

D.T 2.1.1 - HANDBOOK OF MAIN COMPONENTS OF **HBA SUSTAINABLE PERFORMANCE**

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INTRODUCTION

“HBA” DEFINITION

In a context where ‘**development**’ and ‘**urban heritage conservation**’ are seen as conflicting rather than cooperative processes, there is a need for an updated, integrated approach to urban management especially on what the BhENEFIT projects defines as Historic Built Areas (HBA).

Among the Partnership of the project was shared during the KOM and approved a joint definition of what HBA is, to clarify the object and the goals of the BhENEFIT activities.

A HBA is a **Historic built environment**, both limited to a portion of an urban area or extended to a not-natural, designed landscape (shaped by complex human forces acting on the natural environment), which is made up of **innumerable unique and interlinked human built elements** (buildings, infrastructures, streets, canals, factories etc.) which tell the particular story and identity of the place. A HBA is the result of a centuries-long process of evolution, a process dictated in part by changes in natural conditions but much more immediately and obviously by human effort, by adding, adapting and replacing, and it is, therefore, a **powerful expression of culture and history**, it shows how society has evolved, and its present form provides a focus around which communities define their identity. In a HBA the morphology of the settlement, the designed structure of the place, the relationships between the different components are more important and significant than the individual monuments, because they are often visually more appealing and intellectually more satisfying in reason of they allow us to visualise the relationships between past activities or the structures of past societies.

So, we can say that core to the BhENEFIT approach is an understanding of the historic environment understood as the result of a historic layering

of cultural and natural values and attributes. "...It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity." (UNESCO, 2011).

According to this approach, when BhENEFIT projects talks about **HBA conservation**, the core-idea is an activity based on an understanding of a place, not only its spatial and morphological qualities, but also its community values. We could say that BhENEFIT offers an **holistic method to consider a wide spectrum of different and related aspects concerning restoration, valorization and management of historical heritage in a sustainable perspective.**



“SUSTAINABLE
MANAGEMENT”
DEFINITION

It's clear that the built heritage preservation has to meet to contemporary needs of a changing world and today a fundamental necessity has become the sustainability, in term of environmental, economic and social issues.

Neither a strictly preservative approach, neglecting each opportunity of reuse and public fruition of the heritage, neither the opposite perspective of a huge economic exploitation of the heritage itself seem to be sustainable in a mid-term perspective. The conservation and the effective management of the historic townscape are dependent on a sound understanding of its historical and spatial structures, as well as understanding of social and community structure, and an appreciation of the public, private and symbolic uses of urban space. Historic buildings,

the morphological pattern of streets and spaces and social significance creates for each town a distinctive “character”. Moreover, urban heritage’s value is not simply in the historic attributes of the built fabric and spatial aspects of the townscape, but also in the life of its contemporary resident community, differentiating it from other form of heritage. Historic towns are not museums but still “towns”, with inhabitants, their needs, expectations and rights. As Rogers said, “we must realize that maintaining structures means maintaining the desirability or continuity of a culture - **we are in fact conserving cultures and not simply buildings**”. Continuity is the key to conservation and both the built environment and the urban life within it must be permitted to develop and change.

BhENEFIT approach underlines that an effective strategy for sustainable restoration of cultural heritage should consider:

- **The functional compatibility** evaluation between the expected use and the historical building itself;
- **Performance optimization** of the building envelope, in the perspective of its energy efficiency increase;
- **Long-term sustainability** of the action, with the outlook of a minimization of conservation actions through a comprehensive monitoring strategy, which is aimed at planned preservation of the Cultural Heritage.

It's quite clear that the consideration of all these elements requires an oriented coordination and an integrated driving-process of the different subjects and disciplines involved. **THIS SPECIFIC ACTIVITY IS WHAT WE CALL “SUSTAINABLE MANAGEMENT” OF THE HBA and represents the core-topic of BhENEFIT project.**

In this perspective, the management solutions developed by BhENEFIT will promote the continuity of lived- in environments, avoiding more aesthetic approaches focused only on external qualities of built elements, intended to appeal to the visitor’s perceptions in the external realm.

BhENEFIT will avoid solutions ignoring the depth and dynamism of an urban environment in favour of re- creation of sterile and settings, reducing heritage to a chosen interpretation of history and its physical remains as a marketing tool, a specific selected and packaged product.

CHAPTER 1

HBA IN CENTRAL EUROPE: SETTLEMENTS



To approach the sustainable management in the most effective way, it's important to understand which relationships could exist between HBAs in Central Europe area and the different components of the concept "sustainability".

As said before, we recognize that "sustainability" is made by spatial/ physical aspects, social aspects and economic aspects.

Through the sharing activities of documents and ideas among the partnership and among the different LSGs, we tried to analyze and present the main features of Central Europe HBAs linked to identify which sustainability's elements of the HBAs in Central Europe area could be related to physical and material consistency of a historic built environment (par. 1.1) and which could be related to people living and using that environment (1.2).

SETTLEMENTS

In the course of European history, there have been **four periods** or phases when the foundation and development of towns was a major preoccupation of European peoples.

The first was during the prehistoric period, from the Bronze Age to the Iron, when the so-called hillforts were constructed. These were large areas, enclosed by bank, ditch, and palisade. For the inhabitants of nearby farms and hamlets, the hillforts were places of refuge to which they could retreat in time of war. They served also for the storage of food and the practice of simple craft industries, which may have included tanning, weaving, and metalworking.

The second phase in the history of European urbanization began in classical Greece, though it owed much to earlier developments in the Middle East, and was continued in Roman Italy, Spain, Gaul, and even Britain. It was, however, characteristic of all of them that citizens took an immense pride in their respective cities and adorned them with temples, theaters, and



Terramare Village, Montale, Modena.

1.1 PREHISTORIC PERIOD

1.2 CLASSICAL PERIOD

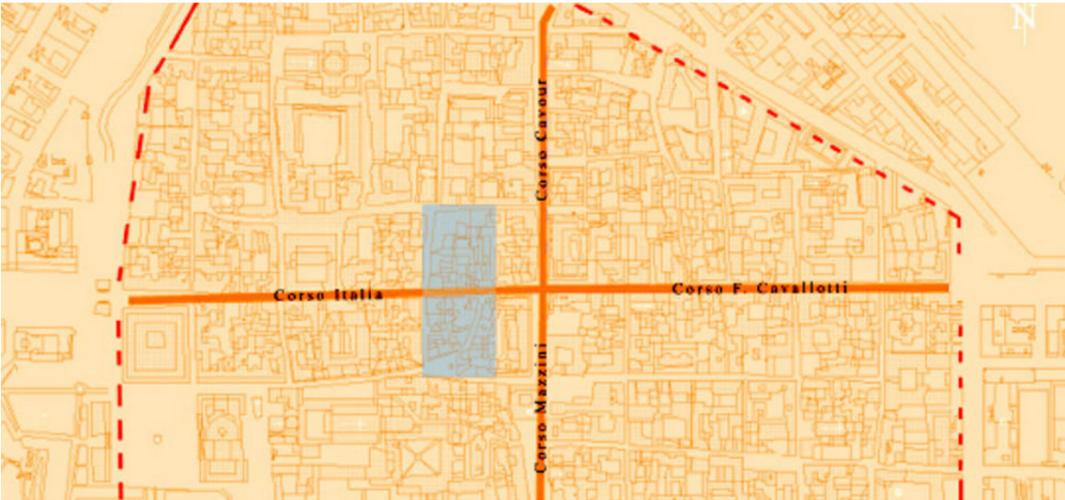
public places. The Romans saw the city as an instrument of civilization, as a means of taming the barbarians whom they had incorporated into their empire. The city replaced the hillfort. It was, as a general rule, carefully planned with straight streets intersecting at right-angles. Generous space was allowed for temples and basilicas or large halls, which served as public meeting places, for the forum, or central square, around which these buildings were grouped, and for the theater, where dramatic shows were performed, and the amphitheater or arena, where more brutal games were staged'.

The underlying street pattern and urban morphology of many European and Mediterranean towns and cities can be traced back to a Roman grid plan. The military expansion of this period facilitated the adoption of the grid form as standard: the Romans established castra (forts or camps)

1 Source: N. Pounds, "The medieval city", Greenwood Guides to Historic Events of the Medieval World Jane Chance, Series Editor - GREENWOOD PRESS - Westport, Connecticut • London



Roman Empire Maps when his expansion was maxima.



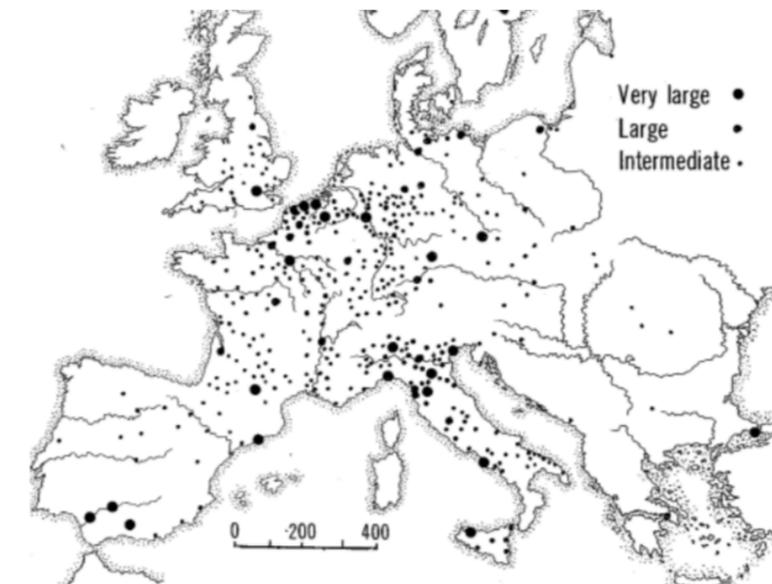
Cardo, Decumano, external walls and central plaza of a classical City.

first as military centres; some of them developed into administrative hubs. Roman castra were often sited on flat land, especially close to or on important nodes like river crossings or intersections of trade routes. The dimensions of the castra were often standard, with each of its four walls generally having a length of 660 metres (2,150 ft). Familiarity was the aim of such standardisation: soldiers could be stationed anywhere around the Empire, and orientation would be easy within established towns if they had a standard layout. Each would have the aforementioned decumanus maximus and cardo maximus at its heart, and their intersection would form the forum, around which would be sited important public buildings. Outside of the castra, large tracts of land were also divided in accordance with the grid within the walls. These were typically 730 metres (2,400 ft) per side (called centuria), and contained 100 parcels of land (each called heredium). The decumanus maximus and cardo maximus extended from the town gates out towards neighbouring settlements. These were lined up to be as straight as possible, only deviating from their path due to natural obstacles that prevented a direct route. While the imposition of only one town form regardless of region could be seen as an imposition of imperial authority, there is no doubting the practical reasoning behind the formation of the Roman grid. Under Roman guidance, the grid was designed for efficiency and interchangeability, both facilitated by and aiding the expansion of their empire.

1.3 FROM MEDIEVAL TO REINASSANCE

After the gradual disintegration and fall of the West-Roman empire in the 5th century and the devastation by the invasions of Huns, Germanic peoples, Byzantines, Moors, Magyars, and Normans in the next five centuries, little remained of urban culture in western and central Europe. In the 10th and 11th centuries, though, there appears to have been a general improvement in the political stability and economy. This made it possible for trade and craft to grow and for the monetary economy and urban culture to revive. Initially, urban culture recovered particularly in existing settlements, often in remnants of Roman towns and cities, but later on, ever more towns were created anew. Meanwhile, the population of western Europe increased rapidly and the utilised agricultural area grew with it. The agricultural areas of existing villages were extended and new villages and towns were created in uncultivated areas as cores for new reclamations. Urban development in the early Middle Ages, characteristically focused on a fortress, a fortified abbey, or a (sometimes abandoned) Roman nucleus, occurred “like the annular rings of a tree”, whether in an extended village or the centre of a larger city². Since the new centre was often on high, defensible ground, the city plan took on an organic character, following the irregularities of elevation contours like the shapes that result from agricultural terracing. In the 9th to 14th

² Source: “Theories of Urban Planning”, Compiled by World Heritage Encyclopedia™ licensed under CC BY-SA 3.0



The distribution of large and intermediate cities in late medieval. Note their concentration in the Low Countries and in northern and central Italy.

centuries, many hundreds of new towns were built in Europe, and many others were enlarged with newly planned extensions. The foundation of monasteries, most of them of the Benedictine Order, also provided nuclei around which traders and craftsmen settled. The monasteries themselves, together with those who visited them as pilgrims, created a demand for goods and services that were provided by small urban communities. These new towns and town extensions have played a very important role in the shaping of Europe's geographical structures as they in modern times. New towns were founded in different parts of Europe from about the 9th century on, but most of them were realised from the 12th to 14th centuries, with a peak-period at the end of the 13th. All kinds of landlords, from the highest to the lowest rank, tried to found new towns on their estates, in order to gain economical, political or military power. The settlers of the new towns generally were attracted by fiscal, economic, and juridical advantages granted by the founding lord, or were forced to move from elsewhere from his estates. Wherever Christianity had been accepted, its local representative, the bishop, established himself in one of the more important towns, and his diocese conformed more or less with the service area of the preceding Roman city³. The bishop's cathedral replaced the temple or basilica, and the activities of the church attracted a small population of traders and craftsmen. The deep depression around the middle of the 14th century marked the end of the period of great urban expansion. Only in the parts of Europe where the process of urbanisation had started relatively late, as in eastern Europe, was it still to go on for one or two more centuries. It would not be until the Industrial Revolution that the same level of expansion of urban population would be reached again, although the number of newly created settlements would remain much lower than in the 12th and 13th centuries.

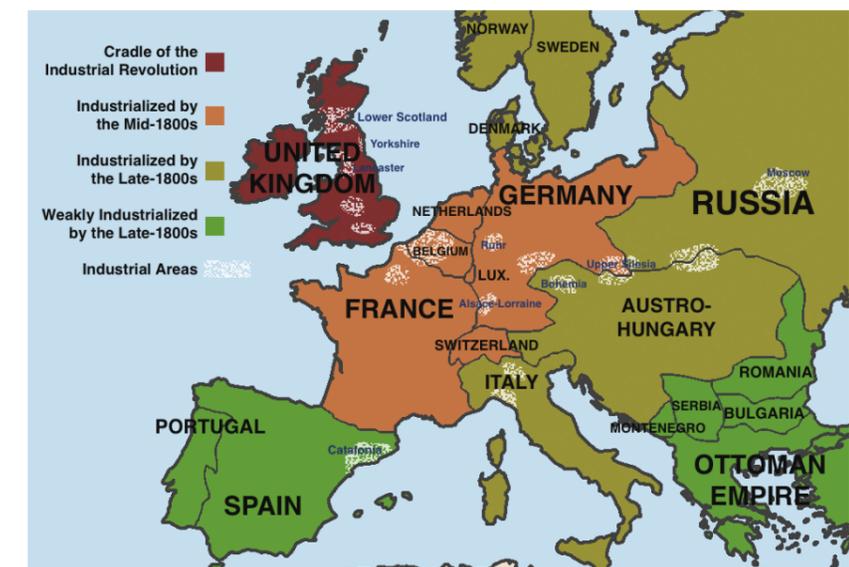
Meanwhile, the Renaissance started to change the face and form of the more important towns of Europe, as grand avenues were created to connect palaces and public squares. By the Seventeenth and eighteenth centuries, new quarters were being built outside some medieval towns, while others were being completely redesigned with new avenues and facades; diagonal axes followed, framing distant vistas of palaces, monuments, triumphal arches, commemorative columns and statues.

³ Source: "The Medieval city", see before

1.4 INDUSTRIAL REVOLUTION

From the nineteenth century on, many western cities were revolutionized, with the introduction of heavy industry, mass transportation, associated developments and new pollutants. **Urban boundaries rapidly expanded**, with rural immigrants moving in as the new urban industrial workforce. The fourth and last, which occupied much of the eighteenth and nineteenth centuries, was characterized not so much by the foundation of new towns, though these were in fact numerous, as, under the influence of the Industrial Revolution, by the selective growth of towns that had originated in the Roman or medieval periods.

This was the origin of the industrial cities that reached their fullest development in the late nineteenth century, but that subject is beyond the scope of this book. The medieval town assumed many forms and served a variety of functions, and its contribution to the development of western civilization is incalculable. At the same time the medieval town created problems that in many cases it proved unable to solve. The size of towns sometimes outgrew their ability to organize adequate supplies of water, food, and fuel. Large numbers of people living in close contact with one another contributed to the spread of epidemic disease. The disposal of sewage was managed only by sending it downriver to the next town. Congestion led to the building of multistoried houses of wood that were both highly unstable and very flammable



Spread of the industrial
revolution in Europe.

CHAPTER 2

HBA IN CENTRAL EUROPE: PEOPLE



Currently, there are over 800 cities with more than 50,000 inhabitants in the European Union. The majority of these, almost 700, are small and medium-sized cities (between 50,000 and 250,000 inhabitants).

There are further differences between the growth paths of Western and the East-Central European cities: due to economic and social suburbanisation, inner-city social problems and urban natural environmental hazards the Western European metropolitan population since the 1970s steadily declined and in the 1980s, the decline was even more significant. However, the 1990s, resulted in re-urbanisation, further concentration processes brought about a new phase of global urbanisation⁴. In this context, the urban population started to grow again. The growth of Central and Eastern European cities was high in the 1950s and from the 1970s onwards, there was a slight decrease which was very significant in the 1980s (Jeney, 2002). In the early 2000s, a perceivable transformation took place: in the Eastern and Central European big cities (among them in several major cities such as Bratislava, Prague, Berlin, Warsaw, Budapest) population decline stopped, stagnated or even started to grow (Demographic trends; Jeney, 2005; 2007). At the time of state socialism there was a typical

⁴ Source: Viktória Szirmai, *The Main Characteristics of East-Central European Urbanisation Processes*

*Exemple of a recovery
building factory.
Manifattura Tabacchi,
Modena.*



difference between the Western and the Central and Eastern European trends in the development dynamics of city centres and their urban peripheries. The city's surrounding settlements were often rural, with low-population density where a metropolis emerged like an island. This difference by now has mostly disappeared due to the economic and social suburbanisation processes, although differences still occur according to the regional development level of urban areas.

The historical centers of our cities are an essential part of the national



identity heritage.

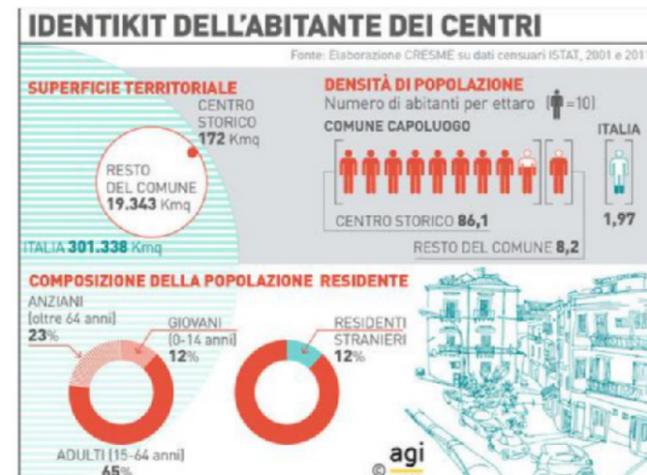
Their conservation in Italy was possible thanks to careful recovery operations of the building fabric adopted especially in the 80s, and thanks also to the new uses of streets and squares with the introduction of pedestrianization and traffic restrictions. Public spaces have gained in beauty and livability, but these operations have also had as a consequence the increase in property values and the shift towards the periphery of the less well-to-do classes that once animated them⁵. Pur in the rotation of residents, the centers historians have continued to be the depositaries of the identity characters of the city, while at the same time hosting a lively mix of residential, commercial, tertiary and cultural activities. Security and maintenance of public spaces have been guaranteed, as well as by

⁵ Mark Swilling, *The curse of urban sprawl: how cities grow, and why this has to change*, on "The Guardian" - 12th July 2016

municipal institutions, also through direct control of the inhabitants and shopkeepers. In many cases the historical centers have also managed to organize themselves, enhancing and diversifying the services, improving urban furnishings and aesthetic features, to fight the competition of big shopping centers. But in recent years things are changing, and the signs are easily grasped along roads and squares. The economic crisis has led many studios and offices to move to the suburbs. To the competition of the shopping centers, always bigger and more attractive not only in the prices but also in the diversification of the services and in the accessibility, the on-line commerce has now been added, a competitor much more difficult than the big shopping centers.

In Italy, the historical center is a place where the foreign population is concentrated. In Modena, 26.1% of residents are foreigners, 24.3% in Rome, 24% in Brescia, 23.9% in Reggio Emilia, 23.7% in Forlì and Prato. 14.5% of employees in the country's public services are concentrated in historical centers; 14.0% of production services (credit and insurance, real estate, IT and related activities, research and development, other professional activities, rental of machinery and equipment); 13.4% of the accommodation activities. 10.6% of national catering staff and 9.3% of personal services (education, health, recreational activities) are concentrated in the historical centers of the provincial capitals. Distribution services drop to 4.7% and industry and craft workers to 1.9%. In the Italian historical centers 2.5% of the population live, equal to 1.5 million people, 3.8% of foreigners, 2.9% of Italian families, about 723 thousand. 23% of the inhabitants of these parts of the city are more than 64 years old, and only 12% less than 15 years old. Centers therefore place of elderly, alone.





The historic centers of Italian cities are the site of the concentration of Italian historical-architectural heritage. For this reason they concentrate architectonic and artistic works, concentrate museums, concentrate culture. Cultural tourism flows are growing rapidly: from 2010 to 2016, the number of tourists has increased from 94 million to 111 in Italian art cities, equal to 27% of tourists in Italy. A large part of these presences is concentrated in the historical centers of the main capital cities. In 2015, foreigners accounted for 60.8% of visitors, with a cultural tourism expenditure estimated at € 13 billion. In 2015, out of 10.6 million presences, 69.3% covered the top ten Italian cities, with Rome receiving only 24.8 million presences, followed by Milan with 11.7, Venice with 10.2, Florence with 9.1, Turin with 3.4, Naples with 2.9, Bologna with 2.2, Verona with 1.8, Pisa with 1.7, Genoa with 1.6. The historic center returns to Italy, in the first part of the 21st century, an essential lever of economic development, with an average job growth of 20% (in Rome + 40%, in Turin + 32%).

In particular, in the historical centers it is concentrated:

- 14.5% of public service employees in the country
- 14% of production services (credit and insurance, real estate, IT and related activities, research and development, other professional activities, rental of machinery and equipment)
- 13.4% of the accommodation activities.

The historic center then offers job opportunities to a greater extent than elsewhere: in fact it has 2.2 jobs for a resident of working age, while the

rest of the city records an index of 1.0 and the national figure reaches 0.7.

Italian historical centers are real occupational machines “, but the risk is that with new actors, such as Airbnb, they turn into huge tourist villages.” Sixty years ago there was a great battle for the historical centers and it was possible to make important urban reforms in the sixties, seventies and eighties of the last century, but now we need to intervene on new phenomena, such as the management of housing, and understand what the role of technology can be “.

There are still very few cities that have undertaken initiatives for effective urban logistics of goods. Traditional shops close by leaving spaces that remain for a long time vacant or that are filled by entertainment and catering activities, generally with fast turnover and low added value. Franchising exercises are spreading, even those with a rapid turnover, not rooted in the urban fabric, and not interested in engaging in long-term strategies for the improvement of public spaces. In some streets, daytime shopping becomes impoverished, while nightlife activities grow, which, if they are not carefully regulated and controlled by the municipal administration, lead to further degradation and cause conflicts with the residents, who find tranquility again. they are forced to move out of the center. The social fabric of the historical centers, made up of residents, commercial, tertiary and cultural activities, is disintegrating, and with it that activity of multiple use and garrison that has animated and guaranteed liveliness and quality to streets and squares.

The transformation should be guided by defining new objectives for the center and by activating coherent actions and services to achieve them. Responses to municipal administrations are the task of taking this guide, bringing together all the local actors, the social partners and the relevant trade associations. A broad, forward-looking vision must be developed, promoting an integrated approach, avoiding sectoral or isolated interventions. The strength of the historical center lies in the crossroads of many interests, often also conflicting, which are composed according to a balance that is unstable, and which must be studied carefully. Expanding the pedestrian areas and moving the cars out of the center can be a step in the right direction, but as long as you think ahead of the new functions to be expected in the spaces left free by cars, and then to actions and actions to encourage them.



THEMATIC SHEETS ON SPECIFIC SUSTAINABILITY COMPONENTS

PART 2

CHAPTER 3

ENVIRONMENT



Environmental issues have become a public concern and they appear high on the recent political agendas of many developed countries. With growing pressure and concern about the environment, agents and operators are trying to look “green” and environmental friendly in their images in response also to customer demands for high-quality environment and for so-called “eco” products.

The question to approach with Bhenefit project is: how much able are the HBAs in giving an answer to this sort of request? How much proper is the try to transform historically “mineral” areas like HBAs - born strictly in relationship with the natural and agricultural environment that was located outside the urban area - in environmental-friendly places? To what extent is it possible and correct to look for the environmental sustainability of historical areas? Is it possible to foresee a specific understanding of “environmental sustainability” for the HBAs and consequently specific ways to reach it?



3.1 ENERGY EFFICIENCY

The concept of energy conservation in buildings is not new. Throughout history building owners have dealt with changing fuel supplies and the need for efficient use of these fuels. Gone are the days of the cheap and abundant energy of the 1950’s. Today with energy resources being depleted and the concern over the effect of greenhouse gases on climate change, owners of historic buildings are seeking ways to make their buildings more energy efficient.

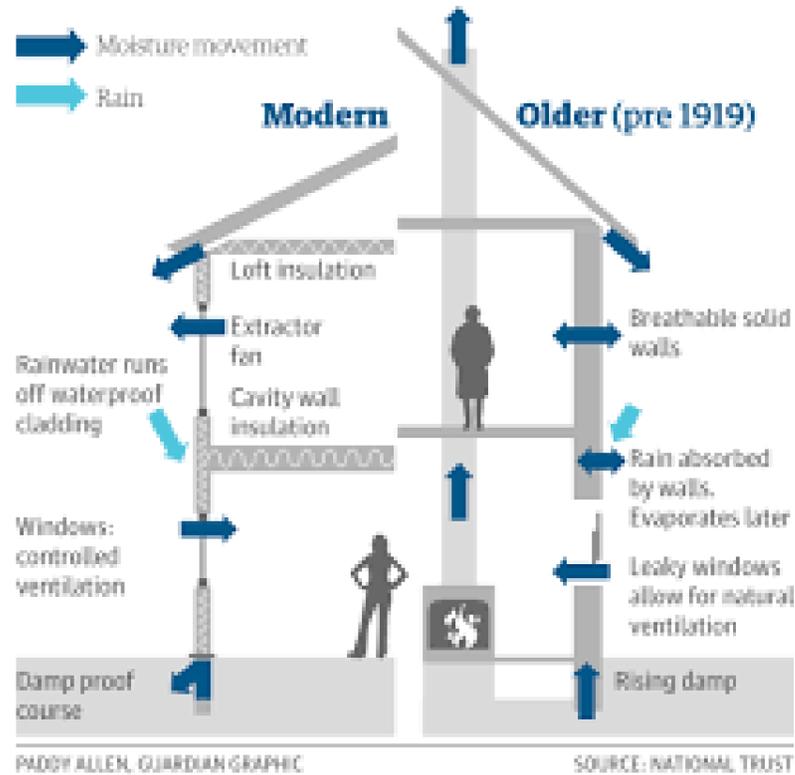
Sound energy improvement measures must take into consideration **not only potential energy savings, but also the protection of the historic property’s materials and features**. Achieving a successful retrofit project must **balance the goals of energy efficiency with the least impact to the historic building**¹. Planning must entail a **holistic approach** that considers the entire building envelope, its systems and components, its site and environment, and a careful evaluation of the effects of the measures undertaken. Treatments common to new construction need to be evaluated carefully before implementing them in historic buildings in order to avoid inappropriate alteration of important architectural features and irreparable damage to historic building materials.

INHERENT ENERGY EFFICIENT FEATURES OF HISTORIC BUILDINGS

Before implementing any energy conservation measures, the existing energy-efficient characteristics of a historic building should be assessed. Buildings are more than the sum of their individual components. The design, materials, type of construction, size, shape, site orientation, surrounding landscape, and climate all play a role in how buildings perform. Historic building construction methods and materials often **maximized natural sources** of heat, light and ventilation to respond to local climatic conditions. The key to a successful rehabilitation project is to **understand and identify the existing energy-efficient aspects of the historic building** and how they function, as well as to understand and identify its character-defining features to ensure they are preserved. Whether rehabilitated for a new or continuing use, it is important to utilize the historic building’s inherent sustainable qualities as they were intended to ensure that they function effectively together with any new treatments added to further improve energy efficiency.

¹ Source: Jo Ellen Hensley, Antonio Aguilar (Architect), *Improving Energy Efficiency in Historic Buildings*

Draughts and damp Old versus new



Operable windows, interior courtyards, clerestories, skylights, rooftop ventilators, cupolas, and other features that provide natural ventilation and light can reduce energy consumption. Whenever these devices can be used to provide natural ventilation and light, they save energy by reducing the need to use mechanical systems and interior artificial lighting². Historically, builders dealt with the potential heat loss and gain from windows in a variety of ways depending on the climate. In cold climates where winter heat loss from buildings was the primary consideration before mechanical systems were introduced, windows were limited to those necessary for adequate light and ventilation. In historic buildings where the ratio of glass to wall is less than 20%, the potential heat loss through the windows is likely minimal; consequently,

² Source: Jo Ellen Hensley, Antonio Aguilar (Architect), *Improving Energy Efficiency in Historic Buildings*

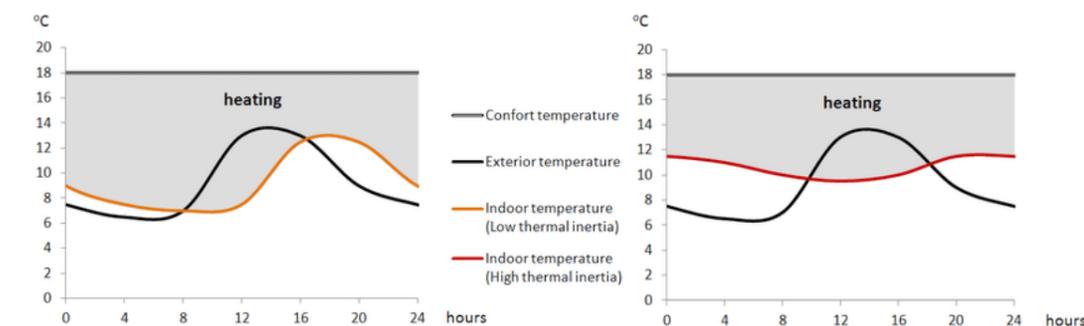
WINDOWS, COURTYARDS, AND LIGHT WELLS

WALLS

they are more energy efficient than most recent construction. In hot climates, numerous windows provided valuable ventilation, while features such as wide roof overhangs, awnings, interior or exterior shutters, venetian blinds, shades, curtains and drapes significantly reduced heat gain through the windows. Historic windows can play an important role in the efficient operation of a building and should be retained. New architectural styles, beginning with the International Style of the 1920's, brought about an increase in the percentage of glazing in the total building envelope. By the 1950's, with the advent of the glass curtain wall, glazing constituted nearly 100% of a building's exterior walls in many buildings. While many early modern buildings continued to use operable windows as a way to provide natural ventilation, greater reliance on mechanical heating and air conditioning systems eventually reduced the function of exterior glazing to providing light only, particularly in commercial, office, and institutional buildings.

Thick masonry walls typical of the late-nineteenth and early-twentieth centuries have inherent thermal characteristics that keep the buildings cooler in the summer and warmer in the winter. Walls with substantial mass have the advantage of high thermal inertia, which reduces the rate of heat transfer through the wall. For instance, a wall with high thermal inertia, subjected to solar radiation for an hour, will absorb the heat at its outside surface, but slowly transfer it to the interior over a period as long as six hours. Conversely, a wall having the equivalent thermal resistance (R-value), but a substantially lower thermal inertia, will transfer the heat in perhaps as little as two hours. Heavy masonry walls also reduce the need for summer cooling. High thermal inertia is the reason many older public and commercial

illustrates the expected behavior of two buildings with different thermal inertia in the coldest and hottest months of the year

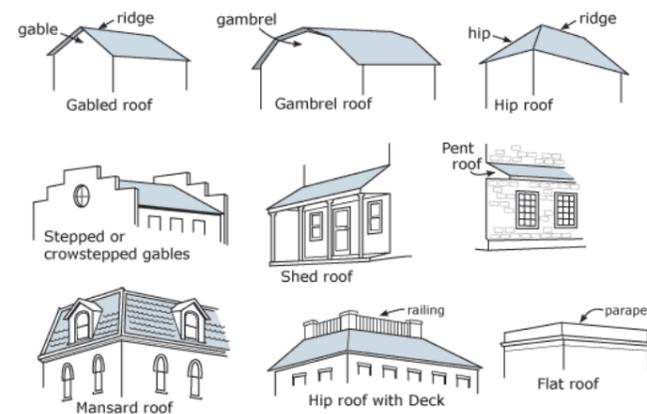


buildings without air conditioning still feel cool during the summer. The heat from the midday sun does not penetrate the buildings until late afternoon and evening, when it is less likely to be occupied or when exterior temperatures have fallen. Heavy masonry walls are also effective in moderating internal temperatures in the winter by dampening the overall peaks of heat gain and loss resulting in a flatter and more tolerable daily cycle.

In areas that require cooling during the day and heating at night, masonry walls can help spread out excess heat gain from the day to cover some of the needed heating for the evening and night hours.

Roof construction and design in historic buildings, particularly vernacular buildings, are strongly influenced by the conditions of the local climate. Wide overhangs that sometimes extend to create porches minimize the heat gain from the sun in warmer climates, while steep, sloping roofs with minimal or no overhang prevail in colder climates to allow for shedding snow and increasing beneficial solar heat gain through the windows. Materials and color also influence the thermal performance of roofs. Metal and light colored roofs, for example, reflect sunlight and thereby reduce the heat gain from solar radiation Floor Plans. The floor plan of many historic buildings, particularly traditional vernacular ones, was also designed to respond to the local climate.

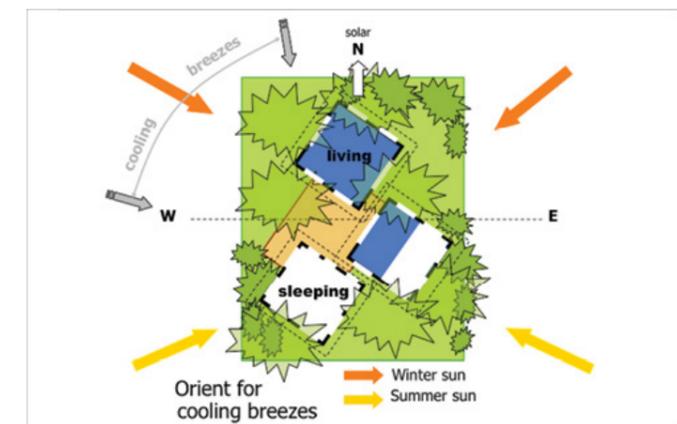
In cold climates, rooms with low ceilings were clustered around central chimneys to share the heat, while small windows with interior shutters reduced drafts and heat loss. In warmer climates, wide central halls with tall ceilings, breezeways, and large porches all maximized air circulation.



ROOFS

LANDSCAPE

Site orientation was another factor considered especially in the location of a historic building on its property. In cold climates, buildings were oriented against northern winds while buildings in warm climates were sited to take advantage of prevailing breezes. Evergreen trees planted on the north side of buildings shielded from winter winds; deciduous trees planted to the south provided summer shade and maximum sun in the winter.

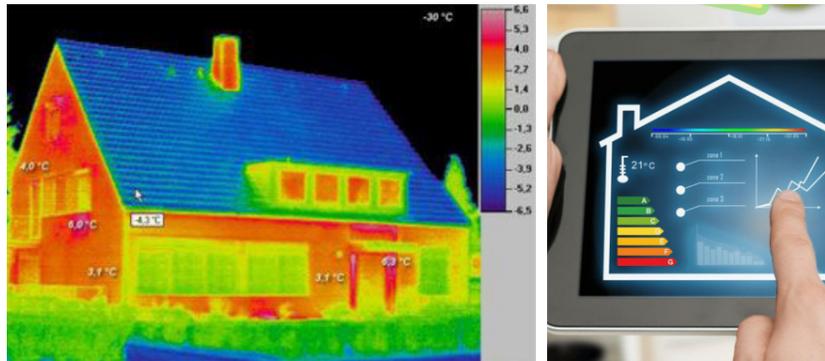


ENERGY AUDIT

Before implementing any measures to improve the thermal performance of a historic building, an energy audit should be undertaken to evaluate the current energy use of the building and identify deficiencies in the building envelope or mechanical systems. In some areas, the local utility company may offer a free simple audit, however a more in-depth audit should be obtained from a professional energy auditor.

The goal of the audit is to establish a baseline of building performance data to serve as a reference point when evaluating the effectiveness of future energy improvements. It is important to hire an independent auditor who does not have financial interests in the results, such as a product vendor. An energy auditor first documents the current energy use patterns in the building to establish an energy use history. This initial step includes obtaining the billing history from the local utility company over a one- or two-year period, as well as documenting the number of building occupants, how the building is used, and the type of fuel consumed. The location of any existing insulation is recorded and the approximate R-value of various components of the building envelope including walls, ceilings, floors, doors, windows and skylights is calculated. The building

envelope is inspected to identify areas of air infiltration and air loss. The type and age of mechanical systems and major appliances are also recorded. Tools such as a blower door test or infrared thermography are useful to identify specific areas of infiltration, lack of insulation and thermal bridging. Mechanical depressurization along with infrared thermography is extremely useful in identifying locations of air leakage and heat loss followed by the use of tracer smoke to isolate specific air leaks. These tests are often challenging to perform on buildings and must be undertaken by experienced professionals to avoid misleading or inaccurate results.



Infrared Thermography

There are professional standards for audits, those of the Building Performance Institute (BPI) being the most widely used. The energy auditor then produces a detailed report that documents the findings of the audit and includes specific recommendations for upgrades such as air sealing, adding insulation, general repairs, lighting, and improvements to or replacement of mechanical systems or major appliances. Cost estimates are provided for each of the improvements including the cost of implementation, potential operating cost savings, and, importantly, the anticipated payback period. Armed with this information, historic building owners can start to make informed decisions on how to improve the performance of their buildings. Usually the auditor finds a few locations where there is major air leakage; large “holes” that are unique to a particular building and require equipment to find them. These anomalies are often invisible to the people who use the building on a regular basis. It is important to retest the performance of the building following the implementation of any upgrades undertaken as a result of

an energy audit to ensure that the upgrades are performing as expected. **Prioritizing Energy Upgrades** When implementing energy upgrades, efforts should be concentrated on improvements that will provide the most payback for the money expended and the least compromise to the historic character of the building.

Some upgrades recommended in energy audits may not be introduced into a historic building feasibly without damaging historic fabric or altering the appearance of significant features. Removing historic siding and replacing it with new siding to introduce insulation into the wall cavity of a frame building or replacing repairable historic windows are examples of treatments that should not be undertaken on historic buildings. A common misconception is that replacing windows alone will result in major energy savings. This argument, often used to sell replacement windows, is simply not true. Although it varies from building to building, the U.S. Department of Energy (DOE) has documented that air loss attributable to windows in most buildings is only about 10% of the total air loss. Studies have shown that window replacement does not pay for itself in energy savings in a reasonable length of time. Moreover, there are ways to improve the performance of historic windows that do not require their replacement. In addition, historic windows can usually be repaired and are, thus, sustainable, while most new windows cannot be repaired, or even recycled, and may wind up in landfills. When considering energy upgrades, it is imperative to get a clear picture of what an improvement will cost initially and how long it will take to pay back the cost in energy savings.

Therefore, the life cycle cost of the improvement must be considered as well as its impact on historic fabric. Reducing infiltration around existing windows and doors, sealing penetrations in the building envelope, and adding insulation – particularly in the attic where it has little impact on historic fabric – can result in significant improvements at relatively little cost. Updating mechanical systems or changing the way in which they are operated can also be cost-effective interventions. For example, installing a more efficient mechanical system alone may pay for itself in ten years.

3.2 URBAN HEAT ISLAND PHENOMENON - UHI

Urban morphology and increasing building density play a key role in the overall use of energy and promotion of environmental sustainability. The urban environment causes a local increase of temperature, a phenomenon known as Urban Heat Island (UHI).

Before the mid-20th century, most parking areas were pervious surfaces often surrounded by trees and covered with gravel to minimize mud problems. Specify high albedo porous paving, such as masonry pavers, reduce heat island effects and create the added benefit of controlling storm water runoff. Where treatment of run-off water is required provide an impervious barrier below a pervious surface to direct runoff to an oil water separator and/or a treatment facility.

The strong increase in urban development created a complex phenomenon of rising importance known as urban heat island (UHI): an UHI is a strong overheating of a densely built up area compared to its rural surroundings. Several studies have been carried out on this topic. Moreover, in recent years, the mutual influence of UHI and urban layout or thermal comfort has been analyzed, along with mitigation technologies. The main tools of mitigation available consist of a “technologic” employment of vegetation in urban areas (green technology) and the application of materials with peculiar radiative features for roofs and pavements (cool technology)³. These solutions have different impacts not only related to the mitigation potential but also regarding the economic tradeoff of an installation reduction of the emissions and integration of actions adapt to specific local contexts. The increase in industrialization, urbanization and population has increased the number of buildings in the town, concentrating and intensifying the energy consumption and the urban microclimate, eliminating green spaces and replacing them with roads and large waterproof cemented areas and, finally, altering the properties radiative properties of the atmosphere due to high levels of pollution associated with previous activities.

That the town center was warmer than the surrounding countryside is

³ Source: K.R.GunawardenaM.J.WellsbT.Kershaw, Utilising green and bluespace to mitigate urban heat island intensity, in www.sciencedirect.com

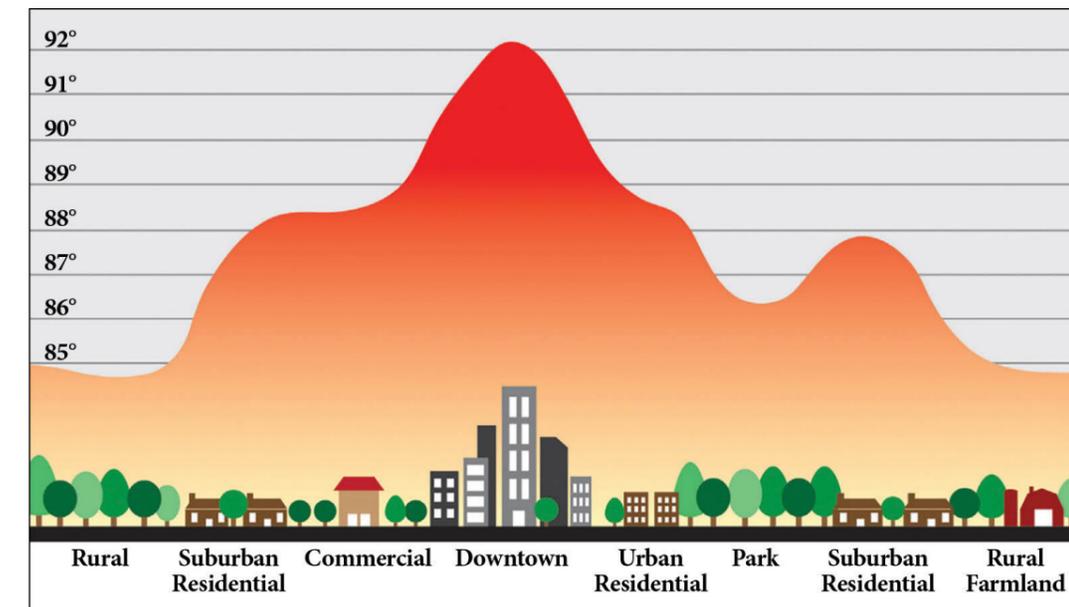
already known since a long time, but in the last 20-30 years the above data have led to greater attention to the urban microclimate changes, transforming what was only a popular wisdom in the best known of the effects of urbanization on local climate: the so-called “urban heat island” (UHI); this term identifies the temperature differences between urban area (warmer) and the surrounding rural areas (cooler).

The analytical evaluation of the microclimate of the urban texture was studied by urban microclimatology and it is a complex issue, since there are almost unlimited combinations of different climate contexts, urban geometries, climate variables and purposes of the projects.

An urban microclimate is the distinctive climate in a small-scale urban area. It is influenced by the material and the configuration of the built environment and it is characterized by a set of atmospheric variables that are substantially different from the conditions prevailing over a larger area⁴.

The heat island effect is directly connected to global warming, so inside the town the main effects of this temperature difference will be connected to an increase of energy consumption and of pollutants and greenhouse gas emissions, a worsening of the life and comfort of the

⁴ Source: K.R.GunawardenaM.J.WellsbT.Kershaw, Utilising green and bluespace to mitigate urban heat island intensity, in www.sciencedirect.com



population and a deterioration of air and water quality.

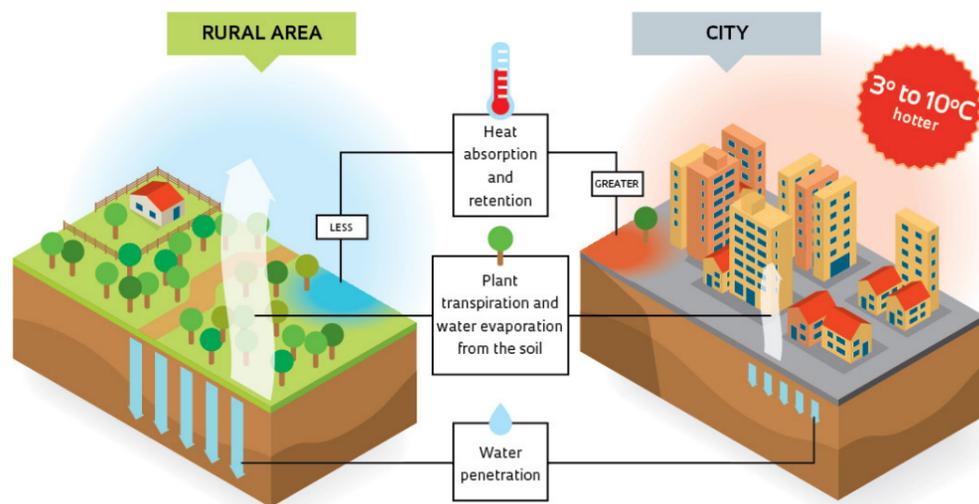
The “urban heat island” effect on temperatures appears especially during the night when green areas get cold rapidly, while the artificial elements remain warm longer (on average is 10-15 °C during daytime hours, while it assumes values of about 5-10 °C during the night).

The characteristics of the materials used for the casing of the buildings and the road surface play an important role on the intensity of the warming of urban areas.

This work means to investigate the possible presence of the phenomenon in the town of Matera, characterized by significantly smaller dimensions than the large metropolises in the literature examined. In the case in which the UHI effect was present, the goal is to identify the temporal dynamics, to quantify the intensity and indicate some possible mitigation actions.

To achieve these results you must first analyze the environmental data obtained from existing weather stations; the observed time interval is very wide, but the positions of the stations may not be sufficiently representative of the area and the spatial variability of micro-climatic parameters is not examined.

In general, the hedging ratio assumes great importance throughout the year and can be considered directly proportional to the increase in urban temperatures especially during the winter. The other two parameters,



the façade ratio and the average height of the built-up area, on the other hand, assume great importance during the summer, determining substantially different heat island levels at the same ratio of coverage.

There are therefore two “types” of density that are decisive for the increase in urban temperatures: horizontal density and vertical density. The horizontal density is proportional to the coverage ratio, while the vertical density is proportional to the façade ratio and the average height of the buildings.

In the winter situation, an increase in the horizontal density causes a significant increase in the heat island. In the summer, the relationship between the three morphological parameters and the summer heat island instead identifies a clear hierarchy of relevance: the parameter that is decisive is the ratio of the façade, follows the average height of the buildings and, finally, the relationship of coverage.

It is therefore the “density” of vertical surfaces present in the urban area of reference that governs the trend of urban temperatures in the summer season. In fact, in summer the intensity of the heat island is strictly connected to the net radiation that enters the system. In contrast, in winter, much of the stored heat is produced within the same canyons, from anthropogenic sources such as traffic and building heating systems. Several studies have shown that the amount of anthropogenic summer and winter heat is very different and that in winter this thermal contribution can also exceed that of the net radiation.

For this reason, the “density of vertical surfaces” represents a discriminating variable on summer weather behavior, as it increases the storage of heat in the urban area by capturing a large part of the incident solar radiation. On the contrary, in winter, this parameter is less significant given the reduction of solar radiative contributions and the “horizontal density”, which contributes to maintaining the anthropogenic heat within the urban canopy, becomes more relevant.

Urban areas with a high value of the façade ratio are dense structures with a dense road network, composed of a building type that optimizes the envelope surface exposed to the external environment compared to the volume. With these morpho-logical characteristics, the absorption of solar radiation on the facades is maximized. In summer, therefore, this conformation favors overheating of surfaces and, consequently, of air, especially at night, because the cooling process is longer than an urban fabric that has stored less heat during the day.

3.3 WASTE AND WATER

Historically, water conservation was a part of daily life. Cisterns collected rainwater and water was reused. Modern gray water recycling systems have evolved from these traditional water conservation methods. Specify low flow toilets and water conserving fixtures or consider options that are similar to historic water conservation methods.

“Cultural landscapes” often play central roles in the overall makeup or character of historic properties. They also need water to survive. Therefore, like historic structures, they must be cared for and respected, even historic plantings that may not be native species. Efficient irrigation systems may be used to save water, and recycled ‘gray’ or rainwater may be captured for use in gardens and surrounding landscapes. But restricting water for irrigation to achieve the percentage savings required by LEED® may irreparably change the important relationship between a building and its surrounding landscape. Unfortunately, currently there are no provisions within LEED® for exempting cultural heritage areas from these calculations.



3.4 POLLUTION

The role of atmospheric pollution in degradation of historic building has been studied for long time along the world because it increases stone decay and the lost of historic materials (Massey, 1999; Graedel, 2000; Monna, 2008). The preservation of Cultural Heritage is considered a strategic factor in countries integration because of their economical, social and cultural implications.



Stone materials have a natural tendency to degradation as a consequence of change in their chemical stability when they are extracted from the quarry and submitted to the building fabric, atmospheric action and change in air quality. Before industrial revolution, natural agents were the main cause of stone buildings degradation, sometimes through suddenly destructive actions as earthquakes, volcanic eruptions or hurricanes. Most of the times, acting in slow weathering process. Nevertheless, with the appearance of the industrial society, atmospheric pollution got a major role in building deterioration.

In natural conditions atmospheric water is the main agent associated to stone degradation. Its influence is especially important in tropical climates, where high relative humidity and large rain forest period along the year guarantee water availability to lead chemical reaction over stone substrata or to produce secondary pollutant's potentially harmful for

stone materials. It is well known that water circulation in porous stones and their exchange with atmosphere or ground, affect their behavior and durability.

The flux of water across porous structure of stones and mortars is consequence of wet-to dry-cycles, that induce chemical reactions and salts crystallization leading materials lost and decreasing their mechanical capabilities. Furthermore, direct impact of rainfall is cause of erosion on stone surface and the appearance of run-off inside of masonry structures. On the other hand, when water table level is high, a capillary effect could appear. Then, a continuous flux of soluble salts inside and outside materials stone structure is established. Water presence also facilitates the development of microorganism colonies and the growth of superior plants. In both cases, their consequences on stone materials are chemical and mechanical damage. In urban environments, decay of historic buildings is strongly influenced by the presence of atmospheric pollutants like SO₂, NO_x, atmospheric particles and acid rain. In the atmosphere water drops incorporates carbon dioxide (CO₂) to produce the weak carbonic acid (HCO₃⁻), which is partially dissociated.

Road transport is a major source of environmental degradation in urban centres. With increased mobility throughout the globe, related trends in vehicle emissions create an important public health concern. Transportation policy is a critical area of intervention that can alter this trend, by offering major potential to improve outdoor air quality and reduce greenhouse gas emissions at the heart of cities. Pedestrianization



can have a significant impact on local environmental conditions in urban centers by provoking changes in the characteristics of traffic flow and patterns of vehicle emissions.

Early pedestrianization case studies from the European Union are indicative of the political will to transform the way in which cities can facilitate the mobility of inhabitants while also ensuring that the physical environment can safeguard their health.

Copenhagen is one of the first examples of pedestrianization, where until 1962, all streets in the medieval city center were filled with cars and public squares were used as car parks. On 17 November 1962, Copenhagen's main street, Strøget was pedestrianized. This marked the beginning of a gradual transformation that has continued ever since. Today the city of Copenhagen has over 96,000 m² of car-free spaces. In the city centre, 80 % of all journeys are made on foot, and 14 % by bicycle. Car traffic in the city core has been reduced and congestion is no longer a problem (EC Environment Directorate, 2004). Similarly, in the 1970s the pedestrianization case of Nuremberg resulted in one of the first studies directly linking pedestrianization with air quality change. The study found that the actual traffic reduction in the historic city centre was twice as large as predictions. By 1993 a total of 36,044 vehicles had exited the fleet entering the city centre and local emissions of NO₂ decreased by about 30 % and carbon monoxide and particulate matter by about 15 %. More recently in Burgos, Spain, the city's historic centre was pedestrianized between 2006 and 2008 to reduce air pollution and protect city monuments. 75% of streets in the historical centre were converted to pedestrian-only zones over a 4km² area. As a result, the city saw a 30% increase in the number of pedestrians and a remarkable 200% increase in the number of cyclists in the center (Civitas, 2013).

3.4 MOBILITY

Most small/mid-sized historic towns, such as Treviso, face similar challenges in relation to mobility and the transport of people and goods in their urban centres. This includes energy consumption, environmental impact, noise and other issues. These factors negatively affect citizens' health and damage heritage sites and cultural assets (e.g. degradation of houses and monuments).



“Motor traffic can become a serious threat to historic buildings, urban fabric and environmental quality. An increase in the number of tour buses, cars and service vehicles leads to traffic jams, as well as disruption and destruction to the historic environment. Fumes not only blacken surfaces, but can cause irreversible damage to surfaces.

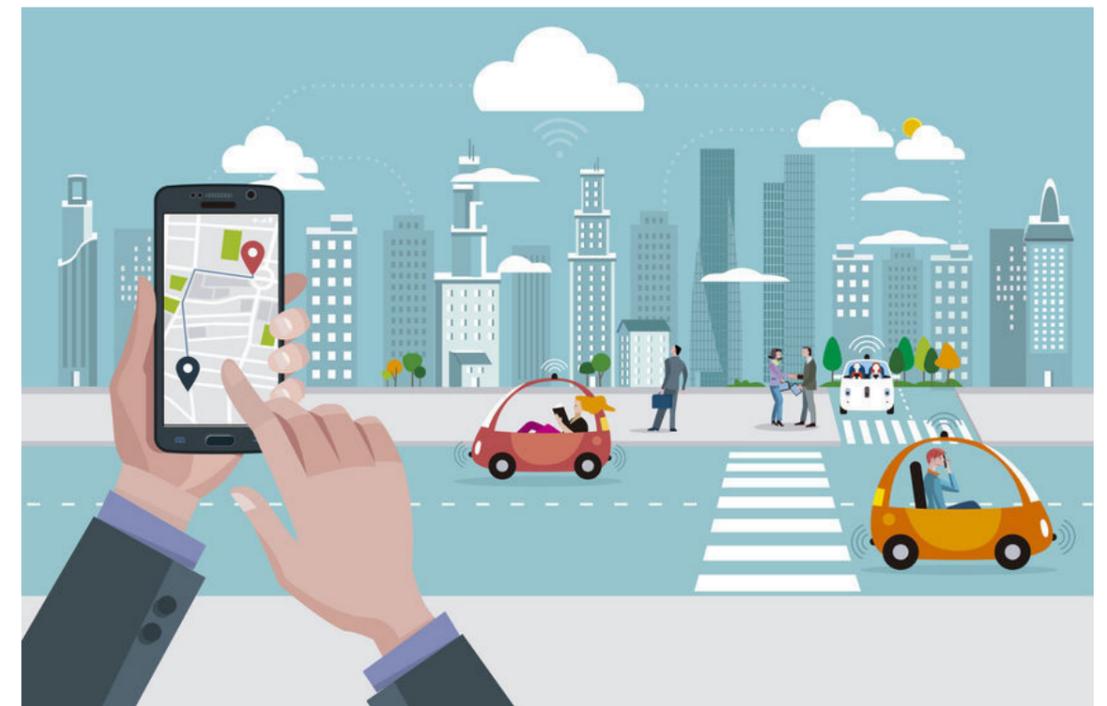
Narrow streets, tight corners and low overhangs within the traditional urban environment are easily damaged, particularly when speed limits are ignored or oversized vehicles attempt tight corners. Large delivery vehicles supplying retail outlets, backing into narrow streets and tourist buses trying to park in close vicinity to an attraction all increase the liability of damage. While popular tourist towns are able to impose restrictions on vehicle sizes and parking, towns trying to increase their tourism potentially readily bow to operator demands” (Orbasli, 2000⁵).

⁵ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon, p. 60.

Low levels of public transport use and higher freight distribution costs also have a negative effect on trade in urban centres, which in turn impacts on social cohesion and the dynamism of these areas.

The following strategic objectives to be achieved:

- Reduced impact of car traffic through improved management of parking services and the implementation of flexible parking schemes;
- Efficient integration of parking services with public transport and other collective mobility services;
- Encouragement of citizens and visitors to shift from cars to alternative (individual and collective) and sustainable mobility services;
- Reduced impact of commercial traffic by providing dedicated parking facilities for last-mile operations, and by better integrating city logistics into the overall urban mobility management scheme;
- Promoting the take-up of electric mobility for both people and goods.



CHAPTER 4

SOCIAL



Our European historic centres have been offering a multifunctional economic, social and cultural facility for centuries, being for their citizens the focal point of daily life and the place of:

- Work and trade (market places and merchant quarters);
- Social life and flow of people and information through open public spaces, pubs, local press, etc.;
- Living and consumption: housing space for “all” citizens (the rich and the poor), public and private services and provision of (daily) goods;
- Power (town hall, law courts, representative business premises and churches).

Today, historic centres (and city centres in general) are challenged to maintain or recover their multifunctional character. The main challenges are the wide-ranging demands placed on the historic centre by residents, visitors and tourists as well as local and global businesses. These demands bring the historic centre into a highly contested arena of diverse and often conflicting interests and development ideas, which are to be balanced against each other while historic centres ‘learn’ to address the challenges.



Cities are living environments that must change and adapt to the evolving needs and aspirations of their inhabitants. The challenge is to manage change in a way that balances the seemingly opposing, but often allied forces of conservation and development¹. Addressing conservation needs requires improved management of change to mitigate the potential negative impacts on the heritage significance of the historic urban environment. To do this the heritage values of the city need to be clearly identified and mechanisms for their protection and management established and integrated into the overall planning framework.

These mechanisms must take account of pressures for modernization, improved living standards, and new environmental requirements. Social change can have a major impact on the historic urban fabric. A better understanding of the physical impact of social change is key to identifying new mechanisms for managing such impacts and finding ways to successfully accommodate advances in civil society that retain the heritage significance of an urban area. Clearly identifying intangible heritage values that contribute to the heritage significance of an urban area is also vital.

Historic cities and urban settlements are living sites, with a multitude of people living, working and using the urban area on a daily basis. As such, cities are subjected to constant pressure to meet the needs of many users. An expanding range of actors are involved in the urban planning and conservation processes that are needed to achieve the successful, proactive, integrated conservation of heritage and to manage inevitable change and demands for sustainable development. Conservation of the urban historic environment implies a shared responsibility in which decision makers, owners, inhabitants, users, and visitors play key roles. Where conservation is isolated or confined to the realm of monument conservation, the resulting lack of integration into the general urban planning framework limits success.

¹ Source: *Historic Urban Environment, Conservation Challenges and Priorities for Action -Experts Meeting, March 12- 14, 2009, MEETING REPORT*

In aiming for an integrated approach, however, the responsibility must be shared beyond the conservation practitioner. Each player has a different and specific role in the management of the historic urban environment. The relationship between the actors is also critical. Roles and responsibilities need to be clearly defined and well understood by all the actors and processes for dealing with conflict must be clearly identified.

4.1 SERVICES AND FACILITIES

A strong challenge to the traditional retail and small scale economy in historic centres is the emergence of chain stores and the competition with shopping areas at the urban fringe, more suitable for large-scale retail location and offering specialized consumer services. The pressure on space and functions driven by the property and capital market as it seeks to generate increasing revenues, leads to: out-of-scale buildings unsuitable in the urban structure which has been built up over time; to the neglect of historic buildings; and to a housing market just catering for higher income classes. This is accompanied by the pressure to introduce large-scale floor space for commerce, retail and services, squeezing out functions of importance for the provision of daily goods for the inhabitants. The particular challenge for a historic centre is to match the inherited urban structure, identity and buildings (the ‘cultural heritage’) with the above



mentioned demands and to turn the cultural heritage, both material and immaterial, into a prime resource to fulfill these competing demands, without downgrading its intrinsic qualities.

Schools, hospitals and other specialized facilities require accessibility, safety, performance and functional standards that cannot be reached with dated buildings in HBA, causing a migration of specialized function outside the HBA boundaries.

Despite that, in Szabolcs Region some of the public institutions are still located in the historic buildings. The elementary school in the village of Géberjén is operating in the locally protected Jékey mansion, which on one hand contributes to the prevention of the building structure, while on the other hand it supports the emotional attachment of young children to an old building and to its unique history. In Mantova the settlement of the hospital was outside the city center because of the city wall, the lakes and the rail link.

4.2 CULTURAL LIFE AND LEISURE FACILITIES

“Today, the cinema and theatre have long since turned into the home video; [...] the library into Penguin and Pan; the concert hall into the compact disc. Even political meetings are now redundant when it is possible to see all one wants of candidates on the television, or join a political party by credit card” Taylor, 1988². Despite that, people continue to spend time in historic centres and here they can find the residual cultural facilities (essay cinemas, large bookshops, events and public initiatives, universities, theatres, etc.). Géraldine Pflieger (2008) and David W. Hill (2010) called this phenomenon “the revenge of places”: cities are still important, despite the development of technologies and telecommunications.

Historic centers have themselves a cultural value and the “life” within that is as much the attraction as the physical qualities of the setting. In addition to this, there are all the cultural activities - stable and temporary

² Taylor L. (1988), *Private view, The Listener*, 24 November.



- that are still open. Large bookshops survived and started to offer events and writers meetings.

A lot of single-screen cinemas, theatres, small libraries and other cultural facilities in the historic centres closed. Cinemas turned into big multiplex with restaurants, games and giant screens with 3d technologies; in Italy such big buildings find a place only in the suburb. In Bad Radkersburg the decision of the community to use an old building in the HBA as a conference center, cinema and local meeting point contributed significantly to the cultural life in the center.

It is harder to find in the historic centres leisure facilities without a cultural value. Gyms, tennis courts, theme parks, playgrounds, swimming pools, stadiums, health clubs and pitches usually don't find place in the historic areas. The first reason is because they are not cultural activities, then they required a lot of space (for the activity itself, and then for people and for parking) and some of them are noisy. Not always these activities are compatible with preservation of the historic and architectural values. Also pub and other night functions are not always welcome in the historic center because they are noisy. In addition, the migration of residents toward the peripheries and the process of tertiarization of the HBA (university, institutional, touristic function) bring to a city centre emptying

in the evening hours, leading to the switching off of the public life and the security decrease.

In Szabolcs Region the availability of cultural and leisure facilities are highly important for the age group of the young adults and young families, thus the lack of these facilities have a negative effect on the population retention capacity of small settlements. Planned and organized actions by local governments related to the strengthening the population retention capacity of the villages are important towards keeping the rural area alive (besides other important factors e.g. availability of work possibilities of course).

4.3 IDENTITY PERCEPTION

According to Norberg-Schulz, Genius loci is manifested as location, spatial configuration, and characterizing articulation. To preserve the genius loci, is actually respecting these factors: "the type of settlement and way of building ('massive', 'skeletal' etc.) as well as characteristic motifs [...] If the primary structural properties are respected, the general atmosphere or 'Stimmung' will not get lost. It is this 'Stimmung' which first of all ties man to 'his' place and strikes the visitor as a particular local quality"³.

³ Norberg-Schulz, C.: *Genius Loci, towards a phenomenology of architecture*, 1980, New York: Rizzoli, p. 180



These ‘primary’ structural properties are capable of interpretations and respecting them is not repeating the same, but implies new interpretations and manifestations: “To respect the ‘genius loci’ does not mean to copy old models. It means to determine the identity of the place and to interpret it in ever new ways”⁴.

This means that historic centres must not be musealized: they are alive with culture and community.

Urban identity is not only the result of stabilized process, it is dynamic equilibrium, it is a plan. Identity evolves every day, it is not something static (Carta, 2004).

The impact on the identity perception changes according to the different preservation approaches:

- **The Stylistic approach** (e.g. Slovakia, Hungary) aims to preserve and return the “original” status, in particular from an aesthetic point of view. This type of preservations wants to recreate the historical atmosphere, keeping the historical building or the HBA in as close to its condition as possible, for as long as possible. This approach gives the international tourists what they expect to visit but it refers to the “old models” mentioned by Norberg-Schulz. “A facadist approach is not unlike the “Disney” glorification of urban heritage”⁵. The image of the city is fundamental for citizens and communities⁶, not only for tourists. This image must be able to evolve, the historic center should not become a “postcard city” (Richard Ingersoll) or a reenactment. The emphasis on the external risks indeed to gradually move to a stage-set approach which is no longer linked to the reality of the urban environment. “The facadist approach is two-dimensional and theatrical, awaiting animation yet denying life”⁷.

⁴ Ibid, p. 182

⁵ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E&FN Spon, p.76.

⁶ e.g. Regarding local identity, the role of churches is of extraordinary importance in the Hungarian pilot region

⁷ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon, p. 76.

- **The Transformative approach** (e.g. Austria) is based on the Heritage recovery to functions and usage, by mixing the original features and contemporary design. The main focus is on contemporary use. Not always the identity of the place is interpreted in ever new ways, sometime the historic centers become a set of architectonic gesture of different architects, famous or ordinary. In Bad Radkesburg the heritage conservation is perceived as a burden hindering the implementation and integration of modern shops and further infrastructure. A city must continue to renew itself, what matters most is the quality of the renewal (Feilden, 1990⁸).



- **Conservation** (e.g. Italy and Croatia) aims to preserve the Heritage as it is, including the historical evolution and all the historical layers. Conservation means to preserve the material consistency of the buildings through new actions, and the architectural conservation defines the process to preserve the historical and material integrity of the built Heritage through interventions carefully planned. This approach is complex (technical difficulties, restriction in usage, etc.) and mass tourism does not have the in-depth understanding of urban culture to appreciate it (tourists usually prefer the stylistic approach, where everything is new but it seems to be old, rather than to see an old falling down plaster).

All these approaches have common threats:

- **goods to preserve:** “History can become exclusive, dictated by the ruling classes who identify with **selected periods of history**, post-independence perhaps or a class distinction, identifying exclusively with an upper-class past. There is naturally more demand for conserving buildings relating to a period of particular national or local significance, at times loosely linked to political messages and propaganda”⁹.
- **the goods’ environment:** once it has become a tourist attraction, “a small or fragile monument is often surrounded and overwhelmed by sign boards, parking facilities, souvenir shops, restaurants or cafes. Although a monument may be safeguarded, **the surrounding environment is often not**”¹⁰;
- **overcrowding and saturation level:** “Constant overcrowding of a narrow street detracts from its appearance and streetscape value. When the anticipated image of a narrow pedestrian street for example can no longer be appreciated, then it also loses value”¹¹.

⁹ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon.

¹⁰ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon, p. 60

¹¹ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon.



“Tourism development carries with it the seeds of its own destruction” (Murphy 1985:39). For each historic center there is a saturation level that should not be reached although the tourism destroys its very resource. “The real loss is to the ordinary people, who not only lose a source of income, but also experience irreversible damage to their environment”¹².

4.4 GENTRIFICATION VS MIXITÈ

Gentrification is “the process of renewal and rebuilding accompanying the influx of middle-class or affluent people into deteriorating areas that often displaces earlier usually poorer residents” (Merriam-Webster dictionary¹³). Where the urban area is **multifunctional** (economic, administrative, commercial, recreation, and residential activities), maintaining these activities secures the cultural dynamic and sustainability of the place. This requires specific policies to retain this dynamic. When there is pressure for tourism-related development within a residential area, **the inhabitants need to be considered as the primary stakeholders**.

In Italy, the 11,7% of people who live in the historic centers are foreigners¹⁴. Also students and elderly live in the historic centers, and affluent families dwell in palaces. The middle class lives outside the city centers.

In Zagreb the citizens have protested in several occasions against the planned project of rehabilitation of one downtown block. The anti-gentrification movement symbolizes an effort to re-establish some sense of the commons after a couple decades of emphasis on privatization, private property, and individualism¹⁵.

¹² Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon, p. 60

¹³ <https://www.merriam-webster.com/dictionary/gentrification>

¹⁴ <http://www.ilsole24ore.com/art/notizie/2017-12-14/l-117percento-persone-residenti-centri-storici-italiani-e-straniero--112023.shtml?uid=A-Ey84ESD>

¹⁵ *Challenging Gentrification in Eastern Europe* https://www.huffpost.com/john-feffer/challenging-gentrification_b_3441889.html

Gentrification¹⁶ of historic centers is produced above all from two phenomena that can occur also combined: (1.) urban regeneration and (2.) tourist development. There are also other reasons why citizens leave the historic centers, for example one of the reasons residents have been moving out of the central but historical parts of Madrid is parking and access restrictions. Historic buildings usually do not have neither garages neither elevators; this does not match contemporary needs.

¹⁶ <https://www.theguardian.com/cities/2016/oct/05/building-way-to-hell-readers-ales-gentrification-around-world>



“Recently the use of historic preservation has begun to be viewed by cities and towns as a means to economic development and urban renewal. According to advocates, historic preservation has aided in local economic and community revitalization, increased tourism and employment, and preserved regional history, culture, and pride. However, historic preservation has often lacked public support due to a negative reputation. Some see it, not as a means to revitalizing local communities, but rather, as simply driving the problems further under the surface or into other areas, namely, as a means to gentrification. This reputation is not entirely unfounded, as there have been instances when gentrification was exactly the intended goal. Because successful historic preservation often attracts greater tourism, new businesses, venture capitalists, and well-off young professionals, there is also a tendency for property value (and therefore rent prices) to rise and long-term lower income residents of the community to be forced to leave. While some communities may foolishly do this on

URBAN REGENERATION

purpose to clean up the streets by alienating their residents, in the long run, this is not a sustainable or effective goal.

There is a fundamental dichotomy and tension within economic development policies in general, and specifically with historic preservation, between the need to bring in wealthy residents and new businesses and the likelihood that it will drive out or alienate low to moderate-income local residents. Historic preservation will, of course, not work for every struggling area in the nation, but for those that can use it, alone or in conjunction with other methods of economic development it is important to recognize that the only way to have truly sustainable economic development and not simply economic growth at the expense of local community and quality of life issues is to find a balance between this dichotomy and accommodate all members of a community”¹⁷.

TOURIST DEVELOPMENT

“Although new employment opportunities may reduce the amount of migration from an area, an established local economy may still be threatened through tourism activity. It has often been the case that the comfort of temporarily higher wages and the glamour of tourism lead to the abandonment of local agriculture jobs¹⁸. Thus the loss of subsistence agriculture accelerates emigration and leads to increased imports and rising prices. Increasing prices can make tourist-based areas and land, including beaches previously used by fishermen, inaccessible to local inhabitants. In city centre locations too, high land prices result in rents and prices that are no longer affordable to local residents and businesses. Consequently town centers are given over to tourism-based seasonal use and create related environmental impacts, including the need for housing on the periphery, added transportation costs into the centre, as well as the social and financial burden of a seasonally underused centre with associated vandalism and security problems”¹⁹.

¹⁷ Denise Lapenas, December 2002, *State and Local Economic Development*, Professor Bob Turner, Skidmore College

¹⁸ Also the crisis of the dirty industries in the nineteenth century brought authorities to look towards new and cleaner industries to replace them, tourism being a favored option.

¹⁹ Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon, p. 60

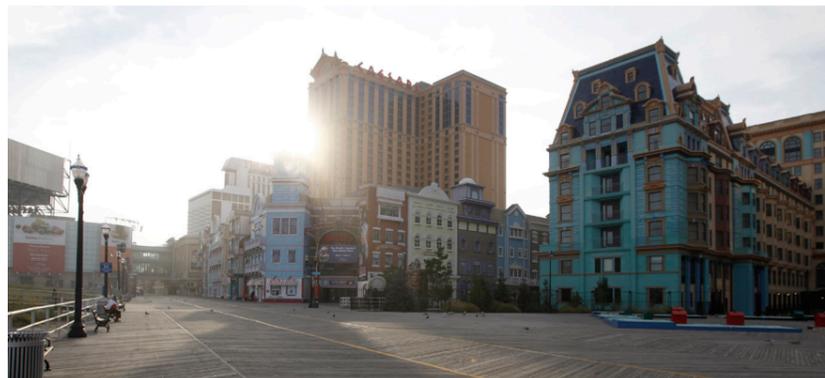
Gentrification main problems:

- emptying in the evening hours and outside the tourist season
- switching off of the public life
- security decrease
- movement of the population to the urban fringe
- land consumption
- problems in dimensioning services and infrastructure (payed by citizens, used by tourists)

Mixité main problems:

- divergent interests, continuous conflicts management
- difficult coexistence of tourists and citizens
- difficult balance between order and disorder, necessity of rules that should not be too strict (death of public life) but neither too permissive (chaos).

The HBA area of Karlovac is an area where a highly developed day-to-day life is primarily due to the large number of students at the Karlovac Polytechnic, and the public service offices attended by a large number of citizens daily. The problem is that most events and activities are overwhelmed with the coming of darkness, and it is necessary to intensify work on the revitalization of the entire area through day-to-day activities. Outside the historic city and the green belt, the city of Bad Radckesburg allowed the development of a full range of different shopping malls of all kind. This limits the amount of people driving to the inner city with a limited amount of parking lots.



4.5 ACCESSIBILITY

The topic of accessibility includes different themes. The deliverable analyzes three different perspectives:

- accesses to the historic center: how to get there (means of transport) and how to move inside it
- accesses to the goods and the process of privatization
- environment and services for people who experience disabilities.



ACCESS TO THE HISTORIC CENTER

“More than historic quality, however, it is the location, size and accessibility of a place that play an important role in both its success as a tourist destination and the consequent impact of tourism on the built, cultural and social environment”²⁰.

Accessibility to the historic center is often a problem both for citizens and for tourists. Seasonal of peak- time demand on parking has to be resolved in designated areas as there is little space in historic towns for street parking. Large parking garages are out of scale and character with the historic towns, while ground- level parking requires a large site, which may cause the loss of otherwise green spaces and be disruptive to the spatial and visual qualities of an historic town. Frequently, available

²⁰ Aylin Orbastli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon.

open space including town squares are given over to parking. “The streets and piazzas the tourists love to photograph are crammed with Renault, Fiats, Volkswagens, and Fords, let alone motor scooters, mopeds, vans of all sizes and shapes, and other forms of motorised transport. All these have contributed dramatically to the sense of congestion that pervades European cities today” (Appleyard, 1979:13).

Private means of transport require parking lots (cars, scooters, bicycles, etc), public means of transport require reasoning on stops (how many, where, equipments, etc.).

Some cities invaded by tourists like Venice started to limit accesses to avoid congestion²¹.

The potential for reuse is different for each building. There are buildings that are no longer suitable for present-day requirements and adaptation would detract considerably from their unique character. Tourism may provide the right reuse with minimal change to their historic character. “Palace, castles, mansions and religious buildings such as monasteries provide an alternative form of visitor accommodation in unique and authentic settings, with a living function closely linked to the original”²². Despite that, this kind of reuse makes the good inaccessible to the citizens.

Users of the historic centers are not expected or ideal users but a very wide range of people; increasing the possibility of users with disabilities or special needs (Del Zanna, 2005). Article 9 of the United Nations Convention on the Rights of Persons with Disabilities commits signatories to provide for full accessibility in their countries.

To consider the diversity inside HBA mobility plan let a wide range of people to live the city center and can improve usability for everyone (users with disabilities, tourists with trolleys, parents with strollers, etc.).

While the term “accessibility” is generally used to describe facilities or

²¹ <https://www.ilfattoquotidiano.it/2018/04/28/venezia-al-via-i-tornelli-contro-leccesso-di-turisti-varchi-alla-stazione-di-santa-lucia-e-al-ponte-di-cala-trava/4322266/>

²² Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon.

ACCESS TO THE GOODS AND THE PROCESS OF PRIVATIZATION

ENVIRONMENT AND SERVICES FOR PEOPLE WHO EXPERIENCE DISABILITIES

amenities to assist people with handicap impaired mobility, this should include other types of disability, not only physical but also sensorial (blind, partially sighted, hearing impairment, etc.) and cognitive (learning disability, impairment in mental functioning, etc.).

Sometime the needs of different users are at odds. For example, a man on wheelchair prefers a ramp but a blind man usually prefers a stair because he has difficulties with inclined planes.

Historic centers have too many barriers: blocked wheelchair ramps, narrow streets, buildings without lifts, food court under porches occupying all the pedestrians’ space, inaccessible toilets, shops without step-free access, separate door-to-door collection on the sidewalks and so on and so for. People with autism or other sensorial or cognitive disabilities can be hypersensitive to sound, light and movement, and become overwhelmed by noisy, cluttered or crowded spaces. Also the language often represents a barrier for foreign tourists and new citizens.

It is important to plan for accessibility to centralises goals of people and businesses and defines accessibility policy as enhancing people and business opportunities. A lot of methodologies have been developed in this direction (Universal Design, United State, 1997; Design for all, Europe, 1993; Inclusive Design, UK, 2005).

Special attention should be paid to how people who experience disabilities can access to the historic center. As parking places are not originally attached to these buildings, the newly created parking lots may be a little distance from the buildings, what needs a further consideration related to

ACCESS TO THE HISTORIC CENTER + ENVIRONMENT AND SERVICES FOR PEOPLE WHO EXPERIENCE DISABILITIES



accessibility (it is not enough to provide the accessibility of the buildings themselves, but also the of the roads leading to the facilities as well).

Public means of transport can make a city with particular morphology like Venice easy to access²³. The city is made up of 121 islets linked by 435 bridges, suggesting that the city is difficult to move about in and enjoy not only for people with reduced mobility but also for the elderly carrying their shopping, parents pushing a pram and visitors with their luggage. Thanks to an effective public transport policy and measures implemented down the years by the City Council, the accessibility situation is much more satisfying than you might imagine. City for All is a service promoted by the Municipality of Venice to provide to city-dweller, residents or tourists useful information about services available for people with disabilities and publicize facilities and projects carried out to improve urban accessibility in such different places as Venice and Mestre.

4.6 SECURITY

Security is a central responsibility of city authorities. The lessons of the past have evidenced that a policy oriented exclusively on repression or dissuasion gives poor results and have demonstrated that cities and states are both paramount actors in the formulation and implementation of security policies. It also proved that cities are crucial actors in the areas of social, situational and developmental forms of prevention. Finally, we saw that urban management is more than the size of the cities or the risk that cities face, such as the presence of organized crime, which explains the level of insecurity.

Insecurity has always been linked to the fear of violent action against

²³ Boat services ACTV Spa provides public transport. Boat landing stages, boats (“vaporetti”) and motorships are accessible. Motorboats are equipped with one wheelchair at a time. Ferry boats (Tronchetto - Venice Lido) are equipped with a lift and toilets for disabled people. Public Toilets Public toilets managed by Veritas Spa are free to disabled people. Obstacle-free itineraries City for all designed 12 routes without barriers to facilitate the visit of the City to disabled persons. The itineraries can be downloaded from www.veneziacittapertutti.it (section “Venezia Accessibile”).

life and property, and the dangers of natural and anthropic catastrophes. To this we must now add the fear induced by a zero-interest economic and financial crisis, emphasized by a loosening of community ties. In this context, perceived insecurity can be ascribed to cross-cutting factors pertaining to gaps in income, age, education and employability, as well as to the recent migration waves and terrorist attacks. At the EU’s behest, to further explore other specific issues shaping the perception of insecurity in small to medium-sized towns, The Fondazione del Politecnico di Milano has conducted a research on two smaller centers—a typical historic town and a typical Italian small municipality. The research, completed in November 2015 and validated by the EU in July 2016, has shown as common causes of perceived insecurity in urban areas the presence of disused property and material and social degradation, as well as a limited propensity to invest in urban regeneration. More specific causes have emerged, reflecting issues of self-regeneration (in the Aristotelian sense of entelechia), and a perceived lack of opportunities. The survey also identified a widespread opportunity for development in the recovery of local history and potential, and the implementation of programs aimed at land and urban generation, with an eye to the tightening of community ties.



CHAPTER 5

ECONOMY



Economic analysis plays an ever-increasing role in the development of government policies and in securing private investment for the conservation of the historic environment. The tools for economic analysis as they pertain to heritage conservation are limited and difficult to apply. Furthermore, to date there has been a lack of consensus by economists about which tools to use and the degree to which positive outcomes have occurred in those cases where specific tools have been employed. Therefore, clear models and tools for articulating the economic benefit of urban heritage are urgently needed. The impact of development on the heritage values of a place is often weighed against the economic value of carrying out development in the region or urban area. To date there have been some attempts to equate the two, but with limited success. Better tools to assess this would assist the decision-making process, where loss of heritage value is being traded off against short-term economic benefits. Traditional construction techniques, materials, and methods are often disregarded as inferior or considered too time consuming and, therefore, too costly to use in the process of urban regeneration or rehabilitation. However, the abandonment of traditional methods or materials invariably has long-term detrimental effects, not just to the fabric itself but also in the eventual loss of know-how and the disappearance of traditional materials (due to loss of the market for the material). Enhanced information and tools that evaluate the long-term cost/benefit of using more traditional approaches can assist in making the case for sustaining the use of traditional materials and methods.

The report of the Horizon 2020 working group on cultural heritage highlighted the potential of cultural heritage to generate benefits for the economy, society and environment. It also noted the changing perceptions of cultural heritage, moving away from it being seen as a financial burden towards recognising it as an asset which can provide a catalyst for enhanced growth and wellbeing. This view was shared also by the conclusion of the Council of the European Union (education, youth, culture and sports), adopted in May 2014, which labelled cultural heritage as a 'strategic resource for a sustainable Europe'. The study "Cultural Heritage Counts for Europe" notes that built heritage has been recognised as a 'source of socio-economic development through urban regeneration' since the late 1970s. However, this was rather linked to physical conservation. Only in 1990s the definition of what heritage is and entails expanded, placing new emphasis on intangible heritage and resulting in a

more holistic understanding of the historic urban environment. Economic benefits can originate from a wide range of factors and may manifest as jobs and businesses supported by the need for repair and maintenance of historic features/buildings, the impact on property values following refurbishment of historic areas and the attractiveness of historic cities as a location for businesses, particularly the creative and cultural sectors. All these factors help to support economic competitiveness. Cultural heritage also enhances quality of life, helping to make a location more attractive as a place to live and work, and also creating a powerful sense of civic pride and identity. Finally, cultural heritage can help support sustainable development, particularly through the regeneration of urban areas and bringing historic buildings back into use.

5.1 TOURISM IMPACT

Poorly managed tourism-related development is a specific issue that has been identified as a cause of damage to historically significant urban areas, particularly those on the World Heritage List. Tourism-related development is often seen as the solution to secure the economic viability of historic urban environments. This concept is widespread and misleading, frequently interrupting the balance between multifunctional aspects of the city and all too often leading to the destruction of the very thing attracting people to the area. The economic benefits resulting from tourism are often so important that governments have responded by establishing governance structures that take tourism-related development outside the usual heritage and planning framework, frequently with disastrous consequences. Where heritage is a source of substantial economic benefits, it is essential to manage the pressures that result from tourism-related development through a sound governance structure that puts heritage conservation front and center. A more sustainable approach to focusing all development on tourism is to introduce tourism-related activities into the range of activities that already exist, without damaging others that contribute to the heritage significance of the place. Providing a diverse and wide range of activities and attractions that recognize, celebrate, and interpret the various heritage values of the urban area and neighboring areas is a means of both reducing the stress on the historic core and promoting development in other areas, thus benefiting a wider sector of the community.



Examples of conflicting demands are the increasing numbers of tourists provoking the replacement of housing space and daily goods retail stores by hotels, pensions, gift shops, etc. and the conversion of non-commercial public space into commercial leisure areas (crowding out functions focused on the traditional inhabitants).

Cities are the most important component of cultural tourism in Europe. Visitor influx tends to be concentrated in urban centres, which overlap unevenly with historic centres. There is a substantial flow of tourists and day trippers inspired or motivated by cultural factors and interested in historic heritage and/or contemporary culture. This flow coexists with visitors with broader and more heterogeneous intentions. Whatever the purpose of their journey may be, tourists and day trippers make intensive use of historic centres, engaging in a series of cultural activities during their visits that overlap with the occupations of both local residents and residents from the rest of the urban sprawl. Tourism produces an impact on the city, especially in historic centres. This topic has formed the basis of a well-established line of research with important contributions being made since the 1980s. It also appears repeatedly in the work of major institutions contributing to learning in matters of heritage and urban development. Recently, the debate on this kind of impact has moved beyond the boundaries of academia and tourism stakeholders. In many European cities, a very negative view of the local effects of tourism has

started to surface. Various social collectives have been marching against the different forms of city tourism, with issues ranging from the increase in tourist rental properties to cruise ships. Although these demonstrations do not usually attract large numbers of protesters, they are quite visible in the media. Local governments have added the negative effects of tourism to their agendas, and are starting to develop mitigation plans and programmes. Tourism is even starting to be seen as a problem for a large part of the local community in the most popular urban destinations.

The main problems detected are:

- difficulties in dimensioning services and infrastructure related to tourism seasonal fluctuation; these are used also by tourists but they are paid only by residents (taxes and rates)²⁴;
- the investment in infrastructure and the conservation of urban fabric and environment do not benefit from a direct financial return¹;
- congestion;
- for local inhabitants tourism may be the cause of depreciation in quality of life (constant rises in
- land and property values, spoiled landscapes, pollution, traffic, overcrowding, etc.);
- loss of value, postcard cities (see Identity perception);

¹ “The carrying capacity of existing services in historic towns is likely to be very limited, and sufficient provision for a peak season may become a very costly capital investment with little direct return to the investor. The insertion of infrastructure into an historic environment is tricky and there are many associated implications to the historic fabric, both above and below ground. Most dramatically, for Venice there is also the threat of sinking. Seasonal fluctuations in the number of users create a dilemma for the service provider. The size and capacity of a transportation network adjusted to a high season for example incur additional maintenance and staff costs in the low season. Similarly, services such as garbage collection have implications for resources and jobs [...]. Sudden increases in user numbers bring extra pressures on services and higher maintenance costs. With no direct payment made by visitors to a place, these costs must be borne by the local municipality and will inevitably be passed on to residents as taxes and rates” Aylin Orbasli (2000), *Tourists in Historic Towns: Urban Conservation and Heritage Management*. London: E & FN Spon.

- gentrification (see Gentrification);

Despite that, tourism could also have positive impact on historic areas and contribute to urban conservation:

- Tourism can become a valuable means for widening cultural understanding to include less valued monuments and overlooked traditional urban environment².
- “Tourism is potentially an important catalyst for the safeguarding of historic fabric and the initiation of conservation on an urban scale. Appreciation of the historic environment by visitors not only becomes a reason for conservation but can increase local interest in the environment. Although tourism is not a direct financial resource for conservation, indirectly it opens up previously unavailable investment finances. The restoration and reuse of redundant buildings encourages other environmental improvements, adds life and activity to a place, provides an example of conservation, and may boost the economy to a level which will enable other small-scale improvements to happen”.
- tourist interests generate a greater heritage awareness and the conservation of less obvious historic buildings;
- well-conserved buildings that are being used encourage more projects to be realised;

² *The urban form and fabric of an historic town are a free commodity. Hospitality services and commercial outlets within the town constitute the greatest opportunity for financial gain. For the local population, most of the financial gain is through knock-on effects and jobs created in the sector.*



- community awareness of the benefits of conservation increases local involvement and demand for conservation, and the forming of local associations;
- uses are provided for otherwise redundant buildings as tourist accommodation³
- the promotion of architectural and historic values (locally and nationally) motivates cross-cultural communications.

³ *In many instances tourist interests have activated conservation programmes for archeological sites, monuments or vernacular buildings, and, more recently, entire urban areas. Tourism has been instrumental in conservation programmes of the classical "Greek" heritage in Turkey and in the preservation of historic towns associated with being Ottoman in Greece. "The most popular sites soon acquired an economic value and it became more profitable to act as guides, sell souvenirs or to work for archeological expeditions, then to demolish piecemeal" (Tuner and Ash, 1975:133).*



These opportunities cannot be overlooked, and well managed they will all contribute to the future of the place. To minimize the negative impacts and maximize the positive impacts, tourism should be sustainable and should not have peaks (no seasonal tourism).

In Karlovac tourism can be a major driver of the development of HBA area, primarily now that the city has built the first aquarium of freshwater fish in that part of Europe. Karlovac is also known for its natural beauty and its accommodation on four rivers, close to the Plitvice National Park, and it is easy to access (excellent traffic position between land and coastal

Croatia).

In Szabolcs Region (Hungary) the strengthening of tourism often makes impossible - or at least difficult - to preserve the cultural heritage.

In Bad Radkesburg tourism plays a significant role for the local economy. The needs of tourists are not more important than the needs of the local population. However, in the HBA there are more shops which are also attractive for tourists. Tourism contributes to the restoration of historic buildings and enhances the usability of old buildings (guest houses). This also applies for the maintenance of traditional gastronomy and hotel infrastructure. Tourism can be perceived as a significant contribution to save the historic inner city. The main hotel infrastructure is outside the HBA adjunct to the spa facilities which are part of the main tourism product.

5.2 MAINTENANCE COSTS

The maintenance planning and scheduling activities for the historic centers represent a preventive safeguard path: the maintenance strategy allows, in fact, to obtain benefits in terms of conservation (less loss of matter) and enhancement (enjoyment of Cultural Heritage by of users).

The preparation and implementation of a maintenance plan in the historic centers allow the optimization of the overall reliability of the buildings and of each of their individual components through the definition of strategies and intervention frequencies to be adopted. Maintenance interventions are planned according to the faults found (performance decreases) and the critical levels deriving from them.

Therefore, the phase of survey and analysis of the faults is fundamental. This initial operational phase, intended for the technicians of the sector, foresees the use of well-established methodologies, relief instruments and diagnostics, which lead to a scientific measurability of the level of criticality of the faults found.

The issues of maintenance and damage prevention, with regard to the architectural heritage of which our cities are very rich, come back on time



to the occurrence of more or less predictable accidents, and then very often go into the background when the emergency ceases. and the media attention has fallen.

It is not to be taken for granted that the implementation of protection measures should be based on the diagnosis of the state of preservation of the Good and its context, because without an analytical approach to maintenance, all good intentions can be resolved in “spot” interventions, not very effective. in the long term or concentrated on one great work, forgetting about the surroundings. Even more so if we are dealing with the entire architectural heritage of a historical center.

The main problem linked to the management of data of the architectural heritage of historic centers derives essentially from the complexity of the urban fabric. In this scenario it is difficult, for those involved in management, to be able to control the conditions of the building and develop effective responses quickly. Therefore, for administrations, it becomes essential to have an updated and updatable summary framework, which can be integrated with planning planning tools.

The UNI EN 13306: 2018 standard, a very recent update of the one in 2010, provides all the relevant maintenance definitions both as regards the classification of maintenance activities and from an administrative and management point of view. Preventive maintenance is defined as maintenance aimed at reducing the probability of failure or degradation of the functioning of an entity. Preventive maintenance activities can also be “programmed”: the scheduled maintenance is in fact the preventive maintenance performed on the basis of a time program or a set number of quantities. Then there is predictive maintenance which is defined as the condition-based maintenance performed following a prediction derived from repeated analyzes or known characteristics and evaluation of the significant parameters affecting the entity’s degradation.

To look beyond the CE border, the British Standard Institution defines maintenance, both at the construction and territorial scale, as “a work in order to keep or restore every facility to an acceptable standard”, thus configuring it not as mere reparation, rather an operational practice through which to respond to the problem of functional stability and the value of the building.

The maintenance action, aimed at preventing damage, protecting material values and extending the life of the building, therefore constitutes the basis for the conservation of the architectural heritage.

For all these actions the UNI 10951: 2001 “Information systems for the management of the maintenance of real estate assets” was provided; the standard provides methodological-operational guidelines for the design, construction, use and updating of information systems for the management of the maintenance of real estate assets and for the relative computerization, consisting of databases and procedures aimed at collecting, analysis of the information necessary for the management of maintenance activities. The requirements that this system must meet are those of:

- manageability
- data availability
- updatability (and expansion of the system)
- integration
- consistency of information
- safety.



A change is necessary, based on the use of innovative operating methods and the organization of evaluation and control processes.

The advantages deriving from the implementation of good maintenance practices, integrated with economic evaluations, are manifold: cost containment given by the optimization of resources, distributing over time the costs in the face of costly restoration of damage, reduction of contingencies and risks and improvement of safety, support in planning work, etc.

In the field of architectural heritage, the development of effective long-term strategies, based on gradual and planned intensity interventions, built with multidisciplinary contributions, can represent an opportunity for the enhancement of policies to safeguard and enhance the urban landscape, increasing knowledge and promotion of local systems.

5.3 TRANSFORMATION COSTS

Over time the abandonment of the HBAs by inhabitants, more attracted by suburban green and comfortable residential areas, has been followed by the flight of the daily services and commercial activities.

Unfortunately, no single actor working independently can prompt significant change in these trends. The Government and /or local administrations cannot alone rehabilitate all the private buildings in deteriorated urban heritage areas, while private investors shy away from taking on rehabilitation projects in these areas due to the high commercial risks involved. Furthermore, individual investors have incentives to wait for the rehabilitation process, to gain traction before investing and reaping the benefits from the positive externalities generated by the pioneers. Without sufficient funding and coordinated efforts, it is difficult to initiate the rehabilitation process.

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|--|---|--|
| | <p>PROPRIETARIO DEL BENE (uso strumentale del bene)</p> | <ul style="list-style-type: none"> > risparmio sui costi > mantenimento del valore economico |
| | <p>INVESTITORE (uso speculativo del bene)</p> | <ul style="list-style-type: none"> > mantenimento del valore economico |
| | <p>IMPRESA OG2-OS2A (esecutrice dei lavori sul bene)</p> | <ul style="list-style-type: none"> > continuità economica garantita dalla programmazione > possibili sviluppi di rami di impresa > recupero dei saperi locali, cultura come fattore di sviluppo |
| | <p>STATO (proprietario dei beni)</p> | <ul style="list-style-type: none"> > risparmio sui costi > ricadute occupazionali > impatto economico su altri settori (aumento PIL, formazione nuove imprese, nuove professionalità, crescita in investimenti) > recupero dei saperi locali, crescita del capitale umano, sviluppo del turismo, coesione sociale delle comunità |

