SYSTEMIC, TRANSVERSAL, DYNAMIC:AN INTEGRATED APPROACH TO ACHIEVE SUSTAINABILITY IN A COMPLEX LANDSCAPE

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Abstract
As researchers interested to territorial studies, the future of our cities is one of our most important concerns. Considering the strong transformative process in which the different accelerations are accompanied by the climate crisis, we should ask ourselves a question: how can we ensure that design truly acts with a sustainable approach and strives for a sustainable future?

The experience intends to fit into the framework of those proposals that try to ground sustainability, in addition to debate about it. More precisely, the idea is to materialize a transition from a design attitude that researches connections with the Agenda 2030 to an approach that integrates the sustainable development goals to the different design phases, from the analytical-interpretative to the strategic-prefigurative one.To achieve this idea, the research proposes to explore sustainability by searching a systemic vision, to experiment sustainability by assuming a transversal behavior and to interact with sustainability by working with a dynamic attitude.

The city of Mantua has been identified as a field of application where the idea can be linked to a transition process. Since 2023, the city has been involved in the European project HyMantoValley, an initiative of a broader program aimed at creating a hydrogen valley within the limits of the province. This context becomes an opportunity to reflect on new forms of energy production and distribution and to investigate the effects on the city and the landscape caused by these new relations. The case study intends to present a possible attempt to ground the different principles proposed by United Nations in a complex landscape.

Key words: *cities of tomorrow, transition, sustainable future, integrated approach, new energy production, complex landscape.*

Striving for a sustainable future

Over the past fifty years, great progress has been achieved in terms of theoretical knowledge, leading to a gradual growth of common awareness and consciousness around the topic of sustainability. Parallel to the theoretical understanding, however, the practical approach to the subject has not progressed to the same extent, remaining the experience of a few.

In the light of this, the study questions how to advance sustainable thinking in the context of planning the future of our cities, proposing a series of reflections in part useful for the growth of a common idea of sustainability, and in part intended to broaden the possible solutions for putting the topic into practice, moving from knowledge to know-how.

Today, those who work in the field of sustainability inevitably face two challenges: on the one hand, to act in continuity with a now consolidated concept, the ideals of which have been expressed since the second half of the last century; on the other hand, to undertake and trace new trajectories in order to operate coherently, taking into consideration the urgencies

that the contemporary world offers. Following this, the paper proposes an initial in-depth examination with respect to the development of the concept of sustainability over time, which culminates in the proposal of a series of considerations that today we cannot overlook. The comparison with this subject requires first a marked propensity for connection aimed at recognising the links between different episodes, as tiles of a single representation, and then a certain dynamic ability aimed at understanding different perspectives, linked to the involvement of different institutions and territorial dimensions.

Taking the broader panorama as a starting point, the institutional body that has made the history of sustainability worldwide is the intergovernmental organisation of the United Nations, which, starting with the drafting of a common treaty in the 1940s, succeeded in outlining the prospects for the construction of the protection of human rights and the promotion of sustainable development. From this point of view, the 1970s-1980s represent a particularly decisive two decades. In 1972, the United Nations Conference on the Human Environment was organised in Stockholm, a convention that, for the first time, induced people to look at natural resources through a new, distinctly more responsible gaze, starting an educational process that is still ongoing.

Fifteen years later, in 1987, in the face of the growing need to understand and disseminate the impacts of mankind on nature, the "Brundtland Report" and what would later become the guiding definition for understanding sustainable development were born. The commission, chaired by Herlem Brundtland, president of the World Commission on Environment and Development, presented a document entitled "Our Common Future", which shone a light on two important questions: the unsustainable production and consumption models against which the various countries of the North had gradually settled and the increasingly urgent need to adopt a balanced posture between development and the environment. This strategy that calls for integration and is called 'sustainable development' is described as follows in Chapter 2 "Towards Sustainable Development" of the report: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations, 1987).

Following the guidelines formulated in these years, a long and dense debate began that would find a pivot point in the 2015 United Nations Summit. Among the various initiatives of this period it's important to remember the "Rio de Janeiro Earth Summit" Conference of 1992, during which "Agenda 21" and other agreements were signed; the "Millennium Declaration" of 2000, through which eight goals to be concretely achieved by 2015 were defined; and finally, the "Rio+20" Conference of 2012, which, in continuity with the meeting on the environment and development held twenty years earlier, established the elaboration of goals for sustainable development.

The year 2015 takes on an exceptional role thanks to the emission of two important conventions: the "2030 Agenda", a bold plan of action signed on 25 September in New York to work on the three dimensions of sustainable development, and the "Paris Agreement", a treaty negotiated at the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 21) aimed at combating ongoing climate change. Although the "Paris Agreement" represents a pivotal moment in the history of safeguarding our living environment, aiming at decreasing greenhouse gases and keeping the global temperature within 1.5 °C of pre-industrial levels (United Nations, 2015a), the "2030 Agenda", with its broad horizons and highly integrated vision, constitutes the most ambitious design of all, capable of embracing all the other initiatives around it. A total of 17 Sustainable Development Goals and 169 targets that align the 193 UN member states to act in a cohesive and coordinated manner to achieve a better future, for people and for the planet.

Analysing the official text of the Agenda allows us to understand the true nature of the 17 Sustainable Development Goals and, above all, to identify those features with which we should relate in order to reduce the distance between our activities and the issue of sustainability: the SDGs are universal in nature, so they address the totality of countries without distinction of development; they have a plural nature based on the concept of integration and indivisibility that embraces the paradox of the single and the multiple; and, finally, they are designed to balance the three dimensions of sustainable development, the economic, the social and the environmental (United Nations, 2015b). The realization of human rights, gender equality and the empowerment of women, goals desired but not achieved through the MDGs, constitute three of the main interests defined by the Agenda, a program that recognises the inseparable link between the well-being of humanity and the health of the planet.

Over the years, since 2015, several COPs have followed one another to work in a synergical way around Goal 13 of the "2030 Agenda" related to contrasting climate change. The latest of these conferences is COP29, an event organised in 2024 in Azeirbagian on the basis of a sad awareness: the earth's temperatures are progressively rising and the one-and-a-half-degree threshold will most likely be crossed before the end of the century.

This journey through the stages of sustainability allows us to understand several issues: the presence of a constant delay with respect to the achievement of the set goals, which often require the development of new agreements capable of transforming the failure of previous stages into nourishment for new trajectories; the involvement and responsibility of the community in the design of a better future, in this sense the titles of the documents drafted over the decades are declined with respect to the first person plural; the growing desire to move from theory to practice, a concept further reiterated in 2015 through the expression "Transforming our world", the title of the resolution adopted by the General Assembly for the communication of the "2030 Agenda".

Figure 1: reference framework on sustainability issues (author's elaboration).

Renewable energy as a key element of sustainable development

In the context of policies aimed at the sustainable development of our cities, the continuous advancement of technologies, together with the use that mankind makes of them to relate to the external environment, has made it increasingly necessary to raise awareness of certain specific issues.

From this point of view, the topic of energy production plays a central role. This theme acts as a link to the guidelines issued by the UN at global level and the directives developed within the European context. For ten years now, since the Paris Agreement on climate change, constraints have been defined that limit common action to protect the living environment and contrast climate change.

Following the dedication of the various member states' commitment to the "Paris Agreement", in 2019 the European Commission launched the "Green Deal", a package of initiatives with a strong strategic value that definitively set the European Union on a course towards a green transition process. More precisely, the agreement focuses on three fundamental pillars: ensuring secure and affordable energy supplies, designing an economic system around energy of an integrated and digitalized type, and shifting the focus to energy efficiency by working specifically on renewable energy production.

Today, energy from renewable sources is one of the key elements of European policy to succeed in combating ongoing climate change and achieving carbon neutrality by 2050. In fact, as data on the EU's official website show, 75 per cent of European countries' greenhouse gas emissions come from energy production and use. To realize this ambitious decarbonisation process, Europe is increasingly promoting a shift from systems based on the use of fossil resources to systems based on the use of renewable resources.

The transformation process was strongly influenced by the difficulties that emerged with the covid-19 pandemic and by the plans that were defined following that period. Part of this overall design is the "NextGenerationEU", a 750 billion euros temporary financial instrument, the largest in the history of the European Union, designed specifically to initiate a process of economic recovery of the parties and to trigger social proactivity in the face of possible unforeseen events.

If Europe responded to the pandemic crisis through the definition of the NGEU and the allocation of the "Recovery and Resilience Facility" (RRF), Italy in 2021 tried to look at this programme as an opportunity to rethink and invest in its own development, through the study of a long-term perspective condensed in the "National Recovery and Resilience Plan". The plan consists of six missions developed in line with the major areas of intervention identified by the RRF Regulation, one of which is strongly focused on the energy issue.

The second mission, entitled "Green Revolution and Ecological Transition", encourages the environmental transition of society and the economy with a strong push towards the use of different energy sources than in the past. This mission is in turn divided into several components, four in total, the second of which covers renewable energy, hydrogen, network and sustainable mobility.

The achievement of the strategic decarbonisation objectives highlighted by this component is obtained through the activation of five lines of reform and investment. The third line, entitled "Promoting the production, distribution and end uses of hydrogen", focuses on promoting hydrogen as a strategic energy vector for rethinking the future of the productive landscapes that characterize our territories. Italy, in line with the European strategy, intends to pursue the production and use of hydrogen by "i) developing flagship projects for the use of hydrogen in hard-to-abate industrial sectors, starting with the steel industry; ii) favouring the creation of "hydrogen valleys", leveraging in particular areas with disused industrial sites iii) enabling - through recharging stations - the use of hydrogen in heavy transport and in selected

railway lines that cannot be electrified; iv) supporting research and development and completing all necessary reforms and regulations to enable the use, transport and distribution of hydrogen" (Italia Domani, 2021).

Although from a theoretical point of view this plan has all the potential to be identified as the most courageous political intervention of recent decades, a critical reinterpretation of the device with respect to the sustainability theme is considered useful.

Considering the more operational dimension, in fact, if all the targets were met by 2026, it would still not be enough to make it possible to achieve the SDGs by 2030 (ASviS, 2021). Among the most evident critical points: the absence of any reference to the seventeen goals, a fundamental element for achieving effective multi-level governance; the lack of quantitative and qualitative targets linked to socio-environmental aspects; a certain misalignment between the missions identified by the plan and the pillars of the guidelines designated by the European Union.

To confirm this, the Italian Alliance for Sustainable Development (ASviS) proposes a process of reclassification of the missions offered by the plan in relation to the goals of the "2030 Agenda", from which emerges an inadequately effective commitment to the energy transition planned by the European Green Deal (ASviS, 2021). Although positive innovations, such as the development of agrophotovoltaics or the creation of energy communities in small municipalities are identified, the realization of an effective decarbonisation process still seems distant.

A field to ground sustainability: the HyMantoValley project

The considerable extension of industrial areas on Italian territory, and the high level of pollution produced by some of these, does not allow the weight of manufacturing activities to be ignored in relation to the environmental crisis we are experiencing. While the influence of these realities has reached extreme levels, it's also true that change is still possible.

The Energy Transition Commission, a group of experts from different sections of the energy sector, speaks of a "mission possible": to achieve zero carbon emissions by mid-century to limit global warming by keeping temperatures as close as possible to 1.5 degrees (Energy Transitions Commission, 2018). Achieving zero carbon dioxide emissions in so-called 'hard-to-abate' sectors is technically feasible by investing in three complementary actions: limiting demand growth, improving energy efficiency, and finally, applying decarbonisation technologies. Among these, hydrogen plays a decisive role.

As experts point out, achieving the goal of zero CO2 emissions by mid-century will require an increase in global hydrogen production from 60 Mt per year today to around 425-650 Mt by mid-century. Not only that, it will be essential to promote large-scale production of zero-emission hydrogen through one of these possibilities: electrolysis, which will become increasingly affordable as renewable energy prices fall; the application of carbon capture to methane reforming and the subsequent storage or utilisation of the captured carbon dioxide; and the reforming of biomethane, although it is unlikely to play a major role given the limited biomass resources (Energy Transitions Commission, 2018). In this perspective, the use of green hydrogen assumes a decisive role because through its characteristics it can convey a wide variety of advantages, primarily its strong integrability with renewable energy sources and other green energy technologies (Ficco et al., 2022).

From 2023, Mantua represents one of the Italian cities in which it is possible to experiment with the energy transition through the project of a Hydrogen Valley within the province's borders, which would avoid the emission of tons of CO2 every year. The ambitious project aims to invest 60-70 million euros to achieve the following objectives: optimising the

production and storage of renewable energy, its conversion into green hydrogen, its distribution, storage and multiple uses.

As described on the website of the Province of Mantua, the territorial body in charge of coordinating the project, in addition to the PNRR funds, the initiative is 70% supported through the European call for proposals I3 "Interregional Innovation Investment", an investment facility managed by the European Innovation Council Executive Agency (EISMEA) dedicated to innovation within the European Regional Development Fund (ERDF). The project is based on the activation of a wide network of relationships involving 16 partners from 3 European countries besides Italy, i.e. Austria, Belgium and the Netherlands, and various stakeholders, such as public bodies, private entities, logistics companies, universities and research centres.

The Politecnico di Milano, with the detached territorial pole "Mantua Campus", is one of these partners involved in the project to create a Lombardy Hydrogen Valley. In this initiative, the Politecnico, through the work of the interdepartmental Unesco Research Lab, accompanies the energy transition in an exceptional production context in which it is important to visualize change in a long-term logic.

Today's configuration of the Mantua production pole is the result of numerous transformations over time through very different drives and needs, not always interconnected and mutually coordinated. All this, together with the more recent development linked to the settlement of new and large companies operating in the transport and logistics sector, has made the area of interest rather fragmented, with scattered buildings and often incomplete urbanization works. The location of the area close to the historic city, a UNESCO heritage site, the proximity of the environmental system of the river Mincio and the lakes, the proximity of the disused industrial area, the presence of a supra-local infrastructural network in which the Valdaro river port stands out, are all aspects that allow the area to be considered as a complex landscape, a crossroads of heterogeneous flows and interests.

The group of Politecnico is in charge of the 3D monitoring of the area of interest, drafting the area's master plan and dealing with the architectural design of a Research Hub, the core of hydrogen-related innovation, where researchers, students and companies can work together to develop innovative solutions for the decarbonisation of the Po Valley. This in-depth study arises from the working group related to territorial planning and is based on the reflections that emerged before and during the realization of the master plan.

More precisely, planning activities are oriented towards achieving sustainability objectives through the integration of flows, production processes and research activities. With the awareness that the diffusion of new forms of energy on the territory often advances in a disconnected manner with respect to landscape valorization and protection policies (Laviscio, 2019), the research proposes an approach that intends to incorporate the theme of landscape quality in order to succeed in safeguarding the distinctive traits that make the Mantuan context recognisable to today's communities and tomorrow's generations.

Turning ideas into perspectives by exploring, experimenting and interacting

The method we are experimenting within the Mantuan context is intended to be a small step towards the construction of an imaginary of future cities through the definition of a shared approach capable of integrating sustainability throughout the entire design process.

The main intention is to act with and for sustainability by moving from a more conceptual dimension, useful for increasing awareness around the topic, to a proactive one, able to ground the various objectives, anchoring them to the characteristics of a specific context. This means defining a process to move from a set of ideas, the result of an activity carried out mostly on a theoretical level, to a set of perspectives directly linked to action. In

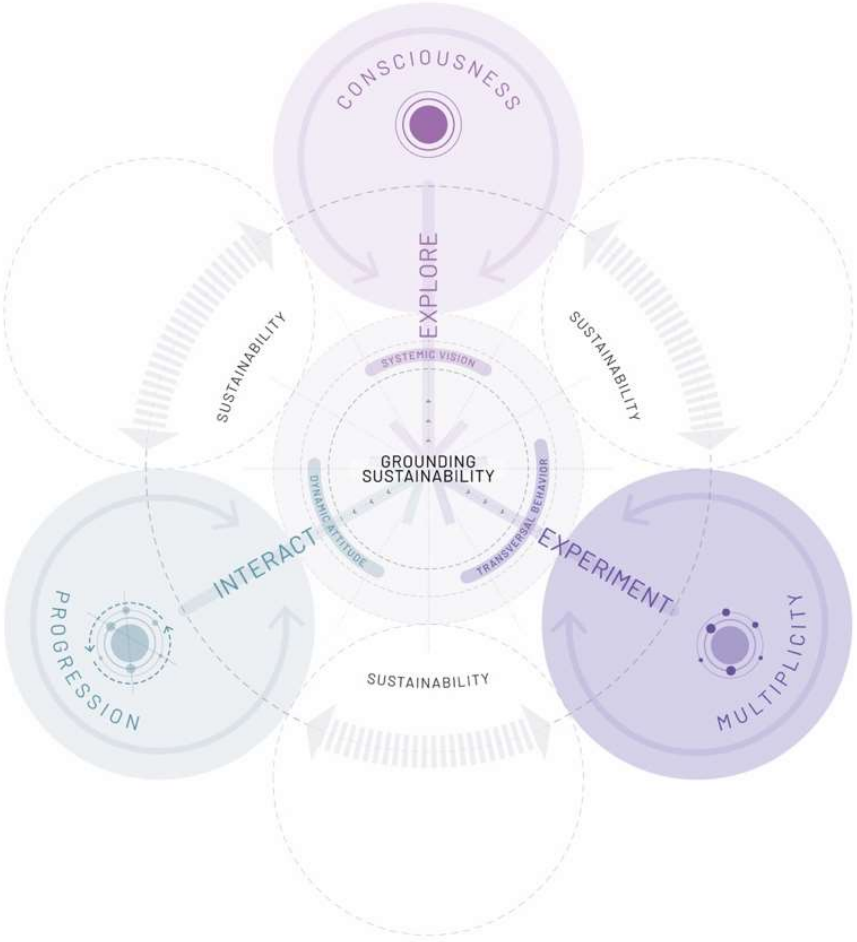
other words, if the concept of an idea is linked to a more abstract dimension, acting at a higher level without entering the merits of territorial confrmation, the concept of a perspective communicates a sense of trajectory, a focused direction, capable of tracing directions and projecting intentions inside the territory.

To do this, we suggest testing different ways of relating to sustainability at three stages of the project process:

- in the stage of consciousness, we propose an exploratory type of relationship with sustainability to be fully aware of the topic;
- in the stage of multiplicity, we propose an experimental type of relationship with sustainability to construct a diversified frame for the development of the topic;
- in the stage of progression, we propose an interactive type of relationship with sustainability to grow and increase along with the topic.

Consciousness, multiplicity and progression should not be interpreted as consequential steps in the design process but as challenges and urgencies that can be grasped along the way.

Figure 2: three interpretative keys to ground sustainability (author's elaboration).



Explore by searching a systemic vision

To explore sustainability, that is to examine it and reveal it in all its various shades, we suggest adopting a systemic view.

Using the systemic vision as a cognitive paradigm means looking at sustainability in its complexity, as 'a fabric of heterogeneous constituents' that confront us with the 'paradox of the one and the many' (Morin, 1993). Adopting this approach allows us first to keep the link

between the particular and the general, or between detail and the whole, learning to discern the various components and recompose them in a renewed way, highlighting any criticalities and potentialities (De Giovanni, Sposito, 2020).

With reference to systemic design, this type of posture necessarily passes through the adoption of 'framing', a tool that allows to carefully analyse different information and organise it in a different way, activating a new perspective, often capable of generating new associations of meaning (Ryan, 2014). Selection, therefore, induces the creation of integrations and hierarchies of meaning without ever losing the importance and role of the whole, which is much more than the mere summation of the parts. Viewing always requires a broad pragmatism in linking together two different predispositions: the ability to grasp wide-ranging gazes and relationships and, at the same time, an aptitude for a detailed perspective (Gasparrini, 2015).

In the case of the HyMantoValley project, the adoption of a systemic vision served to define a critical and personal reading of the "2030 Agenda", leading to the identification of a framework of strongly interconnected SDGs that find several points of contact with the initiative.

The different aims of the HyMantoValley project contribute synergistically to the achievement of target 7 related to clean and accessible energy by working mainly around two different perspectives: to increase the share of renewable energy in total energy consumption (target 7.2) and to increase international cooperation by facilitating access to clean energy research and technologies and promoting investment in energy infrastructure and clean energy technologies (target 7.a)

Pursuing an integrated logic, objective 7 can be accompanied by a series of other targets that collaborate towards the same general intent, in a direct or indirect manner. The focus on the theme of sustainable energy generates the involvement of a broader cluster of objectives described below: number 4, objective aimed at a quality, equitable and inclusive educational offer; number 6, objective that intends to guarantee the availability and sustainable management of water for all; number 8, objective aimed at lasting, inclusive and sustainable economic growth; number 9, objective aimed at building a resilient infrastructure and promoting responsible innovation and industrialization; number 11, objective that aims to make cities and human settlements inclusive, safe, long-lasting and sustainable; number 12, objective that intends to guarantee sustainable production and consumption models; number 13, objective linked to the promotion of multi-level actions to combat climate change; number 15, objective related to the protection, restoration and encouragement of sustainable use of the terrestrial ecosystem; last but not least, number 17, objective aimed at strengthening the means of implementation and renewing the global partnership for sustainable development.

The diversity of the network further reinforces the evidence of an inseparable bond between man and nature that requires synergic action on multiple fronts, balancing the three dimensions of sustainability: economic, social and environmental.

Experiment by assuming a transversal behavior

To experience sustainability, or to concretely approach its plurality through immersive methods of verification and assessment, we suggest adopting a transversal behavior. The transversal, flexible, open approach is intended as a non-linear attitude that proceeds through gradual advances and possible intersections.

In this sense, transversality can be interpreted as multiscalarity, that is, the ability to move between the different scales of the project without losing continuity and coherence between the parts. Far beyond the proportion and metrics of the design, the scale refers to a model of reality, to a specific dimension and to a context with clearly distinguishable

characteristics. Beyond any uniform need, the effort of cohesion between the different scales of the project concerns the contents, criteria and quality objectives of the project.

The theme of multiscalarity has its roots in the field of ecological sciences, knowledge in which the direct or indirect observation of facts and phenomena requires frequent "cross scaling" operations to distinguish the criteria and themes that each level of observation includes (Di Venosa, 2014). Michelangelo Russo, in one of the critical reflections on the notion of scale, states that "Thinking of the territory as a multiscalar assembly of complex and heterogeneous materials and phenomena represents a way to constantly cross the physical, material and visible components of space with the immaterial, invisible dimension of the subjects who are the active protagonists of space" (Russo, 2015).

To grasp this type of connection and relationship between extremely different components, it is not enough to limit the approach to the implementation of a process of enlargement or reduction of the view similar to an optical instrument, but rather it is appropriate to operate through a continuous action of "abstraction and verification" adequately articulated to restore the complexity of the different perceptive thresholds (Secchi, 2000).

In the HyMantoValley project, the multi-scale approach served to explore the area of interest at 360 degrees by observing the production hub through three complementary perspectives. The territorial scale (1:400,000-1:200,000) allowed us to frame the hub as one of the main industrial and infrastructural nodes of northern Italy, the landscape scale (1:200,000-1:25,000) allowed us to grasp the human-nature relationships that have guided the evolution of the place over time, highlighting the different identity values and the various connections, finally, the urban scale (1:25,000-1:10,000) served to understand the ongoing urban phenomena and to read the formal and functional aspects that distinguish the area of interest.

By focusing on different aspects of the area, the work around each scale has allowed us to emphasize a different connection with the objectives of the "2030 Agenda". For example, in the context of the knowledge phase, the framework at the territorial scale has allowed us to emphasize the infrastructural network in which the Mantua hub is inserted and to underline the spatial relationship with the European planning of a hydrogen pipeline that longitudinally crosses the entire Italian peninsula. This allows us to underline the involvement of a group of strongly interrelated SDGs among which the following stand out: objective 7 linked to obtaining clean energy, objective 9 linked to building a resilient and renewed infrastructure and objective 13 connected to the fight against climate change.

In addition, the transversal approach can be interpreted as cooperation or multi-sectorality, as well as the ability to work at the intersection between territorial entities that, despite their diversity, work for a common goal, the future of the territory. Unifying different structures, skills, views and sensibilities is not an easy task, but it is one of the necessary steps to allow a logical and cohesive operation. Public, private, research institutions, must necessarily converge in a single direction by offering their own point of view and their own information or tools for the construction of an effective overall vision (Qianjan, 2023).

In the HyMantoValley project, one of the main challenges was to be able to weave relationships with a wide range of subjects that offer different skills and communicate through diversified languages. Moving between the supra-local and the local, the project has collected the different projects of the Province and the Municipality with the aim of moving from a fragmented set of knowledge and strategies to an organized system of geographic information, superimposable and comparable in a GIS environment. More specifically, the main geographic data adopted for the creation of the representations derive from the Provincial Territorial Coordination Plan drawn up by the Province of Mantua, from the Regional

Topographic Database provided by the Municipality of Mantua and from the navigation plan managed by the Interregional Agency for the Po River.

Interact by working with a dynamic attitude

To interact or act mutually with sustainability, relating through actions that give rise to relationships of mutual influence, we propose a dynamic attitude. The dynamic attitude can be interpreted as a non-static and unconventional attitude towards the project, a dimension in which movement predominates on both a physical and conceptual level.

By breaking down the usual hierarchies and sequences that traditional planning has accustomed us to, this type of attitude calls for the adoption of an iterative process capable of putting together results in a progressive manner with the possibility of moving cyclically between the different steps. This means placing oneself in the conditions of repetition, evaluating a possible revision or reconsideration with respect to some steps already crossed, in the idea that this is one of the most effective ways to fully understand the complexity of the territory, made up of specificities, systems, multidimensional relationships, interdependencies, practices, flows, stories, people and much more (Russso, 2015).

The adoption of an iterative approach within the HyMantoValley project has allowed us to work synergistically within three operational phases that inform and redefine each other within a mutual relationship: the analytical phase responds to cognitive needs, the strategic phase deals with the need for staging, and finally, the applicative phase offers possible solutions to the needs of project implementation.

More precisely, the first phase intends to interpret the complexity of the territory through the understanding of its different resources and peculiarities, the second phase intends to prepare an overall vision for the territory through the development of an effective system of objectives, finally, the third phase intends to prefigure the spatial effects of the strategy through the definition of site-specific design solutions.

This challenge, intersecting with the use of a multi-scalar approach, motivates the development of different project outputs that attempt the progressive experimentation of new expressive languages: some cartographies transfer the reading of the territory to the different temporal thresholds, other representations summarize the overall vision associated with the development of the production hub, finally, some graphic works describe the different design solutions.

Furthermore, the dynamic attitude can be interpreted as the ability to move between a multiplicity of options and alternatives. This implies first the abandonment of an exclusive vision aimed at reaching a single scenario and, secondly, the development of an open and flexible procedural attitude that allows to look at reality in a more complex and responsible way. The evaluation of alternatives implicitly includes a series of attentions aimed at the landscape and the people who, depending on the hypothesized transformations, will collect different outcomes and impacts.

In the specific case of HyMantoValley, the transition between the knowledge framework and the implementation phase of the Research Hub was addressed by identifying 9 possible locations, i.e. areas differently attractive for the placement of the research center. The mapping phase was supported by an investigation phase aimed at developing an information form that, evaluating qualitative and quantitative aspects, offers a judgment of suitability and interest with respect to the specific site. Wanting to define a project that advances progressively considering multiple possible futures, the basic idea is not to converge towards the definition of a single masterplan but to prepare different alternatives that verify the possible scenarios that the best locations are able to generate.

Approach & thinking

The research activity within the HyMantoValley initiative, although not yet concluded, constitutes an important testimony to the usefulness of a strongly integrated approach in the construction of an imaginary for the future of our cities.

Reflecting on the various experiments underway, the contribution promotes research as a possible reference to ground sustainability by offering a highly integrated model resulting from the fusion of different attentions and approaches: a systemic vision, a transversal behavior and a dynamic attitude.

To proceed in this direction, a change of perspective is essential, achievable only and exclusively working on awareness. Recovering the words of Edgar Morin, a French sociologist and philosopher known for having associated the theme of complexity with today's society, what we really need is "a radical thinking (which gets to the root of problems), a multidimensional thinking, and an organizational or systemic thinking" (Morin, Kern, 1999). The thinking described by Morin can reassemble the disjointed and compartmentalized parts, it is able to respect diversity while recognizing its unitary dimension and it is able to grasp interdependencies.

If to obtain an integrated approach, it is appropriate to adopt a radical thought, it is equally evident how the practical dimension is strongly connected to the sphere of the intellect and, due to mutual dependence, how operational progress almost always derives from conceptual efforts.

In this direction that sees sustainability as a shared work site, the construction of a unitary approach appears to be a particularly difficult challenge. Thinking about sustainability, a particularly diversified, divided, sometimes fragmented dimension emerges: seventeen objectives, more than one hundred and fifty targets, countless subjects involved between the public and private spheres, an infinity of interests and needs, a wide range of initiatives spread throughout the world, different skills and attitudes, etc. The perspective becomes progressively more complex when we try to associate all this with the precariousness that we experience today in our cities due to the innumerable risks, natural and anthropic, to which settlements are subjected.

Despite the many doubts, the first step to try to trigger widespread change is to escape the staticity that concern for the future entails, freeing oneself from the defensive logic of what should not be done to become part of a proactive dimension that does not demand certainties but offers possible solutions to stimulate a sustainable metamorphosis of our cities (Gasparrini, 2017).

“Grounding sustainability”, the claim underlying the Mantua initiative, underlies precisely this idea: today is no longer the time for reflection but the moment to act and consciously project concrete proposals on our territory for a better future.

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