Challenges and Opportunities for the Historic Urban Landscape Planning. The Sardinia Region Case Study

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Abstract. The 2011 UNESCO Recommendation defines the Historic Urban Landscape (HUL) as a stratification of historical, cultural and natural values, which broadens the notion of "historic centre" to include the social, environmental and economic components of the urban and geographical context.

Italian urban planning has so far adopted a conservative and binding approach to the protection and valorisation of historic settlements. Regulatory planning tools have often failed to combine the protection of physical heritage with the general improvement of urban quality and socio-economic conditions. The limitations of traditional planning can be identified in the difficulty to interpret the urban complexity and in the lack of projects and actions monitoring. The paper investigates the critical issues arising from the application of the traditional planning models for the historic centre, focusing on the case study of the Sardinia Region. The objective of the study is to identify some fields of innovation in the use of planning tools, that take into consideration the characteristics of local contexts and the needs of communities, as recommended by UNESCO. New technologies can contribute to a regularly updated knowledge framework and to the involvement of private actors in regeneration projects. The study shows that the continuous evolution of socio-economic conditions in cities requires open and flexible decision-making based on the principles of sustainability, social inclusion and innovation. The conclusions highlight the need for a review of approaches and tools to give more dynamism and effectiveness to the planning process, including the integration of innovative methods and technologies.

Keywords: Historic Urban Landscape · Urban planning · Regeneration

1 Policies for the Recovery of the Historic Centres in Italy

1.1 The Theoretical Debate and the Evolution of the Regulatory Framework

In the second half of the Nineteenth century the rapid urban growth, determined by the new needs of the industrial civilization, has made increasingly marked the gap between the historical city and the new developments. The inadequate protection policies has fostered processes of abandonment, shift to the service sector and radical change in

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physical and social characters, excepted to some rural contexts where the urban structure keeps unaltered until the Second World War [1].

In the 1930s there was an intense debate on the values of the pre-industrial city and the need to extend protection from monumental architecture to the whole urban areas with historical value [2, 3].

In Italy, the identification of "Zone A" by the General Plan (PRG) contributed to protect an area limited by a physical boundary, in which the multiple components and different characteristics of the historical landscape are lost [4, 5]. Since the 1960s, the topic of safeguarding the historical heritage has been widely established in the European countries. The uniqueness of the Italian contribution is characterized by a constant permeability and conflict between innovation and conservation, in search of appropriate functions in order to ensure the preservation and the strengthening of the sense of community [6–9].

The overcoming of the notion of the historic centre as a "monolithic monument" to be entirely preserved in favour of a new vision of economic asset, in terms of financial and social values, feeds new experimentations in the field of urban renewal [10, 11].

The policies for the conservation of historic centre, understood as carriers of economic, cultural and social values, require an evaluation and redefinition of the role that it assumes in the current urban and territorial situation [12]. This vision is sometimes in contrast with some conservationist positions, which put historical and artistic values before those of the socio-economic context, rejecting any intervention other than integral conservation. The policies of integral protection put at risk the permanence of the productive and commercial activities or of the residence itself, as well as being ineffective due to the difficult to verify the respect of the regulations [13, 14]. Severe restrictions and constraints, even in the presence of a building heritage of low value, can lead to physical degradation and abandonment, for example non-compliance with the rules and unauthorized interventions. In 2011, the UNESCO General Conference adopted the Recommendation on Historic Urban Landscape (HUL), an innovative and dynamic approach to HUL management, which Member States can implement on a voluntary basis. The overall management of the city must be based on the recognition of a stratification and interconnection of natural and cultural, material and immaterial, inter-national and local values present in any city. In fact, the term Historic Urban Landscape refers to a stratification of historical, cultural and natural values, which goes beyond the notion of "historic centre" to include the wider urban and geographical context. The singularity of the city is not only linked to its natural characteristics, the built environment (historical and contemporary) and spatial organization, but also to social and cultural practices, economic processes and intangible heritage.

The intervention in the historical settlements was initially guided by plans designed to govern urban expansion processes, gradually renewed with specific tools, such as the Recovery Plan (L.457/1978) and the Integrated Program of Intervention (L.179/1992), which became part of the ordinary planning activities. The Recovery Plan acts within the recovery areas, not necessarily historical, identified in the General Plan, in order to rehabilitee, reconstruct and preserve the existing heritage in degraded conditions [15]. Often the results have been disappointing, failing to involve the private operator without economic incentives [16].

The Integrated Program of Intervention overcomes some of the limits of the Recovery Plan thanks to the strong autonomy of design and content, also for the location of the interventions, acting in derogation of the urban plans in force. They fall into the category of consensual urban planning, characterized by greater flexibility in reaching agreements between public and private, even in the absence of an overall and strategic urban design [17, 18].

The UNESCO Recommendation of 2011 recognizes the need for an inclusive approach to interpret the complex system of values, not only architectural monuments, which constitute the identity and character of the urban context. It proposes a comprehensive and integrated approach for the identification, assessment, conservation and sustainable management of historic urban landscapes in order to address the new challenges brought by rapid social and economic change. Regulatory systems should reflect local conditions and help to protect the integrity and authenticity of urban heritage, by monitoring and managing processes to improve the quality of life and space. Documentation and mapping of cultural and natural features and social and environmental heritage support decision-making [19–21].

The HUL approach implies the use of traditional and innovative instruments according to the characteristics of the local contexts and the needs of the communities. In this direction, it is fundamental the provision of participation practices and civic commitment in the involvement of a multitude of subjects able to support the process of identification of key values and definition of objectives, strategies and actions to safeguard heritage and promote local development [22, 23]. They also facilitate mediation and negotiation between conflicting interests and groups, promoting the development of local entrepreneurship and associations to support the economic and productive sectors with private public partnership and financial instruments [21, 24].

In this direction, the paper assesses whether the evolution of the urban planning practice and the regulatory framework in Italy has incorporated these theoretical and methodological innovations. In particular, the role of landscape planning in the recovery of the historic centres and the effectiveness of the implementation methods through municipal urban planning are analysed. A specific focus on the Sardinia Region case study allows to reflect on the need to combine the experimentation of new tools, including information technology, with the revision of the structure of municipal planning to adapt to the new demands of contemporary urban environment.

1.2 Landscape Planning and Historic Centres

The theoretical and regulative innovations, introduced on the national context, had a significant impact at regional level, in particular within the landscape plans that contain provisions for intervention in historic centres. Five regional planning instruments with a landscape value are currently in force in Italy: after the Regional Landscape Plan (RLP) for the coastal areas of Sardinia in 2006, a decade is expected to pass, in 2015, for the approval of the RLP of Puglia Region and the Territorial Plan with a value of PPR of Tuscany Region, until the most recent PPR of Piedmont Region in 2017 and Friuli Venezia Giulia Region in 2018.

The RLP of Friuli Venezia Giulia interprets the landscape areas according to the hydro-geomorphological, ecosystemic and environmental characteristics and the settlement and infra-structural systems. The plan identifies the historical centres of considerable interest for landscape purposes and the identity settlement aspects through the recognition of "morphotypes", understood as the result of the interaction of natural, anthropic and identity factors, which can be typified or recognized in different contexts. The abacus of morphotypes constitutes the regulatory framework for landscape areas in order to address territorial and urban planning towards compatible development directions.

The Territorial Plan (PIT) of the Region of Tuscany recognizes the settlement structure of historical-territorial and identity value, which includes the cities, the minor settlements and the relative infrastructural, industrial and technological systems. The preservation of the polycentric and identity character of the settlements passes through a strategy of protection and enhancement of the historical centres and the surrounding area, identified in the local plans, in order to ensure the permanence of the historical values and architectural features. The landscape context is represented by the area strongly connected on the morphological, perceptual, identity and historically functional level, generally consisting of the area next to the historic core for a belt of 300 m from the perimeter of "Zone A". In this context, actions are planned to safeguard the perceptual value and the historical and cultural heritage of the settlement, also protecting the agricultural destination and the hydraulic and agricultural systems of the areas of pertinence. The plan hopes for the permanence of the inhabitants and the strengthening of the role of the settled communities, evaluating the direct and indirect transformations induced by the tourist flows.

The RLP of the Region of Piedmont protects the components of historical and cultural interest, which are the key elements of historical and documentary value and of the regional cultural identity, also identified in a precise way in the complementary Regional Territorial Plan (RTP). The historic centres, qualified as consolidated urban areas, fall into the morphological and settlement components (major centres, minor centres and external settlements). The local plans define the perimeter of the historical centres, including areas on board and free spaces to safeguard the fundamental relationships with the landscape context. The detailed regulatory framework aims at the conservation and enhancement of the original morphology, the aspects of interaction between historical and territorial systems at the local scale, the specificity of the structures, the types and built fabrics, the elements of perceptual landscape value. Areas to be requalified, to be subject to a recovery plan, can be identified in order to ensure the coherence of the interventions with the original aggregative patterns, the alignments, the relationships between full and empty spaces, the orientation of the roofs, the materials and the typical colours of the place.

In the RLP of Apulia Region the historical fabrics fall within the cultural and settlement components and consist of the portion of the urban centers that goes from the foundation nucleus to the compact urbanization of the first half of the twentieth century. The historical settlement resources, consisting of the historical centres and nuclei or the complex of elements that constitute the natural productive and infrastructural completion and the recognizable traces of the historical organization of the territory, are understood in the double value of the constitutive elements of the

settlement system and of significant parts of the cultural heritage to be protected. The local plans ensure the conservation and enhancement of integrated territorial systems, the result of long-term territorialisation processes, identifying the qualities to be preserved and the specific problems to be faced for the protection, redevelopment and enhancement of the consolidated city. The municipal planning system provides for a General Urban Plan (PUG), divided into a programmatic and operational component, to be implemented through the use of detailed plans or integrated programs of public, private or mixed initiatives. The structural part of the plan analyses urban and rural contexts, including the structural invariants of a historical and cultural nature, identifying the morphological characteristics of settlement resources through a reading of the models and values deposited by the process of anthropic stratification. It identifies the "urban contexts to be protected", defining the perimeter of the settlements constituting the cultural heritage and deserving of protection, the peculiar elements and the potential for qualification and development, the transformation processes underway as well as any factors of abandonment and social, environmental and building degradation.

2 Protection and Valorisation of Historic Centres in Sardinia

2.1 The Regional Landscape Plan and the Municipal Urban Planning

In Sardinia, the Regional Landscape Plan (RLP) of 2006 has allowed a deep revision of the planning processes of historical fabrics, with a view to an innovative openness to transformation for contemporary use, respecting the preeminence of values and the identity character of the context, even in the case of minor buildings, often subject to degradation, destruction or misrepresentation, given the lack of interpretative awareness of the value frameworks contained therein. The RLP guarantees the protection of areas characterized by historical settlements, including the development matrices of the centers of ancient origins and early foundation deductible from the reading of historical cartography, as well as modern and contemporary original centers, including specialized nuclei of work and spread settlement (Art.51 RLP), defining specific prescriptions and guidelines, to be taken into account when adapting local urban plans. The municipalities verify the perimeters of the centers of ancient origins and early foundation, through an analysis of the building fabric and factors attesting its "historicity" [25]. The subsequent drafting of the Detailed Plan for the Historic Centre requires further investigation of the many physical and socio-cultural aspects of the historical settlement. It classifies the existing buildings on the basis of their period of origin, the traditional historical character or the existing compatibility with the context in the case of recent construction, expressing a judgement of historical landscape value that translates into a different degree of transformability and a specific regulation for the interventions.

The preservation of the historical stratification of the settlement and the valorisation of the traces that testify its historical origin, are guaranteed through a set of interventions to protect the specificity of each historic centre, enhancing the separation between adjacent districts and promoting the recognition of the margins. Some urban portions have been profoundly altered in recent times by replacement or obvious

transformation interventions that have influenced the perception of the identity elements, the typological and construction features, the land layout and the organization of the blocks. For these areas, the RLP promotes building and urban restructuring interventions, preferring the use of public-private partnerships, for the replacement of incongruous and incompatible parts and the requalification of public spaces in order to recover the original urban layout and the historically recognizable morphological characteristics.

The planning of new construction is allowed for any functional completions and additions of new volumes, in accordance with the characteristics of the historical background and the context. In the case of undeveloped areas, the appropriateness of allocating them for public purposes is evaluated. The design of the interventions is based on criteria and rules taken from the Abacus of the building typologies, aimed at interpreting the specific spatial relationships of the historical building type, in order to avoid the so-called "typological degradation" caused by the inclusion of incompatible settlement models in historical contexts.

In order to restore high levels of landscape value to the environmental, cultural and historical context, it is necessary to eliminate or mitigate the incongruous, legitimately authorized artefacts and works with negative aesthetic value or in disharmony with the context, which can cause a loss in terms of identity and quality of places. In some cases, such incongruities can be removed by the renovation of the building, in others it is necessary to totally replace the building after demolition. The plan cannot impose the demolition of a legitimate building, even if it is incompatible with the historical landscape context, but it can define restrictive measures for the building transformation, limiting the interventions to "extraordinary maintenance" only. In some cases, voluntary demolition by private individuals is encouraged, allowing the reconstruction of the existing volume, in a compatible way in terms of construction characteristics, heights, shadows and positioning in the lot. This plan strategy clashes with the lack of consensus of private owners, considering the low economic convenience.

A strict regulation can lead to the maintenance of the status quo, not only in the possible demolition and reconstruction in compatible forms, but also in the ordinary building maintenance, which results in an increase in the conditions of degradation.

2.2 Regional Rewards and Incentives for the Rehabilitation of Historic Centres

The Sardinia Region grants subsidies for the recovery, redevelopment and reuse of buildings in historic centres and minor settlements (L.R.29/1998) intended for residential use or economic activities. Further incentives have been allocated from Community funds: the European project called LAB.net, funded under the 2004 Interreg IIIA Programme, which aims to enhance the historical and architectural heritage of cross-border territories and to protect the local identity, the countryside and the natural environment of several municipalities and provinces in Sardinia, Corsica and Tuscany; the 2006 CIVIS call for proposals, which promotes the creation of cooperation networks of minor centres for the requalification, recovery and reuse of the

settlements, the strengthening of public services in order to deal with the depopulation of internal areas; the 2008 Biddas call for proposals, which financed "network programmes" to consolidate the process of valorisation of historical buildings through Integrated Programs (IP) and Urban Redevelopment Interventions (URI).

The Region of Sardinia also promotes the use of integrated urban programs that provide for the recovery and enhancement of buildings in the historic centers of the inner areas, offered at a symbolic price (L.R.8/2015).

This regulatory framework includes the initiative "Houses for 1 euro", which aims to deal with the depopulation of smaller towns in the inner areas of the island, already experienced in Campania, Sicily, Lazio, Tuscany and Abruzzo. The mechanism is based on the presence of unused properties in conditions of physical deterioration such as to make it difficult for private owners to place them on the market for rent or sale. These are often properties acquired by inheritance, with a fragmented ownership that makes it difficult to adopt decisions on the property use, subjected to heavy taxation. The initiative is remarkable but cannot be considered a strong strategy for the redevelopment of historic centres. It can only be adopted in the presence of low real estate prices that would encourage the owner to give up the income that could be gained from its sale, but at the same time adequate to make the investment profitable for the buyer. With these levels of income the operation will be attractive only for amateurs, excluding an economic convenience such as to activate a mechanism of self-promotion of the initiative in the real estate market. Its action will be limited to stimulate the local market, with a merely promotional role and positive impacts of an economic rather than of urban nature.

The regional legislation is contradictory because, despite promoting the protection of the historical landscape, it provides for the allocation of incentives for the extension of buildings without historical value and incompatible with the context even within the historical centers, as an exception to the RLP and local planning (L.R. 4/2009, L.R. 8/2015). The increase in volume, even if limited to a building without no historical value, could have negative consequences for the whole historical context, altering the relationship between full and empty spaces and the harmonious development of the facades. In line with the national context, it seems to prevail the idea of being able to act in derogation of urban planning instruments for any intervention that has the character of priority or urgency, attributing less importance to the urban scale of interventions than to the building one [25–27].

3 The Effectiveness of the Plan for the Historic Centre Between Traditional Approaches and Perspectives for Innovation

3.1 Limitation of Traditional Planning for Historic Centres

Sardinia is an example of a strictly conservative approach that requires a detailed plan to be drawn up for the historic centre, in order to make possible any transformation project, even minor building renovation. Direct intervention is allowed only for maintenance and restoration works, leaving the definition of other transformations to

the detailed plan. The conventional recovery plans, linked to a concept of public planning, have proved to be ineffective in the regeneration of the historical fabric, despite the excellent results achieved in the analysis of the settlement features and characteristics, in the definition of the degree of conservation and transformability, in the protection of the preserved historical values with development restrictions.

However, the detailed plan provides a picture of the current state of an urban environment which, even if detailed and accurate, refers to a given time, often outdated at the end of the adoption procedure. The ineffectiveness of the plan, in addition, is usually due to the lack of agreement of the local community, because of the inadequate participation and sharing of choices made by the political decision-makers. It is also essential to be able to monitor the state of urban areas and their evolution, to facilitate the appraisal of the projects proposals and to improve the management skills and procedures. The procedures for adapting municipal urban plans to the regional landscape plan are excessively complex and time-consuming, discouraging any initiative to update or revise planning choices.

The decision-making phase is necessarily developed on a multidimensional level, integrating aspects of economic, social, cultural and environmental nature. Therefore it is necessary to build an adequate cognitive framework that, in relation to the characteristics of the context, is a prerequisite for the implementation of the objectives identified and the consequent control of the results.

The planning tools, at different levels, show a clear difficulty in the interpretation of the reality that is complex and summarize it within a knowledge framework that is periodically updated according to the changing socio-economic conditions. The structure, availability and quality of data are considered a basic condition for a correct definition and management of policies and actions. The choices concerning the regeneration, preservation and enhancement of the historical urban landscapes accordingly depend on a deepening of knowledge, in a process that involves the architectural aspects of the heritage but also and especially the background in which they are located, in order to guarantee their integrity and authenticity [28]. The awareness of the need to capture a complex and dynamic process that is difficult to define in terms of time rather than a static phenomenon, is fundamental. The continuous changes affecting an urban area, even more so if historical, require a constant acquisition and monitoring of data [29]. According to the increasingly use of advanced tools thanks to the new technologies, it can be said with conviction that the planning model, based on the deterministic and functionalistic paradigm, has exhausted its effectiveness, revealing the need for flexible and dynamic tools that allow the monitoring over time of the made choices.

It is important and strategic to evaluate the effects of the planning choices, at a spatial and administrative level, in particular when they are not in line with the expectations of the plan [30]. This monitoring activities should be carried out both on the plan and on the real context, through tools that describe the effectiveness in relation to the actions implemented, the financial resources involved and the objectives achieved [31].

Theoretically, monitoring and assessment activities are now well established and often integrated within the urban planning practices and legislation, at national and local level. There are many fields of application and aims: from the energy field to mobility, risk management and ecological and environmental issues.

However, these instruments have not a real impact at the level of evaluation of the transformations to which a given urban system is subjected, especially concerning historical contexts and their specific features and values.

For example, the Strategic Environmental Assessment (SEA), aimed at the management of complex plans and programmes, mainly oriented to the assessment of environmental issues, cannot be considered an effective tool in this direction.

The need for a monitoring and updating activity to support the implementation of the detailed plan is even clearer due to the different types of urban and architectural transformations coordinated by the instrument, based on the ex-ante analysis of the settlement. The different degree of transformability, attributed to each existing building and area, is characterised by strict and static regulation that need to be adapted and updated following the implementation of the plan actions.

An example of monitoring of urban and architectural transformations in Sardinia is provided for by Regional Law no. 8 of 23 April 2015, which requires municipalities to register the use of development rights bonus [32], but is limited to a simple census of authorized volume increases, providing information on the location of the buildings subject to intervention and the extent of volumes involved. There is a lack in the control of the impact of the interventions from the landscape point of view, compared to the proceedings of changes in the urban environment that can affect the landscape quality.

3.2 Innovative Approaches and New Technologies

The integration of new methodologies and digital tools in urban planning has facilitated the analysis of urban phenomena, with the consequence of putting the planning process in close relation with socio-economic trends, of significantly increasing the opportunity for local administrations to have control of the territory, of incorporating urban design and local finances [33].

The use of increasingly advanced analysis methods, thanks to the introduction of new digital technologies, has allowed high levels of restitution of existing heritage through the acquisition of data from stereoscopic photographic images, the use of laser scanner systems and the use of photogrammetry and software for the management of the next phases of elaboration [34].

The need to operate with scales of representation extended from the territory to the built environment has fostered the use of technologies to report, analyze and evidence the complex stratification of urban areas and their constitutive components.

On the basis of these needs, the Geographical Information Systems (GIS) has become an essential tool for the management of projects at the territorial and local scale, in line with the emerging of the contemporary concept of urban planning as a continuous and systematic activity [35–37].

The flexibility of GIS is particularly effective in the management of the cultural heritage, in its multiple forms and relations with the territory [28].

Despite the progressive evolution of its potentialities in terms of interaction, interpretation and detail, GIS are tools intended principally for the management of spatial elements characterized by a mainly "horizontal" distribution.

This attitude is not totally satisfactory, due to the complexity required by some urban planning tools, such as the detailed plan for the historical centre, where it is necessary to manage and regulate landscape aspects at the territorial scale, but at the same time at the architectural and building detail, involving the specific elements that contribute to the definition of the built environment [38].

In this regard, the development of new technologies such as Building Information Modelling (BIM), defined by international standards as the shared digital representation of the physical and functional characteristics of every building object, constitute a reliable basis for decision making [39].

The softwares based on this paradigm allow to represent building structures through semantic and queryable digital models, consisting of parametric elements, useful for the management of the single components of buildings [40, 41].

More recently we have seen an evolution of this approach, the Historic Building Information Modelling (HBIM), with a perspective aimed directly at interventions on the existing heritage which, declining the key concepts of BIM, allows to introduce procedures to generate three dimensional models of historical buildings [42, 43].

The HBIM is a specific solution that is developed through interactive parametric objects, which are geometrically constructed on the basis of handbooks and conventions, with the aim of creating models able to represent the heritage according to its historical-cultural values [44]. The development of new methodologies, which are able to collect the factors that contribute to the structure of a cultural and historical landscape, is therefore useful for the construction of a cognitive framework that is not just a technical elaboration, but a media by which to spread the knowledge of the cultural heritage, improving its accessibility [34].

The local community, in fact, is an essential component of the territorial area, which is required to preserve the sense of belonging and identity, weakened over time by the ongoing process of globalization. The tissue of historical buildings, as an asset of cultural heritage, must be considered an "investment", a repository of values and memories, able to dialogue with the specificity and identity of places [45–47].

The roads to be followed cannot be standardised and homologated, without taking into account the specific characteristics of the different territorial situations. Effective action and strategies for historical settlements in metropolitan areas cannot be applied to smaller centres located in the inner areas, which are characterised by a low population density, a weak economic and social structure, a lack of collective services and therefore a progressive demographic decrease.

Each local community must pursue policies that are specific to its own context and based on the enhancement of its typicality and identity values, arresting the loss of territorial resources. As a result, it is also necessary to rethink the ways in which private-sector involvement in the regeneration policies of historic city centres can be achieved, not only in terms of economic resources, but also in the elaboration of common strategies that, on the one hand, guarantee the economic sustainability of interventions and, on the other, intercept the needs of the local community.

The development of new media has facilitated the creation of new "public spaces", making it possible to connect an increasing number of individuals able to share information and multimedia data, using tools characterized by a remarkable promptness and flexibility of use [48]. In this perspective, the development of softwares and digital platforms is now widespread and very common, thanks to which public authorities can make their data available, at the same time supporting the strategic decisions and guidelines on the governance of the territory.

Digital participatory platforms are a specific civic technology tool structured to promote social inclusion, which allows the production of user generated content, including analytics, mapping, classification and data management functions [48].

There are several cases in which the use of these methods and tools has contributed to the development of virtuous planning processes aimed at involving public and private actors, both internationally [49, 50] and nationally [51, 52]. With such instruments it is possible to facilitate the inclusion in the planning processes, thanks to the sharing of information and the opportunity to interact with them through public communication interfaces, in a principle of subsidiarity that is coordinated by the public administrations [53].

4 Conclusions

In general, landscape planning emphasizes the identity value of historical settlements and recognizes their fundamental role within territorial systems. While the conservative approach is still the guiding principle of the planning directives, it is nevertheless clear the attempt to introduce objectives for the valorisation and regeneration of the existing city, which often do not correspond to concrete actions.

The implementation practice used for the historic centres of large cities cannot be applied in the same way to smaller historic centres, which in Italy represent a more widespread cultural and economic heritage than centres of greater importance. In few cases the emphasis is placed on the protection of the intangible components that constitute the identity of historical urban contexts and a fundamental resource to be exploited for the recovery of the territory and the activation of widespread urban regeneration processes. The redevelopment of the historic centre is part of a wider strategy to sew up the different parts of the urban settlement, from the consolidated city to the recent expansions. The recognition of a system of settlement values is indispensable for the construction of regulations able to compose an overall urban planning project for the existing city and the territory of reference. The recovery plan is often an interesting tool for the detailed study of fabrics but it is not very effective from an operational point of view. In some realities it would perhaps be desirable to overcome the implementation phase through the integration of the general instrument, in the different structural and operational components, to remedy the technical and economic difficulties linked to the drafting of a further planning act and to allow direct interventions of urban transformation, according to well-defined criteria and time horizons. The preservation of the historical fabric is enriched over time with new meanings pursuing the protection of the urban historical identity and conceiving the urban redevelopment project as an integration of conservation and innovation, in full respect

of the sense of memory of the place. The historic centre is also a dynamic and changing entity in time that needs to be constantly updated as the political, social and economic conditions change [54]. The digital revolution has inevitably influenced urban spaces, which are structured through their physical dimension but at the same time permeated by information flows, in line with the well-established paradigm of the Smart City. Historic centres are not excluded from this process, due to the recognition of everything that contributes to the composition of the territorial capital, the sum of material and immaterial factors, in which current and traditional themes such as sustainability, community and landscape quality are combined [55]. The sharing of choices requires concertation operations between the public and private sectors, in order to transform the plan into a complex protocol for the definition of a series of programme contracts between public bodies and local actors. Even in detailed planning, the contribution of the private sector, as expressed in the plan observations, can take on a proactive character, a hypothesis already tested for integrated programmes [56]. The use of information and communication technologies can contribute to the implementation of open processes with a view to accessibility and transparency, enabling administrations to interact with all levels of society [57].

The potential offered by technological innovation can contribute to a more effective management of the planning process, starting from the construction phase of the knowledge framework, also making it possible to control its implementation and monitor its subsequent developments, constantly integrating the instrument over time on the basis of the changes and dynamics taking place.

Technological innovation can contribute to increasing the effectiveness of planning only if it is part of a process of reviewing the form of the plan in order to overcome the static nature and rigidity of the knowledge and regulatory framework.

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