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Special Issue 3.2024

Living and Walking in Cities

New challenges for sustainable urban mobility

This Special Issue intended to wonder about the new challenges for sustainable urban mobility, aligning with the European Sustainable & Smart Mobility Strategy. Contributions come from selected papers of the XXVI International Conference "Living and Walking in Cities" and have been collected around two main topics: the relationship between transport systems and pedestrian mobility and the transformative potential of temporary urban changes. Reflections and suggestions elaborated underline a collective great leap forward to reshaping urban mobility paradigms.

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TeMA Journal of Land Use, Mobility and Environment

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Cover photo: Herrengasse street in Graz (Austria), baroque pedestrian avenue and centre of public life, provided by Michela Tiboni (June, 2024)

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Mobility, participation and sustainable regeneration. Urban projects in Liguria Region

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Abstract
The paper reports different experiences in which mobility, participation and sustainable regeneration represent fundamental issues for our cities. The applications are developed in idea competitions promoted by municipal governments and associations. Rethinking mobility and orienting actions towards sustainability means putting people at the center of urban strategies. In this context, the 4 innovation helix framework, and so, the involvement of local actors: people, university, company and administration, is indispensable for guiding society towards sustainable development according to 2030 Agenda. In the experiences illustrated, the role of the University emerged as a connector capable of collaborating together and building synergies between the various actors involved with the common objective of improving the liveability of our cities. Liveability which is closely linked to the improvement of mobility services and their intramodality with important repercussions on the accessibility of services. The actions undertaken for more sustainable mobility lead to a path that increases the demand for integrated services for the movement of people and goods but also the attractiveness of the area from an environmental, social, tourist and economic point of view. The urban projects presented were carried out as part of university courses in collaboration with public administrations of the Ligurian Region.

Keywords
Sustainable mobility; Participation; Regeneration project.

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1. Introduction

Mobility, Participation and Sustainable Regeneration are fundamental and synergistic topics in today's cities.
Agenda 2030 in 2015 underlines attention to the urban reality, given that the majority of the population will increasingly live in this reality. As is known, the document is made up of various objectives and, in this context, Goal 11 "Sustainable Cities and Communities" is of considerable interest. This Goal aims to make cities and human settlements inclusive, safe, durable and sustainable.
In this context, mobility is a priority rethinking sustainable mobility also means promoting urban regeneration actions according to the principles of Agenda 2030. Sustainable mobility is the ideal model of a transport that minimizes environmental impact while maximizing efficiency, intelligence and speed of travel.
Specifically, Goal 11 of the 2030 Agenda aims by 2030 to: "provide access to safe, affordable, accessible and sustainable transport systems for all; improve road safety, particularly by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons (11.2) and reduce the negative per capita environmental impact of cities, particularly with regard to air quality" (11.6) (UN, 2015).
Urban mobility infrastructure must contribute to the attractiveness and environmental performance of urban areas. Such mobility must be sustainable according to the three aspects: environmental, social and economic. With regard to the first aspect, it is important to reduce harmful emissions into the atmosphere; about the second, it is essential that mobility is inclusive and accessible (for different types of users, means of transport, times of the day, …) and finally in coherence with the third aspect, it must promote the creation of new jobs. Indeed, thanks to sustainable mobility, benefits in terms of territorial, social, environmental and economic development is possible to have. Interventions for sustainable mobility increase the demand for integrated services for the movement of people and goods, consequently reducing air pollution, noise, congestion and accidents and recovering degraded public places.
Moreover, when talking about sustainability, another concept is also crucial to introduce: the participation of different territorial actors. Citizen involvement aims to improve decision-making by producing better policies, building trust, gaining acceptance of policies and sharing responsibility for policy making (OECD, 2003). Goal 11 of Agenda 2030 itself aims to "increase the capacity for participatory and integrated planning and management of human settlement in all countries" (11.3) (UN, 2015). The term participation refers to social processes in which citizens, or representative groups of citizens and associations and administrations (responsible for the object discussed) are involved. These processes are based on dialogue and have as their goal the resolution of a collective situation perceived as problematic or the choice of a decision in the public interest.
Individuals, groups and organizations are given the opportunity to participate in decision making that affects them or in which they have a relevant interest (Elelman & Feldman, 2018).
All actors are called to contribute actively; the role of public administration is important in this context. Local authorities -given their proximity to the territory- are called to the forefront to take a central role in implementing planning, financing and evaluation measures (European Committee of the Regions, 2019).
There are various techniques related to participatory processes. It can be quantitative, qualitative and participatory; different are the corresponding methods, i.e. through the use of interviews, questionnaires, meetings, round tables, both carried out in person and online. For this last aspect, the pandemic triggered an important acceleration that involved the entire population, in different age groups.
Participation today responds to the demands dictated by the European Union to implement projects and planning tools at the urban and/or territorial level attentive to sustainability declined in environmental, economic and social.
The paper reports the results of some experiences aimed at initiating regeneration processes from participatory policies and strategies aimed at sustainable mobility planning.

2. An approach for the integration of mobility, participation and sustainable regeneration themes in urban planning projects

The paper presents an approach that aims to integrate themes such as Mobility, Participation and Sustainable Regeneration into urban planning projects.

This approach has been developed in projects promoted by municipal governments and associations. These experiences have led to the drafting of specific urban planning projects.

In the last years, the Urban planning technique course at the University of Genoa (where the authors teach) participated in urban regeneration competitions. Such competitions, promoted by public entities, have been carried out to stimulate active participation. All stakeholders have benefited from this opportunity: students have been able to work on current issues by continuously confronting to the territory and public administrations; the municipality has been able to develop innovative and sustainable project ideas, which sometimes, have been partly implemented. The Course laboratory thus became operationally the territory under study, to be analyzed and redesigned where necessary.

Sustainable mobility was one of the pivotal issues considered in urban planning projects aimed at regeneration. Specifically, key aspects considered in these projects were: soft mobility path, public transport, intramodality, temporal urban planning, green corridors, street furniture, resilience, use of sustainable means, bike-car sharing, materials for safety (Fig.1).

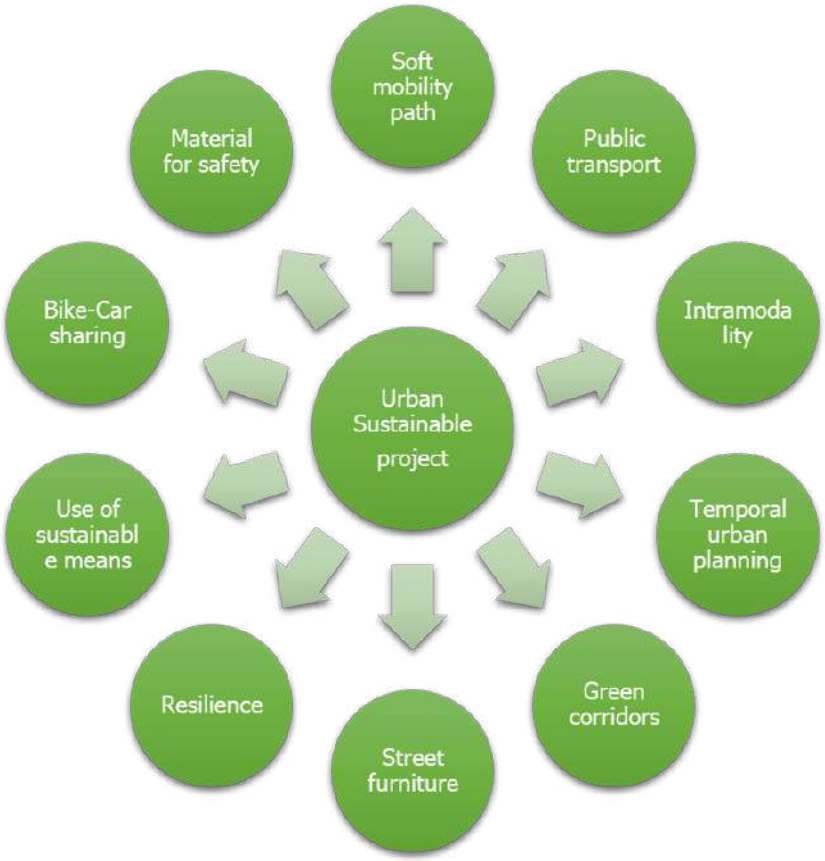


Fig.1 Urban Sustainable project: key aspects

The methodological approach, stems from previous research (Pirlone & Spadaro, 2022) and involves several phases that were developed taking into account the participation aspect as well (Fig.2). The phases and the results obtained are then merged with the technical aspects and knowledge of those who live, work and know an area.

The first step is the cognitive phase, which was based on the retrieval of initial documents and information, such as statistical yearbooks, from the study of current urban planning instruments and the collection of information reported by the actors involved in the participatory process. This phase included questionnaires, interviews and in-person or online meetings.

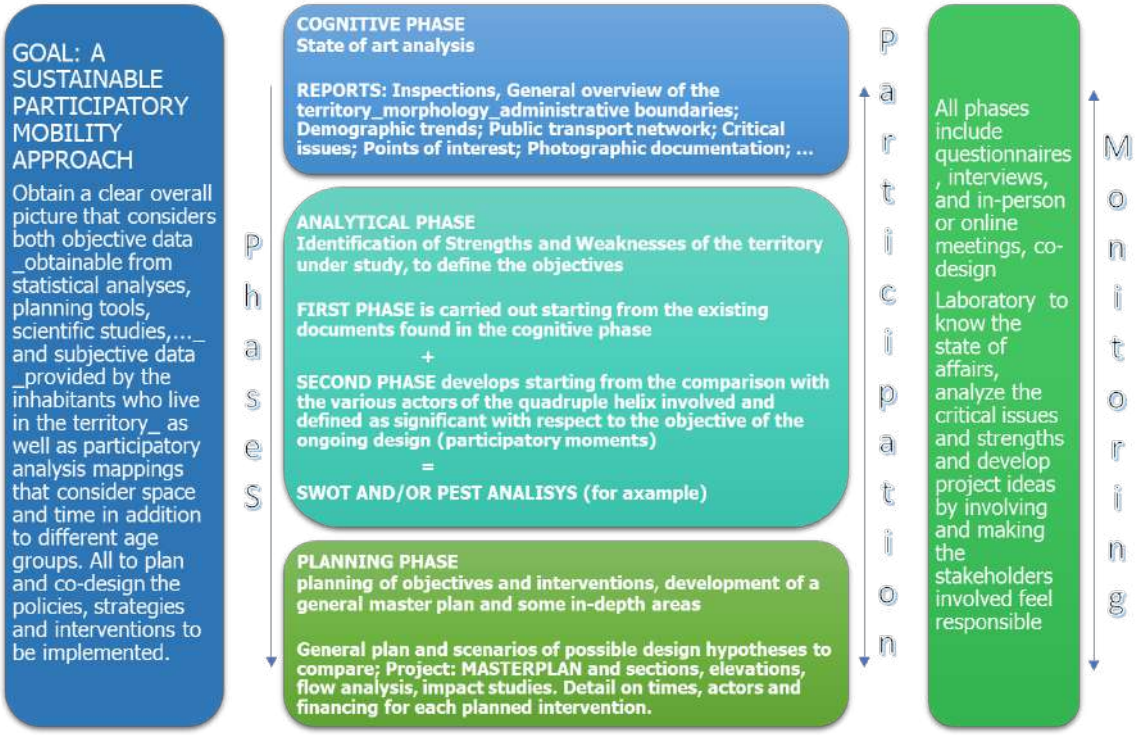


Fig.2 A sustainable participatory mobility approach

The second step was the analytical phase. This phase included different types of partial analyses aimed at providing a fundamental overview for the third phase (planning). Analyses typical of the business world, but now well established in urban planning, such as SWOT (Strengths, Weaknesses, Opportunities and Threats) and PEST (Political, Economic, Social and Technological), were used. These methods allow the identification of strengths, weaknesses, critical issues, opportunities and to take into account political, economic, social and technological aspects. Another type of analysis took into account the views of the different actors involved in the activated process. The combination of the two types of analysis, objective (the first) and participatory (the second) allow us to proceed with a complete state of the art to the third and final phase. It consists of planning objectives and interventions. The main output obtainable from this phase is the development of a general master plan and the in-depth analysis, through detailed details but also sections and elevations, of some key elements defined in the project.

Several guiding parameters were also considered for each intervention. For example, for cycling, these include: safety, integration, functionality, intermodality, use of new technologies and design. The planning phase systematized what emerged from the previous phases and, also thanks to the participation of the actors involved, arrived at the definition of policies/strategies to promote, as far as the mobility theme is concerned, intermodality, car-bike sharing, ICT incentives and tools, ... up to the co-design of the interventions to be implemented (routes-bicycle lanes, pedestrian walkways, ...).

In this phase, the concept of experiential participation, based on the experience of the actors involved, was applied. In the definition of a new bike route, for example, experiential participation is important because it allows to support the design by following the indications of those who use the bike in today's without a real infrastructure present in the area (highlighting why they ride precisely that route, for slope, rather than for

safety, ...). All phases are therefore participatory because within each one the different stakeholders were involved to identify projects that would lead to an improvement in the quality of life for the population (both residents and tourists). In fact, the idea of participation developed is intended to accompany the entire cycle of public policy formulation and implementation (including the moment of management and implementation). In this way, everyone, and in particular the population, becomes an active participant in the definition and subsequent implementation of projects and in taking care of the commons.
The results of these experiences have been the implementation of participatory urban planning projects aimed at improving realities considered significant such as sustainable mobility.

3. Urban projects: the integration between Mobility, Participation and Sustainable Regeneration in Ligurian case studies

The Urban planning course of the University of Genoa has participated in 3 calls for projects promoted by public administrations in the Liguria region from 2020 to the present.
The competitions have been in the municipalities of: Genoa, Busalla and Albisola Superiore (Fig.3).

Fig.3 Case studies in Ligurian Region

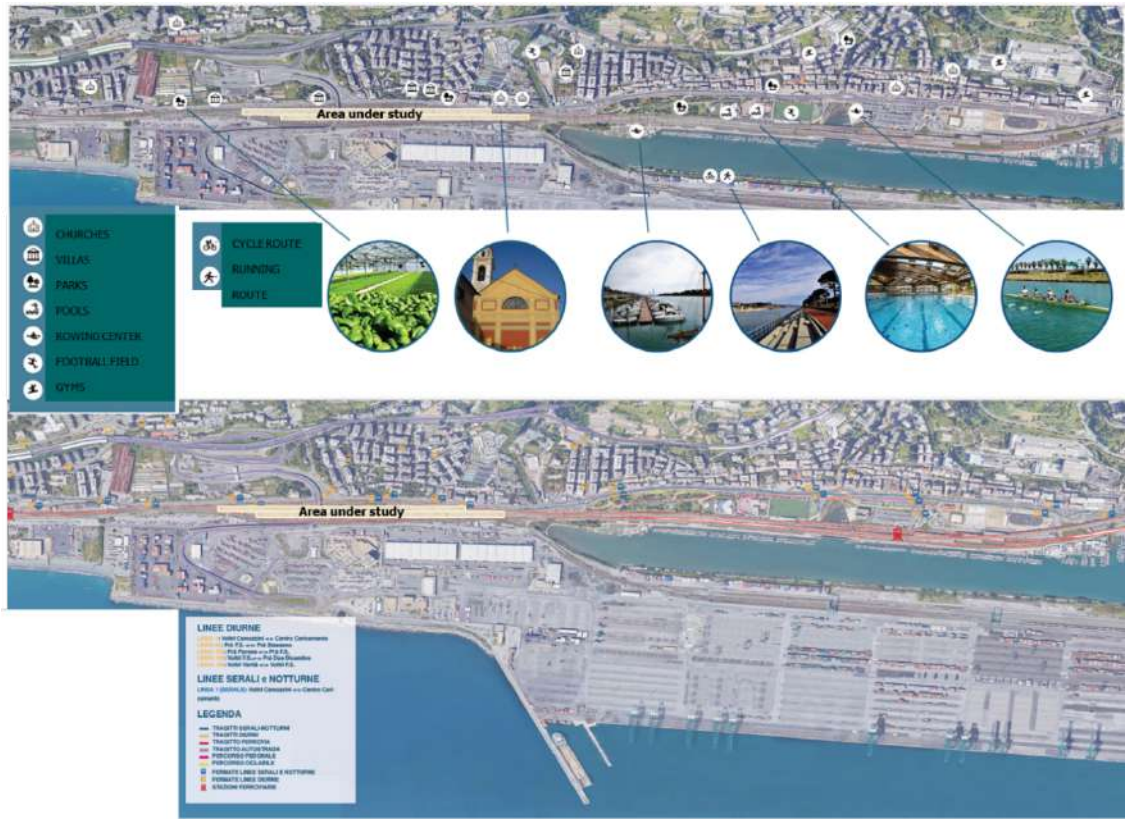
In 2020, students of the Urban planning course were invited to participate in the competition: "Let's give the sea back to Pra' – Palmaro", promoted by FondAzione PRimA'vera and Comunità Praese, under the coordination of Municipio VII Ponente and the Municipality of Genoa.
In 2021, the course was invited by the City of Busalla to participate in the initiative "Busalla twenty twenty-one_Redevelopment of urban mobility and recovery of areas along river Scrivia".
Finally, in 2022, University were invited to participate in the "Arbisöa Regeneration" competition, promoted by the City of Albisola Superiore.
Although the competitions were promoted by public administrations with different characteristics, in terms of size, geographic context (on the sea or in inland area), vocation (residential, tourist, industrial, …), in all of them the theme of participatory sustainable mobility was central. In these experiences, two other important aspects related to participation are that the actors involved, their skills, the dedicated time and available funding are channelled and planned to achieve the common goal of improving the quality of life of the inhabitants. And that cooperation is seen as a tool that allows: sharing knowledge and innovations; create a society with greater capacity to act; create participatory regeneration projects that aim for the safe, sustainable, circular and resilient development of the territory.
The following paragraphs report the application of the phases of the approach presented (section 2) and the results obtained in the three collaboration experiences between universities and the territory.

3.1 The case study of waterfront of Prà Palmaro (Genoa)

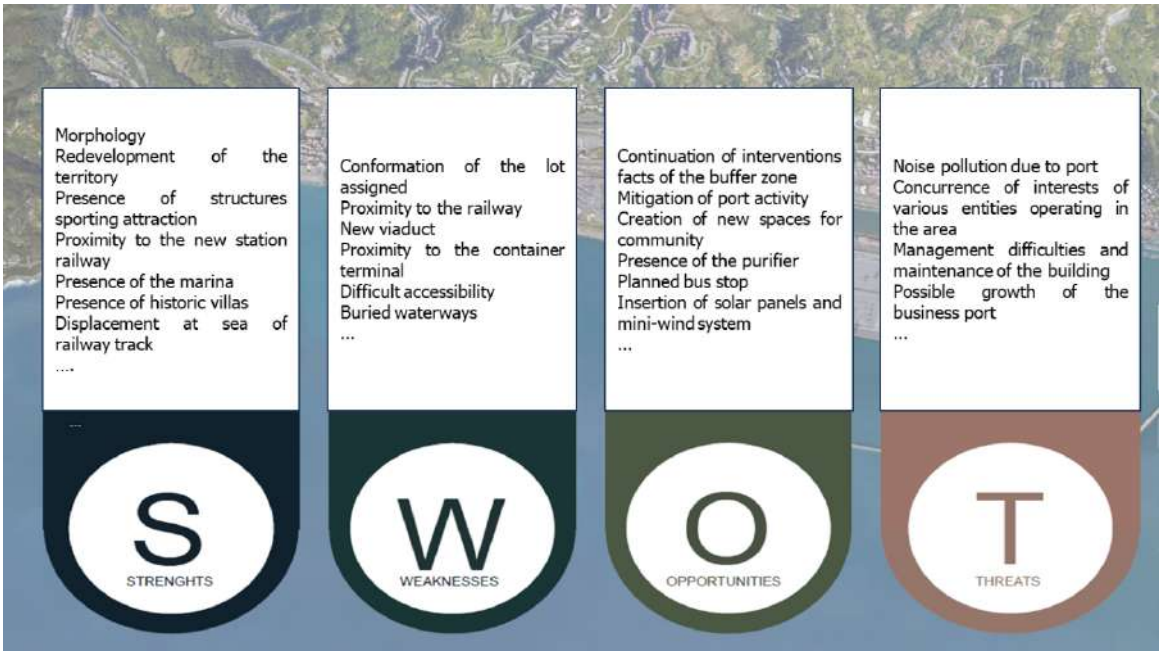
This initiative aimed to contribute to the regeneration of the Praese waterfront in order to improve the livability of the neighborhood. Following the relocation to the sea of the Genoa-Ventimiglia section of the railway between Rio Branega and Rio San Giuliano, the idea of the competition was born. It consisted of creating a promenade along the sea, with trees and different solutions to separate the path from the port and the new railway. The event to start the competition was conducted telematically (given the health emergency that had arisen) in March 2020 and the design work was concluded in June 2020, resulting in an award ceremony in December 2020 for the four participating student groups. The initiative led to the University's participation in a Technical Working Table in the area and the projects developed included the participation of the local population in the final judging of the competition.

The theme of Mobility has guided the development of urban planning projects. The public mobility service within the project area is managed by the company AMT Genova S.p.a. The area under study develops mainly along the Via Aurelia, from the end of the Genova Voltri area up to the center of Genova Prà, going towards the center of the city. The area is located in the middle of the two Municipalities and corresponds to the ancient Prà Palmaro. The bus lines extend across this territory with five daytime bus lines, which extend up to the heights of Montanella, Stassano and Pavese; the two night lines, on the other hand, are mainly on the Via Aurelia and connect the first Voltri to Piazza Caricamento and the second from Voltri to Nervi. As regards the railway, the area develops adjacent to the Genoa-Ventimiglia line and there are the two stations Genova Prà and Genova Voltri. The planning already takes into consideration the new project for an auxiliary stop between the two mentioned, which will be named Prà-Palmaro station. In the area examined, the motorway exit from the Genova Prà toll booth is also worth mentioning, which constitutes an important commercial intersection with the port basin and the new container terminal (Fig.4a).

During the application, a phase dedicated to the analysis of the material found is then developed. In particular, Fig.4b shows the SWOT analysis developed.



(a)



(b)

Fig.4 Pra'-Palmaro Case study: (a) Knowledge Phase: area under study inspection and mobility systems; (b) Analysis phase: the involvement of population; observation and proposal

The proposed master plans, following the cognitive and analytical phase, have therefore considered several of the key aspects fundamental for urban regeneration: in addition to sustainable mobility, and in particular soft mobility (pedestrianism and cycling) as continuity of travel, the green urban (as continuity of the green infrastructure), the enhancement of the identity of the place and local traditions, the use of ICT tools and the introduction of clean energy solutions. All the projects implemented sustainable mobility interventions. Paths for soft mobility i.e., for pedestrians and cyclists, shaped public spaces with a different solution along the sea channels or above with bridges and floating platforms. Intermodality between existing public services bus, train and the new bicycle and pedestrian routes enabled sustainable extension and connection between the city and the port. The feasibility in economic terms of the projects was assessed by reasoning on a budget equivalent to those of a small- to medium-sized P.O.R. (European-funded project).

For the creation of cycle paths, solutions have been proposed, taking Northern European cases as examples. The city of Genoa often suffers from flood phenomena due to torrential rains that sewers and urban drainage systems were never designed to manage. It is possible to use the existing space under the cycle paths to create trenches for the passage of rainwater. The modular panels that cover the boxes are light and designed with safe materials for the passage of bicycles, while the collected water can flow inside the canal, subsequently channeled into the microelectric systems and therefore also used for energy production.

To enhance the traditions of the area, the area was designed according to the conceptual development of an ancient terrace (typical of the Liguria region) re-adapting the spaces intended for commercial establishments and services that could serve the nearby railway station and the cycle path. The main intended uses could in fact be shops dedicated to bike sharing or technical assistance and catering establishments, which could therefore integrate with the surrounding areas. The strip could be completed with two cycle paths, one of which is integrated within the planned water channel, through an innovative vision of the cycle path that completes the green redevelopment of the area.

As regards the resilience of the urban space, in the project, through the use of floating wooden rafts, the possibility of creating different configurations on the water channel is envisaged.

Urban resilience refers to the ability of an urban system—and all the ecological and socio-economic networks that make it up on a temporal and spatial scale—to maintain or quickly return to the desired functions in the face of a disturbance, adapting to change" (Collier et al., 2016).

These rafts can in fact create bridges and therefore transversal connections dedicated to soft mobility, to pass from one side of the canal to the other or transform into squares. These are floating modules (2m x 6m) which are tied together via rings placed on all sides of the module, into which pins are inserted to lock them together and secure them.

In the end mini wind turbines, photovoltaic cells or mini water turbines were also designed along the bicycle/pedestrian routes to promote energy sustainability (Fig.5).

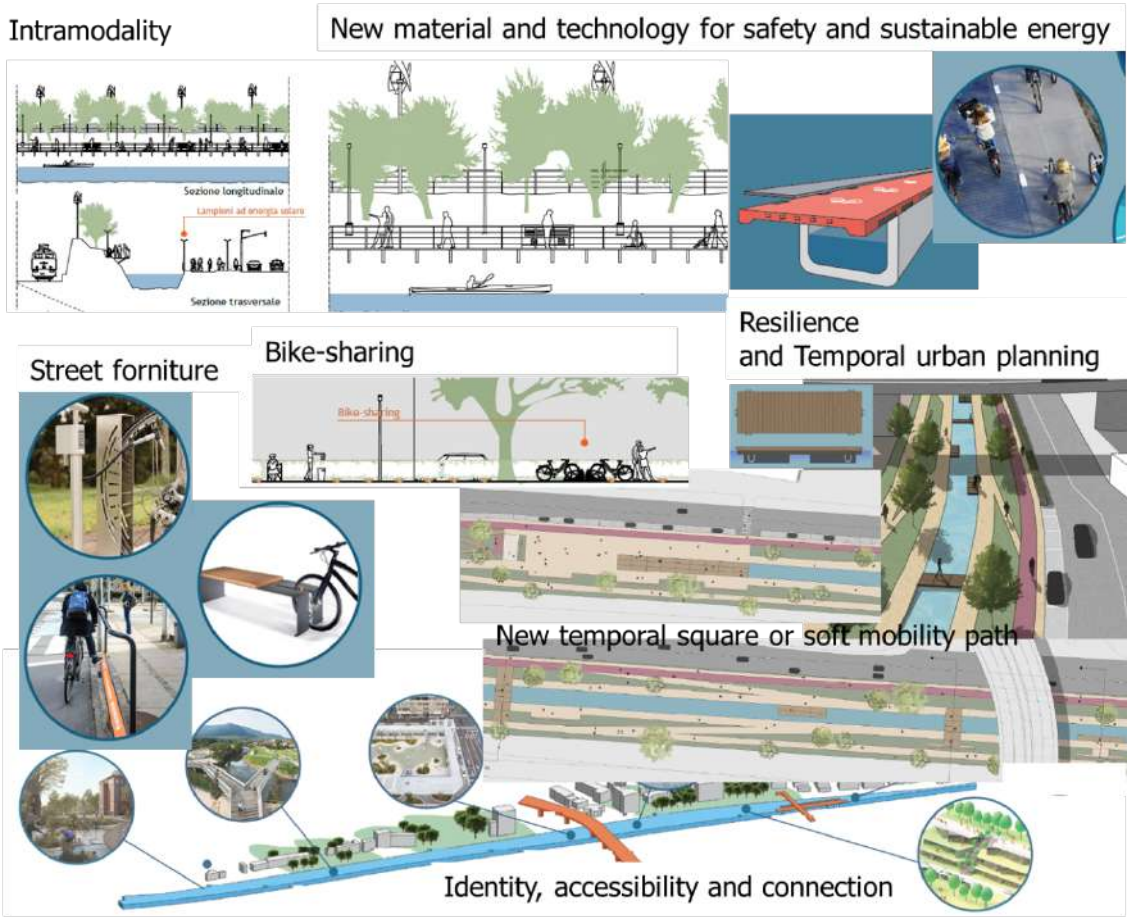


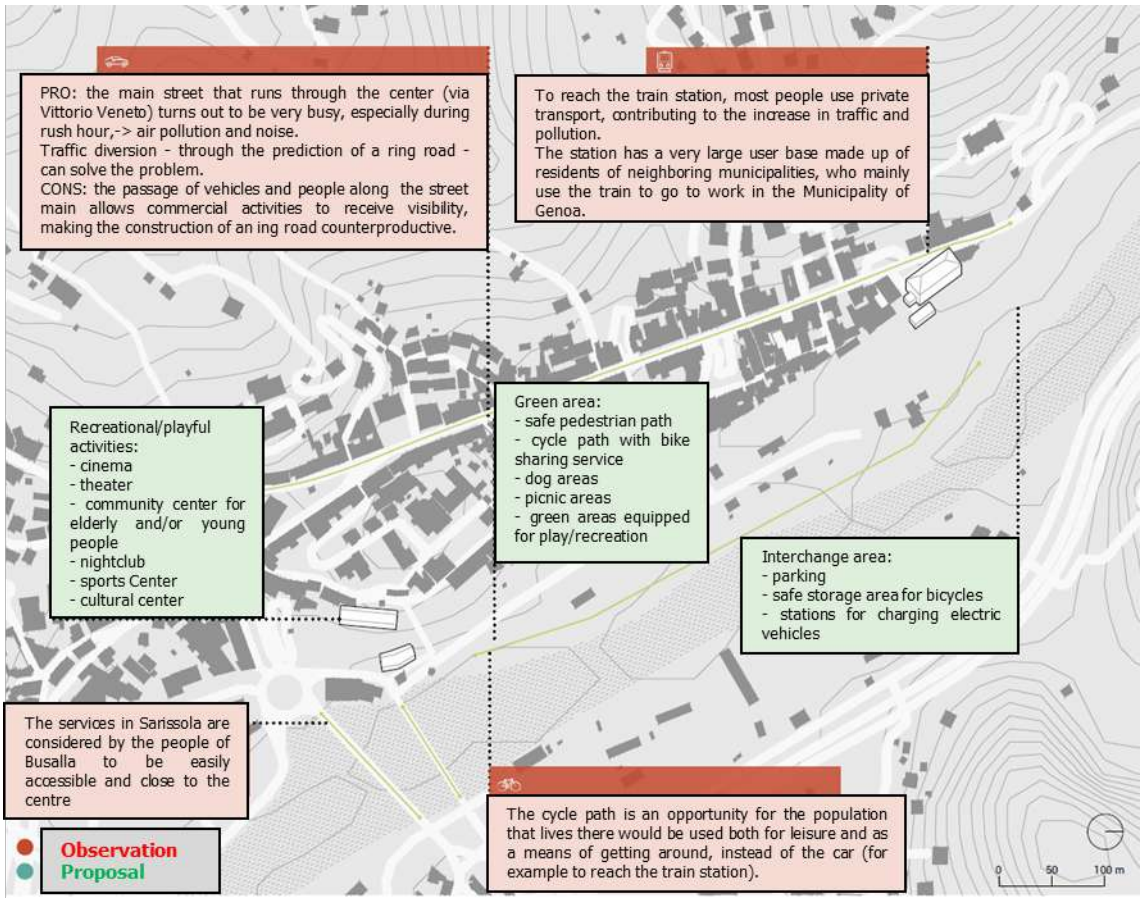
Fig.5 Case study Pra'-Palmaro (Ge): key aspects applied

3.2 The case study of the city of Busalla

In 2021, the Urban planning course was invited by the City of Busalla to participate in the initiative for the redevelopment of urban mobility and recovery of areas along river Scrivia, favoring intermodality with rail and public transport. The interventions were aimed at improving air quality for better livability. The competition born following the inclusion of the bypass planned by the municipal urban plan in a narrow area between the Scrivia river and the Genoa-Arquata Scrivia railway (Via Busalla). The initiative consisted of reorganizing urban mobility, vehicular but also bicycle-pedestrian, favoring intermodality with rail and public transport from all over the valley through an interchange parking lot. The launch event was conducted telematically (given the protracted health emergency) in February 2021 and the urban planning projects were finalized in May 2021, with the subsequent public event held in July 2021 during which the project were displayed by the five participating student groups.

Busalla is a municipality in the metropolitan city of Genoa, located in the upper Scrivia valley, north of Genoa. The urban area develops mainly to the left of the Scrivia stream while on the west side there is the IPLOM petrochemical refinery. The area is entirely included in the Antola regional natural park and is one of the 45 municipalities of Liguria that are part of the catchment area of the Po river. The territory is crossed by the SS35 dei Giovi and the SP226 of Valle Scrivia: the first crossing the Passo dei Giovi allows the road connection with Mignanego and Ronco Scrivia, while the second, together with the SP63, connects it with Savignone. Other roads are the SP9 of Crocefieschi to reach the town of the same name and the SP53 of Bastia. Busalla has a toll booth on the A7 motorway and a railway station, the closest on the Turin-Genoa line (Fig.6a).

(a)



(b)

Fig.6 Busalla Case study: (a) Knowledge Phase: are under study inspection and mobility systems; (b) Analysis phase: the involvement of population; observation and proposal

Participation, as illustrated in the approach, was an aspect that was considered in all phases of the urban planning projects implemented. During the laboratory the University of Genoa has initially collaboration with the municipal administration and with population in order to develop participatory projects. Population involved through questionnaire, circulated on social media, and specific interviews carried out during the inspections to find out both the opportunities and the needs, in terms of lack of services/activities, that the different activity groups have shown. Final closing event open to all as an opportunity to inform and get feedback on the effectiveness and feasibility of what was proposed. Fig.6b shows an elaboration which concerns precisely the participatory phase developed in the analysis and evaluation phase of the planning scenarios examined. In particular, the observations and therefore the pros and cons of the strategies investigated are shown in red and the proposals are shown in green, also in terms of new uses and infrastructures that the population has identified as useful for the Municipality.

Once the cognitive and analytical phase was completed, we moved on to the definition of the master plans which considered several of the key aspects identified as useful for urban regeneration. Busalla is a city that has traffic problems, without green areas of a certain consistency and with the presence of an important petrochemical refinery, which affects not only from a visual point of view but also from an olfactory point of view. Therefore the projects focused on the need to integrate green areas and new routes dedicated to soft mobility in order to make it more accessible, safe and comfortable for all users. Not forgetting the enhancement of the identity of the place and local traditions, the use of ICT tools and the introduction of solutions to improve air quality.

Fig.7 shows some of the key aspects applied from the urban planning projects for the Busalla case study.

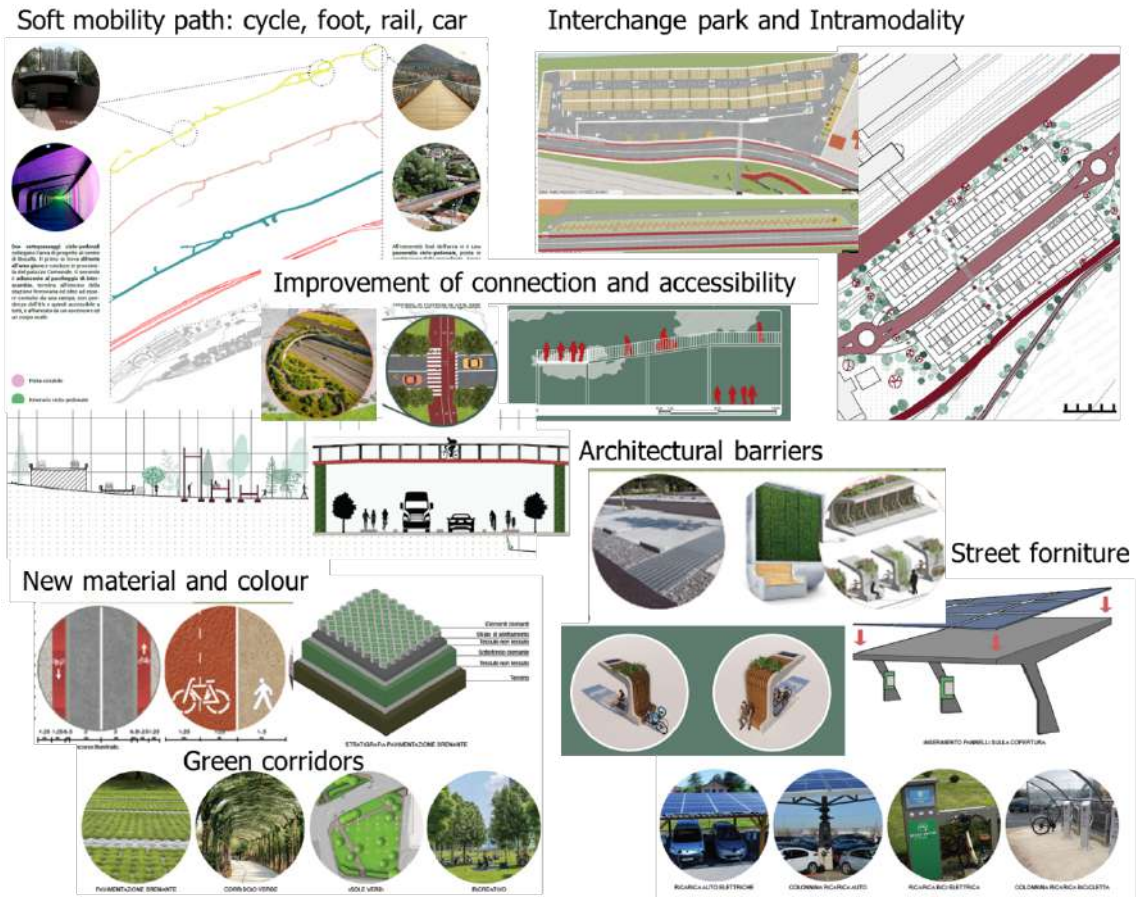
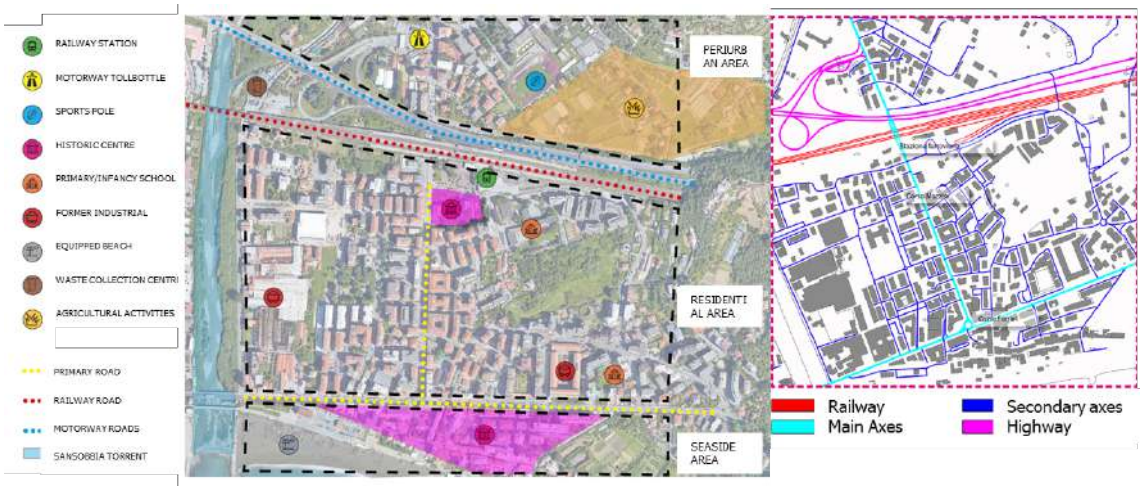


Fig.7 Case study Busalla (Ge): key aspects applied

The projects implemented focused on a new cycle path and the creation of green, safe and equipped routes for cyclists. These routes were identified within the study area and planned to ensure their continuity, and so the accessibility, in the surrounding area to allow connections to various strategic points for the municipality. The design of the route, i.e. the materials and colours of the planned furnishings and services, give the project a sense of unity. With regard to the furnishings, bike-sharing shelters and sustainable bike racks have been planned, integrated with solar panels to produce energy for recharging the bikes themselves, but also with moss-covered panels to improve air quality. The project was enriched with the creation of an interchange car park that could constitute the arrival point for the inhabitants of the valleys who use the Busalla station to reach their workplace. The objective was in fact to create an intermodal hub between train, bus, bike, on foot and car, also with safe parking areas for bikes and the possibility of a bike and car service sharing to promote a new mobility system that aims to sustainability. The ideas proposed also aimed to focus on the concept of resilience and versatility to create new spaces for everyone characterized by greenery, not only thinking about the present but also about a medium-long term, with elements that are largely non-structural but temporary and easily adaptable to different uses, so as to create areas that can be adapted over time, depending on the needs of the community. In this sense, temporal urban planning was used to plan the opening and closing times of certain streets/roads to leave more space for the creation of 30 zones and the free mobility of pedestrians and cyclists.

3.3 The case study of the city of Albisola Superiore (SV)

In 2022, students were invited to participate in the competition promoted by the City of Albisola Superiore.
The competition was launched on 21 February through a mixed-mode event (online and in-person) and ended in June. This initiative aims to realise urban regeneration interventions in the area of Albisola Superiore, in particular by providing for the realisation of soft mobility routes capable of connecting the three areas that characterize the municipality: periurban area, residential area and seaside area (Fig.8a). These interventions will benefit both inhabitants and tourists by improving the quality of life, reducing pollution and increasing sustainability.
Albisola Superiore is a municipality in the province of Savona, on the western Riviera of Liguria characterized by the presence of both the sea and mountains at a short distance from each other. The municipality is made up of 3 hamlets: Ellera, Luceto, Capo. Albisola Superiore is crossed by the Sansobbia stream and its main tributary Riobasco. It is internationally famous for its ceramic work. The territory has the typical Ligurian morphology, upstream the hilly and mountainous areas of the Apennines rise but the locality develops mainly on the coast. Albisola is mainly appreciated for its summer holidays due to its beach and sea, and in winter it is favored by its mild climate. Appreciated from a tourist point of view for the sandy beach, the picturesque bay, and the easy communications with the nearby cities of the coast and the province of Savona, thanks to the fact that it is crossed by the Aurelia, the possibility of being reached by the motorway and with the railway.
Fig.8b shows the SWOT and PEST analysis which objectively provide the critical points, which need to be resolved, and the strengths of the city of Albisola. These points therefore respectively constitute the objectives that were set during the design phase and the aspects to be enhanced.
Participation in this experience is useful to identify where to route cycle and pedestrian paths and to evaluate new proposals to improve tourism while also enhancing the hinterland.
Having developed the cognitive and analytical framework, we moved on to the intervention planning phase. Even in the latter case, the master plans considered numerous aspects which, on a methodological level, were identified as key to sustainable urban regeneration.
The territory of Albisola finds itself being divided into sectoral areas, one of the main purposes of the project is to connect the space, and above all the community that lives there. Mobility, sport, tourism and culture promoting sea, mountains and ceramic tradition are the key elements.



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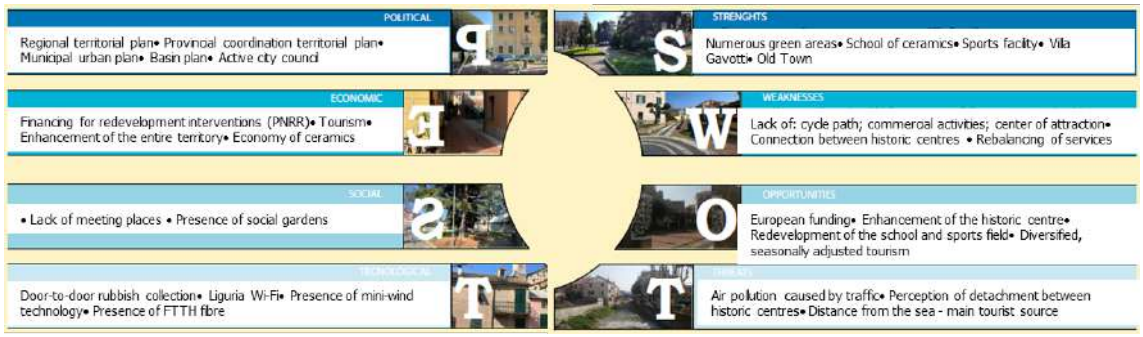

(b)

Fig.8 Case study Albisola Superiore (SV): (a) Knowledge Phase: are under study inspection and mobility systems; (b) Analysis phase: PEST and SWOT analysis

The project rethinks Albisola mobility in terms of greater sustainability and with the aim of improving the quality of life. To do this, the chosen strategy hinges on widespread interventions (redesign of Corso Mazzini and the cycle-pedestrian paths of the entire municipal area), and on specific interventions (station area and area of the Roman archaeological ruins as the main hubs of the city). The new square can represent the fulcrum; the starting and arrival point of the routes that branch out across the area, from the hinterland, passing through the residential neighborhood full of commercial activities, reaching the seaside promenade. Then there is the historic center of Albisola Superiore which has great potential, both cultural, such as the proximity to Villa Gavotti, and in terms of services, such as the sports center and trekking routes nearby, attractions that would guarantee sports tourism present throughout the period of the year.

The projects presented paid great attention to the issue of mobility. A bike-sharing service and new cycle-pedestrian routes have been planned both to reach the sea and to discover the hills and historical and monumental sites present. Separate cycle paths (from cars and pedestrians) have been defined for greater safety and specific studies on roundabouts have been developed. Special attention has been paid to the concept of accessibility and the reduction of architectural barriers to make the territory accessible to all. In-depth studies were developed on the characteristics of new cycle and pedestrian routes, signposting, materials and junctions at, for example, accesses to bathing establishments. In addition to the legally required road signs, since ceramics are a typical product, specific tiles were designed to be placed along the route to characterise the route and make it an identity element.

During the design phase, particular attention was paid to the proposal of specific materials for safety purposes. Safety and reduction of road accidents. In this regard, various materials are proposed to distinguish the road organization and therefore to separate the different flows and routes of means of transport. But, given the

proximity of the Sansobbia river, materials and technologies capable of improving drainage have also been identified, to mitigate the risks of flooding.

To assess the economic feasibility of the projects, the calls relating to the mobility of the National Recovery and Resilience Plan (*Piano Nazionale di Ripresa e Resilienza*, NRRP) were analysed. The projects also considered the guidelines for participating in the NRRP calls for proposals in order to possibly be eligible for application by the municipal administration and thus realised.

Fig.9 shows some key aspects applied in the urban planning projects created for the Albisola Superiore case study.

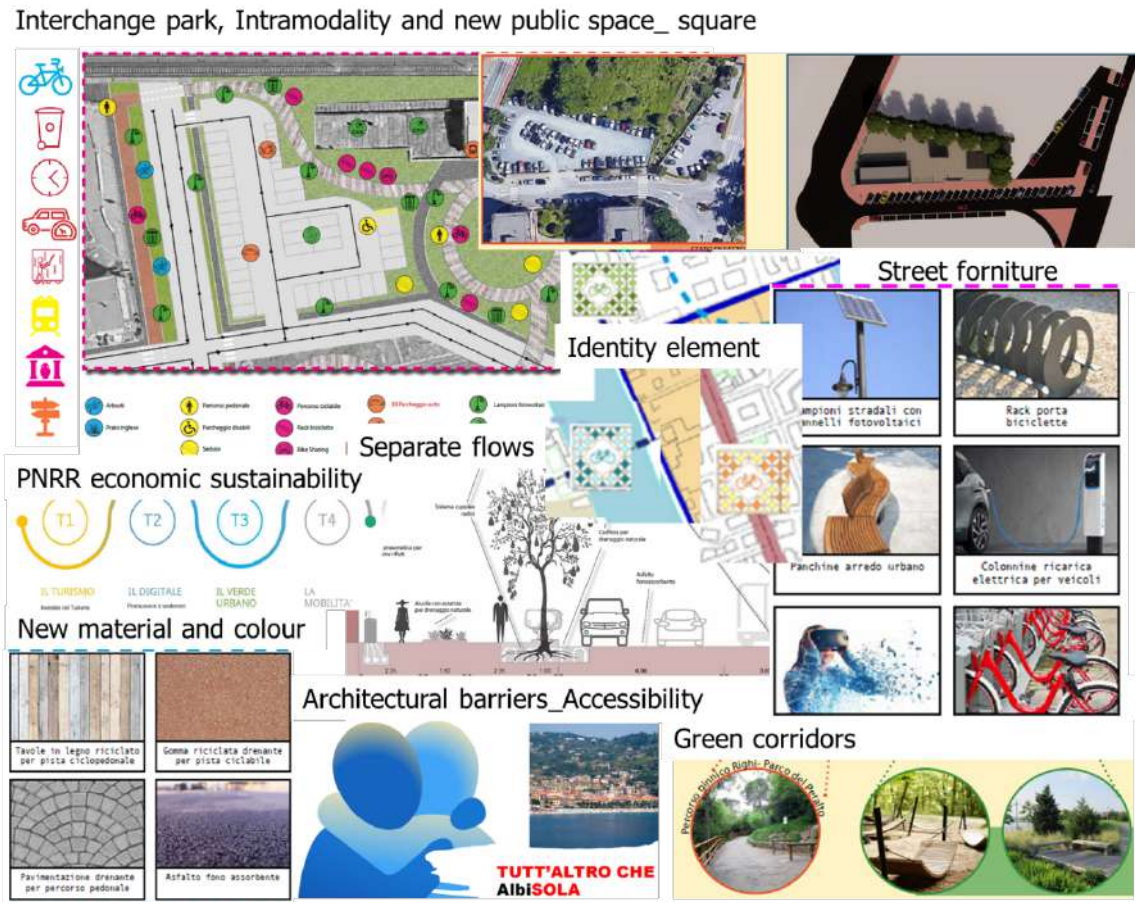

Fig.9 Case study Albisola Superiore (SV): key aspects applied

4. Conclusion

Mobility, participation and sustainable regeneration represent fundamental themes for our cities and were the key themes considered in the urban planning projects presented and implemented as part of the university courses in collaboration with the public administrations of the Ligurian Region.

To enhance and summarize how the key aspects defined at the approach level were applied in the three cases illustrated, some objectives achieved in the three urban projects are reported (Tab.1).

From the table it can be seen that in the proposed urban planning projects the synergy of the different keywords is essential.

An innovative aspect that has emerged in urban planning projects is that of resilience, understood as the ability to adapt urban space to the needs of the population (resident and temporary) which also takes into account the needs at different times of the same day. This last aspect therefore underlines the importance of temporality in urban choices.

Key aspects considered	Prà-Palmaro	Busalla	Albisola superiore
Intramodality	Creation of an intermodal hub between train, bus, bicycle and on foot, also with the creation of specific safe parking areas for bicycles and the possibility of a bike-sharing service	Creation of an intermodal hub between train, bus, bike and on foot, also with the creation of a specific interchange car park (useful for residents of the nearby valleys), safe parking areas for bikes and the possibility of a bike and car service sharing	Creation of an intermodal hub between train, bus, bike and foot, also with the creation of a specific interchange car park (useful for those reaching the station by car), safe parking areas for bikes and the possibility of a bike and car sharing.
Use of sustainable meas_ non-polluting vehicles	In the experiences presented to plan a good transport system, new roads for cars are not proposed, but rather the possibility is given to choose the means of transport best suited to their needs, encouraging the use of non-polluting vehicles as much as possible, favouring a reduction in traffic and promoting a culture of sustainability applied to mobility.		
Bike-sharing **Car-sharing**	Bike and E-bike sharing and Car-sharing services _of low impact vehicles_ are proposed in the three cases to support sustainable mobility also with the aim of reducing the number of vehicles, moving from a situation of ownership to one of possession temporary only when this means is truly useful.		
New soft mobility infrastructure and street forniture	In all experiences, the proposal for new infrastructures, safe and exclusively dedicated to soft mobility, were included as a basic preparatory element for the use of these means. New and sustainable street furniture (canopies with solar panels and moss-covered panels) useful for the production of energy from alternative sources are also planned; improvement of liveability and air quality; creation of identity elements of characterization of the path.		
New material and colour for road surface	Creation of separate flows between the different means of transport	Different materials and colours to distinguish road organization and for realized an identity element. Improvement of safety and reduction of accidents.	Different materials to distinguish road organization and improvement of drainage. This for reduction of accident and flood risks
Co-design process	Creation of a working group between technicians and representatives of the bodies involved in the area: Port Authority, RFI, Autostrade,... as well as Administration, UniGe and the population through the Associations. Furthermore, involvement of the inhabitants through public discussion events and ultimately in the choice of the project and the winning ideas (creation of an opinion poll jury) which were chosen and explored in depth to be presented in the Pinqua.	Initially collaboration between the municipal administration and UniGe. Population involved through questionnaire and specific interviews carried out during the inspections to find out both the opportunities and the needs, in terms of lack of services/activities, that the different activity groups have shown. Final closing event open to all as an opportunity to inform and get feedback on the effectiveness and feasibility of what was proposed.	
Regeneration effects	Thanks to the reorganization of sustainable mobility, a strip between the town and the port has been regenerated. A cycle-pedestrian path has been inserted, the area has been better connected to the neighborhood and an urban space has been created that can be used by both residents and tourists	Thanks to the reorganization of sustainable mobility in place of an asphalted area without a clear intended use, a green area is created crossed by soft mobility paths which make it safer to travel along the busiest street (Via V. Veneto) with significant consequences in terms of reducing traffic, pollution and noise.	Thanks to the reorganization of sustainable mobility, a public square and several green corridors have been created which, in addition to making walking the busiest streets safer (Viale Mazzini), has impacts in terms of reducing noise, pollution, heat and traffic.

Tab.1 Comparison between the key aspects of the three case studies

The urban project is dynamic, it is not static. This consideration underlies the concept of temporal urbanism and a new vision for designing and planning our cities. Thanks to this approach it is possible to regenerate an urban space and adapt it to the demands of the population's needs in order to improve the quality of life of today's inhabitants and improve usability of the territory itself, also taking into account future developments.

In this context, the 4 innovation helix framework, and so, the involvement of local actors: people, university, company and administration, is indispensable for guiding society towards sustainable development according to 2030 Agenda.

The main result achieved by the research group was to initiate real collaborations, putting around a table the different actors involved with the common goal of improving the livability of our cities. Liveability which is closely linked to the improvement of mobility services and their intramodality with important repercussions on the accessibility of services. The actions undertaken for more sustainable mobility lead to a path that increases the demand for integrated services for the movement of people and goods but also the attractiveness of the area from an environmental, social, tourist and economic point of view. In all the experiences presented, mobility was the starting point for initiating processes for: improving livability and connections between the city and the port in the west part of Genoa; reducing vehicular traffic and air quality, as in the case of Busalla; and making mobility more sustainable in Albisola Superiore, also a destination for mass tourism. Sustainable mobility, on the other hand, can promote the development of new forms of tourism that are also sustainable. In the experiences illustrated, the role of the University emerged as a connector capable of collaborating together and building synergies between the various actors involved with the common objective of share their knowledge experiences and therefore bring innovations and sustainability to the area.

The objective of the experiences described has been twofold: educational on the one hand and, on the other, to serve public administrations by providing sustainable and participatory projects. In the Genoese case, this objective was also achieved in terms of implementation, through participation in the subsequently funded National Innovative Program on Housing Quality (PINQuA, *Programma Innovativo Nazionale per la Qualità dell'Abitare*) call for proposals, which led to the regeneration of Genoa's new west waterfront.

Author Contributions

Introduction, F.P.; Methodology, Application and Results, F.P. and I.S; Conclusions. All authors have read and agreed to the published version of the manuscript.

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Image Sources

Fig.1: "Urban Sustainable project: key aspects", is an elaboration of the authors;

Fig.2: "A sustainable participatory mobility approach";
Fig.3: "Case studies in Ligurian Region", is an elaboration of the authors;
Fig.4: "Pra'-Palmaro Case study", is an elaboration of the authors;
Fig.5: "Case study Pra'-Palmaro (Ge): key aspects applied", is an elaboration of the authors;
Fig.6: "Busalla Case study", is an elaboration of the authors;
Fig.7: "Case study Busalla (Ge): key aspects applied", is an elaboration of the authors;
Fig.8: "Case study Albisola Superiore (SV)", is an elaboration of the authors;
Fig.9: "Case study Albisola Superiore (SV): key aspects applied", is an elaboration of the authors.

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