

## The Large Decommissioned Containers of the Sugar Refineries in the Plain: Re-conditioning the "waste".

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### Abstract

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Climate change is a warning to stop thinking of continuous growth as we use to do in the past. Shut down the continuous waste of land is one of the elements which to act on. We must operate on the existing. There are "discarded" areas as those of the former sugar refineries in the Po Valley (Italy), which combine memory, landscape and they have already been compromised. It is necessary to recover and not replace. The main target is defining a strategic method for the re-attribution of value to the abandoned heritage in which the mutation generates not only profit, but also ethical value. I propose to redesign this places through *re-conditioning methodologies*. In this space of *circular* and *sustainable* thought, where "waste" becomes "value", the *methods* and *tools* of the architectural project have been updated, redefining a list of intervention mechanism on the built. To try to get the following results:

- Define a strategic process action plan capable of keeping together the safeguard of the existing, the new needs expressed by people;
  - Expand the concept of re-conditioning, by changing from the traditional intervention on the material object, to that of *second* and *renew life* of both place;
  - Identify adaptive design tools, useful for the "strategist architect".
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**Keywords:** Heritage- Sustainable Society- Humanity - Architecture- Ri-conditioning- Adaptability loop

### 1. Background

Our future on Earth is becoming more and more complex as the system of continuous growth and consumption is leading us towards a destruction of the environmental system of the World. The frequent natural catastrophes generated by climate change are heavily changing our planet. Our future depends on the choices that we can no longer postpone. We are witnessing a paradox in our globalized cities: on the one hand an ecological culture is spreading and consolidating, on the other the indiscriminate use of the soil as an infinite resource is visible in every periphery of our cities, where the boundaries are continuously broken, and where building agglomerations irreversibly erode the landscape.

It needs a change of design paradigm that conflicts with modernist manifestos, oriented to the definitive spatial configuration through a priori logics: systems with multiple visions, dematerialized and flexible systems of thought oriented to the definitive disappearance of the deterministic attitude of the modern movement and to a circularity of thought<sup>1</sup>. These new proposals lead to a comparison with time and space without any preferential direction, where before and after they alternate and exchange without rules, and where the near and the distant seem more and more look alike. On this basis new strategies can be introduced for the city/ landscape relationship in which to insert the already designed, currently in disuse or awaiting transformation places.

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The design project, especially in the case of conversion in the areas of the former sugar refineries of the Po Valley (Italy), when it must necessarily activate the dialogue with the pre-existence, cannot fail to record the fundamental change of the anthropized space that occurred in the contemporary<sup>iii</sup> world; a change that has not only affected the orographic conformation of the territories or the artificiality that human history has overwritten over the centuries, but which is also continuously based on the relations between connected and digitized people without interruption, through a universe of flows that they constantly disengage from the real paths and that travel along intangible paths and create new forms of distance.

The spaces constantly hybridize and overlap: our territory is less and less like a mosaic of monochromatic tiles, juxtaposed to each other by well-defined borders, to conform rather than as a fluid, variable support, in one where the areas of meaning add up many films: the new spaces are born from the meeting of many levels - ever less perennial and constantly changing configurations.

Until the 70's, the man-made space was comparable to an analogical function, constant in all its points, whose individual elements were among them in relations of contiguity: the sense of each of them was obtainable from others, and the 'land' was the sum of the individual elements.

Today the space of human activities has, if anything, the form of a digital function, which proceeds by jumps and roundings, where an identity is often verifiable only at a certain distance, making appropriate approximations.

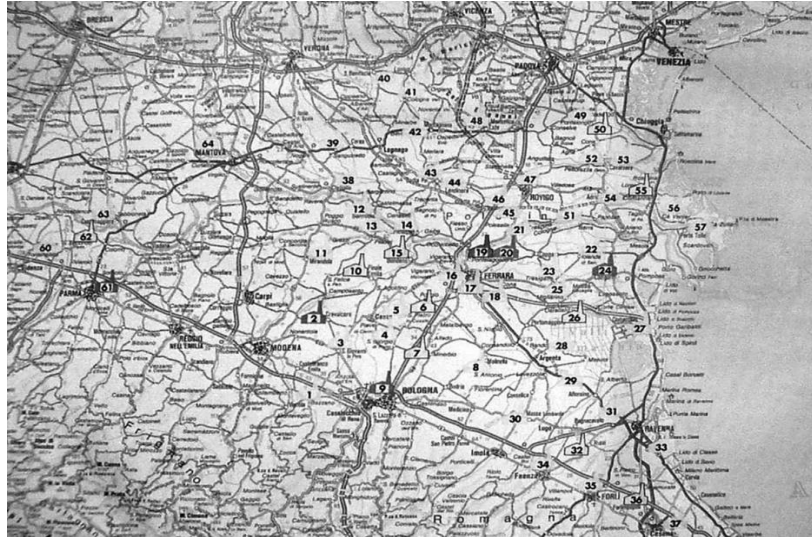
The contemporary city has therefore the need to make a profound reflection to try to solve its problems through a new approach to the project, an attitude in which there is an arrest to unlimited growth and work on those places that the recent financial crisis and left as "waste".

The methods of intervention are closely linked to the mutation of the concept of abandoned area and marginality on one side and to potentially strategic area for a transformation on the other. Today we did so much for these areas mostly enclosed within the urban space of the city, but still we can identify new strategies for those areas located outside the urban aggregate. The research presented in summary form, aims to make a theoretical reflection on the regeneration method for some of the many abandoned areas occupied by former sugar refineries, the new ruins of the modern that stand out in the flat and horizontal landscape of the plain, surrounded by mists less and less imposing and constantly threatened by the speculative real estate transformation. These areas and their buildings are the last outposts of the modern; they are places where contemporaneity has placed a series of expectations for the transformation of the contemporary landscape, continually distorted by fast changes that often prevent us from understanding the mutations in progress and the new configurations.

In Italy the sugar beet growing was developed at the beginning of this century and it replaced the crop of the hemp which had become superabundant. The areas with the greatest production were in the Emilia and Veneto lands. In some of the cities of these regions, for example Ravenna, the sugar refineries were the cornerstone of the industrial economy. They are places with a double meaning: on the one hand they still have a strong anthropic connotation with a significant presence of the built landscape and are places endowed with an autonomy of sense, on the other the modern "factory", with its silos, chimneys, the large containers with processing machinery denounce the nature of this landscape, in which the spaces hybridize continuously and overlap.

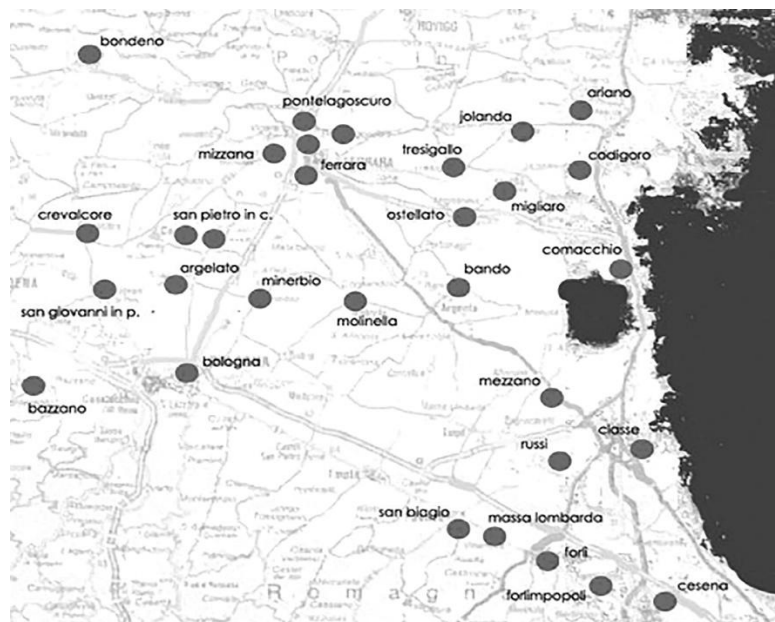
The changed European social policies on agriculture have led, especially in Emilia Romagna region, since the end of the last century, to a phenomenon of rapid disposal of sugar factories. Sugar beet as pivotal product, together with the wheat, from the agricultural economy of the area, was not considered more competitive with other realities. This led to a widespread disposal of sugar beet refining sites for sugar production. In the Emilia Romagna plain these places were numerous and widespread because the range of action of each productive activity was not greater than 30/40 kilometers compared to the location of the product in the field.

**Figure 1. Number and position of the sugar refineries in the area of the Po Valley of Emilia and Veneto.**



Only by way of example and to give an idea of the structural extension of this system in an area between the cities of Bologna and Ferrara, there were the following sugar factories: Argelato, Ariano Ferrarese, Bando, Berra, Classe, Codigoro, Comacchio, Crevalcore, Jolanda di Savoia, Massa lombarda. Minerbio, Mizzana, Mezzano, Molinella, Pontelagoscuro, S. Giovanni in Persiceto, S. Pietro in Casale.

**Figure 2. Number and position of the sugar refineries in the area of the Bologna and Ferrara**



They are already compromised areas left in total abandonment, they are large multi-level containers, mostly located on important infrastructures; they are places where there is a hybridization between the space of the built and that of the landscape, where the great tanks of decantation of the waters for the workings of the sugar beet, are today places with a unique naturalistic and faunistic presence. These incomplete pieces of territory that belong both to the scale of the landscape and to the size of the city have often been left out because they are conditioned by the distance from the urban core, but which, following the continuous shifting of the limit of the built, are found today, in most of the cases, on the margins of the built. In any case, their conversion process was not, in most cases, completed or, if this happened, it was conducted in a summary way and through an approach of memory preservation or total substitution.

The recent relocation of industry, the gradual disposal of many structures, have given us these large abandoned areas as a resource for regeneration, mutation and densification operations, harbingers of an architectural symbolic identity. The theories linked to the sustainability of mutation interventions require us to think of a development system that is no longer structured on the growth of the city but on a conversion of already compromised territories that are today unused through a circular approach: a rewrite on an existing schedule.

The case of sugar refineries for sugar beet processing is an anomaly, at least in their location. The solution requires the development and application of specific operating methods and techniques, in a framework of environmental compatibility and the reintegration of new forms of Community (functions / activities / users) in these areas. In Italy, the Environmental Code<sup>iii</sup> proposes three categories of environmental restoration according to the quantity and quality of pollutants in the area: uncontaminated, contaminated and potentially contaminated. Fortunately, most of the former sugar refinery sites fall into the first category, that is, uncontaminated, so these areas do not, like most abandoned industrial sites, fall into so-called *brwnfields*<sup>iv</sup>. The case of sugar refineries for processing sugar beet is an anomaly, therefore, at least in their location and in the fortunate finding that they are not polluted sites.

These factories were the connection between a predominantly agricultural economy of the area to a predominantly industrial one. The manufacturing facilities of the first industrial age, in many cases, were built after. For instance, in Italy, the works are located on the courses of water and are large (30-50 ha).

**Figure 3. Sugar refinery of Codigoro (Ferrara). The pilot is very large and inside there are 50% area for buildings and 50% for the tanks for the cleaning of sugar beet.**



The structures of the first industrial age coincide with the lines of the pre-existing hydraulic network, made up of the channels and with those of the birth of the railway network. The integration between the first industries and the agriculture had a particular character in the territory that was interested in different productive sectors that went from the sugar refineries to the driers: plants in which the work was strictly connected with the seasonal rhythms of the agriculture.

The principles with which these enormous factories were designed were related to consolidated technical parameters such as the flat and large territory, the presence of a waterway, the proximity of transport infrastructures, and accessibility to facilitate, the possibility of land on which to build an elongated rectangular building. On the one hand, therefore, the planimetric rationality and the volumetric articulation and the organization of work that is repeated more or less equally in all buildings through a rationality of the production process that arises from a similar technological conception, on the other an area more "natural" in contact with the place.

The phases of the processing of the sugar from which the buildings that compose the complex of the factory derive are the followings. To these buildings we must add those that are used for making the tubs work: the most important is the building for the vapor boilers with its relative chimney. They had to produce warm water and vapor for the different phases of manufacturing and to create engine strength for all the different equipment as the centrifuge, as well as to provide the electricity for the illumination of the whole complex. The sugar refineries generally needed a lot of water, so much so that they had to create a system of canalization and deposit. Because of real problems of purification there were asystems for the elimination of the waste and the use of the water.

The transport of the beet as well as all the other necessary products for the different processing of phases was done by railway with special tracks going inside different sides of the establishment. Altogether the areas are very large and are situated in the outskirts or away from the inhabited centers. The beet was generally unloaded in the open tubs built in brick of rectangular shape. At the bottom of them there was a little water pipe where the beets were transported through towards the buildings completing a first washing.

The typological and distributive order vary a great deal, this depends on the single productive activities, but however, some recurrent figures exist :

- **Nave**
- **Serial repetition**
- **Scale**
- **Basement**
- **Chimney**

At least three other elements accompany these figures - aisle, chimney, basement :

- **Conveyer belts**
- **Tower**
- **Bridge**

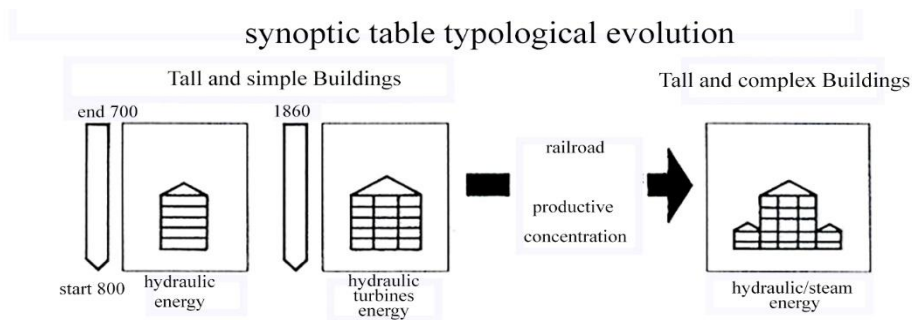
Conveyer belts, gangways, bridge wagons and the crane together with the other extraordinary machineries of movement, form an imaginary that has occupied the mind of architects since the thresholds of the Modern movement.

**Figure 4. Molinella, typical sugar refinery with all typological elements**



The buildings, mostly built between the late nineteenth and early twentieth century, are composed as an aggregation of compact buildings, with a number of three floors, in most cases, with a total height between 9 and 12 meters. Typologically they are composed of a single-span building with an elongated rectangular shape, a width between 9 and 13 meters and a variable length but never less than 100 meters, normally 130-150 meters.

**Figure 5. Synoptic table of typological evolution (image taken from ERVET (1989), Fabbriche abbandonate e recupero Urbano, Edited by Omoboni G.C.. Bologna: Compositori).**



The width is a function of the maximum floor light that can reach 9 meters, which never appears complete but on the basis of the internal machinery takes on different compositions on the floors with a coverage in the plant never greater than 60%.

**Figure 6. Codigoro sugar refinery. Principal building with serial repetition of the same element**



The roof is generally double-pitched with a metal supporting structure. Juxtaposed with them we find all those service buildings to the main processing: thermal power plant, warehouse, services for employees, offices.

**Figure 7. Forli, Mezzano, Sugar refinery. Principal building.**



About the structure, we find a mixed use of structure that we can group in three broad categories: the external envelope, the internal supporting structure and the covering system. On the outside, the load-bearing masonry bounds the work space, and is composed of the same stylistic rules of civil buildings. The materials used is, in most cases, the brick and the coatings. The decorations of doors and windows are similar to those of residential buildings.

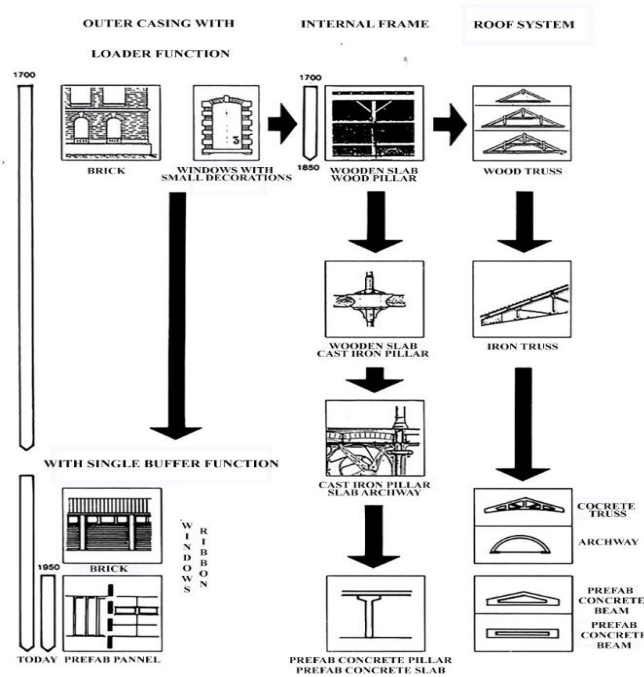
The serial repetition of the structural module is the characteristic of these buildings. The openings are mostly single and placed in the middle of the bay at the various floors. In the sugar factories built around the 1930s, the external masonry wall disappears, the framed structure remains visible and the windows become a ribbon, but arranged vertically.

**Figure 8. Ferrara, Sugar refinery of Pontelagoscuro,. Internal view with particular cast iron pillar and archway slab .**



Internally, there is a frame in cast iron, with slabs mostly in brick, which interfaces at different levels with the machinery, allowing for considerable flexibility in the system. Characteristics are the open-air tanks for storing the residues of beet processing and washing.

**Figure 9 Synoptic table of technological evolution (image taken from ERVET (1989), Fabbriche abbandonate e recupero Urbano, Edited by Omoboni G.C. Bologna: Compositori).**



Therefore we find today a vast quantity of disused or disposal sites, which can become interesting due to peculiarities they express: their particularly high size, the level of compromise of the territory, the presence of road, railway and technological network infrastructures, the presence of a strong environmental component. The processing of beets required a lot of water for most of the sites is located near rivers or canals and the processing also included numerous water settling tanks, making these places "areas awaiting mutation". Many cases of regeneration of brownfield sites have already been addressed, but most have focused their attention on "functional reuse" mostly with public destinations. These historicized places derive, as Costantino Dardi beautifully describes: "*..... from a process of formation for subsequent growth, a slow modification of the parts, a stratification of the elements, an overlapping of the interventions, an imperceptible axis rotation, a retreat marginal, a figure that does not coincide, an alignment that does not confirm, a relationship that does not reappear. But it also shows up new figures that enrich the previous ones, grafts of shapes, intersection of spaces, reinvention of constraints, resolution of knots, formation of hinges, abandonment of places, redefinition of margins, recovery of marginalization, cancellation of images, concretion of structures, manipulation of measures, variation of rhythms*".<sup>vi</sup>

## 2. Aims & Objectives

The awareness that a project must be conceived today with a change of paradigm by introducing new systems and tools, since those used until today are no longer adequate to respond to the complexity of the contemporary, is now a shared thought. The rigidity, the predetermination and the typological persistence typical of the classical and modern city, as well as the design parameters associated with them (control, figuration, stability) are antithetical to those of the contemporary city which, on the contrary, is indeterminable and changeable, incessantly receptive to structures susceptible to disturbances and evolutions.

If the traditional practice was based on the principle of the static and permanence of things<sup>vii</sup>, of architecture as a fixed element in space<sup>viii</sup>, the contemporary project includes a dynamic for all that pertains to the system of interactions, of the open-air, of the complex, proper to our time. We believe, therefore, that in order to respond to the complex conflicts of contemporary life, it is necessary to exceed doors that until now have not been crossed, get out of the usually used disciplinary fields and enter the fluid world of the hybrid that permeates the complex everyday life to explore interstitial areas not yet investigated, providing more appropriate answers to contemporary living.

Using systems - parallel to the hypotheses put forward in a different form from Prigogine<sup>ix</sup> and Borges<sup>x</sup> - that seek to read and interpret society as the opening of multiple paths where the uniqueness of time becomes a multiplicity of ways that conflict, overlap and replace to each other, it should be one of the goals of contemporary design. Introducing the *complex hybrid thought* requires a different design, no longer a process by dyads, but work within the multiplicity, in a circular, constantly changing, adaptable thought.

In this way the first modernity, which meant only the new as the protagonist of living, is replaced by the theme of hybridization, coexistence calculated between temporally different aspects, recognizable in their spatial identity and in their linguistic contents, and the new mutations with the which the existing one will compare.

Hybridization that takes place considering the communities as expression of both phenomena on a global scale and on a local scale. This involves the transition from "everything is interpretable" of the Post Modern to the interpretations of a group of people gathered in the Community, which are, with a term borrowed from Robertson<sup>xi</sup> "glocalized" and whose values the architecture becomes an interpreter, in a space suspended between the local and the global, between the specificity and the general, between the identity and the estrangement, between the homologation and the totalization, it is a space that resists spatial and temporal compression.

This new sense of living society in community, has strong repercussions on our living and dwelling on the earth therefore on the architectural project, which is already making possible glimpses of declinations able to understand and encompass these instances that translate into a new approach to the project of a circular nature. This hybridization of spaces allows a multiplicity of different spaces, not necessarily structurally coded, in which the conjunction between the social, the culture and the individual takes place. They are spaces in which the identity nature is recognized and where the relationship can be realized. It is that place where space and time, even if compressed, are able to activate deep-rooted and oriented relationships.

*"We need utopia, not to dream of realizing it but to tend to it and thus give us the means to reinvent the everyday. Education must first of all teach us to make time move, to get out of the eternal present fixed by the images in series, and to make space move, that is to move in space, to go and see what happens more and more closely and not be content with images and messages. We must learn to come out of ourselves, from our circle, to understand that it is the need for the universal that relates culture and not the opposite.*



*We must learn to get out of our narrow cultural universe and promote a trans-cultural individual, able to take an interest in all the cultures of the world and not to consider any stranger to them.*<sup>xii</sup>

The areas of the former sugar factories are well suited to finding answers to the questions that sociality presents today: on the one hand respect for the environment and the other ability to create new forms of sociality in places already endowed with meaning, with schedules already defined and awaiting transformation. The main objective then becomes the definition of a strategic method for the re-attribution of value to the abandoned heritage.

The sedimentary, cumulative dimension of these large areas with their intrinsic beauty obliges us to realign with the ways in which it has developed and transformed to us. It is not a question of having to interpret a general abstract principle, an idea based on large systems, but rather to work on the remains, on the differences, on the waste, that is, with the characters that the neighborhood around us presents. If the geometry of the site is all in the place it is still possible to collect it, if the arrangement of the volumes is all in the place it is still possible to interpret it, if the matter that exists on the site is of value it is still possible to use it again.

These areas and buildings significantly represent the original and historically consolidated relationship between cultural heritage and its geographical location. It is precisely the re-appropriation of the pre-existing heritage, the collective memory that places are able to represent, the key to shifting the search for a community's sense of belonging from the virtual to the real level.

Working on the already built, on the memory of the preexisting, working with the figures of *re-conditioning* rather than with those of infinite growth seems the most convincing way for contemporary architectural thought. The existing structures become the field of action of the project, their relationships, the selection that will be made on the existing elements, will trace new hierarchies and allow the introduction of new mutation tools. The instruments will be designed as discreet, minimal interventions, and will give new **meaning** to the places and will reveal the new architecture.

The issues related to hyper-consumption are replaced by those related to sustainability, the fight against waste<sup>xiii</sup> and the attenuation of inequalities. It seems to us, in this situation of great environmental alarm, that the possibility of activating forms of research and experimentation on new ways of thinking about architecture, the economy, new ways of imagining products and processes of virtuous production, with little impact, equitable and of high social and territorial value, in areas already compromised but with a strong environmental vocation such as these, in which a circular process is naturally already taking place and where it is possible to experiment directly, can be an important strategic resource.

This new path leads to a circular comparison with a time and a space without any preferential direction, where the before and after alternate and exchange without rule, and where the near and far are continuously overlapping.

This can be an approach aimed at healing and modifying those that currently constitute the major obstacles to a strategic alliance between city users and spaces within the new mutations, leading in short to the emergence of relationships that allow a new sense of belonging to be lived. vision of sociability and to share new places and spaces of the meeting.

*"We could talk about an architecture of stratification, of a system of signs capable of capturing the dense reference thickness that history is a cognitive process that can only be defined with my project. When Michel Foucault affirms that the problem is no longer that of tradition and of trace, but that of fracture and limitation, it is no longer that of the foundation that is perpetuated, that of the transformations that are valid as a foundation c renewal of foundations ", of a problem that is nested at the center of the design question: to evoke traces that have ended up out of time and now crystallized in their silence ".<sup>xiv</sup>*

Faced with the vast world of history, the level of the things said and what is called the archive; archeology is destined to make the analysis ". Reversible and adaptive design method, the reality of marginalization of living within the disused. The different communities and sociability will be the main focus of the process as well as the different spatial scales from urban to architectural. The objectives are as follows:

- Use a circular strategy based on the re-conditioning of the existing by recognizing a value to the current waste;
- Involves old and new in the sustainable project through a new mix between history, memory, symbolic and new system of relations;
- Define new adaptive intervention tools to meet the ever-changing needs of the Community.

The design system supports the elements of social and architectural context, synthesizing and enhancing them through a metabolic mechanism that changes and rather than, constantly starting from a tabula rasa. The main focus of the new strategy was the introduction of a new strategy based on *re-conditioning* the existing, recognizing the current *waste* as a *value*.

### 3. Methods & Tools

Within this framework we try to determine a new method of *sustainable circular mutation* intervention in the city where the gap becomes value. The circular system that in architecture declines, unlike the linear one characterized by the continuous consumption of soil and resources, in a vision determined by the re-conditioning of the existing, in which sustainability is not only understood as a technical element but above all *modus operandi*, immanent value, to collect and decline the multiple instances, with particular regard to the environmental and social ones and in which it is necessary to introduce different *methods* and the *tools* proper to the architectural project. All these hypotheses refer to the circular system and are based on the principle that the products can be *re-conditioned*, rather than discarded, replaced or recycled, and the components evaluated to be reused. The *re-conditioning* allows to shorten the product-use-reuse cycle, and to have a higher final economic value with lower costs.

To understand and tackle the issue of voluntary abandonment of places, it is necessary to understand how the critical tools must be constructed, structured and redefined, complying also with the questioning of the value of the assets we are talking about. One can think of recognizing its meaning only after having acquired the critical tools, which, paradoxically, in the information age tend to disappear above ff acts in retinal perception from temporary media messages. "The campaigns for him were the space where everything is suspended between past and future ... and where the world can be imagined as a vision that still gives amazement."<sup>20</sup>

Saving the landscape does not only include museums, which remains one of the options; it is a question of constructing, after having understood the structures, critical and cultural instruments capable of restoring a non-induced vision of the places but an interpretation of the observer; it is necessary to overcome the threshold of attention, as in the urban and peripheral environment, in the artistic declinations of neorealism.

The main concept behind this method is the architectural and social resilience. **Resilience** is the ability of a system to restore conditions following a high impact event by adapting to change. This capacity is expressed through an innovative method underlying the circular project system. In this way, referring to those scientific investigations that reveal how natural structures "evolve in the context", as complex adaptive forms, it was decided to change and intervene on existing buildings and not to perform a demolition or a replacement operation.

The pre-existing heritage becomes the field of action of the social and architectural project. The relations and the selection that will be carried out on existing elements, will trace new hierarchies and will respond to changes by selecting and adding new adaptations.

The following strategic actions are implemented to respond to the objectives described:

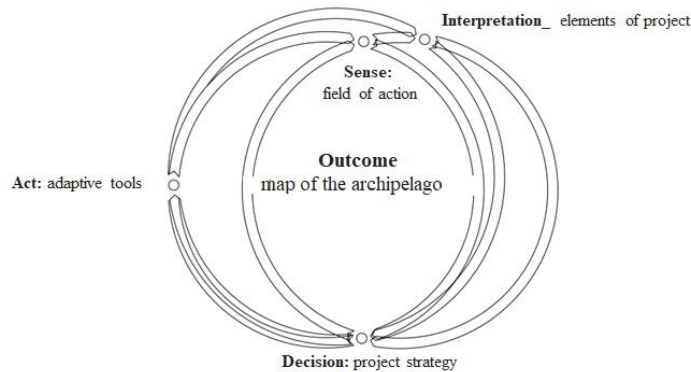
- *operate within a circular system in which sustainability is not intended only as a technical element but above all a modus operandi, to collect and decline the multiple demands, focusing on the environmental and social ones where waste = value;*
- *create and keep a sense of identity within the community through architecture;*
- *move the emphasis from the building as a design object, to a transit element for social change. The intervention becomes an opportunity for the launch of sharing platforms, the premise of a new social and urban story through the introduction of new tools and minimal operations;*

A project strategy based on precise insertions able to revitalize first the object and then the surrounding through an osmotic principle. This method can be implemented gradually even over time, step by step, by intervening on the "rejected lost object".

The methodological process recalls the "Adaptability loop" proposed in 2003 by Haeckel based on the multi-disciplinarity of knowledge and content and on their interaction, articulated on five elements. The *sense*, in which a new spatiality is defined for housing. The *interpretation* where the elements of the circular and adaptive process are delineated, redefining the sense of identity through architecture and an immersive project of participatory communication. The *decision* that defines the intervention strategy, the **resilience**, the ability of a system to adapt and change following a high impact event. The *act* determines the operative tool, a series of "adaptive grafts", "box in the box", light, reversible, made of wood, that are repeated identically creating different configurations.

The *outcome* is a design that combines architecture's own tools with those of social and communication that can revitalize a disuse spaces and make it habitable again.

The application of the method refers to the concept of a *circular system*, a model that recirculates resources already used but not completely obsolete. That derives that not only primary material is recycled, but also a new device capable of producing a result of *waste = value* becomes the focus of the system.



**Figure 10. Circular design process.**

**Sense:** field of action

The planned *re-conditioning* operation does not require a revolution, but rather a reorganisation, limited to repairing the spaces rendered unusable by time and introducing a new design system that uses adaptive tools. It is a whole series of actions that imply an accurate documentation of the architectural, social and environmental state of art. Not only as a support element of the architectural concept, but as a true reference tool for the constitution of the architectural and environmental project, the economic program, the relationship with the inhabitants and the management of the intervention.

**Interpretation:** *elements of the process*

This proposal arises from the need to begin to practice a new vision of the reconversion operations. A concept that considers re-conditioning not just as a result, but as a constant and continuous process, in which the architect's role changes from pure technician to strategist architect, a skilled amanuensis of *urban over-writings*.

To *re-condition* part of the existing, it is necessary to start changing the district by modifying housings through light, temporary insertions able to allow continuous evolutions in a process able to meet the many and changing needs of families.

**Decision:** *project strategy*

The main concept behind this method is the architectural and social resilience. **Resilience** is the ability of a system to restore conditions following a high impact event by adapting to change. This capacity is expressed through an innovative method underlying the circular project system.

In this way, referring to those scientific investigations that reveal how natural structures "evolve in the context", as complex adaptive forms, it was decided to change and intervene on existing buildings and not to perform a demolition or a replacement operation.

The project method has tried to execute the same characteristics just as natural systems have a diversity and redundancy, an interconnected structure, the ability to "self-adapt" and the distribution of structures on scales. The pre-existing heritage becomes the field of action of the social and architectural project. The relations and the selection that will be carried out on existing elements, will trace new hierarchies and will respond to changes by selecting and adding new adaptations.

**Act:** *adaptive tools for an urban overwrite*

Inside these spaces of great diversity, the fragments not only belong to a physical complex order but also social one. These fragments can activate a way which expresses itself in the production of differences; that is to confer to the existing space, recognized and made real, the sign of a new identity.

These must be welcomed in order to have a new dialogue with the existing. Alongside the study of the rules that they have arranged the composition of the existing elements, we can also operate with the ways of our time; alongside the **addition**, the **completion**, the **remaking of the already writing** there are already new categories of contemporary intervention.

With respect to the value of buildings and existing spaces we can act through two possible intervention methodologies:

- *integral preservation of the original building: only restoration of the building and symbolic preservation of a building or a place: only the restoration of the building considered as a rare document of high historical interest and symbol of modern industrial age, through integral restoration. The elements are unchanged*
- *mutation of the building through adaptive tools and integration of the original building, viewed as an internal part of another building, conceived as a mixture of different parts or more buildings. A new interpretation of the identity of a place rich in urban culture through the synthesis provided by the architecture project*

The adaptive tools have been adapted to the architectural scale and define a new scheme of minimal interventions. A reconfiguration with light and temporary elements of housing to equip them with all those services that contemporaneity requires. The pre-existing heritage becomes the catalyst of the social and architectural project. Their relationships, the selection that will be carried out on the existing elements will trace new hierarchies and allow the introduction of new tools for sustainable mutation.

Since they are based on a strategy and not on a language, the tools will have the characteristic of being "adaptive" to the project, able to satisfy the possible reconfigurations over time.

It works through a series of juxtaposed figures that starting from the previous layers introduce new ones.

The adaptive tools used at different scales and on different spaces are:

- **Superimposition**, mix between old and new;
- **Grafting**, inserting into the space of historical building inside box, markers additions, extensions;
- **Parasite**, with the tactics of adaptive prostheses
- **Edge**, in its meaning of limit / border / inhabited margin
- **Level 0** as a connection system, platform plan and social capacitor
- **In-between** with the infill and Pocket Park

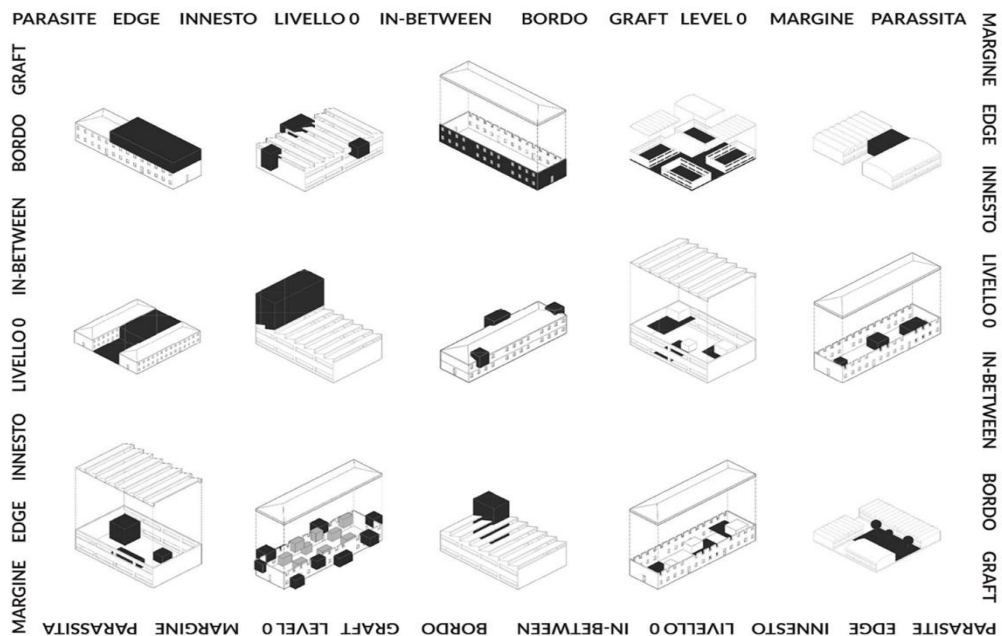


Figure 11. Adaptive tools.

The design tools derive, in part from an interpretation of the typological classification system as an evolutionary and dynamic principle applied to spaces and situations not yet codified. Partly from adaptive logics to the use of a circular structure that changes and configures according to the conditions of the context.

Thus the new formal figures will have to be placed within a space that is always suspended between a new balance and a new dynamic arrangement, in search of new re-compositions of the elements in space, in a paratactic logic in which each element is arranged within the pre-existence in dependence of their own linguistic characters, forming a whole new configuration based on differences rather than congruences.

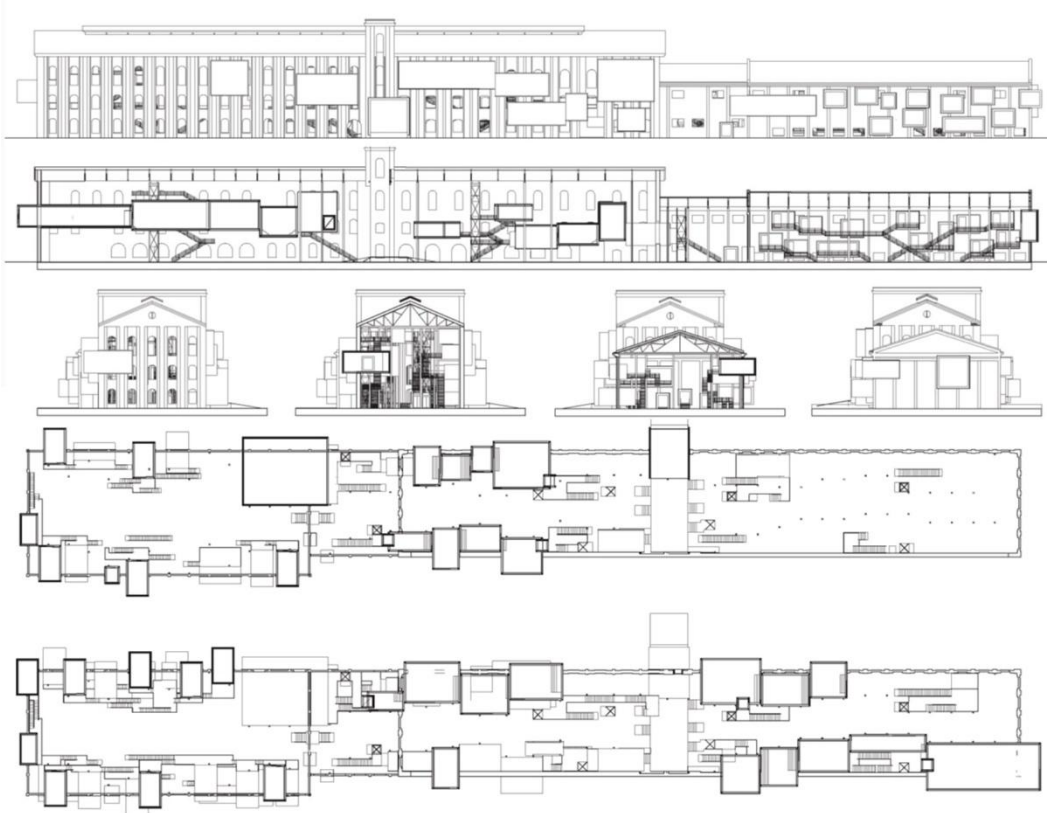


Figure 12. Use of Adaptive tools: possible configuration.

#### 4. Concluding Remarks

The result of this design method is to propose a regenerative intervention approach, able to promote the renovation of the existing and a quick configuration in continuous change, attentive to the city development. That makes the project adaptive to the flow of time, in harmony with the real, cultural and immaterial changes of the context. Working *in and with time*.

In this space of *circular and sustainable* reflection, in which the "waste" becomes "value", the methods and tools of the architectural project have been updated, reformulating a new alphabet of intervention tools on the built, thinking of a new system of project that *inserts* and *supports* the elements of the discipline and those of the social, economic, cultural and local context, synthesizing them up to metabolize them into mechanisms of "*mutation of the existing*", within a hybrid system always suspended between a theoretical context and physical. It is not a re-starting, it is a work in progress on the existing one.

The intervention tools on the existing have been selected as a set of minimum operations on the factory buildings implemented through compatible, sustainable and adaptive tools. The tools adopted, despite their incompleteness due to the multiplicity of instances that the place and buildings will pose, are nothing more than a hybrid in which the relationship between the pre-existing and the contemporary produces spaces in continuous mutation, without a precise spatial and functional definition, which develop, in their becoming, open conformations.

They are adaptive tools that act on unstable contexts, border areas, real or social, spaces of waste, where an informal process has already begun, a community appropriation, be it official or unofficial, operating exclusively on the existing already anthropized, be it built or open space.

Tools that privilege the dynamic to the static, the evolutionary to the instant, the ability of immediate revelation to the cryptic metabolism of the spaces in which it is inserted, which almost takes the form of a platform plan in which to create relationships between the community or between the communities, in a sort of hybrid social condenser.

This new methodological approach aims to achieve the following results:

- *define a strategic process action plan capable of keeping together the protection of the existing, the new needs expressed by people and social networks, sustainable development;*
- *to broaden the concept of re-conditioning, moving it from the traditional one of intervention on the material object, to that of second and renew life both of places and communities;*
- *to identify adaptive design tools, useful "to the strategist architect", to translate the value of communities and the changing differences inherent in the contemporary world into technical and social intervention.*

The social capital, made up of relationships, trust, institutions and territory is today the main protagonist of innovation through sustainable development: it is therefore essential that architecture also rethink cities and places by defining new methods and tools to enhance these instances, in a reference system whose purpose is no longer and only exclusively the creation of profit, but a system of values.

The sustainable development of anthropized but disused places, such as sugar factories areas, becomes a tool for mediation and contamination between pre-existence, heritage, identity and new ways of fruition, organization and participation. The urban heritage of "waste" is a place of local social memory and its regeneration can take place with an "overwriting" of architectures and spaces.

## References

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- <sup>i</sup>Deleuze, G. (1966). *Le bergsonisme*. P.U.F.: Parigi.
- <sup>ii</sup>Corboz A. (1993). Avete detto 'spazio'?. *Casabella*, 597-598, 20-23.
- <sup>iii</sup>D.Lgs.n°152 del 2006.
- <sup>iv</sup>Environment Canada defines brownfields as "*abandoned, idle or underutilized commercial or industrial properties where past actions have caused environmental contamination, but which still have potential for redevelopment or other economic opportunities*".
- <sup>v</sup>The meaning of modification is understood as declined by Gregotti, V. (1984). *Modificazione*. *Casabella*, 498/499, 2-7
- <sup>vi</sup>Dardi C. (2009). *Archeologia parlante e archeologia del silenzio*. In *Architettura in forma di parole* (pp.126-7) Edit by Michele Costanzo. Macerata: Quodlibet.
- <sup>vii</sup>Frampton, K (2008), *Storia dell'architettura moderna*. Bologna: Zanichelli.
- <sup>viii</sup>CIAM. *Carta d'Atene*. (1933) *Urban Planning Manifesto*, debate 4° Congrès Internationaux d'Architecture Moderne. Atene
- <sup>ix</sup>Prigogine, I. (1986). *Dall'essere al divenire*. Torino: Einaudi.
- <sup>x</sup>Borges, J. L. (1984-5) *Tutte le opere*, 2 voll.. edit by Porzio D., Lyria. Milano: Mondadori.
- <sup>xi</sup>Robertson R. (1992), *Globalization. Social Theory and Global Culture*, London: Sage. Suggest recommended to introduce the concept of globalization with the "glocalization". In using "glocalization" rather than globalization, Robertson wants to blur the boundaries between local and global. The previous views of sociology saw globalization as a contrast between the local and the global as theorized in terms of reaction-action models. Instead, Robertson offers to see the venue itself as one of the aspects of globalization. For example, the search for "home" and "roots" is a reaction contrary to globalization, but rather a need structured by it.
- <sup>xii</sup>Augè M. (2008). *L'uomo è mobile*. *La globalizzazione ha spazzato le illusioni sedentarie degli Anni 50*. *La stampa newspaper*, 20-11.
- <sup>xiii</sup>Ciorra P. (2008). In presentation book *Architettura parassita. Strategie per di riciclaggio della città*, (p.11). Edit by Sara Marini. Ascoli Piceno: Architettura.
- <sup>xiv</sup>Dardi C. (2009). *Archeologia parlante e archeologia del silenzio*. In *Architettura in forma di parole* (pp.125), edit by Michele Costanzo. Macerata: Quodlibet.
- <sup>xv</sup>Ghirri, L. (2012). *Lezioni di fotografia*. Macerata: Quodlibet.

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**Bibliography**

- AA.VV. (1990). Territori abbandonati, *Rassegna*, 42.
- Augè M. (2008). L'uomo è mobile. La globalizzazione ha spazzato le illusioni sedentarie degli Anni 50. *La stampa newspaper*, 20-11.
- Barosio M. (2009). L'impronta industriale : analisi della forma urbana e progetto di trasformazione delle aree produttive dismesse. Milano: Franco Angeli.
- Bauman Z. (2011). *Modernità liquida*. Roma-Bari: Editori Laterza.
- Borges, J. L. (1984-5) *Tutte le opere*, 2 voll.. edit by Porzio D., Lyria. Milano: Mondadori.
- Braungart, M., & McDonough, W., (2003). *Cradle to Cradle Remaking the Way We Make Things*. New York: North Point Press.
- Cenzatti M., Crawford M. (1993). Spazi pubblici e mondi paralleli. *Casabella*, 597-98, 32-35.
- Ciorra P., Sara Marini S. (2012) *Re-cycle*. Milano: Electa.
- Corboz A. (1993). Avete detto 'spazio'?. *Casabella*, 597-598, 20-23.
- Dansero E. Cesare E., Governa F., (2003). *I patrimoni industriali: una geografia per lo sviluppo locale*. Milano: Franco Angeli,
- Dragotto M. Gargiulo C., (2003). *Aree dismesse e città: esperienze di metodo, effetti di qualità*. Milano: Franco Angeli.
- ERVET (1989), *Fabbriche abbandonate e recupero Urbano*, Edited by Omoboni G.C.. Bologna: Compositori
- Dardi C. (2009). *Architetture in forma di parole*. Edit by Costanzo, M.. Macerata: Quodlibet.
- Deleuze, G. (1966). *Le bergsonisme*. P.U.F.: Parigi.
- Fortier B. (1995). *Amate città*. Milano: Electa.
- Foucault M. (2011). *Spazi altri. I luoghi deòe eterotopie*. Edit by Vaccaro S. Milano: Mimesis.
- Frampton, K (2008), *Storia dell'architettura moderna*. Bologna: Zanichelli.
- Gaiani A. (2012). Edit by. *Oggetti smarriti*. Firenze: Alinea
- Gaiani A. (2017). *Sovrascritture Urbane. Strategia e strumenti per il ri-condizionamento della città*. Macerata: Quodlibet.
- Ghirri, L. (2012). *Lezioni di fotografia*. Macerata: Quodlibet.
- Gregotti, V. (1984). *Modificazione*. *Casabella*, 498/499, 2-7
- Indovina F. (1993). *La città occasionale*. Milano: Franco Angeli.
- Lacy, P, & Rutqvist, J, & Lamonica, B, (2016). *Circular Economy, Dallo spreco al valore*. Translated by M. Vegetti. Milano: Egea.
- Marini, S. (2008). *Architettura Parassita, Strategie per di riciclaggio della città*. Macerata: Quodlibet.
- Moneo, R. (2007). *Costruire nel costruito*, Edited by M. Bonino. Torino: Allemandi.
- Olmo C. (1980). *La città industriale: protagonisti e scenari*. Torino: Einaudi.
- Prigogine, I. (1986). *Dall'essere al divenire*. Torino: Einaudi.
- Purini, F. (2012). *Scrivere architettura, Alcune cose su cui abbiamo dovuto cambiare idea*. Firenze: Prospettive edizioni.
- Robertson, R. (1992). *Globalization. Social Theory and Global Culture*. London: Sage.
- Ross, A. (2016). *Il nostro futuro. Come affrontare il mondo dei prossimi vent'anni*. Translated by B. Amato, Milano: Feltrinell,
- Secchi B. (1984). *Un problema urbano: l'occasione dei vuoti*. *Casabella*, 503, 32-36.
- Touraine, A. (2017). *We human subjects*. Translated by M. M. Matteri. Milano: Il Saggiatore.
- Zucchi, C. (2014). *Innesti-Grafting, La Biennale di Venezia, 14° Mostra Internazionale di Architettura*. Venezia: Marsilio.
- Rowe C., Koetter, F. (1984). *Colage city*. Chicago: MIT press.
- Virilio, P. (1986), *L'orizzonte negativo. Saggio di dromoscopia*. It. Translation, Genova: Costa & Nolan.
- Zardini, M., (1999). *Paesaggi ibridi*. Milano: Skira 1999.