Digital mapping techniques, historical heritage and local place development: the case of the Milan Web-HGIS Project

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Abstract
An account of the city, set in the city thanks to the use of the new georeferenced digital technologies and the internet as a communication channel. Urban Genoma is a project for the aggregation, systematization and re-narration of the urban historical heritage that aims to give value to that history, turning it into a resource for reinforcing the identity and boosting the appeal of Milan in global competition. Not very interested in its past, always focused on the future, Milan is in fact rich in history and in histories that, if unearthed and connected with its present morphology through new modes of communication, can generate new forms of value. Milan Web-HGIS is a platform that can be read on different levels, involving a community of researchers, public institutions and enthusiasts and addressed to a broad swathe of the public.

Keywords
Milano, Historical Gis, Urban and cultural heritage, Public history, City branding

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1. Introduction

An account of the city, set in the city thanks to the use of the new georeferenced digital technologies and the internet as a communication channel. Urban Genoma is a project for the aggregation, systematization and re-narration of the urban historical heritage that aims to give value to that history, turning it into a resource for reinforcing the identity and boosting the appeal of Milan in global competition. Not very interested in its past, always focused on the future, Milan is in fact rich in history and in histories that, if unearthed and connected with its present morphology through new modes of communication, can generate new forms of value. Milan Web-HGIS is a platform that can be read on different levels, involving a community of researchers, public institutions and enthusiasts and addressed to a broad swathe of the public.

2. Local place development, place branding and cultural-historical heritage

In recent years, research into local place development has given more and more space to the cultural dimension and to reflection on the identity of places. The competition between places to tap into and hold onto trans-local flows of human and financial capital has revealed the importance of the activities of identity building and exploitation of the specific cultural characteristics of regions, aimed at structuring their attractiveness. It is no coincidence that reflection on place branding is increasingly focused on themes linked to the dimension of identity and the local cultural heritage (1).

In Italy, given the importance of the cultural legacy, reflection on the renewal of identity stimulated by internationalization inevitably ends up coinciding with the question of the utilization of the tangible and intangible historical heritage. Viewed in the past as an immutable deposit, in need of “preservation”, this legacy of the past is now seen in terms of its dynamic and creative relations with the present – with regard not just to the tourist industry, but also to the cultural, creative and communication industries.

3. Milan: a city “with no past”?

Milan is the main financial centre of Italy, as well as one of the global capitals of fashion and industrial design. According to some international indices (2), in 2013 it was the Italian city that received the most visitors, ranking number twelve in the world. It is also the Italian city that has been competing on the international scene for the longest time, and the one that appears most often and in the highest positions on lists of world cities (3).

Milan is also, among big Italian cities, one of the most “historic”. At the time Mediolanum was made the capital of the Western Roman Empire (3rd century AD), Venice had not yet been founded, while Florence and Turin were obscure villages. Since that time, the city has never lost its leading position, while Rome and Naples, although founded earlier, have gone through periods of stagnation and marginalization.

In the collective imagination, however, Milan is seen as a city “with no history”, a city that looks to the future, entirely focused on grasping opportunities for progress (fig. 1). In part, the “problem” that Milan has with its history is a consequence of the “division of labour” between the Italian cities that emerged in the late 19th century, when Milan carved out for itself the role of centre of the national banking system and then of Italian industry, while other cities were reserved the function of

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historical and cultural capitals and symbols of the country’s identity.

Yet the effects of the fragmentation of the cultural system responsible for the promotion of its historical and cultural heritage should not be underestimated. With eight universities, Milan is one of the country’s most important centres of higher education. The mutual independence of the educational institutions has fostered a compartmentalization that has hindered the creation of an academic tradition of urban studies. On the one hand, town planning is taught almost exclusively at the Politecnico, where they have developed separately from the historical and social sciences. On the other, regional and transportation economics research is rooted in the Bocconi University, a university which is devoted to the economic sciences, without any direct link with the social, historical and liberal studies cultivated at other centres (the Universities of Milan and Milan-Bicocca, the Catholic University, the University of Pavia). An important branch of research into city’s history, the one focusing on archaeology and the town planning of the Roman era, has been carried out from the outset in public institutions outside the academic world – from the Sovrintendenza alle Antichità (the government’s department of antiquities), founded in 1909, to the Civico Museo Archeologico.

In addition, academic and professional research has to deal with competition from another challenger: the “memory” of the city put together by amateurs, a world in which we find both a well-established and lively production of publications with a “nostalgic” tone (Milan as It Was; Vanished Milan) and an active range of neighbourhood associations (located chiefly in the outlying districts) that appear to be almost completely devoid of ties with official cultural institutions. The emergence of some online forums for the expertise developed in the world of enthusiasts has helped to revive interest in the urbanistic history of the city and draw attention to the tardiness with which the academic world and the publishing industry are responding to the demand for historical accounts that is coming from the non-specialist public. But this has also accentuated its decentralized and often redundant character and its detachment from professional research, which still performs an indispensable function of organization of knowledge.

This fragmentation of actions and lines of research has not been able to find a counterbalance in the function of leadership of the public authorities. The withdrawal of local governments from the field of urban cultural policies, something that has occurred throughout Western Europe since the 1990s, has been particularly marked in Milan. In the 1950s, an exhibition like Lombard Art from the Visconti to the Sforza (1958) had helped to establish the idea of a specific “Lombard” artistic tradition in the years of the establishment of the regional governments. In the 1980s, the rediscovery of Roman Milan promoted by the Socialist-run municipal government around the centenary of its elevation to imperial capital (1986) and culminating in the exhibition on the theme in 1990, had accompanied the city’s rise as the centre of the new post-industrial economy and the entry

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4 Urban sociology research on Milan seems to have declined since the years of the economic boom. Among the works to have been published after the 1980s, we can mention J. Foot, Milan Since the Miracle: City, Culture and Identity, Oxford, 2001; V.E. Parsi, C.M. Tacchi (eds.), Quartro Oggiaro, Bovisa, Dergano: Prospettive di riqualificazione della periferia di Milano, Milan, 2001; F. Zaiczky, S. Mognano, B. Borlini, F. Memo, Milano Quarti periferici tra inerzia e trasformazioni, Milano, 2005.


7 Among these platforms of discussion a central role has been assumed in recent years by several spaces devoted to Milan at www.skyscrapercity.com. It is also worth mentioning: www.facebook.com/Milano-sparita-e-da-ricordare-103751976338499; vecchiamilano.wordpress.com; and in the world’s most popular blogs: blogurbanfile.org; www.navavigli24.it.


Fig. 1 – Milan in its two opposite representations: the “old Milan” of traditional publications and the skyline with the new skyscrapers that has come to dominate the advertising and communications industries since 2014.

Fig. 1a – Corso Vittorio Emanuele, 1926.

Fig. 1b – Milan’s new skyline.
of Italy into the G7 group. After the crisis of 1992, the capacity and will of public governance to be active in the field of culture and identity seem to have been exhausted.

The limitations stemming from the fragmentation of the system responsible for research into the urban heritage and its conservation and promotion have become evident in the substantial absence of initiatives in the months prior to the beginning of Expo 2015 and while it was underway. Dominated by the central theme of the event (food and nutrition), the exhibitions staged in Milan over the two years from 2014 to 2015 have kept away from any attempt to respond to questions about the “identity” of the city and its historical heritage that might come from visitors and as a result of the kind of exposure in the international media that the city has not received for a long time. The only exhibitions on themes of urban history, very unambitious in their scale and in the subjects chosen (the experiment of staging the participatory “social exhibition” linked to La Nebbiosa; I 50 anni della rossa, devoted to the anniversary of the construction of Linea 1 of the Metro, put on briefly in 2014; and Leonardo e l’acqua the following summer), do not appear comparable in any way to the initiatives that had accompanied similar events in the past.

A broad public debate on the subject of the city’s system of canals, with its historical significance and implications for Milan’s identity, did not even emerge around the plan, later abandoned, to construct a “waterway” between theNaviglio and the grounds of the Expo. Linked to a long tradition of technical water management, which is still kept up today at the Polytechnic and in the offices of the local government, the theme had sparked off a lively discussion at the end of the 1980s on the reopening of theNaviglio interno that still divides the community of architects and town-planners (10). The renewal of the Darsena (fig. 2), the old city’s harbour closed in the 1970s, only partly covers up the incapacity of the local government (independently of its political colour) to resolve the question with a final decision able to win the support of public opinion.

Nonetheless, in recent years clear signals of a growing interest in taking advantage of the urban heritage have come from several regional marketing projects linked to the private sector. Internationally recognized as the capital of design, Milan has been staging the Salone del Mobile, the main international exhibition in the sector, since 1961. The extension of the fair into other spaces in the city (the “Fuorisalone”), in a spontaneous manner in the 1980s and in a more structured form since 1990, has led to the creation of exhibition districts that have contributed to the revival of several parts of the city, exploiting for the first time aspects of the historical heritage and local identity. The most celebrated case is “Ventura Lambrate”, set up in 2010 as part of the project of redevelopment of the former industrial district of Lambrate, on the north-eastern outskirts. The reutilization of abandoned industrial spaces, combined with the decision to handle the event in a curatorial fashion, has generated a format that has been exported to London, to Berlin and to Belgium, on the occasion of the Biennale Inferier in Kortrijk.

Connected with the Fuorisalone is the 5 Vie project, launched in 2014 by a group of property owners in the western section of the historic centre, an area that, while it houses the financial district, also has a high concentration of museums, churches, cloisters, archaeological sites and secluded courtyards. In this case the objective of the rediscovery of the historical heritage is to promote the cultural wealth of a part of the city left on the margins of the main tourist routes. In contrast to the “modernist” tradition of Milanese architecture, over the last few years the aim of deriving an added value from history has begun to have an impact on operations of real-estate development as well. The best-known case is the scheme of urban renewal known as Porta Nuova, which has given back to the city its former “business district”, an area close to the Stazione Centrale. Developed between 2007 and 2014 by Hines Italia, it has in several ways (not least, the choice of name) incorporated the objective of exploiting the area’s past (11).

11 L. Molinari, K. Russell Catella (eds.), Milano Porta Nuova. L’Italia si alza / Italy rises, Milan, 2015. Other recent interventions that based their sales campaigns on the historical character of buildings are the “Contrada Torre de’ Mortiggi” and several operations conducted by the Banca Popolare di Sondrio. Images from the advertising campaigns can be found in the archives of the Urban Genoma Milano project.
Fig. 2 – Milan’s Darsena, the historical harbour of the city, was closed in the 1970s and reopened in 2015.

Fig. 1b – Milan’s Darsena in a 1832 map.

Fig. 2b – Milan’s Darsena in 2015.
4. The Urban Genoma Milano project

The fact that the people traditionally responsible for historical and urbanistic research and conservation are being joined by new actors, only serves to accentuate, however, the difficulty of integrating the historical narratives that focus on the urban landscape in a representation of the city’s heritage. A representation that can be shared not just by the communities in which it is shaped, but also by the whole range of public and private operators potentially interested in making use of it.

The idea behind the Urban Genoma Milano (UGM) project is that the new technologies of digital communication on a geographical-cartographic basis can provide a means of integration capable of dealing with the rifts that run through the Milanese cultural system and represent an opportunity to rediscover the rich historical heritage laid down in the urban territory and come up with new and more accessible ways of making use of it. A project of public history whose prime objective is to “unearth” the past and turn it into information easily accessible by anyone (from inside or outside the city, for economic, civil or merely cultural purposes). But one that also has the aim of placing this shared (“public”) knowledge at the service of the process of redefinition and transmission of a plural community identity, and of providing public and private actors with new resources to boost the recognisability and appeal of the city to outsiders.

The core of the UGM project is the Milan HGIS, a database set up to gather information on the layers of material and immaterial history present in the Milanese urban territory and to put it on display through the production of computer-based cartography and interactive data. “Historical GIS”, or HGIS, is a tool developed over the last two decades through the application of Geographic Information Systems (GIS) to the georeferenced storage of historical data, i.e. to their organization within a vector space and representation as a digital map.

In the Milanese area, the projects for the application of digital mapping to history have up to now had the objective of making databases derived from censuses or land registers, in collaboration with the archival system, or collections of original historical maps, accessible online where they will in fact be used by professional researchers (12). Even in countries where the application of tools of digital geovisualization to the communication of history is more advanced, projects in support of professional research still appear to be the most common. However, a number of attempts at utilizing the technique in public history projects (as in some North American examples) (13) or for applications in support of the tourist industry (14) suggest that the potential for uses of the historical past has yet to be fully exploited.

The intuition on which the project is based is that the HGIS methodology, especially when associated with the internet (web-GIS) is particularly well-suited to revealing “the past in the present” and turning it into something that can be experienced and used. Conceived in territories relatively poor in historical and monumental deposits, in which making the most of the residues of the past in the contemporary context appears an obvious choice, this approach can show as yet unrealized potentialities if applied to places particularly laden with history like the urban centres of Italy. The case of Milan, a city that is deeply “historical” but even more deeply “contemporary”, seems especially

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12 As examples of projects of this type we can cite: the “Atlante dei Catasti storici e delle carte topografiche della Lombardia” (formerly “Atlante Storico della Lombardia”) (atlante.partnertecnologico.it), born out of a collaboration between Milan Polytechnic and the Fondazione Cariplo; the municipality of Milan’s collection of historical maps (www.comune.Milan.it/sit2006/sit2006/it/home/homesit.asp); the “Repertorio di Milano” project (repertoriodi-milano.wordpress.com); and the more recent “Milano e le sue associazioni”, carried out by the Dipartimento di Storia dell’economia, della società e di Scienze del territorio Mario Romani of the Catholic University of Milan and the Servizio Archivio e Beni culturali of the ASP Golgi-Redaelli (milanoassociazioni.unicatt.it/94).

13 For an interesting example of a HGIS-based public history project, see the “Montréal L’Avenir du Passé” (MAP, www.mun.ca/mapm).

14 For experiments with HGIS-based tourist apps, see virtualcitiesdigitalhistories.web.unc.edu; www.walkingthroughtime.co.uk.
The idea is that on the one hand it is possible to represent in new and more easily comprehensible and useful ways a tangible and intangible historico-cultural heritage that, while “preserved” in the present, is becoming less and less accessible. On the other, that even in a space with as rich a monumental legacy as the Italian one, the time has come to re-evaluate “dispersed” historical values, overshadowed by a historical, artistic and tourist tradition that still tends to emphasize the great monuments. From this perspective too, Milan (the most modern and “American” of Italian cities) looks like an ideal proving ground.\(^{(15)}\)

5. The Milan web-HGIS: a “place” for many narratives

Technically speaking, the Milan HGIS will be presented as a web-GIS: i.e. through an interactive web interface that the general public will find easy to use and is designed to be accessible in both Italian and English. Its primary aim is to bring together and systematize the many “stories” or historical “narratives” relating to Milan’s urban territory, offering new opportunities of dissemination and popularization of this partly forgotten or hidden heritage through a “re-publication” capable of exploiting the experiential dimension linked to the reference to the space in which its users are moving and living.

The first nucleus of the Milan HGIS is made up of a database (fig. 3) constructed at the Department of Geography of Texas State University in San Marcos by three Italian researchers (Alberto Giordano, Rocco Ronza and Michele Tucci) and containing historical data on the road system and toponyms of the area of the city located inside the Spanish Walls. The database can be queried by individual street name or by different historical layers, defined on the basis of a periodization that takes account of the great seams in the urbanistic and political history of the city.\(^{(16)}\)

This first experiment, carried out within the framework of the Historical Geography Network of the Social Science History Association (SSHA), has made it possible to demonstrate, in the case of Milan, the potential of HGIS in integrating data coming from different disciplinary areas and in giving a new vitality to “classical” historiographical narrations through a novel and immediate form of communication. The perspective introduced through the use of HGIS shows clearly how the results of the grand project of renaming the streets of the historic city put into effect between 1860 and the First World War\(^{(17)}\) still constitute today, along with the mediæval layer and the palimpsest of Roman streets, an interesting move in this direction, see S. Aleni, V. Redaelli, Storie industriali. Passato e presente del sud est di Milano, Milan, 2010.

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**Fig. 3** – The Tucci-Ronza-Giordano database can be queried by street name or by different historical layers, defined on the basis of a periodization based on the urbanistic and political history of the city.
the dominant symbolic structure in the historic centre of Milan – a structure that lends itself to uses not yet properly exploited by the cultural, tourist and communication industries.

The new project takes up the thread from the point where it had been left in that first experience, moving in several well-defined directions. In the first place, the new HGIS sets out to broaden the scope of spatial application of the georeferenced database to the whole of the urban territory. If the application of HGIS methodology to the historic centre has made it possible to disentangle the mesh of identities and “pasts” that would otherwise have been hard to read, in the vast peripheries of Milan it will serve to bring back to the surface hidden residues and signs left by a past that sometimes stretches back to the mediaeval or even pre-Roman era, mixed up with the more recent traces of urban and industrial expansion, linking them together in a unitary and easily visualized picture – with the result of “creating” heritage even in areas of the city considered to be “without history”.

Subsequently, the objective will be to “re-publish” the results and the narratives produced by already existing currents of urban history in a new form. This will favour, on the one hand, the reappropriation of this historical memory by the general public, and on the other the dialogue, even in planning circles, between the different approaches. Through collaboration and an exchange of ideas with the holders of information (institutions, individual researchers, associations), the system will also serve to stimulate the conduct of original professional research on dimensions of urban history that have not yet been studied.

The main lines of development are three. Firstly, the aim will be to detect and make visible the “horizontal” traces left in the contemporary urban fabric by the major works of infrastructure that have shaped Milanese urban space over the centuries: the toponymic fabric (fig. 4), the system of waterways (fig. 5), the three rings of city walls (fig. 6) and the railway’s one, the evolution of administrative and parish boundaries (fig. 7) and that of the facilities for industrial production.

A second project will have the goal of taking a census of the historical and “typological” characteristics of the entire building stock of the contemporary city (fig. 8). A third project, which will be organized with the involvement of academic and amateur experts on local history, neighbourhood associations and local schools, will aim to collect other types of “micro-historic” narrative (personal and family histories, old pictures, literary and cinematic accounts, folk songs) that can be associated with points (buildings, areas or stretches of street) in the urban fabric (fig. 9).

The material collected and stored up in this way will then be made available in a manner already oriented towards its use on the part of the media, the creative industries and private and public operators, in three different modes. In the first, the cityscape will be read like a tapestry. The individual “threads”, hard to pick out, will be isolated and represented in their spatial arrangement, producing layers corresponding to different themes of specialist interest (from the system of “cascine” to that of historic churches), offering a more effective means of communication to the many “narrations” of the urban heritage that are organized today as “itineraries” (fig. 10).

In the second mode of use, each location and each point in urban space and on the maps will be represented in the history (or histories) for which it has been on the stage, an expression of “what happened there” in a succession of narrations (the history of a building; excerpts from novels referring to a place; photographs of a monument in different periods...) that can constitute a sort of journey through time starting from a physical or virtual point in the space of the city (fig. 11).

A third mode will focus on single portions of the urban territory, offering a new approach to the problem of differentiating the identity of districts, seen as alternative articulations of the city’s space and defined by combinations of “threads” and “unique” histories (fig. 12). In this case, the production of knowledge and its communication will be able to contribute to operations with different objectives: from the exploitation of local identities for the purposes of promoting tourism to supporting neighbourhood associations or attracting creative industries (film commissions) and from flows of real-estate investment to administrative zoning.
Fig. 4 – After 1859, the new liberal élite inscribes a new toponymic regime into the cityscape. Pre-existing and new streets are named or renamed after the leaders of the Risorgimento, Independence Wars battlefields, major Italian cities or Medieval Italian artists. The Risorgimento toponymic layer coexists in the central districts of today’s Milan with surviving Medieval street names. Map taken from M. Tucci, R. Ronza, A. Giordano, Fragments from Many Pasts. Layering the Toponymic Tapestry of Milan, “Journal of Cultural Geography”, 2011, p. 380.
Fig. 5 – The canals and the Seveso river before they were covered between 1929-1960. The historic canal network makes sense of today’s floodings.

Fig. 5a – Northern Milan in the Carta idrografica di Milano, 1884. Civica Raccolta delle Stampe Achille Bertarelli.

Fig. 5b – The flooded area in the northern districts of Milan, July 2014. Map from www.nanopress.it (retrieved on December 2015).
Fig. 6 – The three rings of Milan’s city walls, almost completely demolished, are deeply inscribed in the streetscape.

Fig. 6a - Milan’s three wall rings (M. Tucci).

Fig. 6b - The “Ansperto Tower”, part of the Imperial Roman wall ring.

Fig. 6c - The Medieval Porta Ticinese, at the crossroad between Via De Amicis, Corso di Porta Ticinese, Via Molino delle Armi.

Fig. 6d - The Neo-classic Porta Ticinese, Piazza XIV Maggio.
Fig. 7 – A better awareness of the history of administrative and parish boundaries could contribute to the elusive search for Milan’s historical neighbourhoods ("quartieri").

Fig. 7a - The expansion of the city's administrative boundaries.
Map taken from É. Dalmasso, Milano capitale economica d'Italia, Milan, 1972, p. 568.

Fig. 7b - The administrative zoning of Milan before and after the 1998 reform.
Fig. 8 – The “Italian school of typological analysis” (S. Muratori and G. Caniggia) inspired Canadian research projects on urban history and could provide a theoretical frame for an historical census of the existing building stock in Milan.

Fig. 9 – The stories associated with places can provide material for cultural and creative industries such as publishing, filmmaking, advertising, as well as performing and visual arts.

Fig. 9a – The shooting of a scene of Luchino Visconti’s “Rocco e suoi fratelli”, 1960.

Fig. 9c – Tipografia Pettinaroli via Tommaso Marino, 1950s.

Fig. 9b – The looting of Bakery of crutches, episode from The Betrothed, by Alessandro Manzoni. Illustration by Francesco Gonin, 1840 edition.

Fig. 9d – Luca Gandolfi, “Il dragone”, 2012.

Fig. 9d – Giorgio Scerbanenco, “I ragazzi del massacro”, 1968.
Fig. 10 – The increasing popular tourist’s itineraries through Milan’s cityscape could be also represented as part of multiple layers of the cultural heritage of the city.

Fig. 10a – An archaeological tour on foot proposed by the Comune di Milano in 2010.

Fig. 10b – An itinerary by the Ordine degli Architetti, Pianificatori, Paesaggisti e Conservatori della Provincia di Milano discloses the places of Carlo Castellaneta’s novels.
Fig. 11 – The idea of a journey through time inspires the comparison of pictures taken from the same spot in the amateur local history. It can also be used to provide a meaningful context to surviving historical buildings.

Fig. 11a – Via Pontaccio seen from Via Fatebenefratelli. 

Fig. 11b – The Cascina Cuccagna farmstead, dating back to the 17th century, and the street it overlooks (Via Muratori) survive in the midst of an area urbanized as a result of the Berruto master plan of 1884.
Fig. 12 – The HGIS methodology can help solve the problem of identifying the historical boundaries and the “spirit” of urban districts and contribute to operations of local identity building and place branding.

Fig. 12a-b – The Neo-classical Porta Nuova and the new skyscrapers (left) and the former railside warehouse which hosts the Fondazione Riccardo Catella (below) in the Isola/Porta Nuova district.

Fig. 12c – The Ventura Lambrate project has done much to regenerate the industrial heritage of the Lambrate district.

Fig. 12d – The 5 Vie project in the historical center.