

# Valorising in the Absence of Public Resources and Weak Markets: The Case of “Ivrea, the 20th Century Industrial City”

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**Abstract** The extensive architectural heritage of Italy often finds itself in conditions of severe deprivation and neglect or inactivity. Moreover, such heritage is often located in contexts characterized by the absence of public resources and the presence of weak markets. Their valorisation is linked to the possibilities of re-use. The identification of new locations is often treated in a minimalist manner: contrasting with public use to that of private individuals and contradicting the criteria identified by the economy to define the public or private nature of the assets. In many cases, the approach to re-use is critical and incomplete due to the lack of an in-depth analysis of the economic and financial feasibility of the interventions. This paper reviews the traditional approaches regarding the enhancement of public and private properties, taking into account the theories regarding the value and economic evaluation tools. From this point of view, the case study—“Ivrea, the 20th century Industrial City”, nominated in the UNESCO Tentative List—is emblematic. The authors intend to support the Public Administration of Ivrea in the concrete actions of valorisation of heritage, including the revision of the Management Plan already presented. Its valorization potential departs from the imbalance between supply and demand issues of spaces. In conclusion, this paper succeeds in reporting on the strategic importance of when cultural heritage, both immaterial and material, should be used, regardless of the state of its use and conservation. Attention is focused on IT capabilities with respect to their ability to reconnect the individual assets to systems and involve new audiences.

**Keywords** Modern architecture • ICT for cultural heritage • Fruition • Investment evaluation • Ivrea

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## 1 Research Aims

The aim of the paper is twofold. The paper considers the issues of valorising cultural heritage in the contexts characterised by the absence of public resources and the presence of weak markets. These two coexisting factors induce scientific communities and operators to review the traditional approaches to enhancing public and private properties, specifically: (1) considering the traditional theories of value; (2) reinterpreting economic variables and the economic evaluation and assessment tools of the feasibility of the strategies. In many cases the approach to reuse seems to be critical and incomplete due to the lack of in-depth analysis of the economic and financial feasibility of the interventions. In this sense, the paper addresses the issue of the valorisation of architectural heritage, according to the mentioned twofold point of view. The first focuses on the reuse of assets that have lost their original purpose; the second deals with the use of cultural heritage, which is considered as an equally important element of economic valorisation. The main assumption of the line of reasoning is that—irrespective of the state of use and conservation—tangible and intangible cultural heritage must be used. Then attention is focused on IT potentialities regarding the ability to reconnect the individual assets into systems and to involve new audiences through diversifying the forms of direct and indirect, real and virtual use. From this point of view, the case study—“Ivrea, the 20th century Industrial City” (Ivrea Municipality 2015), nominated in the UNESCO Tentative List—is emblematic. The authors intend to support the Public Administration of Ivrea in the concrete actions of valorisation of heritage, including through the revision of the Management Plan already presented. New theories of value, in fact, induce to review the strategies to be adopted in valorising heritage. The paper is therefore divided into two sections. The first, a concise introductory part of a theoretical nature on the state of the art, on the disciplinary and regulatory debate, on the theory of value and the role of valuation (Sects. 3 and 4.1), which in the case of assets of historical interest, cannot mechanically change the tools made available by the same Anglo-Saxon literature (DCF). The next applicative part (Sects. 6 and 6.2) introduces the case of modern Olivetti heritage, with which the themes of reuse and valorisation are addressed, still specifying the tools deriving from Anglo-Saxon literature, which are reductive when applied to Cultural Heritage. Finally, two sections (Sects. 7 and 8) close the dissertation through a final analysis and several research perspective that recover the dimension of fruition in all its forms and articulations. Consequently, the paper shows how it is necessary to radically rethink the approaches and methodologies more than the operational tools in the strict sense in the valorisation of the heritage of “Ivrea, the 20th century Industrial City”. The Cultural Heritage sector presents higher specificity and complexity to others because of the interaction of cultural and economic factors, which require further in-depth analysis.

## 2 Introduction

Italy's architectural heritage is considerable. Regrettably, many buildings of historical interest are degraded and unused. Their valorisation is closely linked to the possibilities of reuse; however, the identification of new locations is often treated in a minimalist manner. Generally, contrasting with public use to that of private individuals, contradicting the criteria identified by the economy to define the public or private nature of the assets, which are defined as "public" and not in relation to the property, but in the case in which the use by a select few does not conflict with its utilisation by others. Moreover, in most cases, reuse is treated without considering the merits of the economic and financial feasibility of the interventions. In the case of public locations, the actual availability of financial resources needed to carry out restoration work and to manage activities and public services is not considered. In the case of private locations, however, the actual condition of economic and financial feasibility of investors, measured in terms of opportunity costs, is often not assessed. While Italian legislation regarding cultural heritage protection is among the most advanced (Decreto Legislativo 22 gennaio 2004, n. 42), regarding valorisation as being affected by a certain reductionism (even concerning the theoretical and conceptual level) it completely ignores the contribution that a healthy and environmentally friendly economy can provide, concerning the issue of valorisation, partly as a result of the technology transfer processes under way in the Cultural Heritage sector.

## 3 The Theory of Value in Cultural Heritage and in Reuse Processes: An Overview

The theoretical paradigms identified to determine the value of environmental resources (Beinat 1997; Klamer 1997, 2002; Loomis et al. 2000; Turner et al. 2003; Zhongmin et al. 2003; Richardson and Loomis 2009; Tietenberg and Lewis 2012) can also be used to outline a new conception of the economic value of architectural heritage, based on the "Total Value", which consisted of more economic value components of diverse natures, measurable in monetary terms and whose influence may vary (Bowitz and Ibenholt 2009; Freeman 1993; Hutter 1996; Hutter and Rizzo 1997; Klamer 1997, 2002; Throsby 2001; Snowball 2007).

The Total Economic Value (VET in Italian), as defined for environmental resources, lends itself to be borrowed in order to explain the economic value of historical and architectural interest resources (Gruzinski 1993). The VET is credited with having introduced the "value of non-use" and to have disintegrated the "use value" (located at the base of the market value), more values (components of the

value) differentiated in relation to the direct and indirect operating evaluation methods, and the specific types of users (direct, indirect, potential and future) (Vecco 2010).

In the following chapter “[New Bottom-Up Approaches to Enhance Public Real/Estate Property](#)” according to the paradigms of environmental economics, the architecture of the 1900s in Ivrea would have: (a) an existence value, which transcends its state of use and conservation, monetised by the market; (b) a use value and/or reuse potential (market and/or income), related to the possibility of being used for new functions; (c) more determined values by the possible indirect forms of use, whose influence in the determination of the VET is expected to grow, thanks to the opportunities provided by IT in expanding the real and virtual forms of utilisation. The VET has redefined the operational tools to estimate the total economic value, taking into account its multiple components (Conjoint Analysis-CA, Contingent Valuation-CV, Travel Cost-TC, Hedonic Price-HP). There is a wide range of literature that has experimented the different techniques and models (Merton 1981; Peacock and Rizzo 1994; Frey and Eichenberger 1995; Mason 2005; Rujgrok 2006; Choi et al. 2010). Specifically, CV or CA are not applied in the case study (that measure consumer utility), given the costs in terms of time and resources, considering the extension of the potential demand and not completely reliable results when the demand of a specific asset in a concrete case must be estimated.

#### **4 Methodology Framework: A New Approach of Development Through Reuse**

The methodological approach to the case study, which will be explained in detail in chapters “[New Bottom-Up Approaches to Enhance Public Real/Estate Property](#)”, “[Curricular Damage Estimation](#)” and this chapter, takes into account the specificities of the valorisation process, in which the role of valuation is to perfect and revisit analysis, tools and methods (even traditional) in its different phases.

Generally in the case of valorisation (Sinou 1993; Cristinelli 2002) knowledge is nearly exclusively concentrated on the historical value of the assets and possibly on the state of degradation, as more attention is focused on restoration than on reuse and on the economic feasibility of the interventions. From this point of view, the same guidelines drawn up by UNESCO for the realisation of management plans (UNESCO 2005), recognise the role of territorial investigations in the knowledge for the purpose of valorisation. In fact, the possibilities of valorisation are closely linked—especially in the case of large assets—to the economic, social, cultural and administrative dynamism of territorial contexts (Mazzanti 2003). Although

requiring further systematisation, it is necessary to highlight the methodological contribution of these guidelines in distinguishing between “static analysis” (descriptive) and “dynamic analysis” (probabilistic), and between those of a “micro” nature and those of a “macro” nature (for applicative detail, please refer to Sect. 6.1). Most of the time, in fact, knowledge, being aimed at protection, is abstracted from social and economic dynamics of territorial contexts.

#### ***4.1 A Role of Valuation in the Reuse Process for Cultural Heritage: Analysis and Application Method***

Recently, the role of valuation, viewed in a perspective of project management (Brigato et al. 2014; Coscia et al. 2015) has taken on a strategic importance, even in the preliminary and briefing phases. For the case of Ivrea in particular, the dimension of the site to be reclaimed (70 ha) and the number of architectures to be valorised (28) (see Sects. 5.1 and 6.1), ensure that knowledge cannot only be aimed at restoration and protection, mainly focused on buildings. In particular, the economic and social analysis acquire a key role, as the revitalisation of the UNESCO site is strictly influenced by the degree of dynamism of Ivrea and its territory. Reuse cannot be regarded building by building, disregarding the assets system and favouring the project to plan and program urban valorisation/regeneration.

Specifically for the case study, the ability to valorise/reuse the assets of the 1900s in Ivrea, constructed during a phase of rapid industrial development, depends on the demands of public services and assets and private services that Ivrea and its territory can potentially express. The economic and social analysis carried out and highlighted in the macro data of the structural framework (see Sect. 5 and Fig. 1) have made it possible to show immediately that the territorial context of Ivrea is not able to guarantee the affordability of the conditions required to transform unused buildings, despite their great historical and architectural value. Ivrea presents critical phenomena, such as a high aging index, above the regional average. The creation of start-ups of young entrepreneurs in the biotechnology, ICT and tourism sectors, despite being numerically significant, is still too low compared to the size of the areas used in the past by Olivetti. The enhancement process for the Cultural Heritage must therefore also deal with those aspects of uncertainty (Loulanski 2006).

## 5 Case Study Characterisation

### 5.1 *Presentation of the Case Study and Description of the Context*

In 2012, UNESCO included “Ivrea, the 20th century Industrial City” in its Tentative List (<https://www.comune.ivrea.to.it/scopri-ivrea/progetti-di-valorizzazione-delterritorio/architetture-olivettiane-candidatura-unesco.html>), thus recognizing that it represents the expression of the extraordinary conception of the Adriano Olivetti community, materialised in buildings that have architectural as well as historical value (Ragghianti 1960; Zorzi 1977; Braudel 2001).

In fact, the community model (Boltri et al. 1998; Koenig 1970) is based on social cohesion and goes beyond the dichotomous division of society in which all the industrial companies were developed in the 1900s (Olivetti 1936; Kidder-Smith 1963; Berta 1980). The industrial city of Ivrea, comparable to a laboratory where planners and architects are compared, firstly presupposes exceptional relations between capital and labour, which exceed the economic and social theories at the basis of Marxism and Capitalism.

Additionally, the entire City of Ivrea and its territory, which the industrial city is part of, retains the material traces of the momentous changes that preceded industrialization or that are subsequent to this. Both of them (city and territory) used to transferring the profound sense of long-term history (Braudel 2001), materialized through the testimonies of the political, economic, social and cultural systems that have taken place over the millennia: from the Roman era (explicit in the archaeological area and the amphitheatre) to the Middle Ages (transmitted by Via Francigena and the Castle itself, by the cathedral and by the ancient City of Ivrea), up to the modern age (explicit in the changes passed down in the agricultural landscapes and testimonies of proto-industry) arriving at the “interruption” produced by industrialization, evoked by the UNESCO website, and the current post-industrial era, transmitted by buildings built in the 1900s and today largely unused. Ivrea constitutes an actual case study to address the issues of protection and valorisation (Bonifazio and Giacomelli 2007). In fact, UNESCO selected these assets to be entered in the World Heritage List (WHL) evaluating operations (contained in the management plans) with which the proponent entities undertake to protect and valorize them.

In addition, the case of Ivrea allows us to refocus attention on the architectural heritage of the 1900s, which being more recent, subtracts itself more easily from being protected and whose value is not recognised today as it should be, if not by a very limited number of experts and specialists (Crespi 1957; Guiducci 1959, 1960; Tentori 1959; Cappai 1976; Savi 1980; Vidari 1980). Architectural structures have all—except for the Gardella Hospital (Gardella 1960)—high architectural value: they were designed by internationally renowned architects (Figini and Pollini, Gardella, Di Vittoria, Gabetti and Isola, Cappai and Mainardis) and cover all possible types (industrial buildings (Castellani Longo 1965), research centres,

offices, social services, housing, etc.). Moreover, they represent a variety of expressions of the Modern Movement, which go beyond the International Style: in addition to the rationalist and organic architecture, we have one of the few examples of radical architecture that has great symbolic value, the Serra by Cappai and Mainardis (unfortunately it is not included in the core zones), an exemplary belowground architectural structure, the Talponia by Roberto Gabetti and Aimaro Isola and a testimonial, perhaps slightly forgotten, of brutalist architecture, the former Sertec, by Sgrelli, which in turn represents an interesting case of the transformation of an existing building, constructed with a real “brutalist” addition.

## **6 A New Approach of Development Through Reuse for the Case Study: Structuring of the Phases, Analysis and Evaluation Tools**

The previously clarified theoretical-disciplinary issues (chapters “[The True Value on Understanding Something](#)”, “[Appraisal of Manufacturing Buildings Through the Depreciated Replacement Cost Approach](#)” and “[Do Real Estate Cycles Exist and, if so, Are They Predictable?](#)”) were assumed in applying analysis and evaluation tools. Two phases are highlighted in the study: the first phase is of knowledge and analysis (see Sect. 6.1), supported by the identification and selection of data sources, the structuring of a structural framework of analysis and mapping of several themes starting from the interpretation of the database; the second phase of an experimental nature, which tests the traditional tools of feasibility but which are applied to Modern Heritage (see Sect. 6.2), and highlights the importance of empirical and expeditious management controls, useful for the decision-making of the Public Administration and stakeholders (see Sects. 6.2 and 7.2).

### ***6.1 Structural Data and Evaluation Gap: First Phase of Mapping***

The methodology involved a preliminary monitoring phase of the sources, structuring and normalization of the data aimed at the support mapping, the strategic valuation and the subsequent phases of identifying sustainable scenarios and actions and valorisation strategies compatible with the development policies of the city of Ivrea and its territory (GGI and AASTER 2012).

The structural framework of the data was processed and summarized to make the SWOT analysis (Fig. 1). The model used shows several variations compared to the traditional one, in order to make the critical reading and the interpretation on an evaluative base of the data complexity more robust: the structure provides data analysis (related to the consulted direct and indirect sources) on a multi-level

Issue	Strengths	Weaknesses	Opportunities	Threats	Sources	
<b>Accessibility</b>	<p>Micro:</p> <p>Interventions made on the country roads by municipalities involved in order to relieve traffic on SS26 and to strengthen piedmont ridge (such as Quincinetto SP69). There is a variation in the built-up area of Balò Dora, in Borgofranco di Ivrea municipality;</p> <p>The territory is internally interconnected by a road transport INRETE service easily accessible from the main roads (highway, railway, Caselle airport) and located close to the major centers in Northern Italy;</p> <p>Micro:</p> <p>Car Sharing Service "Io Guido" is used in the city and even around.</p>	<p>Micro:</p> <p>The Chivasso-Ivrea railway line has a weak point in the network (with high level of commuting) that connects Valle d'Aosta to Turin;</p> <p>Micro:</p> <p>Bicycle mobility services is very limited in number and kind;</p>	<p>Micro:</p> <p>Forecast doubling of the tracks of the Chivasso - Ivrea railway;</p> <p>Micro:</p> <p>A cycle and pedestrian path/network that connects the historical city with the new city, crossing the Dora river and the railway;</p> <p>"MOVimento", a new project for the reorganization of the urban and extra-urban transport of the City;</p> <p>is in preparation the funding of the so-called "Prodenco-former SS228" a connecting road, aimed at relieving the congestion of the East entrance to the city;</p>	<p>Micro:</p> <p>The upgrade of the Piedmont Region site;</p> <p>Chivasso - Ivrea - Aosta Province of Turin Site: Territorial Coordination Plan, Interventions road on set; General Municipal Regulator Plan;</p> <p>between Piedmont and Valle Ivrea - Aosta region;</p> <p>2000; Former SS228 final project. Variant of Ivrea in the area between SS26 and the border of Bollengo; Public Relation Office of Ivrea, Regional Integrated programs for local development, Mountain Community Baltes Canavese; Detailed Plan of former Montefiore Area.</p>	<p>Micro:</p> <p>The upgrade of the Piedmont Region site;</p> <p>Chivasso - Ivrea - Aosta Province of Turin Site: Territorial Coordination Plan, Interventions road on set; General Municipal Regulator Plan;</p> <p>between Piedmont and Valle Ivrea - Aosta region;</p> <p>2000; Former SS228 final project. Variant of Ivrea in the area between SS26 and the border of Bollengo; Public Relation Office of Ivrea, Regional Integrated programs for local development, Mountain Community Baltes Canavese; Detailed Plan of former Montefiore Area.</p>	<p>Micro:</p> <p>The upgrade of the Piedmont Region site;</p> <p>Chivasso - Ivrea - Aosta Province of Turin Site: Territorial Coordination Plan, Interventions road on set; General Municipal Regulator Plan;</p> <p>between Piedmont and Valle Ivrea - Aosta region;</p> <p>2000; Former SS228 final project. Variant of Ivrea in the area between SS26 and the border of Bollengo; Public Relation Office of Ivrea, Regional Integrated programs for local development, Mountain Community Baltes Canavese; Detailed Plan of former Montefiore Area.</p>
<b>Territory</b>	<p>Micro:</p> <p>Characteristic landscape of the Serra Moraine, historically cultivated with orchards and vineyards; Natural and eco-systemic areas protected by specific regulatory tools (Special Protection Areas (SPA), Sites of Community Importance (SCI), etc.);</p>	<p>Macro/micro:</p> <p>Progressive conversion of cultivated areas in forest land and abandonment of the Serra terraces in favor of arable flat areas with mechanical tools;</p> <p>The land use appears diminished, but with predictions of future enlargements, although required by Town Plans; increase in land consumption by 9% (2000-2005) to 2.2% (2006-2010), with prevision not yet implemented of 24.3%;</p>	<p>Micro:</p> <p>Landscape and Cultural Identity Enhancement Plan "Pay-sage";</p> <p>Integrated Plan for the development of cultural heritage; "The moraine amphitheater of Ivrea: landscape and culture" and "Canavese terra narata", which involves the construction of a cultural, leisure and touristic route, made up of places and characters of the Risorgimento period in the Canavese area;</p>	<p>Macro:</p> <p>Segregation of wildlife in Eorediese Area section of the scenic area;</p> <p>Loss of crop variety and characteristic structure of "agro-mosaic" of Ato Canavese area, due to the conversion of the forestry area in industrial and cultivated areas;</p> <p>Loss of the traditional landscape of the foothills characterized by moraine terraces;</p> <p>Data analysis on land use suggests a decentralization of aging population and the risk of generate additional phenomena of urban sprawl;</p>	<p>Macro:</p> <p>Regional Landscape Plan 2011; Proceedings of the Conference "Territory, handle with care: the implementation of PTC2", 13/04/2012, Province of Turin;</p> <p>Piedmont region, Integrated Project of the Canavese and Biella area, 2004;</p> <p>Piedmont region, Integrated Project of the Canavese and Biella area, 2004;</p> <p>Projects for the development of the area;</p>	
<b>Population</b>	<p>Micro:</p> <p>In the Eorediese area the population in 2011 stands at 90,750 inhabitants, against significant number of deaths, the age group between 0-14 and 15-64 remains numerous and representative;</p> <p>Foreign nationals increasing, with the exception of a fall in 2011, now in the recovery phase;</p> <p>Micro:</p> <p>Always positive net migration from 2002 to 2012 and growing rapidly in 2011-2012 period (from 215 to 673), reaching the values of the beginning of 2000s;</p> <p>Average income per capita growing in 2005-2007 period (from € 11,817 to € 13,124), and is stable from 2007 to 2010 (from € 13,124 to € 13,287);</p>	<p>Micro:</p> <p>In 2012, in the Eorediese area the age range distribution of population reveals that the death rate exceeds the birth one;</p> <p>Micro:</p> <p>From 2002 to 2012 the prevalence of deaths on births in Ivrea is even more accentuated than in Eorediese area. The most negative peak was recorded in 2009. Ivrea is characterized by aging phenomena of the resident population;</p> <p>Municipality aging index (1.81%) is higher than the provincial value (1.4%), regional (1.5%) and national (1.2%);</p> <p>High dependency ratio (0.52%) is higher than the provincial (0.48%), regional (0.49%) and national (0.46%) value;</p> <p>Average income per capita in 2010 stood at € 13,287, less than the provincial (€ 14,067) and regional (€ 13,577) values;</p> <p>The younger age groups are mostly commuters: they focus on school schedules around the station pole and at bus stops, with little relation with other part of the city;</p>	<p>Micro:</p> <p>"Local integrated security Pact", drawn up by the city of Ivrea and other 16 Eorediese municipalities, having € 535,000,00 of budget to carry out actions aimed at ensuring the safety of citizens;</p> <p>Micro:</p> <p>Participation of Ivrea and Strambino to the European call for the integration of foreign nationals, with a prize of EUR 3 million;</p> <p>Many initiatives conceived by organizations like Permanent Territorial Centre (site in the Olivetti High School in Bellinzona) promoting the integration of foreign citizens;</p>	<p>Micro:</p> <p>Mass depopulation of the towns of the foothills (e.g. "La Sentinella" 2011);</p> <p>Nomaglio, Tavagnacco, Brossley, Meugliano and Trausella);</p> <p>Micro:</p> <p>An aging population trend is expected in Ivrea in 2012-2020 period, with an increase of the population over 65 y.o. compared to younger age groups. This is also supported by low birth levels;</p>	<p>Macro:</p> <p>Italian Municipalities 2002-2012; Demo ISTAT 2005-2012</p> <p>Ivrea Municipality and Province of Turin 2011;</p> <p>Imvati 2013;</p>	
<b>Heritage and Cultural activities</b>	<p>Micro:</p> <p>Fortified castles system around the town of Ivrea with an important landscape role (Ivrea Mostarò Dora, Pavone, Canavese, Quassolo, Caravino, Settimo Vitone, Alban, etc.);</p> <p>Preto-industrial heritage (mining in the foothills band: Quincinetto, Lessolo, Val Chiusella, etc.) and industrial (Olivetti in Ivrea) of different ages;</p> <p>Increase on the territory of widespread musealization (Pivone, Nomaglio, Andrate);</p> <p>Micro:</p> <p>"Museo a cielo aperto dell'Architettura Moderna di Ivrea (MAAM)" (Open air Museum of Modern Architecture of Ivrea);</p> <p>Presence of cultural associations such as "Public-08", which are dedicated to cultural promotion starting from land resources (shows, events and research economic resources);</p>	<p>Micro:</p> <p>Land supply is very varied in terms of number of institutions, structures and activities, but often suffers from a lack of economic resources;</p> <p>Micro:</p> <p>Over the past 10 years, 60% of the contributions to achieve the Open Jazz Festival come from private sponsors</p>	<p>Macro:</p> <p>MAAM promote the enhancement program of Modern architecture of Ivrea linked to Olivetti;</p> <p>UNESCO candidacy of the City of Ivrea;</p> <p>Restoration campaign for the ecclesiastical heritage, with examples belonging to different currents and periods (Romanesque, Etruscan, etc.);</p> <p>Landscape and cultural identity enhancement Plan "Pay-sage";</p> <p>Promoting Project "Moraine Amphitheater of Ivrea. Stones tell" (concerning the archaeological remains found);</p> <p>Polaris project;</p> <p>Amphitheatre: The moraine amphitheater of Ivrea between nature and art, open air contemporary art itineraries";</p> <p>The new Ivrea Reading Festival "The great invasion", for its first edition is free and aims to transform the city into a reading, music, cinema and theater workshop;</p> <p>Project in progress for the construction of the new municipal library in the former Cena Institute in Castello Square;</p>	<p>Macro:</p> <p>Risk of ghettoization of Eorediese Area section of the some urban areas (e.g. Bellavista district), which see the influx of population Ivrea and groups considered "weak";</p> <p>Risk of "altering the area";</p> <p>interventions for renovation of Olivetti UNESCO World Heritage List; architectures in presence of Area integrated project of Canavese little or no economic and cultural resources);</p> <p>Some cultural activities which had been realized in 2009, 2012 and 2013 were suspended for the cuts in funding of the culture sector;</p>	<p>Macro:</p> <p>Regional Landscape Plan 2011; www.Music-studioIvrea Jazz Club;</p> <p>MAAM and projects for the development of the area;</p> <p>Cultural Association "Public 08";</p> <p>Olivetti UNESCO World Heritage List; Area integrated project of Canavese and Biellese, 2004, Piedmont Region;</p> <p>Cossano Municipality; Canavese, Polaris projects; 2009, 2012 and 2013 were suspended for the cuts in funding of the culture sector;</p>	
<b>Citizens and People's Services</b>	<p>Macro/micro:</p> <p>Is starting up the building of the new health center of Ivrea, a € 15-</p>	<p>Macro/micro:</p> <p>Currently, blood test centers and specialist clinics of Ivrea Health System are</p>	<p>Micro:</p> <p>"Bellestivata Ivrea, a piede di anziano" is an ongoing project of the</p>	<p>Macro/micro:</p> <p>Needs analysis still in weak and lacking and the</p>	<p>Piedmont Region, ASL, TO4; Area integrated Plan of INRETE and CI.S.S.A.C. consortium (2011-</p>	

Fig. 1 SWOT analysis of Ivrea and the Eorediese District: macro and micro levels. Source Author's work

territorial scale (micro and macro scale), that has enabled the identified themes (demography, economy, etc.) to be highlighted and compared, both of the municipal perimeter of Ivrea and Eorediese district in terms of both territorial marketing and Genius Loci. It is emphasized that some of the "sensitive" themes



Issue	Strengths	Weaknesses	Opportunities	Threats	Sources	
Economy	<p>million facility, provided in the "Torre Montefibre" area;</p> <p>Both municipalities belonging to IN.ire.te plan and CI.SSAC consortium, have drawn up a 2011-2013 Area Plan based on care needs of children, adults, elderly and people with disabilities. The profiles for aid services shall be identified in Public health and employment sectors;</p> <p>A.L.T. project "Agriculture, Labor, Tradition", headed by the City of Ivrea for the years 2011-12, for the integration of young people (18-29) in different working in development sectors;</p> <p>Macro:</p> <p><b>Primary sector:</b> the production of "Denominazione di origine controllata (DOC)" (European Union PDO) wines (Nebbiolo di Carema, etc.) is still carry on;</p> <p><b>Secondary sector:</b> international importance of the biotechnology District (Bioindustry Park); there are at least 17 different sectors in the territory among which are the fields of Electronics and Mechatronics of the Post-Olivetti and Informatics sectors;</p> <p>Micro:</p> <p>To encourage the creation of new businesses houses in the Adriano Olivetti Centre, it was set up a business incubator "Meeting Point" accessible via tender;</p>	<p>housed in the old town structures, creating problems of accessibility to users;</p> <p>The City of Ivrea has difficulties to have services for the young people groups both at macro and local scale: it is not yet focused the needs analysis for younger age groups, both in adolescence and working phases;</p> <p>Macro:</p> <p><b>Primary sector:</b> average age of farmers exceeding 60 years;</p> <p><b>Secondary sector:</b> in the territory of Ivrea 20.7% of companies are in crisis. This is worrying, but it is still lower than the Provincial 22.5%; majority presence of small companies;</p>	<p>Municipality with "Casematte" Association in order to find solutions to adapt the living space to the needs of old people;</p> <p>The City of Ivrea has implemented several projects in the pentastelario sector, initiatives for social and work insertion of community service workers and ex-convicts (€ 60,000.00, financed by "Compagnia di San Paolo");</p> <p>Macro/micro:</p> <p>Participation of Ivrea and Strambino to the European call for the integration of foreign nationals, with a prize of EUR 3 million;</p> <p>Ongoing project "A.L.T." (2013) for the insertion of young workers in the craft and agricultural enterprises located in the territory of Ivrea;</p> <p>Ongoing project "The Social Farm", aimed at training and providing employment for disadvantaged people through farming activities;</p> <p>Ivrea has relied on the fact that Turin would become the capital of biomedicine in 2014 by hosting the "Bio Europe Spring" one of the most important international events for companies research centers, universities and technology parks of the sector of life sciences;</p> <p>E-commerce is a new local business development sector, in particular for craft companies and commercial activities, according to the approach adopted from "CNA Torino";</p> <p>In the new project for the "farmer Montefibre" area are forecasting 25% m2 for offices, 8.8% m2 for trade, 13.3% m2 for manufacturing and 22.9% m2 for flexibles areas;</p>	<p>insufficient supply of services (2013);</p> <p>for young age groups, might increase the risk of land abandonment from this Ivrea municipality application target;</p> <p>The City of Ivrea has implemented several projects in the pentastelario sector, initiatives for social and work insertion of community service workers and ex-convicts (€ 60,000.00, financed by "Compagnia di San Paolo");</p> <p>Macro/micro:</p> <p>Participation of Ivrea and Strambino to the European call for the integration of foreign nationals, with a prize of EUR 3 million;</p> <p>Ongoing project "A.L.T." (2013) for the insertion of young workers in the craft and agricultural enterprises located in the territory of Ivrea;</p> <p>Ongoing project "The Social Farm", aimed at training and providing employment for disadvantaged people through farming activities;</p> <p>Ivrea has relied on the fact that Turin would become the capital of biomedicine in 2014 by hosting the "Bio Europe Spring" one of the most important international events for companies research centers, universities and technology parks of the sector of life sciences;</p> <p>E-commerce is a new local business development sector, in particular for craft companies and commercial activities, according to the approach adopted from "CNA Torino";</p> <p>In the new project for the "farmer Montefibre" area are forecasting 25% m2 for offices, 8.8% m2 for trade, 13.3% m2 for manufacturing and 22.9% m2 for flexibles areas;</p>	<p>Land Plan of Provincial coordination of the young 2011;</p> <p>It is expected that the lack of labor force of the young age group in the agricultural Consortium for the production field will exacerbate the facilities Canavese; progressive abandonment of Bioindustry Park Silvano Fumero; the countryside in a few Ivrea Municipality, work policies years;</p> <p>Regardless of the Sub Local Youth Plan of Canavese conversion of Olivetti 2013; structures, the city struggled Copernico Consortium, Cascina</p> <p>Risk of further impairment of the landscape due to expansion of production areas;</p> <p>Risk of abandonment of Booklet "ABC Internet for some brownfield sites inserted in urban settings;</p> <p>Risk of further impairment of the landscape due to expansion of production areas;</p>	<p>Ivrea Municipality, Sub Local Youth Plan of Canavese 2013;</p> <p>Department;</p> <p>Press office ASIA;</p> <p>Casematte Association, Qbelivista project;</p> <p>"La Sentinella", 2011;</p> <p>Land Plan of Provincial coordination of the young 2011;</p> <p>Consortium for the production field will exacerbate the facilities Canavese; progressive abandonment of Bioindustry Park Silvano Fumero; the countryside in a few Ivrea Municipality, work policies years;</p> <p>Regardless of the Sub Local Youth Plan of Canavese conversion of Olivetti 2013; structures, the city struggled Copernico Consortium, Cascina</p> <p>Risk of further impairment of the landscape due to expansion of production areas;</p> <p>Risk of abandonment of Booklet "ABC Internet for some brownfield sites inserted in urban settings;</p> <p>Risk of further impairment of the landscape due to expansion of production areas;</p>
	Real Estate Market	<p>Micro:</p> <p>In the municipal area there are 3,553 buildings, of which 96.2% is in use;</p>	<p>Macro:</p> <p>"Osservatorio del mercato immobiliare - OMI" (Real Estate Market Observatory) in Terrestrial Note of the first half of 2015 cite the Eporediese like one of the macro-areas of Piedmont where the most significant losses both in terms of number of exchanges (NTN) and in terms of values are recorded: a significant drop in house prices (-13.90%) and a similar drop in the number of transactions - NTN (-13.40%);</p> <p>Micro:</p> <p>Ivrea decreases in trades (-14.80%) with average prices of € 1,300.00/m2; furthermore there is a significant price dispersion;</p> <p>64.57% of the resident population is living in own houses while 29.3% is living in rental housing.</p>	<p>Micro:</p> <p>There is a substantial number of unused real estate assets;</p> <p>Three-year review of maintenance plan of the historical and social heritage;</p>	<p>Micro:</p> <p>Unused heritage with scarce resources for routine maintenance;</p> <p>Large former IACP heritage with risk of degradation growth in the presence of little or no maintenance resources for routine maintenance;</p>	<p>OMI, Real Estate Report 2015;</p> <p>Residential sector. Regional data. Piedmont and Valle d'Aosta. <a href="http://www.bosimmoimmobiliare.it/quotazioni-immobiliari/Piemonte/Torino-provincia/Ivrea">http://www.bosimmoimmobiliare.it/quotazioni-immobiliari/Piemonte/Torino-provincia/Ivrea</a></p> <p><a href="http://www.immobiliare.it/mercato-immobiliare/Piemonte/Ivrea.htm">http://www.immobiliare.it/mercato-immobiliare/Piemonte/Ivrea.htm</a></p> <p>Turin FIAP observatory: <a href="http://www.osservatoriofiap.it/provincia-di-torino/item/263-ivrea.html">http://www.osservatoriofiap.it/provincia-di-torino/item/263-ivrea.html</a></p>
Tourism	<p>Micro:</p> <p>There is a significant and qualified offer of accommodation and catering, but demand in wear visitors of castles and museums are falling, but the tourist flow has increased during 2012 (85.000 total attendance mostly Italian) as well as the average stay time (3.2 days compared to approximately 2 of 2011, after a period of decline in the last 4 years, for which the contraction is certainly because of the economic crisis);</p> <p>Concerning Hotels (1 to 4 stars) and others accommodation, in the period 2005-2010 has increased Italian tourists presence in the same period increased also the presence of foreign tourists but not in hotels;</p> <p>Micro:</p> <p>The Tourist Office of Ivrea has promoted in 2012 the project "IVREA FOR ALL" for tourism development, through the creation of most disadvantaged users path;</p>	<p>Micro:</p> <p>Concerning Hotels (1 to 4 stars), and others accommodations in the period 2005-2010 has decreased foreign tourists presence;</p> <p>Lack of beds and of differentiated and integrated offer among the different actors of the territory;</p> <p>Small number of tourist packages;</p> <p>Micro:</p> <p>Although the number of tourists visiting Ivrea and its territory has increased from 2000 to 2014, going from 32,134 to 57,952 visitors of the Meranin Amphitheatre of Ivrea and from 16,766 to 20,525 visitors to the city of Ivrea it cannot yet be defined as a city of "tourist attractiveness";</p> <p>Numerous but not relied events and popular traditions are still present in the Ivrea area, living in the shadow of the historic Carnival of Ivrea;</p> <p>Poor promotion of events related to urban tourism causes an offer relevance decrease compared to the total supply;</p> <p>Currently, "Museo a cielo aperto dell'Architettura Moderna di Ivrea (MAAM)" (Open air Museum Of Modern Architecture of Ivrea) with its path that runs along two kilometers does not register big inflows of visitors;</p>	<p>Micro:</p> <p>Touristic offer throughout the territory in the planning stage point to a soft tourism in line with the local economies, which, through the involvement of staff, facilities, materials and agricultural local products, may have a chance of development;</p> <p>For the year 2016 Ivrea and the municipalities of the past are hoping for a positive pulse generated by the 2016 World Canoe Championship sites in Ivrea;</p>	<p>Macro/micro:</p> <p>The "Mediaspolis" project seen as an example of a National Atlas of Rural Territory. Local System of Ivrea 2007-2013; governance even further far away from Olivetti's idea of community and territory identity;</p> <p>Without an effective intervention on the communication and systematic promotion of events, the risk of media dominance of the historical Carnival of Ivrea increases;</p>	<p>Piedmont Region. Tourism Observatory;</p> <p>National Atlas of Rural Territory. Local System of Ivrea 2007-2013; Consortium for the Technological District of Canavese, Touristic Scenario, May 2006;</p> <p>Serra Morone Amphitheatre, 2006;</p>	

Fig. 1 (continued)

have been mapped, especially those regarding the consistencies, uses (original and current), the properties ad state of conservation (Figs. 2, 3, 4 and 5). For editorial space reasons, the analysis have been omitted and the most sensitive results have merged into a SWOT analysis (Fig. 1).

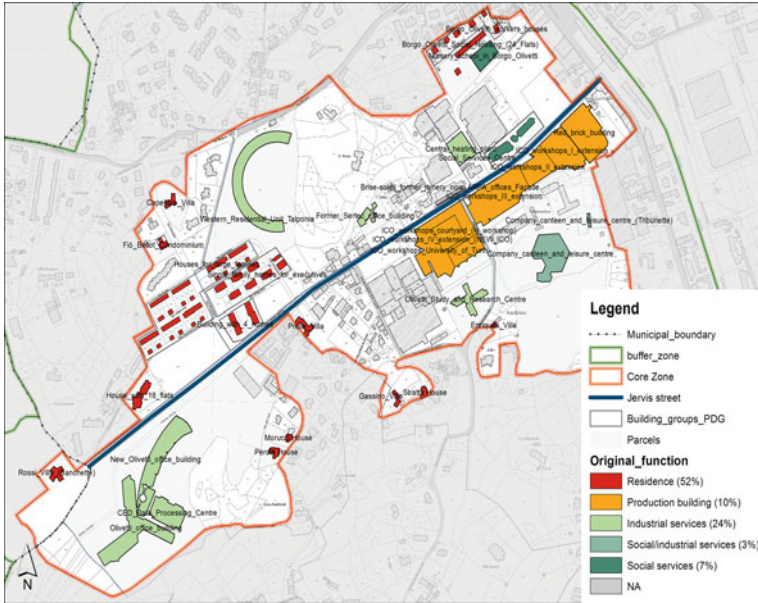


Fig. 2 The Core Zone: original functions. *Source* Author's work

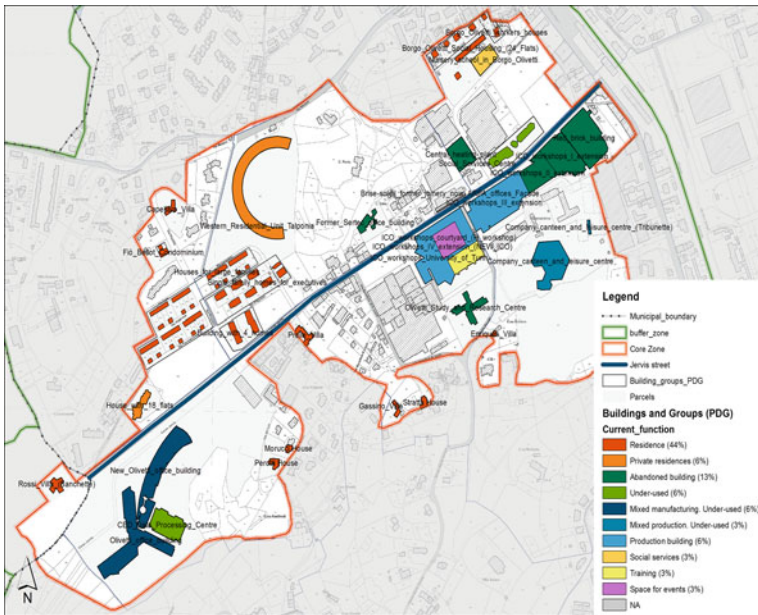


Fig. 3 The Core Zone: current functions. *Source* Author's work

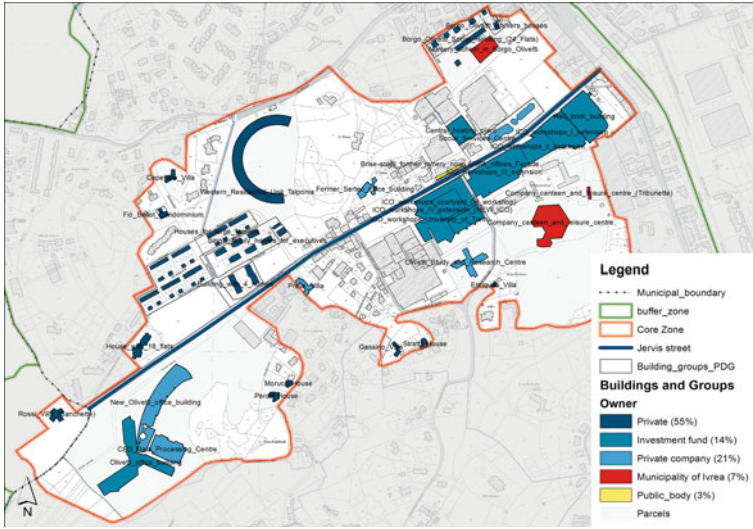


Fig. 4 The Core Zone: the owners. *Source* Author’s work

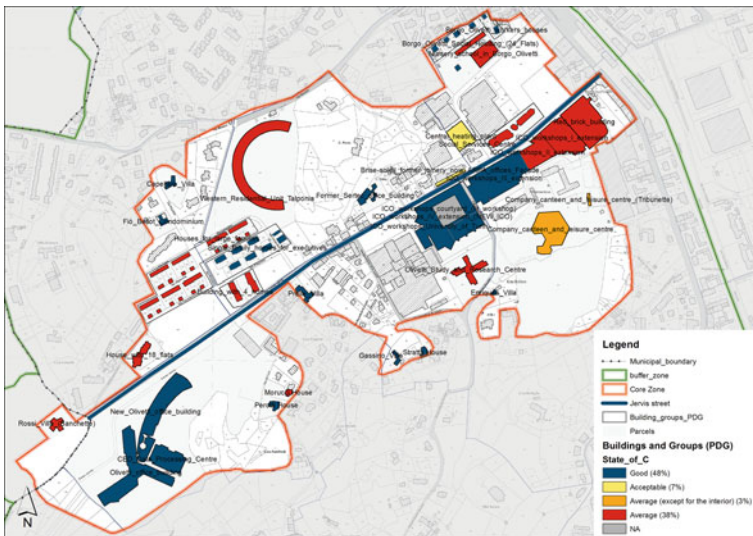


Fig. 5 The Core Zone: state of conservation. *Source* Author’s work

The SWOT highlighting the huge gap between the surfaces to be reused, and the weakness of the socio-economic context, determined by structural and not only cyclical factors. In particular, the Core Zone:

- has an estimated surface of 121,063.87 m<sup>2</sup> of services and offices and 24,216.75 m<sup>2</sup> of houses (Fig. 5) 59% is used (65,359.30 m<sup>2</sup>), while 41% is unused (46,254.14 m<sup>2</sup>);
- consists of 28 fields, 27 of which are private and have strategic economic capabilities of diverse valorisations (individual owners, companies and asset management companies as SGR).

In addition, the reuse operations must reconcile two key aspects. Firstly, the necessary steps to adapt the existing buildings with the performance requirements of the new features that must deliver the original, architectural, construction and distribution characteristics. Secondly, they must be economically and financially feasible. While the compatibility of uses and assets can be resolved regarding the same project scale, the financial and economic feasibility is a little “trickier”, as it depends on structural conditions, surmountable only by not diversifying locations and segmenting applications (Figs. 2, 3, 4 and 5).

### 6.2 The Valuation Models: The Discounted Cash Flow (DCF) Method, Applied to the Reuse of Historical Heritage

Since the majority of the buildings of the Core Zone consists of private properties (Fig. 6), whose aim is to maximize profit, several reuse scenarios have been pre-figured, each of them evaluated with the Discounted Cash Flow Analysis (DCF).

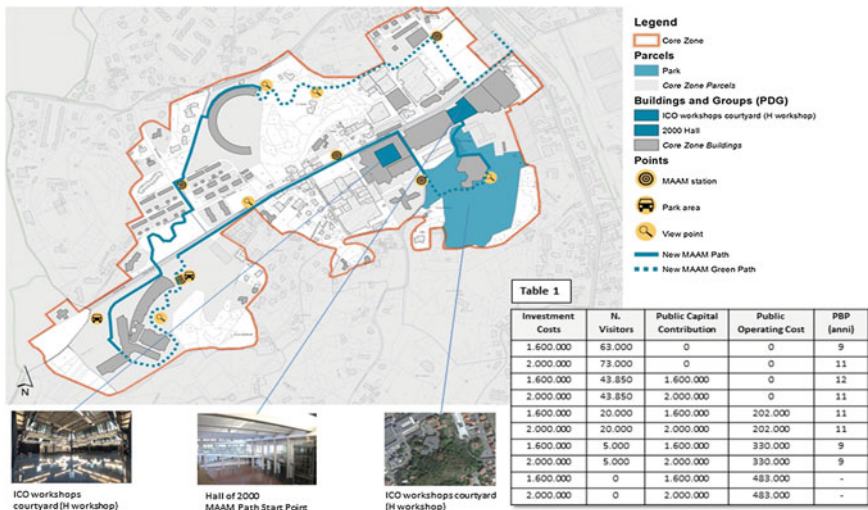


Fig. 6 The virtual MAAM proposal and Table 1—the scenarios of virtual MAAM. Source Author’s work

The buildings of the private property Core Zone can be exploited economically and functionally using different transformation and valorisation models (Plaza 2010). It is known as the evaluation of the economic and financial viability of reuse interventions must always be measured using the appropriate evaluation tools, in terms of Internal Rate of Revenue (IRR) and Net Present Value (NPV) through the DCF (1).

$$\sum_{t=1}^k = 0; \quad VAN = \sum_{t=1}^n \left[ \frac{\text{Revenues}}{(1+r)^n} - \frac{\text{Costs}}{(1+r)^n} \right] \quad (1)$$

Each type of transformation is characterized by the specific items of financial income and expenses. We should always consider:

- the initial investment (made up of the market value of the actual state and the flow of processing costs);
- the cash flows generated as a function of specific locations;
- the risk/investment ratio;
- the residual value of assets considered at the time of disinvestment, in some specific cases.

An overview on the theory of achievable reuse by private owners, considering the architectural characteristics of the assets and the demand expressed by the economic and social context, basically provides three models, explained below. Private owners can choose whether to put the assets on the market or allocate them to economic activities to be managed.

## 1. HOUSING AND/OR OFFICES

1.1 The Trading Market. Reuse interventions have a high market risk, determined by the imbalance between supply and demand for almost non-existent spaces. In the central area and/or near the centre of Ivrea, the market values of existing buildings range from a minimum of €400/€500 per m<sup>2</sup> to a maximum of €900/€1000 per m<sup>2</sup>, while the values of restructured assets vary between €1600/€1800 and €2000/€2500 per m<sup>2</sup>. The threshold of the maximum values of restructured assets is too low for the profitability margins of existing heritage asset transformation interventions.

1.2 The Rental Market. We must consider the residual value of the building at the time of divestment. It may be useful to break down the “rate of return” in the “rate of return of the capital” and the “rate of return on the capital”. In the case of Ivrea, the risk of vacancies is very high.

## 2. ECONOMIC ACTIVITIES, CONSUMPTION OR PRIVATE SERVICES.

Architectural structures and expressions of the Modern movement are essentially considered as pure operating assets. As a result, their value depends on the profitability generated by the cash flows of economic activities for which they are intended. One can distinguish 3 different modes.

- 2.1 Direct management. The IRR and NPV are determined by cash flows (positive and negative) generated by the initial investment (value of the asset and restoration/reuse/construction costs), the costs and revenues related to the economic activities and finally the residual value of the asset, incorporating the value of the said asset at the time of divestment. In the case of Ivrea, the risk is high, due to the fact that the internal aggregate demand for consumption is largely met with the current offer, since it is unable, at its current capacity of attraction in Ivrea, to generate more significant demands.
- 2.2 Rent paid by business managers. The return on the investment is fully comparable to that envisaged for the rental market.
- 2.3 The concession of the asset. It stipulates that the manager of economic activities and services must be responsible for restoration and reuse intervention costs, when faced with the possibility of having to use the property for a defined period of time and the payment of any fees, both of which are to be determined. The convenience of the owner is always evaluated in terms of IRR and NPV, using the DCF. The return on investment depends largely on the residual value of assets and the absence of the initial investment costs due to restoration and reuse works. The profitability, assessed against anyone who assumes control of the asset in concession is related to the flows generated by the economic activity itself and the investment costs of the transformation.

### 3. PUBLIC USE: CONSUMPTION AND CULTURAL SERVICES

- 3.1 Museum locations are among those most frequently considered, despite the feasibility clashes with the availability of funds needed to achieve the restoration and management of exhibitions. The Cost Benefit Analysis (CBA), which constitutes the most appropriate assessment tool, in fact, cannot be applied, since it assumes the availability of public resources for investment. In the case of Ivrea, we will use the analysis of a Break-Even Point (BEP), to verify the MAAM digitation project: a technique that is particularly useful when it is difficult to anticipate service and activity demands and in cases where it is necessary to determine the price of the activities and services themselves.

As already highlighted, the surfaces of the Core Zone buildings to reuse are completely out of scale regarding demands that the socio-economic context of Ivrea can express. Without significant public funding, the reuse of the ICO industrial complex by private owners has high risk levels, both of a systemic and specific type, determined by the socio-economic context (Fig. 1).

At the moment, there is no Master Plan (MP) that only optimises the current use and reduces the scope for conflict/competition among the various owners' funds.

Due to the size, typological and structural characteristics, the buildings used for services can have more reuse potential in the medium-term (Figs. 3, 4 and 5). In particular, they lend themselves to intercept consumption requests—recreational,

culture, leisure—expressed by the youngest and most dynamic social strata, or to experiment with innovative forms of social and territorial welfare which is increasingly necessary due to the generalized weakening of the population that is a by-product of the globalization of the economy. From this standpoint, the Canteen and the Social Services Centre (Figs. 3, 4 and 5) enable us to propose activities consistent with their original designations, revised on the basis of equally innovative functional models. For example, the Canteen may be given in concession (at least partially) for activities related to “food services” considered as the hub of a “space dedicated to leisure” organized in the realm of cultural related activities and recreational fun (see point 2.3 The concession of the asset). The social services Centre, then, could be used for health/specialized care services (such as those for the treatment and care for Alzheimer patients), in low cost medical outpatient clinics for motor rehabilitation and physiotherapy and/or senior citizen housing, also complemented by innovative forms of home care.

The neighbourhoods and residential buildings, however, do not present problems of reuse, but require interventions to improve their energy output. Simulations have shown that it is possible to pass from the lower classes, which are generally prevalent (F and G) to the upper classes, to B if not to class A, as in the case of Talponia.

The re-use of these areas—chosen for their intrinsic public vocation—presupposes that the actions of stakeholders converge on the common objective of maximizing the VET of the industrial site. In fact, if action is taken on all its components (VET), it is possible to reconcile the conveniences of private owners with those of society. The identification of the “point of balance” between the many interests involved assumes that this is not left to pure-negotiation but measured by using the most appropriate valuation techniques, compared with alternative scenarios and on the basis of specific design simulation. The conveniences of the private—quantifiable in monetary terms in the form of the TIR (Internal Rate of Return) and the NPV—shall be related to the conveniences of the community accounted for in the form of opportunity costs and/or social and cultural benefits, including those produced by the preservation of the industrial site for the benefit of present and future generations.

## **7 The Preliminary Results for the Public Administration**

The results have strongly underlined the necessity to reconsider the fruition as a separate aspect to the restoration and reuse of assets (Loulanski 2006). In fact, took note of the real difficulties in reusing the existing assets, the authors give priority to work on the MAAM (Open-Air Museum of Modern Architecture, see Sect. 7.1): the support of new technologies could facilitate the use of the heritage of the modern and consequently have a positive effect on the attractiveness of Ivrea, making it become a formidable tool that would attract new audiences. The above questions are addressed in the two following paragraphs.

## ***7.1 The Potentialities of the Valuation Through the Reuse and IT (Virtual MAAM)***

Among all the actions, the valorisation of MAAM (Open-Air Museum of Modern Architecture) can be considered as a priority for its strategic value (Fig. 6). Created in 2001 by the City, the MAAM has a small number of visitors, almost entirely made up of experts and specialists. Its lack of attractiveness is partly due to the shortcomings of the current path and to the fact that “modern architectural structures” are not recognized today for their historical and architectural value, as they are overshadowed on the one hand, by the most ancient architecture, and on the other by the more spectacularization of contemporary architecture. The digitation of the MAAM has been identified by the City of Ivrea as an action of the PG to be developed in partnership with the Politecnico di Torino, which is described on the occasion of a notice of the Fondazione Telecom (Telecom Foundation: <http://fondazionetim.it/bandi/progetti-diretti>). This action deserves to be developed regarding the effects which are able to produce on both an attraction and use level of the Olivetti assets, regardless of conservation interventions.

In particular, the valorisation of the MAAM requires three different interventions to scale, although integrated with one another:

- the creation of an “indoor museum space”, conceived as the “head” of the open-air museum, to be placed, for example, in the Salone dei 2000 (Salon of the two thousand), which, inside the industrial complex, has a high symbolic value, and a strong potential to be reused as a multi-purpose covered square. The Salon, realized when Olivetti had 2000 employees, can house permanent collections; temporary exhibitions use multimedia tools to introduce visitors to the route from the heart of the factory.
- the creation of a new pedestrian walkway (the current one being obsolete) and a cycle path, so as to connect the architectural structures of the modern movement according to a “common thread reworked in terms of content” which in turn can become the nerve centre on which to articulate the redevelopment of those in-between spaces;
- the modeling of Modern architecture, designed to valorise its use in all of its real and virtual forms, and connect Olivetti architectural structures, on one hand, with the other routes and on the other hand, with cultural resources of the territory (Castles, Churches, Via Francigena, etc.) and, secondly, with Olivetti architecture scattered throughout the world and with those implemented by the modern movement in Europe and worldwide.

The three actions respond to the common goal of improving the use of the UNESCO website potential in all direct and indirect, real and virtual forms, in an integrated manner, using IT technologies as cultural and social innovation tools.

The 3D model of the MAAM must revive the 20th century industrial city. Therefore, it must be navigable and interactive, built in such a way as to allow visualization in an intuitive manner through the use of all its materials. The 3D



models of each building, including 3D interior models, should also be explored through Virtual Reality (VR), using all the available digital technologies: they must transmit, in such a captivating and engaging manner, the cultural content which has for far too long remained a heritage for experts and specialists only.

This model assumes the responsibility of the construction of a “content” (or knowledge) database (DB) that contains materials and data from various sources, present in the city’s archives and, in particular, in the Olivetti historical archives, which for the most part, have already been digitized. The DB, designed as open data, requires a multi-layer configuration: (a) on buildings and in particular, on the interior, which over time has been modified and, as much as possible on the people who lived there (photographs of the interior, photographs of parties, of families, books, drawings, paintings, letters, textual descriptions, etc.), (b) the activities that took place during that period (productions, social services, leisure and recreational, etc.); (c) regarding the industrial city (city maps, views, plans, economic, social, demographic data, etc.).

The 3D model and the DB must in turn be integrated with a semantic GIS to an LIS (Land Information System) supported by a more complex management system. The MAAM can thus be connected both locally and internationally to other digitized pathways, so as to promote the influx of the visitors, the attractiveness of Ivrea and the surrounding area (Fig. 6).

The itinerary leaves the Core Zone and focuses on the Serra, representing the meeting point with the historic city, while the virtual point of the Acropolis of the Castle signals the end of the circuit.

## ***7.2 Emerging Aspects of Feasibility in Management: The Break-Even Point Scenarios***

The City of Ivrea would be well equipped with an exceptional “real” and “virtual museum”, constituted by the Salone del 2000, integrated to the pathway leading to the open-air museum of modern architecture, translated into a navigable and interactive 3D model, both on site and remotely (Fig. 6). The investment can be largely explained by the multiple effects that the already called project is able to generate:

- the Salone del 2000 could be leased in a non-burdensome manner due to its property holdings (real estate funds);
- the construction costs of multi-functional space, the construction of the pathway (both pedestrian and bicycle) and the creation of navigable and interactive 3D models could be supported by the Municipality and/or special funding.

An aspect to be addressed is the identification of a reliable demand curve. As it is a concrete case and considering the time, it was decided to use a known but effective technique regarding the specific case, which raises the question of

covering any management costs by the PA, in line with the conditions of local funds. This extremely empirical model enables the identification of the extent of contributions that the PA must budget, based on different demand scenarios starting from the Break-Even Point (BEP).

Taking into consideration the fixed operating costs (human resources and utilities), the analysis of the BEP permits the identification of the price and the required number of visitors so that they reach the break-even point between the fixed costs of management and financial returns, even considering those inherent additional economic activities (bookshop, catering, guided tours, etc.).

Just for simulation purposes, we carried out economic and financial analysis with DCF, which enabled the creation of different scenarios based on the number of visitor hypotheses, assuming a ticket price of 8 Euros. Considering an investment of a minimum of 1,600,000.00 to a maximum of 2,000,000.00 Euros, including the restoration, fitting out and the technological infrastructure, the assumptions about visitors would be as follows (Fig. 6, Table 1).

- (1) the range from 63,000 to 73,000 visitors makes it possible to achieve a self-sustaining museum on the investment and operational and management costs, with a 9 to 11-years Pay-Back Period (PBP);
- (2) 43,850 visitors would cover operating costs and require a 100% capital contribution of the investment cost and a balanced management without contributions in the income statement, with the achievement of a 12/11-years PBP;
- (3) some 20,000 visitors would require a capital contribution equal to 100% of the investment and in the income statement contribution of around 200,000.00 Euros per year to cover budget losses, with the achievement of an 11-years PBP.

## 8 Conclusions and Future Developments

Some value paradigms (VET), developed in the environment area of interest, can be reconsidered in the CH field. They consent to redefine the enhancement issues and to systematize methodologies and decision-making support tools, as well as cultural policies at national and local level by following a new approach.

The Ivrea case study highlights how an enhancement project can be reached by means of focused, diversified and integrated actions, by going beyond the actual economic reductionism. Indeed, in weak territorial contexts characterized by the absence of public funding, the enhancement of the architectonic heritage has to be pursued by means of both restoration (refurbishment and redevelopment) and use.

From this point of view, the “Ivrea, 20th century industrial city” candidacy permitted us to study the CH enhancement issues by analyzing a real case study, since UNESCO considers it as one of the fundamental prerequisites in order to enter into the World Heritage List.

The Municipality arranged with the PG (Piano Regolatore Città di Ivrea 2006) all possible necessary tools to guarantee the complete protection of the Core Zone and identified the actions related to its enhancement; this is difficult to achieve as, it is influenced by structural factors and by the absence of public funding. On the basis of a new theoretical-methodological approach—defined thanks to the VET requests and redeveloped for the CH field by considering the IT potentialities—it has been possible to change, reinforce and integrate the actions related to the enhancement project and expected by the PG.

Concerning the redevelopment, the design simulations and the economic and financial feasibility studies (not reported herein), highlighted how the redevelopment is influenced by the risk deriving from the existing gap between spaces demand and supply. The three design projects developed on public areas (Parco della Mensa, Salone dei 2000 and Officine H) are related to this aspect: they symbolise a different relationship between public and private bodies and they are coherent with the PRGC modifications, expected by the Municipality with great lucidity.

By analyzing instead the use and the Ivrea case study, the use has to be put before the redevelopment and it has to be considered priority. Considering the VET, the actual MAAM redevelopment into a virtual museum, both open-air and integrated into the “Salone dei 2000” (Salon of the two thousand), has a great importance at national level. This project could obtain extraordinary public funding, if we consider the attraction potentiality at international level, related to the possibility to connect the buildings in Ivrea to other modern buildings in Italy and all over the world (Fig. 6).

Definitively, the enhancement of the Core Zone pursued through the re-use of existing buildings requires a long time and should be considered in a wider urban project, which would be the focal point of a regeneration plan for regional and metropolitan scales. The action pursued by the city of Ivrea to revise the plan as the creation of a PRGC Variant, must be strengthened and supplemented by others, as well as focused to encourage the reuse of existing assets.

In summary, there may be the followings strategic actions (Fig. 6):

1. the acquisition by the Municipality of the private property annexed to the Canteen according to the defined modality, with the aim of making it accessible and usable by the community;
2. the sale/concession to the general public of the “Salone dei 2000” (Salon of the two thousand), whose dimensions and construction characteristics lend themselves to becoming the covered area of the Museo a Cielo Aperto delle Architetture Moderne (Open-Air Museum of Modern Architecture) (see Sect. 7.1);
3. the valorisation of the H Workshops of the new ICO (albeit considered to be the alternative to the first two actions).

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