

TRANSITION MANAGEMENT FOSTERING SUSTAINABLE PATHWAYS FOR LOCAL AUTHORITIES TOWARD A LIVEABLE FUTURE: A CASE STUDY OF RAVENNA, ITALY

PAOLA CLERICI MAESTOSI & MICHELA PIRRO

ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development,
Department of Energy Technologies and Renewable Sources, Italy

ABSTRACT

Diverging from convention requires new methodologies like transition management, designed to navigate inertia in societal contexts. Instead of incrementally improving persistent issues, transition management fosters transformative change through a compelling narrative, critical mass and legitimising analysis. It anticipates, accelerates and guides emerging changes for desired outcomes, focusing on four dimensions: strategic/orienting, tactical/agenda-setting, operational/activating, and reflexive/reflecting. These principles underpin transition management's influence on change, facilitating problem structuring, coalition-building, stakeholder mobilisation, and continuous learning. The transition arena functions as a hub to coordinate four key activities, fostering radical shifts in thinking and action. Its primary goal is to provide direction, spur local change and empower communities. This facilitates collective learning, enhancing participants' capacity for self-organisation. Drawing on experience inspired by DRIFT's transition arenas which has been experimented in and Urban Innovative Actions project, namely DARE, in Ravenna, this paper explores how transition management has been implemented and customised in the case study, focusing on participatory visioning and experimentation to drive to an effective urban sustainability transition. The DARE project courageously pursues innovative solutions to improve regional quality of life focusing on how digital transition can support the process. Addressing key questions, it fosters dialogue, supports idea evolution, ensures project-political coherence, constructs stakeholder narratives and aids local economies through regeneration. Utilising digital tools and citizen engagement, DARE experiments with urban regeneration in Ravenna's Darsena, employing enabling activities and pilot actions.

Keywords: urban regeneration, transition management, urban sustainability transition.

1 INTRODUCTION

Urban areas in the European Union (EU) are home to over 70% of the population, making them vital centres for addressing contemporary challenges such as employment, migration, demographic shifts, and environmental sustainability. These challenges coexist with the need for innovation, positioning cities as pivotal actors in the pursuit of sustainable development. Recognising the importance of cities in achieving sustainable development [1], the European Commission introduced the Urban Innovative Actions (UIA) program, an EU initiative aimed at supporting urban authorities in developing and implementing innovative solutions to complex urban challenges.

The UIA program, launched in 2016 as part of the Pact of Amsterdam [2], [3], provides a structured approach to urban innovation. It is a cornerstone of the Urban Agenda, which aims to enhance the urban dimension of EU policies through improved regulation, better access to funding, and increased knowledge sharing among cities. The UIA program allocated approximately 372 million euros to support urban areas in experimenting with new solutions [4]. Projects selected for funding receive up to 80% co-financing, with a maximum grant of €5 million. This financial support enables cities to take risks and explore new ideas that would otherwise be unaffordable.



UIA projects must address one or more thematic areas identified by the European Commission, including air quality, circular economy, climate adaptation, digital and energy transition, housing, inclusion of migrants and refugees, job creation, sustainable land use, urban mobility, and urban poverty. These themes reflect the broad range of challenges facing European cities and the need for innovative approaches to address them. Moreover, projects funded by the UIA must be implemented within a maximum duration of four years, with a possible extension of up to one year in exceptional cases. This timeframe allows for the thorough testing and evaluation of innovative solutions, ensuring that they are effective and scalable.

A significant example of a UIA project is DARE, coordinated by Ravenna Local Authority in Italy. This project illustrates how the UIA supports cities in addressing urban challenges through innovative solutions [5].

Urban areas are essential hubs of innovation and drivers of economic growth, but they also face significant challenges that require new approaches. The concentration of population and economic activities in cities amplifies issues such as pollution, social inequality, and resource scarcity, necessitating a rethinking of traditional governance models [6]–[8]. The UIA addresses this by providing the financial support and framework necessary for cities to undertake experimental projects with the potential to transform urban governance and improve sustainability outcomes.

Urban authorities are often hesitant to allocate their financial resources to new and untested projects due to perceived risks. This reluctance can stifle innovation and prevent cities from exploring new approaches to urban development. By offering financial support and fostering a collaborative framework, the UIA encourages urban authorities to overcome these barriers and implement bold, innovative solutions. The program also promotes knowledge sharing [9], enabling cities to share best practices and lessons learned from innovative projects, thus benefiting urban areas across Europe.

Urban regeneration [10]–[12] is a term that has recently become increasingly common in the promotion of real estate development projects. While there is a broad, general consensus on its common meaning, a precise definition remains elusive. The expression has often been highlighted for its ‘multisensory’ and ‘multidisciplinary’ significance, which requires going beyond the more familiar notions of ‘recovery’, ‘reuse’, and even ‘requalification’. It should be understood as an action, whether public or private, that leads to an increase in economic, cultural, social, and environmental values within an existing urban or territorial context. In this context, it can be asserted that the general objective of urban regeneration is to ensure a set of actions aimed at the recovery and requalification of urban space. This is to be achieved through recovery interventions at the level of infrastructure and services, limiting or eliminating land consumption to protect environmental sustainability. It also includes the community as an entity able to reclaim and revitalise regenerated spaces, with evident improvements in quality of life and the social, economic, and environmental spheres.

Urban regeneration responds to the needs of a city aiming to boost its sustainability, but it is also a driver of responsible development for the entire community. As a result, cities that succeed in regenerating themselves will be able to attract more investments, thereby generating clear positive effects on the local economy and society. Conversely, those that do not embark on this path will lose attractiveness and, consequently, economic opportunities.

It should be noted that the term ‘urban regeneration’ is often associated with the idea of high-quality real estate development capable of generating positive effects on the context. While this association is not necessarily wrong, it is somewhat reductive as it assumes that a well-conducted requalification corresponds in all respects to an ‘urban regeneration’ intervention, which is not necessarily true.



With ‘urban regeneration’, the perspective shifts from intervention on a single building to addressing significant portions of the territory. Urban regeneration includes the requalification (of a building or an area) but establishes itself as actual ‘regeneration’ by bringing about a series of positive externalities of a social, environmental, and governance nature. In urban regeneration, it is also necessary to evaluate the effect generated on the surrounding areas and the city itself. These effects then reflect back on the property itself: a property located in an urban context that develops sustainably is indeed destined to increase in value. The increase in the value of areas surrounding a project is not, however, the only factor. Other effects referring to the social sphere should also be considered.

This paper aims to highlight how Ravenna Local Authority experimented with transition management to foster the transformative change of an urban area, namely Darsena, through a compelling narrative, critical mass, and legitimising analysis supported by the DARE UIA project [13]. The transition arena [14] experimented in the framework of DARE project has been a hub to coordinate key activities, fostering radical shifts in thinking and action. Its primary goal has been to provide direction, spur local change, and empower communities. This facilitates collective learning, enhancing participants’ capacity for self-organisation.

The Darsena district of Ravenna is a post-industrial area along the Candiano canal, formerly the city port, which the Municipality of Ravenna has been working to restore for several decades [15], [16]. Although it lies outside the historical centre, it is a significant area that played a fundamental role in the city’s urban and economic development during the 20th century, serving as its core and commercial hub. The construction of a new port in the 1980s and the railway line that separates Darsena from the historical centre led to the gradual abandonment of industrial buildings, turning the area into a peripheral zone [17].

Darsena’s distinctive features include its size, which is comparable to the city centre, and the fact that industrial buildings are owned by 23 private entities. The area is also densely populated, with 20,284 inhabitants, 16% of whom are foreigners, and 23% of the population being over 65 years old with low income (Fig. 1).



Figure 1: 159,057 residents in Ravenna. In violet, Darsena City Docks (163 ha) with 23 private owners of the dismissed areas. In yellow, Gulli Lanciani residential area (70 ha). In the whole, Darsena District the residents are 20,284.

The regeneration of Darsena has been challenging. Most efforts have focused on improving its physical and architectural aspects through master plans aimed at reshaping the social fabric by modifying the built environment. However, the DARE project, informed by the DRIFT model, emphasised that while physical sustainability in urban regeneration relies on reusing existing buildings, social sustainability depends on the ideas, visions, and narratives within the community.

Within the European DARE UIA project, the Ravenna Local Authority implemented an innovative and integrated solution to improve the quality of life for citizens by combining digital transition with socio-economic urban regeneration. This approach demonstrated the importance of participation, multi-level, and cross-sectoral approaches in territorial development.

2 MATERIALS AND METHODS

2.1 DARE project in a nutshell

The project presented by the Ravenna Local Authority was selected as part of the IV call of the UIA program, among a group of seven European cities (Växjö, Heerlen, Rennes Metropole, Lisbon, Gava and Vienna) whose solutions were deemed the most innovative in the thematic area of digital transition [18].

The DARE project (Digital Environment for Collaborative Alliances to Regenerate Urban Ecosystems in Middle-sized Cities), which lasted three years (2019–2022), aimed to develop a transition arena characterised by a participatory process based on digital transition to activate urban regeneration in the Darsena district [19].

In addition to activate urban regeneration, the DARE project tested the effectiveness and sustainability of a new model of urban governance in which collaboration between the public, private, and non-profit sectors became a strategic node in conjunction with innovative digital tools to promote active citizen participation.

Thanks to the DARE project, a digital environment – a technological platform – was created, which gathers environmental, economic, and demographic data, as well as information about the district and potential future scenarios, along with input from the citizens themselves. The DARE technological platform thus became the digital space where Darsena of the future and the past coexist and collaborate together.

Thanks to the digital transition arena citizens has been involved and motivated, through the use of digital tools, engaging a constant dialogue with local authorities, contributing to the collection, processing, and sharing of data necessary to design and implement new services tailored to the needs of the district and urban development goals.

The characteristics of this digital transition arena and the competencies involved enabled effective collaboration to co-develop and initiate a series of new integrated and concrete actions for regeneration. Digital culture, in fact, has made citizens not only aware of digital tools but also empowered to be part of the new collaboration framework for enhancing their quality of life.

The creation of the web portal enabling the digital transition arena was a crucial aspect of the project as it allowed for an accurate and timely representation of the environmental, social, and economic situation of the area of interest, narrated the ongoing regeneration process, and shared digital collaboration spaces to encourage the construction of common projects and jointly decide on the development directions to pursue. The key points of the project (Fig. 2) were:



- Urban regeneration: Through the redevelopment of the public and private spaces of the Darsena, making them more attractive and functional for both citizens and businesses.
- Digital innovation: By creating a digital ecosystem that includes the development of platforms and digital tools to facilitate citizen participation, data sharing, and the creation of innovative services.
- Citizen participation: Through the active involvement of the local community via workshops, public meetings, and other initiatives that promote collaboration among citizens, businesses, and public administration.
- Sustainability: DARE integrates sustainable solutions for the urban environment, promoting sustainable mobility, CO₂ emission reduction, and energy efficiency.
- Circular economy: By encouraging the reuse and recycling of resources and supporting new forms of entrepreneurship.
- Public–private collaboration: A fundamental part of the project is the collaboration among public entities, private companies, universities, and other organisations to create an environment conducive to innovation and economic development (11 partners and 23 stakeholders).



Figure 2: DARE's key points.

2.2 DARE project methodology

The methodological approach of the DARE project is multidimensional and integrated, aiming at the creation of a dynamic, sustainable, and innovative urban ecosystem for urban regeneration through two enabling activities (creation of a digital environment and the promotion/dissemination of digital culture itself) with the intention of reconnecting the virtual dimension and the real world. These objectives are achievable through the five pilot actions: collective storytelling; the creative economy; neighbourhood environmental well-being; responsible security for those who live in the Darsena; and multicultural solidarity thanks to the cosmopolitan citizenship of the Darsena.

The methodological approach lies on (Fig. 3):

- Process management: To implement urban regeneration strategies (enabling technology) and to support citizens in becoming agents of change in the city (enabling culture) in order to activate processes of smart urban design and infrastructure.
- Common storytelling: To activate the urban regeneration process through trigger actions and the definition of tactics for urban regeneration through shared urban tactics.

2.2.1 Methodological approach: the process management

Process management has led the implementation of DARE project through three stages (enabling technology, enabling culture, smart urban design and infrastructure) which allowed people, citizens, administrators, and entrepreneurial entities to interact, participate, and

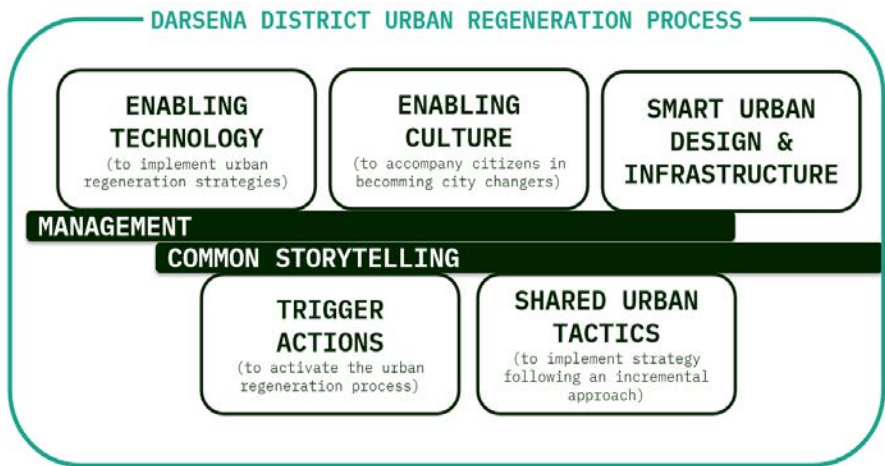


Figure 3: DARE’s methodological approach.

collaborate in co-generating data, ideas, content, initiatives, and proposals. The three stages, in sequence, have allowed for the shared construction of transformation scenarios, the collection of project proposals, and the identification of a tactic for the transition [20] which has been piloted via common story telling methodological approach.

Along the outlined sequence of process management, a ‘boosting event’ called RADAR Real Estate Forum has been structured with the aim of focusing the attention of urban and regional real estate sector on the ongoing Darsena regeneration process. This event involved institutions, investors, stakeholders, and businesses, highlighting the potential and opportunities, promoting a place where:

- imagine and co-design regeneration pathways via an open forum, including citizens, to illustrate, through qualified presentations, possible future scenarios to address today’s challenges (e.g., energy transition, urban accessibility, climate change, etc.);
- start exploring the territory via a hybrid dimension where physical and digital approach were integrated and use to promote deep dive in the Darsena its real estate assets;
- connect the stakeholders promoting meetings, matchmaking and peer to peer involving multiple parties to form interest groups.

In urban regeneration, technology and digital culture are crucial but often not integrated effectively. The DARE project in Ravenna experimented with combining these elements to enhance urban regeneration. A digital environment was created to facilitate data collection, visualisation, and collaboration, promoting the development of ideas and projects to improve quality of life.

The project’s digital environment includes a Data Management Platform and a Content Management System (BEdita) for processing data, and ‘A Common Dock’, a portal for interaction and information sharing. To support community engagement and digital literacy, DARE organised activities such as listening sessions, workshops, storytelling labs, and training courses targeting seniors, students, youth, entrepreneurs, and public employees. These activities aimed to develop digital skills, foster collaborative dynamics, and introduce new digital frontiers (Fig. 4).

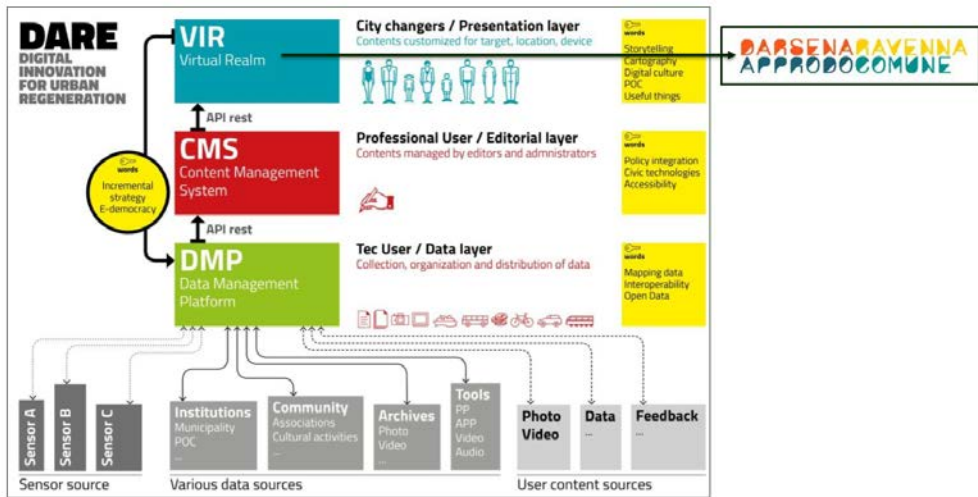


Figure 4: Three layers of digital environment.



Figure 5: Supermap. An interactive map illustrating the Darsena hot spots' history, function and potential.

A significant component was the digital LMS (learning management system), which provided e-learning spaces with resources, applications, and integrated video-call programs for online lessons. Participatory activities led to the creation of an interactive map of the Darsena neighbourhood, highlighting services, redevelopment areas, and artisanal activities (Fig. 5).

A new professional role, the digital facilitator, played a pivotal role in these activities, promoting digital culture among various stakeholders. A dedicated team of digital facilitators

within the DARE project underwent continuous learning to enhance their role in urban regeneration and digital citizenship.

Finally, RENATO was established as a resource-sharing platform for urban regeneration, offering tools and open codes for free or for purchase, with a space for users to suggest new tools.

2.2.2 Methodological approach: the common story telling

The common storytelling process enabled shared urban tactics definition.

First a clear picture of the characteristics of the area of interest, specifically focusing on the actors, practices, and ongoing policies has been created. The collected information was then aggregated according to a hierarchically structured system, eventually identifying relevant themes to build a limited number of alternative intervention scenarios. Each scenario was distinguished by a guiding idea paired with strategies and intervention models already tested elsewhere.

In addition to this work of analysis, research, and strategic planning, this phase included moments of discussion and interaction with local stakeholders. During these discussions, the proposals were presented and integrated to be combined into tactics, which are sets of synergistic projects aiming at a shared macro-objective.

Secondly, local stakeholders who were involved in the setting up of project proposals became key players through their interaction with the portal. They could access data to understand the needs and issues of the Darsena, learn about the elaborated scenarios and guiding ideas, and submit project proposals to contribute to the regeneration process. Proposals could be submitted by both local and supra-local entities, as long as they were consistent with the identified scenarios and met specific requirements. These requirements included priority, based on the hierarchy developed in the first phase, feasibility – meaning the real possibility of obtaining the necessary resources to realise the proposal, and temporal coherence – meaning the likelihood that the proposal could be realised within the set time limits.

Thirdly, the scenarios and project proposals set up by the community, along with the data collected through the DARE platform, served as the basis for defining the three tactics. Each tactic consisted of a set of project proposals coherent with each other and the Darsena's regeneration strategy, with a timeframe of about two years. The three tactics were presented through the Darsena Ravenna portal, 'A Common Dock', which enabled people to interact by providing feedback and voting for the tactic to be pursued over the next 2 years (Fig. 6). This phase offered citizens the opportunity to choose 'where to start', selecting one of the proposed tactics (Fig.7).

3 RESULTS AND DISCUSSION

The three tactics developed are the result of work hypotheses guided by different priorities and development scenarios, consisting of new realistic project proposals that complement and enhance other projects already underway in the neighbourhood. Individual proposals are included in more than one tactic due to their multiple purposes and potential for connection.

- Tactic no. 1: Lab Darsena

Knowledge and experimentation hub. This tactic aims to transform the neighbourhood into a nationally recognised artistic-cultural centre, involving both high-level professionals and citizens. It focuses on enhancing an existing cultural centre, namely

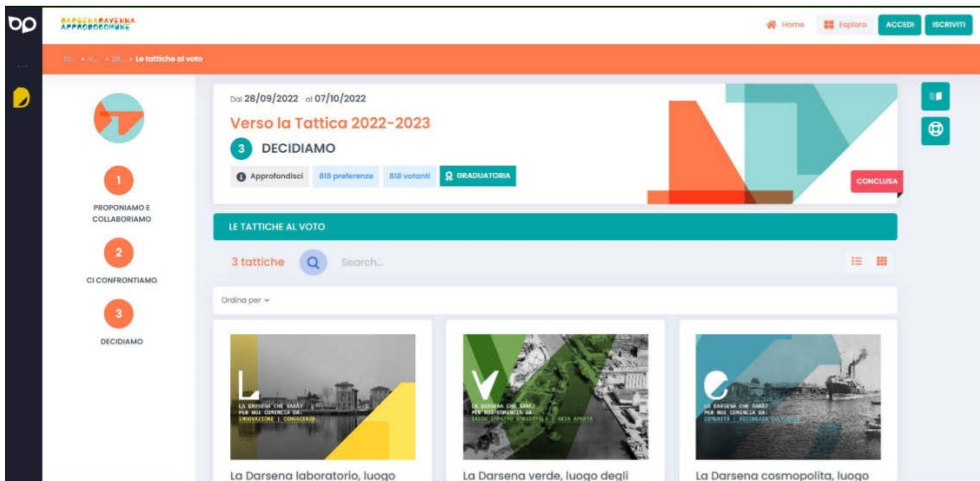


Figure 6: The Bipart platform has been employed to assist and facilitate collaboration throughout the three steps of the journey 'Towards the tactic'.



Figure 7: The results of the voting on the Bipart platform.

the Artificerie Almagià, to support performing arts and spread festivals throughout the neighbourhood. The Darsena would also host widespread production of 'living memories' to highlight personal and neighbourhood stories.

The goal is to attract a community of artists, creatives, and innovative entrepreneurs by establishing project spaces along the left bank and in the artisanal area, namely Pag Street, near the future Orangerie, an urban thematic park. This area will include new spaces for creative activities and new services, artist residencies, in situ creations, laboratories, conferences, workshops, educational and educational activities, cultural and artistic projects and events favour the widest public enjoyment to be carried out both outdoors and in the removable structures housed in the large greenhouse. A part will also

be used for vegetable gardens as a manifestation of man/nature interaction. A contemporary art area and a workshop school for 'lost trades', connecting retired artisans with job-seeking youth, will be part of the Orangerie.

The vision is of a vibrant, contemporary Darsena, increasingly connected, attractive, and easily accessible thanks to new road infrastructures.

- Tactic no. 2: Cosmopolitan Darsena

An integrated and connected neighbourhood: This tactic envisioned the Darsena as more integrated and connected to the historic centre and railway station with new road infrastructures. Already characterised by a strong sense of belonging and pride among its residents, eager to cultivate community spirit, the Cosmopolitan Darsena tactic will enhance cultural and workshop activities for residents.

An example is the requalification of the abandoned newsstand in Largo Zamenhoff, in collaboration with ACER, transforming it into a practical daily meeting point for residents, the 'House of Living Memories', where people can meet and converse. The Cosmopolitan Darsena will become a dynamic, safe, and welcoming neighbourhood.

- Tactic no. 3: Green Darsena

Sustainable and outdoor lifestyle hub: The Green Darsena tactic promotes a healthy and responsible lifestyle in a low-environmental-impact neighbourhood, ideal for walking, cycling, sports, and outdoor festivals.

The neighbourhood will feature a comprehensive system of bike paths and pedestrian walkways, especially near schools, and new connections like the railway station overpass will make the Darsena a destination for tourists and cyclists, offering information, services, and refreshments.

The former racetrack will become the Ravenna Bike Park, equipped for all forms of cycling and other sports, also promoting cycling culture. Public spaces and buildings will be made more accessible, functional, efficient, and sustainable.

This tactic connects land (enhancing the neighbourhood's green spaces), sea (reviving the use of the Candiano Canal), and air (improving air quality by reducing emissions), encouraging citizens to rediscover the joy of physical, social, and cultural outdoor activities in the post-pandemic period.

The DARE project has revealed, collected, and selected new ideas, transforming them into feasible project proposals through the intersection of ideas, spaces, and funding opportunities: the journey 'Towards the Darsena Tactic 2022–2023' [21]. A dedicated page hosts crowdfunding campaigns designed to promote and finance the Darsena's future projects, representing a new tool to support the neighbourhood's regeneration. Regeneration in DARE is a real process, initiated with infrastructural, social, cultural, and entrepreneurial interventions. Thus, DARE has launched an innovative participatory process that has led to identifying the 2023 priority for the Darsena's regeneration.

Tactic 3, with its proposal to ensure a healthy and responsible lifestyle in a low-impact neighbourhood through the development of a Darsena designed for walking and cycling, transforming it into a place for community engagement through sports or outdoor activities, was declared the winner. In this Darsena, not only residents and visitors, but also public open spaces and buildings become more accessible, functional, efficient, and sustainable through their reuse. The 'Green Darsena' proposed a more environmentally conscious

neighbourhood, preparing users for climate change and its effects by implementing actions for its mitigation. For example, it suggested virtuous behaviours to adopt in homes to contribute to climate change mitigation, such as monitoring energy consumption, recycling, and adopting energy efficiency measures. Air quality and energy savings are two fundamental parameters for environmental and human well-being: lower CO₂ emissions correspond to lower costs for families and a better quality of life both outside and inside the home. In this regard, sensors have been installed in two public housing complexes managed by ACER and in the 'Mario Montanari' secondary school, which will monitor the air quality and energy performance of the buildings. This will provide an opportunity to better understand how and how much energy is consumed and, consequently, which aspects to address and what goals for residential well-being and energy savings to aim for. This will be a first step in increasing knowledge about the built environment and in activating neighbourhood renovation plans and policies. Additionally, a local company analysed over 6,000 construction materials, measuring their mechanical and thermophysical properties and collecting real experimental data in a digital archive: the Urban Open Database [22].

4 CONCLUSION

The DARE UIA Ravenna project aims to transform the Darsena neighbourhood from a neglected area into a vibrant and innovative district. The project has enhanced digital infrastructure to improve urban management and facilitate citizen participation through a digital platform that connects residents with public administration and businesses. This platform simplifies communication and provides detailed qualitative and quantitative information, such as energy consumption, greenhouse gas emissions, resource consumption, land use issues, and water management – information that currently resides in various institutional databases, making it time-consuming to access and analyse. By centralising this data, the project supports the design of smart solutions, fostering a hybrid approach for the transition lab.

Thus, the project enables citizens and local stakeholders to access detailed qualitative and quantitative information on the Darsena neighbourhood, facilitating the effective design of urban tactics. However, the project does not fund the development of these tactics, which will be supported by local or national funds or by European projects. Once the projects developed according to these tactics are completed, it will be possible to compare the outcomes with the original data set, thereby defining measurable sustainability indicators and providing a pre- and post-evaluation of the effects of the interventions.

Central to the project's success was the active involvement of the community. Recognising that the most valuable asset of a territory is its people, the project went beyond meeting expectations by building on existing ideas, visions, and narratives within the community. Physical sustainability will be achieved by reusing existing buildings and materials, while social sustainability will be fostered through the convergence of hopes, efforts, and imagination linked to the area's transformation.

The goals of improving and expanding the tool of participation with civil society, fostering an open dialogue between institutions and citizens to enhance the quality of public policies, strengthen citizenship, promote social cohesion, and support sustainable development, as well as bringing people closer to a culture and international awareness inclined towards openness and innovation – essential prerequisites for a more inclusive community ready for ecological and digital transitions – have been largely achieved.

Revitalisation efforts individuated thanks to the elaboration of the three tactics include: converting abandoned industrial buildings into cultural and innovation centres, which not only improved the neighbourhood's aesthetics but also provided new venues for artistic,



cultural, and sports activities, thereby enriching community life; implementing initiatives to improve air quality, reduce emissions, and promote a healthy lifestyle; enhancing of green spaces and the revival of the Candiano Canal to drive towards a more liveable and attractive Darsena for both residents and visitors; recycling of abandoned or underutilised resources within a broader rethinking of urban metabolism.

This process required widespread and motivated involvement of social and economic actors in decision-making, through the implementation of collaborative tools and public–private partnerships. Such an approach further reduces the gap that tends to separate these ‘common goods’ from the practices of local communities.

In conclusion, the DARE UIA Ravenna project has demonstrated how an integrated and participatory approach can activate the process to support transition of a peripheral neighbourhood into an innovative and sustainable district. By combining advanced technologies, community involvement, and a focus on sustainability, the project has created a replicable model of urban regeneration, making the Darsena a successful example for other cities in Europe.

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