Smart Innovation, Systems and Technologies 177

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New Metropolitan Perspectives

Knowledge Dynamics, Innovation-driven Policies Towards the Territories' Attractiveness Volume 1

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Preface

This volume contains the proceedings for the fourth International "*NEW METROPOLITAN PERSPECTIVES. Knowledge Dynamics and Innovation-driven Policies Towards Urban and Regional Transition*", scheduled from 26 to 28 May 2020, in Reggio Calabria, Italy.

The Symposium was jointly promoted by LaborEst (Evaluation and Economic Appraisal Lab) and CLUDs (Commercial Local Urban Districts Lab), Laboratories of the PAU Department, *Mediterranea* University of Reggio Calabria, Italy, in partnership with a qualified international network of the academic institution and scientific societies.

The fourth edition of "*NEW METROPOLITAN PERSPECTIVES*", like the previous ones, aimed to deepen those factors which contribute to increase cities and territories attractiveness, both with theoretical studies and tangible applications.

When the call for papers of New Metropolitan Perspectives was launched in September 2019, no one could imagine that in a few months we would find ourselves suddenly catapulted into a totally unknown future. And the papers sent in January 2020, of course, could not in any way reflect the dynamics caused by the spread of COVID-19, the outlines of which will all be discovered and deepened in the coming years: it is still too early to fully understand the extent of these changes.

Today, we are still dealing with what appears to be a cataclysm of planetary proportions; it will take time to "historicize" events and interpret their profound meaning and long-term impact, through the multilevel observation—through the interpretation of macro-data and the in-depth investigation of the different realities involved—that the scientific community will be able to develop when the health emergency is over. At that point, the scenarios can begin to be configured with scientific rigour, which are beginning to be intuitively delineated in constant events. It will be possible to appreciate the permanent (real and perceived) effects on the daily life of communities, on the organisation of work and logistics chains and in the system of social relations.

At present, we can only hypothesise scenarios, more or less well founded.

The common thread, that linked the different themes from the Symposium in its original conception, was technology, in particular the effects produced on the settlement systems by the relationship between man and technology, in two different aspects: the progressive replacement of man with machines in practically all production processes and the spread of ICT.

The pandemic and the policies and practices put in place to contain the infection have brought this issue to the fore with arrogance. The replacement of physical interactions with "virtual" contacts has used consolidated technologies but has accentuated their pervasiveness, generating impacts of different nature. The next few months will tell us how much of this acceleration will persist in our daily lives and how much it will be a transitory phenomenon.

Permanent changes are conceivable, for example, in the organisation of work, with the adoption of smart working as an ordinary way of carrying out various tasks, also in areas where until a few months ago it seemed a distant future, such as in teaching.

And these changes will probably also affect other areas, just think of the use of culture, in a broad sense, as the many virtual opening initiatives of museums and sites of cultural interest have shown us in this period.

As well as central issues for democratic systems will be those related to the use of big data and their impact on individual freedoms: the ongoing debate on tracking movements and personal preferences is extremely topical.

However, the data that seems to emerge with greater force from the phase we are experiencing is the progressive loss of relevance of the location factor: the pandemic has made even more evident the fall of many barriers to the global dimension of relationships and exchanges. This change brings with it, as a consequence, a change also on the plane of centre–periphery dualism: what is centre and what is periphery, when the two terms no longer refer to accessibility to physical places but, for example, accessibility to goods and services and, ultimately, to knowledge? And how do you measure accessibility if you can no longer measure in metres or hours?

The other phenomenon on which it will be increasingly necessary to reflect in the future is the speed of changes. As already underlined on the occasion of the past edition of the symposium, while society evolves with accelerations impressed by endogenous and exogenous factors (such as the pandemic COVID-19), the physical dimension of space adapts with extended times.

At the dawn of the studies on the impacts of ICT on the city, the "wired city" studied by the research group of Corrado Beguinot was divided into a system of three cities: stone, relationships and experience. To harmonise the development times of the physical city with the "liquid" city of human relations is, after thirty years, still a priority.

So how will our cities and, more generally, the settlement systems on a planetary level record these changes? Will the trend towards population concentration persist in hyper-equipped and congested metropolitan areas or will we see reflux? New perspectives open up towards what are now considered peripheral areas (such as the Inner Areas so dear to our Master Edoardo Mollica), in which perhaps some

organisational processes are more easily managed and there are still values that could be appreciated by future generations.

The ethics of research, in the disciplinary sectors that the Symposium crosses, invites us to feed, with scientific rigour, policies and practices that make the territory more resilient and able to react effectively to events such as the pandemic that we are suffering in recent months: we hope to know the outcomes of these courses in the next editions of the New Metropolitan Perspectives Symposium.

For this edition, meanwhile, approximately 230 papers published allowed us to develop six macro-topics about "*Knowledge Dynamics and Innovation-driven Policies Towards Urban and Regional Transition*" as follows:

1 - Inner and marginalized areas local development to re-balance territorial inequalities
2 - Knowledge and innovation ecosystem for urban regeneration and resilience
3 - Metropolitan cities and territorial dynamics. Rules, governance, economy, society
4 - Green buildings, post-carbon city and ecosystem services
5 - Infrastructures and spatial information systems
6 - Cultural heritage: conservation, enhancement and management

And a Special Section, *Rhegion United Nations 2020–2030*, chaired by our colleague Stefano Aragona.

We are pleased that the International Symposium NMP, thanks to its interdisciplinary character, stimulated growing interests and approvals from the scientific community, at the national and international levels.

We would like to take this opportunity to thank all who have contributed to the success of the third International Symposium "NEW METROPOLITAN PERSPECTIVES. *Knowledge Dynamics and Innovation-driven Policies Towards Urban and Regional Transition*": authors, keynote speakers, session chairs, referees, the scientific committee and the scientific partners, participants, student volunteers and those ones that with different roles have contributed to the dissemination and the success of the Symposium; a special thank goes to the "Associazione ASTRI", particularly to Giuseppina Cassalia and Angela Viglianisi, together with Immacolata Lorè, Tiziana Meduri and Alessandro Rugolo, for technical and organisational support activities: without them the Symposium could not have taken place; and, obviously, we would like to thank the academic representatives of the University of Reggio Calabria too: the Rector Prof. Marcello Zimbone, the responsible of internationalisation Prof. Francesco Morabito, the chief of PAU Department Prof. Tommaso Manfredi.

Thank you very much for your support.

Last but not least, we would like to thank Springer for the support in the conference proceedings publication.

Francesco Calabrò
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Contents

An Integrated Decision Support System to Define the Best Scenario for the Adaptive Sustainable Re-Use of Cultural Heritage in Southern Italy

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Abstract. The objective of this document is to propose an integrated evaluation model to support the choice of an alternative of an historic industrial archeology building located in Southern Italy, in order to define a strategy shared based on a "bottom-up approach". The methodological path, in consideration of the needs of the local community and of the historic and cultural values of the historic building, is able to verify the feasibility and economic sustainability of the hypothesis in relation to different management models that involve different forms of public-private partnership. The positive results obtained show that the proposed model can be a useful decision support tool in contexts characterized by high complexity, where the goal is to build shared development strategies.

Keywords: Strategic evaluation · Circular economy · Sustainable re-use of cultural heritage · Multi-Criteria decision aid · Economic evaluation · Financial sustainability

1 Introduction

In the last few decades, researches and debates at an international level have seen the attribution of an increasingly significant role to cultural heritage within the framework of development models based on local peculiarities and on the enhancement of the endogenous resources of the territories. In particular, cultural identities have taken on new values and specificities also thanks to the implications of an intangible nature - such as those related to traditions, knowledge and creativity - that have enriched the notion of heritage. It has been recognized that the process of preservation and enhancement of cultural heritage - addressed to all the other resources which characterized and represented the distinctive signs that history has sedimented in a territory - if supported by "system" strategies can play an important function both in preserving the resources that promote and support the economic development of local communities. The involvement of local communities, also implemented through the networking of the main stakeholders in the area, raises awareness of cultural heritage, understood as the ability of citizens to recognize their identity in that heritage, to recognize it as their own and, consequently, to cooperate for its conservation.

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To guarantee the collective interest in the processes of enhancing the cultural heritage, it is necessary to define sustainable strategies that must take conservation as a priority and, at the same time, be able to trigger virtuous circles of territorial and local development. These purposes can only be achieved by a public administration capable of governing the entire decision-making process that leads to a programming of the sustainable management of these assets, by equipping itself with tools to support decisions (Fusco Girard and Nijkamp 1997; Della Spina 2019a, b; Della Spina 2020; Nesticò et al. 2018).

As part of the broader theme of cultural heritage and building and urban recovery in particular, the reuse of public buildings with cultural value offers significant opportunities to start sustainable development processes. In this case, it is essential to verify the impacts that the new activities/functions established can produce and the positive effects in terms of widespread recovery processes.

In accordance with the principle of sustainable protection of public real estate, the preventive evaluation of re-use choices has the aim of ensuring the safeguarding of cultural values in the actions to enhance existing building resources. In particular, the new functions must be able not only to protect the identity of the asset, guarantee significant growth in economic and social values, but also be feasible and sustainable in the long term from an economic point of view (Fusco Girard and Nijkamp 1997; Calabrò and Della Spina 2019; Dolores et al. 2020). In this regard, the expectations of the community are decisive in the definition of the re-use strategies and can contribute to the improvement of the quality of life, increasing functional endowments, infrastructures and services, with positive implications on the socio-economic context. On the contrary, public policies and reuse choices are often implemented in the absence of large-scale strategies, capable of achieving integration between the physical, economic and social values expressed by the artifacts to be recovered and the contexts in which they are inserted.

In this document, a multi-group and multi-criteria decision support method (Ishizaka and Nemery 2013) has been applied to support the decision-making process related to the strategies of re-use of disused and abandoned cultural heritage, in a perspective of circular economy (Fusco Girard and Gravagnuolo 2017; Della Spina et al. 2019).

The methodological path incorporates the needs of the local community but does not neglect the historic and cultural values of the heritage, as well as the economic and financial ones.

The methodology follows the general approach to decision (Simon 1972), adapted to the case study analyzed to support the public administration - the owner of the area - to choose the best alternative re-use functions from a sustainable perspective and to build shared development strategies (Della Spina and Calabrò 2018; Nestico and Maselli 2020).

In this context, the document proposes an integrated evaluation model, which combines multi-criteria methodologies and economic-financial analysis, in order to classify the alternatives and define the most suitable scenario according to the expectations of the interested parties (Della Spina 2019; Pinto et al. 2017).

Finally, in order to evaluate the hypothesis of alternative reuse of the public asset under study, was verified the level of profitability and economic sustainability in the

management phase, in relation to the choice of a management model in public-private partnership.

The paper is organized as follows. In Sect. 2, the case study is illustrated. Section 3 describes the methodology adopted. In Sect. 4, discussion of results and future research is presented.

2 Case Study

The case study in question concerns the reuse of the Gasometer, a plant that represents a rare Italian example of industrial archeology, of historic value, whose original structure dates back to 1878. The industrial building is located in the historic center of the municipality of Catanzaro, a city located in the south of Italy. The city which is the regional capital is an important administrative, commercial and cultural center, with considerable administrative functions at a regional level. The development strategy of the municipal administration is mainly oriented towards the redevelopment and regeneration of degraded urban spaces in the historic city center.

The Gasometer is located inside the "Valletta Park" a "central" area, it represents a possibility of valorisation and requalification of an abandoned and disqualified marginal area adjacent to the surface metro station of Catanzaro Sala. Today only the iron frame of the old Gasometer, the factory, the warehouses and the building remain of the original structure. The architectural style is the classic one of the French, English and Belgian industries. The exposed masonry is obtained with living stone from the Catanzaro area, the local building material, and constitutes its most valuable element.

3 Methodology

3.1 The Integrated Decision Support System

The methodological approach used for the case study is based on deliberative evaluation methods and Multi-Stakeholder Decision Analysis (M-SDA) capable of creating an interaction between the different actors involved towards a shared vision, taking into account the strategic role that cultural heritage can play in a circular economy perspective (Fusco Girard and Gravagnuolo 2017; Della Spina 2019; Geissdoerfer 2017).

The proposed methodology aims to include multiple dimensions in the evaluation process to support the identification of re-use and sustainable development strategies, including knowledge of experts and the community. The choice of a participatory methodology is aimed at supporting the co-learning and co-planning process towards a proposal for a new shared action plan for the historic center of Catanzaro.

The result is a hybrid methodological approach for the design of complex urban regeneration processes, capable of assessing which new uses/functions and scenarios could be more suitable for implementing a circular development model (Kirchherr et al. 2017; Mao et al. 2018; Potting et al. 2017). The approach combines, in the various stages of the decision-making process, multi-criteria methodologies and a feasibility/sustainability analysis of the intervention, in order to develop a tool to

improve the quality and reliability of the internal decision-making process which also concerns the management phase of the historic asset.

Based on a survey of the existing literature, the methodology follows a workflow (Fig. 1) in which the first step concerned the involvement of the interested parties, in which participation techniques were used, capable of creating an interactive relationship between "expert knowledge" and "common knowledge" (Yang 2014; Bourne 2005; Dente et al. 2014). This was useful to understand the role played by the parties involved and their power to influence decision makers in identifying potential actions capable of triggering the multidimensional productivity processes of the city.

In this first phase of the decision-making process, the Decision Maker (DM) identifies the problems, opportunities and objectives related to the project of reuse of the cultural heritage in disuse and to be redeveloped. To achieve this, a list of criteria has been identified. The list of criteria was structured on the basis of when it emerged also in a focus group with the public administration and technicians (Dyson et al. 2015).

The next step is to define five alternatives/scenarios, defined during a focus group organized by the public administration with experts (architect, economist and sociologists) and political representatives. The idea is to evaluate which are the best performing scenarios/alternatives for most stakeholders (Della Spina 2019).

A multi-criteria and multi-group evaluation was developed through the application of the Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) and Analytic Network Process (ANP) (Saaty 1996; 2005; 2006) to evaluate the alternative urban regeneration scenarios that are emerged as significant, incorporating internal and external dependencies between the sets of criteria identified (Munda 2004; Gamboa and Munda 2007) and the interrelationships between the various dimensions: economic, social, environmental and cultural, into the evaluation process. The choice of criteria (cluster) derives directly from the alternatives (Munda 2004) and represents the technical translation of the objectives and needs of the actors, resulting from the institutional analysis and elaborated by the research group.

The final result of the multi-criterion assessment is the identification of the perceived preferable scenario and a preference ranking among the alternatives/scenarios of the participatory process.

The objective of the chosen reuse project is to restore the former Gasometer's use value to make it a "creativity hub", an integrated place of production, consumption and cultural innovation, in which to experience the promotion of culture, the aggregation of young people and creativity as useful elements to amplify and improve the effects of innovation organizational (Della Spina et al. 2016). The reuse project, closely linked to the various interventions envisaged within the municipal structural plan, aims to optimize artistic production, improve the usability of cultural heritage and aims to create an integrated and innovative management system between cultural actors, as an element able to multiply, qualify and diversify the cultural offer and improve its use (Della Spina et al. 2019; Della Spina 2019; Della Spina 2020).

Finally, on the scenario perceived as preferable, the profitability and sustainability of the re-use project in the management phase is verified.

In this document, the application to the case study will focus in particular on this last phase, postponing the study of the methodology used for selecting the best

performing scenario to studies and publications edited by the authors themselves (Della Spina et al. 2019; Della Spina 2019; Della Spina 2020; Della Spina et al. 2016; Della Spina and Calabrò 2018; Calabrò and Della Spina 2015).

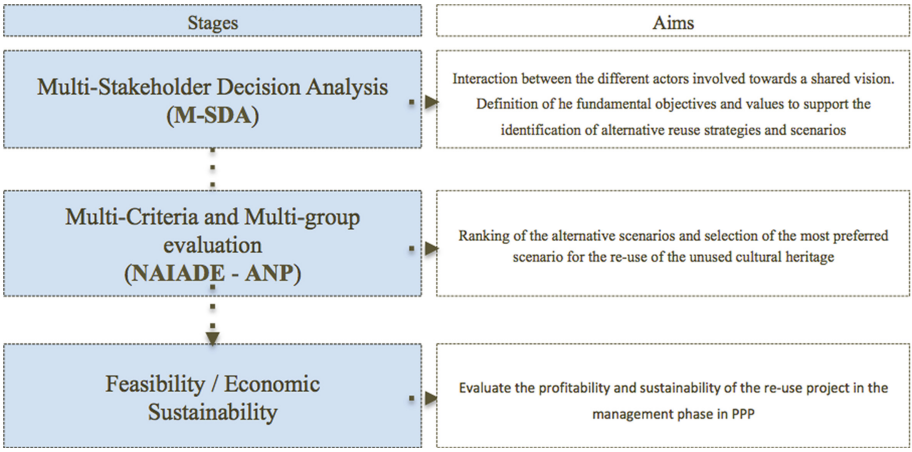

Fig. 1. Multi-methodological evaluation process

3.2 Choice of the Management Model: Feasibility/Economic Sustainability

Today, more than in the past, the scarce availability of public money pushes technicians and public administrators to evaluate possible investments in a preventive way (Roscelli 2014; Forte and De Rossi 1992; Prizzon 1995; Realfonzo 1994).

Unfortunately, is frequent the construction of works not strictly necessary, which offer services on an occasional and non-continuous basis and which weigh on public budgets in terms of management costs (Calabrò and Della Spina 2018; Calabrò 2019).

Evaluating investments at this moment means verifying on the one hand verifying the convenience for the community and on the other also the convenience of private subjects, with a view to identifying for which works and to what extent the involvement of private capital in the realization can be foreseen and management of the intervention (Della Spina and Calabrò 2018; Calabrò et al. 2018).

The theme of the Public-Private Partnership (PPP) therefore becomes closely connected to economic-social and economic-financial convenience, because only in conditions of "balance" can a collaboration be established between two subjects that have different purposes (social utility and financial profit).

In assessing the opportunity of a given public investment, one of the fundamental moments is represented by the analysis of alternatives, with the consequent choice of the best solution.

In the case study in question, on the best re-use scenario, selected through the multi-methodological evaluation process, briefly described in the previous section (Della Spina et al. 2019), was verified the feasibility and economic sustainability

(Dolores et al. 2020) of the intervention in the management phase to regime, in order to verify the management balance and the ability to ensure economic sustainability over a period of time equal to the life cycle of the project (Calabrò 2019; Calabrò and Della Spina, 2018; Calabrò et al. 2018).

The choice of the management model is the preliminary phase to the definition of the total investment costs and management revenues generated by the project (Roscelli 2014; Forte and De Rossi 1992; Prizzon 1995; Realfonzo 1994; Della Spina and Calabrò 2015; Calabrò and Della Spina 2018).

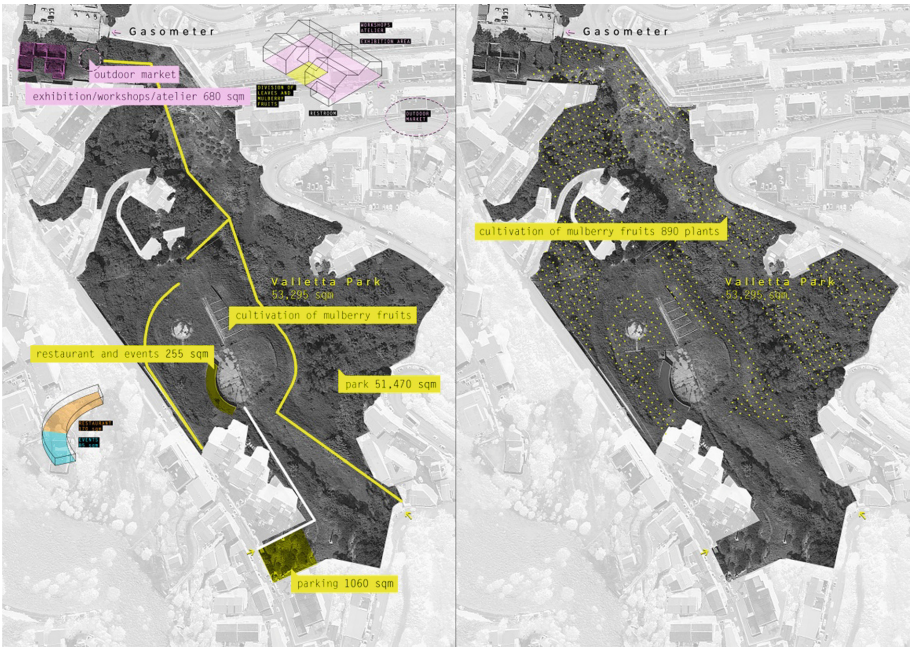

Fig. 2. Re-use project

Once the reuse project has been defined (see Fig. 2), it is possible to evaluate:

- Investment costs (Investments for the recovery and reuse of buildings, Investments for the usability of real estate, Investments for communication and marketing) (see Appendix A).
- Management costs (Identification of the management model and of the manager; evaluation of the human resources plan, evaluation of the management costs, consumables, services, human resources, etc.) (see Appendix B).
- Estimated Revenue (Identification of the products to be produced or services to be supplied; Estimate of their unit sales price; Identification of the reference target; Estimate of the demand to be satisfied based on the reference objective; Evaluation of revenues) (see Appendix C).

– Feasibility and economic sustainability of the project in the management phase to regime. (see Appendix D).

The costs and revenues for each function were assessed through a market analysis and by referring to the official list prices. The evaluation used a direct approach, through comparison with historical data, when available, and an indirect approach, when it was not possible to find historical data (Roscelli 2014; Forte and De Rossi 1992; Prizzon 1995; Realfonzo 1994; Della Spina and Calabrò 2015).

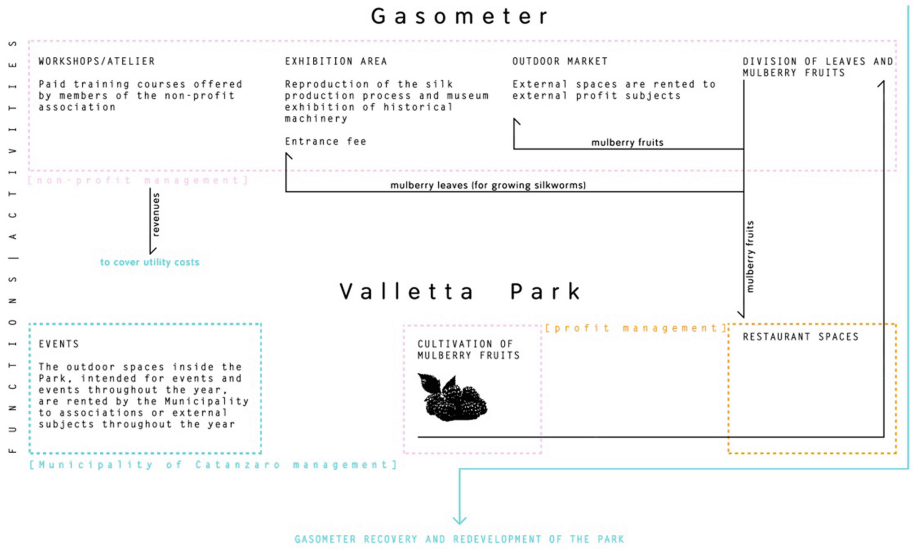

Fig. 3. The management model

In the hypothesized management model (Fig. 3), the Municipality of Catanzaro will bear the costs of the investment for the recovery of the Ex Gasometer and for the redevelopment of the related area of the Valletta Park (Appendix A).

The estimate of operating revenues is a crucial point of the analysis, whether it is a public work or whether it is carried out and/or managed by private entities (Appendix C).

Operationally, it is necessary to calculate the catchment area and make a balance between potential demand and existing supply, to check if there is an unfulfilled demand share that "reasons" in some way the realization of the work. The difference between potential demand and satisfied demand determines the possible residual demand, which can highlight a space in the market or, on the contrary, an already saturated situation. This is obviously a simplification, since if the service offered is better you can think that it will subtract from the competition. Conversely, even in the presence of a residual demand share, in the face of a service of lower quality than what already exists, it may not be able to capture a sufficient number of users for optimal operation (Roscelli 2014; Calabrò and Della Spina 2018).

The new uses/functions envisaged for the Gasometer area have as reference the target the population of the municipality of Catanzaro. It was considered a territorial water catchment area within a radius of 10 km and the potential flows of travelers of the Catanzaro Sala railway station, which will be reactivated in the short term (Fig. 4).

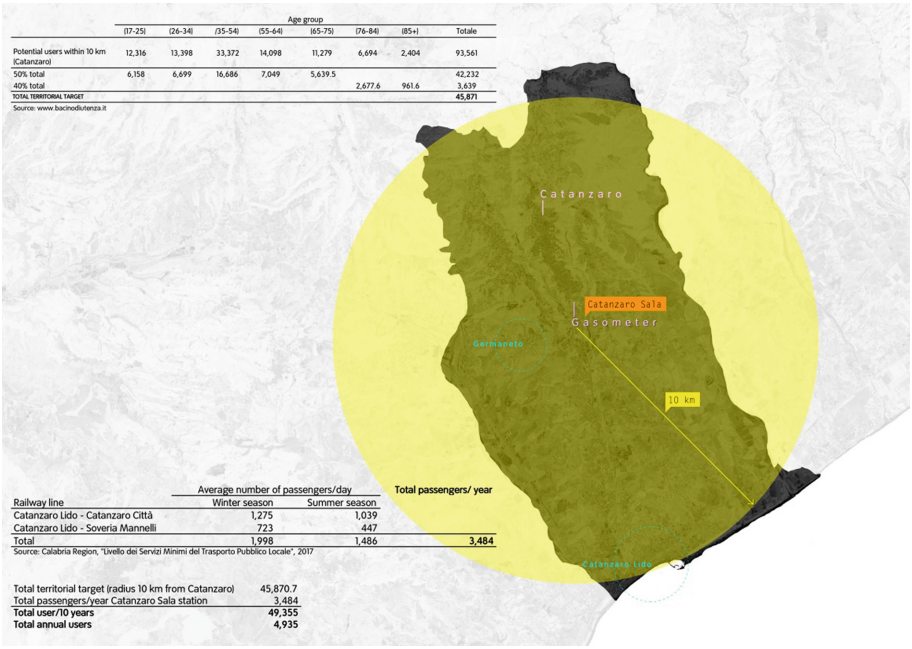

Fig. 4. Analysis of the user base

In the hypothesized management model, the Municipality will entrust the management of the activities envisaged within the Gasometer and of the care of the park's greenery to non-profit associations.

In addition, the outdoor spaces will be rented for events and shows throughout the year. The revenues from the activities to be placed within the Gasometer (laboratories/ateliers/market) will cover the costs for utilities and human resources for the staff involved in the care of the mulberry trees and park greenery (Appendix B and C).

The semi-circular building located in the lower part of the park will instead be leased by the Municipality of Catanzaro to a private external profit subject (Figs. 2, 3 and 5).

Non-profit association	**1. Gasometer**		
	Revenues		105,800.00 €
	Management costs		105,213.58 €
		Net balance	**586.43 €**
Municipality of Catanzaro	**2. Valletta Park**		
	Incomes		39,000.00 €
	Management costs		0.00 €
		Net balance	**39,000.00 €**
Private for profit	**2.1 Restaurant spaces**		
	Revenues		196,560.00 €
	Management costs		151,490.00 €
		Net balance	**45,070.00 €**

Fig. 5. Sustainability of the intervention in the management phase to regime

The area of the Gasometer and the Valletta Park, thanks to an initial public investment, would be entrusted to two different managing bodies (Fig. 5), the spaces of the Gasometer and the care of the park to a non-profit association, while part of the semi building -circulate to the bottom of the valley to a profit external subject Appendix B).

In the management hypothesis taken into consideration, the non-profit association, thanks to the revenues from the proposed training courses, the exhibitions set up inside the Gasometer, the sale of mulberries and the rent of the area in front of the area market, would be able to fully cover the management costs borne by it and to have a profit that could be used by the same association to organize events or contact external people to hold lessons inside the fashion workshops (Appendix C).

The private profit, by renting the spaces of the Municipality within the park, would be able to support its restaurant business (Appendix C).

4 Discussion and Future Research

This document presents an integrated methodological approach for the choice of sustainable alternative functions for adaptive re-use in a circular economic perspective of the ex Gasometer, a historic industrial archeology building located in Southern Italy (Della Spina et al. 2019; Della Spina and Calabrò 2018).

The proposed methodology integrates different evaluation methods to support the whole decision-making process, characterized by numerous elements of complexity, from the problem definition phase to the assessment of the feasibility and economic-financial sustainability of the chosen re-use scenario, taking into account the opinions of the different experts involved in the problem (Simon 1972).

The evaluation process to support the identification of re-use and sustainable development strategies for disused cultural heritage aims to include multiple dimensions, including expert and community knowledge, in order to define a "solution of greater compromise", feasible as well as sustainable in the long term from an economic point of view.

The results obtained show that the re-use scenario, chosen through a multi-group and multi-criteria decision-making process, and the chosen PPP management model is feasible and economically sustainable.

Many experiments show that the public administration, which is characterized by the availability of an invaluable cultural heritage, does not have the sufficient economic and managerial capacity necessary to keep this heritage efficient over time and, therefore, sees the private interlocutor (profit or non profit) the key actor with whom to collaborate and cooperate for enhancement projects, aimed at promoting and supporting entrepreneurship and employment, in particular youth, by supporting innovative forms of business capable to raise the quality of the cultural offer, both local and national. (Calabrò and Della Spina 2018; Calabrò et al. 2018; Della Spina and Calabrò 2018; Calabrò and Della Spina 2019).

The results obtained from the decision support process show that the re-use scenario, identified through a multi-group and multi-criteria decision process, and in particular the chosen PPP management model, is feasible as well as sustainable in the long term by a from an economic point of view, as operating revenues allow full coverage of operating costs, including ordinary and extraordinary maintenance, without additional charges and costs for the public sector (Della Spina and Calabrò 2015; Della Spina and Calabrò 2018; Calabrò and Della Spina 2019).

The overall consistency of the results obtained also highlights that the involvement of non-profit associations in the management model of the public good is relevant not only for the economic sustainability of the project, but also for the emancipation of the local communities and the re-appropriation of their identity, indispensable for triggering virtuous processes of local development (Della Spina 2020).

Today, the new challenge for local authorities is to regenerate abandoned and disused heritage buildings, in a process that must necessarily involve the various stakeholders and the local community in order to create new governance models that are capable of to guarantee economic sustainability and the conservation of historic heritage and cultural values, as in the case of the former Gasometer, which has always been a symbol for the local community (Della Spina et al. 2019).

From this perspective, the study could have interesting political implications in the challenge faced by decision-makers in rethinking the planning and design of a general plan aimed at relaunching and enhancing the immense historic heritage with a view to circular economy, economic development of the territory, which identifies the keys to a culture-led regeneration process in adaptive reuse and cultural and creative (Della Spina et al. 2019; Della Spina 2020; Vickery 2007).

Author Contributions. The contribution is the result of the joint effort of the authors. Despite the global responsibility for the work being equally shared between the three authors, Lucia Della Spina is responsible for Sects. 3 and 4, while Claudia Giorno e Ruggiero Galati Casmiro are responsible for Sects. 2 and Appendix. The abstract and introduction are the result of the joint work of the three authors.

Appendix A - ESTIMATED INVESTMENT COSTS

PART I - INVESTMENT FOR THE RECOVERY AND RE-USE OF REAL ESTATE			
	Unit (sqm)	Construction Cost (euro/sqm)	Total (euro)
A - Estimated construction cost			
A.1. Gasometer			
Property recovery	965	680.00	656.200,00
A.2. Valletta Park			
External arrangement and planting of mulberries	51,470	6.00	308,820.00
Parking	1,060	38.00	40,280.00
Driveway	610	53.00	32,330.00
Amount of completion and redevelopment of "Valletta Park" project (2002–2010)			2,424,240.00
Photovoltaic system	255	2,000.00	5,000.00
A - Total costs for auction based works			3,466,870.00
of which: costs for the implementation of safety plans (not subject to auction reduction)			69,337.40
B - Estimate of the sums available to the promoter			
B.1 Economic jobs planned and excluded from the contract			0.00
B.2. Topographical survey, findings and geological surveys			0.00
B.3 Allacciamenti ai pubblici servizi (VAT included))			0.00
B.4 Unexpected costs			104,006.10
B.5 Acquisition of areas or assets			0.00
B.6 Provision for the adjustment of the prices (referred to art. 133, c. 3 del D. Lgs. 163/2006)			0.00
B.7 Incentive expenses (referred to art. 92, c. 5 del D.Lgs. 163/2006)			34,668.70
B.8 Technical expenses (planning, works management, daily assistance and works accounting)			208,012.20
B.9 Technical expenses (planning, works management, daily assistance and works accounting)			34,668.70
B.10 Expenses for consultancy and support activities			0.00
B.11 Possible expenses for selection boards			0.00
B.12 Expenses for advertising and, where applicable, for artistic works			0.00
B.13 Expenses for laboratory tests, technical checks and work tests			34,668.70
B.a - Total sums available to the Promoter excluding VAT			416,024.40
B 14. VAT (if not recoverable) and any other taxes			41,602.44
B.b - Total sums available to the Promoter including VAT			**457.626,84**

SUMMARY I - INVESTMENT FOR THE RECOVERY AND RE-USE OF BUILDINGS (PRODUCTION COST)	
A) Total costs auction based works	**3,466,870.00**
B) Sums available to the Promoter	**457,626.84**
I – Total investment for the recovery and re-use of real estate	**3,924,496.84**

PART II – INVESTMENT FOR REAL ESTATE USABILITY			
	Unit (n.)	Construction Cost (euro)	Total Cost (euro)
C.1 - Estimated cost of furniture			
Equipment for silkworm display area (cost per body)	1	–	200,000.00
Tables	20	120.00	2,400.00
Chairs	300	30.00	9,000.00
Cutlery and crockery	70	15.00	1,050.00
Linen	17	30.00	510.00
Workbench	1	4,800.00	4,800.00
Cut counter	1	5,000.00	5,000.00
Hob	1	1,200.00	1,200.00
Washbasin	1	1,300.00	1,300.00
Oven	1	5,700.00	5,700.00
Fridge	1	700.00	700.00
Dishwasher	1	640.00	640.00
Pots	1	580.00	580.00
Fryer	1	640.00	640.00
Kitchen Robot	1	410.00	410.00
Lighting System		3,000.00	3,000.00
C.1 - Costs Furniture excluding VAT			236,930.00
C.2 - Estimated cost of hardware and software equipment			
Computer	1	480.00	480.00
Printer	1	320.00	320.00
Sound system	8	200.00	1,600.00
Cash register	1	760.00	760.00
C.2 - Costs equipment excluding VAT			3,160.00
SUMMARY II – INVESTMENT FOR REAL ESTATE USABILITY			
C.1 - Costs furniture			236,930.00
C.2 - Costs equipment			3,160.00
II.a - Investment for real estate usability excluding VAT			240,090.00
VAT (if not recoverable)			52,819.80
II.b - Investment for real estate usability including VAT			**292,909.80**

PART III – INVESTMENT FOR COMMUNICATION AND MARKETING

Advertising communication	1	800,00	800.00
Website	1	12,00	12.00
Web designer	1	900,00	900.00
Flyers	500	0,05	25.00
Advertising posters	200	0,90	180.00
III.a - Investment total for communication and marketing excluding VAT			1.917.00
VAT (if not recoverable)			421.74421.74
III.b - Investment total for communication and marketing including VAT			**2,338.74**

SUMMARY INVESTMENT

I - Investment for the recovery and re-use of buildings	3,924,496.84
II - Investment for real estate usability	292,909.80
III - Investment for communication and marketing	2,338.74
TOTAL INVESTMENT	**4,219,745.38**

Appendix B - ESTIMATED MANAGEMENT COSTS

	Cost item		Annual cost
Non-Profit management	**Gasometer**		
	Ordinary maintenance (b)		€ 8,562.00
	Extraordinary maintenance (c)		€ 10,702.50
	Staff (human resources)		€ 18,200.00
	Consumables (a)		€ 1,060.00
		Total Gasometer	€ 38,524.50
	Valletta Park		
	Ordinary maintenance (b)		€ 28,750.70
	Extraordinary maintenance (c)		€ 35,938.38
	Costs for utilities (water)		€ 2,000.00
		Total Valletta Park	€ 66,689.08
		Total Non-Profit management costs	**€ 105,213.58**
Private Profit management	**Restaurant area**		
	Staff (human resources)		€ 70,800.00
	Raw materials, wines, drinks (Restaurant area) (a)		€ 53,000.00
	Consumables (a)		€ 1,590.00
	Industrial laundry (d)		€ 2,100.00
	Local rental		€ 24,000.00
		Total Profit management costs	**€ 151,490.00**

Sources: (a) University of Milan, "Feasibility study for the opening of a farmhouse in Franciacorta", 2015; (b) the value was calculated as 1% of the investment costs; (c) the value was calculated as 1,25% of the investment costs; (d) 17 tablecloths for 70 covers (1 tablecloth / 4 people) are considered for a cost of euro 0.50 / tablecloth.

Appendix C - ESTIMATED MANAGEMENT REVENUES

		Quantità		Prezzo unitario	Ricavo annuo
Non-Profit management	**Gasometer**				
	Entrance to the exhibition area	4,900	visitors/year	€ 2.00	€ 9,800.00
	Registration fee for training courses	50	members/year	€ 70.00	€ 3,500.00
	Sale of white mulberries (b)	8,900	kg/year (10 kg/tree)	€ 5.00	€ 44,500.00
	Market place rental (a)	5	stalls (5 days/week)	€ 800.00	€ 48,000.00
	Total Gasometer revenues				**€ 105,800.00**
Municipality of Catanzaro	**Valletta Park**				
	Rent event area	30	events/year	€ 500.00	€ 15,000.00
	Rent restaurant area	1	local	€ 2,000.00	€ 24,000.00
	Total Valletta Park revenues				**€ 39,000.00**
Private Profit management	**Restaurant area**				
	Revenue restaurant	13,104	56 meals a day / 234 days a year	€ 15.00	**€ 196,560.00**

Appendix D - FEASIBILITY AND ECONOMIC SUSTAINABILITY IN THE MANAGEMENT PHASE TO REGIME

Non-Profit management	**Gasometer**		
	Revenues		105,800.00 €
	Costs		105,213.58 €
		Net balance	**586.43 €**
Municipality of Catanzaro	**Valletta Park**		
	Income from rent		39,000.00 €
	Costs		0.00 €
		Net balance	**39,000.00 €**
Private Profit management	**Restaurant area**		
	Revenues		196,560.00 €
	Costs		151,490.00 €
		Net balance	**45,070.00 €**

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