

REGENERATIVE DESIGN FOR REGENERATIVE LANDSCAPE: AN ADAPTIVE
STRATEGY FOR MONTALBANO JONICO (MT)

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ABSTRACT⁶

The work presents the results of a multidisciplinary study aimed at responding to the requests of the Administration of Montalbano Jonico, a Municipality of the Metapontino Plain, in Basilicata Region, South of Italy. Collecting some of the challenges that Matera, Capital of Culture 2019, launch through the slogan “open future” that sees Basilicata at the centre of an integrated and multidirectional development, which intercepts the European and international scene, the study aims to verify the potential directions of the transformation of the territory of Montalbano Jonico, considering its “instinctive capacity” and adaptive to changes and network relationships, tangible and intangible, which also include users, an active part in guiding changes and building values. The activation of an adaptive reuse strategy starts from the redevelopment and re-functionalization of a historic building, the Casino Federici, as component of the complex matrix of the Montalbano Jonico territory and of the Metapontino Plain, identifying an operational model that uses regenerative design as an opportunity to co-create possible futures.

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⁶ The contribution is the result of the joint work of the authors and was developed within the multidisciplinary research activity coordinated by Professor Antonella Falotico for the Municipality of Montalbano Jonico. The study was deepened by the degree thesis of the architects Giorgia Grazioli and Francesca Laviola, academic year 2018/2019, supervisor prof. A. Falotico, co-tutors proff. M. Cerreta, G. De Martino, A. D'Agostino, S. Pone, G. Poli. In particular, the introduction, section 2 and section 3 were elaborated by A. Falotico; section 4 was elaborated by M. Cerreta, G. Grazioli, F. Laviola and G. Poli; section 5 was edited by A. Falotico, G. Grazioli and F. Laviola; the conclusions were the result of reflections shared by the authors.

1. Introduction

The preservation of territories and resources and socio-cultural development aimed at countering the progressive depopulation of many areas and countries today requires the use of integrated actions and work models *Open Innovation* or *User-Led Design*, in which networks of organizations, public and private, act together to develop processes in which the production of “value” is the result of an effective combination of local and territorial resources, both internal and external. The work presents the results of a long study and research activity carried out in Basilicata and reworks in a summary vision what can be thought of today for the good governance of the territories, for the promotion of sustainable lifestyles and the generation of innovative solutions on which to build them. A wider cultural project is therefore being outlined, with the aim of projecting local programmes into multiscale networks in a way that relates to an adaptive and creative dimension of project solutions, decision-making processes involving all stakeholders (institutions, experts, entrepreneurs, associations, citizens), sharing and sharing with national and international practices and approaches. The “network system concept” refers to that paradigm of strategic design mainly related to objectives of regeneration of the environment and/or construction of new habitat identities and to the change in the role assigned to the cultural and creative factor, where process innovation and social inclusion tend to meet and reproduce. The concept of “network” is linked above all to that revolution of thought that is determining the digital culture, in which we are now immersed and which can be considered representative of a new era. «This is the world of bits, the fundamental elements of the digital world. The web era freed bits: bits are created and run at low cost. All this is fantastic: the weightless economy of bits has given a new shape to culture and economics... Bits have changed the world. We, however, live mostly in the world of atoms, also known as the real World of places and things. [...] The greatest transformation is not about how things are done, but *who does them*. [...] Digital natives begin to crave real life beyond the monitor. Doing something that is digital but quickly becomes tactile and usable in everyday life gives a kind of satisfaction that simple pixels cannot offer. The search for “reality” ends with building material objects» (Anderson, 2013).

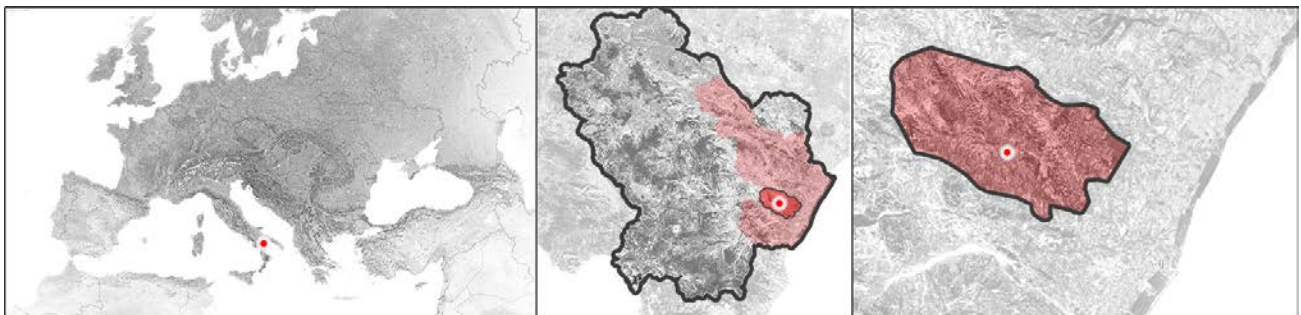
It is therefore intended to identify a methodological path to activate development processes and actions aimed at linking architectural heritage, nature and culture through collaborative ways, multidisciplinary and governance processes attentive to the complex and changing dynamics of the transformations, in accordance with the guidelines suggested by the new operating scenarios. In this context, the call for the protection of the landscape is also justified, because today, even more than in the past, it seems essential to preserve those structuring values territories, habitats and resources whose loss would be irreversible damage. The environmental and ecological dimensions have taken centre stage in recent years in those design processes aimed at putting technical innovation and strategic planning into the system. The realisation that the project can only be said to be so in relation to a wider environmental dimension is leading to a substantial change in the idea of context. This has been extended to the entire ecosystem and, simultaneously, to the idea that there is a life cycle of the manufactured products and products that the design activity must take into account. An idea of a static context has been progressively replaced by that of a context in continuous transformation. The concept of *dynamic context* replaces the closed solution of traditional planning and design practices with the visionary idea of setting scenarios rather than solutions. In this perspective one conceives an architecture that no longer allows universalizing rules but that follows *cross-roads*, diversified, modifiable, possible and not absolute, better suited to accommodate the unpredictable elements of change in the environment but, at the same time, commensurate with the desires, needs and aspirations of communities and in harmony with the vital and natural cycles. Therefore, rewriting the history of derelict places and buildings can be an opportunity to enhance architectural structures and settlements, to defend soils and material cultures and to hypothesize directions of reticular development, non-linear but “multiverse” (Manzini and Jégou, 2003; Bertola and Manzini, 2006), which mark ever new trajectories and paths that are inserted in the complex plots of stratifications, involving men and artifacts and that relate, at the same time, with the natural evolution of the environment mitigating its impacts.

The old-new dialectic has become particularly complex today, since its development is no longer linear: if once the places have lived of solid relationships, tied to the biological rhythms of individuals and of the earth, today the development is played on the difficult terrain of a design process, or an architecture, that renounces to a rigid program in favor of a flexible strategy, according to adaptive paths, agile and variable, crossing the different project scales and the different ways of involving actors (public, private, social) that it is possible and necessary to include in the programme actions the transformation processes, in accordance with the most innovative strategies of *good governance* of the territory and the environment.

To give life to some of the dead cells of our ruined countries can then mean to give life, in time, to a wider process of transformation and regeneration, especially if the minute dimension of interventions is enriched by their multiplication and by the transformative force that resides in the conception of structures, material and immaterial, elastic, open and modifiable. Such an objective is linked to a design idea as a process “of possible”, a process which changes according to the plurality of configurations it can assume and which has the ability to generate connections, a process that lives on a systemic relationship that brings together assets, rules, nature, men. The latter plays a key role in becoming “actors” active in providing “materials” to the project. «As well as the reality of which it is part, ... in the contemporary context the project becomes more and more the product of a collective subject. [...] Embodying the principles of interaction, ... the project can thus abandon the finite object characteristic to become a platform for the production of new knowledge, where the specificity of the individual is not erased, but rather emphasized in collective practice» (Nebuloni, 2015).

This is the context of the research contribution: a complex multidisciplinary work that the group of the Department of Architecture (DiARC) of the University of Naples Federico II developed in Montalbano Jonico, a municipality of Basilicata, in the province of Matera, investigating the potential directions of transformation and development of the entire Piana del Metapontino. The objective of the job is the activation of an adaptive strategy of reuse beginning from the regeneration of a building in abandonment, the Casino Federici (Fig. 1), a pilot project for the construction of a regenerative process that becomes an opportunity to co-create cultural, social and economic development.

Figure 1 – The Casino Federici and the Municipality of Montalbano Jonico (MT), identified in Europe, in Basilicata and in the area formed by the municipalities of the (GAL) START 2020



Source: elaboration of the authors

The Casino Federici becomes a “new material device” through which to experience the future of landscapes and give new meaning to what persists over time. The Casino prepares to become a dynamic medium, “object” unfinished, a “hologram” which arises from the technique and context. «The hologram serves to calibrate the scale of your idea, to understand how literally “is” in the place and what the building you are thinking about is. And the drawing is just to help the hologram express itself. In the hologram, your experiences, the feelings of the place, the constructive ideas merge in real-time in an idea of architecture that then evolves and articulates» (Piano, 2009). Regenerating and designing in the fourth industrial, cultural and digital revolution, means facing challenges that affect in a decisive way the design thinking in the direction of a generative process that, by overturning customs, trace the directions of the future leaving room for a new “poetic” of building. Today we are immersed in «[...] a universe of instability and fluctuations, which are at

the origin of the incredible variety and richness of forms and structures that we see in the world around us. We, therefore, need new concepts and new tools to describe a nature in which evolution and pluralism have become the fundamental words» (Nicolis and Prigogine, 1991).

The contribution in section 2 addresses the relationship between material culture and digital culture that guides the regeneration process activated in Montalbano Jonico; in section 3, the spatial context and the dynamics that characterise it are described, identifying the characteristics of a network strategy; in section 4, the space and multi-criteria decision support system is presented, which has accompanied the elaboration of the regeneration strategy; in section 5, the choices identified for the Casino Federici are illustrated and in section 6 the conclusions are presented.

2. Material culture/digital culture

In the time of transition that we are going through, the challenge of digital culture is bringing about an epochal change in design modes and thinking. Material culture passes from objects, uses and standards to systems in which information and reticular relationships prevail. This scenario is accompanied by an equally significant change in human behaviour, value categories and life scenarios. They change the desires, the ways of doing things, the expectations of the future. It is a subtle revolution, in which we are immersed and of which we are partly aware. Change takes place in our lives in a molecular, pervasive, immaterial, fluid, seemingly unobtrusive but substantially significant way. «Unlike other paradigmatic periods, the change that today affects architecture does not concern the mere spatial re-definition of the system of values pertaining to social, economic and productive contexts, as to a real internal revolution, whose digital matrix calls into question the *modus operandi* of design itself» (Nebuloni and Rossi, 2017). It seems legitimate, therefore, to rethink in which terms to reread the relationship between material culture and technical innovation and how to recover ancient values in the perspective of the “new”. Today the phase of “disposal” of modernity requires a new design idea of physical space within a challenge that connects the existing with conceptual devices that work on the change of value and new life cycles of habitable spaces. A challenge that considers the context as a project, the landscape as an infrastructure that produces ecological value and the future of cities as a collective project. This is the direction in which the working group is experimenting, imagining a multilevel matrix in which multidisciplinary competences and project themes are interwoven and to which is added the clear territorial matrix that characterizes the Lucanian territory since the agrarian reform of the 1950s. These matrices give meaning to all the components in play, physical and virtual materials, and become a multi-level tool for the organization of data and knowledge. A tool that, from time to time, allows to add or exclude elements, aggregate or disassemble parts, structure or de-structure the complex system territory/buildings. A tool that works for attractors and bonds, an “open” model, through which to hypothesize the interactions between things, that is between the “families of possible forms” (Saggio, 2003) and can describe alternatives in the directions of development. It is an experimental and creative action, a model hypothesis which assumes the virtual and immaterial components as vectors of forces capable of transforming matter. «The form is constantly changing and only at the end emerges, replacing the idea of a closed, defined, stable, isolatable whole, that of a dynamic process in progress in which the final form represents only one possible actualization» (Gregory, 2010). A programmatic practice in which «to connect and disconnect means to design the bones, the organs, the nerves and the cells of the territory and to know where each of these must in some way terminate..., working on archipelagos of thresholds, domains and relationships; therefore intervening on the materiality and understanding that this is a product of contingencies but also of norms, of order codes. Asymptotic logistics of continuity and discontinuity is political organization and effects, it is intercepting the material-ideological procedures that regulate the territory determining each time a dual, schizophrenic and contorted spatiality» (Ruberto, 2017). The immaterial component is open, reversible, modifiable, in harmony with the natural rhythms of evolution and development and with the imposed programmatic logic, determined by constraints and data, considering the latter as parameters, entities that can be manipulated, variable, modifiable and dynamic. Constraints and

parameters, in the reading of a territory or in the constitution of a project, are two complementary and inseparable aspects that allow you to describe, codify and measure the options (Reas, 2010).

In this context, the theme of abandonment, isolation of the internal areas and development is the background to the whole proposal for the territory of Basilicata, considered a complex and reticular system of which to grasp the characteristics of the places, the architectures, the stories, the stories of the daily, the material culture, the experiences of life, communities, to recreate new coexistences and produce new values.

In the settlement plan characteristic of the areas of the agrarian reform, and in accordance with the experimental lines proposed by the research, a heritage of historical dwellings and farmhouses in abandonment is recognized and selected, buildings-node/attractors of relationships that once contributed to the identification of that structural grid between artifacts and environment that still resists change and survives memory. Among these buildings, the Casino Federici is assumed as the “prototype building” from which the strategy starts.

The design of the building becomes the model capable of modifying not only itself through the use of digital fabrication techniques, but also, in a synergistic relationship, to direct the changes that design and shape the context with which it relates. Between the building and the context a dynamic, open and generative bond is established in which stability and mutations alternate according to trajectories that are a function of time, social systems, economic organizations, environmental rhythms. The system territory/buildings are considered as an algorithmic system, a code continuously reprogrammable according to the values of the variables in play, a network system, continuously adaptable and temporary. In the concept of provisionality lies that component of the mutation which is typical of the vital cycles in which to vary of the inputs corresponds to a variation of the physical outputs and not. According to this principle, space is occupied by physical elements but is built through the changing interaction between matter, persons, energies and non-linear processes in which strong bonds and weak bonds intersect (Granovetter, 1998). The latter, in particular, feed on the reactive capacity that comes from the need for “to be reborn” in new forms of life, a capacity that is linked to the human concept of survival and that connects, in architecture, to the paradigm of adaptivity as a system’s ability to modify itself in order to find new balances and uses in a dynamic relationship between what destabilizes and what changes. Poincaré had understood from the beginning of the ‘900 how necessary design and creative action capable of uniting pre-existing elements in new combinations that are useful (Poincaré, 1997). Therefore, reviving the abandoned cultural heritage can be an opportunity to rethink the reasons for the development of the territory as a whole, to activate new relational links between development and employment processes and give life to a project that has its roots in the great challenge of digital culture that contemporary society is preparing to face.

3. Montalbano Jonico and the Metapontino: a network for a development process

Montalbano Jonico rises at 292 m above s.l., between the Cavone river to the east and Agri river to the west, in the immediate vicinity of the Ionian Coast, in Basilicata (Italy). The territory, mostly hilly, is of considerable scenic and naturalistic value especially for the presence of gullies, deep furrows in the clay soil that degrade up to the cultivated fields of the Piana del Metapontino. The Ionian area has experienced great transformations in the last century, from marshy and malarial land to rich and flourishing land, marked by large partitions of land lined by North-West to South-East, signs still readable today of the reclamations made in the 1930s and the Agricultural Reform in the 1950s, which tell the agricultural organization of the territory and constitute its identity matrix. The Metapontino, the Ionian Plain of Basilicata, has experienced a great renewal that has restored value to an area burdened for a long time by phenomena of brake on development. First of all, the dominance of the fugitive and the drama of malaria. The reform measures and, more generally, the public intervention of the 1950s contributed, through the process of expropriation of large property, the transformation of land and the subsequent redistribution of land, to bring about that necessary rebirth of the southern territories, still evident today in the shape of its urban agglomerations and in the presence of a quality agri-food sector.

At the end of the Second World War, the Metaponto Consortium was involved in the planning of reclamation works and, thanks to the implementation in Italy of the Marshall Plan, the yards for the construction of the great irrigated infrastructures as the dams of San Giuliano (near Matera) and Gannano (to behind of the Piana of Metaponto) are started which have allowed the rivers to be adjusted to use them for irrigation and civil purposes, and to manage the conditions of swamp and hydrogeological disruption. At the same time, the action of land reform has been launched, involving the territory with leopard's bush, investing the Piana di Metaponto and redefining the building characteristics and the territorial areas with an agro-food vocation. Between the coast and the interior are recognizable the rural streets and the farmhouses, generally distributed along the main roads. Next to the farmhouses are the new rural villages, places of polarization of collective services and rising nuclei of future urban, productive and social fabrics. On the whole, land reform has proved to be an example of successful public intervention because it has had the important merit of radically changing the agricultural landscape, freeing the territory from serious difficulties to move it towards a virtuous economic and social path. In addition, land change has been an essential basis for the development of the first major industrial initiatives in agriculture. In fact, because it did not fail in its strategic objectives, the land reform also took care of the construction of the first plants for the conversion of agricultural products (such as the Policoro's Sugar Factory in the agro of Montalbano Jonico) and the first companies for the production of work tools. This intervention could not have been carried out without the help of specialized technical staff able to manage and control both the machines and the production chain: hence the importance and necessity of "training" new technicians to meet the needs of emerging industries. This initiative, already at the time, was part of a regeneration action that was much wider than the territory, which extended to the improvement of social and cultural conditions, as well as to the economic conditions and well-being of the communities.

The characteristics of the physical space of the Metapontino, organized by lattices, and its fundamentally agricultural vocation, are the elements that, already starting from initial analysis, are identified as the basis for the project strategy. The first information is processed through site visits, photographs, physical surveys and maps describing a reality made beforehand of signs not yet explicitly related but that already seem to address the operational boundaries and give space to the vision of the future. The vision is understood as the ability to build from a new way of understanding and defining spaces, a vision not as a thaumaturgical capacity to predict the future, but rather as an inventive ability to build a possible future (Campioli, 2016). A future that is defined starting from the possibility to put together material and immaterial components, flows and techniques, landscapes and people, in relation to the systemic vision of the territory and through elaborations that refer to the idea of network: a territory of course, which not only looks beyond its own borders, but which finds in its natural internal network the reasons for development. Therefore, Montalbano Jonico and the Piana del Metapontino, of which the Municipality is part, constitute a complex matrix system that finds the greatest generating force in the different declinations of the constituent components: the different territorial characteristics become, in the project idea of the working group, that set of elements (attractors, parameters and constraints), at the same time variable and stable, capable of directing new and new paths of development through the initiation of reticular relations. Starting from these reflections, a network of municipalities has been identified, consisting of those belonging to the GAL START 2020 (Territorial Strategy Accessible Tourist Responsible), which also includes the Municipality of Montalbano Jonico. Over the last few years, the weight of Local Action Groups (GAL) has grown considerably in Basilicata to become major territorial development agencies, especially through the networking of resources and the concrete and participatory implementation of regional planning at local level. The same logic of coordination at the local level can be found in the organisation of agri-food districts, based on shared social and environmental responsibility, as well as in the promotion and enhancement of agricultural production. The District of Agro-food Quality of the Metapontino counts approximately 74.000 hectares of agricultural area and covers 80% of the regional fruit and vegetable production. GAL and Districts are in this sense significant realities of the economic organization and of the natural vocation of the territory, able to give back an integrated and cooperative system that connotes also the social and occupational dynamics.

In particular, the GAL START 2020 was born in 2016 from the union of 17 Municipalities and 49 private partners belonging to GAL Cosvel (Metapontina area) and GAL Bradanica (middle Bradano area) with the objective of connecting the city of Matera and the surrounding territories. The latter, partly internal and depressed, support only local resources and feed on a slow vitality, which follows patterns of contracted relationships, often hostile to any contamination hypothesis that modifies the architecture and natural biological rhythms. The change assumed by the GAL through the START 2020 action plan aims at reactivating cultural heritage abandonment and enhancing the agri-food chain, to which is linked an idea of the development of sustainable tourism and its socio-occupational dynamics. The driving force promised by Matera, through its Dossier of candidacy for European Capital of Culture, and the commitment of the municipalities themselves in the search for a “dialogue”, has not always determined the desired effects. Many problems remain open, mainly related to a lack of strategic planning of the territory, a systemic vision of the places, processes of governance of the complexity that characterizes that part of Basilicata between the hill, the gullies and the sea, in a natural dynamic that brings together composite riches: small towns, rural agglomerations, noble farms, castles, towers, furnaces, distributed on mainly cultivated routes, but also production sites and working districts, testimony of an important part of the national industrial history, confinement colonies that instead recall an Italy at war and dominated.

The attention to the multiple territorial resources has oriented the identification of the material generative elements (the attractors) and immaterial (the history in its evolutionary dynamics) that have informed the elaboration of the strategy. The area of study has allowed evaluating the potentialities and the criticalities in the relationship with Matera and the adjacent municipalities, identifying the opportunities for the transformation and outlining the potential lines of development: hybrid, random, descriptive directional lines of new dynamics and networks, which, according to Althusser (2006), we could define as trends: «a trend does not possess the form or figure of a linear law, but it can fork under the impact produced by the encounter with another trend, and so ad infinitum. At each intersection the trend can take an unpredictable path because its substance is random».

4. The decision-making process for an adaptive territorial strategy

The elaboration of the territorial strategy develops intentionally on several levels, enabling the interaction between several disciplines that contaminate and relate to each other in a process that is built up through continuous feedback, discontinuity and circularity, in a decision context in which each acquisition, data, processing and progress continually re-conditions the path. An open, modifiable, incremental, re-programmable decision-making process has been structured, which attempts to reconstruct the various components in an organic unit and which makes use of differentiated tools and techniques that favour interaction and collaboration (Fig. 2).

Moreover, the construction of transformation processes cannot ignore the social dimension and the search for a consensus that allows conflicts to be managed, but also from the awareness of the consequences deriving from the unconscious use of resources, from the waste of energy deriving from the obsolescence and degradation of the built heritage, from risks due to climatic changes, from environmental disaster, but also from social and economic problems. Issues that focus on a new idea of well-being that is linked to the actions of regeneration and the desires of the communities (Cerreta et al., 2016; Falotico, 2014).

The decision-making process was structured starting from the identification of the characteristics of the macro-model, the territory, to then go down the scale and progressively motivate the outcomes and the programmatic choices, up to the project of re-functioning of the model-type, the Casino Federici, assumed as a generative node of the entire development strategy and of a process of spatial mutation (Van Hinte, 2003) capable of generating fields of possibilities rather than stable certainties.

The analysis of the territory was carried out by identifying the different components (environmental, social, economic, cultural) in relation to the Casino Federici, and the new function that it should have assumed, in a synergistic relationship where local and global, large and small scale, environment and matter,

people and numbers, summarize and describe scenarios that “incorporate” already in themselves, in the given, generative lines of transformation.

Figure 2 - Montalbano Jonico in relation to the system of Municipalities belonging to the Local Action Group (GAL) START 2020



Source: elaboration of the authors

The decision-making process was structured by means of a Spatial Decision Support System (SDSS) (Munier, 2011; Cerreta and De Toro, 2012; Cerreta and Poli, 2017) which made it possible to organize the phase of knowledge of material and immaterial resources, to identify the relationships, to explain their potential and the elements of crisis and, finally, to guide the decisions. In particular, the SDSS has been divided into the following phases:

Phase 1: knowledge and processing

- identification of emerging issues in the territory;
- data collection through direct surveys, web sources and institutional data analysis;
- classification of information and identification of three thematic dimensions (Society, Economy, Environment);
- data processing and construction of qualitative and quantitative indicators;
- spatial representation of indicators through a Geographic Information Systems (GIS) platform.

Phase 2: synthesis and evaluation

- synthesis of the potentials and critical issues emerged from the indicators;
- multi-criteria evaluation of territorial opportunities with the geoTOPSIS method.

Phase 3: scenarios

- elaboration of scenario maps that identify territorial opportunity networks.

In Phase 1 (*knowledge and processing*) the GIS platform was the first tool aimed at activating the decision-making process, intended as an action-space in which to manage the variety and complexity of the data and in which it was possible to interact with qualitative and quantitative components to produce new knowledge. In this, a phase of identification and selection of the multiplicity of available data, to the collection of hard and objective data, was accompanied by the detection of soft and subjective data. The elaboration of the various data has allowed us to delineate the future trajectories and to define the operational boundaries of the strategy, taking into account three thematic dimensions (Society, Economy, Environment) declined considering the physical, economic, cultural and social capital of the selected territories.

For each thematic dimension, a core set of indicators has been developed that takes into account the data collected by geostatistical and network surveys and field acquisitions carried out thorough inspections, surveys, photographs, thematic maps.

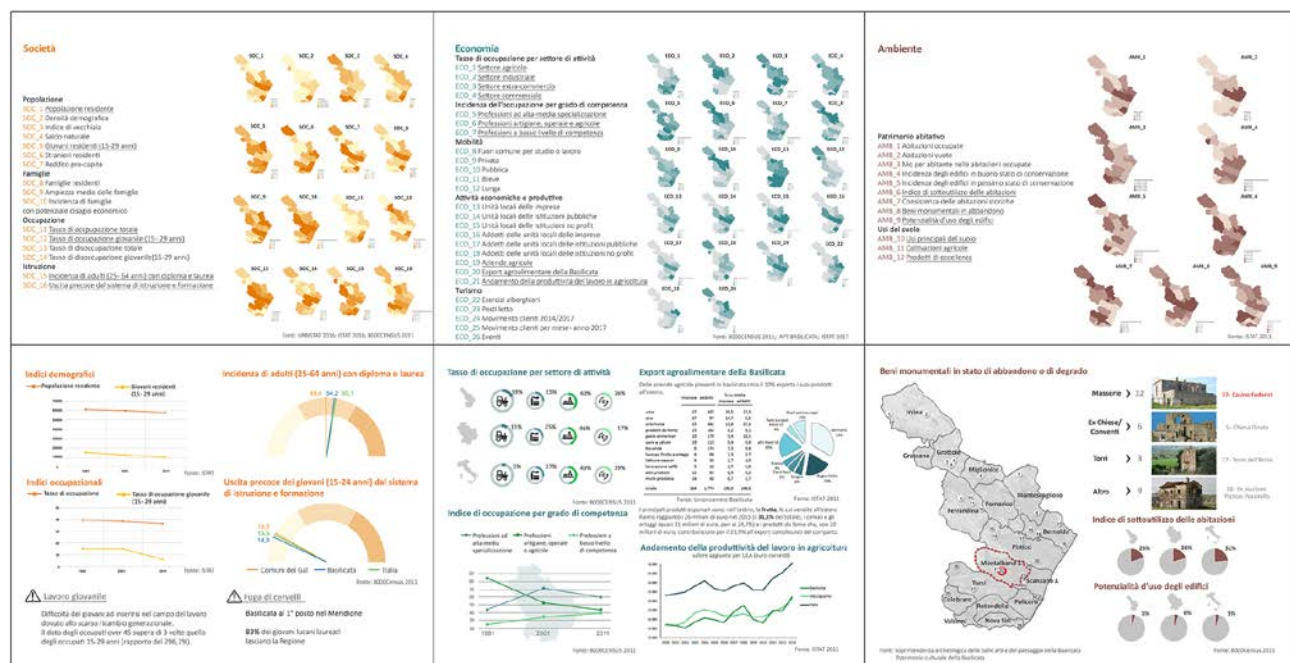
The Society dimension is aimed at identifying the communities that are most sensitive to territorial or potentially most active promotional actions. The characteristics of the population were elaborated through three parameters: age, occupation and education.

The Economy dimension aims to identify those areas in which the predominant economic-productive activities are concentrated and to define the leading sectors of activity. In particular, the selected local resources are linked to quality agricultural production and tourist accommodation.

The Environment dimension describes the potentialities and environmental criticalities of the territory. The areas and sites of naturalistic and cultural interest have been identified, those in which phenomena of abandonment are recorded, and the state of the housing heritage has been described.

For each thematic category, 16, 22 and 9 maps have been structured respectively representing spatially the indicators developed and identifying the territorial specificities, constituting an essential prerequisite in the strategy elaboration process (Fig. 3).

Figure 3 - Synthesis maps elaborated with the geoTOPSIS method and referring to three thematic categories: Society, Economy, Environment



Source: elaboration of the authors in GIS environment on URBISTAT 2016 data, ISTAT 2016, 8000CENSUS 2011

In Phase 2 (*synthesis and evaluation*) the indicators were evaluated using the geoTOPSIS multi-criteria method, which allowed us to return a summary map for each dimension able to explain the territorial opportunities. The geoTOPSIS is integrated into the VectorMCDA plugin of the QGIS software (Rocchi et al., 2015; Massei, 2018) and is an implementation of the Ideal Point algorithm according to the TOPSIS model (Technique for Order Preference by Similarity to Ideal Solution) (Hwang and Yoon, 1981).

Therefore, spatial analysis has been elaborated considering the descriptive attributes of the indicators as evaluation criteria, attributing a weight and identifying a preference index (gain-cost) to each of them. Through the application of the geoTOPSIS method, three synthesis maps have been developed for each thematic category, capable of representing local resources using a semantic scale at three levels of intensity (low, medium, high potential), in order to visualize the areas characterized by greater or lesser possibilities of

development taking into account the interactions between the three dimensions (Society, Economy, Environment). An analysis of the synthesis map of the potentials relative to the Society dimension showed a general population decrease, in contrast with the dynamics of young people between the ages of 15 and 29 still strongly rooted in the territory. As regards education and training, two phenomena are predominantly observed. While on the one hand 16.5% of young people between the ages of 15 and 24 leave school early and are employed in their own lands in professions with a low level of competence or in crafts, on the other hand, around 80% of those who are in possession of a higher education (graduates or graduates), leave the Basilicata region. From the comparison among Montalbano Jonico and the neighbouring Municipalities examined, Montalbano Jonico emerges in a more critical condition than Bernalda, Montescaglioso, Policoro and Scanzano Jonico. Therefore, it is highlighted to activate a strategy that can transform some significant criticalities into potential forms of development.

The synthesis map of the Economy dimension shows how agriculture is the main source of income. The agricultural sector has, since the agrarian reform of the 1950s, showing a vitality that today takes shape in applications of smart farming and precision agriculture linked to digital technologies, and to systems for monitoring and mitigating the risks deriving from climate change. The employment rate in the agricultural sector is in fact clearly higher than the national average (19% against 5% according to the data of the last census) and returns quality food products, strongly rooted in specific local systems but which have found favour with international markets. Among these excellent products, the Candonga strawberry produced in the territories of Bernalda and Pisticci, the Signira pear originally from Valsinni, the Staccia orange typical of Montalbano Jonico and Tursi and the olive of Ferrandina emerge. In recent years the cases in which a territorial economic system has been built around the offer of typical products, itineraries and paths to discover places considered marginal are not isolated; in these realities the products of the earth have constituted the multiplier of connected services (agritourism, rural tourism, reception), which have also had positive effects on growth and social improvement.

Although tourism is not the main source of income in Basilicata, the touristic activity is particularly interesting especially in the municipalities located on the Ionian coast due to the presence of the sea, less so in the inland areas that focus all on culinary traditions or events related to patron saints and religious. The economically leading municipalities are Bernalda, Pisticci and Policoro. The main criticality lies in the concentration of activities in the high summer season only, since it requires a reflection on the possibility of expanding the offer by evaluating the opportunity to bring out from the different territorial identities rheumatisms alternative to the beach or food and wine. We refer in particular to cultural tourism, to the "green" one, to cine-tourism, to sports tourism, to congressional tourism as to all those forms of tourism linked to health and well-being, which are connected on the one hand to the strengthening of specificities local and on the other hand to the idea of contamination advocated by an incremental network model, which identifies in the individual occasions, caught in their local specificity, the potential for triggering new links between places, elements, fragments of the territory that are set up to become strategic components of the valorisation process.

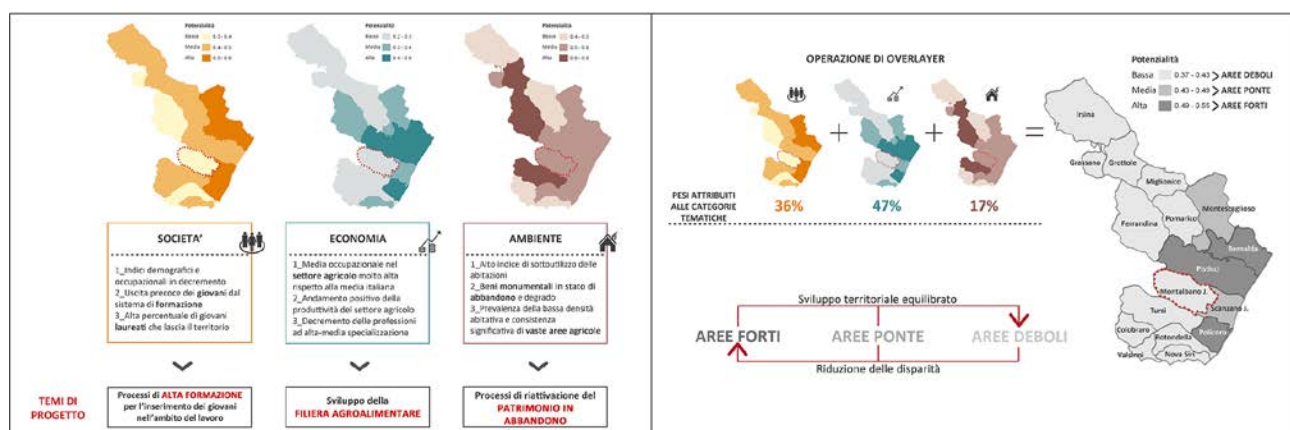
The synthesis map of the Environment dimension returns the framework of the building stock and the general conditions of land use. In particular, there is a high number of underutilized buildings (with an average of about 24% between the municipalities of GAL) or abandoned, some of which of particular architectural value (such as the Casino Federici). The territorial reading also returns a positive datum in the relation between the occupied surface and the free surface. The density of the "small" residential areas that characterize the countries of Basilicata is distributed according to a territorial design marked by large agricultural areas and of environmental value that describes a landscape that is at times still uncontaminated, rarefied, a characteristic condition of few other territories in Italy. The areas of particular environmental value are those of Montalbano Jonico and Pisticci characterized by the presence of the Calanchi Regional Park.

The elaboration of the proposal has made it possible to identify, for each thematic category (Society, Economy, Environment), some guide-actions appropriately selected to support the strategy of valorisation and territorial transformation. These actions will support the research team in identifying the new function to

which the prototype building will be destined and in the construction of the generative process intended to guide the directions of change.

Phase 3 of the decision-making process is characterized by the construction of possible development scenarios (Fig. 4). The complexity of their definition depends on the system variables (actors/parameters/data) on which one operates, but their construction makes it possible to support and argue the choices by comparing alternatives with the aim of verifying compatibility, synergies, factors of criticality and potentials. The scenarios thus become the simulation and, at the same time, the control tool of possible futures and their elaboration requires analytical rigor, field surveys, relationships with multiple interlocutors, identification of variables and measurable and invariant parameters to be taken into account, with the aim of describing all that is resistance to transformation and what instead facilitates it, identifying favourable decisional contexts. In this sense, the scenario is an "open project": alternatives, critical reviews, audit, participation and multidisciplinary, becoming both an opportunity for investigation and an integral part of the decision-making process. The scenario is defined, therefore starting from the context, from the place, from the building, and it is articulated around them, is measured and structured in the relationship with its specific variables, is compared with the social and economic dynamics, with the production systems and local construction. At the same time, the construction of scenarios, activating the comparison, becomes a useful tool for breaking pre-established models, changing established habits and encouraging change.

Figure 4 - Scenario maps and identification of significant areas in the overall relationship with the Metapontino socio-economic system



Source: elaboration of the authors in the GIS environment on URBISTAT 2016 data, ISTAT 2016, 8000CENSUS 2011

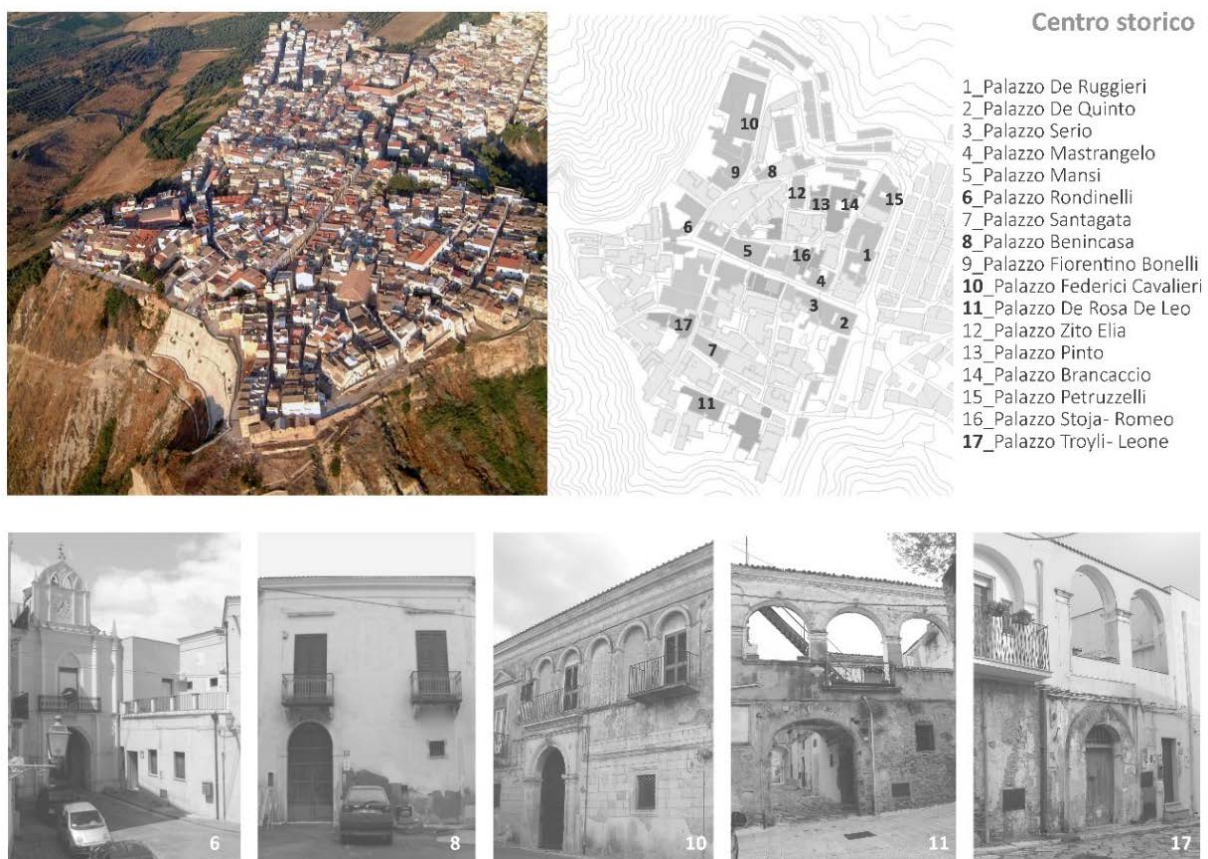
A “map-overlay” operation was therefore carried out, for which the synthesis maps of the previously elaborated thematic categories were superimposed, and the weights were assigned again to each selected indicator, consistently with the weights assigned in the second phase of the decision-making process. In the final map, thus obtained, the areas with high, medium and low potential in relation to social, economic and environmental dynamics were identified. The same areas were then renamed "weak areas", "bridge areas" and "strong areas" (Fig. 4). In this first analytical framework, the area of the Metapontino was stronger than that of the middle Bradano, while the common development drivers were those of Bernalda, Pisticci and Policoro. Montalbano Jonico has instead revealed a condition of weakness, typical of the internal areas, which becomes an unexpected "strength" for the new valorisation process. The synthesis map made it possible to deduce the strategic opportunities connected with higher education, the development of agri-food supply chains, and the revitalization of abandoned architectural assets. These opportunities will become concrete in the system of network relationships, whose nodes are constituted by attracting buildings, abandoned goods similar to Casino Federici, which will be able to accommodate training, experimentation and research centres. In strategy, the Casino Federici takes on the role of a generator of a multidirectional transformation process which, by connecting the attractors initially identified, draws, in successive

increments, new development paths capable of intercepting and influencing the various components. For example, the training component will make it possible to network schools, research centres and university institutes, and will involve an increase in not only local students, triggering new economic and social dynamics in the various territories. Taking into account the guidelines emerged from the results of the multi-criteria analysis, the training network will be linked to the experimental poles already present in the territory, such as the ITAS in Pisticci, the Alsia-Agrobios in Bernalda and the ENEA in Rotondella. These centres are involved in research and development in the field of green biotechnology, already investing in social capital by training young people in the field of molecular biology and genetics, and also by raising awareness on issues related to innovative technologies applied to agriculture (Agriculture 4.0 or Smart Farming). Connected to each other, these poles prepare themselves for the activation of new synergies, projecting the Basilicata research context into the broader national and international network.

5. Casino Federici Hub Farm: material culture, techniques, regenerative design

The analytical-critical elaboration of parameters and constraints identified allowed to determine the new function of Casino Federici, conceived as a Hub farm, building/generative prototype that is configured as a High Training Pole for the development of the agro-food chain (Fig. 5).

Figure 5 - Casino Federici and the relationship with the historic centre of Montalbano Jonico



Source: Aerial photo taken from basilicataturistica.it; cadastral plan taken from rsdi.regione.basilicata.it; photographs of the authors

The Casino becomes the centre and node of a complex grid that is built and modified over time, according to the connections that it is able to generate. The generating action will describe a geometry of reticular levels, new, neuralgic, sometimes unexpected, able to feed the dynamic directions of development to the different scales.

The concept of scale is fundamental in the experimentation developed: it ranges from the scale of detail, able to provide knowledge of the matter, to the scale of the building, of the village, up to understand the system of municipalities, of the Region and, in a programmatic vision, a wider territory.

5.1 *Material culture and techniques*

The Casino Federici belonged to a family of Baroni, the Federici family, arrived in 1712 in Montalbano Jonico from Corleto Perticara before handing it over to a branch of the Troyli family who, for a long time, elected his home in Montalbano Jonico. It is located in Borgo Nuovo, a district of the last expansion of Montalbano Jonico, which marks the entrance to the town. The temporal location of the artefact is uncertain, as there are no historical documents that can clarify its origins, if not a photograph of 1928 and the historical memory of the Federici family that allowed to place the building period between 1700 and 1800. The construction of the Casino can be associated with the village-fortified farms defined by Mario Tommaselli in his book *Masserie fortificate nel Materano* of 1986, and before that, in 1942, by Luchino Franciosa who classified the rural dwellings of Basilicata. The Casino can be associated with a farm of mixed type, destined to the cerealiculture and to the breeding, generally organized on two levels: the low floor destined to warehouse and shelter and the high floor to dwelling.

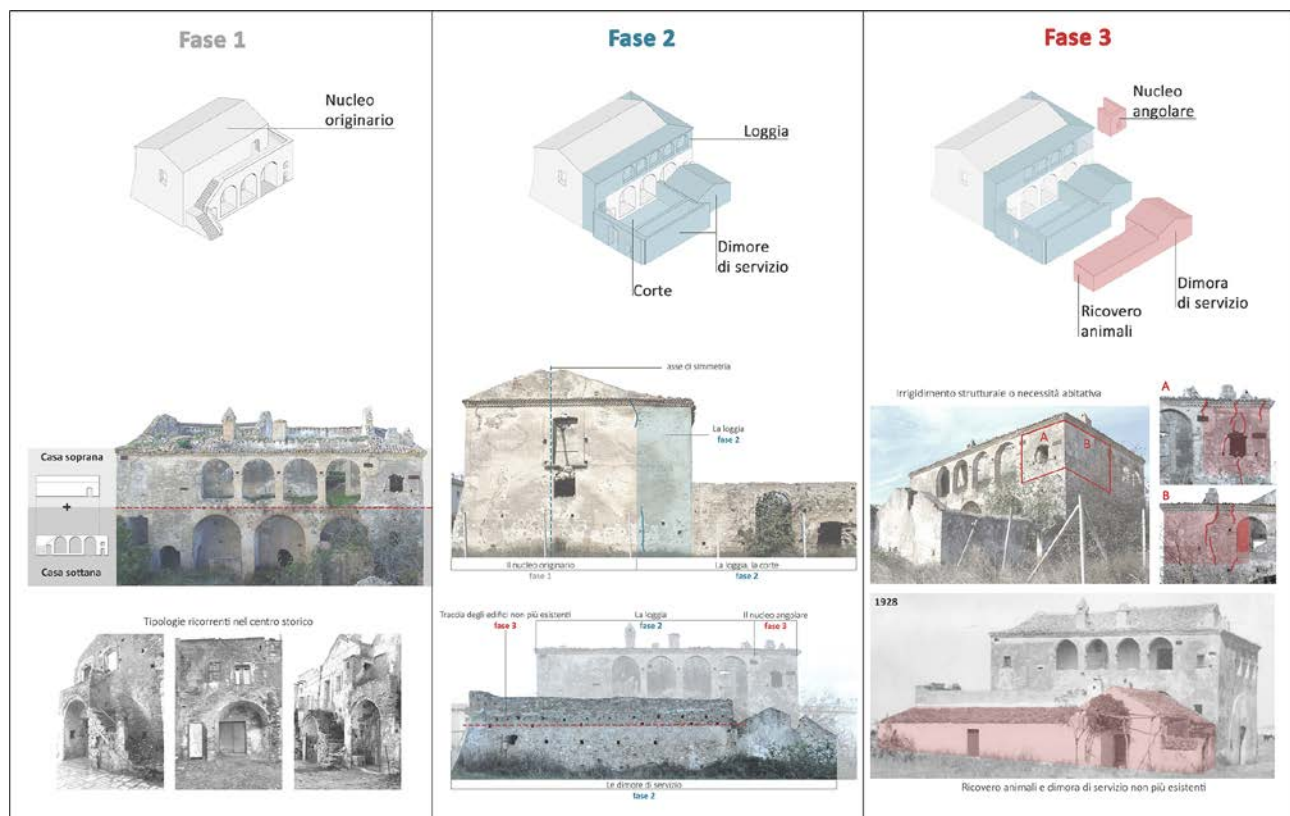
The scarcity of documentary sources and the need to determine technical characteristics and transformation of Casino Federici have imposed a rigorous field study in order to identify invariants and technical and typological variables. A complex and long campaign of reliefs on buildings in the historical center of the country has been organized that has allowed to identify and catalogue techniques of the local constructive tradition, decorative elements and expressive forms, as well as understanding the methods of production of the clay components that make up most of the local rural and noble buildings. Clay is the raw material that characterizes the badlands formations diffused in the great part of the province of Matera, from Aliano up to Montalbano Jonico. The latter boasts the most important park of the Basilicata Region for the environmental and landscape characteristics of value and for the particular geological and paleontological aspects. Rich is the presence in the territory of numerous furnaces for the production of clay bricks that were extracted directly from the badlands.

The investigations carried out on the historical buildings of Montalbano Jonico (Palazzo Federici, Palazzo Troyli and Palazzo De Ruggeri) have allowed identifying some recurrent elements, characteristic of the building and architectural tradition of the place (Fig. 6). They distinguish between these the loggia, marked by round arches made with bricks disposed to knife; the crowning in bricks and tiles of brick arranged in alternate strips; the vaulted rooms generally placed at the entrance of the noble buildings and finally the typical external staircase, which connects the two overlapping spaces of the low house and high house. All these type-construction features are present in Casino Federici.

The similarity between the construction elements shows that the formation of the “constructive type” shared descends from the more classic process of iteration/optimization of the technical act (Nardi, 1994), from the widespread presence of “individuals” very similar but not completely equal that reveal the continuous work of “repetition with differences”. Differences presumably arising from particular context conditions or from the desire to improve an element or a detail of the construction. But the differences are not the most significant aspect, but the similarities. The similarities are the constructed demonstration, therefore indisputable, of the collective sharing of a way of building that means, for wide traits, collective sharing of a way of living and therefore of life. Sharing implies that collectivity systematically legitimizes the act and the legitimization of the individual by the community invariably means sharing the ultimate nature of the choices and so some constructive actions. The sharing of constructive actions is the basis of material culture, understood as that complex of knowledge, technical acts, common tools to a community usually based on an agricultural-craft economy. In particular as Bucaille and Pesez support (Bucaille *et al.*, 1978) «the study of material culture privileges the masses at the expense of individuality and elites; it is dedicated to repeated facts, not to the event; it is not concerned with superstructures, but with infrastructures ... Man is also a part of material culture; his body, as a semiotic transducer, is equally important in order to reassemble the general picture of a culture or civilization, in the same way as from ruins and coins one can

outline the city, industry and trade or exchange, the type of consumption of the various classes of the population ... Finally, material culture tends to build a bridge to the imagination of man and his creativity and to consider three fundamental components: space, time and sociality of objects as its own. Although it still remains to be defined more precisely, and although there is still some ambiguity, the study of material culture belongs to historical research, and with it collaborates with his own method to retrace the spirals that every ruin of the past brings with it». The presence of a shared type of building is the “stone demonstration” of the existence of material culture, equally shared, which must have generated it with its particular complex of constructive actions, of manual skills and related instrumental equipment. In the often unconscious work of processing and definition of the type, the aspects usually taken into account were the cheapness (both in the construction and in the management of the good), the good functioning of the various devices, the easy supply of materials, the durability of the services offered by the construction. The achievement of good performances in all these sectors made the whole of the buildings eligible for collective legitimacy and thus to begin the process, long and complex, that leads in the formation of the type. The ruined state of Casino Federici has allowed to recognize materials and construction techniques and to hypothesize its possible transformations over time, especially through the “reading” structural components (Fig. 6).

Figure 6 - Hypotheses of growth in the time of Casino Federici derived from the campaign of surveys, documentary sources and historical memory of the heirs of Casino Federici and the inhabitants of Montalbano Jonico (Mt)



Source: elaboration and photographs of the authors

The more information has been deduced in fact from the wall systems in which two different types of masonry are recognized: a compact bearing masonry, own of the main nucleus realized in clay-based bricks, river stones and mortar, and a sack masonry with brick bricks, river stones, gravel, processing scraps and mortar characteristic of the courtyard and service dwellings. Each type of masonry also corresponds to a dimension of the bricks used: 30x14.5x4 cm is the characteristic measure of the elements of the compact masonry, while the sack masonry consists of elements measuring 26x13x4 cm. These data allowed to

hypothesize the temporal succession of the construction of the two systems: to the realization of the main building have been added, for successive enlargements, the small court and the service houses.

5.2. The hypotheses of transformation

The absence of documentary sources has imposed a long, rigorous and complex activity of relief of the building, in order to measure its parts and describe its cracking map. The limited accessibility and the obvious risk condition due to the presence of weeds and collapses of part of the vaults, the roof and the access ladder to the upper floor, determined the need to proceed in different ways. In the easily accessible parts, the classic measuring instruments (laser meter and meter) were used, while for the non-practicable parts, high precision instruments, such as the PLR laser Disto S910 Pack, were used, which allowed rapid and accurate measurements between two points from a single position with a maximum range of 300 metres and an error margin of only 1 mm, and the drone DJI Phantom 3 SE with GPS system incorporated, which made it possible to detect and analyse the rooms of the upper floor and, in general, the interior. The data collected allowed us to process the plans, prospectuses, sections and details of the building with a good precision margin and to facilitate the knowledge of the structural system (masonry and vaults). From this last operation it was possible to reconstruct the different phases of building construction and, therefore, its additions over time. A first important phase has seen the construction of the main building, then the noble residence, whose configurative hypotheses have also been deduced from the comparison with similar buildings characteristic of the architecture of Montalbano Jonico. From the history of local architecture, in fact, in part told by local experts and researchers and partly deduced from the reliefs of its housing sectors, it has emerged that the first typical houses of the Municipality of Montalbano Jonico were born as a single volume at a single level, in which different functions were carried out: from the residential one to the storage or shelter one for the animals. Over time, due to the need to have a larger living area, have been realized the upper levels that have given rise to a new typology consisting of overlapping environments, processing feature that is also recognizable in the Casino Federici: in this case, the “sottana” house becomes exclusively warehouse for tools, store for agricultural products or shelter for animals, while the “soprana” house assumes exclusively the dwelling function. The connecting staircase between the different floors was placed strategically on the outside and leaned against the wall structure, another element that makes it credible the hypothesis that the houses have been built over time to meet new housing needs.

In a later phase to the realization of the original building, of the compact shape and little open to the outside, are realized the loggia with arches, the courtyard and the service residences, hypothesis derived largely from the analysis of the cracking map. In particular, the traces and the visible lesions in correspondence of the gallery, are evident signs of a more recent realization than that of the original nucleus. This hypothesis is further supported by the asymmetry of the double-pitched roof evident in the southern façade and, as already mentioned, the different construction characteristics of the wall system of the outer courtyard and the service buildings (sack masonry) compared to the original core (compact brick masonry). In the only photographic document found, dating back to 1928, it is also visible the presence of two other small volumes close to the east side of Casino, witnesses of a further increase in the time of the entire system of which today there is only a trace imprinted on the external masonry. A last element of the building, a very small room in the northeast corner of the loggia, would seem to provide trace of further information useful for the reconstruction of the object of study. Probably born for the housing needs or with function of structural stiffening, it constitutes the natural and subsequent extension of the wall sect covering half of the first arch of the loggia on the north side and for this reason it is walled.

5.3. The regenerative design: from restoration to digital fabrication

The regenerative design becomes, in the work proposal, a creative action capable of guiding an open, evolutionary and collaborative process. It is for this reason that the prototype is designed as a Hub, centre and powertrain of network links. In the Casino Federici material culture and innovation coexist and complement each other: the first said the technical invariants, aims to maximize permanence, the recognizability of ancient materials, respect for traditional techniques, and consolidation measures. The

second identifies the variables, the future-generating mutations that work on multilevel and multiscale hypotheses. At the scale of the building, the parametric conception of the architecture mediates the transformative possibility of the elements that are able to generate “parameters” with the condition of doing that still requires a good dose of “craftsmanship” as part of the culture of building. A culture never revolutionary, slower, which requires skill and mastery and in which the craftsman of Richard Sennet (Sennet, 2008) is «the representative figure of a specific human condition: that of putting a personal commitment in the things that are done». In the new practices that characterize contemporary building, linked to digital manufacturing, the artisan back to make talk about himself and is called *maker*. The maker uses digital tools, designs on a screen, uses DIY “manufacturing machines” and instinctively shares his projects by activating connections. «New craftsmen progressively combine new digital techniques with traditional techniques. ... The digital support of the new tools requires another form of apprenticeship, more complex, which is often incompatible with the average level of education of a craftsman, however advanced. But familiarity with the worked material and the physical instruments at the end of digital machines represents an important link between traditional techniques and new techniques: and if this is added to the possibility of employing a skilled worker in the craft farm, it is understandable why some craftsmen, not directly capable of the great leap, have been urged to combine their ancient techniques with modern technology» (Pone, 2017). In this productive idea, and at the same time constructive, the computer, the terminal machine, is then already *fabrica* because in its instructions, in its alphanumeric data, there are already rules for replication, positioning, the aggregation of forms: it is already incorporated all the intelligence of *doing*. This new idea of “making” seems to subvert coded rules by loading a new materiality, a «immaterial materiality that moves away from the norms and a practical technicality, purely executive and it allows to stage the imaginary without renouncing the design gesture: not a purely pictorial image, but an image that is built in reality. The imaginary interpreted in the sense of architecture is not made of words but of tangible things, of objects in which one penetrates with the cultural intelligence refined by one’s own sensibility» (Vittoria, 2004). This possibility of “thinking in real”, working through simulations, variations, modifications, frees the project from the idea of a static perfection and projects it, more rationally, within the sphere of human modification and nature. According to Hugo (Hugo, 1904) «The great products of architecture are rather social works than individual works, rather the birth of a people in grief that casts of men of genius; it is the sediment that leaves a nation, the layer that forms the centuries, the residue of successive evaporations of human society; it is in a word a kind of ‘geological formation’». In this sense we like to imagine that in a future, perhaps not too far away, the architecture can complete that cycle of democratization already underway, which is transforming increasingly the designer into a man who works in “team” and “produces bespoke architectures”. It seems to be realized today the utopia of the *ars costruendi* several times evoked by Eduardo Vittoria and that refers to the ability to design according to logics closer to the needs of a society in continuous change and whose specificities, variables in different contexts, require adaptation and diversity.

In the design of the Casino Federici were used practices of *digital fabrication* for all those elements collapsed, and therefore no longer “witnesses of its history”, such as coverage, and for the design of external service spaces, less significant small buildings to which was conferred “new life” (Falotic, 2017a, 2017b). The idea-project is linked to the concept of the variability of some elements in opposition to the stability of those related to historical memory (Fig. 7). In this connection lies still the desire to combine innovation and tradition and, therefore, to implement that necessary reference to memory and, at the same time, to contemporaneity in the constructive and imaginative actions of the project. The new technical elements are all made of wood. The different components are also charged with technological and performance values to minimize the implementation difficulties and allow the realization by a low skilled workforce up to get, in the future idea, to the possible involvement of future users and their communities in the transformations. They are designed as a sequence of numbered parts, organized in an abacus and assembled, produced *on-site*, as in the past was organized the production of the bricks, cooked in the furnaces at the foot of the building site. The old furnace is replaced by a more “modern” large-format 3D printer, which converts the building into a large open-air laboratory in which man and information, matter and constructive logic are related: the

latter aim at reducing costs and times of installation of the elements, all dry assembled and interlocked, to optimize movements and storage of materials.

Figure 7 - The regenerative design: Casino Federici in the more general re-design of spaces, accesses and built heritage. Project plans



Source: elaboration of authors

«To evoke the work of the craftsman the German uses the word *Handwerk* and the French uses the adjective *artisanal*. The English language is less restrictive and uses *craft* (art, trade) in more extensive combinations, such as in *statecraft*, the art of governing, the political ability. Čechov applied the term *mastersvo* both to his art as a doctor and writer» (Sennet, 2008). Richard Sennet, in specifying the different terms, treats all these concrete practices as equals, as if they were laboratories in which to subject to analysis feelings and common ideas. In fact, there are no differences in being a craftsman. The difference lies in the tool and ingenuity. Today the makers, the new artisans, still have a peculiarity compared to the “old makers”: they are a connected community, collaborating through open-source practices. «The web has taught us the power of the “network effect”: when you connect people and ideas, they grow. It is a virtuous circle, more people together create more value which in turn attracts more people and so on» (Anderson, 2013). But the *maker* culture is also ecological. It is deeply rooted in an idea of responsibility as well as solidarity and sharing. In its DNA there is not only the push towards the use of advanced digital tools but an impulse to put the correct use of resources at the centre of the creative process and a cyclical idea of resources. This economy is based on the premise that everything is precious and should have a life in addition to the first use and every product we imagine, object or building, must be able to be repaired and reused before being considered waste. «Repairing to reuse is the best way to protect the environment by saving: this is the approach of the community *iFixit* that makes *Fix it first* a slogan that refers to an idea of struggle for the

protection of the environment very concrete. This community, in addition to sharing videos and instruction manuals to repair or disassemble or convert into new products everything, proposes a thorough reading of *e-waste* that particular type of special waste from electronic goods, containing many types of harmful chemicals, from lead to mercury, which cannot simply be disposed of in landfills because it contaminates soils and aquifers» (Colabella *et al.*, 2014). The makers make of this attitude a poetic of life extended not only to the conception of the instruments they use but to all that they are able to imagine, to design, to produce. The digital fabrication and the choice of wood as building material for the newly built parts of Casino Federici, are founded in the visionary strategy of makers.

5.5 *The selective construction site: circular culture*

Deconstruction is a practice that reverses the natural cycle of construction. However, it finds its meaning in the principle of temporary inauguration with the “civilization of machines” which has replaced the principle of the limited duration of buildings to the ancient principle of indefinite permanence, in accordance with a cyclicity which is proper to nature and which cannot exclude matter. If, however, new-generation buildings, for the most part dry-assembled, can be considered with good reason as the result of a project such as the “disassembly factory” and thus predisposed to the substitutability of parts, the reversibility of systems and their dismantling aimed at the possible reuse of components and materials, is not so for buildings characterized by wet connections, such as Casino Federici. These buildings are based on principles of irreversibility that do not allow any possibility of reversal.

Figure 8 - Exterior view of Casino Federici project



Source: elaboration of authors

The solidity and intangibility of the structural compages of these buildings, on the other hand, has made it possible to accept, as a factor of modification and alteration from the outside, only the degradation which, as is known, is a complex of phenomena related to the interactions over time between atmospheric agents, construction techniques and materials. When this phenomenon goes to the limit of structural inefficiency and the loss of functionality of entire parts of the building, in many cases this is abandoned due to the high costs of intervention, becoming in time rejection. The awareness of the limited resources and the need for optimisation of building practices have for a long time determined a new concept in construction practices which are oriented, in the case of interventions on the existing building, towards selective demolition.

Selective disassembly, despite controversial and still unresolved regulatory issues, is a strategic practice aimed at the rational and programmed disassembly of materials and components with the possible discard of unusable ones and the regeneration of those usable ones of reversible processes, they contrast the formation of a variable and dynamic existential space to the immobility of traditional processes, in which there are not precise temporal foundations, dream and ideal of much of the design research of contemporary architecture. In this practice lies the idea of a culture circular and regenerative that does not allow waste.

The construction site of Casino Federici organizes itself on two different levels: one linked to the practices of the digital culture and one that concerns the selective construction site (Fig. 8). The two logics, different but shared by the objective of optimization and rationalization, are part of a process that is only instrumentally understood as a conclusive part. In reality, it is a fundamental part of design thought and characterizes its progressive formulations. A process in which there is no separation between hand and head, between technique and science, between art and craft. A process that, at the same time, does not divide the man from the designer, the nature from the artifice, the part from the whole that coexist in a positive tension towards the “new” and establishes a new relationship between project and practice or between theoretical and practical work, in a synthesis that does not see disconnected the moment of formulation of ideas from that in which they materialize but which, on the contrary, it determines a real concert between those who ‘draw’ the project and those who guide the tool to build it. In this scenario, become fundamental operational practices driven by cooperation concepts, interoperability and adaptivity according to an image of reality in which nature and artifice are able to find a balanced relationship with resources.

6. Conclusions

In the research group’s experiment, there is also an attempt to answer to some of the questions as why and how to bring back to life abandonment assets, but also to the government of the processes that characterize the future of the habitats, processes that refer to a systemic, connective, relational, anticipatory, and visionary vision. It is understood that project innovation is linked to a cultural and thought revolution, also that building experiences a new craft, educated, equipped, and responsible. In this principle of responsibility lies the answer to how to revive abandoned buildings and at the same time adopt the positions of the builders of the future can contribute to ecological awareness, of respect for the limits of resources and for the protection of the environment. In this perspective the main objectives that can be linked to the experience of the working group are to reduce waste and save resources, to be included in the project and its generating idea.

Casino Federici is a building in abandonment, subject to the environmental actions that for years have caused the degradation to the point to make inefficient its parts more resistant, masonry and vaults, causing also collapses. Nature has penetrated with force among its “bowels”, contaminating the matter and reducing it to ruin. In the collective imagination the ruin is linked to the romantic idea of the memory, of the survival of the past: the Casino, on the contrary, evokes the idea of a dead “body”: those who remember it would like it comes back to life as before. In the memory of the citizens of Montalbano Jonico it has long represented a building symbol of the territory: a place of production, work, but also of leisure, expression of a condition of the local community based on the values of sharing and collaboration. Casino Federici today is a “refusal”, so redeveloping it means, above all, helping to find answers to the challenge to safeguard the environment with urgent and shared solutions. Reducing waste is part of the renewal of life cycles that is achieved by designing and planning the reversibility of uses by building on what happens in nature where there are not «Unemployed and not waste, all carry out a task and the waste of some becomes raw materials for others, in a cascade system in which nothing is wasted» (Segrè, 2012). Scientists and researchers have long been studying ways of transferring the principles of circular economy to the design and construction of buildings. At the centre of the reflections, the following fundamental question: Is it possible to design and build a building in which all the components and materials used are completely recyclable? We are far from being able to give an affirmative answer and it will probably not be possible in the near future, but the road is now mapped out. The evolution of the principle of sustainability is generating a series of normative transformations and new practices, sustainability in the design field is producing effects on the production

reality, markets and inhabited space. The idea of the environment has also changed, revolutionized by the advent of digital technologies and the consequent opening of new operational and thought horizons that have changed the notion of living, redefining material and physical support. The advent of digital practices is constantly increasing and widening the boundaries of living space (*augmented reality, social network, internet of things*), at the same time, it is bringing about a profound transformation of the project's own instrumentation. The city of tomorrow, as says Carlo Ratti, is a city in-formed by networks, psychic, responsive. In this context, the proposal has its roots. First of all, in the idea of triggering a network connection capable of directing the future of places in an adaptive way, secondly in an attempt to respond to the objectives of safeguarding resources and the environment, in which two questions become fundamental: the makers and the selective construction site. The particular condition of Montalbano is therefore a favourable context for testing practices that promote a new metabolic condition that is generated and re-generated in the system of material and immaterial relationships able to generate between the different components (culture, traditions, goods, resources and communities), in a synergistic dynamic that structure a complex experimental process, where we try to combine tradition and innovation, technical and digital culture, present and projective action to generate new values.

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