Article

Architectural and Urban Changes in a Residential Environment—Implications for Design Science

Renata Jóźwik

Faculty of Architecture, Warsaw University of Technology, 55 Koszykowa Street, 00-659 Warsaw, Poland; renata.jozwik@pw.edu.pl

Abstract: Current spatial changes involving broad urban landscapes affect people's perceptions of their surroundings, sense of place, and attachment to a place, constituting a disruption to these. As a result, on a social scale, they translate into people's well-being. The following study of the impact of large-scale architectural and urban developments on the place of residence is based on the assumption that physical space determines the quality of life in the living place and the changes in the process condition residents to adapt to their new surroundings—based on the three pillars of place, people, and process (3Ps). The article consists of two parts. The first is theoretical, which conceptualises spatial change based on the theory of human dependence on place. The second part–an empirical study—discusses the transformation of the post-industrial area of Bicocca (Milan), which, 40 years after the intervention, has led to conclusions and recommendations for urban planning. The results demonstrate the different sensitivities of the urban areas to the process of functional–spatial change, the essence of the accessibility of public space, public facilities, and transport infrastructure. The planning process can positively influence social adaptation to spatial change mitigation. Residential areas may be subject to additional protection procedures. The study is relevant to a sustainable planning process in the inevitable transformation of urban areas. The interdisciplinary nature of the issue prompts the integration of research findings and knowledge transfer in the socio-technological subsystem (STS).

Keywords: sustainability; sense of place; place attachment; place identity; urban transformation

1. Introduction

The relationship between human beings and the place is undeniable. Research on this topic has been developing for at least 40 years, oscillating around place identity and dependence [1–4] and the 'geography of urban quality of life', as well as the impact of place—urban space (location, locality and sense of place)—on people's quality of life (UQoL) [5–7]. The concept of quality of life is still evolving. Just after the war, it was mainly associated with materiality; at the beginning of the 21st century, it began to encompass integrated criteria, encompassing various factors—above all, the quality of the environment and the place of life [8,9]. The current preoccupation is related to the popularity of positive environmental psychology [7]. Knowledge about the sense of place and place attachment can serve architects and urban planners in better design, shaping places, and in decisions about their transformation, i.e., changes to the existing environment. The change is central to the human and environmental experience [10], and the increasing dynamism, scale, and scope of the impact of environmental change prompt a deeper understanding of it in the context of current civilisational and cultural conditions and development needs. The aspect of time and change has been present in the field of psychological, social, and cultural research for a relatively long time [11,12], but its importance seems to have been underestimated in shaping a sense of place and, especially, in contemporary architectural design. The functional and economic rationality of the investment usually dictates the pace of change. Von Wirth et al. point to the need for a more exhaustive reference of

change to theories of place attachment, particularly the impact of dynamic urban change on social feeling [13]. Also, the concept of the place itself is not fully recognised despite its importance in constructing urban identities [14–16]. Buttimer emphasises the importance of a sense of place and social space in planning residential areas [17]. Faka et al. note the lack of integrated and coherent research criteria for studies on the impact of place on quality of life. However, most evaluations have common frames. They focus on social and economic aspects of the city, the quality of the natural and built environment and housing, and services provided to citizens [9].

Changes in and around the human environment can result from various causes: mobility and relocation, natural disasters, wars, and other crises, but this research focuses on changes in the residential environment and its neighbourhood as a result of deliberate architectural and urban interventions. These are linked to economic and social changes, which expand the interdisciplinary possibilities of research. The approach to the topic encompasses different scientific perspectives and definitions of the sense of the place: anthropological (Setha Low), psycho-environmental (Fritz Steel), geographical (Yi-Fu Tuan), architectural and landscape (John Brinckerhoff Jackson), sociological (David Hummon), and other, which can be of exploratory value for design research. All definitions refer to the relationship of place and its impact on the human relationship to place and, therefore, human well-being.

Altman [18] and Moore [19] distinguished four dimensions in research in design and planning: environment/place, behaviour, process, and time. The first is the most embedded in design research, and the others belong to the domain of social research. The scale and pace of architectural and urban interventions in recent decades call for a revision of previous beliefs about design decisions about a place, the conduct of the design process, motivations. and beliefs about the rightness of action for social and environmental well-being. What matters more to architects than quantitative data is how data should be interpreted and translated into good practice [15].

Post-industrial urban areas, which are very much a neighbourhood of residential areas, are characterised by a high susceptibility to variability in the functional and spatial structure and, consequently, the urban landscape. There have been many restructurings of post-industrial areas in recent years, which have significantly transformed large urban fragments. A form of mixed land use, following the transformation of urban wasteland, will be dominant in light of shrinking land for new development. For the condition of cities, the question of sustainability and the resilience—i.e., the stability—of the urban structure and its areas is essential for several reasons: the fulfilment of basic criteria of functionality (1), the preservation of environmental stability and sustainable management of urban areas (2). and the sense of place and the establishment of its identity, which is perpetuated over time, building the dependence of the inhabitants on the place and co-creating the urban heritage (3). The loss of the above foundations determines the need for change.

Today, perceptions of the environment and the affective role of its change, forecasting the effects of change and preventing its negative consequences, are increasingly influencing the way we design. The transformation models themselves are also changing. Since the perspectives were drawn up by Moore et al. [20], participatory approaches have developed, animating civic engagement and empathetic design as well as human-centred design.

The research problem of the paper is the impact of spatial (architectural-urban) changes in the neighbourhood of the place of residence on the sense of place, attachment to place, and quality of life in the city. The study is based on the 3P analytical framework, including the following dimensions: characteristics of place, person (personal characteristics), and process (psychological processes of perception and experience) [21,22]. We propose the orientation of the above framework to place change as follows: place of change, person during change, and process of change.

The aim is to integrate a transdisciplinary approach (social and spatial) to understand spatial changes and impacts on neighbourhoods. We are looking for answers to how this knowledge transfer can change the design process and the outcome itself due to

social aspects resulting from human reactions and experiences, and in the other direction, which spatial features of a place can influence the sense of place and attachment to a place when trying to change it (Figure 1). This, in turn, has implications for overall cognitive value (cognitive aspects), social well-being (emotional aspects), and human behaviour (behavioural aspects), which translate into an ethical and equitable approach to space management.
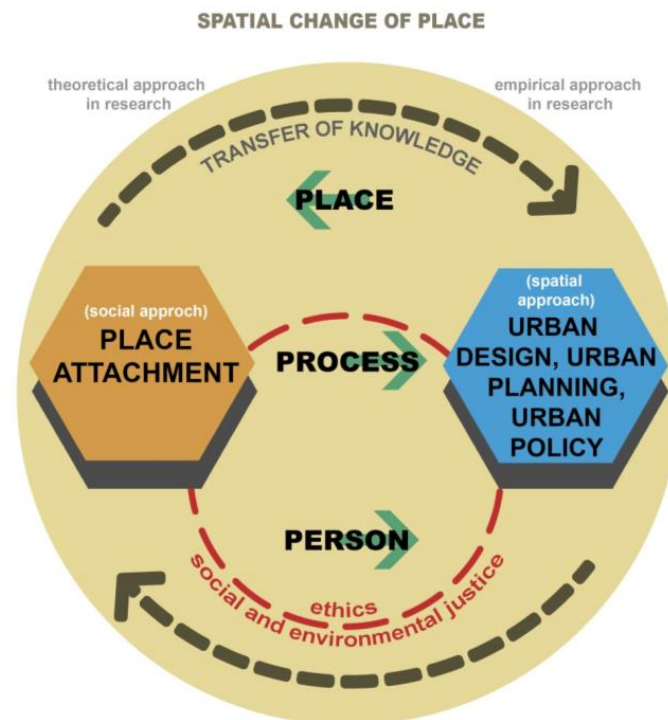

Figure 1. Theoretical and practical relationships between place attachment and spatial change of place—a knowledge transfer concept. Own study, 2024.

The paper uses the case study method to strengthen the inference from theoretical assumptions. To this end, the development process of the Bicocca post-industrial area in Milan (designed under the direction of the architect Vittorio Gregotti) and its surroundings was studied and evaluated from the perspective of the last 50 years, examining the industrial phase and the process of change initiated in the 1980s. This area was chosen because of the scale of the project, the presence of residential estates in the neighbourhood, and the possibility of a post-transformation evaluation.

In this section, we obtained an answer to the question of which elements of construction are more resilient to changing conditions and how land transformation affected the spatial arrangement of place and neighbourhood. By covering a longer period, we outlined systemic changes in the approach to urban transformation, which can be put into perspective as successive generations of the process in the context of everyday urban transformation practices.

Good practices for creating stable urban areas should be a priority for urban spatial policy—the lessons can be practical for spatial planning, including defining proximate conditions in residential and other spatially sensitive areas.

1.1. Perspective on Urban Change—Situational Background

Through civilisational and cultural development, precisely due to the industrial revolution, areas emerged in the functional and spatial structures of cities in the 19th and 20th centuries that were used for industrial purposes. They were of economic importance and contributed to the mass migration of people to the cities and, as a result, to their dynamic development and sprawl out of city borders. For purely functional reasons, they

developed as evidence of human activity—areas with a mode of organisation subordinated to industrial production. It resulted in the emergence of a specific type of cultural landscape—the industrial landscape, which, regardless of its location, is characterised by a general similarity conditioned by technology [23] and industrial societies whose urban functioning (mainly life and work) was linked to these areas.

The global transformations within industry prompted a shift from economies based on heavy industries to economies based on knowledge and technology—innovation, which was encapsulated in successive developmental stages as the four industrial revolutions. This development required a completely different infrastructure and land use [24,25]. Many factories ceased their function for this reason and because of changes in the labour market. With the loss of their original functionality, these areas became urban wastelands while at the same time having many development potentials for cities. The beginning of this process in Western Europe was in the 1970s. (the oil crisis) and since then, there have been attempts to create a framework of knowledge about its causes, course, and effects [26].

Although the spatial conditions associated with post-industrial landscapes are similar irrespective of geographical location, the narrative concerning the perception and, therefore, the possibility of transforming these areas is culturally conditioned, which Hoefer and Vicenzotti explain by the historical development of perceptions and interpretations of the concept of landscape differing for different cultures [23]. The local aspect, the type of manufacturing, the motive to live in the place, and the working community are also important for constructing the identity of places. It, in turn, can influence the planning and design of areas and the perception of heritage that form the everyday context of the living environment.

Post-industrial areas have become an opportunity to create new places with high-quality urban space and development ambitions—a new identity. Sometimes they are the subject of a separate project from the urban system, which can create contrasts in the way buildings are constructed. The kind of design, leading to the coexistence of incompatible elements, characterised by a lack of continuity and connection with the inhabitants, is what Cugurullo calls 'Frankenstein urbanism' [27,28].

The basis of current urban design efforts are guidelines framed as sustainable development and creating cities resilient to adverse climate change. The goal of improving the environment also generates changes to the human environment [29].

Achievements in technology leading to the application of innovation systems in the governance and functional–spatial and infrastructural structures of cities have laid the groundwork for the development of so-called smart cities, defined as an urban innovation ecosystem [30]. Yigitcanlar et al. typify four generations for them, but the contribution of these solutions, as the authors point out, to environmental benefits varies [31]. However, they offer the potential to connect with residents as potential users of the designed neighbourhoods. The third generation has led to the emergence of the so-called responsive city [32], which enables citizens to use new technologies in the design, planning and management of change [33] to improve the quality-of-life standards associated with the city, shaping places, etc.

In this context, it becomes an open question about sense of place and attachment to place; perceptions of human spatial change, especially in the residential environment and in the adaptability of whole societies to dynamic processes of transformation, the formal basis for urban development and the governance of the design process.

1.2. Sense of Place and Place Attachment

According to Tuan [34], every place has its spirit and character, which derive from its natural conditions of place. It demonstrates the phenomenological capacity of a place to emanate its characteristics. The place combines symbol and experience, translating into the physical structure and routine human experience [35]. The powerful emotional connection between humans and the environment has been described as topophilia [35].

Proshasnsky, in 1987, used the term place identity, which according to the author, is 'those dimensions of self that define the individual's identity about the physical environment through a complex pattern of conscious and unconscious ideas, feelings, values, goals, preferences, skills, and behavioural tendencies relevant to a specific environment' [1] (p. 155). The identity of a place implies its cognitive value and ability to generate an emotional reaction in the viewer. In addition to the cognitive and emotional aspects, Altman notes that place attachment is also influenced by cultural background [36].

The time factor and the long-standing being experience of a place lead to emotional bonds. Place acquires meaning in a sustained process: cultural, social and personal. People acquire convictions about a place based on social ties [37]. Places are also the site of interpersonal experiences in the same ranges, taking on the following dimensions:

- cognitive (perceptual—as navigation in space, due to formal aspects of place).
- behavioural (as activities and functional relationships between people and the environment, defined by types of functions and actions).
- emotional (resulting in feelings of satisfaction and attachment to place due to the ability to exert emotion and value the meaning of places) [36].

A similar division is presented by Jorgensen and Stedman concerning the human sense of place, which takes on the following dimensions: emotional, cognitive, and behavioural [38]. Canter translates place into form (formal characters), function (activities contained in places), and meaning [39].

To assess the level of dependence, Shamai distinguished seven levels of a person's relationship with a place [39], which are synthesised into three phases—belonging to a place, attachment to a place, commitment to a place, while on a broader scale they are as follows: 0. No sense of place; 1. Knowledge of location of place; 2. Belonging to a place (basic sense of community); 3 Attachment to a place (emotional connection of a person/community to a place—centre of individual or collective experience, symbols create meanings and this personality the place); 4. Identification with the goals of a place (conformity, devotion, loyalty to a place, deep level of attachment); 5 Commitment to a place (manifested by acting for a place, committing time, skills); 6. Sacrifice for a place (willingness to give up personal or collective values and goods for the sake of a place).

Cross defines place through human activities in a place and divides the nature of these activities into relationships: biographical, spiritual, ideological, narrative, commodified (sense of place is dependent on comfort, etc.), and dependent [40]. Steele defines the sense of place as the experience of all things that occur in places and is triggered by factors such as perceptual–cognitive and physical characteristics of places. The physical characteristics of the environment consist of elements like size, scale, components, variety, texture, decoration, colour, smell, noise, and temperature. The sense of place is influenced by their characteristics: identity, history, playfulness, mystery, pleasure, wonder, safety, vitality, and memory [41]. Hummon identified attitudes to place as dependent on the relationship with the local social environment and noted the different moods associated with the place: rootedness, alienation, relativity, and lack of sense of place [42]. An individual's subjective feelings of place are noted by Canter [43]—e.g., these are personal memories, attitudes to tradition, history, culture, and community—and so related to experiences as objective features are those belonging to the physical environment: landscape, smell, sound, etc. The distinction between place and environment concerns the dimension of space—place is perceived subjectively, while environment is perceived objectively [6]

Place attachment is an emotional connection, a giving of meaning to a place, a special way of treating a place [36]. The degree of interest in a place is dependent on the degree of attachment to it [44], and this is shaped by the interaction of personal feelings, knowledge, beliefs, behaviours [45], preference judgements, understanding or perceptions of place [46]. Place attachment, which includes both physical features of a place and social features, is influenced by personal experiences with the environment [47]. The affective factors for the sense of place attachment can be grouped as physical, social, cultural, and personal [48]. The individual criteria for place attachment are the relationship to memories

and experiences [35] and a sense of satisfaction with the place. Satisfaction can also be collective, as a general sense of fulfilment of expectations of a place of development [49].

1.3. Spatial Changes and Their Impact on Individual and Public Perception

The permanence and variability of urban areas impact social and individual perceptions of the city [50]. Sell and Zube singled out three scopes related to urban environmental change and social influence: urban development, neighbourhood change (mainly gentrification), and mobility and relocation [50]. The first two remain within the scope of the present study.

In urban development studies, residents accept their necessity but want to control the process and have a say in decisions about their immediate surroundings [50]. This acceptance decreases if the changes worsen environmental conditions or develop buildings on agricultural areas. Slow changes are much better accepted. They have a more positive effect on the outcome of the design process by avoiding conflictual situations. How changes are carried out impacts environmental management [51].

Research confirms acceptance in research for protecting landscapes associated with the past, especially if they have historical value or simply the presence of artefacts as a reference to the past [52–54]. Appleyard points to the increasing pace of change and fears of loss of identity as reasons for this. The field of historical and urban heritage research has, incidentally, developed on this basis. Reference to the past is essential for the meaning of human continuity, understanding the causality of events and human identity [53]. For this reason, traditional landscapes, symbolic places, and places linked to one's person or relevant to group identity are much more frequently and effectively protected. A sense of place promotes spatial stability and builds identity by resisting potential change [55,56]. The landscape is an essential component of a sense of place, so nurturing traditional layouts and view is a natural manifestation of a sense of place. Any interference and attempt to transform the landscape risk the slowing down of invest and conflict [57]. Radical change to the landscape has irreversible consequences and is therefore equated with the risk of losing a sense of place [58].

The study on environmental and neighbourhood changes, first and foremost, indicated a high correlation between the aspect of change to the sense of attachment to place. They were positively portrayed if the changes were an improvement and referred to the former setting of the place [13], thus referring to a sense of satisfaction and continuity. Place attachment contributes positively to connecting residents to new environments when integrating familiar elements of the local landscape is applied. They strengthen place attachment [59].

Growing up in one place produces rootedness. Contemporary communities with high mobility and a focus on change create an internal personal sense of personhood. These can be inherited through upbringing as a specific sense of place. Time influences place attachment through life events, cultural changes, and physical transformations, affecting individuals' relationships with places [60,61].

Measures to improve the spatial quality of the residential environment can have a negative social effect in the long term in the form of gentrification [50]. The perception of change and adaptability in this regard varies between age groups. Older people tend to find it more difficult to accept the need to adapt to a new environment [62]. In Clarke et al.'s research, environmental change defined as disruption requires a transformative adaptation approach, which involves exploring aspects of place attachment and the relationship of place to symbolic meanings and evaluating the management process [47].

The connection to place intensifies at the prospect of changing or losing it [63]. Studies conducted in urban settings have highlighted the importance of direct exposure to place. A negative correlation was observed in everyday objects, e.g., shops, and a sense of place identity, as well as a negative correlation between recreational places and place attachment [64].

1.4. Sustainability and the Urban Form—The Formal Basis

Currently, the concept of urban sustainability is being developed, in which the change aspect is accepted. At the same time, however, issues of place identity and sense of place become not insignificant alongside environmental aspects.

Changing conditions influence the focus of this problem. In 2050, the population is estimated to grow to 9.678 billion people [65], and more than 68% of them will live in cities [65], a significant increase of 13 percentage points. As much as 16% of the population during this period will be over 65 years of age [66]. The increasing migration of people to cities, ageing populations and the need to provide adequate conditions, shrinking natural and agricultural lands, and climate change motivate radical actions, and these are the basis for transforming already built and culturally shaped environments.

The issue of sustainable urban development is addressed in different ways in the various documents that provide a framework for the preparation of development strategies. Sometimes these issues are repeated, and at other times they constitute a new contribution—an addition. The number of studies and variety of forms confirm the development of knowledge, tools, and practices regarding urban planning and design. Effective use and implementation are essential for urban forecasting. The problem of 21st-century cities in the light of the papers presented shows a discrete shift from structural-model thinking to problem-based thinking. As a result, the sense of place is a fundamental principle in architectural design based on sustainability and the creation of essential places [15].

The Charter for New Urbanism [67] was created in response to the crisis in American cities. It envisioned the transformation of entire cities and human settlements with the active involvement of local communities in the design process, the revitalisation of degraded areas, and the creation of neighbourhood communities with small centres in place of dispersed neighbourhoods. In the Charter, a clear link existed between spatial planning and social aspects: community (framed descriptively) and principles relating to social justice and the common good [68]. The form of the adaptive design approach includes demands for fitting in with the surroundings, accessibility of space, creation of neighbourhood spaces, reference to locality and tradition, attention to the character of the place, and emphasis on the role of preservation and restoration of historic neighbourhoods and landscapes to maintain the continuity and evolution of the urban community. The Charter strongly opposed rapid and non-quality design [69].

The New Athens Charter of 2003 [70] presented a change in approach to city planning from the first Charter of 1933, moving away from the division into functional zones of cities to the idea of integration, cohesion, and juxtaposition of different land uses. The model of a city connected by a network of centres is predisposed to a change in function in cases where there is a need to transform urban areas.

The 2030 Agenda for Sustainable Development and the developed Sustainable Development Goals [71] cover almost all aspects of life. Goal 11 targets the issue of cities and human settlements. The need to create safe, stable, sustainable, and inclusive cities is indicated. By this, the urban design promotes equity, good living conditions, social interaction, and development of local and global economies [72].

The New Urban Agenda—Habitat III (Quito Declaration on Sustainable Cities and Settlements for All)—identifies the city as one of the fundamental places for achieving sustainable development, considering the population's changing conditions and aspirations [73]. Local and global orientations (planning, design, implementation, legislation and management, financing instruments) focus on addressing urban equity, eradicating poverty, ensuring gender equality, promoting sustainable, inclusive economic development, improving health and well-being, protecting the environment, building resilience, and responding to natural hazards. In this perspective, urbanisation is seen as a 'lever for structural transformation', a pathway to achieve efficiency and obtain added value. Sustainability is linked to economic growth. Long-term and integrated spatial planning is intended to achieve an 'optimal spatial dimension of the urban form'.

A vital task of the 2007 Leipzig Charter was to shape integrated urban development [74]. The new Leipzig Charter [75] emerged 13 years later due to new circumstances—social, environmental, and rapidly changing economic systems that dictated new development needs. The Leipzig Charter's guiding slogan is 'the transformative power of cities', which states the framework of the policies advocated—creating equitable, green, and productive communities.

The Leipzig Charter recognises that cities draw on historical traditions and refers to the cultural heritage of cities (tangible and intangible) and the inhabitants' identity. It sends a message for the prudent transformation of urban areas if they exhibit values derived from their past formation, their role in the city, and their significance. The aspect of sustainability and changeability in the Leipzig Charter is seen from the perspective of responding effectively to external disturbances and different development scenarios. They then have to be flexible. On a smaller scale, urban development can also be considered an experimental field for cities.

On the other hand, from a neighbourhood-scale development perspective, long-term stabilisation is postulated to level social tensions and, e.g., prevent gentrification. A strategic, sustainable approach calls for the regeneration of urban areas, including brownfield sites, to limit the emergence of new built-up areas. Concerning residential areas, providing diverse, vital, and affordable land is essential.

According to the New European Bauhaus Idea, three values become important: beauty, sustainability, and being together—the social aspect [76]. One can see discrete changes concerning the fundamental foundations by analysing successive urban development concepts. Economic issues become unsustainable, while beauty and ethics appear as new ones. So, the materialistic approach is offset by spirit and essence (Figure 2).
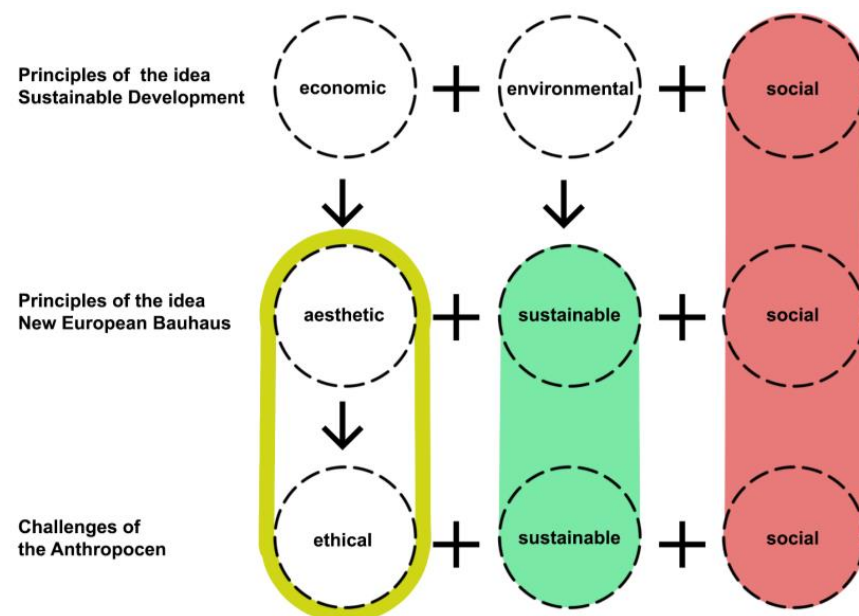

Figure 2. Discrete changes in development principles—most stable principle—social (red), sustainable (green), and recently emerged aesthetic and ethical (yellow line). Own study 2023.

Increasingly, efforts to ensure good urban living will take the form of transforming the built environment. This is in the spirit of sustainable development, as it promotes inclusive growth and counteracts the appropriation of new urban land for urban purposes. On the other hand, the social perspective and psychological dimension—particularly the tolerance of changes in the living environment—are also important. This aspect affects human well-being. How change is pursued, and the dynamics of change must be in line with social expectations.

2. Methods

The introductory section includes a literature study of the following issues: the sense of place and attachment to place, the impact of spatial change on individual and spatial perception, and addresses current development conditions for the urban environment.

The empirical study with retrospective elements concerns the urban transformation of the Bicocca post-industrial area in northern Milan. The transformation took place between 1985 and 2005. It included the plan conceptualisation stage (I), the operational stage of adapting the project to formal requirements (II), implementation (III), and the post-transformation stage (IV), which falls in the last decade. Several considerations dictated the choice of this case study. The first relates to the territorial site, covering some 70 ha of former factory land (Pirelli tyre and rubber products factory). This was the second architectural and urban development after Potsdamer Platz in Berlin. A second argument was the presence of housing estates nearby and the fact that the transformation was a social problem—mainly related to the loss of many thousands of jobs—around 3000 in the last period. The additional passage of time made it possible to compare the state before and after the transformation. A limitation of the research is the lack of access to the opinions of residents and the local community at the time of the transformation. A mitigating factor is that the project resulted from significant international competition, the results of which were widely known and discussed in public forms. A final argument in favour of the choice of the type of location is the fact that many similar investments have the potential to happen—if only in central and eastern European countries.

Sense of place changes with distance [17]. It can include the space of the house/apartment, backyard, neighbourhood, district, or city. In this case, reference was made to the neighbourhood unit concept. It was assumed that transforming a 70-acre section of the city, a 15-min walk (the equivalent of 1200 m) from housing developments built after World War II, affects the residents' daily sense of place (Figure 3).
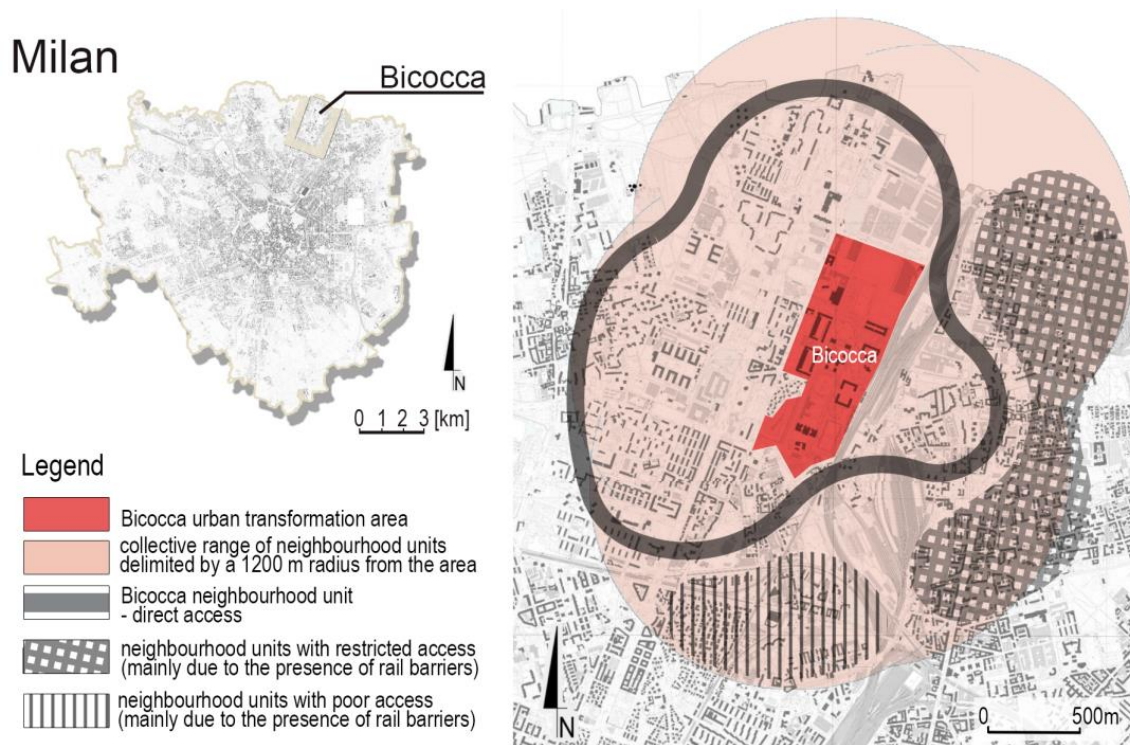

Figure 3. The transformation area and its surroundings. Bicocca, Milan. Own study 2023.

In studying the significance of spatial change, the following factors are essential: duration, distance from the change occurring, and the nature (scale and impact) of the change [77]. The extent of change was studied by comparing the functional and spatial

structure and accessibility of public spaces in 1972 (before the change) and now (after the change). The extent of change was estimated using a 4-point scale (1–4): no or little changes; partial changes; significant changes; total changes.

A place can be assessed through various indicators: physical, visual, social, or economic [15,78]. Assessing the nature of architectural and urban changes depends on the criteria and characteristics defined for the place (Table 1). Thanks to Wherret's research, these have been expanded to include non-visual sensory aspects [79]. These criteria can be used for descriptive assessments or individual user evaluations, which depend on personal preferences, conditions, and needs related to the place. According to Lynch [80], this evaluation is influenced by cultural background, previous experiences, and economic status. In addition, a review of accounts of the Bicocca area after the transformation was conducted and put into narrative form.

Table 1. Criteria and features of place changes that affect the evaluation of sense of place. Own study 2023.

Characteristics of a Place	
spatial	urban form
	composition
	density of development
	scale of development
	arrangement of public spaces
	occurrence of special objects
aesthetic	architectural form
	style
	material
	colour
non-visual aspects	sound
	smell
	dynamics of the place
functional	program capabilities
	communication accessibility
	environmental functionality
	social functionality
semantic	representativeness
	relationship to the past
	symbolism, narrative
	ability to build associations
	identity of the place
	location in the urban context
operation management -attributes	degree of management
	availability
	security
	cleanliness/tidiness
	state of maintenance
	orderliness
	durability/changeability

Qualitative studies on the sense of place in the context of architectural and urban design have used different types of perceptual features of the physical environment. Erwing et al. singled out as many as 51 qualities, of which the eight most important were the following: imageability, legibility, enclosure, human scale, transparency, linkage, complexity, coherence, and tidiness [81]. Bentley similarly distinguished the following: permeability, diversity, legibility, robustness, and visual appropriateness [82].

3. Results

3.1. General Assessment of the Area's Changes after the Transformation

The general changes in the area between the industrial and post-transformation structures are presented in comparative form (Table 2).

Table 2. Comparison of the general characteristics of the Bicocca area before and after the transformation. Own study 2023.

Transformation Criteria	Pre-Transformation Status	Post-Transformation Status	Evaluation Qualitative
spatial quality	Poor quality of space, functional approach to development subordinated to industrial production	very good spatial quality (urban and architectural) of the area designed as a coherent whole	positive
landscape	industrial landscape	urban landscape	positive
coherence with the structure of the city	separation from the structure of the city–industrial cluster	inclusion in the functional and spatial structure of the city	positive
social space	social space related to the workplace	urban social space, academic environment, neighbourhood space	neutral/positive -change resulted in the loss of former social space
place identity	a strong identity of place associated with the achievements of industry on the scale of northern Italy, the Lombardy region	a strong identity created by the university and the architectural expression of the place—an example of a postmodern urban development designed by architect Vittorio Gregotti	neutral -change resulted in the loss of an artefact associated with a former identity

In the comparative analysis, two spheres are associated with irretrievable loss—it concerns the social space associated with the workplace and the identity of the place associated with the industry. Industrial heritage has only recently come into focus as an object of heritage. Industrial Heritage Redevelopment (IHR) is an increasingly popular development strategy that involves upgrading industrial buildings (in whole or in part) and using them for other functions. It is based on the need to feel a sense of spatiotemporal continuity and to protect the testimonies of this type of significant activity for the city.

The vestige of the Pirelli factory's former activities is reflected in the activities of the Pirelli Foundation. In addition to the archive, the foundation organises events and walks in the new district, thus animating different communities to associate with the place.

3.2. Comparison of Public Space Accessibility—Street Grid

A comparative analysis of the street grid in 1972 and the current one indicates the development of public spaces in the post-industrial area. Still, the railroad line is a barrier dividing the area into an eastern part (developing along Viale Monza) and a western part (developing along Viale Fulvio Testi) (Figure 4). Historical and planning analysis indicates that the areas on both sides were shaped by a plan by Angelo Pavia and Giovanni Masera in 1912, which was a continuation of Beruto's 1889 plan—expanding the city to include another strip between the new outer ring road of the city and the railroad and then directly from the Milan regulatory plan—the so-called Albertini plan of 1934. An analysis of the

1930 map (Carta Tecnica Comunale 1930, Comune di Milano) shows that the new street layouts changed the directions of agricultural parcels. In the 1972 layout, the industrial areas were large zones without public access. Only Viale Rodi and Via Chiesa were cross streets leading to the train station—Piazza Egeo and Via Sesto S. Giovanni. Today, in the post-industrial area, a structure of public spaces has been created with forms of streets, squares, and squares—with different qualities and functions.
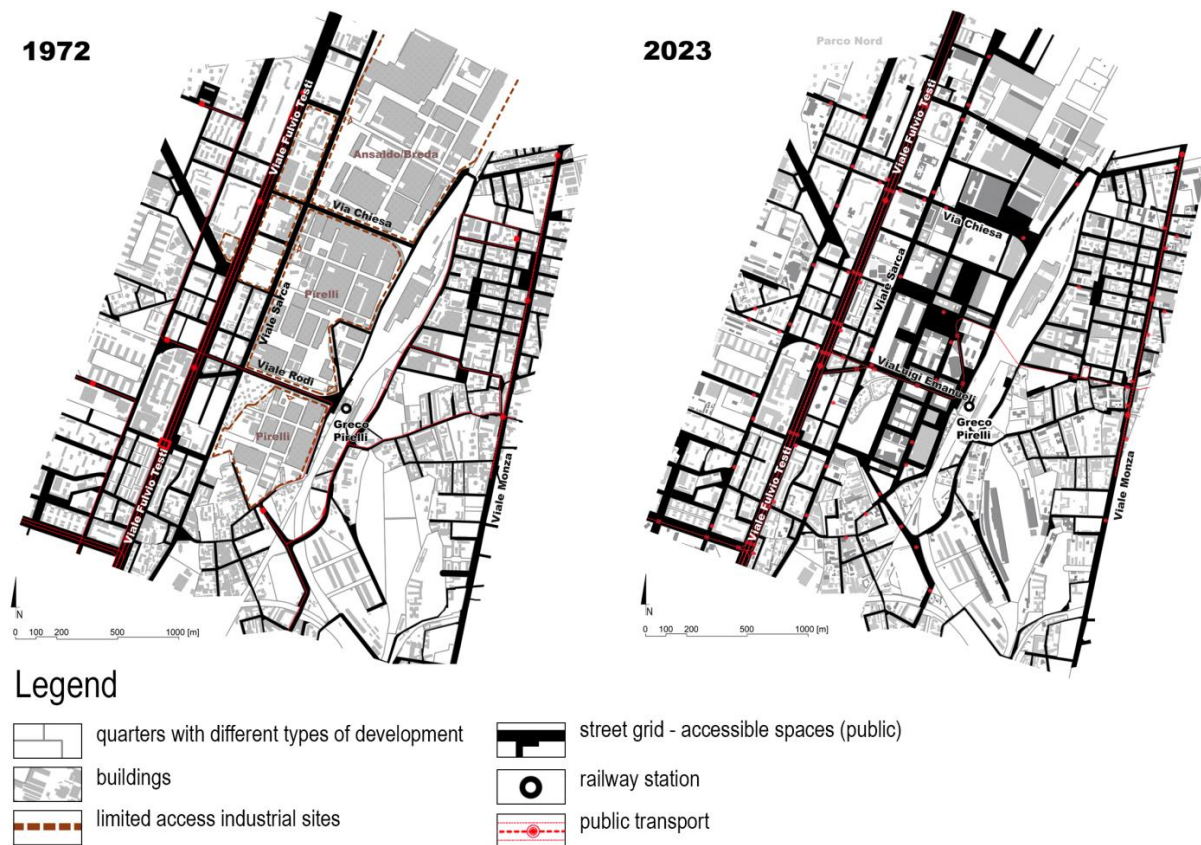

Figure 4. Comparison of the street grid and structure of development in 1972 and today. Own study 2023.

3.3. Comparison of Functional and Spatial Structure

The analysis consisted of performing functional characterisations of individual quarters, in the post-industrial area and the immediate vicinity, in 1972 (Figure 5) and today (Figure 6). The goal was to observe functional changes and the direction of development trends.

The following 13 types of quarters/areas with similar spatial and functional characteristics were identified:

(1) residential quarters—estate-type development, tenement buildings, student houses; (2) industrial areas—mainly large areas related to the function of Pirelli, Ansaldo-Breda factories; (3) areas of social importance—school, health center, sports areas, etc.; (4) areas of churches and religious institutions; (5) warehouse and production quarters—more minor services, production halls, workshops; (6) mixed areas—there is a residential and service function; (7) wasteland—green areas, undeveloped, areas in the process of transformation; (8) urban greenery—areas of parks, gardens, cemeteries, allotments, landscaped greenery; (9) areas of offices/institutions/high-tech production—scientific institutes, university campus buildings, laboratories; (10) facilities of metropolitan importance—entertainment center, hotels, theater; (11) areas of technical infrastructure—railroad areas (including those related to logistics) and others; (12) areas of building complexes—e.g., military barracks; (13) other.
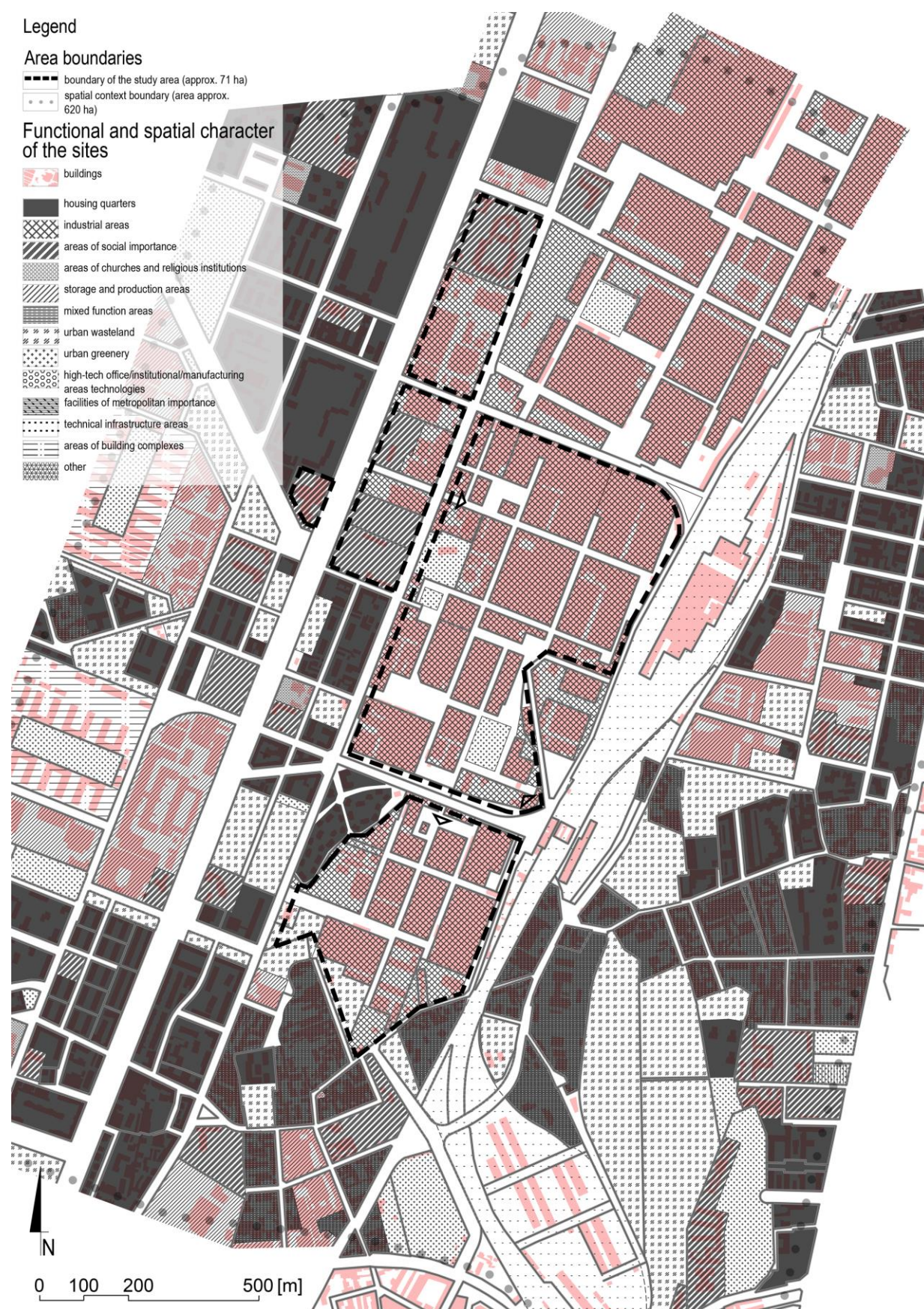
Legend

Area boundaries

- - - - boundary of the study area (approx. 71 ha)

· · · spatial context boundary (area approx. 620 ha)

Functional and spatial character of the sites

- buildings
- housing quarters
- industrial areas
- areas of social importance
- areas of churches and religious institutions
- storage and production areas
- mixed function areas
- urban wasteland
- urban greenery
- high-tech office/institutional/manufacturing areas technologies
- facilities of metropolitan importance
- technical infrastructure areas
- areas of building complexes
- other

N

0   100   200   500 [m]

Figure 5. Functional and spatial characteristics of the sites in 1972. Own study 2023.

Figure 6. Functional and spatial characteristics of the sites in 2023. Own elaboration 2023.

Observations and conclusions:

- In 1972, development was determined by facilities of an industrial nature. The direction of development is the same as the direction of the railroad—that is, north–south. The areas were characterised by limited accessibility (fenced areas, guardhouses).
- Currently, compared to the state of 1972, the residential function has developed based on the existing island-like zones. The residential function forms three distinct bands: along Viale Fulvio Testi, along Viale Monza, and an east–west transversal passing through the central part of the post-industrial area (Viale Rodi, Via Luigi Emanueli) (Figure 7).
- After the transformation, the mixed quarters are polarised towards residential functions. This happens because small manufacturing areas no longer make economic sense, and the area is attractive for housing—there is a demand for residential areas. New residential zones, such as the railroad areas, are being created, with a new zero-emission housing development planned by ARUP.
- After the transformation, the manufacturing and industrial function was significantly reduced. An office function (corporate headquarters) related to innovation and a cultural function has developed on the site and in the immediate vicinity.
- Functions of metropolitan scope appeared in the area under study: a university, a theatre, a large shopping centre, a park of regional importance (Parco Nord), hotels, etc.
- As a result of the establishment of the university function, there was a need for more student housing.
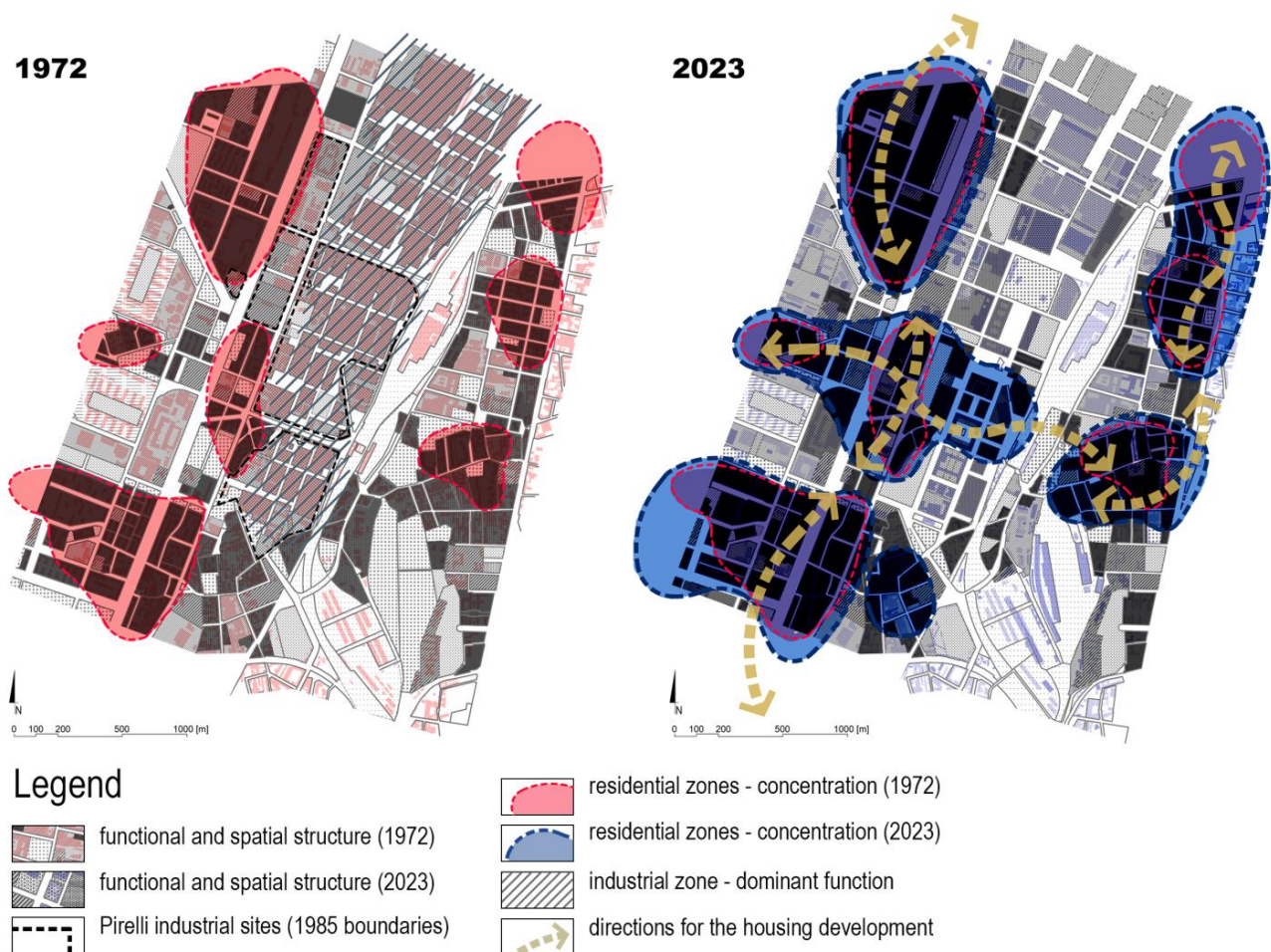- In recent decades there has been a modernisation of the railroad area.

Figure 7. Residential zones—concentration in 1972 and 2023. Own elaboration 2023.

3.4. Scope of Changes in the Functional and Spatial Structure

Individual areas were colour-coded, considering the extent of their functional–spatial changes. They were divided into four types: no changes or minor changes; partial changes; medium-significant changes; total changes. Colour separation into two groups showed zones characterised by persistence and those that had experienced significant transformation (Figure 8).
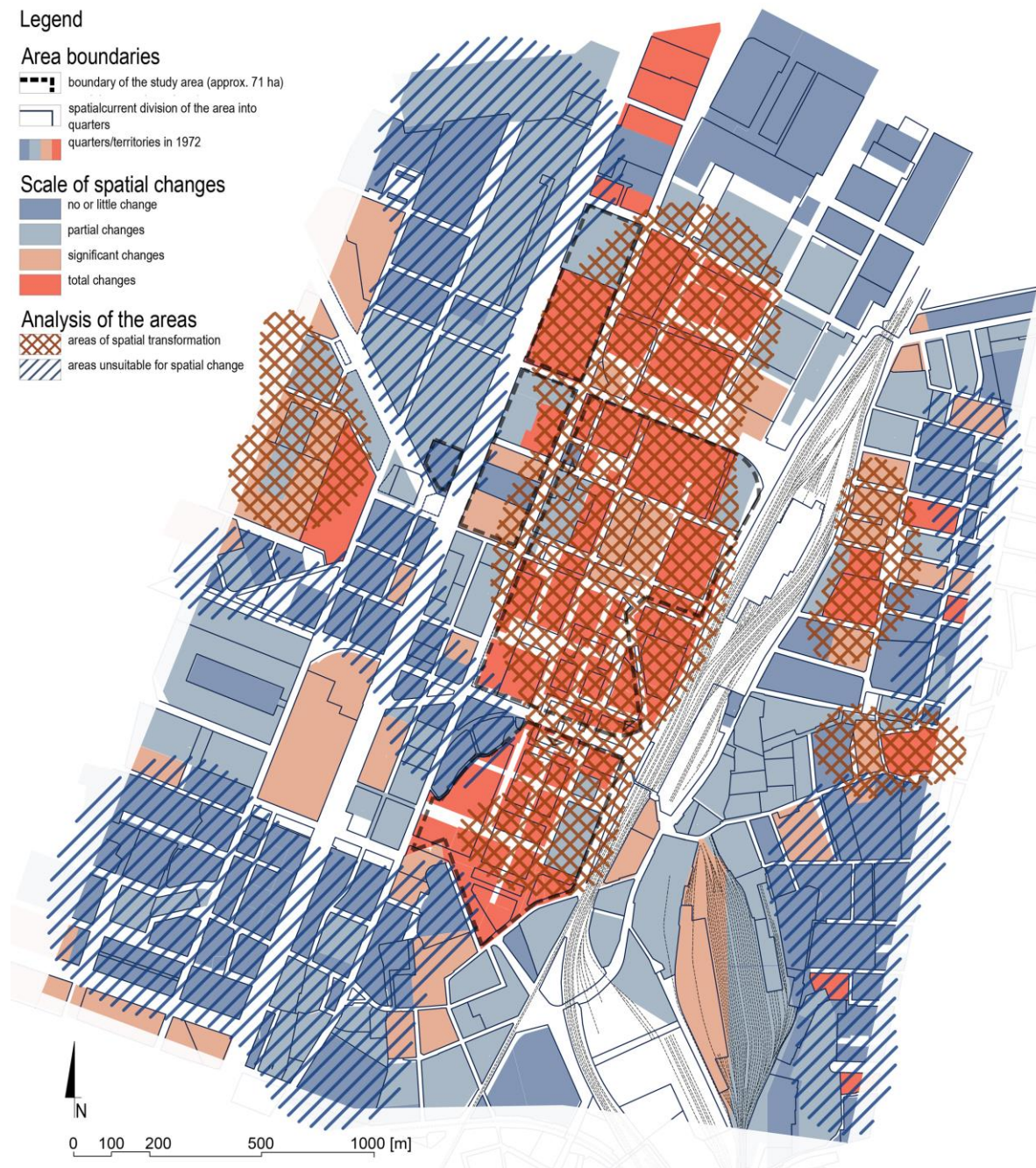

Figure 8. Scope of functional and spatial changes. Own study 2023.

Residential areas proved to be the most resistant to functional and spatial transformation. These zones experienced functional consolidation. Large industrial areas underwent the most significant changes. Minor service manufacturing establishments underwent spotty transformations due to their smaller plots and the fact that they are often mixed with residential buildings.

3.5. Narratives of Residents

The transformation of the Bicocca area was carried out with the participation of many stakeholders—mainly planning professionals and experts in other fields. A residential function in the vicinity of the transformation area provides an opportunity for confrontation and open opinion.

This study uses selected opinions expressed in open online forums. The question posed in 2015, 'Is Bicocca a good neighbourhood' was answered [83]:

> Karenina 194823: 'Once, when Milan was an industrial city, this was a working-class neighbourhood full of factories, today there has been a conversion, and many university departments have moved there. Here is the Arcimboldi Theatre and the Hangar Bicocca art space. New houses have been built around Arcimboldi, which I like. I do not see any problems getting to the centre by public transportation.'

> 537cristinab537: 'Metro stations, shopping malls, cinemas, pharmacies, bars, restaurants, etc., like @Kare, I think it is a good area.'

> Mapi2013: 'The Bicocca district, which I know well, has its brightnesses and shadows. You can live there comfortably for a few years, study or work; maybe I would not recommend it as a place to buy a house. It is well served by public transportation (M5 + M3: downtown in about twenty minutes) and several clubs frequented by students and residents alike. Nearby schools and supermarkets.'

> Black_Legion85: 'The university has rehabilitated the area, so it is a great area around the university. Of course, it is far from the centre if you go there by car, traffic jams take ages!!!'

> glObservwer: 'I have lived there for years and have always liked it. Suppose you appreciate a bit of life during the day, with offices and universities and peace in the evening (zero petty crime, at least for now). In that case, if you love wide, tree-lined avenues, generally limited traffic and an architectural design that harmonises everything with everything you need nearby, Bicocca is a neighbourhood with easy access to the centre and other parts of the city—by public transportation. If, on the other hand, you are one of the neon lovers of storefronts, cars parked on two wheels and concrete when you look out the window, look elsewhere: in Milan, you have a choice.'

In residents' accounts, one no longer encounters a direct reference to the place's past nearly two decades after the district's realisation. The old identity is a bygone stage in the neighbourhood and city development, animated by the Pirelli Foundation for current activities. People outside Bicocci perceive the place mainly through its accessibility and distance from the centre.

4. Discussion

The discussion section is focused on the geographical framing of the research subject, the criteria of space, aspects of heritage, research on Bicocca, and research limitations.

Research on the influence of physical space (architectural-urban) on the sense of place is generally qualitative. Hu & Chen conjecture that this is influenced by the philosophical and political tradition of the profession [15].

Quality-of-life surveys are conducted at all levels: national and local [8]. There is a lack of a consistent methodology for studies on urban neighbourhoods. The studies indicate a tendency towards clustering of areas with similar quality-of-life conditions [9]. The European Quality of Life Survey (EQLS) neglects the situation of cities and their rapid urbanisation, as well as modernisation, changing existing living conditions [9]. Research on the sense of place concerning geographic scale and sense of urbanity [84] shows that people who identified place quite narrowly rated it lower than those capturing it on an ecoregional scale. These individuals also narrowed their criteria to evaluate the biophysical aspects of a place. Carrying landscape values in a city and linking them to the regional

system can affect the feeling of place. A review of the evaluations for Bicocca shows that an essential criterion for evaluating a place was its connection to the centre and, therefore, a broad geographic focus.

In the case study research, Hu & Chen report four aspects of sense of place: nature system and site features; architectural design and form; architectural context and form; streetscape. According to the results, there is no clear, direct confirmation that architectural aesthetics translate into a sense of place for perceiving users. Architecture and streetscape correlate with the perception of urban space and place. Nature influences imaginative, visual settings and urban form. The design has an impact on complexity, architecture on the human scale, and imaginability, while streetscape affects human scale and complexity [15]. Spatial elements relevant to the quality of life, according to Faka et al., are [8] as follows: health-promoting factors (e.g., quality of space, greenery), home choice, accessibility to transport infrastructure, accessibility to sustainable public space, sustainable environmental and climatic conditions, and sustainable differences in urban inequalities.

Since the Athens Charter (1931), which influenced architectural preservation, the scope of authenticity protection has been dramatically expanded to include urban areas and landscapes with unique identities [85]. Knowledge of the sense of place has made it possible to embed urban transformation projects, especially revitalisation ones, in social and cultural contexts. The social meaning of place and emotional meaning have proven to be as important as the structural and physical aspects of the urban environment [86]. It was not so obvious in the mid-1980s when the project to transform the Bicocca area began. Historic heritage research emphasises the importance of considering design factors and users' participation in decision-making to preserve historical values. It is a call for a nuanced understanding of spatial configurations and the stakeholders involved [87]. Uncontrolled change can disrupt heritage contexts if an in-depth narrative-based, place-based storyline approach is ignored [88]. New developments that, for example, involve sites that are not under conservation protection can lack character or local identity, and thus, it means the lack of identifiability undermines a sense of place [6].

In his description of the Bicocca area development project, Gregotti refers to the components of the city in the light of modal traditions [89]. In creating the settlement model, references to the old layout and quality that could balance the distance from the main historical centre were crucial. On the other hand, the existing assets of the place were used, to which only a new context had to be added, giving it a dialectical identity about the development of the suburbs.

The Bicocca project can be considered a manifesto for a return to the traditional sense of the city—in the name of the principle of historical recomposition. The newly shaped area was supposed to work for social consolidation, emphasise collective responsibility, and act not only as a visual form but also emphasise the meaning of the place, not to separate the space into subjective, individual layers, but to offer a clear message. The permanence of the place with high architectural quality was a critical design determinant. Openness through the public space system, reference in layout to the old way of development, assimilationist design, scale of development, and sensitivity to compositional elements are solutions and approaches close to traditional.

The proposal for the area's new development was based on a clear 'urban sign'—a synthetic urban form, which is a reorganisation of the existing layout and each element belonging to it. The urban grid largely became the warp for the new shaping of the district. The goal was not to create an entirely new place but to level the peripheral position of the site.

Gregotti, in writing to Stefano Boeri: 'Bicocca's program was, as I wrote, to build simple civil architecture. Simplicity is a complicated achievement. Ordered. Ordered is a form. Precise. Long-lasting and without seeking applause' [90] (p. 99).

In 2020/2021, Milano-Bicocca University's activities included a series of workshops on perceptual geography and behavioural geography as part of the project 'Beyond Maps. A workshop on users' sense of place and visual representation at Milano-Bicocca

University" [91]. In the first stage, participants, mostly students and professors, created personal mental maps of the neighbourhood coinciding with their spatial experiences. A shared, negotiated map was then created using Kevin Lynch's [80] language of symbols. The result was transformed into a professional graphic design. The study's most expressive places were points of communication (nodes) and objects with a strong architectural identity, public buildings—university buildings with a distinctive red façade—and public space. This choice may be dictated by the fact that the survey participants were not district residents. This demonstrates that a place, to be vital, must be constantly animated to engage the public. Furthermore, public space and public facilities create social space.

The research on the heritage of the Bicocca neighbourhood used the method of thematic walks combined with audiovisual presentations [92]. The study's authors used several tools to identify tools that would help awaken the senses and facilitate understanding of the meanings of a place. To this end, they used the achievements of modern technology: digital archives of old photographs, spoken accounts of people, audio archives, and digital archives. The various sensory means allowed for a multi-perspective view of the place and its interpretation, which was sometimes not obvious at the outset [92]. However, pictorial representations do not enable one to experience a place as much as authentically being in it [93]. In the development of smart cities, Camboim et al. believe that management capable of integrating techno-economic activities, the configuration of the urban environment, and the socio-institutional structure is responsible for the level of transformation [30].

The challenges of the Anthropocene era related to cities, defined by multidimensional global crises, 'put into question' the ontological role of man as an entity entitled to subjugate the living environment. Because of this, the concepts of creating urban multi-species environments and anastomosing the biophysical worlds of cities are emerging. These centre around the following factors: ethical, social, and environmental [94]. However, given the crisis of human adaptation to a changing environment in architectural and urban design, the human perspective should be central, and human-based research should continue to be developed. On the other hand, housing issues are becoming more prominent in political, social, and design discourse [95]. The problem of changing neighbourhoods and adaptive difficulties became apparent with the rise of the NIMBY (Not in My Backyard) movement. Studies have shown that how one responds is significantly more important than how long it takes to respond to conflict [96]. Orchowska proposes an approach to redefining residential space that preserves emotional values, creative intentions of modernized areas, and semantic values [97].

In the context of this study, a limitation is the lack of an established social perspective on changes in the built environment in the form of research. Archives presenting physical aspects alone are not sufficient. Incorporating social research into the design process and extending the participatory process can provide authoritative monitoring of residential areas, similar to how environmental impact reports are carried out. An interesting thread would be to include psychological research and link it to design aspects. However, this requires close integration with other scientific disciplines.

5. Conclusions

The process of urban change will become increasingly common due to the end-of-life modernisation of existing built-up areas and the protection of biologically active areas.

Urban areas are subject to change in different ways. Thus. they show different vulnerabilities to transformation. Residential areas and recognised heritage areas are the most stable, but their transformable neighbourhoods can affect the residents' perception of the area.

A radical change in the neighbourhood does not necessarily mean deterioration of the conditions of the sense of place. As long as it occurs at an adaptive pace and guarantees access to the place, the result implies satisfactory formal conditions and the preservation of past references. The basis of the sense of place is participation—realising social and behavioural needs.

The process of transforming large urban areas should take into account the aspect of its impact on the perception of residents. In its course, it is recommended as so-called good practices that will allow residents to co-determine the neighbourhood and give them a sense of control:

- Researching social conditions, studying the identity of the place, the previous impact on residents' perceptions and after a possible change.
- Valorisation of space and evaluation of past cognitive, behavioural, and emotional values.
- Staging the planning, design, and implementation process and monitoring the various phases—applying the so-called incremental change method.
- Detailed information on planned neighbourhood transformations—making them available to a wide range of stakeholders.
- Implementing active stakeholders' participation—direct and with modern technologies—in the planning process.
- Making the area accessible at all stages of investment—infoboxes, walks, appropriate communication.
- Implementing an interdisciplinary approach to the design process—inclusion of specialists in environmental psychology, sociology, mediation.
- Monitoring of this type of investment over decades—for research and development purposes.

Dynamic and frequent changes in the surroundings are expanding the possibilities of alternate experiences of a place when its former image or former identity is lost. This is valuable for sustaining heritage without a witness or an artefact, such as an authentic place. Through media, combined with thematic walks, it is possible to reinterpret and re-appropriate one's and others' experiences and thus make sense of place through narrative.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data will be made available upon request.

Conflicts of Interest: The author declares no conflicts of interest.

References

1. Proshansky, H.M. The city and self-identity. *Environ. Behav.* **1978**, *10*, 147–169. [CrossRef]
2. Schreyer, R.; Jacobs, G.R.; White, R.G. Environmental meaning as a determinant of spatial behaviour in recreation. In *Proceedings of Applied Geography Conferences*; Department of Geography, State University of New York: New York, NY, USA, 1981; Volume 4, pp. 294–300.
3. Williams, D.R.; Roggenbuck, J.W. Measuring place attachment: Some preliminary results. In Proceedings of the NRPA Symposium on Leisure Research, San Antonio, TX, USA, 20–22 October 1989; Volume 9.
4. Kyle, G.; Graefe, A.; Manning, R.; Bacon, J. Effects of place attachment on users' perceptions of social and environmental conditions in a natural setting. *J. Environ. Psychol.* **2004**, *24*, 213–225. [CrossRef]
5. Murgaš, F.; Klobučník, M. Does the quality of a place affect well-being? *Ekológia* **2016**, *35*, 224–239. [CrossRef]
6. Petrovič, F.; Murgaš, F. Description relationship between urban space and quality of urban life. A geographical approach. *Land* **2021**, *10*, 1337. [CrossRef]
7. Murgaš, F.; Petrovič, F.; Tirpáková, A. Quality of place as the winner of the third wave of the COVID-19 pandemic in terms of quality of life. Will this knowledge strengthen the development of geographical psychology? *Heliyon* **2024**, *10*, e26261. [CrossRef]
8. Faka, A.; Kalogeropoulos, K.; Maloutas, T.; Chalkias, C. Urban quality of life: Spatial Modeling and indexing in Athens metropolitan area, Greece. *ISPRS Int. J. Geo-Inf.* **2021**, *10*, 347. [CrossRef]
9. Faka, A.; Kalogeropoulos, K.; Maloutas, T.; Chalkias, C. Spatial variability and clustering of quality of life at local level: A geographical analysis in Athens, Greece. *ISPRS Int. J. Geo-Inf.* **2022**, *11*, 276. [CrossRef]
10. Ittelson, W.H. Environmental perception and urban experience. *Environ. Behav.* **1978**, *10*, 193–213. [CrossRef]
11. McGrath, J.E. (Ed.) *The Social Psychology of Time*; Sage: Newbury Park, CA, USA, 1988.
12. McGrath, J.E.; Kelly, J.R. *Time and Human Interaction*; Guilford: New York, NY, USA, 1986.

13. Von Wirth, T.; Grêt-Regamey, A.; Moser, C.; Stauffacher, M. Exploring the influence of perceived urban change on residents' place attachment. *J. Environ. Psychol.* **2016**, *46*, 67–82. [CrossRef]

14. Manzo, L.; Devine-Wright, P. *Place Attachment: Advances in Theory, Methods and Applications*; Routledge: London, UK, 2013.

15. Hu, M.; Chen, R. A Framework for Understanding Sense of Place in an Urban Design Context. *Urban Sci.* **2018**, *2*, 34. [CrossRef]

16. Sebastien, L. The power of place in understanding place attachments and meanings. *Geoforum* **2020**, *108*, 204–216. [CrossRef]

17. Buttimer, A. Home, reach, and the sense of place. In *The Human Experience of Space and Place*; Buttimer, A., Seamon, D., Eds.; Routledge: London, UK, 2015; pp. 166–187.

18. Altman, I. Some perspectives on the study of man-environment phenomena. *Represent. Res. Soc. Psychol.* **1973**, *4*, 109–126.

19. Moore, G.T. Research, design and evaluation for people-in-environments. In *Introduction to Architecture*; Snyder, J.C., Catanese, A.J., Eds.; McGraw-Hill: New York, NY, USA, 1979.

20. Moore, G.T.; Tuttle, D.P.; Howell, S.C. *Environmental Design Research Directions: Process and Prospects*; Greenwood: Westport, CN, USA, 1985.

21. Scannell, L.; Gifford, R. Defining place attachment: A tripartite organizing framework. *J. Environ. Psychol.* **2010**, *30*, 1–10. [CrossRef]

22. Lewicka, M. Place attachment: How far have we come in the last 40 years? *J. Environ. Psychol.* **2011**, *31*, 207–230. [CrossRef]

23. Hoefer, W.; Vicenzotti, V. Post-industrial landscapes: Evolving concepts. In *The Routledge Companion to Landscape Studies*; Howard, P., Thompson, I., Waterton, E., Atha, M., Eds.; Routledge: London, UK, 2013; pp. 423–434.

24. Schwab, K. *The Fourth Industrial Revolution*; Penguin Books Limited: London, UK, 2017.

25. Xu, M.; David, J.M.; Kim, S.H. The fourth industrial revolution: Opportunities and challenges. *Int. J. Financ. Res.* **2018**, *9*, 90–95. [CrossRef]

26. High, S. Deindustrialisation and its consequences. In *Routledge International Handbook of Working-Class Studies*; Fazio, M., Launius, C., Strangleman, T., Eds.; Routledge: London, UK, 2020; pp. 169–179.

27. Cugurullo, F. Exposing Smart Cities and Eco-Cities: Frankenstein Urbanism and the Sustainability Challenges of the Experimental City. *Environ. Plan. A Econ. Space* **2018**, *50*, 73–92. [CrossRef]

28. Cugurullo, F. *Frankenstein Urbanism: Eco, Smart and Autonomous Cities, Artificial Intelligence and the End of the City*; Routledge: London, UK, 2021.

29. Elmqvist, T.; Andersson, E.; Frantzeskaki, N.; McPhearson, T.; Olsson, P.; Gaffney, O.; Takeuchi, K.; Folke, C. Sustainability and resilience for transformation in the urban century. *Nat. Sustain.* **2019**, *2*, 267–273. [CrossRef]

30. Camboim, G.F.; Zawislak, P.A.; Pufal, N.A. Driving elements to make cities smarter: Evidences from European projects. *Technol. Forecast. Soc. Chang.* **2019**, *142*, 154–167. [CrossRef]

31. Yigitcanlar, T.; Foth, M.; Kamruzzaman, M. Towards post-anthropocentric cities: Reconceptualising smart cities to evade urban ecocide. *J. Urban Technol.* **2019**, *26*, 147–152. [CrossRef]

32. Goldsmith, S.; Crawford, S. *Responsive City: Engaging Communities through Data-Smart Governance*; John Wiley & Sons: London, UK, 2014.

33. Foth, M.; Brynskov, M.; Ojala, T. *Citizen's Right to the Digital City: Urban Interfaces, Activism, and Placemaking*; Springer: Singapore, 2015; pp. v–ix. [CrossRef]

34. Tuan, Y.F. *Space and Place: The Perspective of Experience*; Edward Arnold: London, UK, 1977.

35. Tuan, Y.-F. *Topophilia: A Study of Environmental Perception, Attitudes, and Values*; Columbia University Press: New York, NY, USA, 1974.

36. Altman, I.; Low, S. *Place Attachment, Human Behavior and Environments: Advances in Theory and Research*; Plenum Press: New York, NY, USA, 1992; Volume 12.

37. Stedman, R.C. Sense of place and forest science: Toward a program of quantitative research. *For. Sci.* **2003**, *49*, 822–829. [CrossRef]

38. Jorgensen, B.S.; Stedman, R.C. Sense of place as an attitude: Lakeshore owners attitudes toward their properties. *J. Environ. Psychol.* **2001**, *21*, 233–248. [CrossRef]

39. Canter, D. *The Psychology of Place*; Architectural Press: London, UK, 1977.

40. Shamai, S. Sense of place: An empirical measurement. *Geoforum* **1991**, *22*, 347–358. [CrossRef]

41. Steele, F. *The Sense of Place*; CBI Publishing Company, Inc.: Boston, MA, USA, 1981.

42. Hummon, D. Community Attachment: Local Sentiment and Sense of Place. In *Place Attachment, Human Behavior and Environments: Advances in Theory and Research*; Altman, I., Low, S., Eds.; Plenum Press: New York, NY, USA, 1992; pp. 253–278.

43. Canter, D. The facets of place. In *Advances in Environment, Behavior, and Design*; Volume 4: Toward the Integration of Theory, Methods, Research, and Utilisation; Moore, G.T., Marans, R.W., Eds.; Plenum: New York, NY, USA, 1997; pp. 109–147.

44. Mesch, G.S.; Manor, O. Social ties, environmental perception, and local attachment. *Environ. Behav.* **1998**, *30*, 504–519. [CrossRef]

45. Proshansky, H.H.; Fabian, A.K.; Kaminoff, R. Place-identity: Physical world socialisation of the self (1983). In *The People, Place, and Space Reader*; Gieseking, J.J., Mangold, W., Katz, C., Low, S., Saegert, S., Eds.; Routledge: London, UK, 2014; pp. 111–115.

46. Riley, R. Attachment to the ordinary landscape. In *Place Attachment*; Altman, I., Low, S., Eds.; Plenum Press: New York, NY, USA, 1992; pp. 13–36.

47. Clarke, D.; Murphy, C.; Lorenzoni, I. Place attachment, disruption and transformative adaptation. *J. Environ. Psychol.* **2018**, *55*, 81–89. [CrossRef]

48. Hashemnezhad, H.; Heidari, A.A.; Mohammad Hoseini, P. Sense of place and place attachment. *Int. J. Archit. Urban Dev.* **2013**, *3*, 5–12.

49. Toukola, S.; Ahola, T. Digital tools for stakeholder participation in urban development projects. *Proj. Leadersh. Soc.* **2022**, *3*, 100053. [CrossRef]

50. Sell, J.L.; Zube, E.H. Percept of and response to environmental change. *J. Archit. Plan. Res.* **1986**, *3*, 33–54. Available online: http://www.jstor.org/stable/43028786 (accessed on 1 April 2024).

51. Winkei, G.H. The perception of neighborhood change. In *Cognition, Social Behavior, and the Environment*; Harvey, J.H., Ed.; Lawrence Erlbaum Associates: Hillsdale, NJ, USA, 1981.

52. Appleyard, D. (Ed.) Introduction. In *The Conservation of European Cities*; MIT Press: Carnbńdge, MA, USA, 1979.

53. Lowenthal, D. Age and artifact: Dilemmas of appreciation. In *The Interpretation of Ordinary Landscapes*; Meinig, D.W., Ed.; Oxford University Press: Oxford, UK, 1979; pp. 103–128.

54. Lowenthal, D. The bicentennial landscape: A mirror heldup to the past. *Geogr. Rev.* **1977**, *67*, 253–267. [CrossRef]

55. Datel, R.E.; Dingemans, D. *Historic Preservation and Urban Change*; V.H. Winston: Washington, DC, USA, 1980.

56. Datel, R.E.; Dingemans, D.J. Environmental perception, historic preservation, and sense of place. In *Environmental Perception and Behavior: An Inventory and Prospect*; Department of Geography Research Paper No. 209; Saarinan, T.F., Seamon, D.R., Sell, J.L., Eds.; University of Chicago: Chicago, IL, USA, 1984.

57. Rowntree, L. Creating a sense of place: The evolution of historic preservation of Salzburg, Austria. *J. Urban Hist.* **1981**, *8*, 61–76. [CrossRef]

58. Gibson, S.D.S. Sense of Place-Defense of Place. A Case Study of the Toronto Island. Ph.D. Dissertation, Department of Geography, University of Toronto, Toronto, ON, Canada, 1981.

59. Liu, Q.; Fu, W.; Van den Bosch, C.C.K.; Xiao, Y.; Zhu, Z.; You, D.; Zhu, N.; Huang, Q.; Lan, S. Do local landscape elements enhance individuals' place attachment to new environments? A cross-regional comparative study in China. *Sustainability* **2018**, *10*, 3100. [CrossRef]

60. Hay, R. Sense of place in developmental context. *J. Environ. Psychol.* **1998**, *18*, 5–29. [CrossRef]

61. Lomas, M.J.; Ayodeji, E.; Brown, P. Imagined places of the past: The interplay of time and memory in the maintenance of place attachment. *Curr. Psychol.* **2024**, *43*, 2618–2629. [CrossRef]

62. Lawton, M.P. Environmental change: The older person as initiator and responder. In *Transitions of Aging*; Academic Press: Cambridge, MA, USA, 1980; pp. 171–193.

63. Cheng, C.-K.; Chou, S.-F. The influence of place change on place bonding: A longitudinal panel study of renovated park users. *Leis. Sci.* **2015**, *37*, 391–414. [CrossRef]

64. Westerholt, R.; Acedo, A.; Naranjo-Zolotov, M. Exploring sense of place in relation to urban facilities–evidence from Lisbon. *Cities* **2022**, *127*, 103750. [CrossRef]

65. UN Department of Economic and Social Affairs. *World Urbanization Prospect. The Revision*; UN Department of Economic and Social Affairs: New York, NY, USA, 2019. [CrossRef]

66. UN Department of Economic and Social Affairs. *World Population Prospect 2022. Summary of Result*; UN Department of Economic and Social Affairs: New York, NY, USA, 2019; Available online: https://www.un.org/development/desa/pd/content/World-Population-Prospects-2022 (accessed on 1 April 2024).

67. Congress for the New Urbanism. The Charter of the New Urbanism. 1996. Available online: https://www.cnu.org/who-we-are/charter-new-urbanism (accessed on 1 April 2024).

68. Talen, E. The social goals of new urbanism. *Hous. Policy Debate* **2002**, *13*, 165–188. [CrossRef]

69. Rahnama, M.R.; Roshani, P.; Hassani, A.; Hossienpour, S.A. Use principles of new urbanism approach in designing sustainable urban spaces. *Int. J. Appl. Sci. Technol.* **2012**, *2*, 195–203.

70. European Council of Town Planners. The New Charter of Athens 2003. Vision for Cities in the 21st Century. 2023. Available online: http://www.itc.cnr.it/ba/re/Documenti/The%20New%20Charter%20of%20Athens%202003.htm (accessed on 1 April 2024).

71. United Nations. General Assembly Resolution A/RES/70/1. Transforming Our World, the 2030 Agenda for Sustainable Development. 2015. Available online: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf (accessed on 1 April 2024).

72. Caprotti, F.; Cowley, R.; Datta, A.; Broto, V.C.; Gao, E.; Georgeson, L.; Herrick, C.; Odendaal, N.; Joss, S. The New Urban Agenda: Key opportunities and challenges for policy and practice. *Urban Res. Pract.* **2017**, *10*, 367–378. [CrossRef]

73. United Nations. The New Urban Agenda. In Proceedings of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III), Quito, Ecuador, 20 October 2016.

74. European Union. LEIPZIG CHARTER on Sustainable European Cities. 2007. Available online: https://territorialagenda.eu/wp-content/uploads/leipzig_charter_2007.pdf (accessed on 1 April 2024).

75. European Union. The New Leipzig Charter. The Transformative Power of Cities for the Common Good. EU2020. 2020. de. Available online: https://eurocities.eu/wp-content/uploads/2020/12/New-leipzig-charter_2020.pdf (accessed on 1 April 2024).

76. European Commission. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Commitee and the Committe of the Regions. New European Bauhaus. Beautiful, Sustainable, Togheter. Brussels 2021. Available online: https://new-european-bauhaus.europa.eu/system/files/2021-09/COM(2021)_573_EN_ACT.pdf (accessed on 1 April 2024).

77. Brown, M.H. Perception of Change in a Residential Setting. Master's Thesis, University of Massachusetts, Amherst, MA, USA, 1976.

78. Cross, J.E. What is Sense of Place? 2001. Available online: https://mountainscholar.org/handle/10217/180311 (accessed on 1 April 2024).

79. Wherrett, J.R. Creating landscape preference models using internet survey techniques. *Landsc. Res.* **2000**, *25*, 79–96. [CrossRef]

80. Lynch, K. *The Image of the City*; MIT Press: Cambridge, MA, USA, 1964.

81. Ewing, R.; Handy, S. Measuring the unmeasurable: Urban design qualities related to walkability. *J. Urban Des.* **2009**, *14*, 65–84. [CrossRef]

82. Bentley, I. *Responsive Environments: A Manual for Designers*; Routledge: London, UK, 1985.

83. Internet. (n.d.). Tripadvisor (Forum Milan): Bicocca: È una Buona Zona? Available online: https://www.tripadvisor.it/ShowTopic-g187849-i143-k7928111-Bicocca_e_una_buona_zona-Milan_Lombardy.html (accessed on 13 May 2023).

84. Ardoin, N.M.; Gould, R.K.; Lukacs, H.; Sponarski, C.C.; Schuh, J.S. Scale and sense of place among urban dwellers. *Ecosphere* **2019**, *10*, e02871. [CrossRef]

85. Salah Ouf, A.M. Authenticity and the sense of place in urban design. *J. Urban Des.* **2001**, *6*, 73–86. [CrossRef]

86. Ujang, N.; Zakariya, K. The notion of place, place meaning and identity in urban regeneration. *Procedia-Soc. Behav. Sci.* **2015**, *170*, 709–717. [CrossRef]

87. Elshater, A. The predicament of post-displacement amidst historical sites: A design-based correlation between people and place. *Herit. Soc.* **2019**, *12*, 85–115. [CrossRef]

88. AlSadaty, A. Plot-based approach for controlled morphological transformation in urban heritage contexts: The case of New Gourna village, Luxor–Egypt. *Archnet-IJAR Int. J. Archit. Res.* **2023**, *17*, 648–664. [CrossRef]

89. Gregotti, V. Riconversione dell'area degli stabilimenti Pireli alla Bicocca, Milano [Conversion on the Pirelli factories area at the Bicocca, in Milan]. *Domus* **1999**, *815*, 36–50.

90. Boeri, S.; Gregotti, V. Gli enzimi dell'architettura. *Domus* **2006**, *895*, 98–104. Available online: https://www.domusweb.it/it/issues/2006/895.html (accessed on 1 April 2024).

91. Agrestini, A.; Colleoni, M.; Mangiatordi, A.; Malatesta, S.; Nuvolati, G.; Squarcina, E.; Zuccoli, F. Beyond Maps. A workshop on users' sense of place and visual representation at Milano-Bicocca University. *Img J.* **2022**, *6*, 14–31. [CrossRef]

92. Zuccoli, F.; De Nicola, A. The District as a Heritage Asset to be Explored. Pathways to Discovery and Appropriation in Bicocca. In Proceedings of the 1st International and Interdisciplinary Conference on Digital Environments for Education, Arts and Heritage: EARTH 2018, Brixen, Italy, 5–6 July 2018; Springer International Publishing: Cham, Switzerland, 2019; pp. 235–242.

93. Jóźwik, R.; Jóźwik, A. Landscape Projection and Its Technological Use in Conceptualising Places and Architecture. *Arts* **2022**, *11*, 67. [CrossRef]

94. Houston, D.; Hillier, J.; MacCallum, D.; Steele, W.; Byrne, J. Make kin, not cities! Multispecies entanglements and 'becoming-world' in planning theory. *Plan. Theory* **2018**, *17*, 190–212. [CrossRef]

95. Domaradzka, A. Urban social movements and the right to the city: An introduction to the special issue on urban mobilization. *Volunt. Int. J. Volunt. Nonprofit Organ.* **2018**, *29*, 607–620. [CrossRef]

96. Cui, L.; Chen, Y.; Wang, X.; Liu, S. Complexity review of NIMBY conflict: Characteristics, mechanism and evolution simulation. *Systems* **2023**, *11*, 246. [CrossRef]

97. Orchowska, A. Redefiniowanie przestrzeni-nowe kreacje architektoniczne [Redefining space—New architectural creations]. *Hous. Environ.* **2021**, *36*, 85–93. [CrossRef]