MilanoAttraverso.
Telling the Story of Social Inclusion of Milan Through Digitised Archives Linked to Historical Cartography

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Abstract. In the last two decades, Milan has undergone profound transformations from both an urban and social perspective. The online project *MilanoAttraverso*, promoted by ASP Golgi Redaelli and by a network of local private and public archives and institutions, wants to give back to the community the history of Milan as the centre of a network of solidarity and social inclusion, from National Unity to today. The knowledgebase open to citizenship includes the digitised and curated primary archival and documentary sources displayed and presented according to three structural organisation criteria: the narrative paths and stories, the protagonists – people, institutions and communities, and the historical cartographies were documents – texts, images, multimedia, maps and objects – are geo-based and contextualised according to space and time criteria. The paper presents and critically discusses the case study and, in particular, the three modes of navigation/experience – logical, narrative and visual – offered as an access point to users.

Keywords: Geo-based narrative · Storytelling design in the field of Cultural Heritage · Digitized archives · User experience design

1 Introduction: *Milan l'è un gran Milan*

Milano is known for being the "European capital" of Italy: a dynamic, contemporary metropolis looked at like an attractive place for innovations, talents, rich of opportunities and leading in different sectors, among those, finance, design and fashion.

In the last two decades, many important areas have been progressively changing thanks to urban planning and economic dynamics [1]. Zona *Garibaldi-Isola*, with the new skyscrapers district, has become one of the most hipster and innovative places. The transformation of some dismissed industries has created new cultural poles, and university campuses – i.d. Politecnico-Bovisa, Pirelli-Bicocca [2] – the old Fiera (ex Expo area) is now *CityLife*, a rich and modern residential suburb, and Prada with the Fondazione is writing a new chapter in a peripheral railway transit and cargo hub [3]. Some other places are emerging, more spontaneously and according to a bottom-up process, as interesting nodes with their own personality: *Porta Venezia District*, the LGTB + friendly zone, Via Tortona and then Ventura-Lambrate "invaded" by the *FuoriSalone*, or *NoLo* (North of

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Loreto) with its ethnicity melting-pot, to mention few. As stated in a recent publication, these enclaves "quite apart from the rhetoric that would have the suburbs as the most degraded place or as the territory that has been reconciled and recomposed thanks to the action of its inhabitants, I think it is interesting to see in these places a potential expressed in terms of generating new citizenship and local welfare. [Neighbourhoods that also become] places for experimenting new practices of coexistence between different people, for example in intergenerational and intercultural terms." [4]. Besides, it is also famous for attractive events such as the *Milano Design Week* (*Salone Internazionale del Mobile*), the Universal Expo held in 2015 – the place is now to become the new campus of Milan State University and a research center – and the Olympics Winter Games planned in 2026. all of them have deeply internationalised the city and transformed it into a plausible touristic destination.

On the one hand, the massive and progressive evolution has (had) a massive impact on the social structure. The urban transformation has pushed many citizens and small businesses away from their original locations due to renovations or the unaffordable increase in rental prices and property costs. Furthermore, as almost every place attractive for city-users and (mass)tourism, Milano is suffering from gentrification [5]. The phenomena according to the territories are shaped more by the needs of temporary visitors rather than by inhabitants themselves. On the other hand, the working and studying opportunities [6] offered continued to attract the population to the metropolis since the 1950s. Milano has welcomed immigrants from peripheral areas and the south of Italy.

In the last 30 years, the trend has concerned new European citizens, largely from Eastern Europe and the Balkan Peninsula since the 1990s, and migrants from outside the EU geographical boundaries, from developing countries or the so-called Third World. The successive waves of migration are a continuous process that fluctuates between the two extremes of the spectrum, which means marginalisation and integration. The city and the vast urban area (Città Metropolitana) has been an osmotic space in which the phenomenon of urbanisation and migration has given rise to divergent dynamics. Milan has demonstrated an excellent capacity for welcoming and offering better living conditions for many new inhabitants, but it has also meant exclusion, marginalisation and the formation of enclaves where the poor mixing of historical residents and newcomers, tradition and new cultures has created friction in social terms. A contradiction that has often found a deep mismatch between reality and its representation in political propaganda. Flattened by a debate that risks reducing it to a distorted image of contemporaneity that gives a partial view of the complexity and sedimentation that makes it, on the contrary, so articulated and different from other Italian cities crystallised in their historical and artistic past.

Nevertheless, the evolution of Milano is short and *long* at the same time. The metropolitan area – the original settlement was established around 600 BC and conquered by Romans in 222 BC, who named it *Mediolanum* – has been limited to the inner ring road, defined by the *Spanish Walls* (dating back 1550) for centuries [7]. It's only in 1873, with the inclusion of external areas, nearby villages, farms, and small municipalities – the *Annessione dei Corpi Santi,* i.e. peripheral spaces outside the walls were

people, the *martyrs* in the early Christian era, where buries – that the city starts to expand outside the historical boundaries. The further transformation is fast and astonishing. Less than a century later, the city has reached the full expansion of the nowadays limits of the actual municipality (the metropolitan area includes other towns in a vast *continuum* of the conurbation and expands in many directions: see Fig. 1).

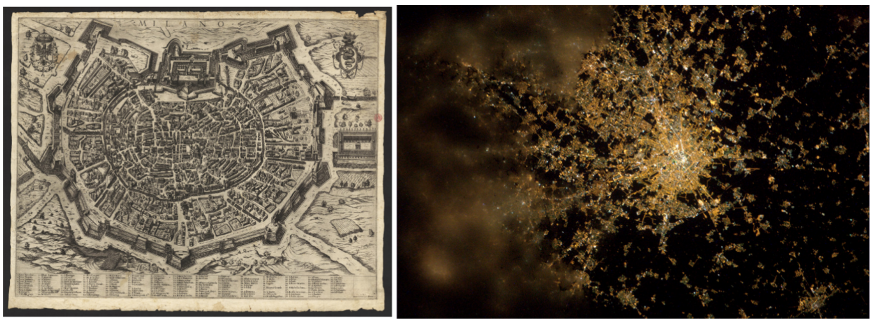

Fig. 1. Comparison between the map of Milano drawn by Mario Cartaro in 1581 (Source: Biblioteca Nacional de Portugal in Lisbon) and Milan by night photographed by astronaut Paolo Nespoli from the International Space Station (ISS) (Source: Flickr author profile). The original historical city-centre of the map on the left corresponds to the brightest centre of the image on the right.

At the same time, the presence of Italian internal migration phenomena [8] or the establishment of foreign communities is not as recent as believed by many. As reminded by Bigatti in the text *Milan and migrants from Unification to the present day*: "In the mid-19th century, Milan […] was a city of about 150,000 inhabitants. Of these, almost 10% were the so-called floating population, 'poor, uncouth, importunate, uncivilised people'. People who had a seasonal relationship with the city, often living in its immediate suburbs, until 1873 a separate municipality, sleeping in makeshift lodgings or in simple barns. […] In the decades following the Unification of Italy there were no significant changes in this respect. The town grew, changed, expanded and continued to attract people from outside. […] Between 1881 and 1911, a period marked by significant growth in the industrial fabric, the number of residents rose from 321,839 to 599,200. After the Great War, the population continued to grow. In 1921 the number of inhabitants exceeded 700,000, rising to over a million ten years later, thanks in part to the aggregation of eleven small municipalities in the metropolitan belt." [9] This is the period in which Milan becomes the industrial city that will make the suburbs grow and which, together with other northern centres, especially Turin, will become a pole of attraction after the Second World War. At the beginning of the 1960s, it was these flows that radically changed the way people moved around, both in terms of the scale of the phenomenon and the problems of integration and integration that it caused for urban structures and the labour market.

Peasant Italy was transformed into an industrial country and Milan – as sung by Gaber and Jannacci – began the process of tertiarisation that was to turn it into the "Milano da bere" [*Milan to drink*] of the 1980s. It is from this period that the immigration process

changes, and internal flows are joined by those from non-EU countries in successive waves that also characterise the contemporary city.

2 *MilanoAttraverso*: Telling the Story of Social and Urban Transformation

The project *MilanoAttraverso. People and places that transform the city* [10] established by the *Azienda di Servizi alla Persona "Golgi Redaelli"* under the direction of the dott. Bescapè, director of the *Servizio Archivio e Beni Culturali* [Archives and historical heritage service] and the supervision of dott.ssa Aiello, financially supported by Fondazione Cariplo and Fondazione AEM and shared by numerous Milanese institutions and cultural associations – here presented as a case study – intends to bring to the attention to a broad public the less known history of hospitality, inclusion and philanthropism of many individuals, public and private institutions thanks to documents and maps stored in different civic, private archives joining and sharing a partnership (https://www.milanoattraverso.it/soggetti-della-rete/). The project, which is part of the broader context of urban narrative, aims to bring together the real city with its representation – toxic or triumphalist – in order to create awareness of the complexity and richness of the debate on its territory and its social vocation, not only in urban and economic terms. The project also indirectly addresses the issue of the gap between the real and the perceived, which in the period 2018–19 – the same period in which the portal was conceived, developed and published online – has been exploited in Italian politics to steer and manipulate public opinion [11]. *MilanoAttraverso*, by approaching the topic from a historical point of view and perspective, inserts that physiological temporal detachment that allows for a more objective and documented focus on the topic and, at the same time, uses social tools of participation to bring citizens closer to a different storytelling of the phenomena.

The project "wants to give back to the community the history of Milan as the centre of a network of solidarity and social inclusion, from national unity to the present day. Since the nineteenth century, Milan has been able to invent innovative structures and tools to welcome people in search of better living conditions and to meet the social needs of the 'new Milanese'. MilanoAttraverso makes today's citizens aware of the richness of the past experiences of Milanese solidarity, which can also be interpreted as a starting point to read the present differently. [Besides] the network, made up of organisations with strong territorial roots, aims to bring to light the patterns of assistance and social inclusion that run through the history and face of Milan. The project will emerge through stories of encounters, of gratitude, but also of transformations and transitions. […] The project is guided by a dynamic and valuing research of sources and involves the public trying to activate processes of critical awareness. All the experiences are collected in the web platform, while the activation of dedicated social channels keeps the dialogue with the city open." [12].

The case study *MilanoAttraverso* has the peculiarity of narrating the contemporary and intercepting the possible future social and urban trends of the city of Milan through its history and its past topology. Based on a solid network of archives already operating on the territory, on the availability of widespread editorial group and on an archival heritage already partially digitised and curated, the project creates common ground through an

interdisciplinary approach: historians – specialised on different topics e.d. photography – archivists, designers, developers, social media experts and people operating in the social and voluntary world with a strong connection with the territories have been involved in producing a shared vision collectively.

Besides, working with a network of public and private bodies has made it possible to exploit the potential offered by digital and hypertext notation [13]. In other words, the possibility of relocating and migrating chunks of information from their physical location, in this case, the document and archive, and clustering them according to "meaningful" criteria [14]. Moreover, the richness of the archives involved – containing not only textual documents such as correspondence, texts, but also paintings, photographs, historical cartographic images, relics, objects and multimedia content – offers a vast repertoire of narrative possibilities as proposed by Withelaw when mentioning the *generous* interfaces [15] approach to be applied in the field of digital heritage.

3 The Storytelling Matrix and the People Assessment

The initial research phase, aimed at delimiting the scope of research and mapping best practices in the field, outlined the state of the art and critically defined some significant patterns. In particular, the survey started by identifying and analysing a number of case studies in order to define, on the one hand, similar experiences and, on the other hand, possible suggestions and solutions [16].

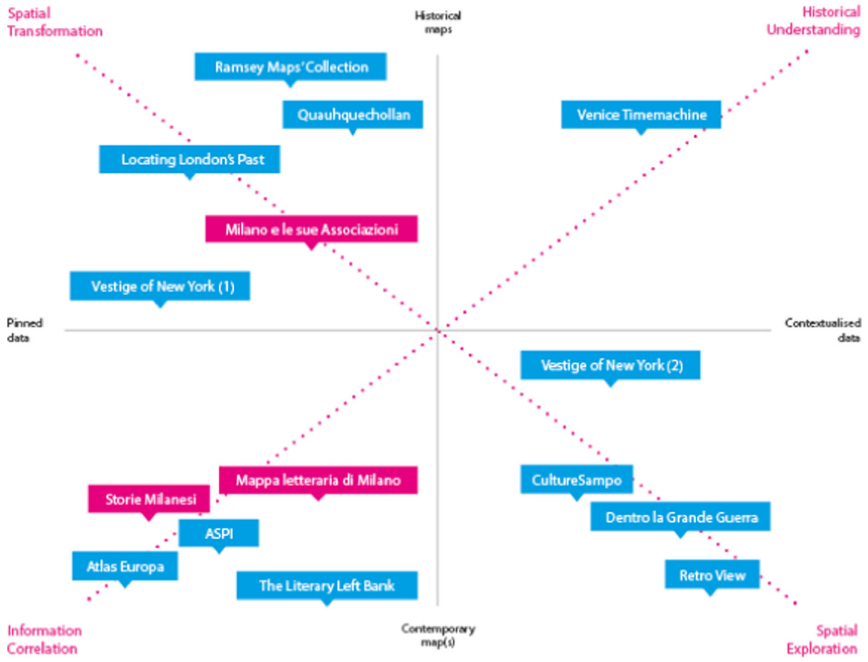

Fig. 2. Mapping case studies in the field: a possible taxonomy

The proposed taxonomy organises (see Fig. 2, above) the case studies along two axes which consider the two macro-criteria adopted in the project as differential. The first refers to the territory and the way of relating the data to their spatial location. On one extreme, the simple "pin" is understood as pure positioning; on the other, "contextualization", i.e. the ability to integrate the data – document, image, text, fragment – in relation to a conceptual, cultural and social location. The second axis, on the other hand, considers temporal aspects and their representation on contemporary cartographies (in fact Google Maps) or referred to the historical thresholds examined to which the information and documents refer. Crossing these two parameters along the diagonals outlines possible keys to interpretation which have been summarised in 4 key words/concepts under which some patterns identified from the research and case study analysis can be clustered. The latter outline possible applications and developments and as many interpretations of the evolution of urban and social transformation phenomena.

Furthermore, among the case studies taken into consideration, similar experiences already developed with reference to the Milan territory were investigated and, specifically, the *Literary Maps of Milan* (a), the *Milanese Stories* (b) and *Milan and its associations* (c).

The second phase research activities focused mainly on the information architecture [17] of the system that means "we arrange the parts of something to make it understandable" as stated by Abby Covert [18]. The aim was to make the contents accessible in both cultural and technical terms, as well from different perspectives to a wide public allowing people to find their personal paths to knowledge, addressing their needs, behaviors and motivations. The end result is a rich and articulated multi-path navigation allowing the contents to be approached from different sides.

In fact, hypertext structures are generally organised according to a hierarchical pattern that allows one to descend, from *global* to *local*, into the information until one reaches the last leave/node. The different levels use criteria – Location, Alphabet, Time, Category and Hierarchy – as described by Wurmann [19] to cluster homogeneous contents. The experience offered is *logic*: the structure progressively leads the user following a rational and vertical process that leads from an *overview* – Protagonists, i.e. i) People; ii) Institutions; iii) Communities – to *detail:* the card of every document listed in the knowledge-base, although stored elsewhere. Each *leaf* proposes and opens up new explorations thanks to an associative system – the contextual navigation – which supports learner orientation in the digital environment and nudge people to jump around [20]. In addition to this possibility, readers are introduced to the themes of *MilanoAttraverso* thanks to a series of thematic essays edited by historians who deal with evolution of the city in a *narrative* way. For instance, the path about *Migrants. Milan and migrants from the Unification to today* [9] brings the user into the stories of people and their experience in Milano: *The 'circulating libraries' for Italian emigrants*, *Residential course on emigration*, *Michele Fortunato's 'eagerness'* or *A house for the Trentino people* are just some of the narratives that translate the official history into individual stories, bringing out the social, human and emotional component (Fig. 3).

Finally, the system uses historical cartographies to show visually and diachronically co-presences, phenomena and transformations. The selected maps cover the time span from 1856 to the present day (Google Maps) in 8 historical thresholds (1856, 1884,



Fig. 3. Historical images illustrating the card *Milan and Caporetto*

1906, 1928, 1943, 1965, 2000 and 2021). Each map represents, among the possible and available ones, a significant transitional moment in the transformation of the city and its social corpus (see Fig. 4). The possibility of superimposing them and displaying them transparently, one on top of the other, makes the morphological changes in the urban fabric visible and comparable. Besides, the maps also become an opportunity to "interrogate" the knowledgebase by correlating documents and cards to the space in which they are historically constituted. The filters – categories of institutions, types of documents, tags referring to urban areas and clusters, and historical-cartographic thresholds – help users, including experts, to relate the contents to the space that temporally generated them [21].

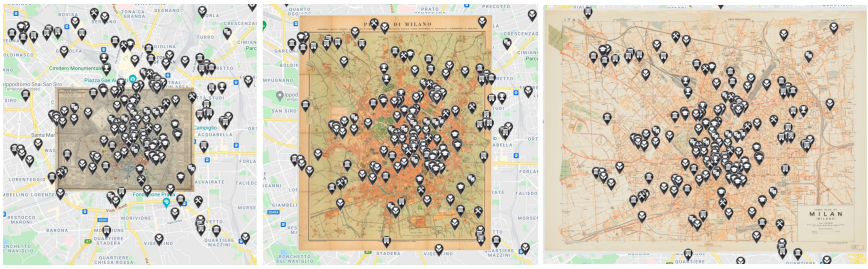

Fig. 4. Viewing maps from 1865 (a), 1906 (b) and 1928 (c) respectively, in which the rapid expansion of the city beyond the Spanish Walls is always very evident.

The three navigation systems identified, tested and implemented represent as many communication possibilities. The three approaches, *logical, narrative* and *visual* [22, 23], offer different types of users and users with different "needs" to access and interact with the stories and documents in specific ways, as well as the consultation strategies and experiences are modelled on different criteria: *association, exploration* and *filtering*, shaped by the different types of contents (Table 1).

Among the many aspects considered within the project, a few issues, in particular, emerged as priorities, both from a conceptual point of view as well as the users' experience.

The main topics addressed by the research have been:

Table 1. The Information Architecture/storytelling/experience matrix

Navigation	Content (typology)	Experience modalities
Logic	Protagonists: People, Institutions, Communities	Association
Narrative	Paths and Narratives	Exploration
Visual	Historical cartography and Google Maps	Filtering

- The active engagement on a cognitive as well on a more emotional level of a broader public to activate processes of critical awareness and participated citizenship
- Create a common platform for a distributed editorial staff to present, curate and connect the primary sources stored in the archives of the subjects joining the network
- Valorise and make documents open and accessible also to a public with no specific knowledge in the field
- Telling the history of the Milan territory, people and communities from the XIX century to the contemporaneity
- Connect documents with the historical cartography to better represent the urban evolution and transformation thanks to historical primary sources.

Therefore, the project is situated in terms of methodological approach in the area of practice-driven research in the field of design [24] and digital-humanities and approaches the experience from the point of view of human-centred design.

Among the possible methods [16], three different approaches in the field of qualitative/user research [25] were chosen, taking into account on the one hand the needs of the stakeholders and on the other hand those of the end users. This was done in a participatory manner [26]. A first exploratory phase involved domain experts - historians, archivists, editors, curators etc. – in an expert-walk through and evaluation of existing case studies identified among those analysed in the initial phase.

In the design phase, it was decided to co-design part of the solutions – especially the visualisation of documents on historical maps – together with the stakeholders, facilitating collaboration through paper prototyping [27], as presented in Fig. 5. A low-tech approach, where technology is often perceived as a barrier, brought out the implicit skills and knowledge of the experts – historians, curators and archivists, mainly – and transferred them into interactions and interfaces in a first prototype (see Fig. 6), which was then tested with users [28].

According to the Human-centered approach adopted in the project, after the co-design activities, a first working prototype was produced to be used both to validate the hypotheses made on the information architecture of the entire system, in its three navigation possibilities – logic, narrative, visual – and to verify the critical points and the overall experience with the stakeholder and end-users [29].

A sample of research participants has been selected to reflect the possible user-personas of the project: people age 18–54 among scholars, archivists, historians, fine art and art history students, architects and professionals in the field of the third sector, Ong, and social workers and volunteers. Internal stakeholders, such as the editors who are

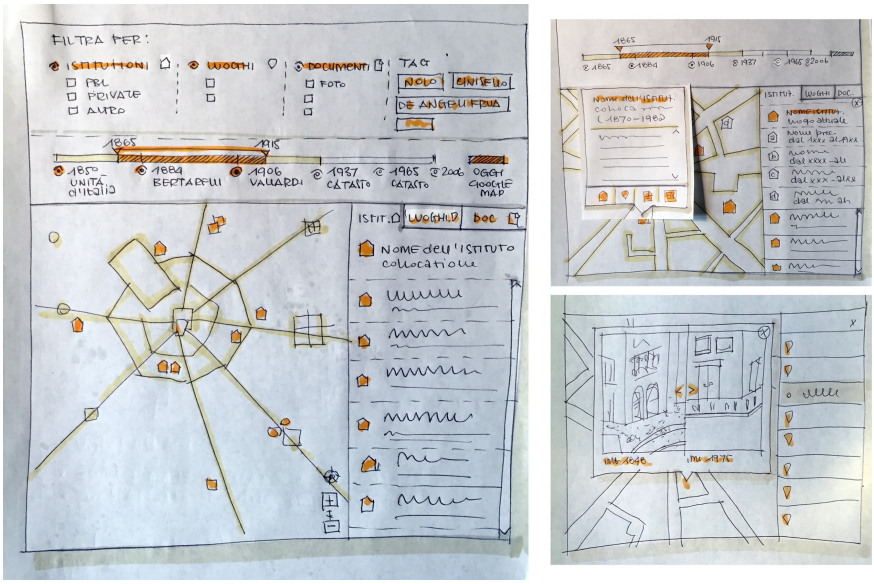

Fig. 5. Paper prototyping in co-design activities

part of the project consortium, as well as external people from heterogeneous audiences were involved in the evaluation sessions (for a discussion of this experimental phase and the results, see the article presented at EARTH 2018 [10]). The 24 participants were divided in two groups and asked to navigate the portal using two different approaches: a) the narrative/textual and the logic/hierarchical navigation and b) the visual one, namely the maps.

Four tasks have been proposed and verified: 1) access the historical evolution of an institution; 2) find the extended card about a person relating he/she to the institution; 3) contextualize and link both the information to time and space thanks to the historical cartography; 4) cluster group of institutions or document typologies according to common criteria in a specific time span to be compared with the current urban morphology.

The definition of "usability" established by the ISO 9241–11 (1998) has been adopted as evaluation criteria, to define, assess and qualify/quantify the overall experience. In particular, a) *efficiency* has been parameterised in terms of execution time, i.e. time taken to perform the given task; b) *efficacy* as the ability to complete a task and/or the number of errors made in doing so; c) *satisfaction*, investigated through a final narrative interview, as a qualitative feed-back on the overall experience. The results of the user tests were according to 3 further criteria: 1) the frequency with which certain problems or errors occurred in the performance of the tasks; 2) the types of problems and errors were then clustered according to Norman's interaction principles [30], i.e. a) visibility b) feedback c) constraints d) mapping e) consistency f) affordance; and finally 3) the type of intervention is prioritised in relation to the test results i.e. a) blocking, b) important, c) improvement.

As a spin-off of the verification and evaluation activity, a second iterative design cycle was conducted to develop the beta version of the system. In the second version, in particular, the filter system in the visual navigation mode was redefined both in terms of functionality and the terminology used to define concepts and categories (Figs. 7 and 8).



Fig. 6. First pilot version tested with users



Fig. 7. Detail of the map filtering system: among possible criteria: Institutions, Type of historical-archival documents, Cartographic time thresholds and Tags

A final workshop was conducted together with all representatives of the archives that are part of the project network and consortium. In particular, the people who would later use the system to insert, integrate, edit and publish the contents – mainly document cards and cartographic location – on the website were involved. This last participatory activity, before the online publication and official launch of the project, served as a final check with the stakeholders and to align the members of the widespread editorial staff who, with their work and contribution, determine the real success of the project.

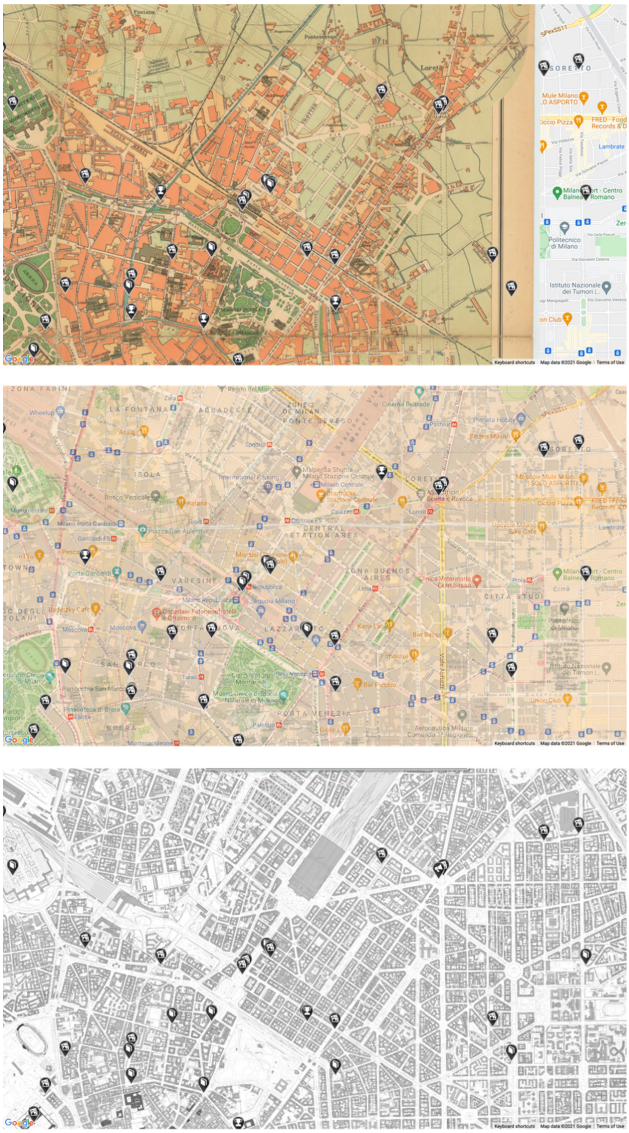

Fig. 8. The relocation of Milan's Central Station: Detail of overlapped maps thanks to the transparency effect. Top: the station built in 1864 in what is now Piazza della Repubblica shown on the 1906 map (the year of the International Expo of Sempione); In the middle: the current station (opened in 1931) on the 1928 Vallardi map, visible thanks to the transparency overlay effect aimed to compare maps; Bottom: the 2000 map.

4 Conclusions

The experience carried out on the case study *MilanoAttraverso*, follows a path undertaken to model the design of historical-archival-cultural heritage that introduces, in the process and as a driver of the project, the theme of storytelling [31] on the one hand and on the other the possibility to offer a rich and multimodal experience to users and it does it thanks to story-mapping. The metaphor of *generous* interfaces has been interpreted as the possibility of accessing data and the knowledge base from various touch points, choosing the most appropriate exploratory mode, both for the purpose and for the metal and experiential models of people. It has been further supported by the three-way access – logical, narrative, visual – offered to fulfil the user needs and expectations. Besides, the interdisciplinary combined approach of theory and practice-based research has been a way to frame the cultural and design hypothesis on the subject and then to assess them thank to the ideation, development, test and publication of the final version of the case study according to a modelling process that is both inductive and deductive and which, in tackling a real project, develops it concretely and formalises it, while making it replicable, at the same time.

Secondly, the network's potential to reconnect dispersed and dislocated fragments in a hypertextual manner was explored by creating a system of aggregation from entities, archives and institutions located throughout the Milan area. The approach has made it possible to bring together and connect heterogeneous and specific sources, giving a choral dimension to both the project and its contents: no longer vertical information on a single topic belonging to a specific collection or archive, but fragments in dialogue with others to recompose a complex, articulated and profound image of the city and its protagonists in space and time. In addition, the participatory experience of the editors and curators and their active involvement offered a common, fertile and inclusive ground for contaminating, integrating and *augmenting* the individual contributions in a choral and polyphonic narrative.

Thirdly, the decision to use not only geo-localisation but also historical cartography has made it possible to contextualise and narrate, also visually, the evolution of an area undergoing transformation, not only from an urban point of view but also, and above all, from a social one. The superimposition of the different historical thresholds, significant for the evolution of Milan, and the choice of corresponding and significant cartographies makes the of the transformation visible. The possibility of fading – the map's transparency/opacity effect – makes these visualisations easly comparable and highlights the changes in urban morphology.

Finally, among the possible developments of the project, a particularly promising one is the introduction of *user-generated contents* that will make the population of the city participate and be involved in a process of identity construction, not only from the historical perspective but also from bottom-up: a story not only written by the official protagonists, but also and above all, by the witnesses of the daily experience of transformation.

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