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The DE-Sign Urban Lab: the pilot case of Cosenza city, energy efficiency as a driver for social inclusion, resilience and integrated urban regeneration

Il Laboratorio Urbano DE-Sign: il progetto pilota della città di Cosenza, efficienza energetica come driver per l'inclusione sociale, la resilienza e la rigenerazione urbana

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ABSTRACT AND KEYWORDS

The DE-Sign Urban Lab

The *DE-Sign* Research Group is leading an initiative under Italy's 'Italy in Class A' program to promote energy-efficient urban design and regeneration. Focusing on Cosenza (but as a model that can be replicated on a national scale), the project aims to create sustainable, inclusive urban spaces by integrating off-site construction, energy-efficient public housing, and innovative urban planning (NBS). The project involves various stakeholders, including citizens, students, and local organizations, in co-designing a Masterplan for the *Vaglio Lise* area, transforming it into a mobility hub and a sustainable community. The initiative emphasizes 'proximity energy', fostering social inclusion and democratic access to energy. The project's communication model, 'Approach, Enable, Act', ensures broad participation and shared planning, setting a national example. The Urban Laboratory serves as an experimental platform, engaging citizens—especially youth—in co-design processes that link public policy with community needs. The *KDZENERGY* project, part of this initiative, trains students in energy sustainability and co-design, making them active contributors to their neighborhoods transformation.

Keywords: energy-efficiency, urban design, 3A-model, masterplan, urban regeneration

Il Laboratorio Urbano DE-Sign

Il Gruppo di Ricerca *DE-Sign* sta guidando un'iniziativa nell'ambito del programma "Italia in Classe A" per promuovere la rigenerazione urbana energeticamente efficiente di parti di città. Focalizzandosi inizialmente su Cosenza (come modello replicabile su scala nazionale), il progetto mira a creare spazi urbani sostenibili e inclusivi integrando i sistemi costruzione off-site e interventi di progettazione/pianificazione urbana innovativa (NBS). Il progetto coinvolge numerosi stakeholder, tra cui anche cittadini, studenti e organizzazioni locali, nella co-progettazione di un Masterplan per l'area di *Vaglio Lise*, implementando un hub intermodale e una comunità sostenibile. L'iniziativa pone l'accento sull'energia di prossimità, promuovendo l'inclusione sociale e l'accesso democratico all'energia. Il modello delle 3A, "Avvicinare, Implementare, Agire", costituisce un progetto pilota che garantisce una partecipazione ampia e una pianificazione condivisa. Il Laboratorio Urbano funge da piattaforma sperimentale, coinvolgendo i cittadini, soprattutto i giovani, in processi di co-progettazione che adattano le politiche pubbliche alle esigenze della comunità. Il progetto *KDZENERGY*, parte di questa iniziativa, forma gli studenti sulla sostenibilità energetica e la co-progettazione, rendendoli contributori attivi alla trasformazione dei loro quartieri.

Parole chiave: efficienza energetica, progetto urbano, modello 3A, masterplan, rigenerazione urbana

1. Introduction

Cities are much more than a place of aggregation and concentration of population: they are engines of exchange, knowledge hubs and energy production centers, but also places of interconnection and interaction, which stimulate the development of innovative solutions and transition processes. Understanding problems by seeking solutions is the way in which cities experiment and develop "learning", becoming fundamental laboratories whose products are concrete answers to the problems of today and tomorrow, through the "project", understood as an activity that, with a medium and long-term vision, seeks answers to the contingency, generating valuable solutions for users. In this context, the regeneration of a city and its buildings, its social, environmental and economic redevelopment, the conscious use of energy technologies for indoor and outdoor, will hardly be possible if there is no training and direct and transversal involvement between those who govern, design and feed the territories – with entrepreneurial and social activities – and those who live them, without ignoring the intersections with neighboring territories. The National Program for information and training on energy efficiency "Italia in Classe A", (https://italiainclassea.enea.it) promoted by the Ministry of the Environment and Energy Security and implemented by the National Agency for Energy Efficiency of ENEA becomes the opportunity to investigate new solutions for energy-sustainable urban and building design, to promote a new awareness of energy efficiency in the civil sector and create models that can be concretely applied to individual territories. This is achieved through research, including a temporary pilot project, with short, medium and long-term scenarios, to transform urban spaces into more liveable, more inclusive places and centres of continuous training, through training events, street art-pop-up installations, urban events. The project is accompanied by urban monitoring management activities, including energy consumption observatories, in addition to the experimentation of Nature-based Solutions, Human-based Solutions, and the use of innovative materials, such as wood as a design driver for energy requalification. "DE-Sign" (https://italiainclassea.enea.it/de-sign) is the name of the Research, chosen not only to recall the strong Italian identity in Design and planning, but also to include other meanings told by the acronym "DE" of Energy Diagnosis, together with "Sign", in its meaning of variable noun, a sign that indicates that "something is happening", but also that something "must" happen. An open ecosystem, implementable over time and based on co-creation, with a high innovative content, multidisciplinary and oriented towards life and real users. A model and a space for discussion and co-design to connect opportunities. Moreover, enhancing the potential of the territories and public decisions, adopting the "bottom-up" perspective alongside that of the Administration, to suggest and identify central elements. In order to frame interventions in the social, building and housing, educational, digital, cultural and public space fields, on a city scale and at neighbourhood level, connected to energy communities and to the urban transformations of the "nearby city", dynamics and eco-sustainable. Speaking of energy communities and proximity cities, the sustainability issues raised by the impact that energy consumption in buildings has on the quality of life of citizens. In step with mobility and digital transformation, it is required from the scientific community and institutions to adopt a design approach that is able to go beyond the contingent dimension of the problem, in the direction of a multi-scalar and multidisciplinary approach also oriented towards the assessment of social impacts. DE-Sign therefore operates on three different work levels: theoretical research and analysis of international case studies to identify the state of the art; field practice, through co-design to obtain concretely applicable models; training and involvement

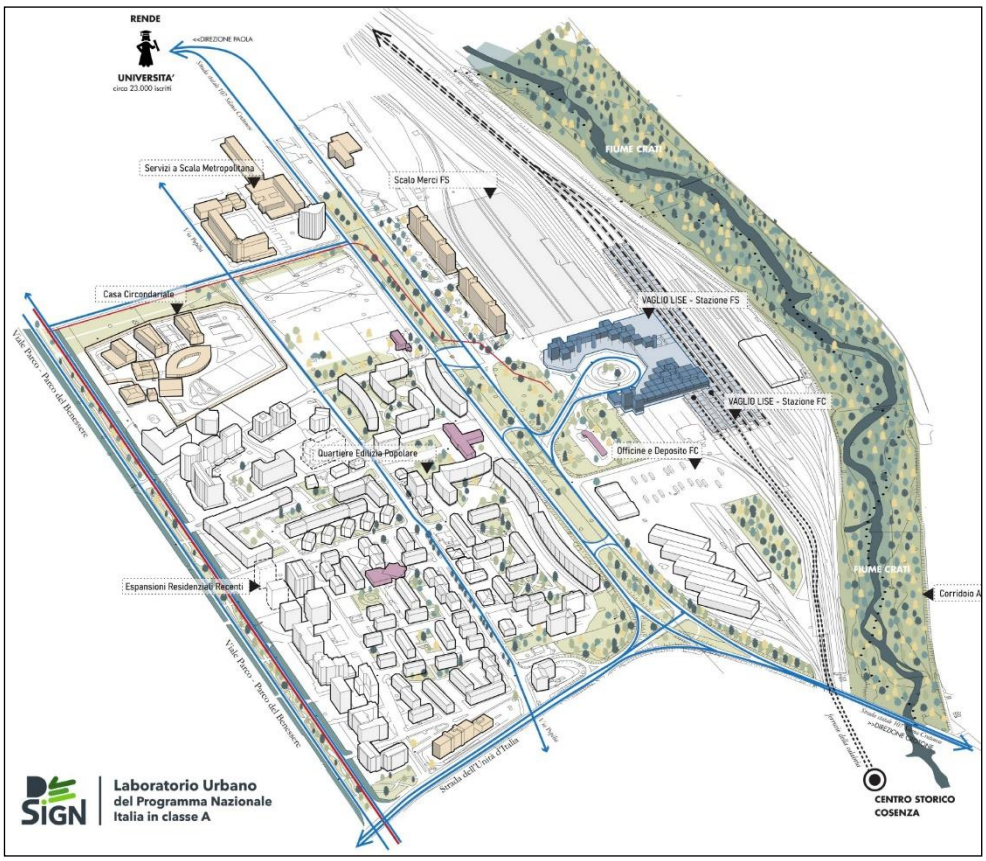
of local stakeholders in project choices; participation and social inclusion thanks to an open discussion with citizens. All this in order to obtain clusters that can be easily re-activated in other territories.

2. Materials and methods

2.1 Urban analysis and reading of the characteristics and systems that define the urban area

The physical area of the pilot project is located in the highly complex urban area (due to the intersection of numerous urban planning systems and territorial actors) called Vaglio Lise. This area is in correspondence with the railway station of the same name, in a flat territory inserted within the vast river valley of the Crati River that runs alongside the urbanized area, forming an environmental corridor and which constitutes the eastern border of the urbanized area to the north of the city of Cosenza. From an infrastructural point of view, the area is configured as a crossing point of road axes of different scale and rank, in particular the East-West direction of the SS 107 Silana-Crotonese (which with its flow on a regional scale is inserted into an urban area), of a series of longitudinal crossings with a north-south trend (via Popilia and Viale Parco) that structure the residential settlements as well as constituting the interconnection lines on a local scale of the city. The Municipal Structural Plan provides for the strengthening and enhancement of the role of Cosenza in the wider area, increasingly qualifying it as a "Portal City" and "Service City" of a large conurbation system along the Crati Valley and central along the infrastructural routes crossing North-South of Calabria and connecting the Ionian Sea and the Tyrrhenian Sea. This is a role that the city has played historically and that, in part, it still plays. A characterizing element of the entire area is the positioning of the FS Railway Station of Vaglio Lise, terminal station of the National and Regional lines of Trenitalia (Paola-Cosenza and Cosenza-Sibari), a station that came into operation in 1997 and which also hosts the terminus of the Cosenza-Catanzaro section of the Calabria Railway, is configured as a potential mobility Hub and privileged point of access and exchange of the Cosenza metropolitan area. The station area is also characterized by the presence of large areas and structures for logistics and goods unloading in the process of partial decommissioning. From a settlement point of view, the public housing district of via Popilia is the characterizing element of the entire area, the presence of public and private functions on an urban and metropolitan scale is highlighted. The public housing residential district built starting from the 1960s presents the typical critical issues of this type of settlement; in particular, there is the presence of highly energy-intensive real estate sectors with poor energy performance and poor bioclimatic well-being in the indoor area, the presence of degraded, underused and poorly configured public spaces from an architectural point of view. Elements that determine a strong criticality within the urban settlement and that are configured as an opportunity for sustainable urban transformation and regeneration. From a socio-demographic point of view, a picture emerges that records a negative trend for the City of Cosenza, which in the last 30 years has seen a progressive process of depopulation in favour of the surrounding area, primarily towards Rende and Castrolibero. (Figure 1).

Figure 1. Urban analysis and reading of the characteristics and systems



Source: DE-Sign Italia in Classe A, 2023

2.2. Reconnaissance of contemporary design themes

The development of the Masterplan was preceded by a survey of the themes and objectives of the urban regeneration of the contemporary city, in particular:

1. Energy requalification of buildings and real estate sectors of social housing (energy efficiency at the building scale) technological and management interventions aimed at providing buildings with better performance from an energy point of view (reducing emissions, improving bioclimatic comfort and containing consumption).
2. Eco-system services for the requalification of public spaces of the consolidated city (energy efficiency at the urban scale) NBS as a planning tool at the urban scale in order to increase the level of sustainability of urban systems. The recovery of degraded ecosystems, the implementation of adaptive and mitigation interventions with respect to climate change and the improvement of risk management and the implementation of resilience.
3. Social Infrastructures – Collective Belonging and Recognizability; involvement of the local population in the Project and management of public spaces; typology of interventions on shared, non-invasive, innovative and temporary public spaces, often carried out with the help of city dwellers – social condensers/devices for activating public space.
4. Sustainable Mobility – creation of an Intermodal Hub; incentivize sustainable mobility by implementing an Intermodal Hub and characterize a new gateway to the City from a functional and architectural point of view.
5. Transformation of the existing City (disused railway areas in the urban area, other building and infrastructure plans). Regeneration of disused railway areas intended as sources of multiple opportunities for urban development: starting

from their location in the most central parts of the city, accessible and already highly infrastructure and the possibility of transforming the city starting from already urbanized areas.

6. Proximity Cities; design experimentation of the 15-minute city model, involves reorganizing urban spaces so that citizens can find essential services within a 15-minute walk from home without using a car: shops, facilities, health facilities, schools, sports facilities, cultural spaces, bars and restaurants, meeting places.
7. Smart City; a smart city is an intelligent city that integrates digital technologies into its networks, services and infrastructures to become more efficient and liveable for the benefit of residents and businesses.

2.3. The DE-Sign Urban Laboratory for the urban area of Via Popilia-Vaglio Lise

With the Department of Urban Planning of the Municipality of Cosenza, the companies of the Confapi supply chain, the Associations of Architects and Engineers of Cosenza (Ordini degli Architetti e l'Ordine degli Ingegneri) and the National Institute of Urban Planning-Calabria Section, an interdisciplinary dialogue on the very concept of energy applied to building design began. The study area was the one facing the Vaglio Lise Railway Station, the historic centre and the San Vito public housing area. Three urban areas to experiment with different approaches, in a single urban context. Through the urban laboratory of Cosenza, the DE-Sign Research Group has developed new methods and practices in the field of decision-making and public policies for energy sustainability, experimenting with a new approach based on proximity. With the term "proximity" the Research Group promotes in the Urban Laboratory the desire to put professional, economic, social and human capital at the centre of public choices. In this context, it is not only the city that becomes "proximity" but also energy. With energy communities that will bring a technological, social, economic and environmental paradigm shift and whose success is closely linked to real social inclusion and a necessary and progressive elimination of diversity in the urban area, from the centre to the outskirts. Studying the phenomenon of "proximity energy" under the lens of intersectionality becomes fundamental to highlight the elements that slow down the development of one urban area compared to another, or of one building compared to another. The dimension of proximity enhances and identifies administrative tools and innovations capable of "enabling" civic potential to propose new models of energy management - of and in - the city. The concept of "proximity energy" is therefore linked to that of "care for proximity", which is realized in democratic access to energy, access to housing, social facilities to promote social inclusion. The need for physical and relational proximity is often indicated as an antidote to loneliness and isolation and presents itself as a transversal element with respect to the themes addressed in DE-Sign. Each implemented path identifies proximity as a transversal approach that could allow, on the one hand, making the city liveable for people at risk of marginalization and, on the other, to counteract phenomena of isolation to which each social group can be subject. "Proximity" means designing public spaces in neighbourhoods as a hub for communities, more or less formal centres of aggregation, where it is easier to find solidarity networks that facilitate practices of socialization, aggregation, meeting and listening. Interpreting proximity not only as a physical and relational dimension, but as an energetic one, means spreading "social" structures in public spaces where culture and civic activism are a response to the needs of citizens and can foster inclusive, close, intergenerational and intercultural community dynamics, to bring people closer, enable and act in the energy transition process. (Nowak et alii, 2006) Strengthening community networks, particularly in peripheral areas and public

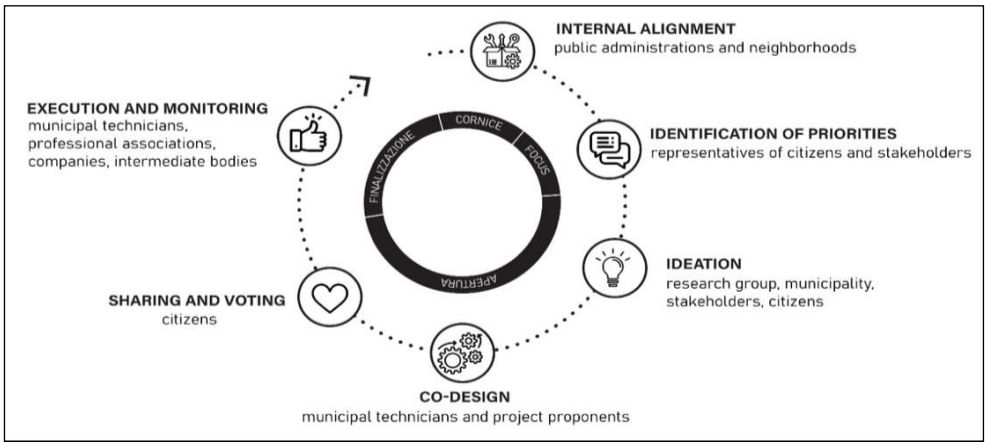
housing, is also necessary to counter energy poverty. (Strohbach et alii, 2012) The redevelopment of degraded spaces and the creation of energy communities could be the vehicle for inclusion for the most fragile, giving life to places of exchange not only of energy, but also of skills, countering relational and social isolation. Working on proximity requires an organizational change to ensure presence and consistency in the territory and interdisciplinary skills aimed at building stable bonds. Not only architects and engineers to build new urban models, but economists, accountants, lawyers, sociologists to ensure that contemporary challenges can be faced by a cohesive team, capable of looking in the same direction with different but complementary experiences and backgrounds. The Laboratory becomes a testing ground for an open process, which feeds on practice and experiences and which aims to establish a direct link between needs and public policies.

2.4. The targets of the Neighbourhood Laboratories (Young Board)

Training young students from Cosenza to co-design, making them protagonists of the change of their city and helping to promote energy sustainability in their neighbourhood.

This is the KDZENERGY edutainment project (http://italiainclassea.enea.it) of the Brutia city to contribute with their ideas to the programming document that the Research Group is building with the Municipality of Cosenza, the Professional Associations, the Companies, the Citizenship and the Third Sector. DE-Sign, entering schools of all levels, working on multiple dimensions, becomes a bridge for the neighbourhood and the community to delve into energy issues and share an urban energy strategy. This approach comes from the desire to establish lasting relationships with the different communities that preside over the territories and to act on the dimension of daily life. The goal is to systematize different activities and enhance the specificities and networks of each neighbourhood to enable and strengthen them in a citizen perspective of energy awareness. (Figure 2).

Figure 2. The process of the laboratories



Source: DE-Sign Italia in Classe A, 2023

2.4.1 The experience of co-design and the involvement of intermediate bodies

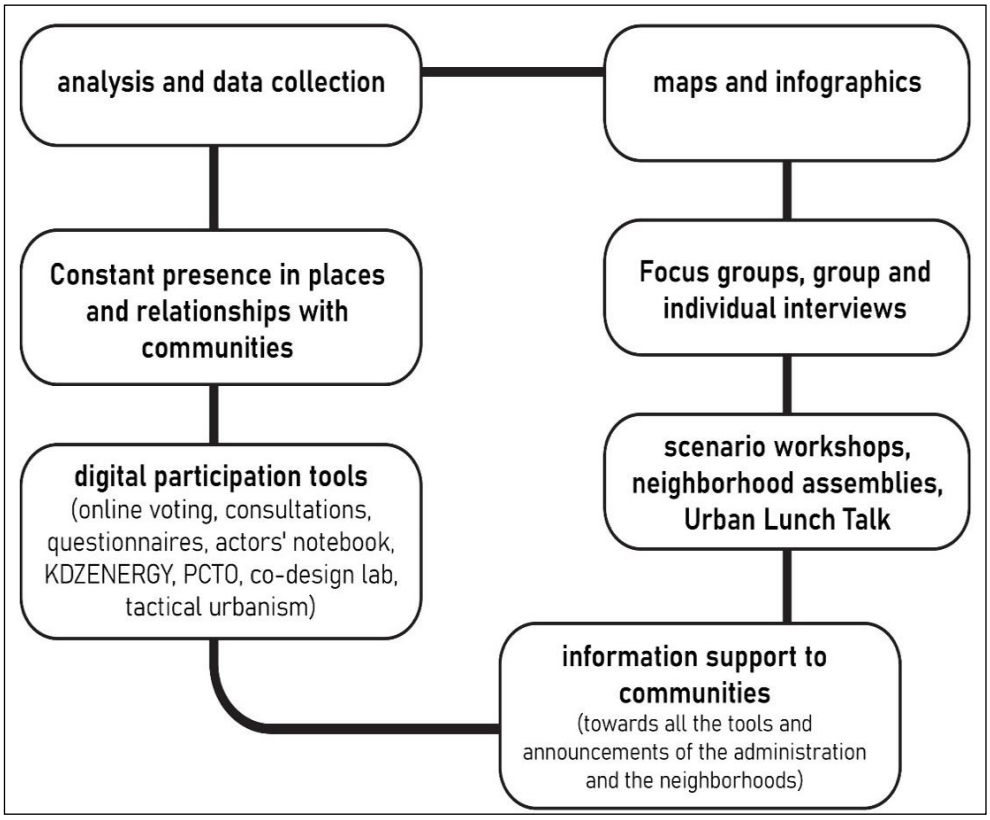
The involvement of "intermediate bodies" and businesses is fundamental in DE-Sign, to decline the theme of the path at the neighbourhood scale, going to design an initial analysis of the topic and how this translates into individual territories.

The first experience of co-design of the DE-Sing project materialized with a team building action, through the involvement of selected policy makers called by the

Municipality of Cosenza to imagine together the future of the city, to weave in a single plot multidisciplinary visions on three macro themes:

a) new models of urban design,
b) new community models - both social and energy,
c) new solutions for designing and requalifying buildings, with a specific focus on the theme of living; as well as governance. (Figure 3).

Figure 3. Methods and tools



Source: DE-Sign Italia in Classe A, 2023

The experience, built on the awareness that the sustainable development of cities, the reduction of the environmental impact of buildings and the energy requalification of existing assets are fundamental levers not only for the relaunch of the urban fabric, but also for the economic, social and environmental one. It has highlighted how, even in a medium-sized city like Cosenza, the progressive affirmation of the model of proximity cities and energy communities actually requires the revision of the criteria for the design, maintenance and conservation of assets. All this in order to guarantee the energy efficiency and environmental sustainability of the construction and requalification initiatives that are changing the urban fabric of the country.

3. The methodological approach applied in the development of the experience

It is not a closed project, but a coherent framework, the result of a co-design activity, and containing transformation scenarios. A vision that explores the potential for development and enhancement of the area of intervention. Following the choice of the City of Cosenza as a reference area, a study and analysis activity was conducted on the urban, economic and territorial context and the state of efficiency of the social housing buildings overlooking the Railway Station area - using, among others, tools

such as SIAPE, (https://siape.enea.it) in order to identify the parts of the city chosen for the experimentation and implementation of the Urban Laboratory, bearer of the values, principles and objectives of the Italy in Class A campaign and aimed at returning vision and scenarios of transformation and energy requalification to the building and urban scale. The identification of the study area (building typologies and urban morphologies being analyzed) focused on portions of degraded urbanized territory, which can therefore be the object of pilot experimentation that can be replicated on a local and national scale. In particular, the urban fabric characterized by social housing (consisting of an energy-intensive and technologically inadequate real estate park to provide efficient use of energy for residential purposes) was identified, with public spaces resulting from planning in the 1960s and 1970s with large areas with largely underused urban standards, not qualified from an architectural and functional point of view and severely degraded, an opportunity to locate NBS interventions (https://www.enea.it/NBS), crossed by road infrastructure and exchange nodes of the national railway network. A further element that was decided to apply to the DE-Sign methodology is the one linked to Off-Site Construction OSC (https://efficienzaenergetica.enea.it) thanks to the advantages that this can bring in such a large context to be redeveloped: speed of installation, keeping the inhabitants inside the buildings, reduction of dust and noise on the building site, flexibility in the modular choice, reduction of construction site "waste", application on existing buildings. All elements that contribute to increasing the sustainability of the interventions both from an energy and socio-economic point of view. The methodology uses a list of standardized solutions (https://eneadi.unime.it/) and applicable throughout the Italian territory depending on the climate zone in which the buildings are located as well as other parameters that the designer can quickly figure. The catalogue was created by ENEA as part of the "Built Environment" project financed by "Electrical System Research" in collaboration with CITERA (Interdepartmental Centre for Territory, Building, Restoration, Environment) (La Sapienza University) and UNIME. The technical development of the Masterplan has as its starting point the detailed study of the metropolitan and urban context of reference.

3.1 The DE-Sign Urban Laboratory in the City of Cosenza

In parallel with the study of national and international cases, the DE-Sign Research Group began an active experiment in the pilot area of Cosenza in 2023, to accompany the city in equipping itself with an agile, innovative and flexible tool to guide the transformations of the territory according to the objectives of the New European Bauhaus, with a view to energy efficiency and design of quality urban space. Specifically, the Urban Laboratory of the "DE-SIgn" research project aims to accompany the Municipality of Cosenza in drafting an Energy Transition Agenda for 2030 capable of making the Administration competent in the issues of design, financing and technological tools for energy efficiency. The regeneration of the built environment is the core of the process of change and urban planning that the project promotes in the Municipality of Cosenza. It stimulates new approaches oriented towards co-design and participation in decisions, through "bottom-up" processes, which from the short to medium term, lead to long-term "sustainable" programming, with the development of eco-sustainable urban projects and innovative visions regarding parts of the city, neighbourhoods, intermodal nodes, green spaces and neighbourhood units, in addition to a project synthesis operation in order to connect the needs of the various actors. Within the metropolitan area, the development area of the pilot project is located in a central position with respect to the entire Cosenza-

Rende conurbation, in the northernmost area of the Municipality of Cosenza, in a crucial site for the strategic planning of the transformations of the territory, in accordance with the objectives of sustainability. A site with a high development potential on a regional scale, an attractor of new functions and activities and a future interchange hub for the city. The socio-economic and environmental degradation that is currently recorded throughout the area called "Vaglio Lise" suggests promoting an integrated intervention of urban regeneration and sustainability. The area in question represents an ideal place in which to place the large functions required by the city. The experience in the field has been a virtuous path, which will provide the municipality by 2024 with an integrated urban planning document under the lens of energy efficiency. Subsequently, the proposed guidelines will also be developed on the basis of contents, projects and paths that the community will be able to give itself and imagine. The Master plan proposal for the identified area aims to contribute to the definition of a programming document that summarizes in a sustainable way the urban policies of the municipality and the transformation objectives of the local actors and stakeholders involved. In short, a programmatic document containing possible scenarios for the sustainable development of a complex and strategic urban area in the City of Cosenza.

4. Results

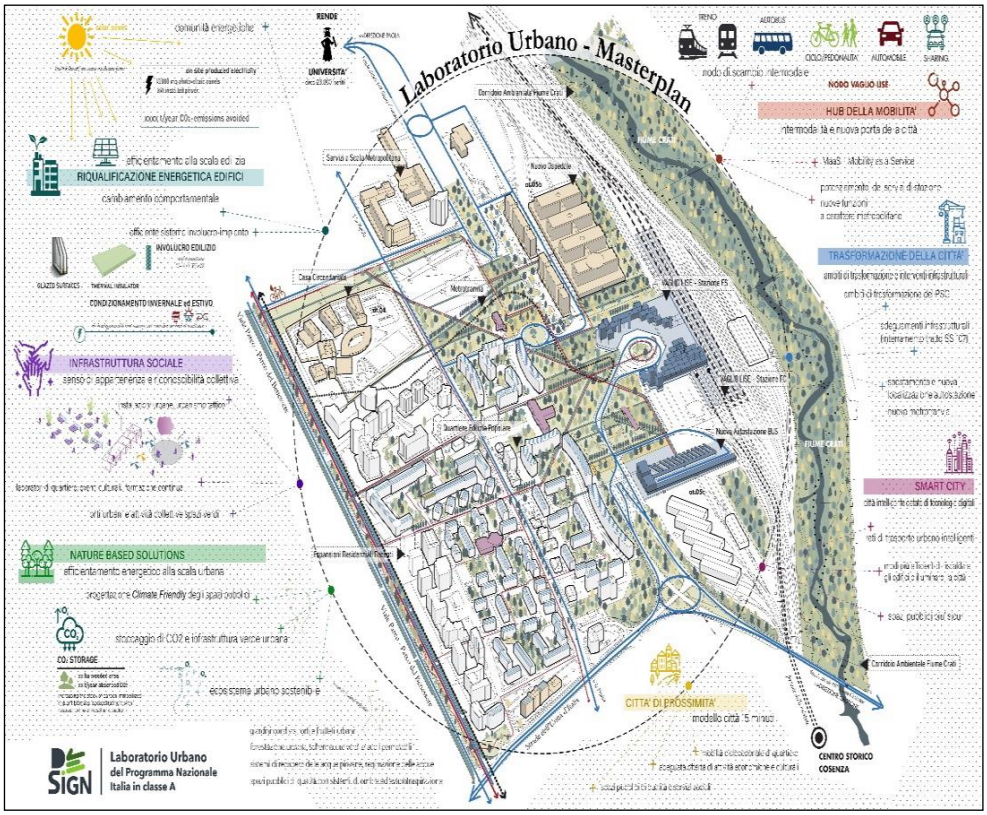
During this first co-design experience, in addition to other social aspects related to energy efficiency, the topic of sustainable building design and the very concept of energy efficiency for experts in the sector were addressed. Specifically, the Research Group investigated the experience of Engineers and Architects of Cosenza towards the use of building performance simulation tools during energy consumption simulation. The experience revealed how the quality and accuracy of the results are crucial for engineers, while for architects how important it is to be able to compare alternative results from multiple sources. Furthermore, architects interpret building performance simulation and energy modelling tools as an aid to understanding the needs of the building and a way to prioritize the decision-making process, while engineers see it mainly as a way to test different approaches. Sustainable energy is an opportunity – it transforms life, the economy and the planet. The challenge is to set up energy-sustainable ecosystems not only in urban environments, but also in less dense and peripheral areas, so-called internal areas, which often lack specific actions or awareness campaigns on energy efficiency issues (Drake et al., 2018). And in an urban centre that brings services closer together, simplifies access to them, reduces inequalities and improves social cohesion, giving value to a new sustainable dimension of neighbourhood, ready to face a new model of energy production, renewable, shared and clean, we can read our near future, which today requires tools tailored to the territory to multiply and become (Field et al., 2021). To concretely convey this message, the choice of macro-themes that the Research Group has selected for the first co-design experience fell on the three main critical issues of the energy transition and urban regeneration:

1. New urban and territorial models, from centralized to decentralized production, localization of energy production plants and new models of use, alternative mobility, etc.;
2. Energy saving at residential level;
3. Social communities and Energy communities.

4.1 Vision of the urban environment

The key elements of the vision are all linked to energy efficiency and the ecological transition of urban areas. It is a transformation scenario that explores the potential for development and enhancement of the characteristics and vocations of places. It therefore starts from the opportunities linked to the energy requalification of public housing real estate sectors, to the sustainable urban redesign of public spaces, identifying energy efficiency interventions on an urban scale through Nature Based Solutions and Human Based Solutions. Furthermore, the program, through coordinated interventions, aims to define an efficient intermodal hub for sustainable mobility equipped with a new and attractive gateway to the city and a strategic place for the location of future functions at regional and metropolitan level. The physical requalification of public spaces in the residential city also aims to experiment with the potential of the 15-minute city paradigm or "proximity city" and the implementation of social infrastructures, strategic for the involvement of the resident population in the transformations, and to promote a renewed sense of belonging and collective "identity". (Figure 4)

Figure 4. Design vision of the urban area chosen for the experimentation



Source: DE-Sign Italia in Classe A, 2023

5. Conclusion

The Cosenza Urban Laboratory is an institutional, economic and social research experiment that systematises the potential of the territory, through the tools of energy efficiency, to respond to the challenge of change. Following the meetings with the Intermediate Bodies, the process will continue through the involvement of the youngest citizens, until the involvement of all citizens, with the aim of reaching the greatest number and variety of people possible. Starting from condominium and

neighbourhood assembly forms, to arrive at smaller meetings, also in the presence of Administration technicians, to allow for more effective planning in a comparison in small groups. This is, for example, the case of the Vaglio Lise Station – Via Popilia which, after the phase in which the proposals emerge, continues with co-planning with citizens until reaching the definition of the executive projects. The effort of the DE-Sign project in this second phase is to guarantee the possibility for all citizens to participate. On the one hand, by putting into practice the "methods of engagement" and the communication tools that are considered most suitable for the topic discussed and, on the other, by providing different methods of participation that allow for more or less intense levels of involvement. The DE-Sign communication model, which expresses its strength in the 3A of energy sustainability "Approach, Enable, Act" embraces the most innovative solutions, through an integrated approach between social media strategy, the new evolutionary platform of the "Italia in Classe A" program (www.italiainclassea.enea.it) and an on-air digital storytelling methodology. 2024 was an important year, recognition of the innovative value of research by those who govern the territories but also by those who imagine and then design them. But DE-Sign is not only an urban/carbon-free laboratory that sees the redevelopment of the built environment as the driver for the development of the territory and for widespread well-being, promoting a governance of energy sustainability capable of directing new models of design and planning, but it is also a governance model and a profound reflection on the anthropology-energy binomial "AAA-Humanizing Energy-projects and lexicons for the energy transition". It is in fact the "toolkit" volume that opened the research on this multidisciplinary front, applicable to the urban and building scale, but also to the community and individual one. The "toolkit" and the urban laboratory, founded on the "energyefficiencyfirst" principle, is also a national hotspot of the neweuropeanbauhaus of the European Commission. The methodology of the urban laboratory and the toolkit for cities is based on three levels of analysis:

1. policies: with a focus on the engineering and economic dimension;
2. cultural dimension: through the analysis of the coexistence between "eco-centric" and "egoistic" value systems;
3. subjective dimension: includes elements such as training, capacity building, participation (public administration, schools, businesses) and co-design (micro-transformations of proximity).

These three levels of analysis led to the definition of the 3 A Model, which was applied as a pilot project in the City of Cosenza and subsequently in Catanzaro and Foggia, to be adaptable to any urban and neighbourhood size. But what are the 3 A of the AAA-Humanizing Energy model for the participatory governance of energy sustainability?

Bringing closer: increasing awareness, promoting interactive and participatory contexts.

Enabling: making the energy transition understandable and bringing it closer.

Acting: encouraging rituals and relationships, promoting the experience of active citizenship and redesigning the living space. In this way it was possible to create a new approach for the involvement of the actors involved in shared planning, through a story intended for the public, as a national best practice adaptable to all territories, whose results can be studied daily thanks to the monitoring of social media and the online platform. The proposed model is an innovative combination of: intervention, execution, explanation. The individual co-designer can design his contribution, carry out his works, sharing them, and can explain them exhaustively through interviews, feeds, images, videos, graphs and data, also through an immersive narration that

pushes the multimedia approach to a high level. The activities carried out so far have laid the foundations for important multidisciplinary design experiments in a real urban context, during 2025 there will be progress and implementation activities of the project that will be presented within updates and communication products.

Author Contributions

As part of the collegial discussion of the research, Passarelli Domenico e Bertini Ilaria oversaw, in equal parts, the conceptualization and supervision; the formal analysis and preparation of the original draft was carried out by Bertini Ilaria, Sergi Ilaria, Segreto Maria Anna, Urbani Guido Maurizio, Verardi Ferdinando; the authors all, in equal parts, addressed the analyses and the administration of the project.

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Conflicts of Interest

The authors declare no conflict of interest.

Originality

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