# ENoLL Capacity Building Programme



# Virtual Learning Lab

## 2021

The 8-week Learning Lab Program combines:

- **Expert presentations**, hands-on **co-creative sessions** and **interactive discussions** with real-life **case studies**
- Hands-on **assignments** and **application of learning materials** to your own Living Lab case, in between the weekly sessions
- **Expert & peer-to-peer support** and **evaluation**, learning from each other while **networking**
- **Dynamic & interactive** environment facilitating **knowledge exchange** in various formats and learning styles!
- Taking the first step in **joining the community of Living Labs**, interacting with **like-minded people and organizations**

The program consists of **weekly scheduled sessions** to attend as well as **assignments in between the weekly sessions** to apply the learnings in the various cases brought in by a diverse group of participants and experts. The collaborative platform allows for continuous feedback and interaction.

\* Preliminary program, subject to refinement

### Learning Lab Program\*

1. Day0: How to set-up a Living Lab?  
Exercise 1: my Living Lab
2. Stakeholder engagement  
Exercise 2: stakeholder engagement plan
3. Co-creation  
Exercise 3: LL co-creation
4. Real-life experimentation  
Exercise 4: experimentation plan
5. Governance models  
Exercise 5: governance models
6. Value  
Exercise 6: LL value
7. Business models  
Exercise 7: My Living Lab
8. Hack my Living Lab

# OpenLivingLab Days / Digital Living Lab Days

OpenLivingLab Days (OLLD) is the annual gathering of the global Living Lab community. Through interactive panel discussions, hands-on workshops with leading experts and site visits to our local partners, OLLD offers an exclusive networking and knowledge sharing experience.

The 11th edition of the event was held digitally!

Website: [www.openlivinglabdays.com](http://www.openlivinglabdays.com)



- [info@enoll.org](mailto:info@enoll.org)
- 
- [@openlivingla](https://twitter.com/openlivinglab)
- [www.enoll.org](http://www.enoll.org)

# Thank you for your attention!



# DIGITAL URBAN TWINS

URBAN SIMULATION AND VISUALIZATION IN PLANNING PROCESSES

LEYLA KERN

HIGH-PERFORMANCE COMPUTING CENTER | STUTTGART (HLRS)

HLRS  
High-Performance Computing Center | Stuttgart

# HLRS

Engineering

Global Systems Science

Social Challenges



HLRS

High-Performance Computing Center | Stuttgart

# SUSTAINABLE DEVELOPMENT GOALS

Cities  
Air quality  
Wind energy  
Pandemic (COVID-19)

Migration  
Mobility  
Natural disasters

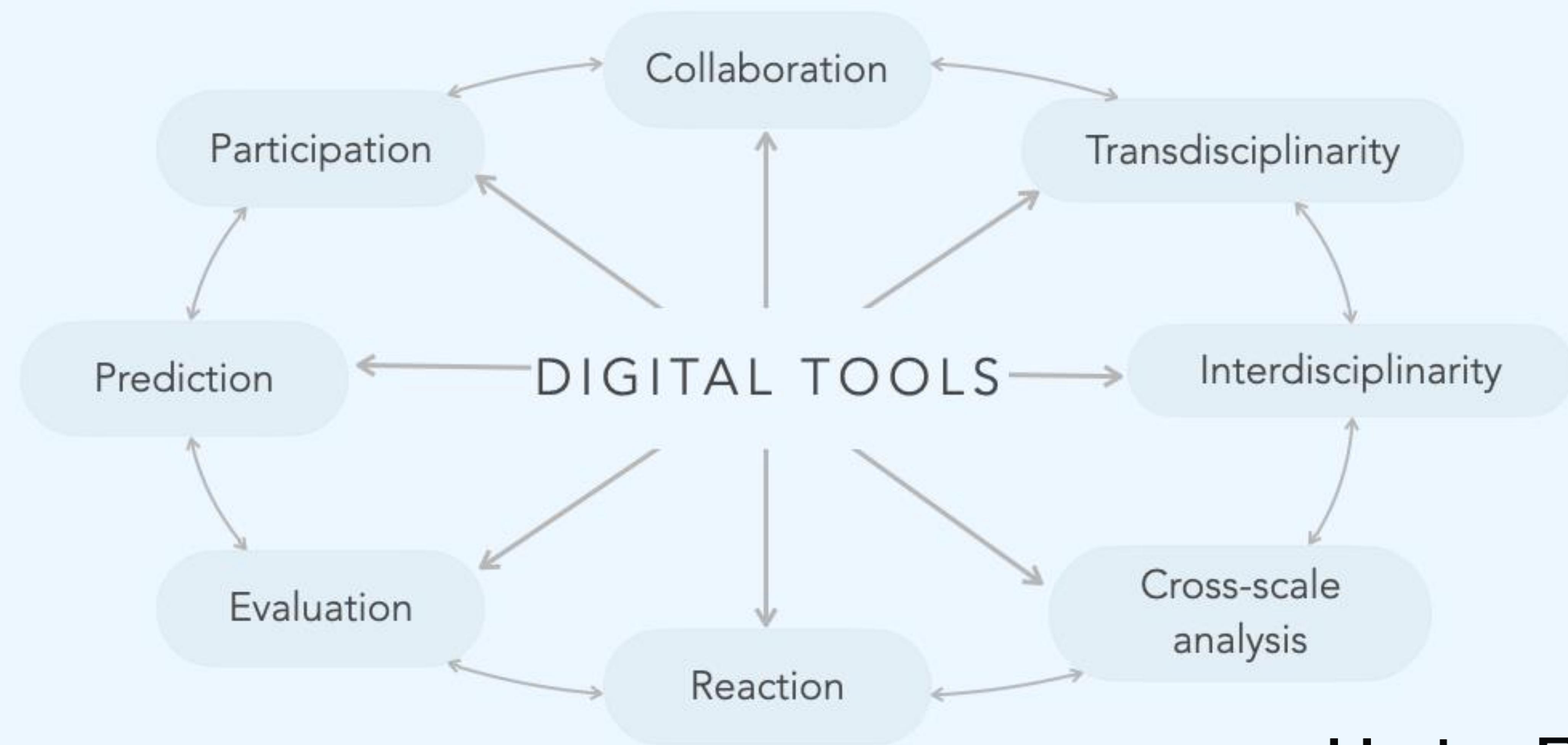


Image: [unsere-zeitung.at](http://unsere-zeitung.at)

H L R I S

High-Performance Computing Center | Stuttgart

# DIGITAL TOOLS



# DIGITAL URBAN TWINS



**H L R I S**

High-Performance Computing Center | Stuttgart

# CAVE DEMO

[WATCH VIDEO](#)



High-Performance Computing Center | Stuttgart

In collaboration with:

DREES &  
SOMMER



Smart  
Change

This project is funded by  
the European Union



BERLIN

Jakarta smart  
city

Jakarta  
a city of collaboration

# SMART CHANGE JAKARTA AND URBAN INNOVATION

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## SMART CHANGE DI JAKARTA DAN INOVASI PERKOTAAN



# THE PROJECT

Having an ambition to work collaboratively on innovative solutions for sustainability in growing cities, Berlin and Jakarta are entering a new chapter in their program of town twinning cooperation. This study supports the Smart Change Jakarta project by providing information necessary for assessing the status of Jakarta Smart City, and provides policy recommendations for the implementation of the smart, sustainable and inclusive strategy of Smart City Jakarta and for further concretization of the transformation path towards a Smart City.

## PROYEK

Memiliki ambisi untuk bekerja kolaboratif untuk menemukan solusi-solusi inovatif untuk sebuah keberlanjutan di kota-kota yang sedang berkembang, Berlin dan Jakarta sedang memasuki babak baru dalam program mereka yakni kerja sama kota kembar. Penelitian ini mendukung proyek Smart Change Jakarta dengan memberikan informasi yang dibutuhkan untuk menilai status Smart City di Jakarta, dan memberikan rekomendasi kebijakan untuk penerapan strategi pintar, berkelanjutan dan inklusif dari Smart City di Jakarta dan perwujudan lebih lanjut dari rintisan perubahan untuk menuju sebuah Kota Pintar.



Fig.1 | Jakarta (Source: Gunawan Kartapranata - Creative Commons)

Gbr.1 | Jakarta (Sumber: Gunawan Kartapranata - Creative Commons)

Jakarta is Indonesia's capital city: it is the world's second largest urban agglomeration and a prime mover in the Southeast Asia region. With a high level of need for Smart City solutions to improve urban infrastructure and quality of living in a fast-growing city, and with the stated mission to meet climate goals, there is strong interest in the realization of the so-called 'Smart City' concept with regard in particular to economic, environmental and social concerns. There are ambitions to achieve the application and upscaling of Smart City solutions; better provision of internet access; improvement of academic and vocational qualifications; and use of technological devices to enable the participation of the entire population in the Smart City change process.

Jakarta has an ongoing strategy development process. In 2014 the Governor of the Special Capital Region Jakarta established a Smart City Unit within the Communication, Informatics and Statistics Office of DKI Jakarta Province (Dinas Komunikasi, Informatika dan Statistik Provinsi DKI Jakarta/Diskominfotik). The Smart City Unit is responsible for explication of the Jakarta Smart City 4.0 Framework (see Figure 1), the technical performance, and for orchestrating the implementation with other departments in the administration. In a subsequent stage the Smart City Strategy will be extended to become a smart and sustainability strategy which will challenge the creativity of the regional entrepreneurial ecosystem and define the requirements for exchange and co-creation either in real world labs, in co-working spaces and on digital platforms. In addition, strategy-driven networking, sharing of best practices and cooperation with other cities will continue to take place in a common attempt to meet climate goals and showcase city transformation solutions.

Jakarta adalah Ibu Kota Indonesia: kota ini merupakan aglomerasi perkotaan terbesar kedua di dunia dan penggerak utama di kawasan Asia Tenggara. Dengan tingkat kebutuhan tinggi akan solusi Kota Pintar untuk meningkatkan infrastruktur perkotaan dan kualitas hidup di kota yang berkembang pesat dan dengan misi untuk mencapai tujuan iklim yang telah ditetapkan, ada minat yang besar untuk mewujudkan apa yang disebut sebagai konsep 'Kota Pintar' yang berkaitan dengan khususnya masalah ekonomi, lingkungan dan sosial. Ada ambisi untuk mencapai penerapan dan peningkatan solusi Kota Pintar; penyediaan akses internet yang lebih baik; peningkatan kualifikasi akademik dan kejuruan; dan penggunaan perangkat teknologi untuk memungkinkan partisipasi seluruh penduduk dalam proses perubahan menuju Kota Pintar.

Jakarta memiliki proses pengembangan strategi yang sedang berjalan. Pada tahun 2014 Gubernur Daerah Khusus Ibukota Jakarta membentuk Unit Kota Pintar di lingkungan Dinas Komunikasi, Informatika dan Statistik Provinsi DKI Jakarta (Dinas Komunikasi, Informatika dan Statistik Provinsi DKI Jakarta / Diskominfotik). Unit Kota Pintar ini bertanggung jawab untuk mewujudkan kerangka Jakarta Smart City 4.0 (lihat Gambar 1), kinerja teknis dan untuk mengatur penerapannya dengan kementerian lain dalam urusan administrasi. Pada tahap selanjutnya, strategi Kota Pintar ini akan diperluas menjadi strategi pintar dan berkelanjutan yang akan menantang kreativitas ekosistem kewirausahaan daerah dan menetapkan persyaratan untuk pertukaran dan kreasi bersama baik di dunia nyata, di ruang kerja bersama maupun di sarana digital. Disamping itu, membangun jaringan secara strategis, bertukar praktik-praktik terbaik dan kerja sama dengan kota-kota lain akan terus terjadi dalam upaya bersama untuk mencapai tujuan iklim dan mencapai solusi perubahan kota.

This report demonstrates the findings of the evaluation of the status quo of the Jakarta Smart City Program and offers policy recommendations for further strategy development and for implementation. The evaluation employs a holistic approach and is based on a multimethod concept. The study provides strong evidence that the city now needs an enriched framework of applicable and operationalized KPIs which will contribute to performance measurement and the realization of a smart, sustainable, and inclusive Smart City Profile. The Smart City Management Unit is required to take on the role of enabling the Regional Ecosystem, consisting of institutional players from academia, industry, government and society, to facilitate open innovation with entrepreneurs, and other departments in the administration, and to engage citizens. In this role it will orchestrate a multitude of stakeholders and a rich portfolio of Smart City topics. The organization must be prepared to grow alongside that strategy realization.

The main outcomes of the story are listed below.

Laporan ini memperlihatkan temuan-temuan evaluasi dari status quo program Jakarta Smart City dan menawarkan rekomendasi kebijakan untuk pengembangan strategi lebih lanjut serta untuk penerapannya. Evaluasi tersebut menggunakan pendekatan holistic dan didasari konsep multi metode. Penelitian ini memberikan buktikuat bahwa kota ini saat ini membutuhkan kerangka kerja bernilai tambah akan indikator kinerja utama (IKU-IKU) yang dapat diterapkan dan dioperasionalkan yang akan berkontribusi pada pengukuran kinerja dan perwujudan profil Kota Pintar yang pintar, berkelanjutan dan inklusif. Unit Kerja Smart City wajib mengambil peran dalam memberdayakan ekosistem daerah, yang terdiri dari pelaku kelembagaan dari akademisi, industry, pemerintah dan masyarakat, untuk memfasilitasi inovasi terbuka dengan para pengusaha dan lembaga lain dalam pemerintahan, serta melibatkan warga. Dalam peran ini, Unit Kerja akan mengatur banyak pemangku kepentingan dan portofolio yang luas dengan topik Kota Pintar. Unit ini harus siap untuk tumbuh seiring dengan perwujudan strategi tersebut.

Hasil utama penelitian tertera sebagai berikut.

# CHAPTER 1.1



1.1

## **PERFORMANCE MEASURING: CONGRUITY OF STRATEGY AND PERFORMANCE INDICATORS/SMART CITY PROFILE**

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1.1

PENGUKURAN KINERJA:  
KESESUAIAN STRATEGI DAN  
INDIKATOR KINERJA  
/ PROFIL KOTA PINTAR

Jakarta has a Smart City Strategy which is operationalized with a Smart City Index and seven thematic pillars: Smart Governance, Smart People, Smart Living, Smart Mobility, Smart Economy, Smart Environment, Smart Branding (branding added in 2020). The operationalization of indicators and completion of a Jakarta Smart City Profile based on Key Performance Indicators (KPIs) will support the monitoring of performance and progress and will provide for benchmarking of Jakarta's performance against other cities. The operationalization of indicators and integration of different dashboards is in progress.

We propose to define a Smart City Profile that represents a repository for data collection and a monitoring instrument of standard core indicators and specific advanced indicators which build on the existing Jakarta Smart City index. The method employed is an international standard for assessing, monitoring and enabling smart and sustainable cities and has been implemented by over 100 cities worldwide, inter alia global cities such as Dubai and Singapore as well as smaller towns such as Pully, Switzerland. The enriched indicator set allows for comparability of the Smart and Sustainable City (SSC) performance on a national as well as global level. At the same time, it acknowledges locally specific indicators.

The KPIs for UN SSCs represent an underlying methodological framework. They offer a holistic approach of implementing and monitoring the 2030 Agenda and its Sustainable Development Goals (SDGs) into the Smart City context. The selected KPIs have been developed by the United Nations Economic Commission for Europe (UNECE), a multilateral platform dedicated to fostering economic integration and cooperation and implementation of the 2030 Agenda for Sustainable Development. The KPIs for SSCs represent the currently most valid international framework for assessing and monitoring smart and sustainable city progress and for identifying key areas in which projects should be implemented to improve the status quo.

Jakarta memiliki strategi Smart City yang diterapkan dengan indeks Smart City dan tujuh pilar tematik: Smart Governance, Smart People, Smart Living, Smart Mobility, Smart Economy, Smart Environment, dan Smart Branding (branding ditambahkan pada tahun 2020). Penerapan indikator-indikator dan perwujudan Profil Kota Pintar Jakarta berdasarkan Indikator Kinerja Utama akan mendukung pemantauan kinerja dan kemajuan serta akan menjadi acuan kinerja kota Jakarta dibanding kota-kota lain. Penerapan indikator-indikator dan penggabungan beberapa papan instrumen yang berbeda sedang berjalan.

Kami mengusulkan untuk menetapkan sebuah Profil Kota Pintar yang mewakili tempat penyimpanan pengumpulan data dan instrumen pemantauan indikator standar inti dan indikator lanjutan khusus yang dibangun berdasarkan indeks Kota Pintar Jakarta yang ada. Metode yang digunakan adalah berstandar internasional untuk menilai, memantau dan memungkinkan kota-kota pintar dan berkelanjutan dan telah diterapkan oleh lebih dari 100 kota di seluruh dunia, antara lain kota-kota global seperti Dubai dan Singapura serta juga kota-kota kecil seperti Pully, Swiss. Rangkaian indikator yang luas memungkinkan perbandingan kinerja Kota Pintar di tingkat nasional maupun secara global. Berbarengan, standar tersebut mencakupi indikator-indikator khusus di tingkat daerah. IKU-IKU pada Sekolah Tinggi Sistem PBB untuk Staf (UN SSC) memperlihatkan kerangka metodologis yang mendasar.

IKU tersebut menawarkan pendekatan holistik untuk perwujudan dan pemantauan Agenda 2030 dan Tujuan Pembangunan Berkelanjutan nya (SDGs) ke dalam konteks Kota Pintar. IKU-IKU yang dipilih ini telah dikembangkan oleh United Nations Economic Commission for Europe (UNECE), sebuah sarana multilateral yang didedikasikan untuk mengembangkan integrasi ekonomi dan kerja sama serta perwujudan Agenda 2030 untuk Pembangunan Berkelanjutan. IKU-IKU pada SSCs merupakan kerangka kerja internasional yang paling efektif saat ini untuk menilai dan memantau kemajuan kota pintar dan berkelanjutan dan untuk mengidentifikasi area-area utama di mana proyek-proyek harus dilakukan untuk meningkatkan status quo.terbaik dan kerja sama dengan kota-kota lain akan terus terjadi dalam upaya bersama untuk mencapai tujuan iklim dan mencapai solusi perubahan kota.

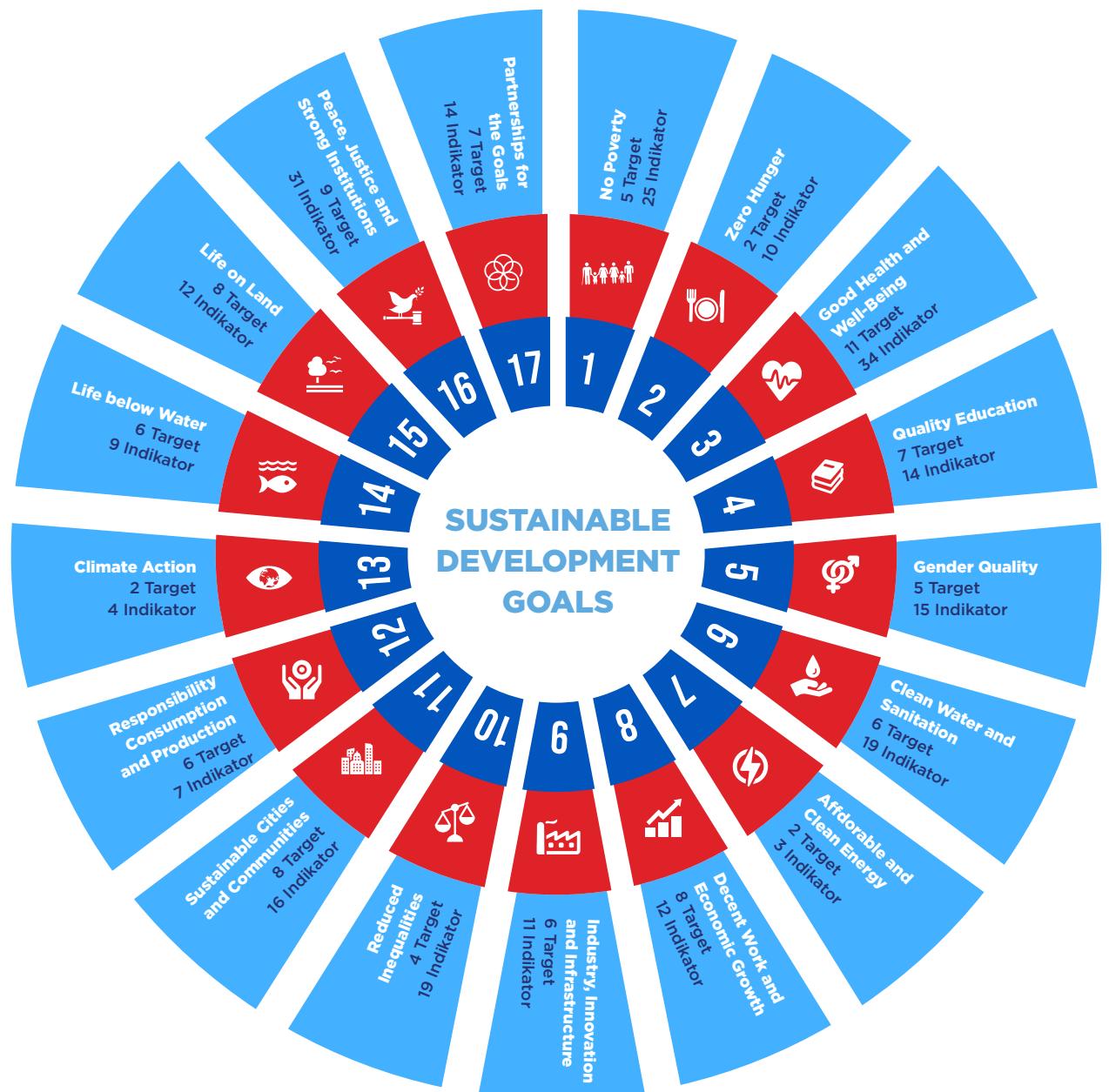


Fig. 2 | SDGs at provincial level (Translation by D&S. Source: DKI Jakarta)

Gbr. 2 | TPB di tingkat provinsi (Terjemahan oleh D&S. Sumber: DKI Jakarta)

## SUMMARY:

# CREATING A SMART CITY PROFILE AND OPERATIONALIZATION OF SDG-BASED UN KPIs

## OBJECTIVES

- Integration of KPIs to measure smart, sustainable, and inclusive aspects of JSC Strategy (proposal in the technical Appendix: Application of KPIs in Jakarta Smart City)
- Identify urban development innovation and include them in the JSC strategy
- Collect relevant data, Monitor performance, progress and impact of policies
- Benchmark performance against other global cities
- Monitor and manage integrated urban transformation with the Smart City Profile

## ACTION ITEMS

- Maintain the existing seven smart ‘pillars’ (categories) as valuable strategic action fields: they are in line with the Jakarta mission and well communicated
- Run a workshop: Discuss Smart City Profile and necessary adaptations
- Update and integrate missing indicators in the Jakarta Smart City Index; and structure and quantify targets
- Communicate the Smart City Profile
- Challenge the regional ecosystem on how to fill the gaps
- Provide an open innovation platform to enable citizen participation in discussions

## RESPONSIBLE BODY

- Regional Public Service Agency Jakarta Smart City

## RINGKASAN:

# MEMBUAT PROFIL KOTA PINTAR DAN PENERAPAN IKU-IKU YANG MENGACU PADA TPBNYA PBB

## SASARAN

- Integrasi IKU-IKU untuk mengukur aspek pintar, berkelanjutan, dan inklusif dari Strategi JSC (proposal terdapat pada lampiran teknis: Penerapan IKU-IKU di Jakarta Smart City)
- Temukan inovasi pembangunan perkotaan dan masukkan ke strategi JSC
- Mengumpulkan data-data yang relevan, memantau kinerja, kemajuan dan dampak dari kebijakan-kebijakan
- Tolak ukur kinerja dibandingkan kota-kota global lainnya
- Memantau dan mengelola perubahan terpadu perkotaan dengan Profil Smart City

## RINCIAN TINDAKAN

- Meneruskan tujuh ‘pilar’ (kategori) pintar yang ada sebagai tindakan strategis yang berharga: pilar-pilar ini sejalan dengan misi Jakarta dan telah dikomunikasikan dengan baik
- Mengadakan lokakarya: Diskusikan Profil Kota Pintar dan lakukan adaptasi yang diperlukan
- Perbarui dan padukan indikator-indikator yang kurang dalam Indeks Kota Pintar di Jakarta; serta susun dan ukur target-target
- Komunikasikan Profil Kota Pintar
- Tantang ekosistem daerah untuk mengisi kesenjangan-kesenjangan yang ada
- Sediakan sarana inovasi terbuka untuk memungkinkan partisipasi warga untuk diskusi

## BADAN YANG BERTANGGUNG JAWAB

- Badan Layanan Umum Daerah Jakarta Smart City

# CHAPTER 1.2



**1.2**

## **ACTIVATION OF THE ECOSYSTEM: A GREATER ROLE FOR THE ENTREPRENEURIAL UNIVERSITY AND INDUSTRIAL INNOVATION PLATFORMS**

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**1.2**

**AKTIVITAS EKOSISTEM: PERAN LEBIH BESAR UNTUK UNIVERSITAS KEWIRUSAHAAN DAN SARANA INOVASI INDUSTRY**

Smart and sustainable cities need to integrate the human component of the city and to rely on the active participation of citizens and institutional stakeholders to meet their goals. Statements from local stakeholders indicate that the emergence of a knowledge-based development could open new avenues for local high-tech entrepreneurs and upscaling of local initiatives, if local citizen entrepreneurs are provided with readily accessible and affordable business know-how on a larger scale.

Likewise, the study shows that local stakeholders already contribute to the Smart City strategy and use collaboration opportunities. Successful local start-ups such as Nodeflux and Indonesia's first decacorn, Gojek, are already operational; and others are in the pipeline.

Both topics underline the importance of science-based growth. The dynamic transformation of urban society imparts an important role to institutional stakeholders in the ecosystem – such as entrepreneurial universities, technological start-ups and larger companies – as well as NGOs and government departments. All of these provide either talents and ideas, or innovation platforms for the intake of local talent, financial resources, and know-how. Entrepreneurial research universities and industrial innovation platforms must become interconnected and vital elements in the Smart City strategy.

Kota yang pintar dan berkelanjutan perlu mengintegrasikan komponen manusia yang ada di kota tersebut dan mengandalkan partisipasi aktif dari warga dan pemangku kepentingan kelembagaan untuk mencapai tujuan mereka. Penyampaian dari pemangku kepentingan setempat menunjukkan adanya pengembangan yang dilandasi pengetahuan, hal ini dapat membuka jalan baru bagi wirausahawan berteknologi tinggi setempat dan meningkatkan inisiatif-inisiatif lokal; bila warga setempat dan wirausahawan diberikan pengetahuan bisnis yang mudah diakses dan terjangkau dalam skala yang lebih besar.

Demikian juga, studi ini memperlihatkan bahwa pemangku kepentingan setempat telah berkontribusi pada strategi Kota Pintar dan memanfaatkan peluang-peluang kerja sama. Perusahaan rintisan lokal yang sukses seperti Nodeflux dan decacorn pertama di Indonesia, Gojek, sudah beroperasi; dan lainnya sedang dalam proses.

Kedua topik tersebut menegaskan pentingnya pertumbuhan berlandasan ilmu pengetahuan. Perubahan dinamis masyarakat perkotaan memberi peranan penting kepada pemangku kepentingan kelembagaan dalam ekosistem ini – seperti universitas kewirausahaan, perusahaan rintisan teknologi dan perusahaan lebih besar – serta LSM dan kementerian dalam pemerintah. Semua itu antara memberikan kemampuan dan ide-ide, atau sarana inovasi untuk memperoleh kemampuan lokal, sumber keuangan, dan pengetahuan. Universitas riset kewirausahaan dan sarana inovasi industri harus saling berhubungan dan merupakan elemen-elemen yang vital dalam strategi Kota Pintar.

## SUMMARY:

# ACTIVATE STAKEHOLDERS IN THE ENTREPRENEURIAL ECOSYSTEM

## OBJECTIVES

- Progress from Smart City strategy to smart, sustainable and human-centred urban development
- Support science- and knowledge-based growth/attractiveness for FDI and talents
- Integration and upscaling of local start-ups into global industrial value chains: use of accelerators and innovation platforms
- Integration of entrepreneurial and research driven

## ACTION ITEMS

- Challenge universities to provide low-threshold offerings (MOOCs) to support local start-ups
- Smart City Action Labs to bring stakeholders together, to address real-world projects and urban pressure points, and have tangible and visible outcomes such as more start-ups, better up-scaling and self-organized, citizen-driven local initiatives (e.g. Smart City Action Labs and Digital Urban Scenario Planning)
- Establish start-up accelerator and networking events to activate foreign investors and use their innovation and start-up platforms - for example, Siemens, Bosch, the Drees & Sommer CREATORS platform, and other European players - to facilitate access to seed funding, business angels, and corporate innovation platforms.

## RESPONSIBLE BODIES

- Jakarta Governor's office
- Local and international partners
- Universities (Technology Transfer Offices)

## RINGKASAN:

# GERAKKAN PEMANGKU KEPENTINGAN DALAM EKOSISTEM KEWIRASAHAAN

## SASARAN

- Berkembang dari strategi Kota Pintar ke pembangunan kota yang pintar, berkelanjutan, dan berpusat pada manusia
- Mendukung pertumbuhan / daya tarik berlandasan sains dan ilmu pengetahuan untuk Investasi Asing Langsung dan tenaga berkemampuan
- Pelibatan dan peningkatan perusahaan rintisan lokal menjadi rantai nilai industri di tingkat global: dengan menggunakan akselerator dan sarana-sarana inovasi
- Pelibatan Universitas kewirausahaan dan penelitian Universities

## RINCIAN TINDAKAN

- Tantang universitas untuk menyediakan program dengan batasan yang lebih rendah (kursus daring massal - MOOC) untuk mendukung perusahaan rintisan lokal
- Laboratorium praktik Smart City untuk menyatukan para pemangku kepentingan, untuk menangani proyek-proyek dunia nyata dan permasalahan perkotaan, dan memiliki hasil yang nyata dan terlihat seperti berdirinya lebih banyak perusahaan rintisan, peningkatan skala yang lebih baik dan terorganisir sendiri, inisiatif lokal yang digerakkan oleh warga (mis. Laboratorium praktik Smart City dan perencanaan digital skenario perkotaan)
- Buat acara akselerator dan bangun jaringan perusahaan rintisan untuk menarik investor asing dan gunakan inovasi serta sarana perusahaan rintisan mereka - misalnya, sarana-sarana dari Siemens, Bosch, Drees & Sommer CREATORS, dan pemain-pemain Eropa lainnya - untuk memfasilitasi akses ke pendanaan awal, business angels, dan sarana-sarana inovasi perusahaan.

## BADAN-BADAN YANG BERTANGGUNG JAWAB

- Kantor Gubernur Jakarta
- Mitra lokal dan mitra internasional
- Universitas (Kantor Alih Teknologi)

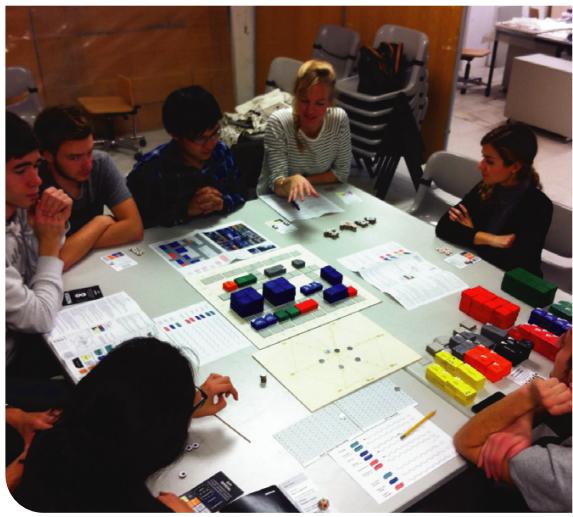


Fig. 3 | Impressions Smart City Action Labs

(Source: D&S, ETH Zürich, D-ARCH, ISTP, Action on the Real City, U-TT, Dr. Haris Piplas)

Gbr. 3 | Kesan-kesan dari laboratorium praktik Kota Pintar

(Sumber: D&S, ETH Zürich, D-ARCH, Action on the Real City, U-TT, Dr. Haris Piplas)

# CHAPTER 1.3



## **1.3**

# **CITIZEN PARTICIPATION RELIES ON OPEN DISCOURSE AND SELECTION OF RELEVANT PROJECTS**

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1.3

PARTISIPASI WARGA  
BERGANTUNG PADA WACANA  
TERBUKA DAN PEMILIHAN  
PROYEK-PROYEK YANG RELEVAN

Smart City Jakarta adopts an extensive strategy to become a smart, sustainable and inclusive city, and declares its mission statement as 'Innovation and Happiness City' (Maju Kotanya, Bahagia Warganya). The term Happiness connects to factors outlined in the literature on smart cities, and was frequently mentioned in the interviews with local players. In particular, NGOs and academia cited them in relation to income opportunity; health-related issues (Covid, Air Quality); traffic; participation in the development of the city; access to education; and security.

Technically, citizens of Jakarta already rely on the widely distributed JAKI App which allows them to obtain and share information and communicate on urban topics with the city administration. The next level of citizen engagement would be citizen participation and the setting-up of a co-creation process in which citizens share the responsibility for the mission-driven development of the city and for the sustainability of the Smart City.

We propose to augment the UNECE KPIs with ISO 20671 urban and regional branding standards in order to assess the congruity of branding activities with core values inherent in the mission statement. Participation and stakeholder engagement rely on the perceived congruity of the mission with important and visible projects, and so addressing topics in the Smart City strategy that citizens are aware of and want to discuss in an open discourse is a vital element for trust-based cooperation and active buy-in to the strategy.

According to the interviews with representatives from industry, universities and NGOs, visible pressure points are traffic, floods and health. Actively addressing these topics will enhance the credibility and success of the Smart City program. Correct selection and efficient management of adequate eye-catching projects (or so called Eyecatchers) can therefore speed up the socio-economic transformation of Jakarta, enhance the visibility of the Jakarta Smart City Strategy in a highly competitive ASEAN environment of smart locations, and create best practice in that context. For a high level of acceptance of the Smart City strategy and of citizen engagement the mission needs to be reflected upon and discussed in an integrating multi-stakeholder approach in Indonesian society.

Smart City di Jakarta menggunakan strategi ekstensif untuk menjadi kota yang pintar, berkelanjutan, dan inklusif, serta mendeklarasikan pernyataan misinya sebagai 'Kota Inovasi dan Kebahagiaan' (Maju Kotanya, Bahagia Warganya). Istilah Kebahagiaan berkaitan dengan faktor-faktor yang terurai dalam buku-buku tentang kota pintar, dan sering disebutkan dalam wawancara dengan pemain-pemain lokal. Secara khusus, LSM dan akademisi mengutip istilah ini bila membahas tentang peluang pendapatan; masalah yang berhubungan dengan kesehatan (Covid, kualitas udara); kemacetan; partisipasi dalam pembangunan kota; akses ke pendidikan; dan keamanan.

Secara teknis, warga Jakarta sudah mengandalkan aplikasi JAKI yang sudah tersebar luas dan memungkinkan mereka untuk mendapatkan dan berbagi informasi serta berkomunikasi tentang topik-topik perkotaan dengan pemerintah kota. Tingkat berikutnya akan keterlibatan warga adalah partisipasi warga dan pembentukan proses kreasi bersama dimana warga berbagi tanggung jawab untuk pembangunan kota yang dilandasi oleh misi dan untuk keberlanjutan Kota Pintar.

Kami mengusulkan untuk menambah IKU-IKU dari UNECE dengan ISO 20671 standar branding perkotaan dan daerah untuk menilai kesesuaian kegiatan-kegiatan branding dengan nilai inti yang terdapat dalam misi. Partisipasi dan keterlibatan pemangku kepentingan bergantung pada anggapan kesesuaian misi dengan proyek-proyek penting dan nyata yang ada, sehingga topik-topik dalam strategi Kota Pintar yang diketahui dan ingin didiskusikan oleh warga dalam wacana terbuka, dapat ditangani, merupakan elemen penting untuk kerja sama yang dapat dipercaya dan aktif terlibat dalam strategi.

Menurut wawancara dengan perwakilan dari industri, universitas dan LSM, permasalahan nyata merupakan kemacetan, banjir dan kesehatan. Menangani topik-topik ini secara aktif akan meningkatkan kredibilitas dan keberhasilan program Kota Pintar. Pemilihan yang tepat dan pengelolaan yang efisien dari proyek-proyek yang menarik perhatian (atau disebut Eyecatchers) dapat mempercepat perubahan sosial-ekonomi di Jakarta, meningkatkan visibilitas Strategi Smart City di Jakarta dalam lingkungan ASEAN yang sangat kompetitif di lokasi-lokasi pintar, dan menciptakan praktik-praktik terbaik dalam konteks tersebut. Agar strategi Kota Pintar dapat diterima secara luas dan agar warga terlibat, misi perlu senantiasa dicerminkan dan didiskusikan dengan pendekatan multi-pemangku kepentingan yang terintegrasi dalam masyarakat Indonesia.

## SUMMARY:

# PROJECT BOOK - IMPLEMENTING REAL-WORLD EYE-CATCHING PROJECTS

## OBJECTIVES

- Green infrastructure pilot projects that address pressure points: mobility, health, urban flooding, smart buildings/districts
- Define urban eye-catching/pilot projects to reduce risks (traffic, floods), enhance quality of life aspects (security, health, poverty reduction, income, happiness)
- Use eye-catching projects to enhance visibility of the Jakarta Smart City branding

## ACTION ITEMS

- Survey (for instance with JAKI App)
- Strategy workshops (see Appendix: Smart City Action Labs and Digital Scenario Planning)
- Communication of progress and link to branding
- Integrate new stakeholders in a Smart City Action Lab and in Sandbox Design

## RESPONSIBLE BODIES

- Smart City Unit Jakarta
- Communication, Informatics and Statistics Office / DKI Jakarta Administration
- Jakarta Special Capital Region
- Input of peers (other regions, cities)

## RINGKASAN:

# BUKU PROYEK - MENERAPKAN PROYEK-PROYEK DUNIA NYATA YANG MENARIK PERHATIAN

## SASARAN

- Proyek percontohan infrastruktur ramah lingkungan yang menangani permasalahan seperti: mobilitas, kesehatan, banjir perkotaan, gedung / distrik pintar
- Mendefinisikan proyek-proyek yang menarik perhatian / percontohan perkotaan untuk mengurangi risiko (kemacetan, banjir), meningkatkan aspek kualitas hidup (keamanan, kesehatan, pengurangan kemiskinan, pendapatan, kebahagiaan)
- Memanfaatkan proyek-proyek yang menarik perhatian untuk meningkatkan visibilitas branding Smart City di Jakarta

## RINCIAN TINDAKAN

- Survei (misalnya dengan aplikasi JAKI)
- Lokakarya untuk pencapaian strategi (lihat Lampiran: Laboratorium Praktek Kota Pintar dan Perencanaan Skenario Digital)
- Komunikasi akan kemajuan dan keterkaitannya terhadap branding
- Pelibatan pemangku kepentingan baru pada Laboratorium Praktek Kota Pintar dan Desain di dalam Sandbox (kotak pasir)

## BADAN-BADAN YANG BERTANGGUNG JAWAB

- Unit Smart City Jakarta
- Dinas Komunikasi, Informasi dan Statistik / Administrasi DKI Jakarta
- Daerah Khusus Ibu (DKI) Kota Jakarta
- Masukan dari rekanan (wilayah lain, kota-kota)



Fig. 4 | Impressions Eye-Catching Project (Source: D&S, The Blue Way)

Gbr. 4 | Kesan-kesan dari Proyek menarik perhatian (Sumber: D&S, The Blue Way)

# CHAPTER 1.4



## **1.4**

# **STRUCTURE FOLLOWS STRATEGY: THE ORGANIZATIONAL SETTING, NETWORKING, AND THE NEED FOR CAPACITY BUILDING**

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1.4

STRUKTUR MENGIKUTI STRATEGI:  
PENGATURAN ORGANISASI,  
MEMBANGUN JARINGAN DAN  
KEBUTUHAN AKAN  
PENGEMBANGAN KAPASITAS

Jakarta Smart City Unit (JSC) facilitates the transformation of the city and supports the implementation of Smart City projects by means of the provision of data and services. The Jakarta Smart City Unit works with standard technological enablers in a professional setting. Strong role models for this technological and organizational approach are the Smart City program of the city state of Singapore, and other Smart Metropolitan Cities, such as London.

The JSC Unit is embedded within the administrative system of DKI Jakarta. Formally named Jakarta Smart City Management Unit (Unit Pengelola Jakarta Smart City 2020) the Unit plays a strategic role as a system orchestrator, and platform provider. Both features are organizational solutions that can be found in other smart cities; for instance, the Smart City London organization. To achieve activation of the entrepreneurial ecosystem, technological, thematic and stakeholder integration needs to be further addressed and managed.

At that stage Transformative Governance gains greater importance and organizational challenges arise in terms of new functional tasks of the unit; and organizational interfaces with other departments, agencies and partners must be considered. The increasing complexity that accompanies participative transformation will challenge the existing organization in terms of capacity building and complexity management.

Crucial non-technical elements such as quality of management education, shared values, clear rules and regulations, as well as functional charts, must be outlined in a next stage as a basis for further development. In 2020, DKI signed a contract for management education with the University of Maryland (USA) to provide training for Smart City solutions and in Smart City management. These training activities can be extended to individual coaching and on-the-job support to enhance commitment with regard to constructive cooperation within the administration.

Unit Jakarta Smart City (JSC) memfasilitasi perubahan kota dan mendukung pelaksanaan proyek-proyek Smart City melalui penyediaan data dan pelayanan. Unit Jakarta Smart City bekerja dengan pendukung-pendukung teknologi standar secara profesional. Contoh baik untuk pendekatan teknologi dan organisasi ini adalah program Kota Pintar dari negara kota Singapura, dan Kota Metropolitan Pintar lainnya, seperti London.

Unit JSC berada di bawah sistem administrasi DKI Jakarta. Yang mulanya bernama Jakarta Smart City Management Unit (Unit Pengelola Jakarta Smart City 2020), Unit ini memainkan peran strategis sebagai pengarah sistem, dan penyedia sarana. Kedua fitur tersebut adalah solusi organisasi yang dapat ditemukan di kota pintar lainnya; misalnya, organisasi Smart City London. Untuk mencapai aktifnya ekosistem kewirausahaan, pelibatan pemangku kepentingan, teknologi dan tematik, perlu terus ditangani dan dikelola lebih lanjut.

Pada tahap ini Kepemerintahan transformatif semakin penting dan tantangan organisasi muncul dalam hal tugas fungsional baru dari unit tersebut; dan penghubungan organisasi dengan kementerian lainnya, lembaga, dan mitra lain harus diperhitungkan. Kesulitan yang meningkat yang menyertai perubahan partisipatif akan menjadi tantangan bagi organisasi yang ada dalam hal peningkatan kapasitas dan kompleksitas pengelolaan.

Unsur-unsur non-teknis yang sangat penting seperti kualitas pendidikan manajemen, manfaat bersama, aturan dan regulasi yang jelas, serta struktur fungsional, harus ditegaskan pada tahap berikutnya sebagai landasan untuk pengembangan selanjutnya. Pada tahun 2020, DKI menandatangani kontrak untuk pendidikan manajemen dengan Universitas Maryland (AS) untuk memberikan pelatihan tentang solusi-solusi Kota Cerdas dan manajemen Kota Cerdas. Kegiatan pelatihan ini dapat diteruskan dengan pelatihan perorangan dan dukungan di tempat kerja untuk meningkatkan komitmen yang sehubungan dengan kerja sama konstruktif dalam Administrasinya.

## SUMMARY:

# GOVERNANCE, ADMINISTRATION 4.0, ORCHESTRATION AND SMART CITY MANAGEMENT

## OBJECTIVES

- Evolution from Smart City Expert to Hub Orchestrator
- Increase activities for capacity building
- Adopt change management skills to support organizational development of administration 4.0 and urban transformation
- Link E-Government training and existing management programs to job assignments and real-world labs activities
- Organizational clarity and clear terminology for speed of transformation

## ACTION ITEMS

- Prepare a glossary and definition of key terms: in general, unification of terminology and definition of central terms is recommended
- Develop a functional chart of the Unit with the Administration and define clear rules for cooperation and leadership
- Workshops: best practices and hub design; implementation of national data policy and regulations and standard operational procedures; and good governance
- Training (MOOCs) for intermediate management level of civil servants in E-government, regulations, application of use cases and data drills to help define and share standard operational procedures
- On-the-job training to empower government officials to address the objectives

## RINGKASAN:

# KEPEMERINTAHAN, ADMINISTRASI 4.0, PENGARAHAN DAN PENGELOLAAN KOTA PINTAR

## SASARAN

- Evolusi dari ahli Smart City menjadi pelaksana pusat
- Meningkatkan kegiatan-kegiatan untuk pengembangan kapasitas
- Menerapkan keterampilan manajemen perubahan untuk mendukung pengembangan organisasi administrasi 4.0 dan perubahan perkotaan
- Tautan pelatihan E-Government dan program manajemen yang sudah ada untuk penugasan pekerjaan dan aktivitas laboratorium secara nyata.
- Kejelasan organisasi dan terminologi untuk kecepatan perubahan

## RINCIAN TINDAKAN

- Siapkan glosarium dan definisi istilah kunci: secara umum, penyelarasan terminologi dan definisi dari istilah terpusat juga disarankan
- Kembangkan struktur fungsional pada Unit dengan Pemerintah dan tetapkan aturan yang jelas untuk kerja sama dan kepemimpinan
- Lokakarya: praktik-praktik terbaik dan desain terpusat; penerapan kebijakan data nasional dan peraturan serta prosedur operasional standar; dan kepemerintahan yang baik
- Pelatihan (kursus daring massal - MOOC) untuk tingkat manajemen menengah pegawai negeri dalam E-government, peraturan-peraturan, penerapan kasus penggunaan dan latihan data untuk membantu menentukan dan membagikan prosedur operasional standar
- Pelatihan di tempat kerja untuk memberdayakan pejabat pemerintah untuk mencapai sasaran

## **RESPONSIBLE BODIES**

- Smart City Unit Jakarta (implementation of best practices and hub design)
- Jakarta Governor's office
- Communication, informatics and Statistics Office / DKI Jakarta Administration
- Local and international partners (training)
- Government of Indonesia (especially the Ministry of Communication and Information Technology) (Data Policy, IP)

## **BADAN-BADAN YANG BERTANGGUNG JAWAB**

- Unit Smart City Jakarta (Penerapan praktik terbaik dan pusat kegiatan desain)
- Kantor Gubernur Jakarta
- Dinas Komunikasi, Informasi dan Statistik / Administrasi DKI Jakarta
- Mitra lokal dan mitra internasional (pelatihan)
- Pemerintahan Indonesia (khususnya Kementerian Komunikasi dan Teknologi Informasi) (Kebijakan Data, IP)



**Fig. 5 | Jakarta Smart City Unit as an orchestrator works closely with other Government Agencies, Academia, Industry and Civil Society (Source: Rawpixel.com – Fotolia.com)**

**Gbr. 5 | Jakarta Smart City Unit sebagai orchestrator bekerja sama dengan Instansi Pemerintah lainnya, Akademisi, Industri dan Masyarakat Sipil (Sumber: Rawpixel.com – Fotolia.com)**

# **CONCLUSION AND OUTLOOK**

From a technical viewpoint, the Smart City unit relies on a small critical mass of highly dedicated and highly skilled data specialists; policy and rules for data management and for cooperation; and on the necessary indicators to monitor progress and provide steering data. Citizen engagement, however, is based on other principles, such as shared values, open data, and communication, and on transparency. Both elements need to be represented. It can be assumed that there will be learning as well as synergies for all partners involved in the design of the transformation path. In that way, the results of the study will clarify for the organization the joint actions needed and define the necessary steps to focus on actions with a strong impact. Policy recommendations represent the transformation of the Smart City Index into a management tool which can be used for measuring performance with regard to the success of the strategy; and for activation of the ecosystem in which there is a greater role for the entrepreneurial university and for industrial innovation platforms, creating a framework for citizen participation and open discourse, and for the bottom-up selection of relevant projects to deal with urgent pressure points. City Action Labs and new organizational formats will help to establish a culture of directed action, design thinking and dialogue. Finally, the organizational setting and the need for capacity building in terms of complexity management, change management and communication, digitalization, and Smart City solutions must be kept in mind with regard to strategy implementation.

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# **KESIMPULAN DAN PROSPEK**

Dari sudut pandang teknis, Unit Kota Pintar bergantung pada sejumlah kecil spesialis data yang sangat berdedikasi dan sangat terampil; kebijakan dan peraturan untuk pengelolaan data dan untuk kerja sama; dan pada indikator yang diperlukan untuk memantau kemajuan dan menyediakan data kemudi. Namun, keterlibatan warga didasarkan pada prinsip-prinsip lain, seperti manfaat bersama, data terbuka, dan komunikasi, dan pada transparansi. Kedua elemen itu perlu terwakili. Dapat diasumsikan bahwa akan ada pembelajaran sekaligus sinergi bagi semua mitra yang terlibat dalam upaya perancangan perubahan. Dengan demikian, hasil studi akan menjelaskan kepada organisasi tindakan bersama yang diperlukan dan menentukan langkah-langkah yang diperlukan untuk fokus pada tindakan yang memiliki dampak lebih besar. Rekomendasi-rekomendasi kebijakan mencerminkan perubahan indeks Smart City menjadi alat pengelolaan yang dapat digunakan untuk mengukur kinerja khususnya keberhasilan strategi; dan untuk pengaktifan ekosistem di mana terdapat peran yang lebih besar untuk universitas kewirausahaan dan untuk sarana inovasi industri, menciptakan kerangka kerja untuk partisipasi warga dan wacana terbuka, dan untuk pemilihan proyek-proyek yang relevan dari bawah ke atas untuk mengatasi permasalahan yang mendesak. Laboratorium praktik perkotaan dan format-format organisasi baru akan membantu membentuk budaya bertindak terarah, pemikiran desain dan dialog. Yang terakhir, pengaturan organisasi dan kebutuhan peningkatan kapasitas dalam manajemen kompleksitas, manajemen perubahan dan komunikasi, digitalisasi, dan solusi-solusi Kota Pintar harus selalu diingat ketika strategi diterapkan.

## CREDITS:

# SMART CITY CHANGE AND URBAN INNOVATION IN JAKARTA

### NAME OF THE CONTRACT:

Dienstleistungsvertrag zur Erstellung einer Smart City und Urban Innovation Studie der Stadt Jakarta im Rahmen des von der Europäischen Union geförderten Projekts:

„Smart Change – Strengthening Urban Governance, Prosperity and Innovation in Jakarta“ (2020 D-011)

CLIENT: Land Berlin, Senatsverwaltung für Wirtschaft, Energie und Betriebe

### NAME OF THE CONTRACTOR:

Drees & Sommer Advanced Building Technologies GmbH, Obere Waldplätze 11, DE-70569 Stuttgart

### PERIOD:

October 2020 – December 2020

### LEAD AUTHORS:

Dr. Christiane Gebhardt, Dr. Haris Piplas  
Collaboration: Aaron Gralla, Michael Pfister

### PROJECT COORDINATOR:

Dr. Haris Piplas

### SUPERVISOR:

Dr. Iris Belle  
Drees & Sommer BlueCity-Integrated Urban Solutions

### LOCAL INTERVIEWS, LAYOUT AND

TECHNICAL SUPPORT: Nickl & Partner Architects, Jakarta Office

### TEAM:

Magnus Nickl, Christian Franz Lindenau, Hana Firsan

## SUMBER DATA:

# SMART CITY CHANGE DAN INOVASI PERKOTAAN DI JAKARTA

### NAMA KONTRAK:

Kontrak jasa pembuatan penelitian Smart City and Urban Innovation of Jakarta sebagai bagian dari proyek yang didanai oleh Uni Eropa:

„Smart Change – Strengthening Urban Governance, Prosperity and Innovation in Jakarta“ (2020 D-011)

KLIEN: Negara Bagian Berlin, Administrasi Senat untuk Ekonomi, Energi, dan Perusahaan

### NAMA KONTRAKTOR:

Drees & Sommer Advanced Building Technologies GmbH Obere Waldplätze 11, DE-70569 Stuttgart

### PERIODE:

Oktober 2020 – Desember 2020

### PENULIS UTAMA:

Dr. Christiane Gebhardt, Dr. Haris Piplas  
Kolaborasi dengan: Aaron Gralla, Michael Pfister

### KOORDINATOR PROYEK:

Dr. Haris Piplas

### PEMBIMBING:

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Drees & Sommer BlueCity - Solusi Perkotaan Terintegrasi

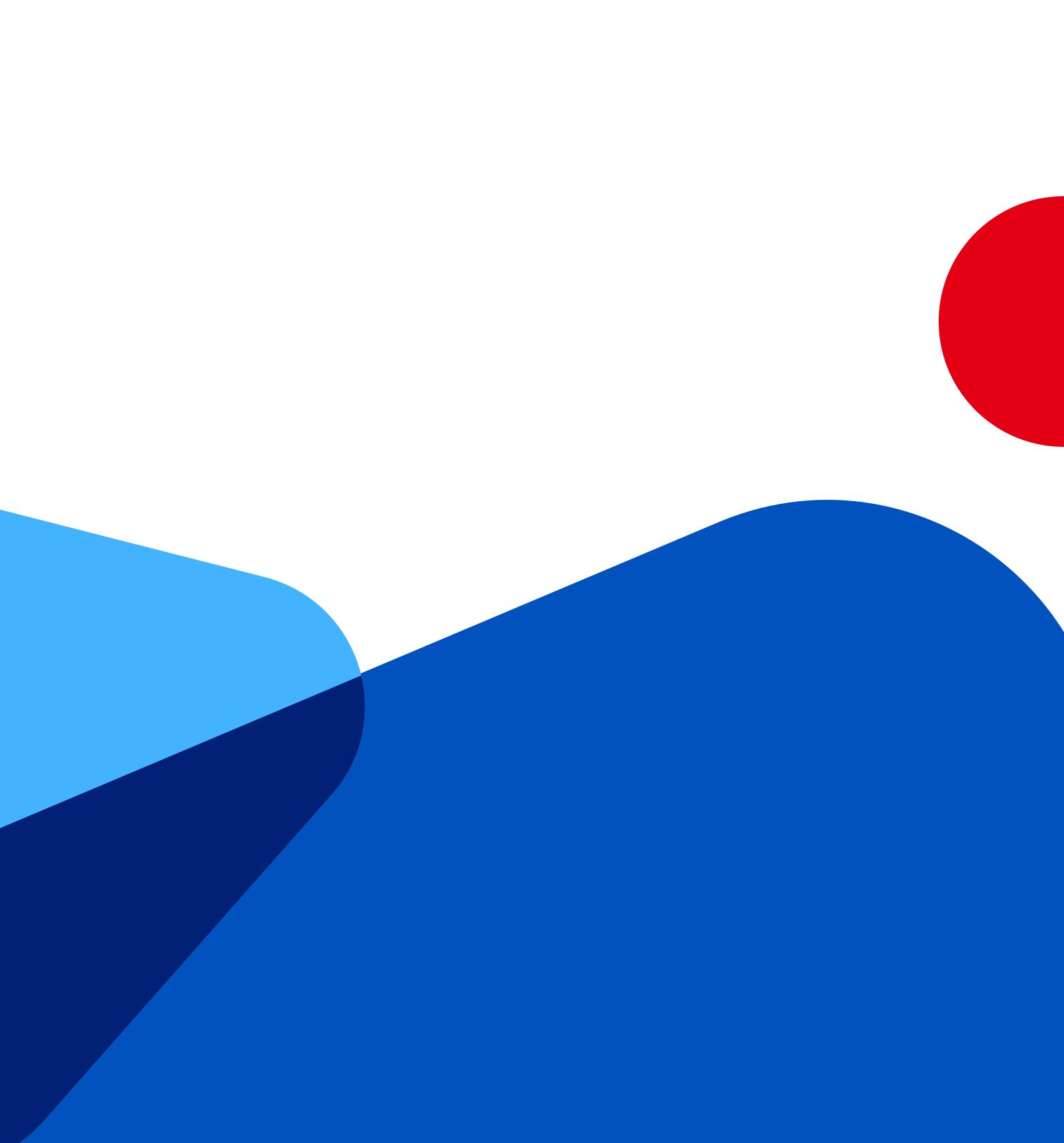
### WAWANCARA LOKAL, PENATAAN DAN

### DUKUNGAN TEKNIS:

Nickl & Partner Architects, kantor Jakarta

### TIM:

Magnus Nickl, Christian Franz Lindenau, Hana Firsan



*The publication was produced with the financial support of the European Union. Its contents are the sole responsibility of the project partners and do not necessarily reflect the views of the European Union.'*

# Integrated planning for climate resilience – experiences from Milan

**Ilaria Giuliani** | Deputy Chief Resilience Officer  
**Environmental Transition Department** | Comune di Milano



# The context

## Milan in transition

Nowadays, public administrations face more than ever the so-called '*wicked problems*', complex and articulated challenges among which climate change stands out.

**Milan is therefore learning to act in a practical and tangible way**, through innovative tools and actions to develop a **new framework for growth and development**.

Milan is experiencing a period of profound renewal that has demonstrated the **great level of adaptation of the city**.



# Towards a positive evolution



## Equity

To update the positive moment of Milan and extend it to all the **social and registry groups**

## Accessibility

Take the opportunity to **expand growth to all neighborhoods**

## Re-Naturalization

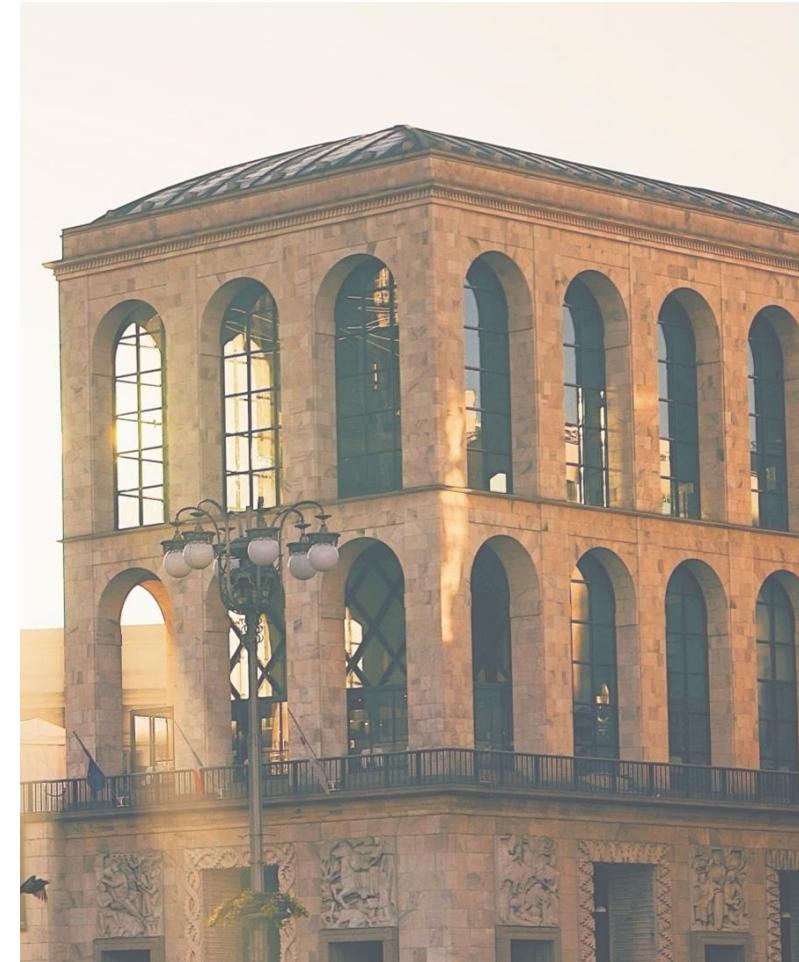
**Improve environmental conditions**, urban climate and quality of life

## Decarbonization

Implement new development models based on **sustainable energy** to help recovery

## Active Participation

Listening to the **citizens** and their needs that emerged during the epidemic, and their proposals for tomorrow's Milan



# Urban Resilience

It is the **ability** of individuals, communities, institutions, businesses to **survive, adapt and grow** regardless of what chronic stress and acute shocks they suffer



# The Environmental Transition Department

## UNITS INVOLVED



**City Resilience Department**



**Climate and Energy Area**



**Water Resources and Environmental Hygiene Area**

## RESPONSIBLE FOR:

- The implementation of environmental and energy policies;
- Resilience issues;
- Functions in the field of environmental protection and the fight against pollution



# Actors and tools

## Local and international

The City of Milan has an enormous potential given by its collaboration with different actors, both local and international.

In particular, the high level of communication that there is through the many networks of which Milan is part, such as C40, Global Resilient Cities Network and EUROCities, but not only, give the possibility to exchange large amounts of data and best practices with public administrators from all over the world.

**Local actors** can be involved with working tables with stakeholders in the processes of environmental transition and economic recovery of the city.

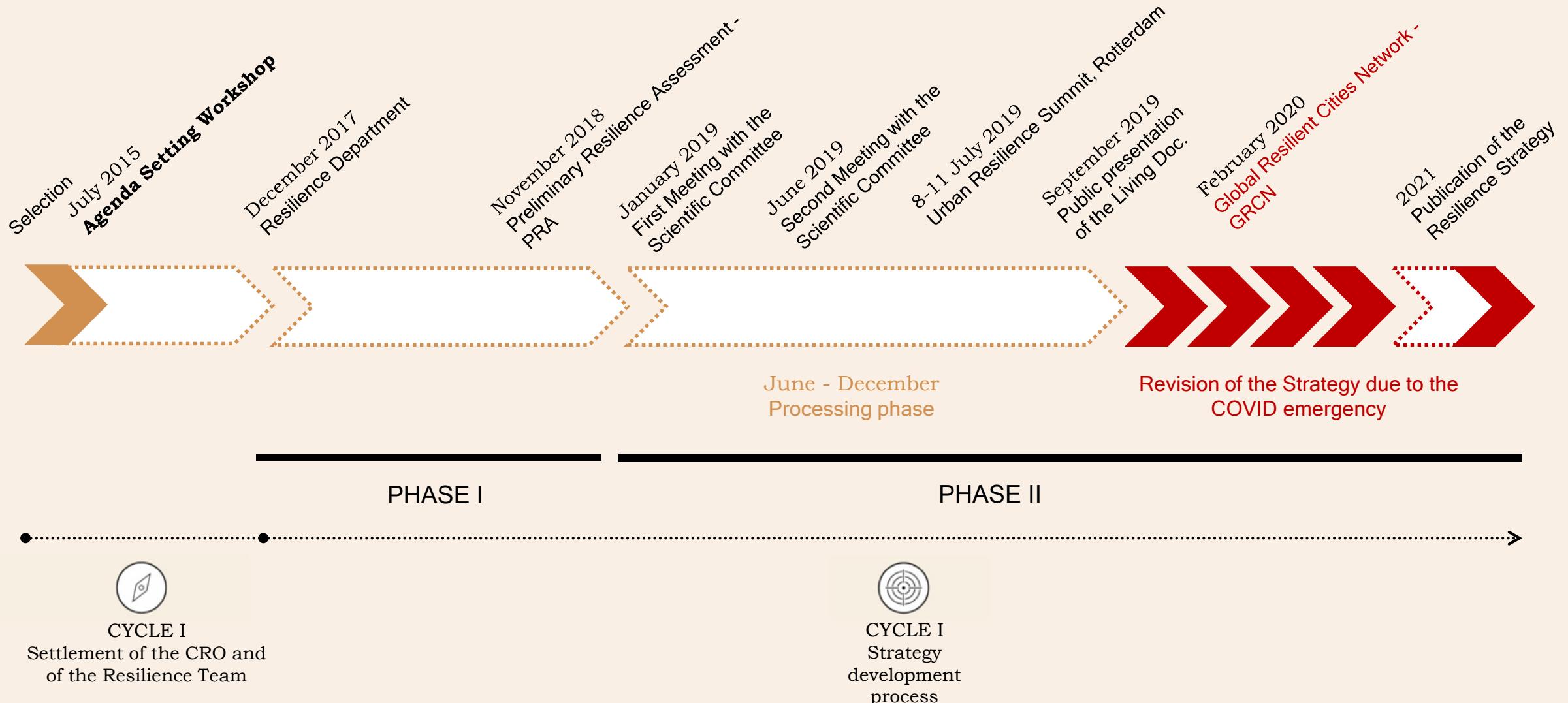
As part of the work with RCN and ARUP, develop a **map of the interdependencies** between health crisis and urban stress and shock, to see what effects are amplified and how to combat them.



# Resilience strategy journey



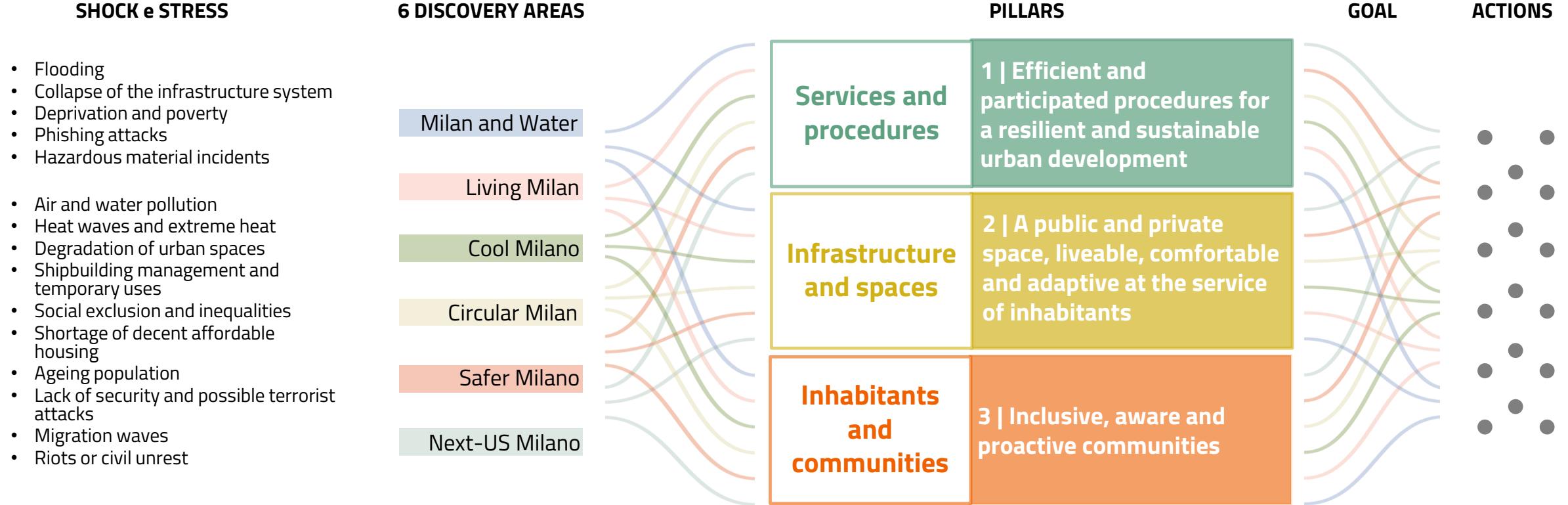
# Resilience Strategy Journey



# Milan's Resilience Strategy

## Preliminary Resilience Assessment - PRA

## RESILIENCE STRATEGY



ANALYSIS AND RESEARCH

COORDINATION AND SOLUTIONS DEVELOPMENT

IMPLEMENTATION AND MONITORING

## 1 | EFFICIENT AND PARTICIPATED PROCEDURES FOR A RESILIENT AND SUSTAINABLE URBAN DEVELOPMENT

### GOAL 1 |

Institutionalising resilience in the decision-making structures of the city and encouraging the exchange of good practices

2 Milan in Action

### GOAL 2 |

Identification of operational and financial instruments for urban regeneration

3 Milan in Action

### GOAL 3 |

Promoting a circular and resilient economic system involving different public and private actors on an urban scale

3 Milan in Action

## 2 | A PUBLIC AND PRIVATE SPACE LIVEABLE, COMFORTABLE AND ADAPTIVE AT THE SERVICE OF INHABITANTS

### GOAL 1 |

Acquire, process and use local climate data to implement adaptive solutions

4 Milan in Action

### GOAL 2 |

Promoting and implementing green in the city

4 Milan in Action

### GOAL 3 |

Promoting resilient regeneration of public space

4 Milan in Action

## 3 | INCLUSIVE, AWARE AND PROACTIVE COMMUNITIES

### GOAL 1 |

Promoting training and raising awareness of the community on the issues of resilience and active citizenship

3 Milan in Action

### GOAL 2 |

Supporting the most vulnerable and facilitating their integration into society

2 Milan in Action

### GOAL 3 |

Promote measures to ensure the security of the community and institutions

2 Milan in Action

# PILLAR 1 | Efficient and participatory procedures for resilient and sustainable urban development

## GOAL 1 |

Institutionalising resilience in city decision-making structures and fostering the exchange of good practices

### 2 Milan in Action

## GOAL 2 |

Identification and definition of implementation and financial instruments for urban regeneration

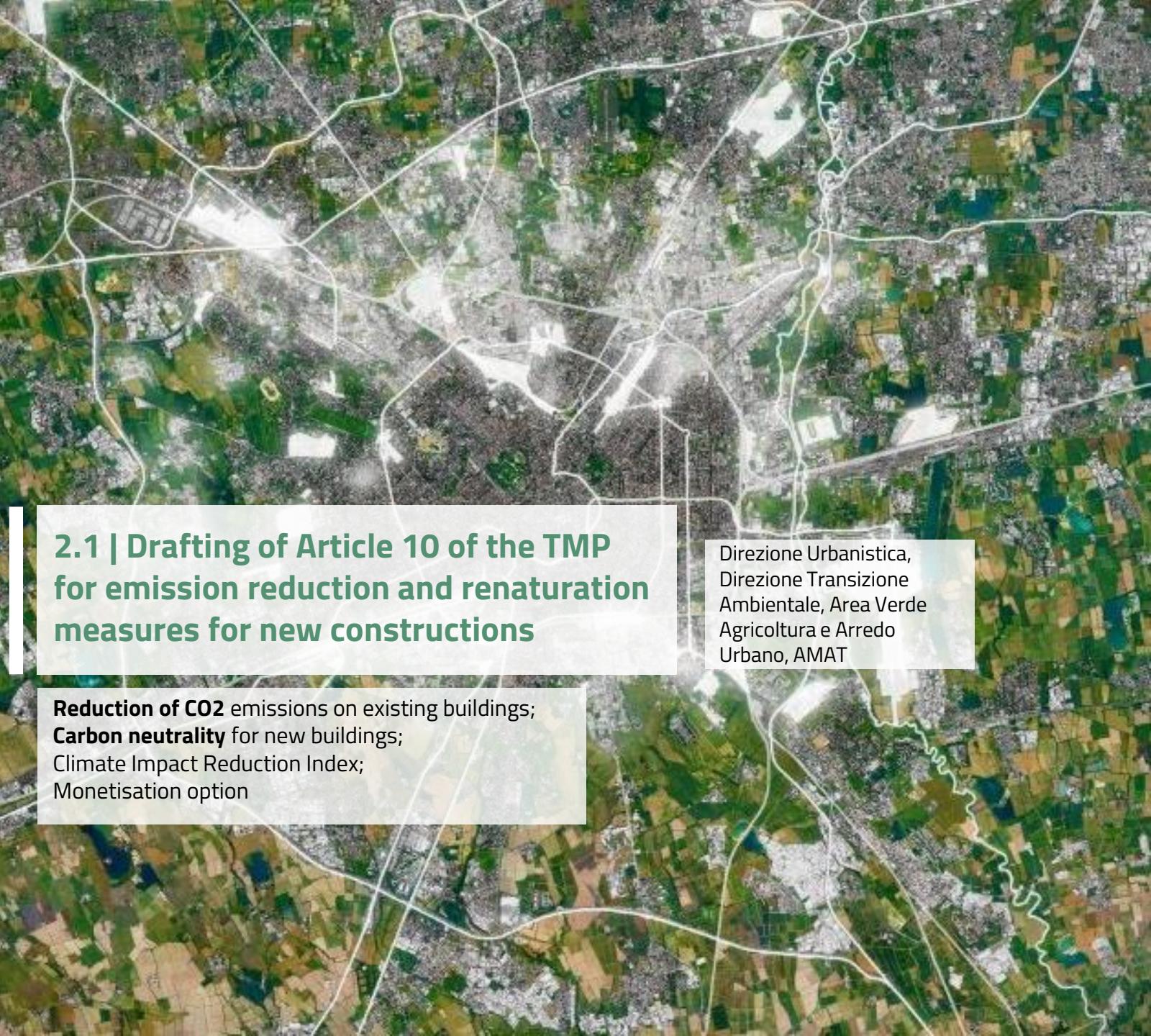


### 3 Milan in Action

## GOAL 3 |

Promoting a circular and resilient economic system involving different public and private actors at urban scale

### 3 Milan in Action



## PILLAR 2 | A liveable, comfortable and adaptive public and private space at the service of citizens

### GOAL 1 |

Acquire, process and use local climate data to implement adaptive solutions

### 4 Milan in action

### GOAL 2 |

Promoting and implementing green areas in the city

### 4 Milan in action

### GOAL 3 |

Promoting resilient regeneration of public space

### 4 Milan in action



### 3.1 | Participation in the working group OFFICINA URBANA, created for the elaboration of visions and design interventions on a neighbourhood scale

Direzione Generale, Dir. Transizione Ambientale, Dir. Urbanistica, Dir. Mobilità e Trasporti, Dir. Quartieri e Municipi, Dir. Specialistica Autorità di Gestione e Monitoraggio Piani, ARUP

- Micro-urbanism, mobility, green and furniture, sustainability and **resilience**.
- Methodology for **environmental monitoring** of tactical urbanism interventions.
- Pilot project on the **Niguarda** district

# PILLAR 3 | Inclusive, aware and proactive communities

## GOAL 1 |

Fostering community education and awareness on resilience and active citizenship issues

### 3 Milan in Action

## GOAL 2 |

Supporting the most vulnerable and facilitating their integration into society

### 2 Milan in action

## GOAL 3 |

Promoting measures to ensure the safety of the community and institutions

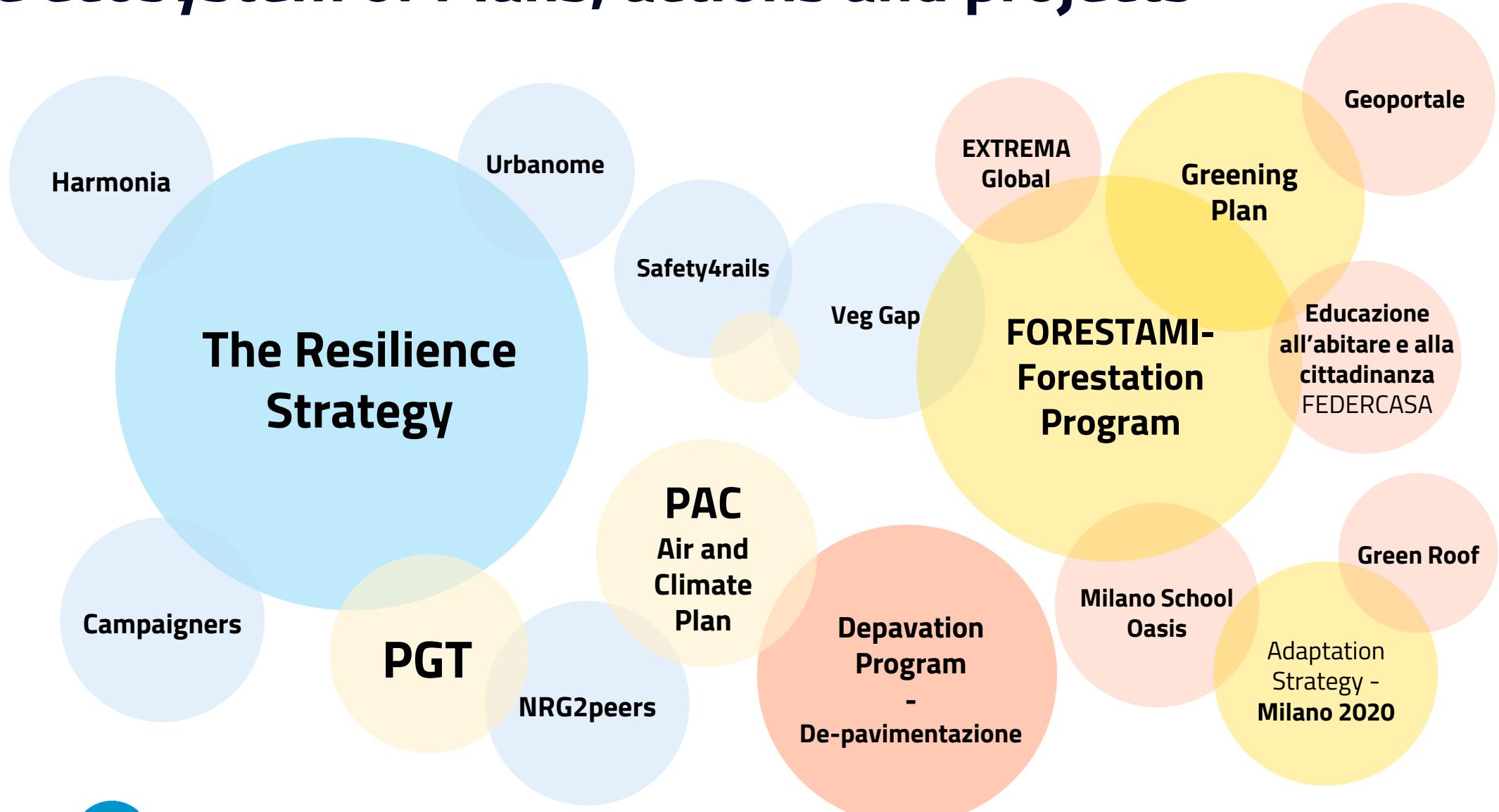
### 2 Milan in action



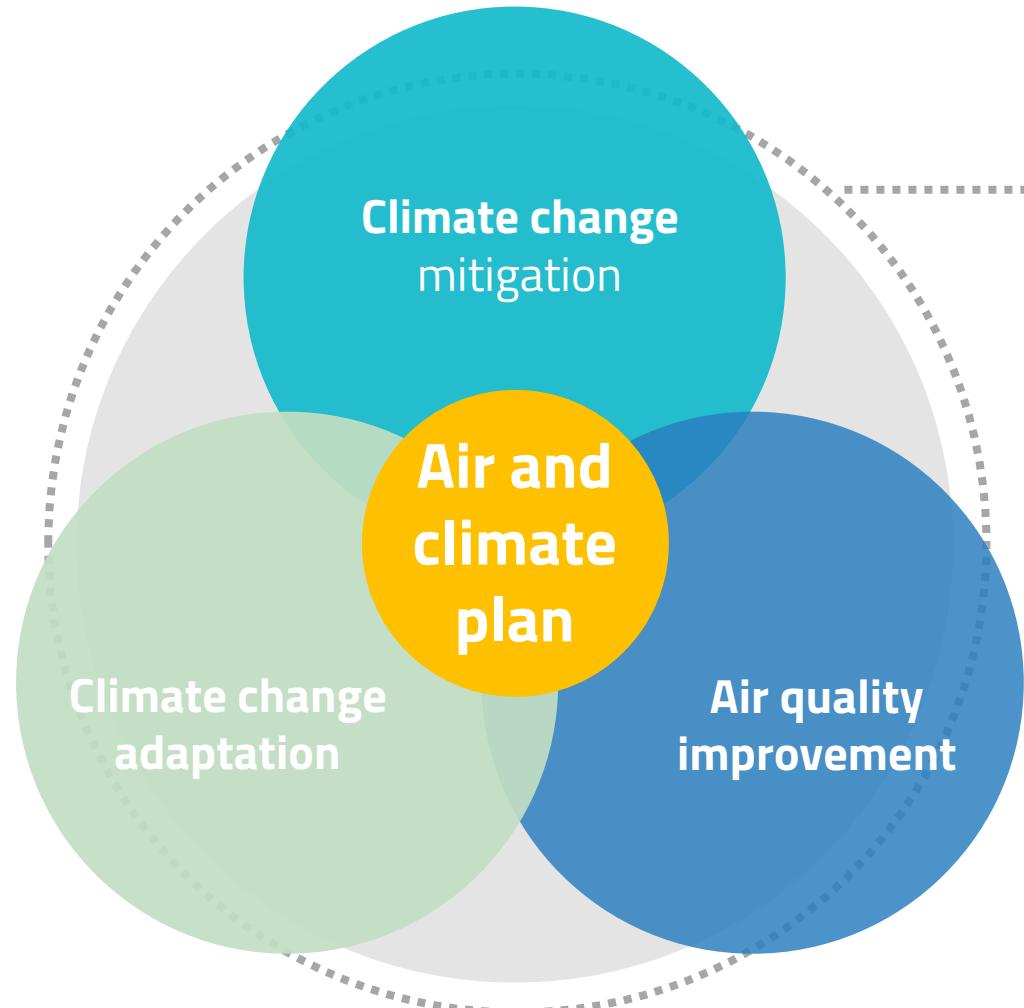
A wide-angle photograph of a modern urban garden. In the foreground, there's a large, curved arched trellis covered in greenery, supported by several slender poles. Behind it is a long, low brick building with a corrugated metal roof and several arched windows. The garden itself is a mix of green lawns, red brick planters filled with small trees or shrubs, and paved walkways. The background shows a line of tall, mature trees under a clear blue sky.

**Plans, projects and actions of Milan Municipality**

# The ecosystem of Plans, actions and projects



# Air and climate plan



Piano  
Aria  
Clima

A vision for Milan at 2050,  
in which the **3 components** of the plan  
**(mitigation/adaptation/air quality)**  
integrate to implement  
the **process of environmental transition**,  
combining sustainability and equity

The 49 actions of the Plan pursue  
targets to be achieved by 2030

# Air and climate plan

## Structure and aims



**1\_INCLUSIVE MILANO**  
a healthier, safer and fairer city



**2\_SLOW MILANO**  
a city that moves in a fluid, flexible and sustainable way



**3\_POSITIVE ENERGY MILANO**  
better and lower use of energy



**4\_COOL MILANO**  
A city that cools down



**5\_INFORMED CITIZENS**  
shared aims

# Let's green the city

HOW? Interventions of urban forestation and increase of green areas



- ▶ IN SYNERGY with PGT, municipal planting plan and the project **LIFE VEG-GAP**

<https://www.lifeveggap.eu/it/>



# **PGT MILANO 2030**

## **A Green, Livable, Resilient City**

Milan 2030 wants to give itself a green footprint. To this end, the PGT has downsized land use forecasts for building, thus reducing land consumption.

Water is once again the protagonist, thanks to the reopening of the Navigli (canals) and the plans for Lambro and Seveso rivers.

The green belt which will connect twenty new city parks eventually becoming the urban threshold of the Metropolitan Park.

New environmental standards favor the reduction of greenhouse gas and carbon emissions and help mitigate climate events

### **STRATEGIES 5 and 6**



# Art. 10 of PGT

New quality standards for all buildings

Minimizing energy consumption, re-naturalizing and maximizing the city's permeable surface, reducing the carbon footprint of both new buildings and in the regeneration of the building stock.

#### Shocks & stresses

- Floods – flooding
- Air and water pollution
- Heat waves and extreme heat

#### Stakeholders

Direzione Generale, Urbanistica, AMAT

#### Status

Approved



# Depavement Program

- Through an analysis of the areas and projects in progress, **DEFINE A GOAL FOR THE DEPAVIMENTATION PROGRAM** of the city of Milan
- **TO EXPERIMENT INNOVATIVE PROJECTIVITIES** of high environmental value, which constitute pilot cases for the city.

## Shocks & stress

- Degradation of urban spaces
- floods and inundations
- heat waves
- air and water pollution

## Stakeholder

Direzione Generale, Dir. Transizione Ambientale, Dir. Urbanistica, Dir. Quartieri e Municipi, Dir. Mobilità e Trasporti, AMAT

## Status

Ongoing



# Milano School Oasis

**O** Meeting Opportunity  
**A** Adapting to a Changing Climate  
**S** Sustainability  
**I** Cultural integration  
**S** Sociality



## The Vision

Imagine a school that knows how to combine its **educational vocation** with that of the **environment**, adapting its interior and exterior spaces to climate change and generating opportunities for generational encounters and exchanges

# EXTREMA Global

A service for citizens to **share information about heat waves and cooling areas**

EXTREMA Global uses **real-time satellite data** and other city-specific models and data to estimate **temperature, humidity, and hazard index** over the metropolitan area

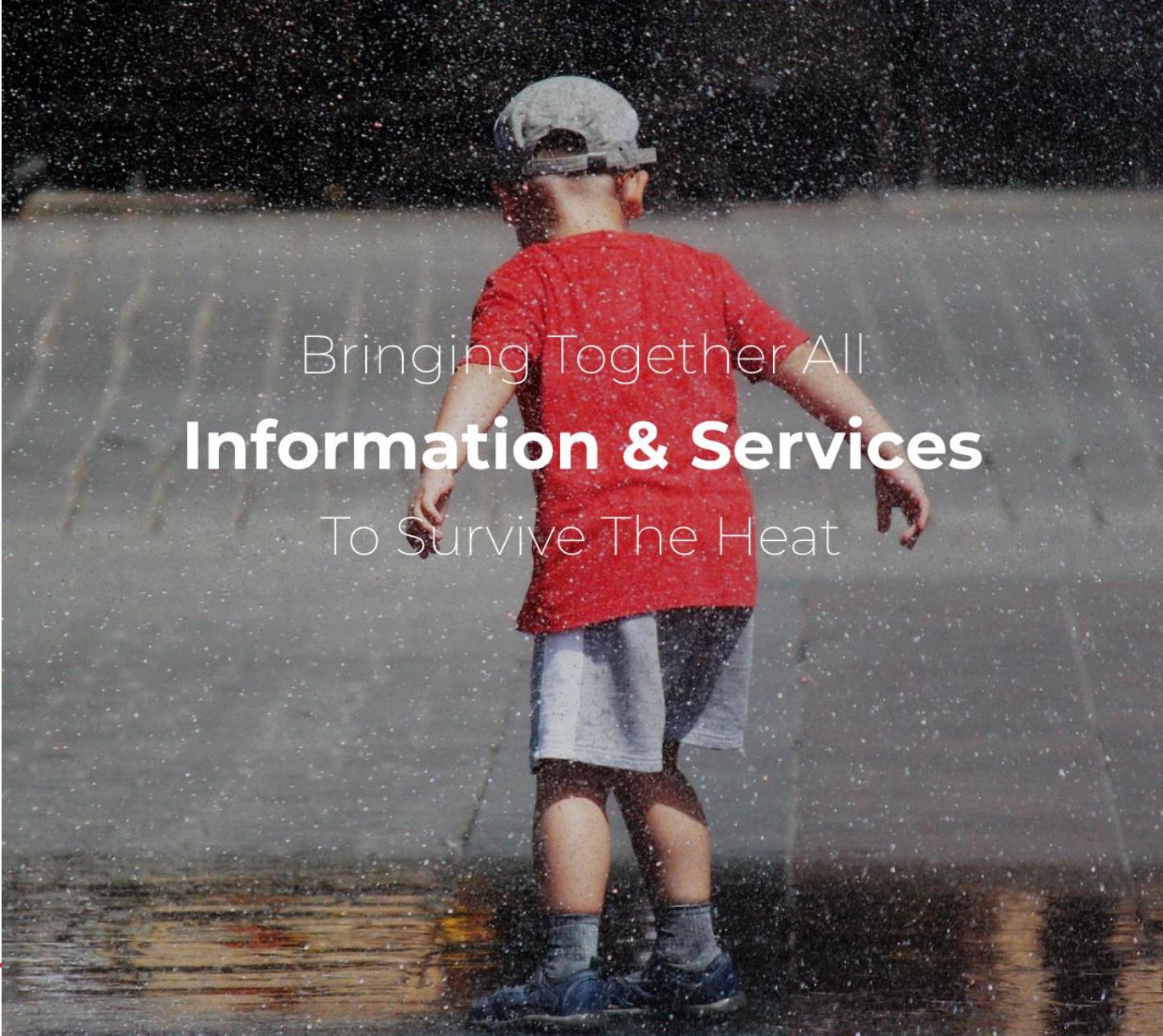
#### Shocks & stress

- Heat waves and extreme heat
- Floods and Flooding
- Social exclusion and inequalities
- Aging population

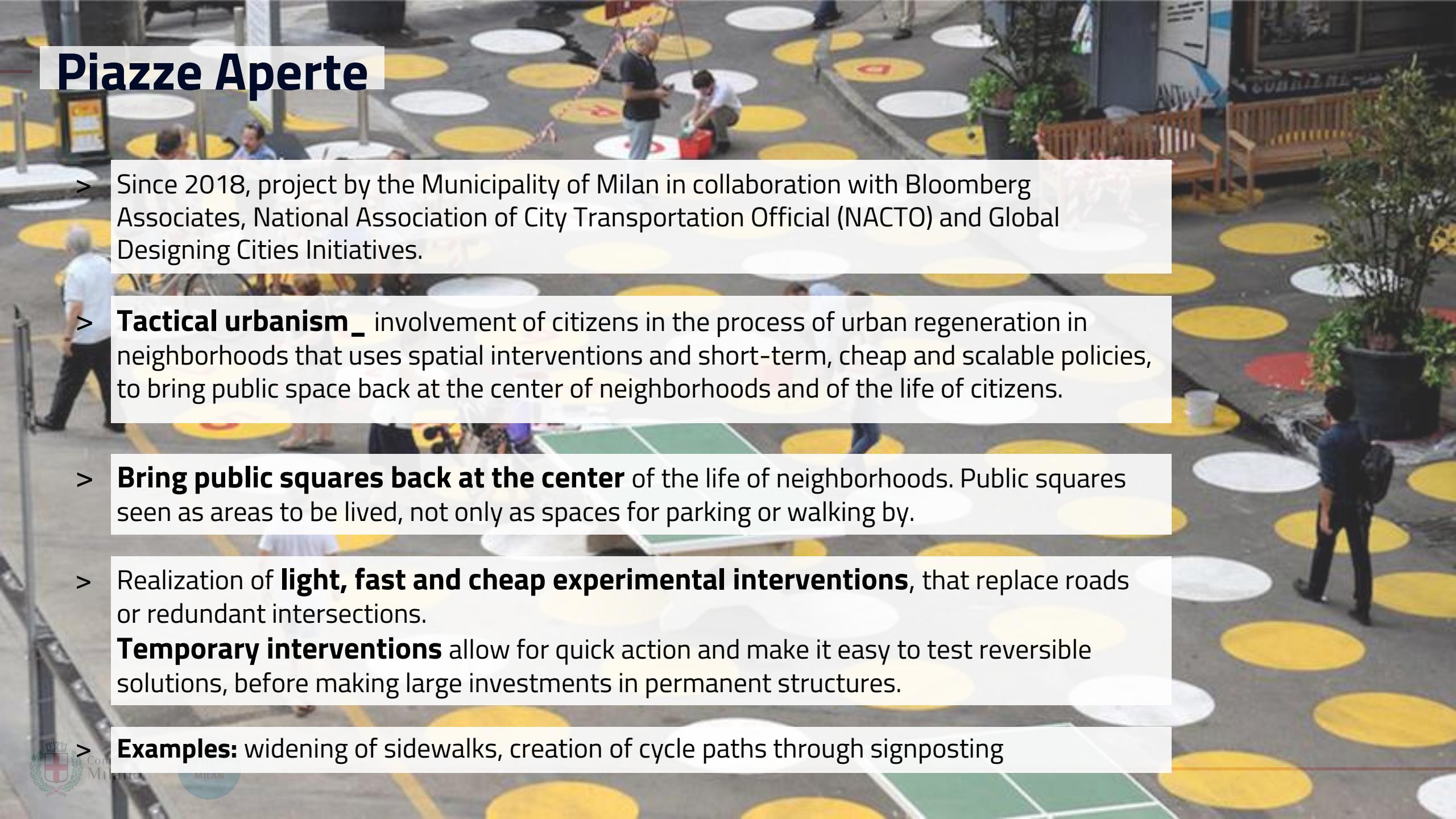
#### Stakeholder

Central Area, Environmental Transition Department, MM,  
AMAT, NOA (National Observatory of Athens )

[Link: EXTREMA Global](#)



# Piazze Aperte

- 
- > Since 2018, project by the Municipality of Milan in collaboration with Bloomberg Associates, National Association of City Transportation Official (NACTO) and Global Designing Cities Initiatives.
  - > **Tactical urbanism** – involvement of citizens in the process of urban regeneration in neighborhoods that uses spatial interventions and short-term, cheap and scalable policies, to bring public space back at the center of neighborhoods and of the life of citizens.
  - > **Bring public squares back at the center** of the life of neighborhoods. Public squares seen as areas to be lived, not only as spaces for parking or walking by.
  - > Realization of **light, fast and cheap experimental interventions**, that replace roads or redundant intersections.  
**Temporary interventions** allow for quick action and make it easy to test reversible solutions, before making large investments in permanent structures.
  - > **Examples:** widening of sidewalks, creation of cycle paths through signposting

# Strade Aperte

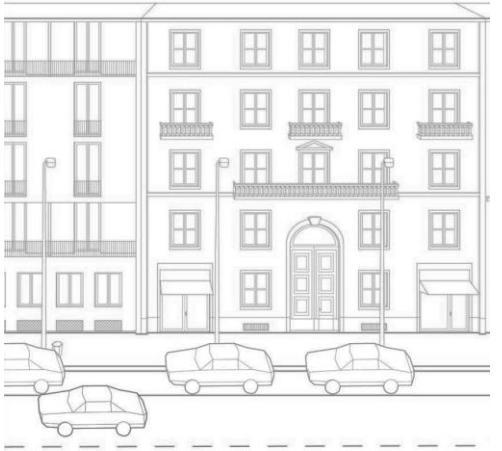
- > In light of COVID-19, it became necessary to **redefine the use of roads and public spaces** and to make the decisive leap towards a diffuse use of bicycles, scooters and other forms of **micro- and light mobility**, that respect social distancing.
- > **After the lockdown**, we had to act in a timely manner to give an **alternative to cars**, while responding to the necessities of citizens, who tended to avoid public transport as they feared contagion.
- > Milan developed an **Adaptation Strategy for 2020** with the aim of rethinking schedules and rhythms of the city, to reduce and distribute the demand for means of transport during the day.
- > **35 km** new bike lanes (May-Dec 2020)
- > **Città 30**: extension of Zone 30
- > Increase in **walkable areas** and in **public spaces**



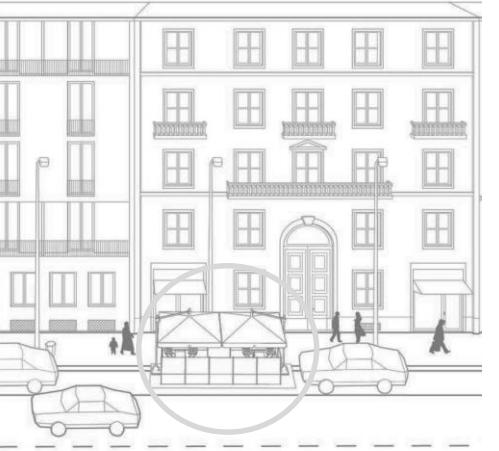
# From parklets to dehors

- > Interventions to facilitate the arrangement of **tables for bars and restaurants** with the aim of recovering part of the lost occupancy of interior spaces, while encouraging the use of green solutions.
- > Interventions to perform **open air activities** on the parklets.

Previous arrangement



Current arrangement





# The MGI Webinar Series (tentative schedule)

- 🕒 Linking COVID-19 response to climate action (January 2021)
- 🕒 Smart city policies (March 2021)
- 🕒 **Integrated planning for resilient cities – tools and approaches (May/June 2021)**
- 🕒 Adapting to climate change – urban water management (October 2021)
- 🕒 Ecosystem services and nature-based solutions (December 2021)
- 🕒 Climate mitigation in the mobility sector (February 2022)
- 🕒 Smart city finance & procurement (April/May 2022)

**Stay updated!**



<http://www.mgi-iki.com/>



[/morgenstadt-global-smart-cities-initiative](https://www.linkedin.com/company/morgenstadt-global-smart-cities-initiative/)



[/morgenstadtglobalsmartcitiesinitiative](https://www.facebook.com/morgenstadtglobalsmartcitiesinitiative)

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