The Urban Lab of Europe!

JOURNAL

PROJECT

AIR BREAK- Co-producing healthy clean commuting air spots in town

Ferrara, Italy

TOPIC

Air quality

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Air-Break Final Journal

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This final Journal provides an overview of the progress and long-term impact of the Air-Break project in Ferrara, focusing on the key components that continue to operate and the lessons learned.

Executive Summary

This Final Journal is organised along three main sections: Project's Progress, Generated Knowledge, and Conclusions.

Project's Progress

This section reviews what has happened since the project's end, highlighting how air quality monitoring stations remain operational, and the role of reforestation efforts in improving green infrastructure. It also examines the uptake of new infrastructure, such as the successful Smart Bike Lane and the challenges faced by theSmart Hubs. This section also outlines the project's comprehensive plan for ensuring long-term sustainability. It details ongoing infrastructure maintenance, the role of municipal authorities, and future monitoring efforts to ensure the continued effectiveness of the project's components, including air quality stations, smart hubs, and green spaces.

Generated Knowledge

This section presents the key lessons learned from the Air-Break project, including insights into data management, citizen engagement, behavioural change, and stakeholder involvement. It also provides recommendations for urban authorities implementing similar projects, emphasising the importance of flexibility, collaboration, and evidence-based policy.

Conclusion

The final section reflects on the broader impact of the Air-Break project, including its contribution to urban innovation and its legacy in Ferrara's approach to sustainability. It highlights the project's role as a catalyst for long-term urban transformation and its influence on future projects in the city.

Project's Progress

What has happened with Air-Break since its end date

Since the conclusion of the Air-Break project, several of its components have continued to operate successfully, and the project has left a lasting impact on the city of Ferrara The initiatives implemented during the project have

been sustained and further developed, contributing to Ferrara's long-term commitment to improving air quality and urban resilience.

Air Quality Monitoring Units

The air quality monitoring infrastructure established during the project remains fully operational. The 14 high-precision monitoring stations provided by LabServiceAnalytica (LSA) have continued functioning with regular maintenance. LSA conducted a check-up as recently as May 2024, ensuring the continued accuracy of the data collected. The city's municipal authorities have taken over responsibility for the energy supply contracts that power these stations, ensuring their sustainability.

In addition to the high-precision stations, 50 low-cost monitoring units have been distributed to private citizens. These units continue to provide real-time data, which is publicly accessible via an online platform at this link. This distribution has extended the scope of air quality monitoring beyond the project's original framework, increasing public awareness and involvement in environmental monitoring.

Moreover, several schools in Ferrara, including IT Aleotti, IIS Carducci, and ITI Copernico-Carpeggiani, have installed air monitoring stations on their premises. These schools were actively involved in the project's participatory activities, including the assembly of the monitoring units and the analysis of the resulting data. While it is unclear how the schools will use this data in the future, their involvement has fostered educational engagement with environmental issues and created opportunities for students to learn about air quality and urban sustainability.

Public Visualisation and Evidence-Based Policymaking

The public dashboard, developed during the project, remains active and accessible to all users. This tool enables both the public and municipal staff to visualise and analyse air quality data. The dashboard has become a critical component of evidence-based policymaking in Ferrara, setting a precedent that has been replicated in other EU-funded projects.

The success of the Air-Break dashboard has inspired its integration into various ongoing projects, such as the CENTRAL BOSC' project (funded by ERDF 21-27 Emilia Romagna), which will use the dataset for monitoring environmental data in a new large park in the eastern part of the city. The data from Air-Break is also being utilised and further enriched within the Horizon Europe USAGE project and in theCAMPUS project (Interreg Italy-Croatia), illustrating the long-term value of the data generated during Air-Break.

In addition, the data continues to support urban planning efforts in Ferrara. Municipal services have been using the information to plan maintenance and improvements to the city's infrastructure, demonstrating the practical, ongoing applications of the project's outputs.

Uptake of New Infrastructure

The Smart Bike Lane, introduced as part of Air-Break, has seen very positive uptake. It has successfully redirected commuters away from a dangerous intersection, significantly reducing traffic incidents. This infrastructure investment has enhanced both safety and convenience for cyclists, aligning with the project's goals of promoting sustainable transportation options.

In contrast, the Smart Hubs have seen less success. Since their inauguration in October 2023, only a small number of regular and occasional users have registered. Additionally, the hubs have been subject to minor vandalism, which has further hindered their uptake. The city may need to re-evaluate how these hubs are managed and promoted to increase their utilisation.

Reforestation

The reforestation efforts launched during Air-Break have continued to thrive. The newly planted trees are growing well, contributing to the city's green infrastructure. The experience and knowledge gained during the project, particularly regarding the selection of tree species based on their pollutant-absorbing properties, have been incorporated into the CENTRAL BOSC' project. There is also consideration of adopting new TalYa trays in regular planting processes, as they have proven effective in reducing watering and maintenance costs during the initial growth phase of the trees.

Community Engagement

The Air-Fest, a key component of the Air-Break project, was instrumental in fostering lasting community engagement, and its influence is evident in ongoing initiatives. Many stakeholders who were initially engaged through Air-Break have continued their involvement in other significant projects, including S.M.ALL and PopUpUrbanSpaces.

The URBACT Action Planning Network S.M.ALL focuses on fostering sustainable mobility and active lifestyles in urban settings. This project builds on the participatory approach introduced by Air-Break, where the involvement of citizens and local stakeholders in urban planning was key to success. The collaborative spirit nurtured during Air-Break has carried over to S.M.ALL, where community input remains central to shaping policy and infrastructure decisions aimed at promoting active and sustainable transport.

PopUpUrbanSpaces, an Interreg Central Europe project, also follows in the footsteps of Air-Break by focusing on placemaking and the reimagining of urban spaces to support sustainable mobility. The participatory processes and data collection methods pioneered during Air-Break have proven valuable for PopUpUrbanSpaces,

particularly in mapping out mobility patterns and engaging the public in creating user-friendly urban spaces. The legacy of Air-Break's community engagement continues to guide how Ferrara approaches sustainable development, ensuring that future projects are co-created with residents and stakeholders.

The Plan for Long-Term Sustainability

The Air-Break project has put in place a comprehensive plan to ensure the long-term sustainability of its key components, including infrastructure, environmental initiatives, and smart hubs. This plan focuses on continued maintenance, monitoring, and the engagement of both municipal and private stakeholders to guarantee that the project's benefits extend well beyond its initial implementation phase.

Infrastructure and Plant Maintenance
Responsibility for maintaining the infrastructure developed by Air-Break, including newly planted trees and green areas, will transition to municipal authorities. The current contract with the company that managed the planting and maintenance of the greenery will expire in June 2025. Until then, the company will continue to handle all necessary maintenance tasks, including trimming, mowing, and replacing any plants that may have been damaged. From June 2025 onwards, Ferrara Tua, the company responsible for managing green spaces on behalf of the municipality, will take over these responsibilities.
Regarding the survival of the new plants and their impact on air quality, preliminary monitoring suggests that the majority of the plants have survived. However, it will take more time to evaluate their measurable effects on air pollution. The University of Ferrara has been conducting an analysis of the effectiveness of the reforestation efforts to date. In the future, Ferrara plans to use the i-Tree tool app to monitor pollutant absorption levels as the trees mature. Based on existing literature, it is anticipated that the trees will become more effective at absorbing pollutants as they grow, contributing positively to the city's air quality.

Air Quality Monitoring
Data collection from the air quality monitoring stations, which has been a critical component of Air-Break, will continue in the long term. LabService Analytica, the company responsible for the stations, has provided an estimate of the annual costs for maintaining the stations, and a maintenance contract will be formalised to ensure their continued operation. These stations play an essential role in providing ongoing, reliable data on air quality, which is crucial for assessing the long-term impact of the project's interventions.

Smart Hubs
The sustainability of the smart hubs, another key feature of the Air-Break project, has also been addressed in the long-term plan. Currently, the process of transferring electricity contracts to the new management is underway, with Hera having already estimated the annual costs required to ensure the hubs' operation. The municipality will assume responsibility for their future functioning. At this stage, no decisions have been made regarding the cost of electricity for users, meaning that for the foreseeable future, the hubs will continue to operate under the same conditions as during the project.
Regarding Amazon's involvement, a potential agreement for the company to manage some aspects of the smart hubs and equip them with Amazon Lockers has been explored. While there were initial legal complications preventing Hera from activating the service, the municipality is expected to take over the hubs, and negotiations with Amazon are likely to proceed. Since the installation of Amazon services is free, and the company has agreed to pay a small rental fee, this partnership is likely to provide financial support for the long-term operation of the smart hubs. However, the exact duration of any agreements with Amazon remains uncertain.

Generated Knowledge

The Air-Break project provided invaluable insights that can guide future urban initiatives, particularly in addressing environmental challenges through a combination of technology, community engagement, and infrastructure improvements. Below are the main lessons learned from the project, which can be applied to similar innovative efforts by other urban authorities.

Lessons Learned

On Data Collection and Dissemination: One of the most critical lessons from the Air-Break project is that data collection and dissemination are inherently political matters. Ensuring that data is accurate, transparent, and accessible is essential for maintaining public trust and credibility. The way data is managed can influence perceptions of the project's success and legitimacy, making it crucial to balance technical accuracy with political realities.

On Citizen Engagement: A significant factor in the project's success was the facilitation of an enabling

environment for open dialogue and confrontation among citizens, local authorities, and stakeholders. It became clear that creating opportunities for people to voice their concerns and suggestions fosters a sense of ownership and trust. Engagement is not merely about informing the public but also actively involving them in the decision-making process. This approach not only increases participation but also strengthens long-term commitment to the project's objectives.

On Behavioural Change: The use of gamification and motivational campaigns was a highly effective strategy for inducing new habits. These campaigns provided the necessary incentive to "break the ice" and initiate behavioural change among citizens. However, the long-term success of these efforts depended on the effectiveness of the solutions themselves. Once people saw tangible benefits, they were more likely to adopt these new behaviours consistently, even after the campaigns ended. This highlights the importance of offering clear and sustainable benefits to ensure lasting change.

On Stakeholder Engagement: One challenge the project faced was the lack of sufficient motivation among local companies to embrace change. Although the project aimed to involve businesses in its efforts, the stakes or incentives were not strong enough to drive substantial action. This underlines the need for clearer, more compelling reasons for stakeholders, particularly businesses, to invest in and support innovative solutions.

On Infrastructure: Meeting commuters' needs and addressing safety concerns were central to the project's infrastructure interventions. Deploying innovative solutions, such as smart bike lanes, required not only addressing immediate needs but also ensuring that long-term communication with the public was clear. Uptake of new technologies or infrastructure can take time, and it's vital to assess current demand while making reliable forecasts for future needs. This balance ensures that infrastructure investments are both useful and forward-thinking.

On Reforestation: The use of TalYa trays in the reforestation component of the project proved to be effective, particularly in reducing watering and maintenance costs for plants. However, the long-term impact of these measures on air pollution is still to be determined. Reforestation is a crucial element in improving air quality, but its effects require continuous monitoring and evaluation over an extended period.

Further details on the lessons learnt in Air-Break may also be found in **Journal Nr. 3**

A Few Recommendations for Urban Authorities

Based on the experience of Air-Break, the following recommendations can guide other urban authorities seeking to implement similar innovative projects:

- **Open Dialogue Platform**s: Create a platform for continuous dialogue with citizens and stakeholders. Engaging the community early and often is key to fostering support and co-ownership of the project.
- **Involve All Relevant Stakeholders**: Ensure that all stakeholders with the capacity to influence or trigger change are identified and involved from the outset. This includes businesses, civic organizations, and local authorities, all of whom play crucial roles in driving the success of urban projects.
- **Ground Decisions in Solid Evidence**: Policymaking and investment decisions must be based on clear evidence. Projects should address actual, current challenges and also anticipate future trends and needs. Developing strategies based on both current data and reliable forecasts is essential for long-term success.
- **Dedicated and Committed Staff**: Having a team of dedicated and committed municipal staff is crucial. The success of innovative projects often depends on the passion, perseverance, and expertise of those involved in the daily operations and management.
- **Active and Collaborative Partners**: It is equally important to ensure that all partners, including local stakeholders, are not only committed but also enthusiastic about collaboration. A partnership that lacks synergy can undermine the project's goals.
- **Flexibility and Adaptability**: Be ready to adapt and adjust plans as the project unfolds. Flexibility in execution is essential for navigating unforeseen challenges and ensuring that the project remains relevant and effective in changing circumstances.

Conclusions

The Air-Break project represents a pioneering effort in the domain of urban air-quality policy by adopting an integrated, multi-faceted approach. This initiative combined innovative and accessible smart technologies, infrastructural upgrades, nature-based solutions, and significant community engagement to address the persistent challenge of poor air quality. The holistic nature of the project allowed for experimentation and real-world application of a broad range of solutions, while simultaneously fostering behavioural changes and raising public awareness.

Evaluating the precise impact of Air-Break on air quality in Ferrara over the relatively short span of its implementation is undoubtedly a complex task. Environmental improvements often occur gradually, and

disentangling the effects of specific interventions from broader trends is challenging. However, the true value of the Air-Break project lies not solely in immediate results but in its ability to act as a catalyst for long-term urban and societal transformation. Air-Break was not just a solution but a platform for testing non-conventional, forward-looking strategies within the urban context. It has served as a foundation for further innovation, triggering broader processes aimed at improving air quality and urban living standards.

Through this project, Ferrara established itself as a city committed to improving not only its physical environment but also the quality of life for its residents. Air-Break's comprehensive nature provided valuable lessons for future urban policies and underlined the necessity of combining technology, infrastructure, nature-based solutions, and citizen participation in tackling complex urban challenges.

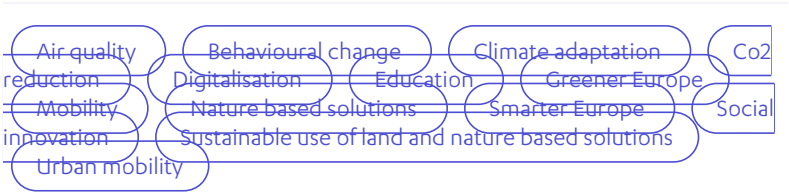
The most tangible legacy of the Air-Break project can be seen in the visible improvements to the cityscape and infrastructure, particularly through the development of reforestation areas. These new green spaces offer long-lasting benefits to both the environment and the community by improving air quality, enhancing biodiversity, and providing the residents with accessible natural areas. These green zones stand as a testament to the project's commitment to sustainable urban development, reinforcing Ferrara's efforts to become a greener and healthier city.

Another crucial element of Air-Break's legacy is the creation of the smart bike lane. This infrastructural achievement not only expanded Ferrara's cycling network but also redefined commuting routes by providing a safe, protected pathway connecting the city with the Tecnopolo area. In doing so, the bike lane successfully addressed a critical safety concern, redirecting cyclists away from a notoriously dangerous intersection. This solution not only improves safety for cyclists but also encourages sustainable, low-emission transportation as an integral part of daily life in Ferrara, further aligning with the project's environmental goals.

One of the most significant but less tangible legacies of Air-Break is the platform it created for dialogue and collaboration among citizens, stakeholders, and local authorities. Initiatives such as the Air Fest and the various awareness-raising campaigns brought people together in meaningful ways, fostering high levels of participation and ownership in the urban planning process. This collaborative approach has laid the groundwork for a new season of urban innovation, with local authorities and citizens working together in a multi-stakeholder environment. The participatory and evidence-based policy-making model introduced by Air-Break has now become an essential part of Ferrara's modus operandi, influencing how future projects will be developed and implemented.

In essence, Air-Break's legacy goes beyond its immediate interventions in reforestation, cycling infrastructure, and air-quality monitoring technologies. Its most lasting impact is the cultural shift it facilitated within Ferrara's local governance and civic life. The project has ushered in a new era of policymaking where community participation, innovative technology, and environmental sustainability converge. This newfound synergy between various actors in Ferrara will undoubtedly continue to shape the city's urban policies and environmental strategies, ensuring that Air-Break's contributions endure well into the future.

Through Air-Break, Ferrara has demonstrated how an integrated approach to urban challenges can lead to lasting changes in both infrastructure and governance, positioning the city as a forward-thinking model for others seeking to improve air quality and overall urban resilience.



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