# CrAFt

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Creating
Actionable
Futures

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# Executive Summary

This report presents key insights from three pilot projects — the SPACE Innovation Hub, Prague Pixels, and the NEB Innovation Team — and their contribution to advancing collaborative governance, public engagement, and creative urban transformation.

Prague is one of the three Sandbox Cities participating in the CrAFt project, alongside Amsterdam and Bologna. While Amsterdam works with neighbourhood-level climate adaptation and Bologna emphasises civic engagement, Prague has contributed with art-driven data engagement and multi-stakeholder governance structures. The shared learning process has enhanced all three cities' capacity to co-create more sustainable, inclusive, and aesthetically enriching urban environments.

Prague's three pilots reflect its sandboxing approach:

1. The SPACE Innovation Hub is a physical centre for urban innovation, co-creation, and interdisciplinary collaboration. It integrates art, technology, and participatory planning, providing a living lab for policy experimentation.
2. Prague Pixels is an interactive art installation that transforms urban data into immersive and engaging experiences, making city information more accessible to the public. By blending data visualisation with artistic expression, it creates a dynamic platform for storytelling, fostering a deeper connection between citizens and their urban environment. Designed as a replicable model, Prague Pixels demonstrates the potential of data-driven art to enhance public engagement and urban awareness.
3. The NEB Innovation Team is a collaborative governance platform enhancing cooperation between municipal organisations, universities, and creative industries. The Team is based on an open and democratic model, rotating leadership and cross-sector coordination, providing a valuable example for other cities.

The lessons learnt — particularly regarding adaptive governance, citizen engagement, and the role of art in urban transformation — serve as valuable insights for other European cities working towards climate-neutral, sustainable futures.

# 1. Introduction

The project Creating Actionable Futures[1] (CrAFt) supports cities in their transition toward climate neutrality, sustainability, inclusivity and aesthetics.

Funded by Horizon Europe under the Cities Mission programme, and inspired by the New European Bauhaus[2] (NEB) initiative, CrAFt fosters collaboration between municipalities, citizens, businesses, academia and other stakeholders to co-create innovative urban solutions. By treating cities as sandboxing environments, the project enables the testing of experimental governance models, digital tools, and community-driven interventions. CrAFt contributes to scalable, replicable solutions for urban transformation while aligning with broader European climate and urban policies.

Prague has established itself as a Sandbox City, actively experimenting with new governance approaches, new ways of participatory planning, involvement of stakeholders, and technological innovations to address its urban challenges. As the capital of the Czech Republic, Prague faces complex urbanisation pressures, including rising housing demands, climate adaptation needs, and mobility challenges. To foster sustainable urban transformation, the city has adopted a data-driven, participatory, and interdisciplinary approach, aligning its efforts with the NEB values and working principles.

The sandboxing approach in Prague provides a structured framework for real-world experimentation, allowing municipal authorities, researchers, creative industries and citizens to collaborate on adaptive and scalable solutions. By integrating arts and culture, an innovative mindset, cross-sector cooperation, and inclusiveness the city fosters public engagement. This commitment to inclusive urban transformation is reflected in three key pilot projects:

- **The SPACE Innovation Hub** – a multifunctional centre for urban innovation, participatory governance, and creative experimentation providing a testbed for policy innovations and interdisciplinary collaboration.

- **Prague Pixels** is an interactive audiovisual installation that transforms complex urban data into engaging, immersive experiences. Developed

[1] https://craft-cities.eu/about-the-project

[2] https://new-european-bauhaus.europa.eu/index_en

within Operator ICT's Golemio platform by data designer Valeriia Riazanova, the project aims to make city data more accessible and foster intuitive, participatory exploration of urban dynamics.

- **NEB Innovation Team** – a collaborative governance platform that fosters cross-sector cooperation between municipal organisations, academia, and the cultural sector, ensuring that innovation in Prague remains inclusive and responsive to societal needs.

This is the story of how Prague turned its city into a living lab. Through bold experiments in governance, data, and design, Prague has been testing new ways to build a more sustainable, inclusive urban future. This report dives into that journey — spotlighting the pilots, the bumps along the way, and the breakthroughs that followed. From immersive exhibitions to innovation hubs, these sandbox projects offer real lessons for any city ready to put CrAFt principles into action. At its heart, Prague's transformation shows what's possible when citizens, creatives, and city leaders create the future together.

# 2. Sandbox City Prague

## 2.1 Introduction to the Sandbox City

One of Prague's most pressing contemporary challenges is the management of rapid urbanisation. The expansion of suburban areas, increased traffic congestion, and the need for sustainable housing solutions have placed considerable pressure on city planners and policymakers. The city's landscape, marked by the meandering Vltava River, its architecturally dense historic centre, numerous parks, and green spaces, present both opportunities and constraints for sustainable development. Brownfield sites — former industrial areas — have become focal points for transformation as they offer a way to repurpose neglected spaces for new residential, commercial, and cultural projects. The city's Climate Change Adaptation Strategy[3] outlines measures to address these issues, such as expanding green infrastructure, enhancing public transport, and promoting energy-efficient buildings.

## 2.2 The City's Path to a Sustainable Future

In response to the challenges mentioned above, Prague has made sustainability a core principle of its urban strategy. The city's Strategic Plan for 2030[4] outlines its vision for a more livable, resilient, and inclusive city. This plan emphasises climate adaptation, affordable housing, efficient public transport, and the creation of public spaces that enhance the quality of life for all residents. It is modelled on the 'compact city' model, where urban growth is concentrated in the inner city and brownfield areas, thus preventing further urban sprawl and protecting green spaces.

While Prague has made significant strides in aligning its urban governance with sustainability goals, challenges remain. The Metropolitan Plan[5], currently under revision, aims to address issues related to zoning, urban density, and green infrastructure. Furthermore, the city continues to work on improving its resilience to climate change, particularly through measures that address urban heat islands, flood risks, and energy efficiency.

[3] https://adaptacepraha.cz/en/klimaticka-zmena-english/
[4] https://iprpraha.cz/assets/files/files/b96e4130187732b871140c77200a4d32.pdf
[5] https://iprpraha.cz/stranka/3424/metropolitan-plan

The governance of sustainable urban development in Prague is organised through a multi-layered framework involving various actors at the city, national, and EU levels.

Key actors in Prague's governance structure include:

- **The City Council**[6]: Responsible for approving strategic documents and overseeing urban development projects.

- **IPR Prague**[7]: The central planning authority, responsible for the creation and implementation of urban strategies, including the Metropolitan Plan[8] and Territorial Analytical Documents[9]. IPR Prague operates CAMP [10](Centre for Architecture and Metropolitan Planning), a multimedia gallery dedicated to the future of cities.

- **Operator ICT**[11]: A key player in the city's digital transformation, Operator ICT manages smart city projects and urban data platforms and is a coordinator of the Smart Prague[12] initiative.

- **Private sector and academic institutions**: Involved in innovation and research.

- **Citizens and local communities**: Through participatory planning and co-design processes, citizens are increasingly involved in shaping the future of their neighbourhoods and the city as a whole.

Prague's journey toward sustainable urban transformation is powered by smart city technologies, public participation, and European collaboration. Through platforms like Golemio[13], the city uses real-time data to make informed decisions and engage citizens in shaping their environment. Initiatives like the Urbania exhibition at CAMP demonstrated the power of interactive, experience-based learning in urban planning and laid the foundation for key pilot projects: the

[6] https://praha.eu/web/eng
[7] https://iprpraha.cz/
[8] https://plan.praha.eu/
[9] https://geoportalpraha.cz/en/data-and-services/articles-and-projects/uap
[10] https://praha.camp/
[11] https://operatorict.cz/
[12] https://smartprague.eu/en
[13] https://golemio.cz/english

SPACE Innovation Hub, Prague Pixels, and the NEB Innovation Team. These pilots use art, data, and democratic governance to foster collaboration across sectors and empower citizens. Together, they form a dynamic ecosystem where innovation, inclusion, and sustainability drive the city's evolution — offering valuable insights for cities across Europe.

# 3. Sandboxing in Prague

## 3.1 Building on Urbania: The Role of Art and Interactivity in Shaping Urban Innovation

Prague is building on the Urbania exhibition[14], developed to transform lessons from the SCC1 Horizon 2020 project Triangulum[15] into engaging experiences for local citizens, decision-makers, municipal employees, and other relevant actors involved in sustainable urban transformation. Urbania was an interactive exhibition held in 2020 at CAMP[16], that transformed city planning into a participatory experience, inviting citizens, officials, and stakeholders to explore urban challenges through immersive storytelling and hands-on engagement. By blending art, data, and reflection, it empowered visitors to see their role in shaping a sustainable city, while helping policymakers connect abstract planning with everyday life. This innovative approach laid the foundation for Prague's future pilots, including the SPACE Innovation Hub and Prague Pixels, proving that co-creation and creativity are powerful tools for urban transformation.

Fig 1 Urbania exhibition. Credit: IPR Prague.

[14] https://www.urbania-vystava.cz/
[15] https://triangulum-project.eu/
[16] https://praha.camp/en

Fig 2 Urbania exhibition. Credit: IPR Prague.

## 3.2 Rationale for Selecting SPACE Innovation Hub, Prague Pixels and NEB Innovation Team as Pilots

Building on the momentum of Urbania, the SPACE project took the lessons of participation and interactivity and expanded them into a broader, long-term framework for urban innovation. Parallel to this development, the idea for Prague Pixels emerged spontaneously within OICT as a creative and accessible way to present city data more effectively.

Like Urbania, Prague Pixels leverages the intersection of art and data to make abstract urban issues more tangible for citizens. Its modular and scalable design ensures that the project can be adapted and replicated in various contexts, continuing the legacy of Urbania in promoting city-wide engagement through innovative, participatory methods. Both projects, although distinct, share the foundational influence of Urbania's use of storytelling, interaction, and immersive experiences.

The NEB Innovation Team was established in response to the growing need for coordination among municipal organisations, universities, and other stakeholders. The Team fosters cross-sectoral cooperation, aligning agendas and integrating

New European Bauhaus (NEB) principles into urban development by reducing institutional silos, promoting shared ownership, and strengthening international collaborations.

All the pilots respond to the need for more dynamic and participatory urban development, a key focus of the New European Bauhaus vision. They each address critical challenges facing the city — SPACE, as a long-term initiative, seeks to foster a collaborative innovation ecosystem, while Prague Pixels, through its creative exploration of urban data, engages citizens in new ways of thinking about city dynamics, and NEB Innovation Team helps reaching a common goal and working together.

The selection of these pilots also aligns with the common methodology outlined in D3.1: *Common Approach to Pilot and Intervention Selection*[17], which defines the criteria and collaborative governance frameworks for identifying emblematic urban initiatives within the CrAFt Sandbox Cities.

[17] https://craft-cities.eu/results/common-approach-to-pilot-and-intervention-selection/

# 4. Prague Pilots

## 4.1 SPACE: Inclusive & Immersive Engagement in Urban Transformation

### 4.1.1 Introducing the SPACE Innovation Hub

The SPACE Innovation Hub is an open, multifunctional platform designed to showcase urban innovations, smart city trends, and Prague's latest projects in an interactive and engaging way. It serves as an exhibition space and meeting hub, inviting citizens, city employees, startups, and international guests to explore how the city works, the challenges it faces, and potential solutions. The project is now being realised, with the SPACE venue under development.

The site will feature an Innovation Lab, where experts in urban data and smart city solutions will work with key stakeholders to identify problems, design solutions, and implement pilot projects—bridging theory and practice to drive real urban transformation. By fostering public awareness, enhancing technological literacy, and promoting citizen participation, SPACE will help strengthen Prague's innovation ecosystem. The project also aims to boost international cooperation, increase transparency in city governance, and connect key stakeholders across sectors, encouraging a multidisciplinary approach to urban problem-solving.

Prague implements its Smart Prague strategy to develop, test and roll out innovative solutions contributing to sustainable transformation, improved quality of life and urban resilience. Urban innovation projects, technologies and related data can seem distant to most citizens, even though they can have significant impact on their lives. This makes it difficult for the citizens to take an active role in shaping the future of the city. The challenge SPACE addresses is how to make urban innovation more inclusive and how to empower citizens and key stakeholders to participate as equal partners.

Fig 3 Visualisation of the SPACE Innovation Hub. Credit: OICT.

The SPACE Innovation Hub will emphasise close cooperation with the creative sector and utilise art as a means of communicating complex issues to a broad array of stakeholders. The centre will be put up in the vacant building Švýcárna[18] in the Petřín park near the city centre.

So far, detailed specifications have been developed, focusing on experience-based learning, process learning and co-creation, with cooperation with arts and cultural sectors at its core. The design process included key stakeholders and is closely linked to the co-creation of the new Smart Prague Strategy, ensuring NEB and Smart Cities/Urban innovations are seen as part of one continuum.

SPACE Innovation Hub is especially significant in Prague's fragmented governance landscape. With decision-making split between city-wide authorities, district-level governance, and specialised municipal companies (such as transportation and smart city initiatives), coordinating efforts across these layers is often a challenge. SPACE responds to this challenge by bringing all relevant stakeholders into the development process from the beginning. This co-creative

[18] https://mapy.cz/turisticka?source=base&id=2437977&x=14.4012767&y=50.0784393&z=19

approach ensures that projects developed within SPACE are aligned with the needs and priorities of various governance levels, creating a more cohesive urban innovation ecosystem. Regular evaluations will measure the project's success by tracking citizen satisfaction, participation, and the number of successful innovative projects it generates.

### 4.1.2 New European Bauhaus in the SPACE Innovation Hub

In CrAFt, Prague focused on aligning SPACE with NEB principles and values:

- **NEB Impact Model implementation**: The SPACE team used the NEB Impact Model to identify how the project can contribute to relevant topics. This was achieved through internal workshops with local stakeholders and in online and in-person sessions with CrAFt partners.

- **CrAFt Cities online sessions and Mutual Learning Exercises**: CVUT and experts representing SPACE participated in CrAFt Cities sessions and Mutual Learning Exercises. The focus was on sharing lessons on how to make the process of designing SPACE more inclusive and how to engage the artistic and creative sectors both in the design and the operation of SPACE.

- **CrAFt Cookbook workshop**: Prague organised a workshop with representatives of the artistic and creative sectors, architects, citizens, academia and NGOs focused on the implementation of the CrAFt Cookbook process and lessons in the SPACE Innovation Hub. The themes of the workshop were the role of SPACE in driving local sustainable transformation, partnerships, governance and financial models, and potential for scaling and replication.

- **Student STEAM Team projects**[19]: Prague engaged multidisciplinary student teams in working on challenges related to addressing local sustainable transformation through engaging experiments and artistic installations. A 10-day student workshop in Prague focused on NEB values and working principles and urban issues. Four interdisciplinary teams created artistic interventions on mobility, light pollution, air quality, and public sports. Students contributed valuable ideas to the overall design of SPACE and inspired further collaboration with universities.

[19] https://craft-cities.eu/students/steam-teams/

Fig 4 STEAM Teams Workshop 2023, students discussing the topic of their work. Credit: CVUT

### 4.1.3 Roles of Stakeholders, Funding and Timeline

The SPACE Innovation Hub brings together a diverse ecosystem of stakeholders, funding strategies, and a phased development plan that together form the backbone of this ambitious initiative. Operator ICT (OICT) leads the project's management and coordination, ensuring smooth execution and engagement across all phases. The City of Prague acts as the political guarantor, offering institutional support and strategic oversight, including decisions such as approving the Švýcárna building as the future location of the hub. External partners, including international organisations like Bloomberg Associates, contribute with expertise, global best practices, and potential co-funding, reinforcing the project's international relevance. Citizens and local communities are also central to the SPACE concept, which emphasises co-design and public participation as core principles of the innovation process.

Financially, the project is underpinned by a multi-source strategy: municipal funding secured through the Smart Prague 2030 framework forms the foundation, complemented by European programmes such as Horizon Europe and bolstered by private sector partnerships that bring investment, expertise, and market-driven perspectives.

The project timeline reflects a clear and progressive roadmap: after concept approval by the Prague City Council in June 2024 and project proposal preparation in July 2024, the next milestones include the completion of a feasibility study by January 2026, followed by a public procurement process in May 2026. Implementation begins in November 2027, with pilot operations slated for October 2028, leading to the full-scale operational launch of the SPACE Innovation Hub in January 2029.

### 4.1.4 Impact of the CrAFt Project on the Pilot

Fig 5 Denisa Pevná (City of Prague) leading a workshop about SPACE. Credit: CVUT

CVUT and OICT organised in Brussels (11 April 2024) during the NEB festival 2024 to discuss the role of the arts in urban development, aiming to refine and enhance the SPACE concept. It was attended by international city representatives, active citizens, artists, and other stakeholders. The workshop took place during the preparation phase of the Innovation Concept, which required approval from the Prague City Council's Smart Cities Committee. Expert feedback provided during the workshop played a crucial role in strengthening the proposal, which was formally approved by the Prague City Council and is currently developing the project plan.

The event included a panel discussion and a roundtable focused on envisioning an ideal SPACE — a place where citizens feel welcome and able to contribute to discussions. Participants emphasised that the space should be barrier-free, open and accessible to all age groups, including children, and that it should be divided into distinct zones, each serving different functions. Additionally, the inclusion of a café was deemed essential for fostering a welcoming atmosphere. CAMP (Center for Architecture and Metropolitan Planning) in Prague was cited as a successful example of such a space.

Insights generated during the NEB Festival workshop in Brussels — particularly regarding the design of inclusive, welcoming environments and the strategic use of zoning and shared amenities — were carried forward and integrated into the CrAFt Cookbook Testbed workshop held in Prague in January 2025. This interactive session, organised in cooperation with Locality, gathered local stakeholders from city administration, academia, and the cultural and urban development sectors to further refine the SPACE concept as a sustainable and inclusive innovation hub, applying and localising the learnings from Brussels.

One of the key outcomes was the recognition of the importance of clear roles and mandates in the project. The CrAFt Cookbook methodology helped map out the main stakeholders and their interdependencies, revealing critical gaps in decision-making processes and areas where stronger partnership models were needed. Additionally, discussions focused on how to enhance agency among participants by ensuring that every actor has the right information at the right time, allowing for effective joint action.

The workshop also provided valuable insights into the governance and financial models needed to sustain SPACE in the long term. By testing various collaboration scenarios, participants explored ways to balance municipal leadership with community-driven innovation, ensuring that the project remains adaptive and responsive to urban needs. These discussions were particularly relevant given SPACE's planned relocation to a new site in Prague 5, known as Švýcárna, where multi-stakeholder engagement will be essential to its success.

Furthermore, the testbed helped identify scalability and replication potential for SPACE beyond Prague, aligning with the CrAFt project's broader goal of creating actionable, climate-positive futures. By leveraging insights from the testbed, the SPACE initiative can serve as a model for urban transformation, incorporating best

practices from the NEB Pocket Guide[20] and the CrAFt Cookbook[21] into its development strategy.

The Cookbook Testbed session validated the core principles of SPACE, reinforcing its commitment to sustainability, inclusivity, and innovation while equipping stakeholders with the tools needed to foster meaningful collaboration. These insights will directly inform the next phases of the project.

## 4.2 Prague Pixels

### 4.2.1 Introduction to the Prague Pixels

Prague Pixels is an artwork and a modular platform that addresses a governance challenge: the need to communicate and engage the public with urban data in a way that fosters both understanding and participation.

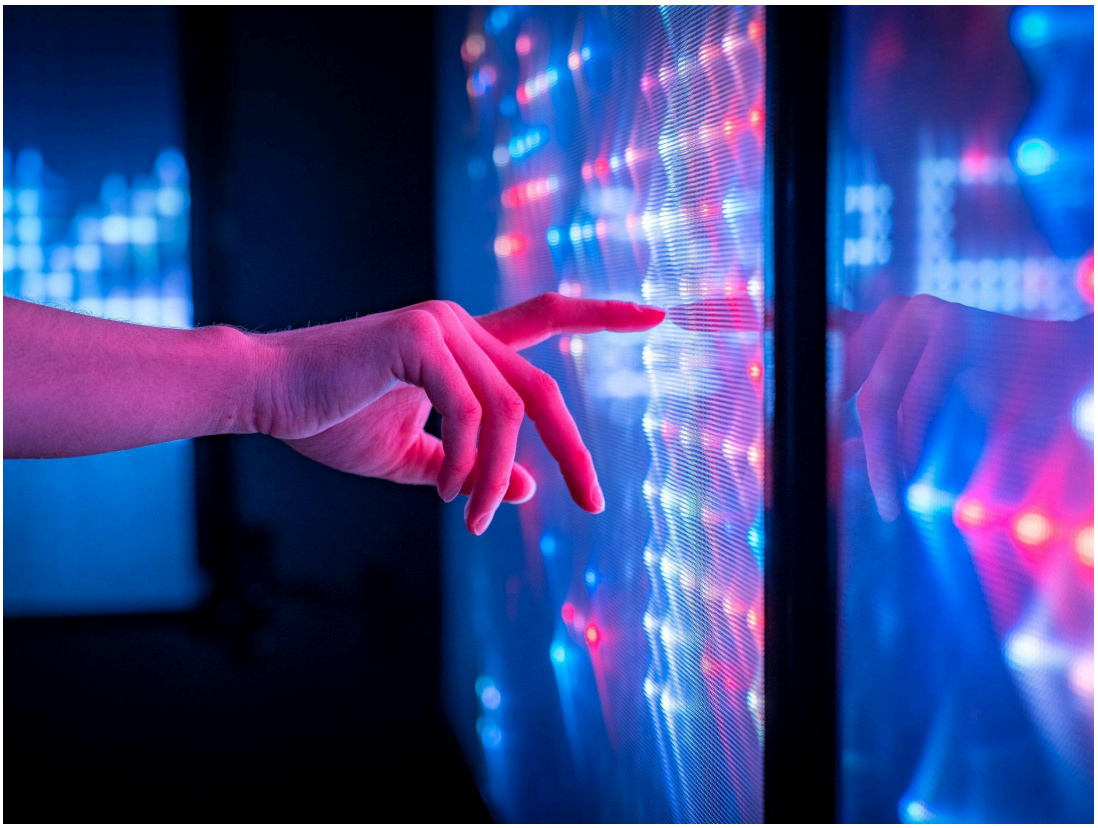

Fig 6 Prague Pixels. Credit: OICT.

[20] https://craft-cities.eu/wp-content/uploads/2025/01/Neb-Pocket-Guide-Digital-Version.pdf
[21] https://craft-cities.eu/wp-content/uploads/2024/02/D2.1-Craft-Cookbook.pdf

As part of this effort, the project uses interactive audio-visual art to make complex data sets more relatable, transforming raw data into an immersive experience that resonates with a wide audience.

The primary objective of Prague Pixels is to introduce new audiences to the importance of urban data, demonstrating how it can help us understand the city's past, present, and potential future. By doing so, it highlights the role of data in informed decision-making and collaborative governance, encouraging a deeper connection between citizens and their urban environment.

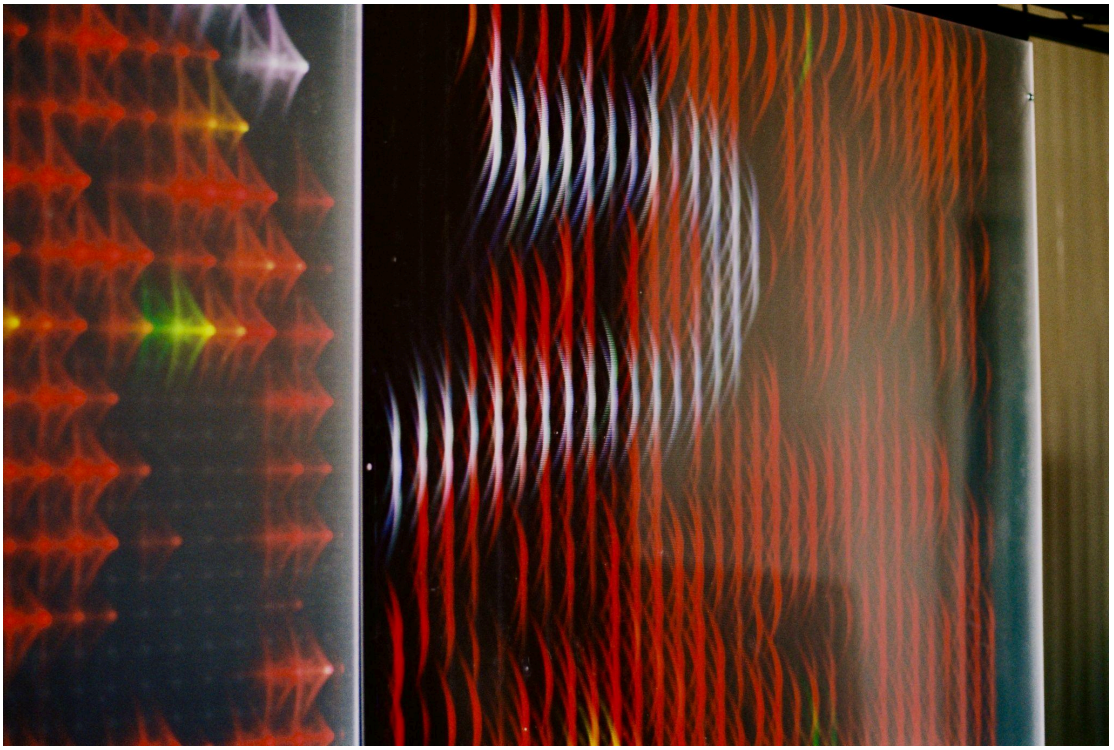

Fig 7 Prague Pixels. Credit: OICT.

On a broader level, Prague Pixels has introduced local stakeholders to the concept of 'smart art' as a tool for experience-based learning and stakeholder engagement. This approach not only enhances public awareness but also fosters collaboration between diverse groups.

A key feature of Prague Pixels is its developer kit, which allows users to build their own platforms from scratch. This enables the creation of new use cases and content, making the platform an ideal tool for engaging multidisciplinary teams

or for example students. The flexibility of the platform encourages experimentation.

The platform's ease of importing new datasets and generating custom content tailored to specific domains, city areas, time frames, or project sites makes Prague Pixels a highly adaptable tool for engagement, co-creation, and public participation.

**How does it work?**

The Prague Pixels is designed as a modular system consisting of several key components:

a) **Panels with Smart LED lights** arranged in a 30 by 30 grid. The lights can be covered by a variation of diffusion plexiglass to create vivid 3D effects. The panels can be mounted and arranged in various ways to create continuous strips or planes but can function independently. The base set consists of 4 such panels. The panels are connected to a controller allowing to control colour and brightness of each individual light.
b) **Data processing module**: Data artists created a pre-programmed system which takes live data and transforms them into the audio visual art. Based on programmable variables responding to selected urban data, the system directly controls the panels. The final visual art itself is not pre programmed, but is based on actual reading on both historical and real-time data.
c) **Sonification/musification module**: Similarly to real time visualisation of data, the system is able to express real data sets through music and sound. This adds an extra layer to the installation and helps create a deeper emotional experience.
d) **Interactive control**: The system can be linked to several control devices including gaming consoles with motion sensing capabilities. This allows the user to interact with the installation to increase impression and deepen experiential learning.
e) **Tutorial and voice over**: The installation introduces the user to the world of urban data, individual use-cases and provides tutorial for the interactive motion capture control.

Together, these components allow artists to produce new installations or adopt existing ones to address new topics and urban challenges and to make the installation fit new spaces and environments.

### 4.2.2 Roles of Stakeholders, Funding and timeline

Prague Pixels is a creative data visualisation project led by Operator ICT, designed to engage citizens by transforming urban data into interactive public installations. Initially developed as an internal initiative through the Golemio data platform, the project reflects the innovative vision of Valeriia Riazanova, whose background in data and creative design helped bring it to life.

Developed in NEB-STAR, a NEB Lighthouse project funded by Horizon Europe under the Cities Mission programme and inspired by the New European Bauhaus initiative, Prague Pixels has evolved into a scalable and internationally collaborative model.

Prague Pixels began its journey in early 2024 with the completion of Version 0, which was initially deployed within the Operator ICT offices in Prague. In April 2024, Version 1 was developed as part of a twinning initiative with Stavanger, Norway. This version was showcased internationally at the Nordic Edge Expo in May 2024 and subsequently installed in Stavanger. By October 2024, Version 2 was finalised in preparation for its presentation at the Smart Cities Expo World Congress (SCEWC) in Barcelona in November 2024. After the event, the installation was transported back to Prague, where it is now positioned for further exhibitions and collaborations.

The Version 1 was co-created with the Smart Prague experts, data scientists, artists and municipal officers. The purpose of the co-creation process was to identify use-cases that meet following criteria:

a) The use-case links to a smart Prague project linked to public space and urban environment.
b) Data sets for this use case are available which can be used to develop a data-based story.
c) The topic was identified by the city as of high importance in relevance to the strategic goals and impact on the environment and wellbeing of the citizens.

Based in the co-creation process and expert interviews, three use cases were selected[22]:

1) Microclimate

The data platform Golemio has been collecting microclimate data since 2022. This project introduces a dynamic mosaic driven by real-time data on temperature, rainfall, and humidity from over 30 microclimate stations across Prague.

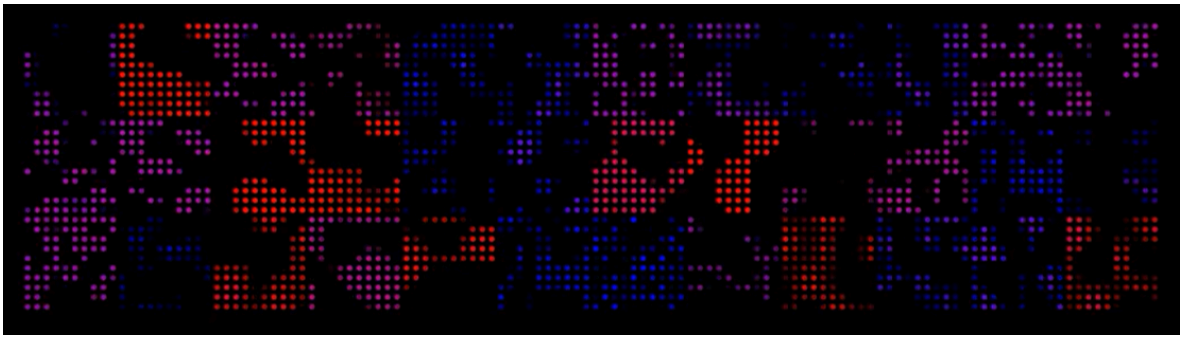

Fig 8 Simplified visualisation of the Microclimate use case. Credit: OICT.

2) Mobility

This story introduces citizens to tram delay tracking in two busy locations in Prague - Florenc and Palmovka throughout the year 2023. Additionally, data from Waze, a community-based navigation system, is layered onto the existing grid to highlight various hazards, traffic jams, accidents, and road closures across the city.

Fig 9 Simplified visualisation of one of the Mobility use cases. Credit: OICT.

[22] https://praguepixels.eu/

3) Waste management

The longest-running tracking initiative dates back to 2019, when the first 30 sensors were installed in waste containers to monitor fullness levels. Since then, the network has expanded to over 400 sensors, significantly improving waste management coordination across the city and reducing the carbon footprint of waste collection vehicles.

Fig 10 Simplified visualisation of the Waste management use case. Credit: OICT.

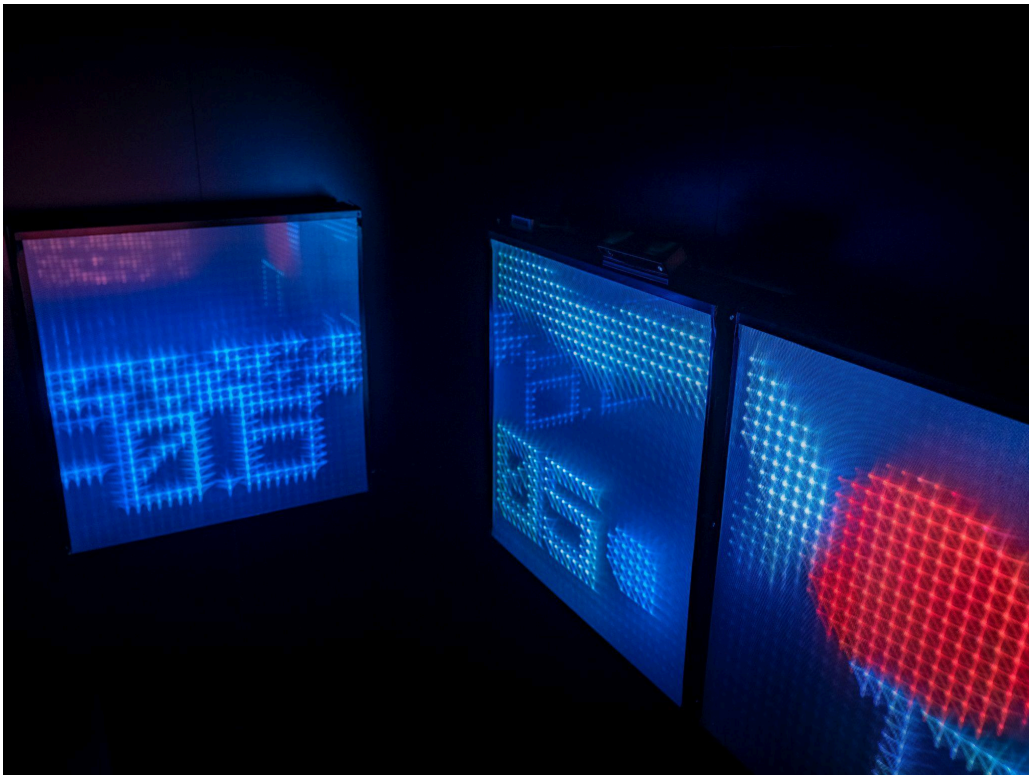

Fig 11 Prague Pixels: Comparison of two stations measuring microclimate in areas with and without trees. Credit: OICT.

### 4.2.3 Impact of the CrAFt Project on the Pilot

The development of Prague Pixels has been deeply influenced and supported by the CrAFt project through two key frameworks: Impact Learning and Active Monitoring. As an integral part of the CrAFt methodology, the NEB-Inspired Learning Framework shaped the foundational principles of Prague Pixels by emphasising the process learning approach. This approach ensured that the project not only functioned as a creative and technological installation but also as an active learning environment. By engaging with local stakeholders, creative professionals, and the broader public, Prague Pixels adhered to the CrAFt objective of fostering inclusive and sustainable urban transformations through continuous mutual learning. The project's modular and scalable design reflects the influence of CrAFt's process learning principles, which prioritise co-creation, stakeholder empowerment, and adaptability.

By adopting Active Monitoring, a continuous reflection and evaluation process, the project team actively gathers insights and monitors the evolution of the installation. This iterative approach, central to the CrAFt framework, allows Prague Pixels to adapt and scale effectively while contributing valuable data for future urban and creative interventions.

CrAFt project supported interdisciplinary cooperation between data experts, artists, universities, students and urban planners. For example the CrAFt project organised a live NEB Festival side event with a dedicated workshop on temporary use of vacant buildings for NEB Projects. This event helped to inspire the next stage of Prague Pixels as a front runner for the SPACE centre in the currently vacant building Švýcárna in Prague 4.

### 4.2.4 Results of the Prague Pixels

**Embedding Artists Within City Structures Enhances Insight and Impact**
The collaboration between the municipal innovation company and the artist—who was embedded as an employee—enabled a level of interdisciplinary integration and data interpretation that would not have been possible from the outside. Her dual role provided not only production support but also a deeper, more nuanced understanding of the underlying urban data, leading to more context-aware and resonant outputs.

**Balancing Artistic Expression with Strategic Messaging Requires Mediation**
The Prague Pixels installation highlighted the importance of carefully navigating

the space between artistic freedom and targeted communication. A collaborative process ensured that the individuals represented in the installation aligned with the intended narratives and that artistic expression remained grounded in real-world relevance. At the same time, preserving the emotional and visionary power of the artist's work was key to its public resonance. This delicate balance underscored the essential role of a mediator or curator who can bridge the language of art and the language of institutions.

**Smart Art as a Bridge Between Smart City Agendas and the New European Bauhaus**

The installation exemplified how artistic interventions—when meaningfully integrated into city innovation structures—can bridge the often disconnected ecosystems of smart city development and the New European Bauhaus. While both agendas share complementary goals, they often evolve in parallel rather than in cooperation. Prague's approach demonstrated how joint initiatives can foster alignment between technological, aesthetic, and societal dimensions of urban transformation.

## 4.3 NEB Innovation Team

### 4.3.1 Introduction to the NEB Innovation Team

Prague was looking for a quick and effective way of infusing NEB principles and values in the agendas of key organisations across the city. OICT was the main representative for the Sandboxing in CrAFt. There were several other organisations which took on the challenge, at the same time leading to overlapping competences and confusion among citizens and partners. On the other hand, there was an appetite to cooperate, without necessarily creating new organisations, departments or other formal structures. The challenge therefore was, how to use collaborative governance to align NEB related activities in the city including systemic approach to stakeholder engagement and international partnerships.

The activities of Prague as a Sandbox City are closely connected to Work Package 4 of the CrAFt project, which is led by CVUT. As part of this work package, a model Innovation Team was established as a permanent community to bridge international networks with individual projects, and to support the integration of international knowledge exchanges into local learning processes and broader systemic transformation.

Fig 13 6th meeting of the NEB Innovation Team (Prague, September 2023). Credit: CVUT.

The Team was established as a response to complex urban innovation challenges in September 2022. It consists of the middle management of municipal organisations (including city organisation Kreativní Praha - Creative Prague, which represents the cultural sector) and academic representatives (bringing expertise and connecting city challenges with research and education activities). The NEB Innovation Team is open to other partners and to collaboration with different partners on specific topics. The goal is to learn from each other, support each other's projects, align agendas, build joint capacity, cooperate on project proposals, and organise events together.

The Team is based on a democratic principle: the responsibility to lead and organise the meetings rotates among the organisations, and anyone can add their topics to the programme. This has led to an important achievement: diminishing the rivalry between participating organisations. Instead, common understanding, vision and goals were found. The organisations share the benefits of each other's projects, and roles and responsibilities are clearly set. The ability to test and implement new tools and to respond to new opportunities was increased.

In order to increase the bargaining capacity of the Team, a memorandum of cooperation[23] was signed. Nine meetings have taken place so far, and more are scheduled for once every quarter. The Innovation Team concept has proven worthy and will be applied to other fields of Prague urban development. Currently, a Smart City Team is being created based on the experience gained from the NEB Innovation Team. A handbook of principles for setting up Innovation Teams is in preparation and will be made available to the CrAFt Cities. The Team is both subject for Sandboxing and support for the two other Sandboxing pilots.

The biggest event organised by the Team so far was called "NEBourat! Aktivovat![24]" - a NEB Festival side event in Prague. It brought together creative communities, city officials, innovation leaders, and civic actors to explore the transformative potential of the New European Bauhaus. Hosted at CAMP, the event featured workshops, an idea fair, and a forum, fostering collaboration on revitalising empty buildings for social and economic innovation. It connected sustainable urban development with cultural and ecological transformation, reinforcing Prague's role as a hub for creative, inclusive, and climate-conscious urban renewal.

The Team was built on the following principles:

- **Two-level approach**: The Team aimed to strengthen cooperation among the key players representing the city of Prague while also providing inclusive space for a broader group of stakeholders. This was achieved by combining a core team consisting of city departments, organisations, companies and universities, and an open NEB platform for representatives of NGOs, private sector, citizens, and neighbourhoods. The core team meets four times a year while the open platform is organised twice a year.

- **Alliance of the willing**: The core team is open to all organisations representing the city, who can join through an 'open memorandum'. Each organisation states what they bring to the team and their motivation for joining. The open NEB platform is publicly accessible.

- **Rotating chair**: The organisations are switching in organising the team meetings. The hosting organisation can propose specific thematic focus of the meeting. Other organisations contribute to the agenda.

[23] https://smartprague.eu/images/uploads/projects/end-reports/1Kf1OS-VDxplTorO.pdf
[24] Don't Demolish! Activate!

- **Impact through partner activities and projects**: The team focuses on identifying activities, projects and events which are already planned and funded and adding a NEB layer to them. This helps generate quick and wide impact and engage a wide range of audiences without competing with established activities and events.

- **Reciprocity**: Partners help each other to co-develop their NEB projects and events. They appear as speakers, co-organisers, evaluators or experts. Where possible they join forces in co-hosting events from the start.

- **Coordination of international cooperation**: Multiple partners have ongoing international projects requiring stakeholder engagement, co-creation or dissemination of outcomes. The NEB Innovation Team supports these activities. Additionally, the team plays an important role in building new international cooperation and developing joint proposals for EU projects.

### 4.3.2 Roles of Stakeholders, funding and timeline

The NEB Innovation Team in Prague brings together a multidisciplinary network of institutions: Operator ICT (OICT), a municipal company, leads digital transformation and smart city efforts, while the Czech Technical University in Prague (ČVUT) provides advanced research and technical expertise. The Institute of Planning and Development Prague (IPR Prague) plays a central role in shaping long-term planning strategies, integrating NEB principles into the city's urban vision. The Municipality of Prague offers overarching policy support and fosters interdepartmental coordination. Creative Prague strengthens cultural and creative sectors through strategic and interdisciplinary initiatives, and the Academy of Arts, Architecture & Design in Prague (UMPRUM) contributes artistic insight and design excellence. The Prague Innovation Institute functions as a bridge across academia, business, and public sectors to accelerate innovation, while Kampus Hybernská serves as a collaborative space that nurtures experimentation and dialogue across diverse stakeholders.

Operating on a decentralised funding model, each organisation independently secures resources to support its role in the Team, promoting institutional ownership and flexibility. Funding for joint events is collectively determined, enabling equitable participation regardless of budget constraints, and regular meetings are hosted cost-effectively within member institutions.

Since its inception in the summer of 2022, the NEB Innovation Team has crossed a series of collaborative milestones, beginning with its formation meeting on 2 September 2022, followed by a structured sequence of gatherings hosted by different partners including the municipality, Creative Prague, and IPR Prague. Notable events include the Prague Cultural Forum in April 2023, a major side event during the NEB Festival in April 2024, and an open public session in November 2024 titled *"New Paths to a Sustainable Future for Prague"*. These meetings have not only guided strategic coordination but also expanded the Team's public engagement and knowledge exchange, laying the groundwork for future initiatives such as Creative Skills Week 2025.

### 4.3.3 Impact of CrAFt Project on the Pilot

The CrAFt project played a fundamental role in the formation of the NEB Innovation Team in Prague, directly linking to activities within Work Package 3 (WP3 - Co-create and test in Sandbox Cities). Through the Active Monitoring approach, CrAFt facilitated structured reflection, knowledge-sharing, and iterative learning, helping to identify the need for a dedicated coordination platform for NEB-related activities in Prague. This need emerged as municipal organisations, universities, and other stakeholders engaged in pilot projects realised the importance of cross-sectoral collaboration to effectively integrate NEB principles into urban development.

The NEB-inspired learning framework from CrAFt provided a methodology for co-creation, governance, and interdisciplinary collaboration, which became the foundation for the NEB Innovation Team's open and rotating structure. CrAFt's structured monitoring and evaluation framework also helped ensure that the Team remained adaptive, reflecting on challenges, bottlenecks, and evolving priorities. As a result, the NEB Innovation Team was not only created as a response to ongoing NEB projects but also as a direct outcome of CrAFt's emphasis on refining collaborative governance models. Without this structured approach, the organic development of the Team would have lacked the strategic alignment and iterative learning process that CrAFt facilitated.

### 4.3.4 Results of the NEB Innovation Team

Fig 12 Side event of the NEB festival in Prague organised by the NEB Innovation Team. Credit: IPR Prague.

CrAFt helped develop principles (above) for organizing NEB Innovation Teams. These principles were shared with the CrAFt cities and a wider audience on several occasions: during the CrAFt Cities Session organized online by NTNU and Locality in March 2023, as part of NTNU's programme at the Smart City Expo World Congress in Barcelona in November 2023, and most recently during the online Mutual Learning Exercise "Sandbox City Impact Stories" held in March 2025.

Locally, the pilot initiated further collaboration between the Art and cultural sector, Urban Planners, Smart Prague ecosystem and other experts leading to several joint initiatives. For example, the Prague side event of the New European Bauhaus Festival featured a full-day programme including an ideas fair, interactive workshops, and a panel discussion. Attended by over 150 participants, the event aimed to raise awareness of the New European Bauhaus initiative in the Czech Republic and to introduce its values and principles to policymakers, municipal representatives, professionals, and the general public. Alongside these activities,

the local innovation network expanded, culminating in the joint development of several funding applications at both the national and EU levels.

The Team helped partners to introduce NEB as a theme throughout their activities and projects. For example, the Smart Prague office now subscribes to NEB through their Experiential Learning Team which was developed as a direct result of the pilot.

The Team helps partners to specialise in their own way so they can contribute to joint NEB projects making NEB more accessible to organizations, which otherwise would have the capacity or courage to take on such complex topics (or a topic which is on the fringe of their expertise).

# 5. NEB Impact Model: Analysis

The NEB Impact Model provides a structured framework for evaluating how urban initiatives contribute to sustainable, inclusive, and beautiful transformation. It highlights key dimensions such as innovation, governance, social capital, cultural value, and environmental performance. In the context of the CrAFt project, this model serves not only as an assessment tool but also as a guide for designing, reflecting on, and scaling impactful interventions.

This chapter analyses Prague's three sandbox pilots through the lens of the NEB Impact Model. Each pilot is assessed against a tailored set of topics that best represent its core objectives, approach, and added value. These topics were selected based on the pilots' activities, stakeholder engagement, and anticipated long-term impact.

By mapping these pilots to the NEB Impact Model, we demonstrate how Prague's sandboxing efforts actively contribute to the broader vision of the New European Bauhaus — creating places and processes that are not only sustainable and inclusive but also deeply rooted in cultural expression and civic participation.

## 5.1 SPACE through the NEB Impact Model Lens

Fig 14 NEB Impact Model topics for SPACE. Credit: CVUT.

The SPACE Innovation Hub reflects a comprehensive alignment with the NEB Impact Model across governance, inclusion, innovation, and sustainability dimensions.

**Key topics:**

- **Innovation Support**, **Futureproofedness & Adaptability**, **Digitalization**: Through its Smart Prague strategy and tech-driven exhibits, SPACE

promotes scalable, adaptive urban solutions.

- **Human Capital**, **Social Innovation**, **Social Capital**, **Social Networks**: Participatory design, stakeholder workshops, and student STEAM projects strengthen collaboration and learning.

- **Arts Mobilisation**, **Spatial, Architectural & Artistic Quality**[25]: Creative sectors are integrated in design and programming, making urban innovation accessible and engaging.

- **Affordability & Inclusivity**[26], **Diversity & Accessibility of Services**: The hub is co-designed with diverse groups and considers equity in access.

- **Active & Public Transport**, **Circularity**: The future site's integration into sustainable mobility networks and circular design principles supports green transition goals.

SPACE is a strong model for integrated innovation — a physical and symbolic convergence point for NEB-aligned transformation in Prague.

[25] Bögel, P. M., Augenstein, K., Levin-Keitel, M., & Upham, P. (2022). An interdisciplinary perspective on scaling in transitions: Connecting actors and space. *Environmental Innovation and Societal Transitions*, *42*, 170–183. https://doi.org/10.1016/j.eist.2021.12.009

[26] Nevens, F., Frantzeskaki, N., Gorissen, L., & Loorbach, D. (2013). Urban Transition Labs: Co-creating transformative action for sustainable cities. *Journal of Cleaner Production*, *50*, 111–122. https://doi.org/10.1016/j.jclepro.2012.12.001

## 5.2 Prague Pixels through the NEB Impact Model Lens

Fig 15 NEB Impact Model topics for Prague Pixels. Credit: CVUT.

Prague Pixels leverages digital art to bridge the gap between data and citizen engagement, with a focus on inclusivity, co-creation, and urban awareness.

**Key topics:**

- **Innovation Support**, **Digitalisation**[27]: By visualising real-time data in accessible formats, the project fosters understanding of smart city systems.

- **Arts Mobilisation**[28], **Social Capital**, **Affordability & Inclusivity**: Artistic expression makes data engaging, with emphasis on public access and community interaction.

- **Diversity & Accessibility of Services**: Pixels can be customised by location or theme, allowing local relevance and educational use.

- **Participation & Co-creation**, **Governance Set-Up**: Modular design and stakeholder engagement align with CrAFt's mutual learning model.

Prague Pixels demonstrates how data, when presented through creative and interactive methods, can drive public involvement and urban literacy.

[27] Rehm, S.-V., McLoughlin, S., & Maccani, G. (2021). Experimentation Platforms as Bridges to Urban Sustainability. *Smart Cities*, *4*(2), 569–587. https://doi.org/10.3390/smartcities4020030

[28] Kagan, S., Hauerwaas, A., Holz, V., & Wedler, P. (2018). Culture in sustainable urban development: Practices and policies for spaces of possibility and institutional innovations. *City, Culture and Society*, *13*, 32–45. https://doi.org/10.1016/j.ccs.2017.09.005

## 5.3 NEB Innovation Team through the NEB Impact Model Lens

Fig 16 NEB Impact Model topics for the NEB Innovation Team. Credit: CVUT.

The NEB Innovation Team functions as a living example of collaborative governance and institutional innovation, embedding NEB values and working principles across city structures.

**Key topics:**

- **Innovation Support**, **Governance Set-Up**, **Institutional Capital**: The rotating leadership model supports decentralised coordination and joint

capacity building.

- **Arts Mobilisation**, **Spatial, Architectural & Artistic Quality**, **Cultural Value & Diversity**: Cultural institutions play a key role, linking urban policy with creativity.

- **Identity & Belonging**, **Social Innovation**, **Social Capital**, **Social Networks**: The Team builds trust, reduces silos, and enables shared ownership.

- **Reflexive Governance**, **Participation & Co-creation**: Active monitoring and continuous learning allow for agile adaptation and collective agenda-setting.

This pilot embodies NEB values and principles in its structure and approach, offering a governance blueprint for cities pursuing transformation through collaboration.

# 6. Conclusion

## 6.1 Lessons Learnt

The sandboxing experience in Prague has provided valuable insights into governance, public engagement, and the integration of art and technology in urban transformation. By collaborating with Amsterdam and Bologna, Prague has refined its approach, drawing inspiration from their community-driven climate adaptation and participatory governance models while offering its own expertise in data storytelling and artistic urban engagement.

One of the most important lessons learnt is that successful urban innovation requires flexible governance structures. The NEB Innovation Team demonstrated the effectiveness of rotating leadership and shared decision-making. This approach has reduced bureaucratic barriers and fostered trust among municipal organisations, universities, and creative industries. Amsterdam's localised governance models have influenced how Prague is structuring its SPACE Innovation Hub, ensuring that it remains an adaptive and collaborative environment that can evolve based on community needs.

Another key takeaway is the importance of making urban challenges tangible and relatable to citizens. While Amsterdam has successfully implemented neighbourhood-level climate resilience projects, Prague recognised that public engagement could be further strengthened through interactive storytelling and artistic installations. This realisation has led to Prague Pixels, an initiative that transforms complex urban data into visually and emotionally engaging experiences.

At the core of Prague's sandboxing approach is co-creation, a principle reinforced by inspiration from Bologna's DumBO space by demonstrating how underutilised urban spaces can be transformed into multifunctional centres for innovation, culture, and sustainability. Its community-driven approach to co-creation and participatory governance has influenced SPACE's emphasis on collaboration between citizens, creatives, and city stakeholders. Additionally, DumBO's success in integrating art, technology, and urban experimentation into a dynamic public space has shaped SPACE's vision of becoming an inclusive hub for interdisciplinary learning and innovation in Prague. This helped bridge the gap

between policymakers and the public, ensuring that urban innovation is not just a top-down process but a shared effort.

The role of technology and data in urban decision-making was another significant area of learning. Prague Pixels transformed real-time city data into an interactive and visually engaging experience. Prague expanded this concept by integrating art and storytelling, making data more accessible to the public. When data is communicated through artistic and interactive means, it becomes a powerful tool for public participation, bridging the gap between complex urban challenges and the broader community.

Despite these successes, challenges remain. One of the biggest hurdles in Prague was overcoming institutional resistance to experimental projects. Many stakeholders, particularly in the early phases of SPACE, were hesitant to embrace new, untested governance models. Inspired by Bologna's approach to fostering civic trust, Prague adopted storytelling, tangible demonstrations, and iterative engagement to help stakeholders understand the long-term value of its pilots. Additionally, Prague learnt from Amsterdam's emphasis on small-scale, neighbourhood-driven interventions, incorporating modular, adaptable elements into SPACE to ensure long-term sustainability.

The scalability and replicability of sandboxing models across cities emerged as a final lesson. Prague, Amsterdam, and Bologna all experimented with different co-creation methodologies, but what made their pilots successful was the ability to adapt models to local conditions.

## 6.2 Next Steps

Building on the lessons learnt from its sandboxing experience, Prague is now scaling its pilots, institutionalising its collaborative governance structures, and further strengthening its international partnerships. Prague wants to ensure that the insights gained through experimentation are translated into long-term, impactful urban transformation strategies.

A key priority is the further development and operationalisation of the SPACE Innovation Hub. With its foundation established, the next steps will involve refining its governance model, securing sustainable funding sources, and expanding its stakeholder network. Inspired by Amsterdam's approach to localised urban

interventions, SPACE will introduce modular and flexible programming to ensure adaptability over time. Additionally, following Bologna's community engagement model, Prague aims to strengthen citizen participation in SPACE's activities, ensuring that it remains an inclusive, co-created environment rather than a purely institutional initiative.

Another focus will be on scaling Prague Pixels, both within the city and as a replicable model for other European cities. After the success of its first installations, Prague is working on expanding the project's reach. Prague Pixels will also enhance its accessibility, ensuring that underrepresented communities and peripheral neighbourhoods can benefit from interactive urban data experiences.

Institutionalising the NEB Innovation Team is another critical next step. The Team has proven to be an effective platform for cross-sectoral governance and coordination, but its long-term success depends on securing a permanent role within Prague's urban governance ecosystem. Additionally, Prague will support the expansion of the Innovation Team model into new thematic areas, such as smart cities, climate adaptation, and digital governance. The model has already sparked interest in other European cities, and Prague is working on documenting its approach to serve as a guide for replication.

Beyond its individual pilots, Prague is committed to strengthening its collaboration with Amsterdam and Bologna, ensuring that the sandboxing process remains a dynamic, evolving methodology for urban innovation. The three cities will continue to exchange best practices, test new participatory governance models, and explore joint funding opportunities for future projects.

Finally, ensuring the long-term sustainability of Prague's sandboxing initiatives will require securing stable funding, political support, and public engagement.

By applying the insights gained through sandboxing, expanding successful pilots, and strengthening international collaborations, Prague is actively contributing to sustainable urban innovation and supporting the broader transition toward more resilient and inclusive European cities.

## 6.3 Final Reflections

Prague's sandboxing approach has proven the power of experimentation, co-creation, and cross-sectoral collaboration in advancing sustainable and inclusive urban innovation. Through initiatives like the SPACE Innovation Hub, Prague Pixels, and the NEB Innovation Team, the city has piloted new governance models that integrate municipal actors, academia, creative industries, and civil society. These projects illustrate the potential of participatory governance, artistic interventions, and data-driven storytelling to engage citizens and build urban resilience. In particular, the rotating leadership model of the NEB Innovation Team has helped dismantle institutional silos and foster mutual learning, offering a scalable template for collaborative governance in other thematic areas.

At the same time, Prague's experience highlights key challenges, including the need for stable funding, long-term institutional commitment, and sustained capacity-building. Ensuring that pilot initiatives transition into lasting urban strategies will require continued investment and political support. Efforts to replicate successful models—such as the NEB Innovation Team and Prague Pixels—must be adapted to local contexts, but offer promising blueprints for other cities across Europe. Overall, Prague's sandboxing journey underscores the importance of interdisciplinary collaboration and creative experimentation in addressing the complex demands of modern urban life, while reaffirming the city's role as a frontrunner in the New European Bauhaus movement.

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# List of Acronyms

| | |
|---|---|
| **CAMP** | Center for Architecture and Metropolitan Planning - multimedia gallery and an urban planning hub operated by IPR Prague. |
| **CrAFt** | Creating Actionable Futures |
| **CVUT UCEEB** | Czech Technical University in Prague, University centre for Energy Efficient Buildings |
| **DUMBO** | Distretto Urbano Multifunzionale di Bologna |
| **EU** | European Union |
| **LED** | Light Emitting Diode |
| **IPR** | The Prague Institute of Planning and Development |
| **NGO** | Non-governmental Organisation |
| **NEB** | New European Bauhaus |
| **OICT** | Operátor ICT a.s. |
| **PII** | Prague Innovation Institute |
| **SCEWC** | Smart Cities Expo World Congress |
| **SCC1** | Smart Cities and Communities |
| **WP** | Work Package |

CrAFt Creating Actionable Futures