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Title: Brownfield Urban Policies
Case Study Turin

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Abstract

In Europe, brownfields and wastelands are a common topic and a central problem, especially in former industrial cities.

These sites, now abandoned and unused, constitute an a priori problem for urban planning and environmental regeneration policies.This was the starting point of this thesis.The research starts with the definition of what a disused urban area is.

Subsequently, the case of Turin is studied: what strategies have been implemented to reuse those sites?

Finally, a case study examines the Lancia District of Turin in detail. The choice of this neighbourhood is because it constitutes a virtuous example of the urban transformation of a former industrial district.

The project description and history of the different sites in the neighbourhood are defined and, finally, a district survey is carried out to understand the current social and economic situation of the different urban areas of this site.

The site analysis was conducted using two methodologies, namely stakeholder analysis and SWOT analysis, to highlight critical issues and potential.

The final phase involves the identification of the possible results of the transformation project, the critical issues and the proposals for possible future developments

Keywords: industrial zones, Economic considerations, Turin's Lancia District, Stakeholder analysis, SWOT analysis, Transformation project, Sustainable development

Chapter 1

Introduction

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1.1. Background of the study

The frequency of abandoned industrial zones has increased in Europe in recent years; this problem is linked to technological developments that force industrial plants to relocate or close. Significant metropolitan areas have been abandoned as a result of this change, which has raised concerns about the decreasing amount of undeveloped land available for construction in the face of growing urbanization.

Of all the various kinds of brownfields, abandoned industrial sites are the most prevalent. In order to accommodate the expansion of cities, industrial zones were progressively moved to suburban areas following deindustrialization. Once industrial sites failed to adapt to the new demands of cities, technological advancements, and environmental degradation concerns, they became even more peripheral. (Lakatos,2015). They lost their importance in new urban fabrics with their dominant architectural style (Postekkis, 2011) Brownfields developed as a result of a variety of industrial buildings that were left abandoned or fell into disrepair as a result of deindustrialization. Brownfields are empty or abandoned properties that were once used for a variety of things but have since been abandoned and could become contaminated. They might be found on commercial, industrial, or waterfront properties that produce land waste. (Njunge, 2021)

Abandoned sites often bring about different environmental, economic and social problems not only to the area itself but also to its surrounding. The most common thread could be the urban degradation and social and economic vitality that brownfields can bring about (Rey et al., 2022)(Antonkiewicz,a. (2022))

Repurposing and restoring these derelict industrial areas is essential, not only to make room for urban growth but also because these sites are essential parts of a city's history, with buildings that are both publicly recognized and historically significant. Furthermore, the restoration of these locations corresponds with broader environmental programs, like the European Green Deal, indicating a shift toward environmentally responsible and sustainable urban growth.

The study focuses on Turin and the Lancia District in particular to examine this issue. Reusing abandoned industrial areas requires the development of effective strategies, which require an understanding of the local context. The Lancia District presents a relevant case study, providing an understanding of the location's historical context, project descriptions, and local history.(Sorkhei M.(2022))

1.2. Problem Statement

The city of Turin has seen a number of changes. As a result, many city centers were left in disrepair and had numerous vacant and abandoned buildings. Brownfields typically represent urban decay, improper usage, and abandoned assets. They can represent untapped potential next to decaying areas and abandoned properties that need to be revitalized.

These locations, however, are resource assets with untapped potential for redevelopment ideas. On the other hand, cities have a tendency to grow, consuming the nearby arable land to meet the requirements of its population. This research's primary issue may be summed up as the current disregard for brownfields as a valuable resource that might be effectively used to rejuvenate the city and aid in the achievement of sustainable urban development.

1.3. Questions and Aims of The Thesis

This thesis's main goals are to define the term "abandoned industrial areas," explain their significance in relation to Turin, and look at the methods used to reuse them. The study attempts to offer a thorough grasp of the opportunities and difficulties in repurposing such areas through a case study analysis of the Lancia District. It seeks to define these areas, highlight their significance, and exam-

ine methods for their reuse. The study employs a multi-methodological approach, comprising problem identification and outcome determination phases. This includes the use of SWOT analysis and Stakeholder analysis to comprehensively understand internal and external factors influencing the transformation project.ocals in shaping Lancia's future, aiming to transform challenges into assets for improved community life and sustainable growth.

It is crucial to respond to the following questions:

1.What criteria are used to define and categorize areas as "abandoned industrial areas" in your study?

2. How can deserted industrial areas be seen as unexplored redevelopment opportunities, and how can they help cities like Turin come alive?

3. In what ways can the repurposing and rehabilitation of shuttered industrial districts like the Lancia District advance the objectives of sustainable urban development?

4. What specific negative effects do abandoned industrial areas have on the environment, the economy, and society, and how do these effects add to urban degradation?

5.Why did you choose the Lancia District as the focus of your case study?

6.What are the unique characteristics and challenges associated with the Lancia District in terms of repurposing?

7.With a particular emphasis on the Lancia District, what tactics have been put into practice or suggested for the repurposing of closed industrial sites in Turin?

8. What are the advantages, disadvantages, opportunities, and risks related to the possible redevelopment of the Lancia District, and how successful are the tactics used for its reuse?

9. What are the expected results of the Lancia District transformation project, and what suggestions can be made in light of the research and analysis done for this thesis?

1.4. Methodology:

With a focus on Turin's Lancia District, the methodological framework used for this thesis is intended to offer a thorough and rigorous analysis of abandoned industrial areas. The strategy consists of multiple important phases, all of which add to a comprehensive comprehension of the background, difficulties, and prospects related to the reuse and modification of these locations.

Start by defining abandoned industrial areas in a methodical manner, taking into account both qualitative and quantitative factors.

To create a conceptual framework that supports our understanding of abandoned industrial areas, review the literature that has already been published and scholarly works. The case study analyzes the Lancia District in Turin, examining its development, industrial presence, and socioeconomic background through past information and project summaries.

At first will Implement a district survey to acquire a understanding of the Lancia District. In second phase Identifying and grouping the important parties involved in the abandoned industrial area and its possible development. Stakeholders' expectations, influence and interests will be analyzed to understand the dynamics affecting the redevelopment process. Its SWOT assessment. It is time to conduct a complete SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to assess the internal and external factors affecting the business. The potential of the Lancia region for redevelopment will determine the project's potential threats and weaknesses, as well as its leveraged strengths and opportunities.

1.5 Thesis Structure

The structure of the thesis is supported by four central pillars.

The first concerns the identification of the theme of abandoned areas. The critical issues that these areas represent for the cities in which they are located. The potential that these areas can produce

in the case of effective urban regeneration policies.

The second pillar concerns the case of Turin. Post-industrial regeneration policies, relationships with urban master plans, results achieved and critical issues are examined.

In this context, the first result of the thesis highlights a central issue: the possibility of taking possession of these unused areas - Where it has been possible there have been effective urban redevelopment projects (this is the case for example of the “Spine” projects of the Master Plan of Turin and also of the area chosen as a case study in the “Borgo San Paolo District”).

In cases where - however - there are difficulties in acquiring land or there are high costs of reclaiming land and former industrial buildings, in these cases the problem is such that regeneration policies are often ineffective if not impossible. The acquisition of property is therefore a central issue in the problem.

Chapter 2

Brownfield identification

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Brownfield identification

2.1. Introduction of brownfield

Brownfields require interventions to be returned back to active use. In order to achieve sustainable urban development and support facing urbanization challenges. Nowadays, many of the industrial districts that were constructed during those years of rapid expansion are now abandoned and unused (Fabian,L.; Munarin,S. 2017) This is due to the fact that over the years, some post-war industries that had grown up had to close their doors due to the production sector crisis (Piantanida, P.; Rebaudengo, M., 2017) change their business practices to accommodate changing worker health standards, or relocate as a result of mounting financial pressure. The need to regain them and change them into something else results from this . (Abu Raed, A., 2018) (Gegic, A.; Husukic, E., 2017)(Moscovici,A.-M.; Banescu,O.-A.; Vaduva,R.,2017)

There are a lot of abandoned industrial areas, sometimes known as "brownfields," in Italy today (Fabian,L.; Munarin,S. 2017)

Due to its global impact, this phenomena is not limited to Italy .They are referred to as "brownfields" in the report produced by the working group "Brownfield Redevelopment" of the network CLARINET (Contaminated Land Rehabilitation Network for Environmental Technologies), a project established under the European Commission's Environment and Climate Programme: sites that need assistance to be put back to good use because they are abandoned or underused, have real or imagined pollution issues, are mostly in established urban areas, and have been impacted by previous uses of the site and the land around it.

Given the severity of the issue, adaptive measures targeted at reusing places that are now in a condition of deterioration must be considered. The site's extreme pollution lowers its market worth significantly [16] and jeopardizes investment profitability (Borello,F. 2016)

Finding treatments that postpone rather than deal with these areas' full recovery is required to strike a compromise between the public administration's financial constraints and the aim to make these areas productive. This will lower the initial investment expenses. This is due to the fact that the expenses associated with their complete rehabilitation are frequently incompatible with the financial resources of public administrations.

How can we think about concrete, not always utopian urban-territorial changes while trying to solve the problem with resilience? Some recent papers have tackled subjects such as the multidisciplinary and complex nature of urban resilience .as well as the solutions for the resilient city of the future . If, on the one hand, site reclamation's higher intervention costs necessitate major government action to boost the appeal of these changes (lower urbanization costs, higher volume, etc.), On the other hand, the municipalities must address this issue head-on because waiting will inevitably have negative effects on society. Due to all of these factors, the case study is designed to determine whether the resilient scenario, which specifically addresses the issue of decontamination-related costs, is (economically and financially) feasible. It does this by showcasing the resilience of the scenario, preventing abandonment, and producing green energy.

- Identifying Brownfields

Although the term "brownfield" is frequently used nowadays, no one universally accepted exact definition exists. Its definition varies from country to country and is often made at the national level. It is a relatively recent idea, though, and during the past 20 years, the US and Europe have used it the most. (Perovic,S.,Kurtović Folić,N., 2012) The definitions of brownfields will be covered in more detail in the following section.

- Brownfield definition

A brownfield site is a piece of land that has been left vacant after an industrial activity that was taking place there was stopped for a variety of reasons, most notably the termination of the activity or the relocation.

Due to their crucial significance in urban development and ongoing participation in the new dynamics of cities as material that is "put back in place," brownfield sites can be seen as an essential component of the spatial reality.

The more common term "dismissed areas" has evolved into other equivalent or complementary meanings that have reduced its general "sense" and specific spatial values while partially defining it. Among the many definitions we recall are "weak areas," "under-utilized" areas, and, by contrast, "interstitial areas," or by extension, "urban voids."

All of these concepts help define the role that these voids currently play in the urban context as one of "weakness," especially in the context of the strong role that these areas once played in the industrial structure, which put them in a system of centrality in relation to the surrounding area.

2.2 Notion and typologies

Urban planners were the only ones who understood the notion of urban brownfields until recently, when associations, the media, and politics began to discuss it extensively.

On the other hand, brownfields are a diverse range of unique habitats. To provide a satisfactory definition, it is necessary to define the term "brownfields" and to clarify the characteristics of their localization, which formally certifies their inclusion in urban and, more broadly, metropolitan areas. (Rey, E., Laprise, M., & Lufkin, S. (2022).)

- The Polysemous Nature of the Word Brownfield and Its Origin

- An Etymology for Agriculture

It's important to note that the French word for brownfield, friche, has agricultural roots. According to (Dubois J, Mitterand H, Dauzat A (2001), the term's etymology derives from the development of the medieval Dutch word versch, which signified "fresh soil." More broadly, it refers to agricultural land that has been left fallow for a short while, is surplus land, or is not used for cultivation because of poor soil fertility. The term "brownfield" was first used in urban planning circles at the beginning of the 1990s to refer to any abandoned land. It is a compound word that combines the adjective "brown" and the noun "field" (Merlin P, Choay F (2010). To assist local governments in their efforts to catalog and evaluate brownfields, the United States Environmental Protection Agency (EPA) launched the Brownfields Redevelopment Initiative as early as 1993 (Environmental Protection Agency (EPA) (2006)

A brownfield is defined as "a tract of land that has been developed for industrial purposes, polluted, and then abandoned" by the general Merriam-Websterdictionary.

(https://www.merriam-webster.com/dictionary/brownfield) More paticular still, Brownfields in metropolitan areas are distinguished by:

• An unbalanced condition that indicates a discrepancy between the activities carried out and the site's capacity for occupation (dysfunction, escheat, obsolescence);

• A protracted period without investments, which usually results in a major decline in the site's usable worth or even exchange value in the near future.

- A Polysemic Notion

Brownfields are present in industrialized nations worldwide, but to varying degrees. On the other hand, neither the European nor the American continents have a standard definition of a brownfield (Oliver L, Ferber U, Grimski D, et al (2005). Different organizations have different standards for defining what exactly constitutes a "brownfield." In fact, the study by Oliver et al. finds that the term "brownfield" has up to 19 distinct meanings and variations in Europe alone.

Nonetheless, a number of regional or cultural inclinations might be noted, such as the notion that the term, as it is used in the United States and Canada, mostly refers to land contaminated—or possibly contaminated—by past actions (Nathanail P, Thorn-

ton G, Millar K (2003) . For example, “abandoned, idle or underutilized commercial or industrial properties where past actions have caused environmental contamination” is how the Canadian government defines brownfields. https://www.canada.ca/en/environment-climate-change/services/federal-contaminated-sites/

A brownfield is defined as a property in the United States of America that poses potential risks to growth, redevelopment, or reuse due to the presence of hazardous substances, pollutants, or contaminants(.https://www.epa.gov/brownfields/overview-epas-brownfields-program) However, it would be oversimplifying to limit our knowledge of brownfields to the one problem of contamination. Additionally, many definitions, like the Dutch or Spanish ones, tend to restrict the scope to previous industrial activities (Oliver L, Ferber U, Grimski D, et al (2005) The scale and nature of European brownfields) . Similarly, the only definition of brownfields found in the Brownfields Center’s vocabulary item is “industrial or commercial property.”4 Actually, a number of factors—which we will discuss in greater depth later on—may play a role in the development of a brownfield. Based on field observations, the term describes a quite heterogeneous reality that encompasses wide stretches densely populated with historic infrastructure, mid-sized locations testifying to abandoned projects, and vacant lots in the middle of urban fabrics.

Consequently, it is important to remember that the term itself and its consequent definition are inherently polysemous given the variety of contexts and origins (Rey E, Lufkin S (2015).

In this regard, Clément’s (2020) introduction of the idea of tiers paysage appears to be able to include the term’s several connotations. The French philosopher states that brownfields are typically things that have been “abandoned,” however they can also occasionally be things that have been “reserved.”(Clément G (2020) . The first group consists of abandoned properties that were once used for a variety of uses, including industrial, tourist, agricultural, and urban areas. The second group refers to an underutilized site whose existence may be accidental or brought about by a lack of access that makes it costly or impossible to operate.

A. Berger’s notion of drosscape, which originated in the American context, is another creative way to embrace the unique character of brownfields, which he refers to as “waste landscapes” inside metropolitan areas (Berger A (2007)

As we’ll see in the following sections, European cities serve as repositories for these kinds of sites. According to (Viganò P, Cavalieri C, Corte MB (eds) (2018), brownfield lands are an essential component of the Horizontal Metropolis phenomena and demand complete consideration from experts in urban planning.

-The Developing Agreement Regarding a Definition

- Brownfields in Urban and Metropolitan Areas

Geographically, brownfield locations might differ significantly. But as the name suggests, the current issue of the journal focuses more specifically on brownfields—also referred to as urban brownfields or even metropolitan brownfields—that are located in urban areas. It’s true that metropolization basically, the start of global urbanization—occurs in every European country (EU EU (2019).

Urban or metropolitan areas are, in general, defined as places with a continuous constructed fabric and a relatively high population density. The expansion of suburban and peri-urban areas, which tends to combine the major agglomerations, and the concentration of activity within urban poles are the two dynamics that most describe them. At this point, it seems crucial to emphasize that while metropolization processes are present throughout Europe (and the rest of the world), they are nevertheless quite distinctive to each individual country and region. Consequently, just like the concept of a brownfield, there is no exact, universal definition of what constitutes an urban or metropolitan region at the European level.

That being said, it is clear that urban densification strategies that originate from a compact and polycentric city perspective are not limited to city cores. For this reason, the peri-urban and surrounding suburban rings contain a large percentage of the brownfields that we have included in our thoughts. These locations present extremely beneficial strategic possibilities for urban regions' overall transition to sustainability. As a result, the commonly used term "urban brownfield" is adopted for this article.(Rey, E., Laprise, M., & Lufkin, S. (2022)

- The Diversity of European Urban Brownfields

- A Multiplicity of Causes

The idea is that at every stage of a city's development, the "content"—the activities carried out on the urban fabric—and the "container"—the city itself should be entirely coherent. However, it appears that different logics govern these two essential components of the urban identity. While socioeconomic statistics fluctuate in relatively short cycles, construction, infrastructure, and network solutions are often based on long-term dynamics. This fundamental inequality gives rise to urban brownfields (Rey E (2012).

Converting, altering, and modifying buildings, public spaces, and infrastructures can facilitate a progressive shift from one point of equilibrium to the next in the evolution of urban activities over an extended period of time. Even today, spontaneous regulatory procedures continue to exist, especially during periods of economic expansion when metropolitan areas are quickly transformed for new purposes.

When short-term cycles characterize evolution instead of a dynamic economy, the micro-processes of reallocation are unable to keep up with the increasing flux of developed areas and abandoned land. If the situation worsens, a stock of brownfields will eventually emerge and gradually erode the live urban fabric. There are a number of particular reasons why they appear, some of which are listed below.

Technological advancements in a civilization have a significant impact on land use, particularly when it comes to energy sources, transportation options, and industrial breakthroughs. The latter, with productivity as their primary goal, typically try to reduce the surface area needed for their operation. From a historical standpoint, metropolitan areas where a dominant activity, business, or institution occupies a particularly substantial piece of urban space are largely at risk of developing a big stock of urban brownfields. In fact, a significant change in the business in issue can suddenly free up surfaces that are obviously larger than what is needed for other operations. (Rey, E., Laprise, M., & Lufkin, S. (2022)

The fast relocation of several activities contributes to the accumulation of urban brownfields. For logistical reasons, some of them are relocated to the outskirts of cities, while others are moved for economic reasons to developing nations. These occurrences tend to intensify in tandem with the various restructuring processes linked to financial globalization, as they are an essential component of the heightened territorial rivalry. The speed at which these changes are occurring frequently makes it impossible to guarantee the transfer of workers from one branch to another within an organization, even though in the European context, the service, high-tech, tourism, and health sectors have supplanted more traditional production sectors. The majority of developed nations experience somewhat distinct spatial needs as a result of altered economic activities, which tends to impede a smooth and harmonious transition between uses. Put another way, in many European urban areas, the rate of activity cessation and property evacuation outpaces the rate of reuse, resulting in the accumulation of unused land, infrastructure, and buildings. (Rey, E., Laprise, M., & Lufkin, S. (2022)

-Types and classification of Brownfields

Coastal locations, airports, massive military facilities, public parks, industrial sites, and tiny patches in mixed-use urban areas can all be brownfields. While industrial complexes predominate, brown-

field sites can also be thought of as places intended for alternative occupancies where the principal activity is no longer carried out. For the purpose of learning how to handle brownfield sites, it is crucial to recognize and categorize them. (Fakultet u Podgorici, A., Perovic, S., & Folić, N. K.,2012) Sites might be classified as brownfields in their entirety or in portions.

This criteria are mainly based on the characteristics that describe the current status of the site, which could have one or more of these characteristics

- vacancy,
- dereliction
- Size of the site.
- contamination
- Partial occupation or partial utilization.
- previous use,
- the ownership situation

However, developing a formal typological classification is a complicated—and likely doomed—enterprise due to the widely varied nature of brownfield terrain.

As such, the seven classifications of urban brownfields that are suggested in this paper are still open-ended. They aren't overly restrictive or exclusive. It is possible to consider an abandoned site as both a brownfield and an abandoned site, since these two types of sites have historically been closely related.

Similarly, it is possible that a piece of property that is currently abandoned underwent a prior use change without going through a brownfield phase, meaning there was no time when operations were suspended.(Rey, E., Laprise, M., & Lufkin, S. (2022)

There are three common brownfield kinds that can be distinguished based on where they are located in an urban area.(Klusáček, P., Krejčí, T., Martinát, S., Kunc, J., Osman, R., & Frantál,B.,2013)

In the center of the city

- On the city's border
- In historic areas

The following are examples of typical brownfields based on their prior uses: (Lorber, L., Matlovič, R., & Stiperski, Z., 2016)

- Industrial districts
- Mining operations
- Railway complexes
- Military complexes
- Municipal public service facilities
- coastal areas

Depending on the site's previous usage, the frequency of brownfield sites—tainted by prior industrial or commercial activities—presents a serious problem because of contamination with a variety of hazardous substances, including petroleum, metals, asbestos, pesticides, PCBs, and solvents. These hazardous sites are close to residential and commercial areas, which puts nearby residents' health and safety at serious danger.

The issue is made worse by neglecting brownfield lands that have been abandoned, which permits pollutants to go outside the site's limits and jeopardize the public's health. Given the possible harm that these chemicals may cause, it is even more important to address and clean up brownfield areas as soon as possible.

It is crucial to remember that the goal of this list is to highlight the variety and complexity of urban brownfield and regeneration projects around Europe, not to create a comprehensive list of all of them. In order to solve these environmental issues and revitalize these places for sustainable development, recent brownfield regeneration programs have focused on these two goals.

It is imperative to acknowledge the proposed classification's usefulness as a reference framework, as opposed to a strict definition, in order to appreciate the brownfield phenomenon in its complexity. This classification seeks to offer a thorough understanding of brownfields, recognizing its ability to advance our understanding while

remaining receptive to changing viewpoints.

-The existence of Brownfields

Before it was completely identified, there was brownfield land. Brownfields are mostly caused by suburbanization and deindustrialization, according to several academics. Brownfields are typically located in industrial areas. Around the turn of the 20th century, population started to decline, particularly in industrialized nations. When industrial zones were driven into the countryside, sometimes they left behind dilapidated and contaminated structures. As individuals transferred to new neighborhoods outside of older towns or moved into new residences on the urban periphery, the mid-20th century also saw the beginning of a population decline in older core cities. Based on their origin, location, and relative utilization, brownfields may be categorized into three basic groups, as Table 1 illustrates.

As suburbanization grew, so did the number of abandoned homes. In search of better living conditions, many people moved to the outskirts of cities about the same period as deindustrialization Tang, Y. T., & Nathanail, C. P. (2012).

Due to the decline in demand, property owners in the inner city were forced to stop maintaining their properties.Keenan, P., Lowe, S., & Spencer, S. (1999)

As a result, the vacant properties depreciated and contributed to a degradation in the social and physical conditions. Public infrastructure like railroads and docks may also be unused or abandoned in the declining communities. Grimski, D., & Ferber, U. (2001).

2.3 . Impact of brownfields in inner cities: critical issues and benefits as potential urban sources

Deindustrialization and suburbanization have a number of negative effects, including the emergence of various sorts of abandoned properties. When it comes to redevelopment, these brownfields have numerous potential benefits in addition to several drawbacks.

- Negatives of Brownfields

Brownfields may negatively affect surrounding communities and the city as a whole in a variety of ways. For instance, such properties can be found in or next to areas with a high concentration of people living in poverty, poor educational opportunities, high unemployment rates, crime, actual or perceived environmental degradation, and other issues.(Walkowiak, E., & Frazier, D. ,2000).

Brownfields caused significant social and economic problems. The cessation of industrial activity led to the loss of employment prospects and the release of a significant quantity of nearby land. The surrounding communities' economic situation therefore deteriorated. The lack of resources hurt the community's welfare and reduced the value of the land even further. The neighborhoods surrounding these properties typically experience crime, unemployment, and declining economic output.(Spelman, 1993; Brown, B. B., Perkins, D. D., & Brown, G. (2004); ang, Y. T., & Nathanail, C. P. (2012).

Other aspects of withdrawal such as poor education and underprivileged health care service may follow (Cox, A. M., McKevitt, C., Rudd, A. G., & Wolfe, C. D. ,2006).

Most polluted areas are those where there was once industrial activity. Brownfield sites may con

tain contaminants that can contaminate the soil, the air, and the water both on and off the site. Threats to public health and the environment result from this. Safety is a concern as well; abandoned locations are sometimes used for unlawful activities like dumping. Even in a neighborhood that is otherwise well-maintained, buildings on brownfield sites that are abandoned or derelict are ignored.(Fuder, J. D., 2005). Particularly in low-income areas, brownfields are seen as a burden on the community and a drain on the local economy. They struggle with numerous brownfield locations. (Kaufman, D. A., & Cloutier, N. R.,2006).

However, urban planning and the building of sub-

Table 1. Types and causes of Brownfields site according to location

Brownfields in traditional industrial area	Brownfields in metropolitan areas	Brownfields in rural areas
A deeper structural transformation in industry was required as a result of the reduction in industrial jobs. Because of the valuable industry that once existed there, this resulted in a large number of square meters of Brownfields that are no longer used as industrial sites and some of them being labeled as polluted areas.	Cities are teeming with both large- and small-scale vacant land locations. These locations have once housed small businesses, buildings, and substantial infrastructure for the railroad and harbor. These sites have been abandoned for years as a result of the change in use, creating Brownfields.	Additionally, rural areas have isolated Brownfields sites with locally constrained dimensions. These sites can be quite important to the concerned local government authorities. The sites that were primarily associated with fundamental economic activities in agriculture, forestry, or mining have undergone a consolidation process over the past few decades, leading to the abandonment of many sites.

Source :Table prepared by the Author Adopted from : (Grimski, D., & Ferber, U., 2001)

Stantial facilities are typically the means to lessen or eliminate these adverse effects. Brownfields are not insurmountable obstacles; in fact, they are frequently ideal sites for rehabilitation because they are seen as both a possibility and a limitation.

- Benefits of Brownfields

Despite being contaminated, brownfield sites are virtually entirely empty spaces within the priceless urban spaces. Consequently, brownfields are seen as assets for city development rather than just contaminated soils. Many direct and indirect environmental, economic, and social benefits come from cleaning up and reusing brownfields. These advantages justify investing in brownfields. (Groenendijk, N. (2006)

Some of these benefits are direct as follows:

- Benefits of location: Brownfield areas are thought of as advantages in and of themselves since they are typically located in strategic locations near waterfronts, trains and other modes of transit, and the boundaries of downtown areas. In addition to reducing urban sprawl, reducing commuter travel also reduces the negative effects of transportation (air pollution, congestion, etc.).
- infrastructure benefits: Because brownfields are already developed lands, they are connected to infrastructure. Upgrading the current infrastructure is more effective than building new ones in additional zones. (Groenendijk, N. ,2006).
- Economic benefits: Brownfields remediation and redevelopment can serve as a springboard for the creation of new jobs and a larger revenue base for the government.
- Environmental benefits: By cleaning up the polluted areas and avoiding their negative effects, promoting and supporting the reuse of brownfields can contribute to maintaining the public's health.
- Social benefits: urban center revitalization, the elimination of numerous socioeconomic issues related to residing near brownfield areas, and availability to cheap housing. (De Sousa, C. A.,2002).Brownfields regeneration and revitalization is a widely recognized strategy for attaining sustainable development. (Paull, E. ,2008).

Therefore, it can be deduced that brownfield is a condition not a problem. These sites are dead sites that could be revived with new life and vi-

tality, which require intervention but what kind of intervention Table (2) combine and classify the possible benefits and positives of brownfields that could be claime

Table 2 .possible Benefits of brownfields,

Location benefits	• Brownfield locations are thought of as assets in and of themselves because they are frequently found in prime locations close to city centers, railroads, and other modes of transportation. • Recovers desirable locations, making it possible for urban development to promote smarter growth.
Urban / Infrastructure advantages	• Brownfields are previously built locations. They are generally supplied by existing infrastructure, which may be upgraded more effectively than adding new infrastructure to additional new locations. • Places new construction in regions where current municipal infrastructure and services, such transit, may be used more effectively. • Protects historical sites and historic buildings • Rejuvenates older urban neighborhoods and the surrounding area • Preserves arable land, which may be useful farming or land with great environmental value. • Lessens urban sprawl; lessens pressure on greenfield lands for development • lessens the negative consequences of commuter travel on the environment (congestion, air pollution, etc.). • Enhances urban environments
Economic Development/ Job creation	• Brownfields cleanup and regeneration can serve as a springboard for economic growth and increase the number of employment and tax payers for the government. • cities' increased competitiveness • business advantages for certain parties • increases the value of property assessments and the corresponding tax base, which increases government revenue
social	• Destroys or repairs abandoned structures to reduce the danger of accidents, vandalism, and arson • The revitalization of urban cores, the abolition of socioeconomic stigmas related to residing near brownfield sites, and access to affordable housing. improved neighborhood quality of life
Environmental	• Communities may help to speed up the clean-up of contaminated land and minimize its negative effects by encouraging and supporting the reuse of brownfields. This will protect public health and the environment.

Source:Table prepared by the Author Adopted from EPA, CABERNET (2004)

2.4 Opportunities for Urban Renewal Policies

The tremendous diversity of this type of site was illustrated by the several classifications of urban brownfields outline. The diversity of earlier actions results in a wide range of circumstances as well as a notable spatial distribution of the phenomena throughout European cities. In fact, the location of the activity—and consequently, the structures and facilities—was carefully considered at the time of development, especially in light of the site's raw resources and accessible conditions. This is why many urban brownfields profit from a prime location.

The goal of this chapter is to evaluate the intrinsic potential of urban brownfields to offer a significant and pertinent densification approach for metropolitan areas, both qualitatively and quantitatively. Put another way, by encouraging these areas to become more sustainable, urban brownfield regeneration presents a number of options to change them. Our goal is to increase the importance of the issue to those who set policy and are involved in city and regional planning. (Rey, E., Laprise, M., & Lufkin, S. (2022)

- Urban Brownfields' Qualitative Potential

(Environmental, Sociocultural, and Economic)

According to the definition used for urban brownfields, there is a wide range of abandoned properties that initially seem ugly or even gloomy because of their abandonment. Thus, it is vital to emphasize why urban brownfields may, conversely, be useful for the sustainable transformation of European cities. We suggest contrasting urban brownfields with the reference model of the compact, polycentric city tailored to the metropolitan area, which is based on three main principles: functional mix, mobility, and density, in order to recognize their qualitative potential. The many opportunities for improving the built environment provided by urban brownfields in terms of the environment, society, and economy—three pillars of sustainable development—will next be examined through a study of the literature. (Rey, E., Laprise, M., & Lufkin, S. (2022)

- Opportunities for Density, Mobility, and Functional Mix

The European Commission called on legislators in member states to take ownership of their land use in its 2011 "Roadmap to a Resource Efficient Europe" in order to halt the net expansion of urbanized land by 2050. (European Commission (2011)) Offering projects on urban brownfields priority in this context of reevaluating urban sprawl seems like a pertinent tactic to achieve these densification goals.

In fact, because urban brownfields are located within pre-existing urban fabrics, they promote increased compactness within cities and metropolitan areas. They thus present a special chance to take part in initiatives aimed at preventing urban sprawl.This is perhaps one of the most apparent and natural opportunities that brownfield lands present. It is recognized as such by numerous territorial authorities. (Thornton G, Franz M, Edwards D et al (2007), (Apparu B (2011),(DGO4 D. (2014)

one of the most notorious examples of public policy comes from the United Kingdom, where the government established an aggressive goal for the reuse of brownfields in 1998. By 2008, the initial goal was to have at least 60% of newly constructed homes constructed on brownfields. For the record, the goal was accomplished eight years ahead of schedule..(politics.co.uk (2011), (Schulze Bäing A, Wong C (2012)

Since 2010, municipal planning authorities have been tasked with determining the number and distribution of homes within their jurisdiction. However, more specific guidelines for brownfield redevelopment still need to be worked up (Department for Communities and Local Government (2015)

1.2 billion-pound special fund was established in 2016 to facilitate the acquisition and develop-

ment of vacant land, hence promoting urban densification (Carr D (2016)
Still, it is anticipated that the funds for soil cleanup will be cut, which will probably penalize these kinds of developments in the most impoverished areas of the nation (Harvey F (2016)

Previous observations have demonstrated that the city center is by no means the only place where a metropolitan region may be defined geographically. The suburbs and the edges of urban regions are home to a sizable population of urban or metropolitan brownfields. In line with the compact and polycentric city plan that has been tailored for the metropolitan area, the concept of urban brownfields finds a home among the various areas that remain to be reclaimed.
According to Rogers and Gumuchdjian (1998)(Rogers R, Gumuchdjian P (1998), urban brownfields are likely to encourage the development of mixed-use, compact polarities, or, to put it another way, to help with the (re)construction of dense secondary centers that transfer functions often found in inner cities to public transportation hubs. Given this, brownfields provide especially valuable chances for the long-term transformation of urban areas seen as a whole.(Rey E, Lufkin S (2015) , (Rey E, Andersen M, Erkman S et al (2015)

Accordingly, it is also important to improve the accessibility and versatility of those secondary centers (Lufkin S (2010). First, let's remind the reader of the significance of modal transport nodes' proximity for that model and urban brownfields as a whole. Densification of those sites will, by definition, always present greater potential than peri-urban or rural growth in terms of soft mobility and connections to public transportation networks. Consequently, it only makes sense to densify them in tandem with a consideration of mobility.(Williams K, Burton E, Jenks M (eds) (2000) .

Finally, we also observe that urban brownfields are a true representation of a portion of the metropolis due to their size—at least a half hectare. Put differently, they are obviously related to problems at the neighborhood level. The chance to construct a mixed-use built environment with residences, stores, offices, services, or craft workshops in addition to first-rate public areas and infrastructure is therefore presented by their redevelopment. By being diverse, these areas hope to avoid becoming monofunctional areas that close off totally at specific times of the day, like commercial districts or bedroom communities. (Merlin P, Choay F (2010) Additionally, combining functional mix with density minimizes the distance between activities geographically and facilitates the establishment of a short-distance region.(Hauri E (2011)

- Opportunities for the Environment, Society and Economy

As previously stated, the regeneration of urban brownfields is a pertinent tactic for containing urban sprawl (Schulze Bäing A, Wong C (2012) and thereby for minimizing its numerous negative impacts (European Commission (2013) This is in line with the compact and polycentric city model tailored to the metropolitan area. Here, we draw attention to the considerable potential that urban brownfield restoration has to enhance the built environment, with favorable effects on the social, cultural, and economic spheres.

We can begin by thinking about projects situated on contaminated brownfields. Many different ecosystems—including those supporting tiny species, groundwater, soil quality, etc.—will benefit greatly from their rehabilitation. (Martin MK, Daniel TR, Kent SM (2005), (ADEME (2014) From this angle, two rapidly expanding study areas that come to mind are "greening" and "soft re-use." (Doick KJ, Pediaditi K, Moffat AJ, Hutchings TR (2009),(Pediaditi K, Doick KJ, Moffat AJ (2010),(De Sousa C (2014),(Bardos RP, Jones S, Stephenson I et al (2016) Moreover, one benefit of brownfield decontamination is that it lessens health risks and even prevents early deaths.(Rowan GT, Fridgen C (2003),(Gilderbloom JI, Meares WL, Riggs W (2014)

Research has demonstrated a connection between abandoned properties and the low value of nearby lots, as well as a rise in foreclosures linked to the precariousness and poor quality of life of the local population (Gilderbloom JI, Meares WL, Riggs W (2014) . Even though decontamination expenses can be very costly, a well-planned rehabilitation project can benefit the community, the environment, and the local economy. (Thornton G, Franz M, Edwards D et al (2007),(Kotval KZ (2016)
In fact, studies have shown that regeneration initiatives have the potential to boost employment levels (Sousa CAD (2008), produce local tax revenue (Kotval KZ (2016) ,revitalize communities and property values (Dennis AK, Norman RC (2006)
(Schulze Bäing A, Wong C (2012) and have a positive impact on the economy .(Sousa CAD (2002),
(Lange D, McNeil S (2004).

In fact, studies have demonstrated how regeneration initiatives can have a favorable impact on the economy.(Sousa CAD (2002) ,(Lange D, McNeil S (2004) . Additionally, among the tactics created to address the phenomena of urban shrinkage—which primarily affects Eastern Europe—are several rehabilitation initiatives (Rall EL, Haase D (2011)

Simultaneously, it is critical to recognize that revitalization initiatives facilitate a reorganization of the metropolitan region, which is manifested in the creation of a new urbanity that serves the neighborhood (Dumesnil and Ouellet 2002).When a brownfield is viewed unfavorably, urban remodeling can take place by either erasing its history or by improving the land through a notable architectural project (ADI 2015). Redeveloping a brownfield site can, from a sociocultural standpoint, be a potent weapon to valorize cultural heritage that has been abandoned (Berens C (2011), (Mieg HA, Oevermann H (2014), which will positively affect neighboring property prices once more (Van Duijn M, Rouwendal J, Boersema R (2014). f.

Furthermore, by revitalizing a site's unique past, the heritage's valuation helps to enhance the public's impression of the abandoned site (CABERNET (2004).

This chapter concludes by highlighting the complex relationships that exist between suburbanization, deindustrialization, and the rise of brownfields in metropolitan areas.
Brownfields offer special chances for redevelopment even though they first present difficulties, mainly in terms of social and economic consequences. The talk focuses on the possible advantages of brownfield regeneration, which include the development of sustainable urban areas, economic growth, and environmental enhancements.

The book promotes strategic urban planning and redevelopment initiatives to unlock brownfields' latent potential and improve communities' and cities' general quality of life. It does this by acknowledging that brownfields are not insurmountable impediments but rather chances for intervention.

Chapter 3

Turin Post-industrial City

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3.1Turin overview

Northern Italy is home to the city of Turin. It serves as both the metropolitan city of Turin and the capital of the Piedmont region. It served as the nation's capital from 1861 to 1865. The city is situated between the Po and the Dora, two significant rivers, and is surrounded by the Alps. The headquarters of FIAT, Lancia, and Alfa Romeo are in Turin, which is also well known for its Italian automotive sector.

3.2 industrial Turin

Turin went through its first stage of industrialization at the beginning of the 19th century, which was characterized by the appearance of factories for wool, cotton, and silk. At first, these sectors were dependent on imported machinery, but as they developed, mechanical sectors expanded.

Even though Turin's population gradually grew to 250,000 people in 1881, there was no change in the distribution of trades. Around 10,000 people made the move to mechanical and metallurgical labor, while 50,000 people worked in diverse industrial jobs. Turin, though, stood out in a number of ways. As early as 1837, it adopted public gas lighting, becoming the first city in Italy and the fourth in Europe. Furthermore, it was one of the first cities in the world to establish a dual sewage system in 1896, with distinct white and black canalization networks. When Turin first used electricity for industrial purposes during the National Exhibition in 1884, it was a significant turning point.(Le Galès P., (2012),

Italy had experienced substantial industrial expansion by the end of 1901, with the engineering, metallurgical, and chemical industries taking the lead. Production of manufactured goods more than doubled, and the annual growth rate reached previously unheard-of heights. Plant and equipment capital investments increased significantly, by 114%. Agriculture's percentage contribution to the national economy dramatically decreased at the same time. .(Le Galès P., (2012)

Turin's dominant textile sector steadily lost its sway as the hydropower, machine, and steel industries rose to prominence. The city underwent substantial economic growth between 1896 and 1908 as a result of this change in industrial power, becoming a prominent industrial hub in Europe. The number of employees, energy consumption, and mechanization of industry all rose significantly in Turin during this time. Between 1905 and 1911, the industrial population more than doubled, and a sizable amount of the city's new buildings were made up of magazines and factories. Turin's quick development and transition throughout this time period demonstrated its role as a vibrant industrial powerhouse, advancing the economy both locally and globally. .(Le Galès P., (2012),

The expanding automobile industry, which saw its workforce rise by five times in just six years, was a major factor in Turin's engineering sector's impressive expansion. One-third of the city's manufacturing workforce was employed by the automobile sector by 1911. These businesses stood out for implementing cutting-edge marketing and technological advancements. One of them, the Fabbrica Italiana Automobili Torino (Fiat), was crucial in transforming Turin into a vibrant industrial hub after its founding in 1899. By 1914, Fiat controlled connected companies that produced ball bearings, radiators, marine motors, airplane and diesel engines, railroad trains, lorries, and trams, in addition to producing half of all the automobiles produced in Italy. A new generation of municipal officials who shared a solid commitment to rebuilding Turin into a modern industrial metropolis proved to be effective political partners for visionary business executives like Agnelli. The city implemented a number of initiatives during the administrations of mayors Secondo Frola (1903–1909) and Teofilo Rossi (1909–1915) with the goal of lowering production costs, increasing access to reasonably priced electricity, boosting technical workforce skills, and modernizing communications, transportation, and social services. The expansion and development of Turin's industrial sector at the time were great-

ly aided by these measures. (Cardoza Anthony L., Symcox Geoffrey W.,(2006),

3.3 Turin during Wars

The need for orders related to the war, which led to a significant increase in the city's workforce, was the main factor in Turin's founding of the automobile sector. The population of the city increased significantly as a result of this influx of laborers, going from 415,667 in 1911 to 499,823 in 1921. The noteworthy demographic concentration that Turin experienced during this time is reflected in the quick rate of population expansion.

Early in the 1920s, Turin experienced noteworthy changes in architecture and urban interventions before the start of the economic crisis that exacerbated its problems. These changes were directly related to new industrial phenomena. One such illustration was the Fiat Lingotto, which Giacomo Matté-Trucco first created in 1915. It got firmly established because to its clever positioning in the city's southern region. The Fiat Mirafiori plant, another large industrial presence in the same southern zone, added to the industrialization of the area. Additionally, the Gualino group's significant decisions helped the development of an industrialized area in Turin's northern region that extended toward Milan. A notable example of the group's impact on the industrial landscape is the establishment of Snia-Viscosa in Abbadia di Stura and Venaria Reale.

The vast terrain underwent urbanization as a result of the regulation plan's execution in 1908 and the customs belt's relocation in 1912, which led to a significant increase in population that may be considered parabolic in nature. The presence of a sizable, developable region made it possible for there to be such a huge increase in the population.(Comoli Mandracci V., (1983),

Pietro Betta noted out in 1929 that there were people in Turin who, only a few years before, had anticipated that the city's population would virtually double during the next 70 years.(Betta P.,(1927),

3.4 Economic Boom 1950 - 1980 in Turin

Turin experienced a remarkable spike in population between the 1950s and 1960s, with a 50% increase. The population of the first duty fence, which is a region that is rapidly urbanizing, doubled at the same time, representing a 100% increase. The automotive industry, largely led by Fiat, was at the center of this momentous time. Fiat created a strategic plan to motorize the Italian populace and adopted the tailorist work organization. Additionally, they created automobiles that were especially suited to this tactic. Fiat's quick expansion not only supported that company's expansion but also the industries that produced semi-finished goods for Fiat. Collectively, these events started a domino effect that encouraged the creation of a variety of products and services to meet the demands of the expanding population.(Davico L., Detragiache A., Mela A., (1997)

Large-scale migratory surges from the rest of the Piemonte region, primarily from the south of Italy, to Turin were caused by the development of industries, which created enormous quantities of job opportunities.

Therefore, there is emigration, both to industrialized European nations and to the "industrial triangle of Italy," or Turin, Milan, and Genoa. .(Davico L., Detragiache A., Mela A., (1997)

Because Turin was not ready for such a rapid increase in population, there were certain issues when so many people moved there. The first issue stemmed from a lack of infrastructure and adequate housing, which resulted in the development of slum neighborhoods. The second issue, which is closely related to the first, is that there are social tensions and conflicts between the native people of Turin and immigrants as a result of the city's limited space and high migration rates.

"Since the post-war era, Turin's social and physical landscape have seen significant modifications that took place over extremely short periods of time. In fact, due to the lack of a diverse economic base, it has spe-

cifically suffered more acutely from the effects of both the subsequent phase of deindustrialization and the post-industrial transition as well as the consequences of the development of a Fordist-type industrial model. All facets of the urban and metropolitan system have been impacted by these effects, including the economic foundation, political and cultural activity, as well as the physical layout of the city and its social geography.(Davico L., Detragiache A., Mela A., (1997)

The characteristics of Turin's urbanization processes and the evolution of the economic system are closely intertwined.

The "long waves" of industrial expansion that Davico L., Detragiache A., and Mela A. described in their book Torino: Mobilità Residenziale e struttura Urbana dal boom Economico agli anni '90 can be seen in several eras of urban development in Turin. They outline the four major waves that shaped Turin's development:

In the early half of the nineteenth century, the first wave of growth emerged. In this stage, Turin's social and economic importance was expanding, and some of the circumstances for later industrialization were being established.

Turin's population grew from 1800 to 1830, when it reached 122,424 people, and then slightly declined over the subsequent 15 years (falling to 121,405 people in 1845).

- In the early half of the nineteenth century, the first wave of growth emerged. In this stage, Turin's social and economic importance was expanding, and some of the circumstances for later industrialization were being established.

Turin's population increased from 1800 until 1830, when it reached 122,424 people, before experiencing a modest decline in the subsequent 15 years (in 1845 it had 121,405 inhabitants).

- The second wave of growth developed in the second half of the nineteenth century. Due to non-economic factors (the transfer of the capital in 1865) and an economic downturn following the unification of Italy, the city experienced a slowdown in its population growth. However, soon after, the city's industrial takeoff began, and the population growth vigorously resumed, especially in the years between 1881 and 1991.

- The third wave emerged in the first part of the 20th century and is associated with the development of metallurgy, mechanics, and electricity, which permits industrial development and its extension even in the villages beyond the customs belt. Urban expansion was rapid until the 1930s, when the upheavals of World War II caused it to slow down.

- The authors classified the fourth phase, which spans from the early 1950s to 1990, into two phases:

1. up until the middle of the 1970s, growth based on patterns of economic and geographic polarization .

(Antonkiewicz, A. (2022)

2. phase with a propensity for deurbanization and a deconcentration of economic activity.

"Turin's urbanized area increased from 40 sq km (corresponding to 31% of the municipal territory) to 60 kmg (46%), between 1951 and 1971. The trend continues in a more gradual fashion throughout the ensuing decades. As a result of these dynamics, the municipality of Turin had a population density of 7393 per square kilometer in 1991, compared to 1283 per square kilometer for the entire metropolitan region.(Davico L., Detragiache A., Mela A., (1997) Antonkiewicz, A. (2022)

According to Morbelli's (1987) analysis of census data from 1951 to 1981 and his categorization of the city into 6 sectors, the variation in population can be distinguished as follows:

- the heart, which reflects the former walled city from the seventeenth to eighteenth centuries.

- the semi-center, whose external borders are within the 1853 customs belt;

- the three principal peripheries: the northern, western, and southern

- the city's easternmost hilly region

In the 1950s, the migratory balance was largely responsible for the population growth.

"Turin reached 1,079,000 residents in December 1962; between 1952 and 1962, the net migration was equal to 367,000 individuals; the total number of immigrants was 562,000, and the total number of emigrants was 195,000. In ten years, the population was thus refreshed by more than half. Of the 562,000 immigrants, 37.2% were from Piedmont, 18.6% were from the remaining northern Italian regions, 4.8% were from central Italy, 34.8% were from the southern and island regions, and 4.6% were from other countries or unknown origins. In 1962, 45.2% of immigrants arrived from the South and the islands, compared to 27.5% from Piedmont, 3% from northern Italy, 6.2% from central Italy, 4.7% from abroad, and location unknown. In the second half of the 1950s, the South's immigration weight had grown, gradually assuming preeminence.(Davico L., Detragiache A., Mela A., (1997)

A significant amount of population mobility was observed in Turin and its metropolitan area, as well as in the majority of northern cities.

Piedmont saw significant migration balances throughout the years of rapid industrial growth. In the years 1962 to 1965, the average annual migration balance in Piedmont was 11.8%, second only to Liguria among all Italian regions. While inter-regional mobility rates in Italy as a whole somewhat declined between 1972 and 1975, they were greatest in the Piedmont area. This rate consistently exceeded 5% and, in many cases, 6% between 1978 and 1990. During the years of the economic boom, there were rapid urban growth processes that were accompanied by a significant increase in both internal and external city mobility.(Davico L., Detragiache A., Mela A., (1997)

When we talk about the industrial Turin of the years 1945-1970, the Fiat factory was the hub of the production world made up of its numerous and enormous factories dispersed throughout the city, around which the many associated small and medium-sized businesses, many of which had a direct connection to the transport sector, were located.

Turin had also become effectively a city for the factory, serving as a place for workers, employees, and managers to live as well as a managerial, commercial, and service center that could accommodate the needs of industrial apparatus as a whole.(Levi F., (2002),

Even though they weren't related, a lot of Turin activities and services grew to rely on the industrial sector. Most of these areas' weight and autonomy were taken away by industry.Turin's policies and stratifications were closely related to where industrial plants were located in the city. The new customs belt's design and the requirement for quick access to significant water supplies influenced the first industrialization of the early 1900s.

"It also took into account the legacy of large industry's decades-long dominance, which influenced the decision of where to locate the plants for internal efficiency, the availability of land at affordable prices, or exceptional projects, like the Mirafiori plant's unusually large size. already during the second half of the 1930s when it was being built, and even more so at the time of its enlargement after the war. All of this led to a high concentration that was made worse by the fact that the first ring around Turin's municipalities was not expanded.(Levi F., (2002)

Rapid population growth coincided with industrialisation, and throughout the entire period, housing construction lagged well behind the demands of an expanding population. In addition to the shortage of adequate housing, new neighborhoods started to emerge in the far outskirts, but even the most basic services were still lacking.

By influencing plant locations in some way, the new master plan managed to save some of the city's hills from being destroyed, but it did not resolve the problem of how industry and the city interact. "The Master Plan did not include provisions for the demolition and replacement of industrial facilities

that were not rendered obsolete by their owners. In addition, the growth theories of the city on which it was based completely ignored where and how the facilities that would have been predictably at the center of that growth would be located. It is notable that, prior to the Plan's effective adoption, Fiat requested and received a number of variations designed to make it easier to restructure its production system.(Levi F., 2002),

It was becoming clear that most immigrants, especially those from southern Italy, were experiencing poor housing conditions and a lack of amenities.

In addition, there were not enough receiving areas in the city. The population barely rose by 13.9% between 1961 and 1971. After a period of relative standstill between 1964 and 1966 brought on by a brief but severe economic downturn, immigration picked up again, but at a good clip, with the first and second duty fence municipalities receiving the majority of newcomers. Turin's population nearly doubled between 1961 and 1971, reaching 632,000 people, having increased from 269,000 people in 1951 to 354,300 in 1961.(Davico L., Detragiache A., Mela A., (1997)

Table 3.Historical series of the population of Turin

(census data)

Year	Population
1861	204,715
1871	212,644
1881	252,832
1891	329,724
1901	335,656
1911	427,106
1921	502,274
1931	597,260
1941	716,261

Source: Table prepared by the Author Adopted from Davico L., Detragiache A., Mela A., (1997) Antonkiewicz, A. (2022)

Historical series of the population of Turin (census data) Source: Davico L., Detragiache A., Mela A., 1997) ,(Sorkhei M.(2022))

Turin would have reached its maximum population in 1974, with 1,200,000 residents, and then experienced a gradual, slow loss of residents due to the processes of industrial restructuring and productive decentralization . (Levi F., 2002),

The immigrants from the south of Italy made up the majority of the large immigrant population in Turin. The demographics of the population living there according to place of birth were also significantly altered by these migration waves.

At the time of the 1971 census, 34% of the population was born in Turin, compared to only 20.7% of Piedmont as a whole, 10.1% of the remaining Northern regions, 5.1% of the Center, 2.9% of foreign births, and 27.1% of births in the South. Additionally, many young people had been born in Turin to immigrant parents by this point. (Davico L., Detragiache A., Mela A., (1997)

from 1962 till 1973 The birth rate as well as immigration waves were now factors in the population growth.

This is true of a centuries-old tendency to fall in the birth rate, which had shrunk to 8-10% between the end of the 1940s and the early 1950s. The birth rate had brought the percentage of live births per thousand inhabitants to 16-17% or, equal to those of the first decade of the 1900s.

While the number of live births and deaths was approximately equal at the turn of the century, The decline in death rate in the 1950s resulted in a major positive natural demographic balance for the first time, which in the years of the highest birthrate, specifically 1962–1973, was equal to an annual average of 6.25%. Then, between 1974 and 1977, there was a new decline in the birth rate, which went back to the levels of the second half of the 1950s, and it collapsed, below the mortality rate, as it had already done as a result of the two world wars and the great depression of 1930–1934, at the

end of the 1970s and in the 1980s. (Davico L., Detragiache A., Mela A., 1997).

The baby boom, which afflicted the entire Western world during the years of the positive economic cycle, cannot fully account for Turin's short return to normal birth rates. In reality, the birth rate in Italy very slightly increased during the five years from 1962 to 1967.(Livi Bacci M., (1989)

However, it was very large and persisted in Turin until the early 1970s. The most compelling theory, in the absence of proper statistical elaborations, attributes the primary cause of the rise in the birth rate to the cultural heritage of southern immigration.(Davico L., Detragiache A., Mela A., (1997)

Summary

Early 19th-century textile manufacturers served as the foundation for Turin's industrialisation, which eventually included the mechanical and metallurgical industries. The population of the city increased, and it developed into an industrial centre. The use of gas lighting, a dual sewage system, and electricity for industrial purposes were among the notable accomplishments. By the beginning of the 20th century, Italy's industrialization had also accelerated, especially in the fields of engineering, metallurgy, and chemicals, which caused a transition away from agriculture.

Between 1896 and 1908, Turin's prominence in the textile industry diminished as the hydropower, mechanical, and steel sectors expanded. Fiat, in particular, played a crucial role in Turin's fast growth and transformation into an industrial powerhouse. The city's population increased and urbanization took place as a result of the workers who arrived during the war.

Turin's population increased significantly between 1950 and 1980, largely due to the automotive sector. However, because to poor infrastructure and services, this boom also brought about housing shortages and social problems. As Turin's economy changed, so did its urbanization processes, with expansion waves corresponding to various periods of industrial development.

Turin encountered difficulties with housing, infrastructure, and urban planning despite the country's economic boom, particularly while trying to accommodate migrants from southern Italy. After peaking in the mid-1970s, industrial decentralization and restructuring led to a slow fall in population. The cultural legacy of immigrants from the South was connected to a brief rise in birthrates in the 1960s and early 1970s.

The obstacles that Turin's infrastructure and social structure faced as a result of its industrial development, population expansion, and urbanization are all entwined with the city's history.

Chapter 4

Deindustrialization And Process Of Revitalization Of Brownfield Areas

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4.1 Deindustrialization in Turin

The industrialization process played a major role in Turin's physical transformation over the 20th century.

New, small, and big industrial plants are surrounded by residential neighbourhoods due to the unchecked and extremely rapid urbanisation growth. As a result, during the course of 20 years following the adoption of the 1959 master plan, the number of industrial zones within the city limits doubled.

Industrial zones took up approximately a quarter of the total land area in Turin and the first-ring suburbs by 1980. (Dansero E., 1993),Other two factors that directly contributed to the physical transformation of the metropolitan area included the increasing industrialization of the inner-ring suburbs during the 1960s and 1970s and the abandonment of large-scale industrial factories and services located in Turin beginning in the late 1970s and through the early 1980s.Antonkiewicz, A. (2022)

As a result of the relocation of mostly small to medium-sized industrial companies from Turin to other locations in order to develop or upgrade production facilities, the inner-ring suburbs became industrialised. Although Turin's physical structure suffered from the loss of several industries, the closure and abandonment of the city's main plants marked the city's pivotal moment.

Most of these larger facilities were shuttered as a result of shifting domestic and worldwide manufacturing landscapes, not because they were being moved to the suburbs where they would have continued to provide local jobs. (Dansero E., 1993) Large-scale industrial facility closures and their subsequent abandonment had already begun to dominate the urban environment by 1985. The famous Lingotto facility of FIAT, arguably the most well-known representation of Turin's industrial past, ceased operations in 1982.(Carter Donald K., 2016) Antonkiewicz, A. (2022)

Although attempts to determine the extent of unused and abandoned areas differ greatly, according to some estimations In 1989, abandoned industrial space covering 100 million square feet (10 million square metres) left a scar on the cityscape.(Manzo E., 2012),Antonkiewicz, A. (2022)

A lot of dense residential areas rapidly grow around industrial sites with few public spaces and services. These districts were usually occupied by working-class families, and local services often reflected the production pattern of the industries themselves. They were often in need of more standard neighborhood centers and were perceived as unwelcoming and isolated, given their limited communication and integration with the historic city center.

Areas of social and economic degradation have been left behind by closures, widespread layoffs, and suburbanization throughout the city.Even the historic centre, the baroque jewel representing the city's cultural heritage, had deteriorated due to the amount of social, economic, and physical degradation.

"Once the emblem of Turin's regal past, the grand public squares that defined the old city were overrun by vehicles, the streets were jammed with traffic, street violence had increased, and the beautiful buildings were covered in soot and clearly crumbling. Social inequality's spatial aspects might be seen more clearly in the city's physical structure.(Carter Donald K., 2016) Antonkiewicz, A. (2022)

4.2 City of Turin 1985-2015

The leadership of the city was largely responsible for Urin's transformation following a rapid deindustrialization and social and economic crises over a period of thirty years.

The transformation must be understood within the broader regional context of European integration and the national context of political reform in the wake of the bribery scandals of 1991–1992, which resulted in the indictment of more than half of Italy's parliamentarians (Tangentopoli)(Koff S.P.,2000), A law allowing mayors to be elected directly was implemented in 1993, giving mayors

more influence over cabinet decisions. It added to a statute from 1990 that gave municipalities some restraint over local taxation and permitted the privatisation of municipal services. These changes improved accountability and local power, ushering in a new era of responsibility necessary to meet Turin's great difficulties.Antonkiewicz, A. (2022)

Turin's political climate was particularly turbulent in the years before these reforms.11 "Corruption scandals brought down the Novelli administration in 1985 and threw the city into political anarchy until the indebted city was finally placed in receivership by the federal government in 1992. (Winkler , 2007)

Another pivotal moment in Turin politics occurred in 1993 when professor of telecommunication engineering Valentino Castellani was elected mayor. The nearly 100-year-old Fordist paradigm of economic development needs to be thoroughly rethought because Turin was on the verge of both a population and economic catastrophe. The city's new elites and leadership launched brave new development plans for Turin.

4.3 The 1995 Urban Masterplan Piano Regolatore Generale di Torino (PRGC)

The physical makeover of Turin started with the adaption of the new masterplan from 1995. The mayor Castellani administration began discussions to establish public-private partnerships that may aid in the redevelopment and destruction of abandoned industrial sites. The four areas of "Spina Centrale" (Spina 1,2,3,4) were to be rebuilt and revitalized as one of the key objectives of the PGR master plan.Antonkiewicz, A. (2022)

Partnerships included the City of Turin, the Piedmont Region, the Italian National administration, the European Commission (URBAN program), Turin's largest private foundations (the Compagnia di San Paolo and the Fondazione CRT), as well as the State railroad company (Ferrovie dello Stato). Private owners of abandoned facilities and private real estate developers were also involved. (Carter Donald K., 2016) An important factor in the development of Turin was the efforts made to divide the burden and resources between public and private investors. With new transformation projects for former brownfields, Turin's industrial legacy, which had been ignored and neglected, was once again in the spotlight. This was made possible by the new partnership strategy.Antonkiewicz, A. (2022)

Turin's city leaders had to deal with another issue while they were in the process of redeveloping its abandoned industrial districts.

Turin was no longer the industrial leader when the largest automobile industry migrated to other Italian and European cities; in reality, Turin lost its primary identifier. The main query is: what will the future identity of Turin be?

In order to establish a vision for Turin's future and the approaches and measures necessary to accomplish that goal, Mayor Castellani started a strategic planning process in 1998.

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Turin was no longer the industrial leader when the largest automobile industry migrated to other Italian and European cities; in reality, Turin lost its primary identifier. And the main question is, what future Turin identity will be.

In order to address this issue, Mayor Castellani started a strategic planning process in 1998 to develop a vision for Turin's future as well as the plans and initiatives necessary to make that vision a reality.

Over the course of two years, a significant portion of civil society participated in a deep and complex discourse that succeeded in creating a new vision: a City of Action, a location with the creativity and capacity to envision and achieve its destiny in detail.

"The strategy was actually both inward- and outward-looking, an effort to persuade Turin and the

outside world that the city had extraordinary potential and was able to reinvent itself by building on skills and traditions honed over centuries to advance into a new future. (Carter Donald K.,2016) Previously, Turin's development mostly concentrated on design, engineering, and technology.The new strategic planning revealed previously ignored areas of the city including culture, art, and entertainment and suggested their growth.

The officials of the city have decided to increase their investments in this industry in the hopes that they would help the city's economy flourish in the future. In reality, Turin made significant strides in this area by creating a number of museums and cultural activities that drew tourists from all around Italy, Europe, and the rest of the world.

4.4 2006 Winter Olympics and Turin's strategic plans

The decision to hold the Winter Olympics in Turin in 2006 was a key moment in the city's strategic planning. The Winter Olympics provided Turin with the chance to evolve into a cutting-edge, modern metropolis and let go of its industrial background.

The Games also provided support for the notion that investments in the creation of cultural assets, projects to physically repair the city, and improvements to its infrastructure could all be prioritized. Turin's promotion at the international level as a new, cutting-edge city was a result of the 2006 Winter Games.

4.5 4.5 The management of brownfield areas in this urban planning redesign process

The second strategic planning for the city of Turin was published in 2004 as a result of the desire of the city's new administration and mayor, Sergio Chiamparino, to complete the economic reconstruction of the city that had been started by the Castellani administration. Antonkiewicz, A. (2022)

The economic research carried out revealed that the best investment was in technological innovation as well as the cultural and tourism industries.

The idea of a Knowledge City, where highly skilled workers add value at the top rungs of the economic ladder in advanced manufacturing, specialized services, and the arts, became the focal point of the vision. (Carter Donald K., 2016) Many new research and innovation centers were founded as a result of the new strategic plan. After the Winter Olympics were successfully completed, Turin began to publicize its major events. For instance, in 2011, Turin held the nation's most significant celebration of the 1.50th anniversary of the nation's creation.

"Smart city" technologies started to be incorporated into urban systems, and renewed emphasis was placed on developing metropolitan agencies to enhance service integration and delivery across the metropolitan area. Municipal waste disposal, transportation, water and sewage, and energy provision were all spun off into quasi-private authorities. (Carter Donald K., 2016) Antonkiewicz, A. (2022)

- The City in 2015

In the 1990s and 2000s, significant public sector intervention focused on the adaptation and rehabilitation of industrial brownfields, the renovation of the city's historic core, the improvement of the transportation infrastructure, and the revitalization of outlying and neglected neighborhoods.

Turin's industrial heritage from the 20th century and its physical degradation were previously hardly ever apparent. The drab city with its industry, neighborhoods, and automotive identity was gone.

In 1995, Mayor Valentino Castellani and his administration created a new city master plan that focused on redefining land uses across the city, but particularly along the north-south rail corridor that bisects the city and the four major industrial zones along it.

The master plan intended for the rails to be buried below and the surface to become a six-lane artery into the center of the city in conjunction with a significant project by the national railroad authority to increase track capacity along the rail corridor. Istituto di Ricerche Economico Sociali del

Piemonte, (1988),

The plan settlement sought to encourage private-sector redevelopment and density of the urban centre through the creation of a new neighborhood by altering the zoning of Spina Centrale's four primary sectors for residential, commercial, and open space. The redesign of the transportation network would support the new construction.

Over 60 million square feet of abandoned industrial space were remedied, converted, and reused between the years 2000 and 2010, mostly along the "Central Spine. (Carter Donald K., (2016) The new Intesa San Paolo headquarters by Renzo Piano near Porta Susa train station and the new Piedmont region tower by Massimiliano Fuksas at Lingotto metro station are examples of innovative, multi-functional transit-oriented neighborhoods. They are meant to act as pillars for future growth in the concerned areas.

The former steel foundries and tire manufacturing facilities, which are now occupied by a green business park and the new Dora Park neighborhood, as well as the Lingotto retail, conference, and convention center, are examples of cleanup and conversion.

In order to serve more connected metropolitan regions, the previous transportation networks that were constructed for industrial purposes have been reimagined. The historically modest Porta Susa train station has been rebuilt into an ultra-modern international railway junction as part of efforts to build high-speed rail lines to Milan and other cities, with the goal of connecting Lyon and Paris with Milan, Venice, and Budapest.

Together with the railway tracks along the urban part, the barrier that had been dividing the city from north to south for more than a century was taken down. Together with the railway tracks along the urban part, the barrier that had been dividing the city from north to south for more than a century was taken down.

The city's first subway line was opened during the 2006 Winter Games and presently links the western and southern parts of the city with the city center.

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4.6 The implementation of the Piano Regolatore Generale di Torino (PRG) and the new complex programs: Spina 1,2,3,4

The 1995 PRG approval had a significant impact on the urban transformation phase, resulting in the beginning of several interventions, particularly those involving the reconstruction of post-industrial lands and the construction of some sizable facilities for mobility. As part of the Strategic Plan and in preparation for the 2006 Olympic Games, certain new alterations were incorporated at the end of the 1990s.

Reorganization of the mobility system, urban transformation and regeneration on the axis of the Central Spine, Olympic works, environmental/socioeconomic recovery, and requalification of peripheral areas were the operational axes along which the main urban transformation processes were articulated, according to the Giorgio Rota committee's report.

The first program agreement (for the Superga PRIU, region between via Verolengo and Orvieto) was signed in July 1998, and all the others followed within six months. Turin started the approval of urban reconstruction plans that were outlined in PGR in 1994. (Giorgio Rota Committee, 2004), The plans for Spine 1, 3, and 4 involved sizable, deserted industrial regions, effectively executing the PRG's recommendations.

The PRUs, which account for 41.6 percent of the total surface area of the transformation tools, are the most significant quantitatively, followed by traditional transformations (12.4% in ATS - Areas of Transformation for Services - and 8.7 percent in ZUT - Urban Transformation Zones). Except for

comprehensive plans, which are mostly focused on the production sector, the majority of the tools primarily address the residential sector. Giorgio Rota Committee, (2004), Antonkiewicz, A. (2022)

figure 1. Spina 1,2,3,4,SPINA CENTRALE

Source: Beatriz Fernández Águeda (June 2009) Urban Planning in Industrial Cities: the Reversibility of Decay

SPINA CENTRALE

The Spina centrale project unites the commitment of public and private resources, especially on abandoned industrial areas near the railway, for approximately two million square meters where 53% is intended for new residences, and 43% for tertiary uses. This allows for the recomposition of the fracture in the urban fabric caused by the centuries-old presence of railway tracks while simultaneously creating a new strong axis of urban centrality. Fernández Águeda, B. (2009)

figure 3 :I cantieri lungo la Spina Centrale (3).
source: Fotografia di Michele D'Ottavio, 2009. © MuseoTorino.

figure 2 :La Spina Centrale.
Source: Fotografia di Bruna Biamino, 2010. © MuseoTorino.

- SPINA 1

Between Corso Lione, Mediterraneo, Rosselli, and Tirreno is where the former Fiat Officine Material Ferroviario - Materferro, which will become Zappata railway station, was located. This region is known as Spina 1 and is part of the Spina projects. This area is 142,000 square meters, and approximately 80 million euros have been invested in it overall (public and private).

The renovation of this region, the former Fergat neighborhood, where the new Sandretto Re Rebaudengo Foundation for contemporary art is located, is organized around a new pedestrian square.

While the Municipality and the Region signed the memorandum of understanding that gives the go-ahead to the entire operation, architect Massimiliano Fuksas was tasked with designing the preliminary and final projects. (Antonkiewicz, A. (2022)

- SPINA 2

On the other hand, the region known as Spina 2 is made up of vacant spaces (which are already inhabited by Officine Grandi Riparazioni, Nebiolo, and Westinghouse) and is located between Corso Castelfidardo, Ferrucci, and via Boggio. There have been investments totaling roughly 400 million euros on this 340,000 sqm area. It was intended to provide service to the Porta Susa station, which acts as a hub for pedestrians and underground passengers.(Antonkiewicz, A. (2022)

The new Porta Susa project was distinguished by its commitment to rethinking all of the surrounding space. The station is a long arcaded corridor with entrances from Corso Vittorio Emanuele and Corso San Martino, and its urban surroundings were intended to include public areas, new hotels, and offices that were primarily located toward Corso Vittorio. These structures were intended to be used at various times of the day and night to reduce the typical risks of degradation in the area. (Antonkiewicz, A. (2022)

The Urban Center of the City of Turin, one of the media villages for 2006 (with 1,400 places, that would become a university residence), the doubling of the Polytechnic, the new cultural center (with central civic library and theater hall), an exhibition center, and the area of the new prison were all planned to be redeveloped to house judicial offices.

The one desired by Banca San Paolo IMI and the Railways was one of two twin skyscrapers that were also in the works. (Antonkiewicz, A. (2022)

-SPINA 3

The PRG's Spina 3 has undergone the most makeover, encompassing almost a million square meters and a total investment of roughly 800 million euros. Seven districts have been established, based on the number of abandoned industrial structures in the area, including the three former CimiMontubi steel plants (Valdocco, Vitali, and Valdellatorre), as well as the former Michelin, Paracchi, Fiat Nole, and Savigliano industries.

Numerous changes to the Spina 3 area have already been made. The Environment Park, one of the two Turin technology parks born from urban restyling operations, was constructed between 1997 and 2000 on a project by Emilio Ambasz, Benedetto Camerana, and Giovanni Durbiano with assistance from the European Union. It is located on the former Teksid areas and is about 25,000 square meters in size. Built on the former Michelin territory (about 100,000 square meters) between the via Livorno, via Treviso, and Corso Umbria, the Dora commercial mall, featuring a shopping center and parking, has been operational since 2003.

(Antonkiewicz, A. (2022)

The village, which was funded by a group of Milanese businessmen and the Sviluppo Dora-Novacoop enterprise, also contains brand-new homes in Corso Umbria, for a total of 350 units. The main Olympic media village was to be built in the former Vitali neighborhood, and after 2006, these areas were to be used by the residential, tertiary, commercial, and hotel industries. The newly established business SNOS aimed to build an innovative and commercial tertiary pole for IT companies with a total floor area of about 40,000 square meters in the former Savigliano workshops. The new diocesan pastoral center, which would also contain the new Church of the Santo Volto, was supposed to be located in the area between Piazza Piero della Francesca, Via Valdellatorre, and Via Nole.

Finally, the Spina 3 urban redevelopment program envisions a 450,000 m2 park along the Dora river. (Antonkiewicz, A. (2022)

- SPINA 4

On the city's northern outskirts, some vacant industrial lands were included in the Spina 4 urban rehabilitation scheme. The area of Spina 4 where the new Rebaudengo railway station would be located was also slated to include commercial settlements in the Corso Vigevano region and residential settlements between Via Cigna and Docks Dora. (Antonkiewicz, A. (2022)

Renzo Piano transformed the historic Fiat factory into a multifunctional center at the opposite end of the city, where other areas of intervention included the Lingotto, which over time opened a congress center, auditorium, Le Méridien hotel, 8 Gal-

lery, multiplex Pathé, supermarket, and "Giovanni e Marella Agnelli" art Galleria. (Antonkiewicz, A. (2022)

4.7 Review of the Piano Regolatore Generale di Torino (PRG) in 2019

In the 25 years after the PGR design was approved in 1995, there have been around 300 smaller or larger changes.According to the Giorgio Rota Committee's 2019 report, there were six key factors that contributed to the PGR's transformation:

(Antonkiewicz, A. (2022)

1. Strategic changes or modifications required to conduct significant initiatives (examples include changes related to the 2006 Olympic Games).

2. Modifications created at the request of operators looking to invest in transformational areas, provided that they abide by the PRG's rules (for instance, by changing the functional mix).

3. The administration's implementation of regulations relating to the redefining of the rules for urban development, such as, for instance, changes relating to the Plan's attempts at rerouting.

4. improvement of public assets, as with the variations associated with the securitization of municipal properties

5. regulatory compliance, which is connected to the passing of new legislation and the ensuing requirement to modify the PRG.

6. fixes and modifications that make minor operational changes or fix any technical issues but don't significantly alter the PRG's indicators.(Giorgio Rota Committee, 2019),

The Corso Marche, Spina Centrale, and Po River axes served as the foundation for the 1995 PRG master plan's three main urban growth axes. The management of these three key components of the urban development master plan changed over time.

When compared to the other two, the axis of Corso Marche was the least used. The PGr foresaw a close integration of urban development and transportation along an axis on three overlaid levels.

This would be connected to a significant urban transformation that was built mostly on defunct industrial regions, such as the Alenia Aeronautica factory's abandoned site and the TNE-purchased Fiat plant in Mirafiori.(Antonkiewicz, A. (2022)

Many development projects were stalled until 2019 for a variety of reasons, including administrative, technical, and financial ones.Even though Spina Centrale did not quite adhere to the intentions outlined in the 1995 PGR, it was one of the developments that was most fully realized. The Porta Susa station, the Intesa Sanpaolo skyscraper, the offices of the metropolitan city, the court, the OGR, the Energy center, and the Polytechnic Citadel are just a few examples of the public and tertiary services that have been concentrated in the middle section of the Spina, known as Spina 2, between piazza Statuto and corso Peschiera. However, a number of areas that were supposed to be developed—including the former Westinghouse area, the second skyscraper that would have been the Intesa Sanpaolo tower's twin, and a portion of the former new prison—remain undeveloped.

The proposed changes for Spina 1, which went from Largo Turati to Corso Peschiera, and Spina 3, which went from Piazza Statuto to Piazza Baldissera, have both been completed. Additionally, there are still some gaps to be filled on Spina 3, such as the former Vitali area, which is located between Via Orvieto, Verolengo, Borgaro, and Corso Mortara, and the portion of the former Superga factory that is located on Via Verolengo.

The development of Spina 4, where the PRG hoped to act as the "gateway" to the city, went in several directions with the construction of four mixed-use residential and tertiary towers along the axis of Corso Venezia, between Piazza Baldissera and Corso Grosseto. The PRG change was still very much in the planning stages. However, the area between Corso Venezia, via Fossata, via Cigna, and Corso Vigevano has undergone substantial rehabilitation,

with the construction of three building complexes (a fourth is now under construction), a commercial center, and the Aurelio Peccei Park.

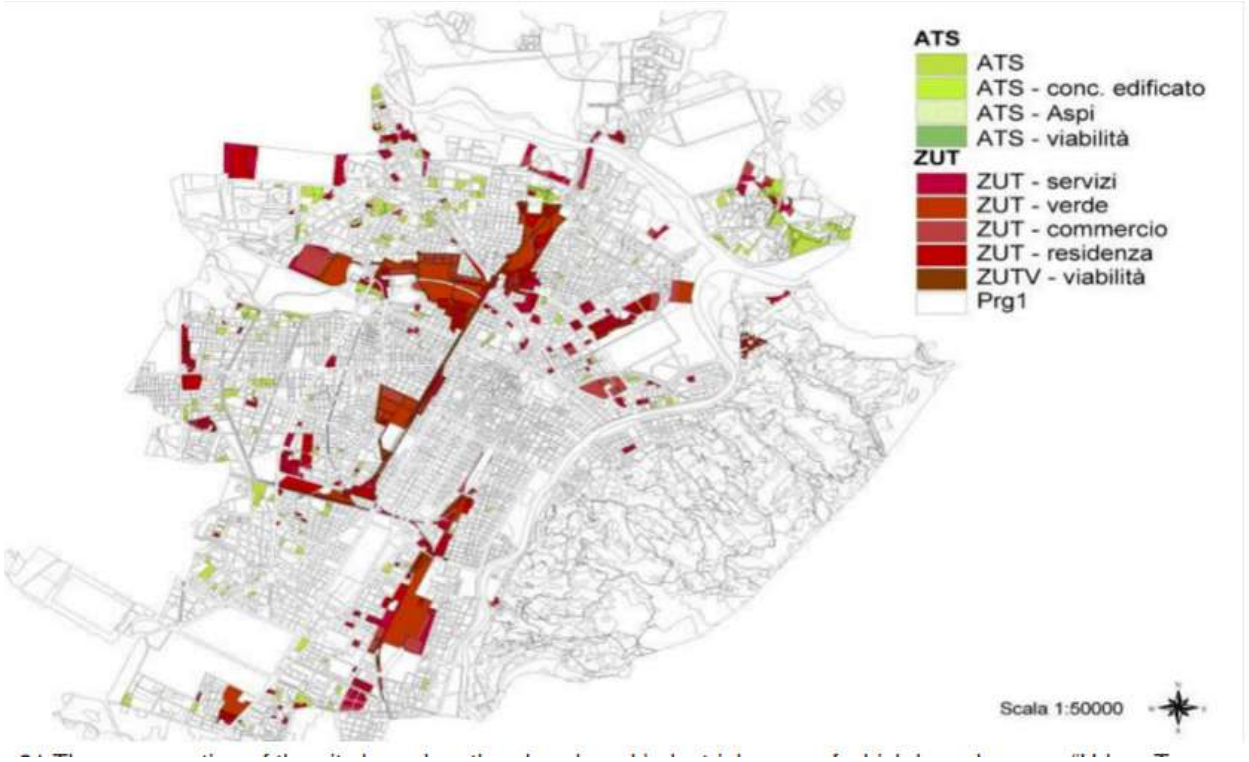


figure 4 .Urban Transformation Zones (ZUT) and "Areas for Tertiary and Services (ATS)" are regions of the city that have undergone redevelopment based on abandoned industrial sectors.

Source: 1995 PRG Turin

figure 5.Turin's abandoned industrial zones in the 1980s and 1990s before they were changed

Source: Giorgio Rota Committee, (2016) Giorgio Rota's 2016 Diciassettesimo Report on Turin, page 30

https://www.rapporto-rota.it/rapporti-su-torino/2016-check-up.html

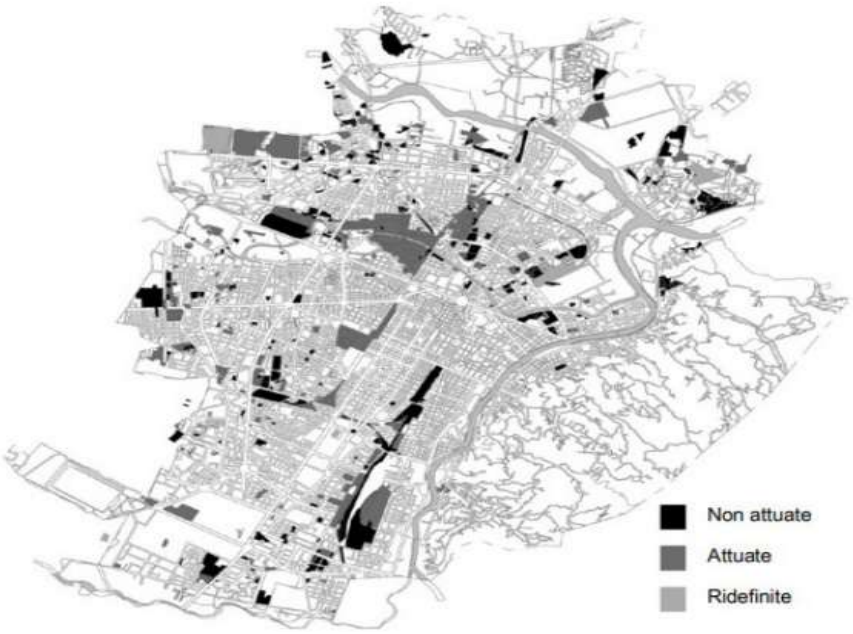


figure 6.Urban Transformation Zones (ZUT) and Areas for Tertiary and Services (ATS) implemented and un-implemented areas in Turin

Source:Giorgio Rota Committee (2016)- Twenty-Sixth Report p.31 of Giorgio Rota's "Su Torino

https://www.rapporto-rota.it/rapporti-su-torino/2016-check-up.html

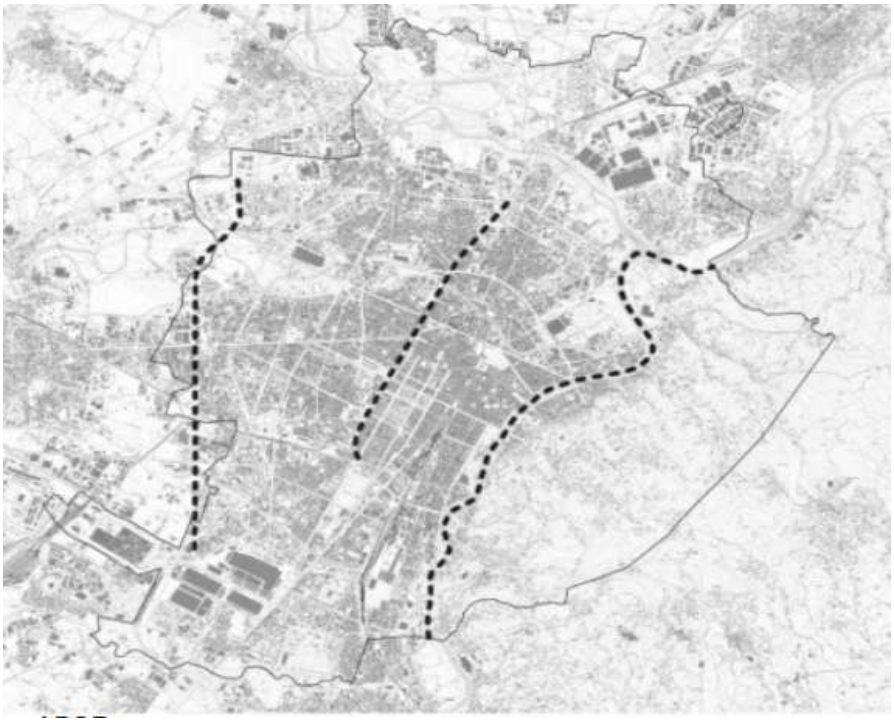


figure 7. The three axes of PGR

Source: Giorgio Rota Committee, (2019), Futuro rinviato 2019 - Ventesimo Rapporto Giorgio Rota Su Torino, p.157 Digital: https://www.rapporto-rota.it/rapporti-su-torino/2019-futuro-rinviato.html

figure 8.Main projects along the Spina Centrale in Torino

Spina 1 and Spina 2 with the railway station of Porta Susa, the vast OGR (Officine Grandi Riparazioni) industrial complex and the Politecnico di Torino Spina 3 and Spina 4 with Parco Dora and the Environment Park.

figure 9.Project Spina Centrale 3 – revitalizing of industrially affected urban area in Turin (Italy)

Source: Petríková, D., Finka, M., & Ondrejička, V. (2013).

figure 10. Transformation of Fiat factory area into the center of services and sport for Winter Olympics in Turin (Italy)

Source: Petríková, D., Finka, M., & Ondrejička, V. (2013)

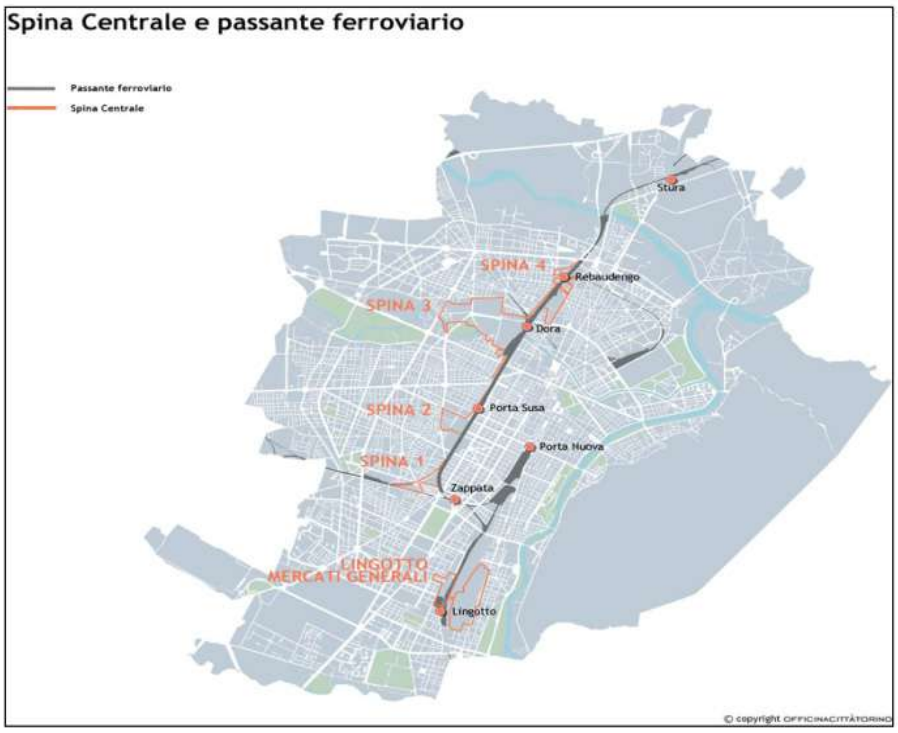


figure 11. spina centrale and railway link

Source : Torino nternazionale (2016) [http://www.torino-internazionale.org]

Chapter 5

Lancia brownfield in Borgo San Paolo district : case study

Igor sorokin / alamy stock vector
www.alamy.com

Introduction

As we have previously demonstrated, urban brownfield regeneration initiatives are effective strategies for curbing urban sprawl and revitalizing city regions, especially mixed-use districts. These transitional communities also offer opportunities to promote the incorporation of sustainability objectives into European cities.

The introductory chapter clarifies that urban densification policies frequently encounter resistance based on the belief that they do not align with residents' goals. Deeper investigation, as recommended by Jansen (Jansen SJT (2020) and Vos et al. (Vos JD, Acker VV, Witlox F (2016), demonstrates that residential choices are not limited to the conventional suburban paradigm.

As Shaftoe (Shaftoe H (2012) discusses, neighborhood-scale analysis makes it feasible to comprehend these subtleties and enables planners to meet particular wants like seclusion, access to natural areas, and the development of high-quality public spaces. This degree of detail guarantees that sustainable communities take into account the many psychological, social, and economic factors that affect their inhabitants, fostering a feeling of well-being and community (Lovejoy K, Handy S, Mokhtarian P (2010).

Furthermore, a recurring issue in the works is the interaction of socioeconomic and intergenerational variety. Gehl (Gehl J (2010) and Reiter (Reiter S (2007) both stress the significance of systems that promote diversified cohabitation and cultural mingling, necessitating the construction of facilities and areas that accommodate various demographics. Planners may help create a diversified housing offer that accommodates seniors, families, students, and persons with different requirements by looking at the neighborhood scale. This will improve the community's vibrancy and inclusion.

Reducing global expenses and enhancing economic appeal are essential for achieving sustainable urban development. According to the literature, urban densification—especially through brownfield regeneration—contributes to metropolitan regions' economic vitality and employment growth (Glaeser EL (2011) Pritchard and Frøyen (Pritchard R, Frøyen Y (2019) call attention to the social and economic benefits that central positions in urban development offer, highlighting their enduring relevance. By doing a neighborhood-level analysis, planners may establish plans that balance the economic and environmental costs of vast urban growth with the goal of promoting economic vibrancy.

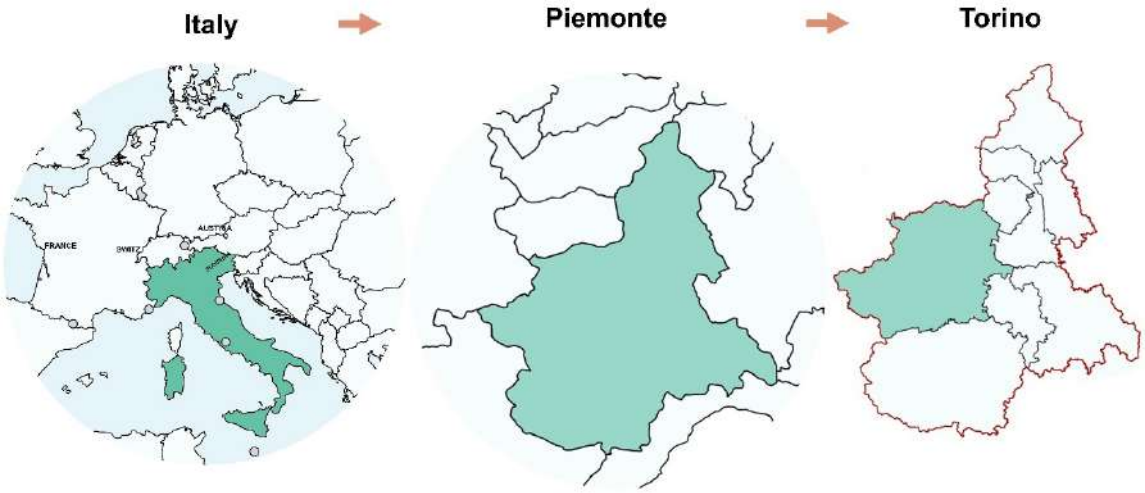
This chapter examines neighborhood-scale sustainable urban planning with an emphasis on the intricate dynamics of urban growth. Location, demographics, the industrialization era, urban regions, social management, jobs, and brownfield rehabilitation procedures are all included.

In order to satisfy a variety of needs and goals, the chapter underlines how crucial it is to comprehend the historical industrialization period, the demographic environment, and the social administration of metropolitan regions.

It also emphasizes how important the PRINE framework is for revitalizing cities and developing places that cater to community needs. Planners may design a development strategy that is specifically customized to the requirements and goals of the community, eventually promoting a lively and sustainable urban environment.

This is achieved by combining insights from several sources, including historical context, population dynamics, geography, social management, and regeneration processes.

5.1 The district of Borgo San Paolo



Torino is a city and an important business and cultural centre in Northern Italy. It is the capital

city of Piedmont and of the Metropolitan City of Turin, and was the first Italian capital from 1861

to 1865. The city is mainly on the western bank

of the Po River, below its Susa Valley,and is surrounded by the western Alpine arch and Superga hill.

One of the Italian cities that has experienced the most notable demographic, social, and cultural changes related to the influx of immigrant populations during the course of the 20th and 21st centuries is Turin. Hundreds of thousands of workers from less developed, primarily southern Italian regions arrived in Turin after World War II as a result of the development of large factories; later, as a result of the post-Fordist transformation, immigrants began to arrive from all over the world, with the majority coming from Eastern Europe and Northern Africa.

- Location of district San Paolo

The selected neighbourhood, San Paolo is located The western region of Turin contains the service-oriented neighborhood known as San Paolo.

Four important roads—Corso Vittorio in the north, Corso Trapani in the west, Corso Castelfi dardo in the east, and Via Tirreno in the south—help define its geographic limits. Piazza Sabotino, the district's physical and financial hub, is where San Paolo's historical core is located. It also serves as the starting point for the district's principal streets, which are constructed in a star-like topographical pattern. This is extremely rare for Turin, where practically all of the city's quarters are laid out according to a grid system. From a geographical point of view neighbourhood is very close to the city's historical centre.

A number of medium-sized to large industries could be found in the western area outside the customs barrier on a topographic map from the turn of the century, with Piazza Peschiera (which was later renamed Piazza Sabotino after World War I) as the center and a radius of about two kilometers around it. These industries included the Piemontese Automobili Society (SPA) along the ring road (now Corso Ferrucci), Itala on Corso Bardonecchia along the railway, Chiribiri where the square of the same name is today along Via Issiglio, the Fides establishments later becoming Lancia on Via Monginevro, the LUX automobile and bicycle factory, the Fratelli Diatto on Via Rivalta, Ginevrina around Boringheri (now Piazza Adriano), Sit (later Ansaldo Automobili), Nazzaro, and the company of Giuseppe Battista Farina, also known as Pinin. But there were also enterprises not strictly mechanical, such as the Italian Pianoforti Factory in the ingot area of Cor

so Racconigi. Then, the Ruotificio Italiano, Dubosc, CapAmianto, and many others that emerged later.
The first generation of industries used to be found in Borgo San Paolo, which was located just outside the city limits. It was surrounded by open-air canals, dirt roads, or at best cobblestone streets, sheds in courtyards, nearby meadows, trains that went directly into the plants, shift change sirens that were preceded by dozens of workers on bicycles, and, of course, the thick black smoke that came from the factories.(Calosso, F., & Ordazzo, L. (2009)

Farmers and their families who moved from the countryside to work in the factories, as well as those who came from the city, found that living in a clean and hygienic environment was a luxury reserved for a select few. The wealthiest lived on the first noble floor, followed by the lower middle class, artisans, workers, and the poorest who lived in the attics where running water was hard to come by.
The sole residents of the hamlet lived in the one- or two-story, lower-rent homes, where workers and small craftspeople who worked in the courtyards resided. Between the home, the church, the workers' club, the oratory, the street, and, most importantly, the factory where men, women, and occasionally children toiled up to sixteen hours a day, life unfolded there, from birth to death. It was almost like living in a little town: everyone knew everyone other, had complete knowledge of one another, and assisted one another when they were in need. (Calosso, F., & Ordazzo, L. (2009)

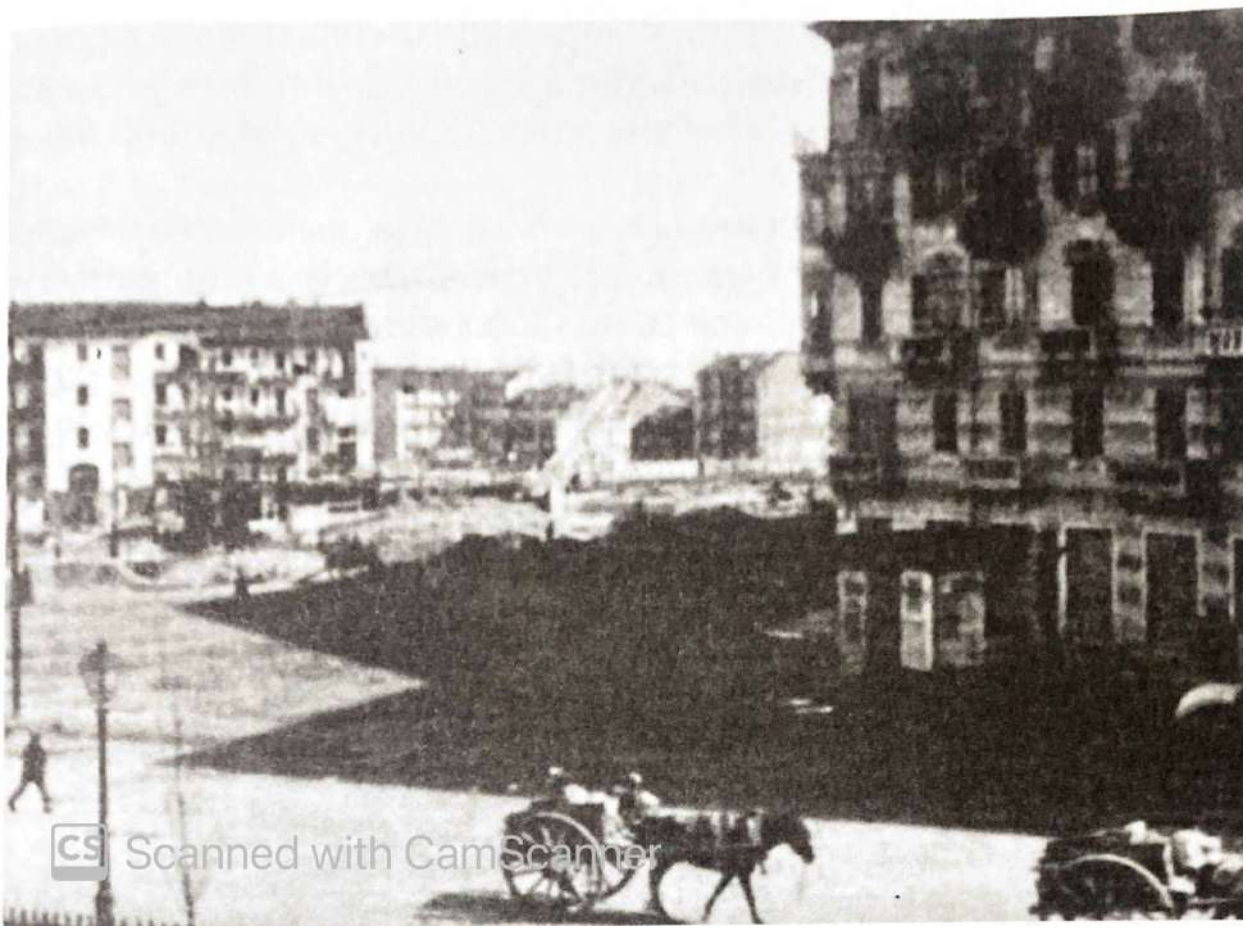


figure 12:Peschiera, before 1910
source: Calosso, F., & Ordazzo, L. (2009)

figure 13: Two images of the same square sixty years apart. Above the square (or crossroads as it was called at the time) Peschiera, before 1910, when there were no houses built by Plevna yet and Corso Peschiera was barely laid out. Under the same square, renamed Sabotino after the First World War, in the 1960s.
source: Calosso, F., & Ordazzo, L. (2009)

The city is far distant, easily accessible by bicycle, foot, or, for those with enough cash, tram; nonetheless, "going to Turin," meaning navigating the train and customs barriers, was seen as a legitimate expedition, one that should only be performed
Similar to any other suburban area beyond the city limits, San Paolo boasted a robust network of organizations, church groups, amateur theatrical societies, bocce ball players, and cultural circles. Then there were socialist circles and mutual assistance associations that mixed political propaganda with leisure activities.
Other significant gathering spots included movie theaters, coffee shops, "lyrical" stores, and of course the Boringhieri brewery, particularly for males.
However, the most straightforward and common method of exchanging news was during conversations while seated on chairs that people brought out for the evening in front of the front entrance of the house.(Calosso, F., & Ordazzo, L. (2009)

In this map of Turin from 1928 you can read the old names of the different villages and streets, the main factories and the tram lines that passed through the village are highlighted. You can follow the old streets: via Graziadio Ascoli (today via Azzi), via Villafranca (today via Dante Di Nanni), via Montenegro (today divided between via Lancia and via Braccini), via Dalmazia (which no longer exists), corso Parigi (today Corso Rosselli), up to Corso Marsiglia (today Via Tirreno), overlooked by the Juventus Sports Field, next to the square of the same name (today on Corso Adriatico). Among the large industrial plants, below, along the railway to Susa and Modane,

figure 14: Map of Torino 1928

source: Calosso, F., & Ordazzo, L. (2009)

there is the Freight Warehouse of the State Railways and a little further on the Economic Houses of the Railwaymen, on the right is marked the Itala and the Fiat plant (Materferro) ; Going up Corso Lyone you see the Railway Engineering Polygon and the SPA. On the left, following tram line no. 5 which runs along via Monginevro, you arrive at Lancia (with its sports field) and below the Chiribiri. Tram line no. 3 ends in Piazza Generale di Robilant and a little further down the presence of the Polveriera is indicated, while on the left there is the Gazometer. The names of some farmhouses of which only a few traces remain today are also legible. (Calosso, F., & Ordazzo, L. (2009)

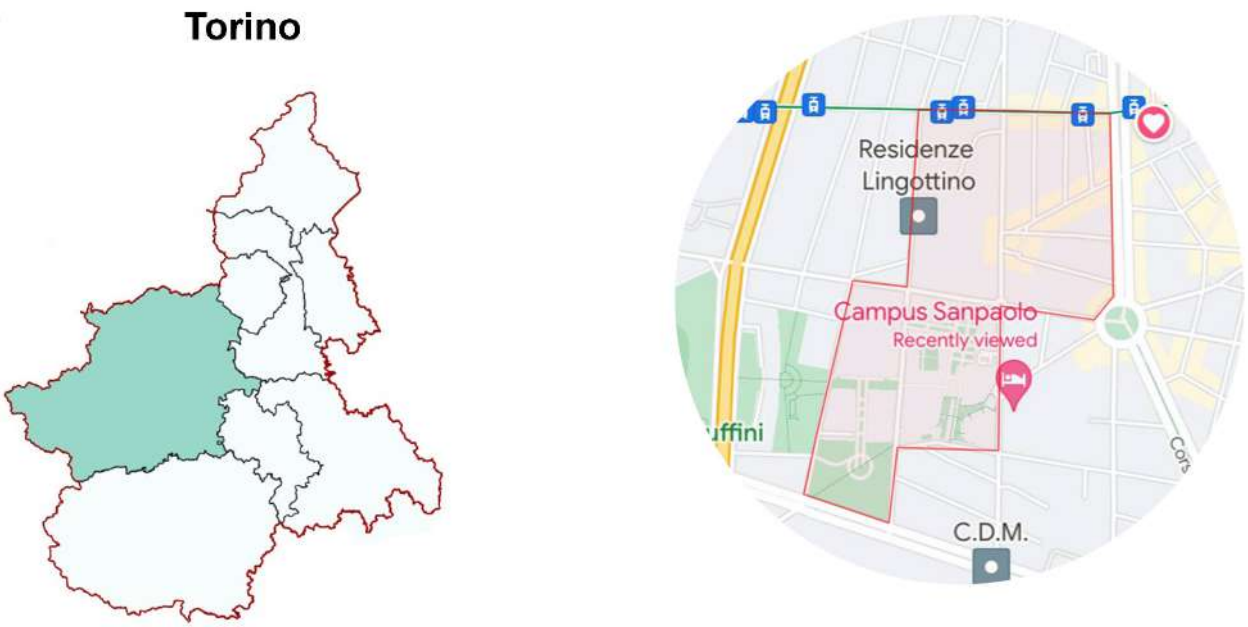


figure 15. location of lancia district in Turin

Reference :author

- Population of san paolo

In San Paolo the share of foreigners is around 14 %, which is similar to the city average, as shown by the Table 4.

area	2006	2007	2008	2009	2001
San paolo	9.5	11.2	12.6	13.5	14.00
City averege	9.4	11.4	12.8	13.7	14.2

Table 4.Share of foreign population (31 December) (City of Turin)

Source: Table prepared by the Author Adopted from Christian Iaione(2020)

The Co-City Project Zoom-in N°2 ,Project led by the City of Turin

If we consider the nationalities of foreign residents, San Paolo is less diverse in terms of the national origins of foreign residents. A peculiarity of this area is the presence of a large Peruvian community, the most numerous in the city (Table 5).

Citizenship	Share on foreign population
Romanian	43.52
Peruvian	13.90
Moroccan	11.01
Albanian	3.86
Moldavian	3.01
Other nationalities	24.64

Table 5. Share of main nationalities of foreign residents in San Paolo (1 January 2011) (City of Turin)

Source: Table prepared by the Author Adopted from Christian Iaione(2020) The Co-City Project Zoom-in N°2 Project led by the City of Turin

The area has a long history of working-class residents who were politically active and contributed to social cohesiveness, local pride, and the successful integration of internal immigrants in the 1950s and 1960s. Because of the ongoing economic crisis, the subsequent history of the post-industrial urban development of San Paolo is still in its early stages.

The chapter has been divided into two sections. The first section of the chapter is devoted to providing pictures of the neighborhood as they develop from the residents' descriptions: San Paolo is a tranquil urban community with seamlessly.

The chapter's second section shifts to a more in-depth analysis of urban spaces, paying special emphasis to public spaces and analyzing their accessibility, the existence of particular services, and their capacity to accommodate and meet the demands of various social groups.

5.2 The industrialization period of the San Paolo district

San Paolo is a relatively recent neighborhood of Turin that, until the end of the nineteenth century, was beyond the city's municipal boundary. San Paolo was cut off from the rest of the city by railroad tracks, which kept it socially, culturally, and politically isolated for a considerable amount of time. As a result, it evolved into a sort of microcosm with its own identity and social environment. This boundary was eventually removed in the 1920s.

A great number of small, medium, and big industrial settlements, particularly in the metallurgic, steel, and automotive sectors, drove San Paolo's actual building boom after 1910. San Paolo expanded in all directions like a spider's web due to the heavy fl ow of internal (mainly rural) immigrants. The tendency toward isolation persisted after the Second World War, which strengthened the population's sense of neighborhood belonging (Donna, S. (2010). This identity has been closely associated with the industrial character of the neighborhood. Due to the fiercely held battles for better working conditions and the firmly ingrained leftwing parties, it has long been referred to as the "red neighborhood." In the local society, Catholic and secular groups typically shared what (Jalla, D. (1978). called "utopian communism," which allowed them to forge a close partnership in the struggle against fascism.

San Paolo is a community with a strong working class culture, says Diego Novelli, a former mayor of Turin who has always resided nearby. In the neigh-

borhood, socialists like Gramsci enjoyed a large following. San Paolo is a working-class city with a strong history of partisanship and anti-fascism. For instance, Dante Di Nanni opposed fascism. In general, the unions were always crowded with attendees, serving as genuine focal centers for the locals and anyone nearby.

-The workers' houses on Corso Racconigi

The popular houses that occupy a large block between Corso Racconigi, Corso Peschiera, Via Pragelato, and Via Capriolo were like a small town: around two thousand people lived there, and everyone knew each other. Children grew up together and then married each other, just like Olinto Ricossa and Annamaria Carle did in 1963. From their memories and with their many stories, we were able to reconstruct some of the atmosphere in which the families of the popular houses on Corso Racconigi lived in the 1950s and '60s.(Calosso, F., & Ordazzo, L. (2009)

"It was a world of its own, our world. We children were everyone's children; they had seen us born, knew our parents and often also aunts and grandparents. We all played in the internal courtyards of the houses, which were large and well-protected because the entire complex is still closed today by gates facing the street. Groups were formed by age, there were small fights between one group and another, secret places, favorite games. A nice way to grow up."

The houses were built in 1927 by the Municipality of Turin to cope with the significant increase in the city's population. They are not very tall, at most four floors, without an elevator, with spacious apartments overlooking the internal courtyards and partly on the street and the market on Corso Racconigi, the longest in Europe.(Calosso, F., & Ordazzo, L. (2009)

San Paolo continued to expand both demographically and in terms of urban development during the economic boom that followed the post-war reconstruction, while nevertheless retaining its working-class identity.

-The Lancia Houses

They are named Appia, Aurelia, Flaminia, Flavia, Fulvia, Aprilia, Ardea, but they are not cars from the glorious Lancia past; they are condominiums that house approximately 630 families. It is a small community that has emerged in the last ten years on the vast area that, until the '90s, was occupied by the Lancia factories.

Purchased by the real estate company Gefim, the area has been completely transformed with houses, gardens, a shopping center, and pedestrian areas, forming what is called the San Paolo District. Often, during the early stages of the construction of these new buildings around the year 2000, construction workers had a regular audience: many elderly people watched with a touch of nostalgia as the old warehouses and red terracotta floors of their workshop were demolished.

Today, a significant part of the factory no longer exists, but the names of the cars that made the Lancia brand famous worldwide still linger in the area. Every resident in these houses knows it because the names are written on the official documents of each property. However, people strolling along these new avenues may not be aware of it. Perhaps a plaque could be placed on each house, in memory of the glorious past of this area. Calosso, F., & Ordazzo, L. (2009).

The Lancia skyscraper in Via Lancia was constructed between 1951 and 1956 as a representation of this activity. In addition to the factory, Lancia also created a number of social activities such as housing and recreational opportunities for employees, sporting facilities, summer camps for kids, etc. Lancia was one of the primary influences on the neighborhood's way of life. (Calosso, F., & Ordazzo, L. (2009).

Strong social capital has been produced by the productive structures, both bridging (through the integration of internal migrants) and bonding (based on a shared working-class identity). Families rather than individuals have immigrated to the community most frequently. Families chose to relocate since there were numerous services available to residents in addition to the existenceThe majority of the families in this new phase are also immigrants. The locals have welcomed them not as a break from the past but rather as a strong continuation, as if it were a new chapter of a shared history.

San Paolo residents love their community and continue to live there as if it were a small village transplanted into the metropolis, where everyone knows everyone and where cultural differences are not seen as harmful.

Many interviews revealed themes related to social cohesion, solidarity, and a sense of belonging. Many locals describe San Paolo as first and foremost a peaceful, tidy, and well-served location with schools, sports facilities, and green spaces, where the sense of security is cushioned by good management of the territory by institutions as well as by the locals themselves. This perception is reinforced, especially when compared to the unfavourable perception of other areas of the city. Many people emphasise how the neighborhood's long history of migration has contributed to its welcoming and accepting attitude towards newcomers.

Residents of Italy describe San Paolo's foreign population as "working families, with a good level of education, internal organisation, and social cohesion." (26-year-old Italian journalist from San Paolo)

5.3 Urban area and Social Management

-The New Birth of the San Paolo 'Village

Pier Paolo Ponchia, born in 1935, is Mr. Gefim, the owner of the large real estate enterprise that also constructed the so-called Lancia Houses, a vast real estate complex built less than ten years ago between Via Isonzo, Corso Rosselli, Via Caraglio, Via Issiglio, and Via Lancia. (Calosso, F., & Ordazzo, L. (2009).

This distinguished gentleman, in addition to being a construction entrepreneur of the old school, is also a knowledgeable connoisseur of the area where he himself came to live in the 1970s. Thus, we gather interesting information from him about how this part of Borgo San Paolo was and how it will evolve.

"In the mid-'90s, Fiat, the owner of all these disused Lancia plants, made an important decision: it sold the area between Corso Rosselli and Via Lancia. In 1996, it paid for the building amnesty to rectify the situation of the Lancia skyscraper, built between 1954 and '56 without a building permit (as was quite common at the time). Additionally, Fiat renovated the area of the plants between Via Lancia and Via Monginevro, transforming them into offices and making it its accounting center, where three thousand employees went to work." But the new life of the old Lancia buildings doesn't last long: between 2000 and 2002, Fiat sells the accounting center to IBM, which then closes it permanently in early 2008, leaving those immense spaces vacant that were once the Lancia body shop." (Calosso, F., & Ordazzo, L. (2009).

"In 1996-97," continues Ponchia, "Gefim acquires the area between Via Lancia and Corso Rosselli. Meanwhile, it builds the houses in what was the Gardino Legnami area on Corso Trapani." This is how the first part of the Lancia Houses comes into being. (Calosso, F., & Ordazzo, L. (2009).

Conversion and regeneration policies covered San Paolo. In San Paolo, residential and commercial complexes started to take the place of abandoned industrial structures in the 1990s. For instance, in the southeast corner of the neighbourhood, we can find the renowned Sandretto Re Rebaudengo Foundation for contemporary art, which was founded in 1995 in a former tyre factory. The Urban Eco Museum was totally constructed inside of a former factory that produced car components. Additionally, there are social services, a health unit, and the Giardini SPA, which offers a variety of services for

young people, adults, and elderly people, in this part of the community.

Services and gathering places are very evenly spread in San Paolo because they can be found both in recently developed sections and in the historic centre of the district. The San Paolo Salesian Parish Recreation Centre, which accommodates an average of 2,000 visitors per week, many of them

from South America, Pakistan, Morocco, Albania, and Romania, is one of the most well-liked youth gathering places in the area. Due to the numerous sporting venues and training programmes it provides, it serves as a gathering place for the local adolescents . (Calosso, F., & Ordazzo, L. (2009). Numerous public services are available behind the oratory, including the Permanent Territorial Centre for Adult Education, which provides courses leading to school degrees as well as quick courses on specialised topics (foreign languages, computing), as well as job counselling. The majority of people who use this centre are foreigners, and a large percentage of them are women migrants. The centre district is where most of the commercial services are located, which are generally relatively numerous here compared to the rest of the city. With its branded stores, historic stores, and entrepreneurial activities, particularly those managed by minority of migrant origin that have arisen over the last five years, this is likely Turin's strongest commercial neighbourhood outside of the city centre. There are three significant open-air markets in addition to the commercial streets. The largest and most well-known market in the neighbourhood is Corso Racconigi. It is the second largest market in Turin and reportedly "the longest in Europe," measuring two km long and housing 370 stands.

The neighborhood's public parks, which are a result of redevelopment efforts carried out in the area from the 1980s to the present, are another asset. There are lots of parks, gardens, and playgrounds in the community for kids and athletes.

Due to their accessibility to all demographic groups and versatility in use, public gardens have historically been a crucial setting for fostering social cohesion in Turin. The administration of the space in a way that resolves conflicts between various users and promotes social and cultural diversity is a fundamental requirement for the sustainability of this function (Low, S., Taplin, D., & Scheld, S. ,2005).Residents commonly visit the small but well-equipped Giardini SPA, which is clean, safe, and well-served. Children's play areas, two basketball courts, card tables, a dog-friendly area, and a kiosk selling snacks and drinks are all present. The space is used individually by the various organisations. Most of the space's users in the morning are elderly people. They frequently congregate on the same benches to talk and debate the news. In the afternoon, there are many Italian and foreign moms who bring their children to play in the area used for children's games, in addition to the pensioners who sit on "their" benches.

The second phase of a comprehensive construction project in Borgo San Paolo, led by Mr. Gefim, is set to conclude by 2015. The initiative involves a significant transformation of the area between Via Lancia and Via Monginevro. A new pedestrian avenue, extending for a kilometer and a half, will connect Nebiolo Stadium in Parco Ruffini to Via Monginevro, passing through Via Lancia. The former Lancia block will be divided into two parts: one facing Via Monginevro will be demolished and replaced with residential buildings and shops, while the other part, maintaining its original exterior, will be repurposed into offices and lofts large apartments without internal subdivisions carved out of the factory premises."

5.6 Parco San Paolo - Ex Lan

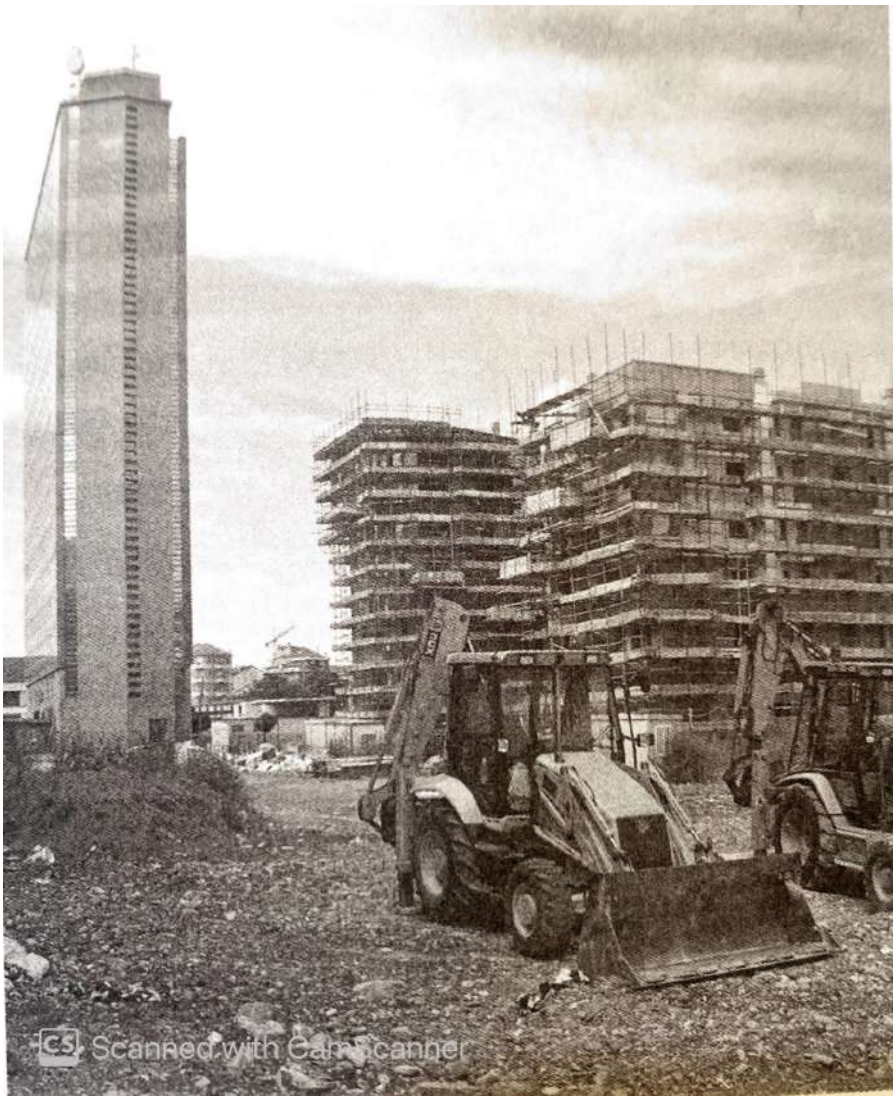


figure 16 :new condominiums under construction next to the Lancia skyscraper.

source :Calosso, F., & Ordazzo, L. (2009).

figure 17.The new houses between via Issiglio and via Isonzo along the pedestrian path.

source :Calosso, F., & Ordazzo, L. (2009).

5.4 Employment and population in Borgo San Paolo

This tables show the average number of inhabitants of area and the average employment rate in urban area in borgo san paolo. The information was taken from the 2017 ISTAT report on the safety and deterioration of the periphery.

	Employment rates	Unemployment rates	Index of social and economic vulnerability	Index of creative and cultural workers
Borgo san paolo	**47,5**	**9,8**	**99,2**	**8,0**
City average	**47.3**	**8.8**	**100.3**	**6.7**

Table 6. Data adapted from ISTAT, Report on security and decay of the outskirts (2017)

Source: Table prepared by the Author Adopted from Christian Iaione(2020) The Co-City Project Zoom-in N°2, Project led by the City of Turin

Urban area	n. inhabitants
Borgo San Paolo 33	22.486

Table 7. Data adapted from ISTAT, Report on security and decay of the outskirts (2017)

Source: : Table prepared by the Author Adopted from Christian Iaione(2020) The Co-City Project Zoom-in N°2, Project led by the City of Turin

5.5 Brownfield regeneration process (PRIN)

- The PRIN (Intervention Programme) overview.

The Integrated Plan (PRIN) is a consequence of the season of Complex Plans launched in the 90s in Italy

The “Complex programs” are a set of tools for urban redevelopment, introduced since the beginning of the 1990s. They are tools no longer aimed at governing quantitative growth but at promoting qualitative transformation

They do not serve to give an intended use and establish the regulation of all land and all buildings within a specific perimeter, as was the case with traditional implementation plans.

They serve to define public and private interventions, coordinated with each other, which improve the structure and quality of an urban area. Unlike traditional implementation plans, they do not decide everything, but only the implementation of some specific interventions, for which the implementing entities, the economic resources, the preliminary projects and the implementation times are defined.

Another new element is the integration between public and private resources and actors. Public resources are generally a small part of overall investments and act as the “flywheel” of interventions. Private resources are mobilized both for the implementation of private interventions,

from which the implementing entities derive income of various kinds (business profits and part of real estate income), and for the implementation of public interventions which are financed through “extraordinary contributions”
from the name of law no. 10 of 1977 which established them and divided them into contributions for urbanization and contributions on the cost of construction). In this way, a majority of the real estate income generated by the transformations returns to the city to improve its quality (http://www.cittasostenibili.it/html/Scheda_23.htm) .

In summary, the main differences between traditional implementation tools and complex programs (now Prin) are:

Traditional: regulate the uses of the entire territory and properties within the area within a fixed and non-modifiable perimeter (except with the variant procedures).
Complexes: they only regulate land and buildings where interventions take place, the reference perimeter can be modified.

Traditional: they leave the implementation of public and private interventions to the decisions of the owners of the properties and to the availability of public resources.
Complexes: define implementing entities, economic resources, preliminary projects and implementation times.

Traditional: the contribution of private individuals consists of the Bucalossi charges.
Complex: the private contribution is made up of the sum of the Bucalossi charges plus the “extraordinary contribution”: in this way a portion of the real estate income is recovered

Traditional: the urban planning instrument is a public initiative and private individuals intervene in the comments/oppositions.
Complexes: through the publication of the preliminary document and the presentation of proposals by private individuals, they intervene in the process of forming the instrument.

Because they address and intend to solve the new problems of the contemporary city, characterized by the multiplicity of functions, demands and needs of increasingly articulated urban populations with different cultures, which require strategies for sustainability and urban quality that cannot be sustained from public resources no longer available and which therefore require greater mobilization of private resources, the new instruments have been defined as “Complex Programmes”.
The first complex programs were introduced by law no. 179 of 1992: These are the Integrated Programs - Prin (ex art. 16) and the Urban Redevelopment Programs - PRIU (ex art 2). Subsequent measures introduced: the Urban Recovery Programs - PRU (ex art. 11 of law 493 of 1993); the Neighborhood Contracts – CdQ defined by ministerial notices in 1998 and 2001; the Urban Redevelopment and Sustainable Territorial Development Programs - PRUSST (ex Ministerial Decree no. 1169 of 1998).
After a long period of experiments and numerous implementations in many Italian cities and urban areas [1] and also of institutional conflicts over law 179/92, today the programs that have entered ordinary urban planning practice are the Integrated Programs - Prin ex art. 16 of law no. . 179 of 1992 (http://www.cittasostenibili.it/html/Scheda_23.htm) .
On these topics there is a large and complex scientific bibliography to which reference is made for specialist in-depth information, however, by referring to a study on complex plans published by the Inter-University Territory Department of the Polytechnic of Turin, we can thus summarize

The technical urban planning tools that are part of these complex programs are: Programmi integrati di intervento, i Programmi di recupero urbano, i Programmi di riqualificazione urbana, i Contratti d’area, i Patti territoriali, i Contratti di quartiere, i Programmi di riqualificazione urbana e di sviluppo sostenibile del territorio

The contents of the Prin in brief:
"... (i)...The intervention programs can concern areas of intervention located in areas that have already been fully or partially built up. The objective is to launch functional building recovery procedures through procedures aimed at producing:

- significant parts of the urbanization works
- non-residential building interventions functional to improving urban quality in the area considered
- residential building interventions functional to the start of physical redevelopment processes of the area considered ...(i) ...." (Artuso, Gastaldi, Spada, 2002: 68)

The interventions (divided into public and private) may concern the expansion of urbanized areas, maintenance, recovery, new construction

The promoters of the PrIn Integrated Program are the Municipalities (provincial capitals and metropolitan cities and with a population exceeding 300,000 inhabitants)

The set of urban planning interventions of a PrIn must lead to public and private convenience and must take place with the preliminary construction of consensus among resident citizens.

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- The technical data of PRIN Borgo San Paolo

The "San Paolo" Integrated Program in force, approved by Decree of the Municipality of Turin n. 130 of 10/11/2010 (later modified with the municipal decree of 07/22/2014), and what follows fromthe update according to art. 3 and following of the technical implementation standards of the current Municipal Urban Plan (PRGC), without constituting a variation thereof, in light of the design choices made in the implementation phase of the Plan (Reference Comune di Torino, PRIN Area Lancia : pages 2,3)
In summary, the Prin divides the area into five units (called Minimum Intervention Units)(Annex 1)
For each of these units, the existing buildings were partly recovered and transformed into new uses, and new buildings were partly constructed.
The plan also includes the creation of public spaces.

Annex 1 :master plan of Prin Lancia site
source :PRIN program (2021) Comune di Torino

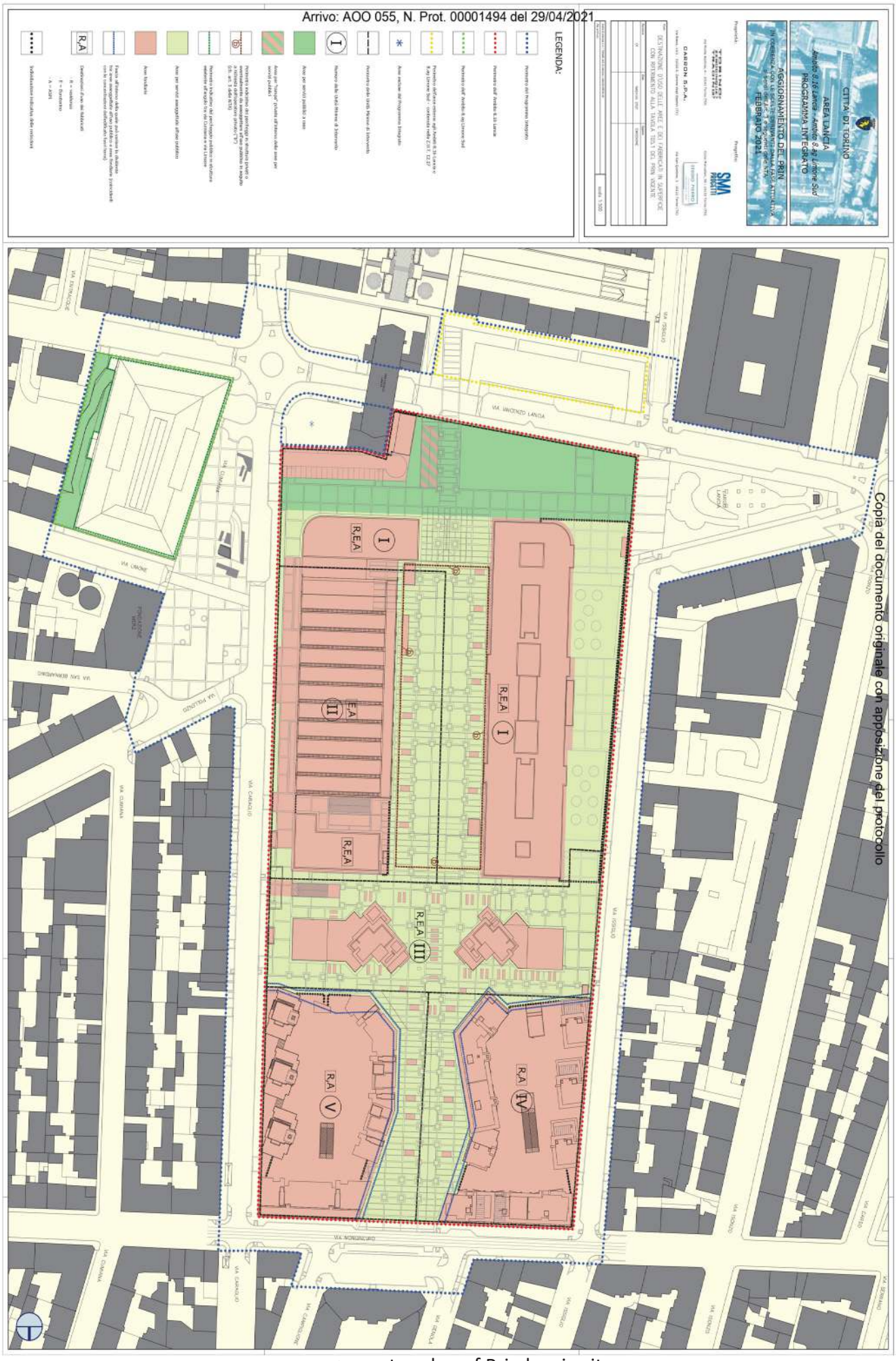
The final project therefore involves the transformation of the area according to the following plan
And, in the following planimetric image you can also see the quantities of areas and buildings recovered compared to the newly constructed buildings (annex 2)
The functions inserted are
- Residential (part of which is intended for social housing use)
- Residence for the elderly
- Commercial tertiary sector
- services and areas for public use
Among the commercial tertiary areas there is a gym.
The following table summarizes the values of the related functions provided

Prin Lancia site

Destinazione uso **Land use**	**Mq**
Superficie Territoriale estensione intera area Territorial Surface entire area extension	94.000
Superficie edificata " Lorda di pavimento " SLP Built area "Gross floor" GFA	58.570
Residenza (10% social housing) Residence (10% social housing)	39.200
Commerciale Commercial	16.800
Edifici per servizi pubblici Public service buildings	2.570
Siperficie per servizi ad uso pubblico Surface area for services for public use	46.376

Costo totale dell'operazione € 4.540.407, 846

Table 8 :Total costs of PRIN lancia site
Source :PRIN Progeram (2021) Comune di Torino



Annex 2 :master plan of Prin lancia site
source :PRIN program (2021) Comune di Torino

5.6Parco San Paolo - Ex Lancia project

The “Parco San Paolo” project, which encompasses a sizable area and is situated in the historic “Borgo San Paolo” of Turin, is part of a larger framework of recovery interventions for abandoned industrial areas in the San Paolo district. It is the redevelopment programme of the former Lancia factory, between Via Monginevro, Caraglio, Lancia, and Issiglio.

Green spaces will receive a lot of attention during the space revolution; they will be created from privately held regions but will be open to the public. The development of flat and office complexes will take place in a subsequent stage of the project. A supermarket will eventually be constructed. Presented by Parco San Paolo and Torri Hf, this is the “Parco San Paolo” intervention:

The redevelopment programme of the former Lancia factory, between Via Monginevro, Caraglio, Lancia, and Issiglio, is part of the larger framework of redeveloping abandoned industrial areas in the San Paolo district and “the new project extends over a large area, located in the heart of the historic” Borgo San Paolo “in Turin.

- Pandemic aspect:

the concept of a neighbourhood mixed-use development. On a 95,000 square metre area, the project calls for the building of about 40,000 square metres of housing and 15,000 square metres for other finishing touches like leisure, trade, and tertiary sector. A number of existing structures will also be recovered as part of the interventions, and new public gardens and squares will be constructed, totaling about 45,000 square metres. Additionally, parking spaces for more than 1,500 automobiles will be built.

- Climate change aspec

Parco San Paolo epitomises the new way of living in the city: unusual, energy-efficient apartments, cutting-edge technology, expansive, livable areas, complete comfort, and complete relaxation.

Large, bright, and simple to furnish rooms with a variety of exquisite finishes can be found in the structures, which were specifically designed and constructed with energy efficiency and acoustic insulation in mind. The interiors can be altered to suit your requirements, preferences, and way of life.

Parco San Paolo epitomises the new way of living in the city: unusual, energy-efficient apartments, cutting-edge technology, expansive, livable areas, complete comfort, and complete relaxation. Large, light, and simple to furnish rooms with a variety of exquisite finishes can be found in buildings that were specifically designed and constructed with energy efficiency and acoustic insulation in mind.The interiors can be altered to suit your preferences, needs, and way of life.

Some peculiarities:

• Buildings with Class A certification

• Solar panels to utilise sunlight naturally

• A centralised district heating system

• Heat recovery from the rooms’ air ventilation

• Colour monitor with linear video intercom

• Controls for popular inputs in video

• A built-in alert system for public spaces

• Satellite TV for contemporary needs in digital entertainment

• Lift automation systems

• Granite floors and wood panelling in the entryway and communal spaces.(Antonkiewicz, A. (2022)

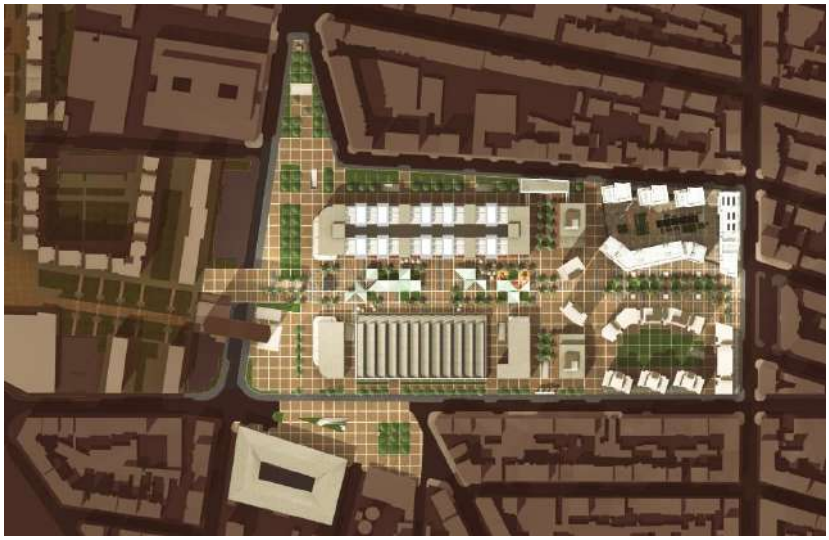


Figure 18.Parco San Paolo - Ex Lancia .Design : Studio Mellano Associati - Turin

Source: PARCO SAN PAOLO (Antonkiewicz, A. (2022)

Figure 19. Parco San Paolo - Ex Lancia(Design: Studio Mellano Associati - Turin)

Source: PARCO SAN PAOLO (Antonkiewicz, A. (2022)

Transformation: multi - functional

space Location: Via Monginevro, Caraglio, Lancia, and Issiglio Turin

Brownfield type: Abandoned area

Project type: Renovation, new construction

Architecture Studio: Studio Mellano Associati - Turin

Date of project: 2015 - ongoing

Surface: 95,000 m2

Stakeholder: TURIN ZEROCINQUE TRADING

SpA Activities: Pedestrian square for relaxation and strolling, Pedestrian avenue connecting upto the Ruffini Park, Parking and new roads, residence, Business, Prestigious residences .

figure21 .current site of lancia
Source: Image by the Author in picture located on the Lancia district underground parking

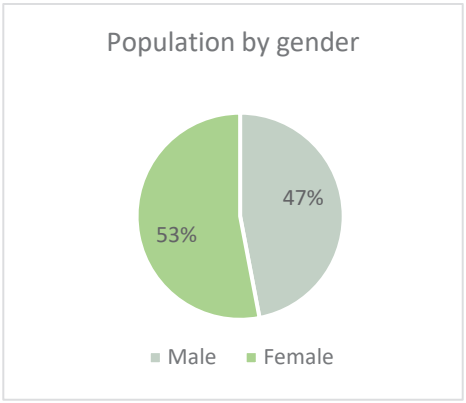
figure 20:Former site of lancia
Source: Image by the Author in picture located on the Lancia district underground parking

5.7 A Close Look at the Dynamic Community of Today's Lancia District Neighborhood

In the Lancia district, a well-balanced demographic mix of men and women is evident, with a noteworthy majority living independently or as couples. This trend signifies a significant shift towards smaller family units. Substantiating this observation is the data highlighting a limited number of children aged 0 to 12, constituting less than 10% of the local population. Conversely, there is a nearly equal distribution across other age groups, underscoring the remarkable diversity within the region's population.

Who are the users of today's neighbourhood?

Population by age	Percentage
Children	9%
Young adults	28%
Middle- aged adults	30%
Old adults	33%



Emigrant Population	Percentage
European Union	16%
America	14%
Asia	15%
Africa	14%
Europa Other	10%
Other Countries	45%

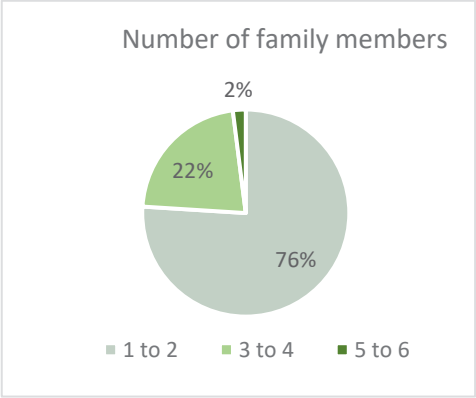


figure 22. Global Demographics and Local Dynamics
Source: Tables prepared by the Author Adopted from http://aperto.comune.torino.it/organization/comune-di-torino

In conclusion, the Lancia district's demographic profile shows a varied and internationally integrated community. The patterns of emigration reveal a large proportion of the population moving to different continents, primarily inside the European Union. The age distribution shows a balanced representation, with significant shares coming from young people, middle-aged adults, and older persons. The proportion of men and women in the population is about equal, demonstrating gender parity.

Seventy-six percent of the family structures in the Lancia district are composed of one or two people. This implies that smaller households are becoming more common. The area shows how local demographics and global mobility interact dynamically, creating a community that is both locally diverse and globally connected.

Chapter 6

Evaluation Methods for Urban Regeneration

Igor sorokin / alamy stock vector
www.alamy.com

6.1The Analysis of brownfield in the Lancia district in Turin

- Presentation of the Borgo San Paolo

Borgo San Paolo is a neighborhood in the western part of Torino, belonging to Circoscrizione 3. It's home to various districts, including Lesna, Cenisia, Pozzo Strada, Cit Turin, and the small Rione Lancia, named after the renowned Torinese automobile manufacturer, Lancia .

Formed at the end of the nineteenth century, the neighborhood was characterized by a strong industrial vocation, becoming one of the most famous working-class villages in Turin, today partly redeveloped by the interventions made necessary by the process of divesting factories. The formation of the neighborhood dates back to the end of the nineteenth century, when the area began to dissolve its predominantly agricultural features following the establishment of industrial plants concentrated mostly around the church of S. Bernardino and the current Piazza Sabotino . Prompted in particular by the opening of the new railway workshops and the Lancia factory now home to registry services, the industrial vocation of the area was consolidated in the years between the two world wars, transforming Borgo S. Paolo into one of the most important working-class neighborhoods Turin. The problems posed in recent decades by the divestment of industrial activities have been overcome with the redevelopment of Spina 1, with the inclusion of residential complexes and works of contemporary art which have redefined the urban road network, while the buildings of the former factory Fergat have been used as the headquarters of the Ecomu-SEO of Constituency

-Description of the Main Characteristics of parco san paolo

The main characteristics of Parco San Paolo, which make it a pioneering urban development, can be summarized as follows:

Energy-Efficient Apartments: Apartments in Parco San Paolo are energy-efficiently built, making them both economical and environmentally pleasant for occupants.

Cutting-Edge Technology: Modern technology is used in the construction to give occupants access to contemporary conveniences and amenities

Spacious and Comfortable Interiors: The flats' interiors are large and comfortable, providing occupants with a high standard of life.

Focus on Sustainability: Parco San Paolo prioritizes sustainability, incorporating acoustic insulation and energy-efficient technologies to improve residents' quality of life.

Tranquil Pedestrian Spaces: The addition of a pedestrian square and an avenue leading to Ruffini Park provides locals with peaceful areas for recreation and relaxation, establishing a sense of neighborhood and a connection to the outdoors.

Convenient Infrastructure: The complex has new road infrastructure and plenty of parking spaces to provide residents' and visitors' convenience and accessibility.

A culture of openness is fostered within the neighborhood via Parco San Paolo, which meets a variety of requirements by housing senior citizens and enabling business operations.

In conclusion, Parco San Paolo epitomizes a forward-thinking urban neighborhood that redefines urban life through the use of cutting-edge technology, sustainability, and an emphasis on resident comfort.

6.2 Multi-methodological Approach

This section offers a multi-level methodology to assist in making decisions about the area's transformation. The first phase of the analysis, The goal of the problem identification is to organize the problem. The task involves identifying key elements and areas of uncertainty, The second phase is devoted to the process of determining potential outcomes for the transformation project. (Bottero, M., Caprioli, C., & Berta, M. (2020)

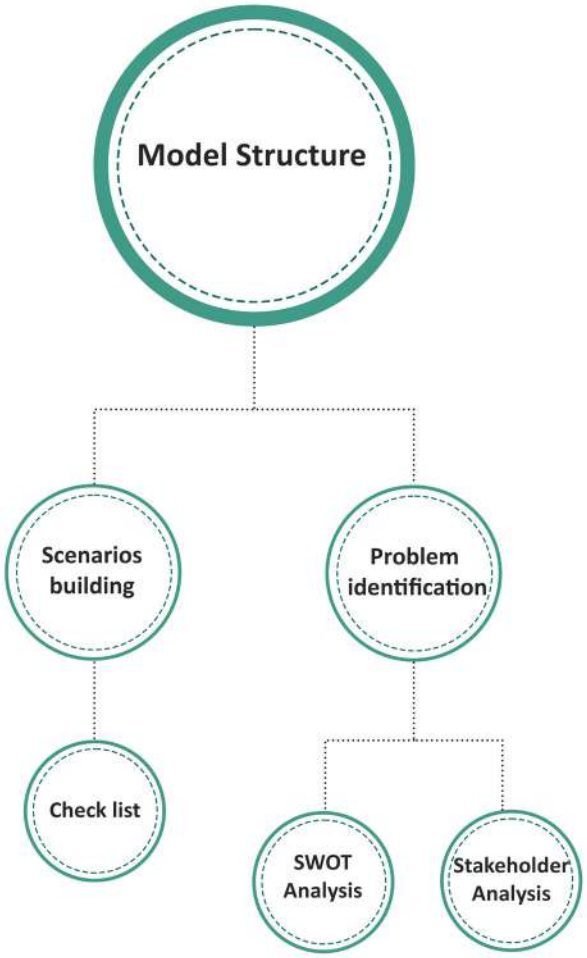


Figure 23. Multi-methodological Approach
Source: diagram referred to Lancia district methodology and managed by the the Author[1].

In order to thoroughly evaluate and plan for the transformation project, a dual-method approach has been used in this part, combining both SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and Stakeholder analysis. Combining these two approaches guarantees a comprehensive grasp of the different stakeholders affecting or being impacted by the change, as well as the internal and external elements that might have an impact on the project.

Application of the SWOT Analysis

A tool that can help choice processes in a systematic and logical approach during the decision-making process is the SWOT analysis. Using this method, it is possible to highlight the advantages, disadvantages, possibilities, and dangers of the particular aspect that is being investigated. As a matter of fact, this method makes it feasible to draw attention to the primary internal and external traits as well as to formulate cogent plans that are grounded in the actual analytical context.(table 9) that enable comprehensive analysis of every component in the Lancia District also In addition to the tabular data, a visual map has been incorporated to

1 To be precise, the methodological reference refers to the similar method used by Bottero et al (2020)

offer a geographical comprehension of the strengths, weaknesses, opportunities, and dangers that have been discovered in the Lancia district. Geographic patterns, hotspots, and relationships that might not be immediately obvious in a tabular format can be identified with the help of mapping these elements. By providing a more intuitive understanding of the district's dynamics, this visual depiction improves decision-making and is a useful tool for resource allocation and strategic planning.(figure 14, 15,16,17) (Bottero, M., Caprioli, C., & Berta, M. (2020)

- Development of the Stakeholders Analysis

To comprehend the events or potential outcomes of a decision-making process, we must inquire about the individuals who have or may have contributed to its formation and conclusion through the adoption of pertinent behaviors. (Dente 2014).

Actually, each stakeholder has a specific interest that relates to their objectives, principles, or preferences; these interests will dictate whether they accept or reject a plan. T(able 11) lists all parties involved in the Basse di Stura project and provides information on each party's degree of expertise, available resources, and character traits.

It is important to note that many techniques were employed in the construction of the stakeholders' analysis. For instance, institutional analysis, which is mostly done on legislative or administrative papers, has been used to examine stakeholders who include major organizations like the European Union, the national government, and the region. For other categories of stakeholders, such as the municipality, citizens and local agencies, personal interviews and questionnaires have been developed in order to connect their preferences.(Bottero, M., Caprioli, C., & Berta, M. (2020).

- Scenario building for the Lancia district

Making a SWOT analysis, along with taking into account the values and preferences resulting from the stakeholder analysis, as well as the potential advantages and disadvantages of the site, will facilitate a comprehensive understanding of the area. Investigating Lancia for Positive Change will deepen this understanding and help define potential future scenarios. The purpose of this study will be to investigate alternative solutions. In this regard, a distinctive strategy will be identified: student life opportunities, and strategies aimed at addressing vulnerabilities for the wider benefit of society

- SWOT Analysis of Lancia district

The SWOT Analysis is frequently used in conjunction with other techniques to create a representation by components that produces better, more ordered findings. SWOT analysis and STEEP (or PESTEL) are frequently combined.

In the framework of an inquiry, society (S) takes into account several aspects of the population, including age, non-employment rate, migration, and social capital, among other factors.

Technology (T) is the absence or presence of devices and infrastructures that support the local economy in the context of the study by fostering collaboration and/or competitiveness in the marketplace, or even by promoting security through the use of renewable energy sources, security devices, or service accessibility. (Bottero, M., Caprioli, C., & Berta, M. (2020)

In order to monitor the health state of the context under inquiry, Environment (E) provides an analysis of the environmental features, such as CO2 emissions, air pollutants, and water quality. The term "economic" (E) describes the current situation of the industry in the sectors that add to GDP, or gross domestic product, and therefore the context's appeal.In the context of the research, policy (P) refers to the existence or absence of plans, programs, finances, or initiatives that might improve the quality of life.

This SWOT analysis provides a nuanced perspective on Lancia District, examining its societal, technological, environmental, economic, and policy aspects. Strategic planning can harness opportunities, rectify weaknesses, capitalize on strengths, and reduce potential risks for the community's overall well-being and sustainable growth by taking these variables into account. (Caprioli, C. (2023)

				
Society	-Unemployment rate	-Depopulation trends -Under-construction area	-Growth of foregin populotion	-Development of crime and social degradation due to proximity to the park
Tecnology	-Cycling line -Easy access to bus station -Charging station for electric car -Accessibility to hotel san paolo	-Distance from railway stations and metro services -Possible noise pollution due to traffic	-Connection cycling pass with regional green way -Adding more place in green corridor -Renovation or reuse of unpotenial stores	-Under construction buildings Increase of traffic and noise
Environment	-Presence of parcks in near of the project area -Vegetation(biodiversity)	-Air pollution due to traffic and cars	-Icrease in the useablity of area for general public -Increase in green area -Increase in biodiversity	-The area does not integrated with surro-unded context
Economic	-Employment rate 47.5 higher than avrage of city -Proximity to the commercial area	-Unused potential stores	-High potential element -increase interst in local activities as result of an increase in tourists and residents renovation of abandon indasterial area	-Difficulty in selling buildings
Policy	-Urban development plans are well-designed to enhance public areas, infrastructure, and overall quality of life in a district.	-The complex organization and rigidity of the suggested municipal design present a challenge.	-Utilizing technology in urban development strategies can enhance the creation of intelligent, sustainable, and efficient infrastructure.	-Budgetary restrictions and fiscal issues may pose a threat to the implementation of political programs, aimed at enhancing life quality.

Table 9. SWOT analysis

Source: Author

SWOT Analysis

STRENGHTS

Legend and Description

Social acpects	Infrastructural and sattlement aspects(technology)	Enviromental aspects	Economic aspects	Political aspects
-unemployment rate ⬇	-Cycling line ●●●●●●●	-Presence of parcks in near of the project area	-Employment rate 47.5 higher than avrage of city ⬆	-Urban development plans are well-designed to enhance public areas, infrastructure, and overall quality of life in a district.
	-Easy access to bus station	-Vegetation(biodiversity)	-Proximity to the commercial area	
	-Charging station for electric car			
	-Accessibility to hotel san paolo			

Figure 24. SWOT analysis , strenths
Source: Author

SWOT Analysis

WEAKNESS

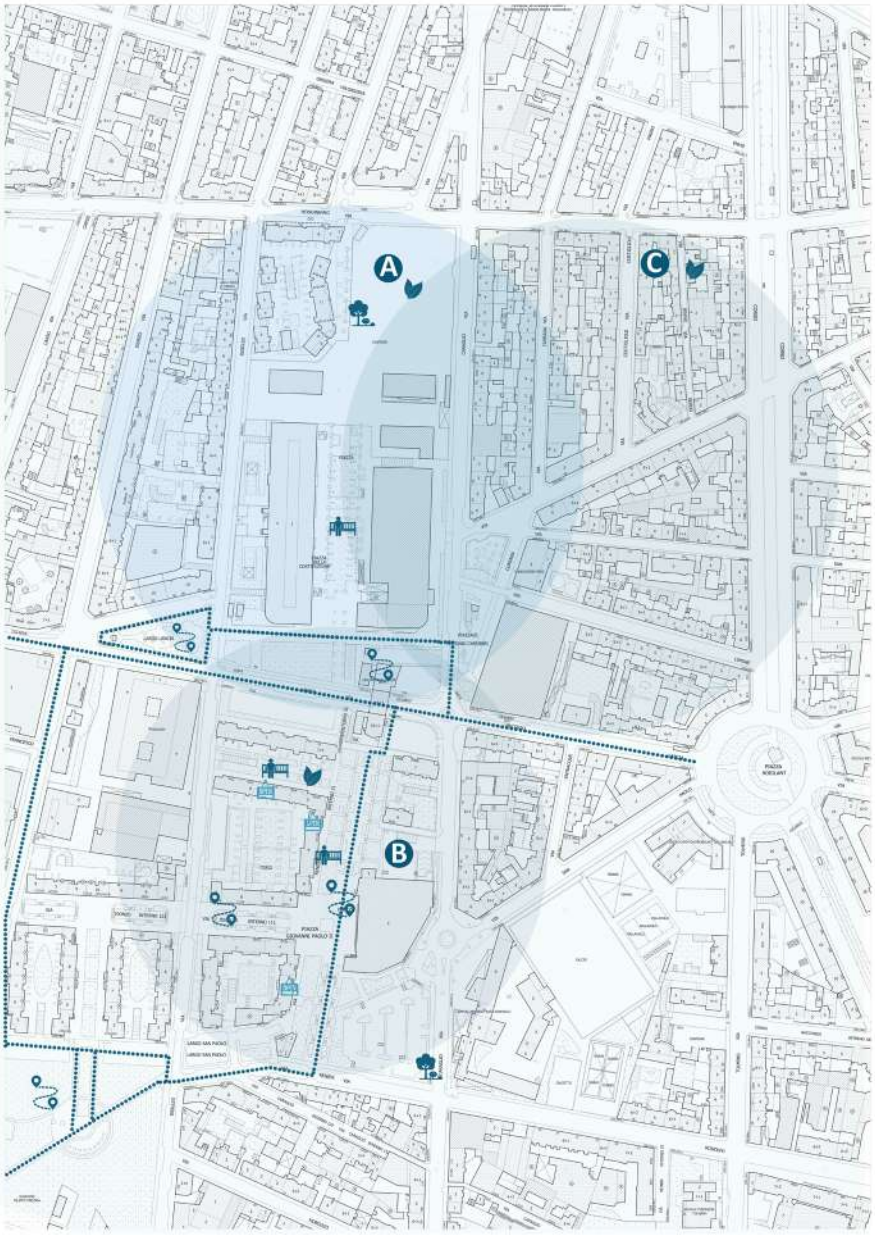
Legend and Description

Social acpects	Infrastructural and sattlement aspects(technology)	Enviromental aspects	Economic aspects	Political aspects
-Depopulation trends	-Distance from railway stations and metro services	Air Pollution due to traffic and cars	Unused potential stores	-The complex organization and rigidity of the suggested municipal design present a challenge.
-Under-construction area	-Possible noise pollution due to traffic			

Figure 25. SWOT analysis , weakness

Source: Author

SWOT Analysis
OPPORTUNITIES



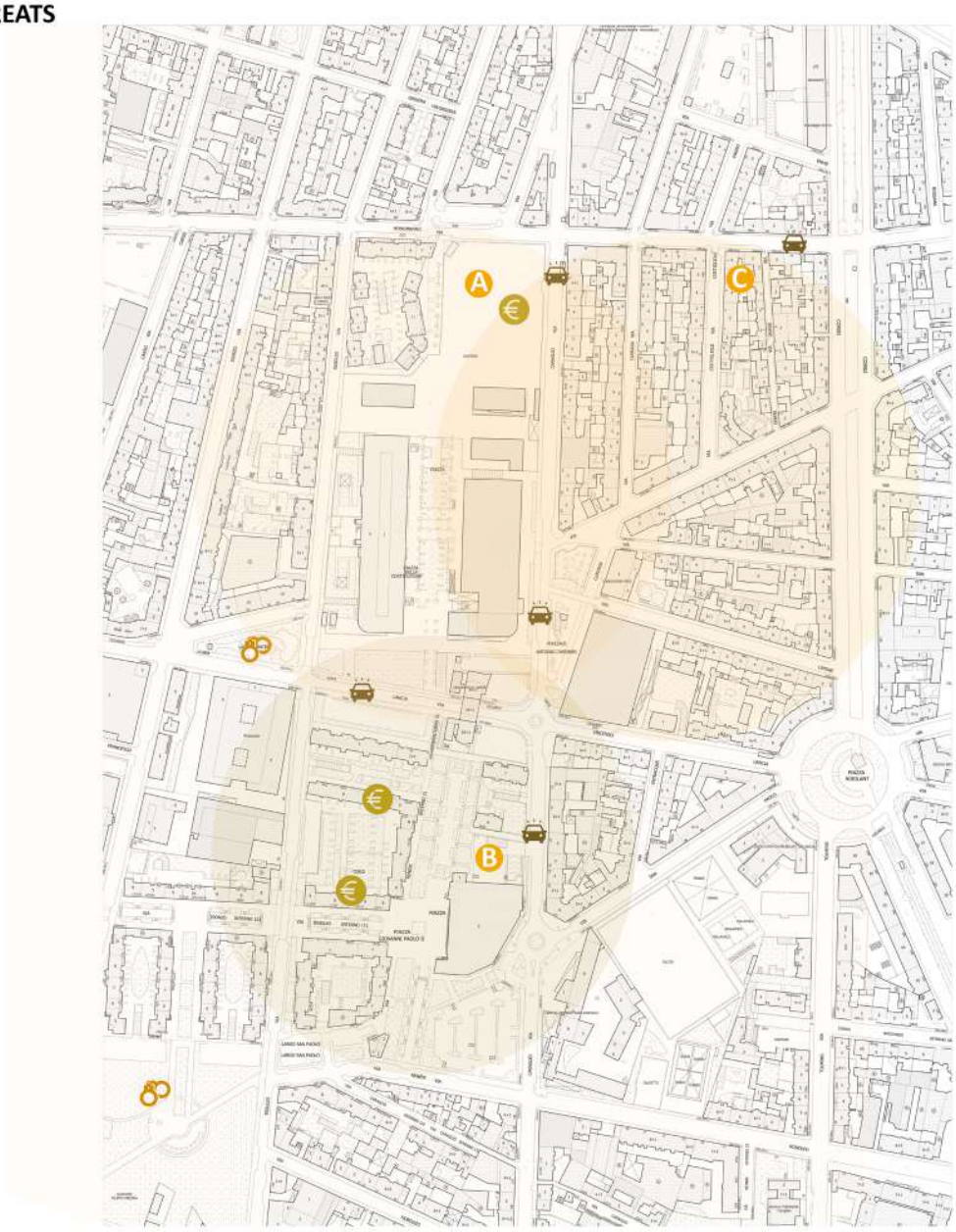
Legend and Description

Social acpects	Infrastructural and sattlement aspects(technology)	Enviromental aspects	Economic aspects	Political aspects
-Growth of foregin populotion	-Connection cycling pass with regional green way -Adding more place in green corridor -Renovation or reuse of unpotenial stores	-Icrease in the useablity of area for general public -Increase in green area -Increase in biodiversity	-High potential element -increase interst in local activities as result of an increase in tourists and residents renovation of abandon indasterial area	Utilizing technology in urban development strategies can enhance the creation of intelligent, sustainable, and efficient infrastructure

Figure 26. SWOT analysis ,opportunities
Source: Author

SWOT Analysis

THREATS



Legend and Description

Social acpects	Infrastructural and sattlement aspects(technology)	Enviromental aspects	Economic aspects	Political aspects
-Development of crime and social degradation due to proximity to the park	-Under construction buildings Increase of traffic and noise	-The area does not integrated with surro-unded context	-Difficulty in selling buildings	Budgetary restrictions and fiscal issues may pose a threat to the implementation of political programs, aimed at enhancing life quality.

Figure 27. SWOT analysis , threats

Source: Author

- Stakeholders Analysis

To emphasize precisely who the participants are in urban development projects, the analysis of the stakeholders is crucial.Furthermore, in practical issues, stakeholders may only be sufficiently empowered to participate in urban development decision-making if their interests are identified.

- Definition of stakeholder

scholars	definitions
Gupta(1995)	to identify and specify the stakeholders and their interests, domain and specificity; identify and describe the power relationships between the stakeholders and the firm, and among the stakeholders; incorporate the concepts of action and time
Schmeer(1999)	a process of systematically gathering and analysing qualitative information to determine whose interests should be taken into account when developing and/or implementing a policy or programme.
Allen and kilvington(2002)	the identification of a project's key stakeholders, an assessment of their interests, and the ways in which those interests affect project riskiness and viability.
World health organition(2009)	to identify stakeholders that will influence your project; anticipate the kind of influence, positive or negative, these groups will have on your project; develop strategies to get the most effective support possible for your project and reduce any obstacles to successful implementation.

Table 10. Definition of stakeholder

Resource : Caterina caprioli(2023) Stakeholders Analysis

Many definitions and methods are available in the literature for developing an analysis of the stakeholders involved in a decision-making process. In general, stakeholders analysis is a method or approach to assist in making decisions and formulating strategies.

- Types of stakeholders

The diversity of points of view that stakeholders employ in their interventions and of the standards on which they base their judgements is one of the key elements of territorial and urban decision-making processes.

As a result, Dente (2014) separates stakeholders into the following five groups:

-Political;

-Bureaucratic;

-Special interests;

-General interests;

-Experts

Conducting a stakeholder analysis involves listing all stakeholders involved in urban transformation, organizing them in a table with information, resources, and goals. This helps understand their influence on decisions and the different resources employed by different actors.

Groups of organized stakeholders that may be interested in the transformation of the Lancia district under consideration have been identified in accordance with the methodological framework stated in the section The justification for combining techniques in this study. With particular reference to

the level, the type of actions, and the nature of the resources at issue, the table below surveys the most pertinent stakeholders.

- Methodologies for the Analysis of the the Stakeholders

When the stakeholder table is created, it can be examined using a variety of approaches, including the Interest/Power Matrix, Stakeholders Circle Methodology, Social Network Analysis.(Caprioli, C. (2023).

For this case study, a specific stakeholders technique was developed, Probably the most popular method for mapping stakeholders in decision-making processes is the power-interest matrix.

The approach, which was put out by Mendelow in 1981, involves scanning the notion of stakeholders and takes into account the system's dynamic as well as the power of the stakeholder in relation to the organization or, in this case, the project.

Mendelow(Mendelow,A.L.(1981)) asserts that the foundation of power that stakeholders have in relation to an organization is subject to alter based on the influence that the stakeholders' system has on that basis. Mendelow, A. L. (1981).The power/interest matrix helps project management analyze stakeholder interest, intentions, and power to influence project decisions. It helps understand how communication and relationships affect project implementation. Assessing each stakeholder based on perceived power and interest creates an index for prioritizing stakeholders.

We must first recognize the crucial role that a few key parties have played in the Lancia District investigation. Every stakeholder group has been carefully selected to contribute to the project's success by matching their special skills with the particular requirements of the Lancia District.

Key institutions, from global influencers to neighborhood grassroots organizations, are the focus of our selection process. These partners offer a multitude of viewpoints and resources that are specifically designed to meet the unique characteristics of the Lancia District. We will explore the rationale for selecting these stakeholders and their pivotal functions in influencing the neighborhood analysis's story during our conversation.

The European Union (EU) holds a pivotal position as a global actor. The EU is a crucial source of finance, policy frameworks, and economic assistance because of its ability to influence global affairs and its economic might. Its involvement supports cross-border collaboration and sustainable development practices by bringing the project into compliance with international standards and lending financial support.

On a national scale, the Italian government plays a crucial role. The government, chosen for its legal and political authority, creates the fundamental structures, guidelines, and financial backing that are essential to the neighborhood analysis's success. It serves as the main governing body, enforcing adherence to national legislation and taking into account the larger sociopolitical environment.. Additionally, both plays a significant planning role, providing knowledge and tactics that support the Lancia District's careful and all-encompassing growth.

The project receives major funding from the Piedmont Region, which is the regional government. The region brings a local perspective to the investigation and was chosen for its resources in the areas of law, cognition, politics, and economy. By offering rules, legislation, and economic insights specific to the Piedmont region, it guarantees that the project will effortlessly integrate with its distinctive features.

Designers (Architects, Planners, etc.) are essential in the field of urban development because they bring knowledge, expertise, and financial resources to the table. Their knowledge helps to create a visually appealing and sustainable community by influencing the neighborhood's physical and aesthetic features.

Big Landlords (Supermarkets, Campus, university) with significant sway are also taken into account. These stakeholders influence infrastructure, economic development, and land usage because they were chosen for their legal, political, cognitive, and economic significance. Their participation has a big impact on the community's socioeconomic makeup and general environment.(Caterina Caprioli(2023)

Investors acting at different levels constitute economic influences and provide substantial resources to the project. Their selection process is predicated on economic interests, which ensures financial viability and funds neighborhood-wide activities that stimulate economic growth. Both the Municipality of Turin and the Metropolitan City of Turin are essential at the local level. These bodies were chosen based on their legal, cognitive, political, and economic contributions.

They administer local affairs, carry out policy, and cultivate political support, all of which help to guarantee that the neighborhood analysis is in line with local government frameworks. Neighborhood Municipalities are crucial grassroots players.

These stakeholders, who were chosen based on their contributions to the legal, cognitive, political, and economic spheres, provide the neighborhood with regulations, assistance, and insights. They make certain that the project is precisely tailored to meet the distinct requirements of several communities inside the larger community.

Environmental groups, like AMIAT, are chosen for their cognitive and political resources, advocating for sustainability and representing the community's interests, while municipal waste management companies ensure cleanliness and environmental stewardship.

The reason GTT (Transport Agency) is listed is because of its political clout in local government. It supports the project as a major participant in the transportation industry, guaranteeing effective local mobility and complementing more general urban development objectives.

Locally based small landlords provide cognitive resources to the table. Their inclusion is a reflection of their contribution to a more nuanced knowledge of neighborhood dynamics by offering local opinions and thoughts on property concerns.(Caterina Caprioli(2023))

Local commercial activities are chosen based on their cognitive resources and operate at the local level. They contribute to the neighborhood's commercial scene and economic vibrancy by representing the local business community's economic interests.

Local residents have a crucial role as stakeholders by offering cognitive resources. Their involvement guarantees that the project takes into account the opinions and issues of the neighborhood, encouraging involvement and a sense of ownership.

Local business owners that engage in industrial activities provide financial and intellectual resources. They were chosen for their particular interest in industrial growth, and as such, they have a significant influence on the neighborhood's industrial activity and economy. Caterina Caprioli(2023).

- List of stakeholders identified for Lancia District outcome survey:

The list of stakeholders is displayed in the following table 11, it is the implementation in the Lancia district of the same methodology used by Caprioli et al in a similar survey carried out for the district of Basse di Stura (Bottero, M., Caprioli, C., & Berta, M. (2020)).

The logical framework to identify the main stakeholders involved in Borgo San Paolo's current district has been detailed in the following table, where it is possible to figure out the relationships of each one with the local current socio-economical issues of the districts.

NO.	Stakeholders	Level	Type of actors	recources
1	EU (European Union)	International	Economic	Political, bureaucrats
2	Italy govern	National	Legal, political, economic	Political, bureaucrats
3	Piedmont region	Regional	Legal, cognitive, political, economic	Political, bureaucrats
4	Designers (architects, planners…)	National, regional, municipal, local	Cognitive, economic	Expert
5	Big landlords (supermarkets,-campus, university)	National	Legal, political, cognitive, economic	Special interest
6	Investors	National, regional, municipal, local	Economic	Special interest
7	Metropolitan city of Turin	Municipal	Legal, cognitive, political, economic	Political, bureaucrats
8	Municipality of Turin	Municipal	Legal, cognitive, political, economic	Political, bureaucrats
9	Neighbourhood municipalities	Municipal	Legal, cognitive, political, economic	Political, bureaucrats
10	Environmental groups	Local	Cognitive, political	General interest
11	AMIAT (Municipal waste management company)	Municipal	Cognitive	Special interest
12	GTT (transport agency)	Municipal	Political	Special interest
13	Small landlords	Local	Cognitive	Special interest
14	Local commercial activities	Local	Cognitive	Special interest
15	Citizens	Local	Cognitive	Special interest
16	Owners of industrial activities	Local	Economic, cognitive	Special interest

Table 11 :list of stakeholder

source : Stakeholder analysis referred to Lancia district context and managed by the the Author[1]

Several key participants have been discovered in this thorough investigation of the Lancia District, including the European Union and tiny local businesses. Driven by EU money, the EU and Municipality become important players in determining the mobility and general development of the district. Supermarket-resident conflicts are only one example of the conflicts that highlight the need for creative solutions, such as reusing commercial facilities to suit changing community requirements, encourage community participation, and promote sustainable urban development. Ultimately, the Lancia District is poised for a dramatic

1.To be precise, the methodological reference refers to the similar method used by Bottero et al (2020)

- **Power/interest matrix**

Stakeholders:

1. EU (European Union)
2. Italy govern
3. Piedmont region
4. Designers (architects, planners...)
5. Big landlords (supermarkets,campus, university)
6. Investors
7. Metropolitan city of Turin
8. Municipality of Turin
9. Neighbourhood municipalities
10. Environmental groups
11. AMIAT (Municipal waste management company)
12. GTT (transport agency)
13. Small landlords
14. Local commercial activities
15. Citizens
16. Owners of industrial activities

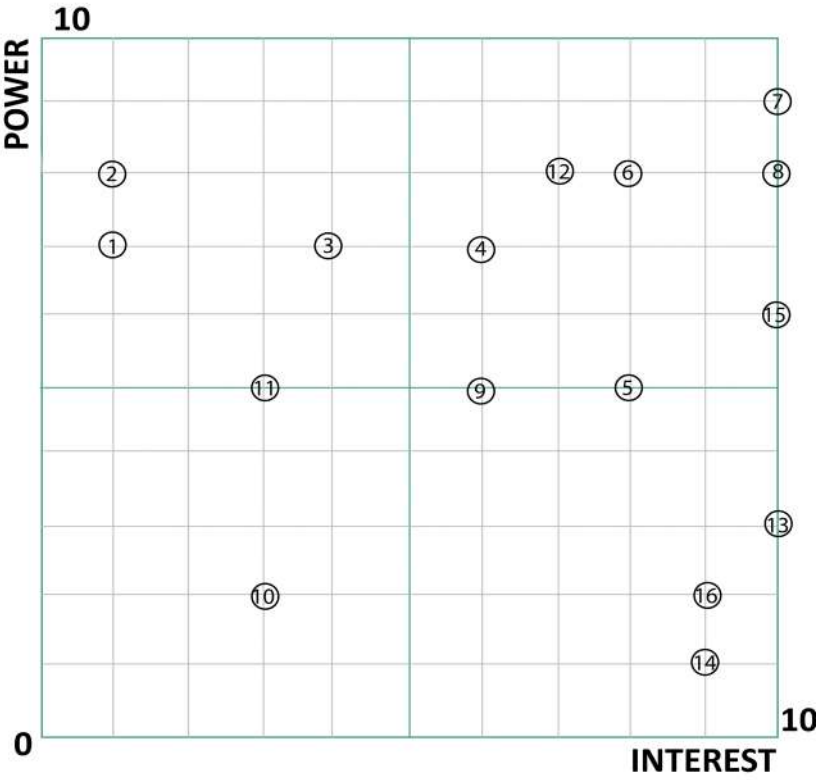


Table 28 :Power/Interest matrix
Source :Matrix prepared by the Author based on the analysis carried out

Probably the most popular method for mapping stakeholders in decision-making processes is the power-interest matrix.

the stakeholder concept is scanned by the model, which also takes into account the system's dynamism and the stakeholder's power in relation to the organization or, in this case, the project. (Mendelow (1981)

Mendelow (Mendelow, A. L. (1981))asserts that the basis of power that stakeholders have in relation to an organization is subject to change based on the influence that the stakeholders' system has on that basis. Project managers can create a clearer picture of how stakeholder relationships and communication can impact the project and its execution by classifying stakeholders according to their power and interest.

Stakeholder evaluation using the power/interest matrix:

Every stakeholder can have a "index" created for them by rating their perceived power and interest. This "index" is then used to create the prioritized list of stakeholders.

6.3 From Perspectives to Progress: Surveying Lancia for Positive Change

Following a thorough SWOT analysis and stakeholder input, our study has skillfully combined the spatial elements through the use of four major maps that offer a wealth of information about Turin's urban setting. Every map is essential to understanding the city's possibilities and difficulties:

This map of Turin's Lancia neighborhood carefully depicts the arrangement of city blocks and other urban elements. It offers a thorough analysis of the district's unique high-density urban layout. By displaying the layout of Lancia's city blocks, the map helps to highlight regions that may be developed, key places, and issues that are specific to this district.

Green Area Map of Lancia District: This map provides information on the biological features of the urban environment unique to this area, with a focus on how green areas are distributed throughout the district. We can better grasp the complex interplay between the natural world and the constructed surroundings in Lancia by mapping the green spaces inside the district. It contributes to a sustainable and ecologically conscious urban future in Lancia by assisting in the identification of locations with an abundance of greenery and those in need of ecological modifications.

Mobility Map of Lancia District: This map, which is specifically designed for the Lancia district, provides a thorough overview of the transportation system, highlighting the main thoroughfares, motorways, and general road networks in this particular region of Turin. By examining this map, one may gain a concentrated insight of Lancia's mobility patterns and pinpoint places that require changes to their transportation infrastructure as well as those that have good connection.

Lancia District Map - Site Analysis Diagram:
This map explores the main locations in the Lancia district and assesses the purposes of each individual place site. The figure acts as a reference for district-specific decision-making processes by clearly outlining the contextual, environmental, and vegetative elements of the sites within Lancia. It facilitates the comprehension of the many ways in which each site in Lancia adds to the overall urban fabric, enabling the formulation of strategic plans that are customized to the particularities of this particular region.

Through a meticulous synthesis of comprehensive maps that accurately depict the urban aspects of Turin, our research seeks to comprehend the city's dynamics. Our goal is to determine the benefits and downsides of certain areas in order to lay the foundation for a preliminary description of potential future states. Based on the primary use designated by the Municipality, our study of alternative uses aligns with Turin's vision, which aims to strike a harmonious balance between development and the preservation of its unique urban identity. This approach reflects our commitment to providing useful guidance for the sustainable and culturally appropriate urban development of Turin.

laying of the district

Figure 29:Map of Turin,Laying of blocks

Source: Author

The layout of the city blocks and other urban features in the region is shown on this map. It offers a high-density area's perspective of urban planning.

Green urban areas

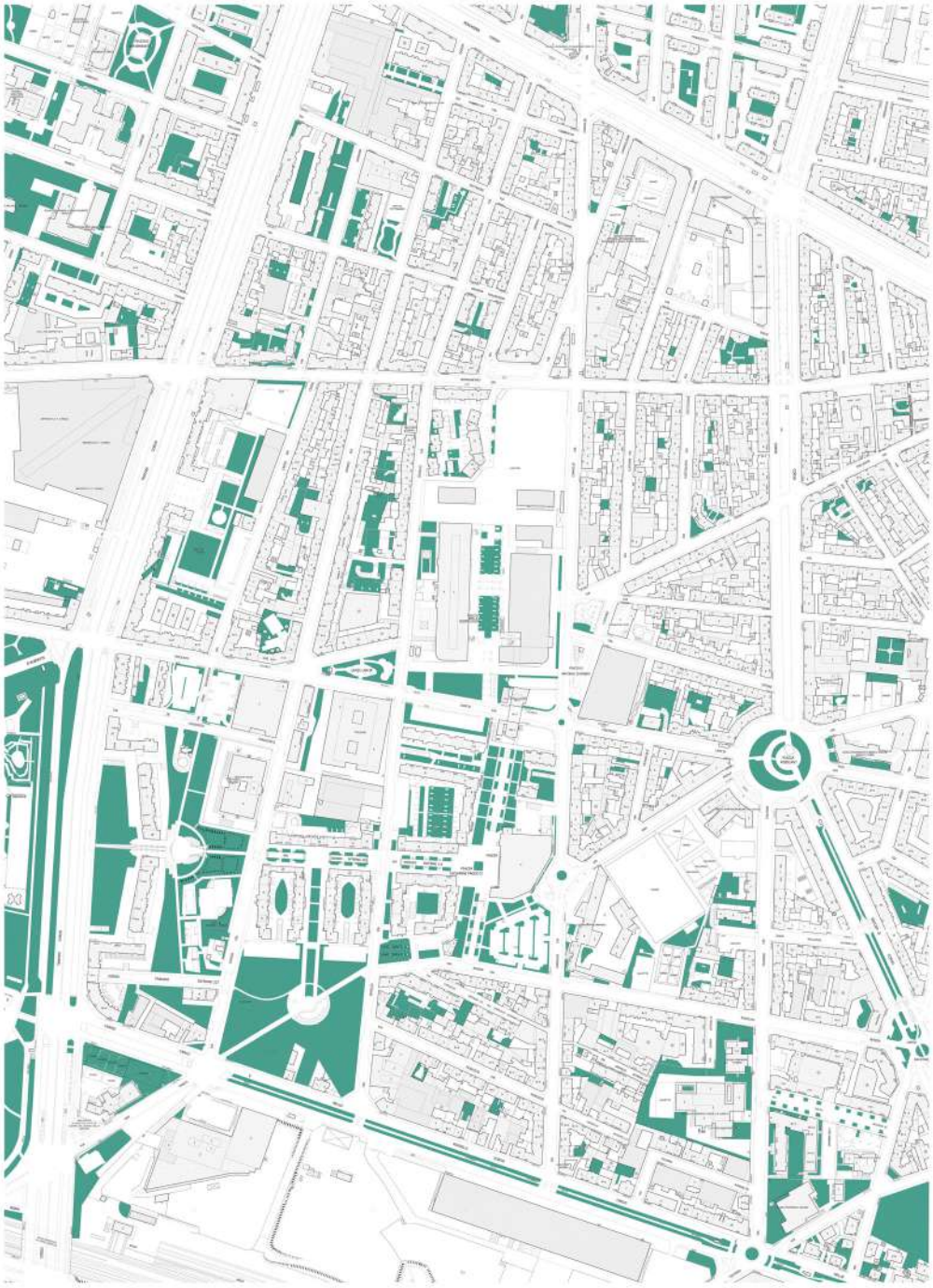


Figure 30:Map of Turin,green area

Source: Author

The layout of the city blocks and other urban features in the region is shown on this map. It offers a high-density area's perspective of urban planning.

Mobility

Figure 31:Map of Turin,Mobility

Source: Author

This map provides a comprehensive overview of the region's transportation network,emphasizing major urban access points, highways, and general road networks.

weak point: Limited accessibility of the Corso Racconigi axis due to parked cars in the central lane undermines traffic flow and public space utilization, requiring a redesign for improvement

Strenths point: The introduction of new accessibility from Via Lancia to Via Monginevro at the midpoint of the site enhances connectivity and urban accessibility, providing a significant strength in infrastructure development.

Site analysis

Figure 32:Map of Turin,Diagram of Site analysis

Source: Author

A site analysis diagram evaluates key elements, providing clear information on contextual, environmental, and vegetation aspects, guiding design and decision-making to ensure project blends seamlessly with surroundings.

Site Potentials

Figure 33:Map of Turin,Site Potentials

Source: Author

Positive outcomes of local business and community in district

1. Enhanced Availability: Three supermarkets provide residents with a wider range of shopping options, enhancing accessibility and convenience for those without easy transportation access

2.Healthy Competition: Supermarkets foster healthy competition, leading to reduced prices, promotions, and improved services, benefiting customers through better offers and shopping experiences.

3. Employment Prospects: Increased supermarkets will provide local workers with more job opportunities, boosting the district's employment rate and contributing
to the community's economic prosperity

4. Engaging the Community: Supermarkets often participate in neighborhood projects, with three stores resulting in increased collaborations, sponsorships, and community involvement, fostering a stronger connection between local companies and residents.

5. Enhanced Facilities: Supermarkets may necessitate infrastructure improvements, including new roads and parking lots, to handle increased traffic and enhance the district's aesthetic appeal.

Site Potentials

Figure 34:Map of Turin,Site Potentials

Source: Author

Positive outcomes of technological aspects in district

1.charging station :The district's electric vehicle charging station promotes environmental responsibility by encouraging sustainable energy use and reducing air pollution. It also serves as a technological hub, aligning with international initiatives for sustainable transportation and attracting environmentally conscious individuals.

2.Campus San Paolo: a student-focused hotel and dormitory, transforms a neighborhood into a hub for education and socialization, fostering a dynamic community. It also provides economic stimulus by offering dining, cafes, and retail establishments, potentially leading to job creation and community growth.

3: bike lane: The bike lane in the district promotes healthy living by incorporating exercise into daily routines, aligning with public health efforts. It also provides a safe area for cycling, making the district more accessible and efficient.

Site Potentials

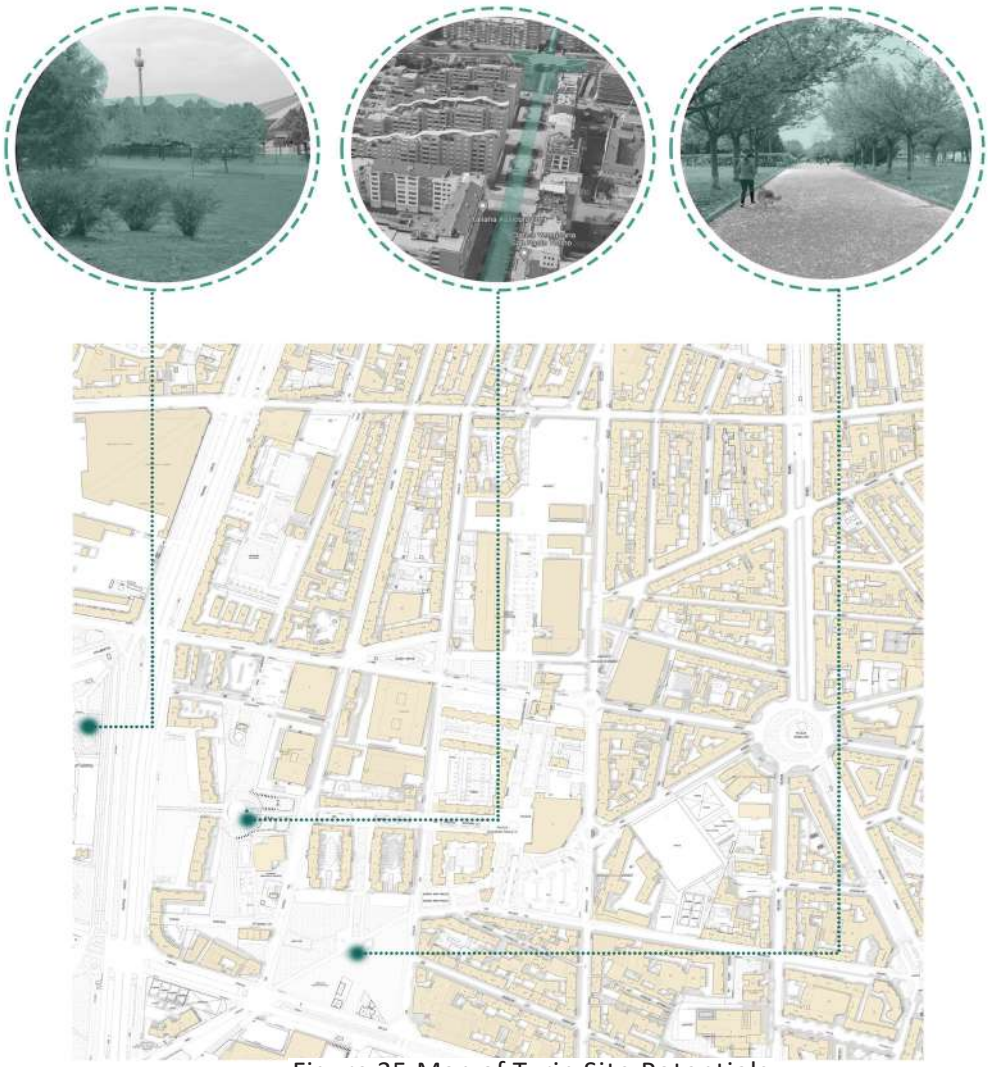


Figure 35:Map of Turin,Site Potentials

Source: Author

Positive outcomes of environmental aspects

1.Improved Standard of Living: Residents enjoy three parks and green areas, providing leisure and relaxation opportunities, reducing stress and promoting mental health by escaping city life.

Biology and Biodiversity: Green spaces foster biodiversity by attracting diverse plant and animal species, enhancing ecological harmony and overall ecosystem well-being.

2.Community Connection: Parks and green spaces foster community connection by serving as gathering places for social gatherings and shared activities among locals.

Active Lifestyle: Living near green areas encourages an active lifestyle, allowing individuals to engage in various outdoor activities like sports, jogging, or walking, which can significantly improve their physical health.

3.Connectivity and Accessibility: The green corridor, extending from Park Ruffini to Lancia's center, enhances pedestrian connectivity, promotes cycling and walking, and improves accessibility standards.

4.Positive Effect on the Economy: Living near parks and green areas leads to higher property values, benefiting the local real estate market by attracting locals and potential buyers.

Site Disadvantages

Figure 36:Map of Turin,site disadvantages

Source: Author

Negative outcomes of building under construction in district

1.Noise and Disruptions: Construction operations generate loud noises that can disrupt the tranquility of the area, potentially causing stress and disrupting residents' routines.

2.Traffic Congestion: During construction projects, the movement of delivery trucks, construction vehicles, and large gear can cause increased traffic congestion, causing inconvenience for residents and businesses.

3.Quality of Air and Dust: Construction sites lower air quality by producing dust and other pollutants, affecting local health, particularly respiratory issues, and deteriorating the ecosystem.

4.Impact on Local Businesses: Construction-related disturbances, including noise, traffic, and restricted accessibility, can negatively impact local businesses, leading to financial difficulties and decreased foot traffic.

Site Disadvantages

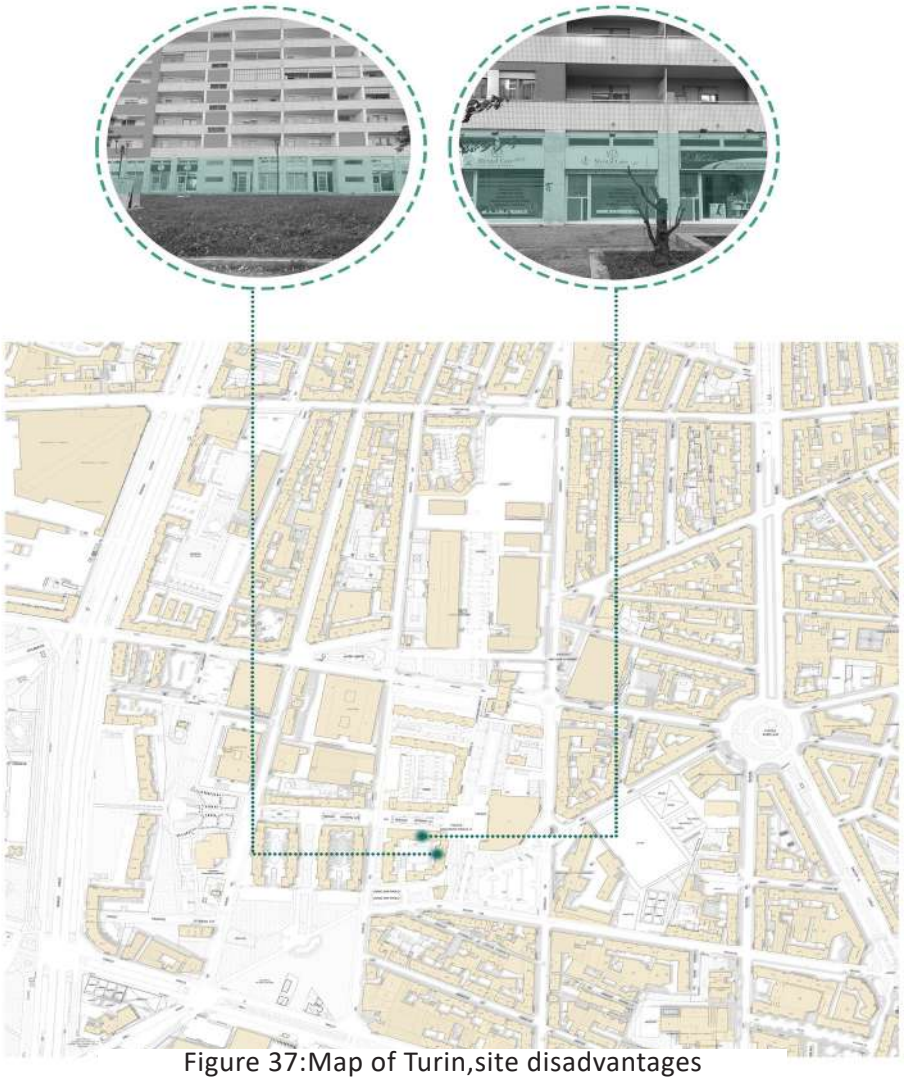


Figure 37:Map of Turin,site disadvantages

Source: Author

The construction of the Lancia district and the subsequent closure or underutilization of stores in front of Bennet can lead to various negative impacts

Economic Downturn: The closure of local businesses can lead to an economic downturn, affecting the district's overall economic activity, employment losses, and reduced revenue for business owners.

Employment Loss: Employees who work in shops frequently lose their jobs when those establishments close. The livelihoods of people and families within the community may be directly impacted by this.

Diminished Property Prices: Store closures or underuse may lead to a decrease in property values in the neighborhood, making it harder for property owners to rent or sell their properties.

adverse effects on nearby businesses: The reduced liveliness of the commercial area could lead to adverse effects on nearby businesses that rely on walk-in traffic, potentially resulting in revenue losses and operational difficulties.

Safety Issues: Reduced activity and vacant stores may lead to safety issues like squatting and vandalism, causing discomfort for locals and guests in the area.

Postponed District Redevelopment: The district's regeneration is expected to be delayed due to shopping closures and the current economic slowdown, which could hinder its long-term development objectives.

6.4 Scenario building for the Lancia district

Developing Opportunities and Improving District Community Life

There are a plethora of unexplored potential in Lancia's expansive environment. My goal is to investigate these options and formulate suggestions that will benefit the district's special needs pupils as well as its citizens. We discover as we go around the dynamic community that, with careful planning and strategic actions, perceived flaws can be turned into strengths, creating an atmosphere that is more inclusive and dynamic for everybody.

Lancia's varied landscape has the potential to develop into a vibrant center where local life thrives. We hope to provide specialized solutions that cater to the individual requirements of each and every resident of the area by recognizing and using its latent potential. This entails not just identifying current advantages but also coming up with creative solutions to transform obstacles into opportunities.

The emphasis on inclusivity—making every person, even those with special needs, a vital member of the community—is at the heart of this project. We hope to provide an atmosphere where everyone can flourish and add to Lancia's colorful tapestry by encouraging accessibility and meeting a variety of needs.

Making thoughtful decisions and planning ahead of time will be essential to guiding Lancia into a future of improved community life and sustainable growth. This is a cooperative journey where stakeholders and locals are actively involved in determining the district's future. By working together, we can turn our shortcomings into assets and build a stronger, more diverse, and vibrant Lancia.

- Opportunities for Student Life:

At the center of educational vibrancy is Campus San Paolo, and we have the opportunity to enhance its influence on student life. By making use of the district's physical resources, we can improve the educational experience for students in the following ways:

Spaces Focused on Students: Setting aside sections of Campus San Paolo for coworking spaces, student lounges, and gathering places promotes a sense of community and offers different study spaces. This meets the social and cooperative demands of students in addition to their intellectual ones.

Virtual Meeting Space: after covid period people more tend to have online meeting This innovative offering caters to the dynamic needs of today's students, providing a platform for connection, collaboration, and community engagement within the virtual realm **.**

Recreational area: especially created to improve the San Paolo dorm experience for students. With its carefully designed combination of leisure, socializing, and amusement, this multipurpose area offers students a welcoming escape from their academic schedules.

Cultural and Artistic Hub: Public art areas and artistic installations invite students' creativity and provide a platform for expression, creating a lively and dynamic campus community.

Figure 38:Map of Turin, Opportunities for Student Life

Source: Author

1.ALT Architects + Architecture Office Karsikas(2012) Niemenranta Elementary School. Retrieved from https://www.archdaily.com

2.Amy Frearson (2014) Studio Octopi sets the scene for Greek tragedies with revived school amphitheatre .Retrieved from . https://www.dezeen.com/2014/07/16/bradfield-college-greek-theatre-amphitheatre-studio-octopi/

3.ASPECT Studios with CHROFI (2015) The Goods Line | Sydney, Australia , Harbour Foreshore Authority.Retrieved from . https://worldlandscapearchitect.com/thegoodsline-aspectstudios/?v=cd32106bcb6d#.YUVdrCLu74A

4.DLC Architects(2013) Landscape + Planning › Public Park Private Garden.Retrieved from . https://architizer.com/projects/coyoacan-corporate-campus/

5.DYLAN ESSERTIER(2018) Why "Transformative Co-Working Spaces" Will Be One of the Hottest Trends of 2018 . Retrieved from https://www.venuereport.com

6.Escritório Sede Pravaler / Estudio Guto Requena. Photo: © Fran Parente Retrieved from https://www.archdaily.com https://www.archdaily.com/981025/decompression-area-ideas-for-leisure-and-rest-environments-in-the-office/624d7e545905d00166799c79-decompression-area-ideas-for-leisure-and-rest-environ-

-Resolving Vulnerabilities for Broad Community Benefit:

Our district has the capacity to function as a center for the entire area, not just the student body. Recognizing shortcomings and offering remedies can improve life quality overall:

open-air amphitheater : The proposed open-air amphitheater in Park F. Salerno aims to promote cultural enrichment, increse safety of park ,environmental management, and community spirit, fostering a vibrant, arts-focused environment.

The Green Corridor : Green Corridor offers relaxation areas, sports and leisure spaces, and dedicated outdoor workstations for working students. These spaces provide comfortable seating, benches, hammocks, and shaded seating. The design also includes sports and activity sections, promoting community and well-being. Outdoor task areas cater to group projects and study sessions.

Community Gathering Spots : Having well-planned public locations promotes community gatherings. Examples include picnic grounds, event stages, and outdoor seating areas. By acting as gathering places for locals, these areas can strengthen the feeling of community.

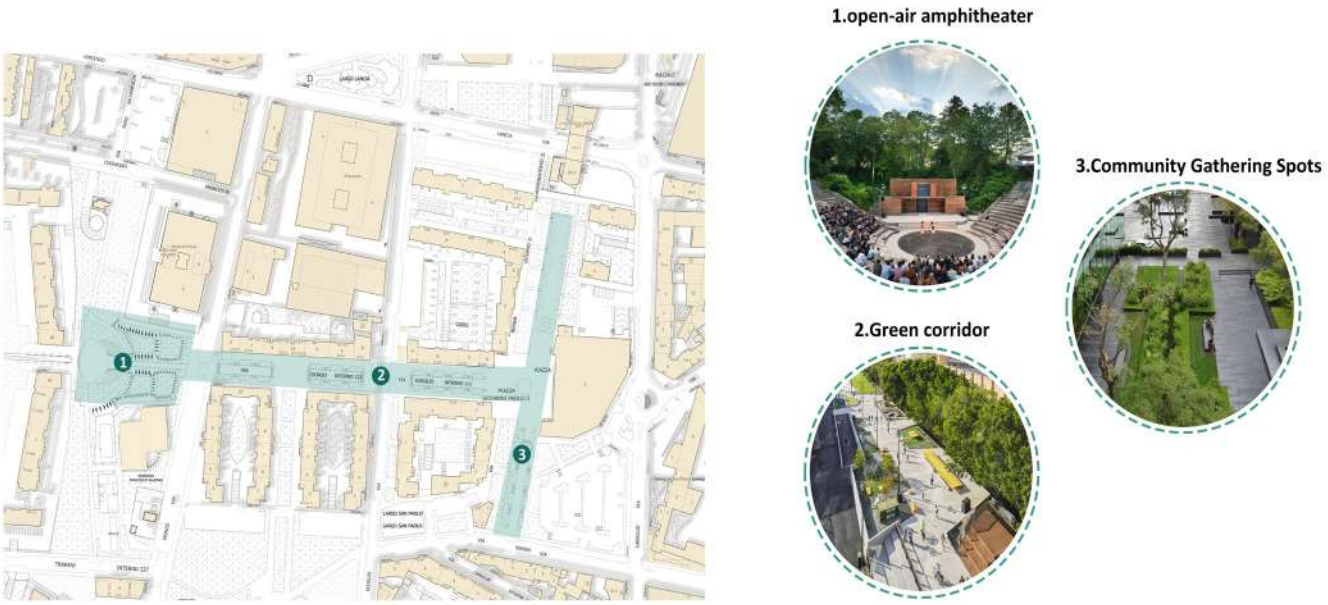


Figure 39:Map of Turin, Resolving Vulnerabilities for Broad Community Benefit
Source: Author

1.Evolution Design(2008) Photos of Google Zurich. Retrieved from https://officesnapshots.com/2012/02/17/awesome-previously-unpublished-photos-of-google-zurich/

2.http://www.torino-internazionale.org

3.TACK architects(2016) visual arts center, university.hastings, united states.Retrieved from https://www.archdaily.com

6.5 Stakeholders Involved in the Operation and second phase of Project Activities:

The important fresh stakeholders impacting the project are carefully listed in this table, from governmental service providers and urban planners to potential inhabitants and private investors. As a reference point, it helps to comprehend the diverse interests and activities that each stakeholder category has in mind, adding to the complex picture of the project's evolution.

No.	Stakeholders involved in the operation	Level	Taype of actors	Resource	Activities foreseen by the initial project
1	New population residing in residential project properties	Local	Cognitive	Special interest	New commercial activities
2	Population residing in the neighborhoods	Local	cognitive	Special interest	New activities for public services (Gym etc)
3	Private investors real estate	Local	Economic , Cognitive	Special interest	New urbanisation public facilities (open air- amphitheater , gathering spots, green corridor)
4	Commercial private investors	Local	Economic , Cognitive	Special interest	New Student dormitory " San Paolo "
5	Elder residents in the new elder building	Local	cognitive	Special interest	Public services and facilities
6	Youth commuters (Gym and Student dormitory)	Local	cognitive	Special interest	Public spaces focused on youth (co-working ,meeting area, virtual meeting area ,cultural hub)
7	Working commuters inside Lancia Skyscrapers	Local	cognitive	Special interest	New job hub in new Skyscraper
8	municipality	Municipal	Legal, cognitive, political, economic	Political, bureaucrats	Corso Racconigi proposal, Design a detailed PRIN plan to assist a private entity in implementing regeneration design
9	Private owner	Local	cognitive	Special interest	Possibility to buy the land,

Table 13 :list of stakeholder
Source : Author

The cooperation and involvement of a wide range of stakeholders is essential to the success of any urban development project. It is crucial to have a thorough grasp of each stakeholder's objectives and roles in relation to the planned regeneration project. This introduction explores the details of 10 important stakeholders that were chosen for the project, explaining the selection process and the critical responsibilities that each play. Every stakeholder, from the locals who will be immediately touched by the development to the private investors, contributes a different viewpoint and contribution to the discussion. A comprehensive perspective that highlights the interconnectedness of urban development projects emerges as we examine their functions and justifications for inclusion.

New population residing in residential project properties:Function: As the principal inhabitants directly impacted by the project, offer perceptions into the requirements and inclinations of the neighborhood.
Motive for Selection: Their participation is essential to ensure that the project meets the needs of the community and improves their quality of life.

Population residing in the neighborhoods: The role of the representative is to guarantee that the development blends in smoothly with the surrounding neighborhood by representing the larger community, which includes the current inhabitants around the project.Motive for Selection: Including locals helps prevent future disputes with the established neighborhood and promotes a feeling of community ownership.

Private investors real estate: Role: Bring real estate development experience, contribute to the project's overall economic sustainability, and provide financial assistance.
Motive for Selection: Their interest in promoting urbanization is congruent with the objectives of the project, and their financial support is vital for the execution of large-scale urban development.

Commercial private investors: Function: Provide funding for the construction of a new dorm for students, bringing business experience and maybe affecting the local economy.Motive for Selection: Their participation is in favor of the particular goal of building a new dorm for students, which might improve the project's allure.

Youth commuters (Gym and Student dormitory): Function: Play a pivotal role in the project by offering valuable perspectives on the inclinations and necessities of the younger generation. Motive for Selection: Creating dynamic and relevant public places, such as co-working spaces and cultural centers, that appeal to the youth's ever-changing needs is ensured by including them.

Working commuters inside Lancia Skyscrapers: Role: Assist in the creation of a new employment center within the planned skyscraper, which may have an impact on the local economy. Motive for Selection: Their participation supports the project's objective of generating new jobs within the development to promote economic expansion.

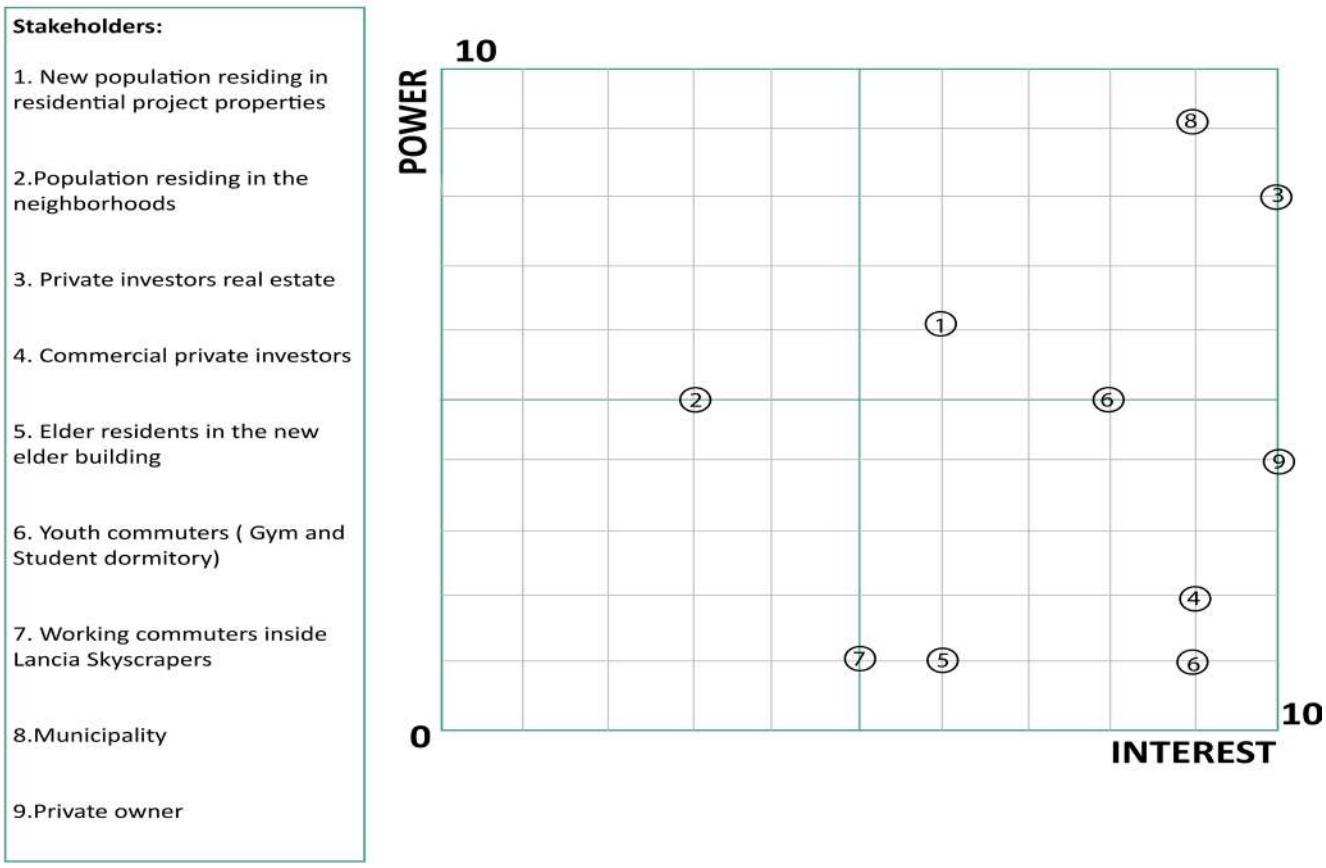
Municipality (proposed Corso Racconigi): Function: Exercises legal, intellectual, political, and financial authority at the local level, supervising regulatory matters and granting required authorizations. Motive for Selection: Successful and legally acceptable urban development requires cooperation and permission from the municipality; the Corso Racconigi concept fits with the municipality's urban planning goals.

Private owner: Role: May have a say in property acquisition and development decisions due to their unique interest in perhaps purchasing the site. Motive for Selection: Their participation can expedite the land acquisition procedure, enhancing the project's viability and success.

Municipality (Design a detailed PRIN plan): Part of my job is to create a comprehensive PRIN (Piano di Recupero e Intervento) plan that will serve as a roadmap for private companies as they execute regeneration designs, making sure that urban planning regulations are followed. Motive for Selection: In order to conduct regeneration initiatives and encourage sustainable and well-planned urban growth, municipal aid is essential. The PRIN strategy guarantees a methodical approach to revitalization, which is advantageous to the community and the private organization alike.

6.5.1 Power/Interest matrix

The Power-Interest Matrix is a strategic tool used in urban development to categorize stakeholders based on their influence and interest. It helps in understanding power structures and motivations, enabling informed decision-making and targeted engagement strategies, thereby ensuring the success and sustainability of projects.



Power/Interest matrix
Source : Matrix prepared by the Author based on the analysis carried out

Combining the SWOT analysis, site analysis, and stakeholder identification yields a comprehensive view that is essential to the planned urban development's success. A thorough foundation has been established by carefully examining the site's social and physical characteristics, identifying its advantages and disadvantages, opportunities, and dangers, and comprehending the expectations and contributions of its stakeholders. In addition to providing the framework for strategic decision-making, this analysis reveals the project's possible benefits and drawbacks.

The knowledge we acquire will help us as we go from analysis to action by helping us to maximize opportunities, minimize weaknesses, and overcome obstacles. In order to ensure a well-rounded and sustainable urban project, the next recommendations and considerations will aim to maximize the good elements and mitigate any potential negatives. Furthermore, we will investigate the possibility of including additional stakeholders that might offer new insights and significant input to improve the project's overall effect and lifespan.

Conclusion

Igor sorokin / alamy stock vector
www.alamy.com

in conclusion, research on abandoned industrial zones, with an emphasis on Turin's Lancia District in particular, highlights the variety of potential and constraints related to their restoration and reuse. Because of the relocation or closure of industrial operations brought about by technical developments, abandoned industrial zones are becoming more and more common throughout Europe. These formerly crucial areas of urban development are now confronted with problems related to environmental deterioration, economic downturn, and urban degradation.
Offering insights into the historical background, project descriptions, and local history of the area, the Lancia District makes an engaging case study. The approach used, which includes SWOT and stakeholder studies, offers a thorough grasp of the variables affecting the transformation process. The paper tackles important issues about abandoned industrial zones, their potential for redevelopment, and their effects on sustainable urban growth through this analysis.

The Lancia District offers opportunities and challenges due to its historical significance and possibility for redevelopment. The suggested transformation project calls for things like energy-efficient dwellings, the integration of cutting-edge technology, and a sustainability-focused approach. The establishment of hubs for culture and education also adds to the general improvement of community life.

But there are a few issues and shortcomings to take into account. The quality of life for locals and companies may be negatively impacted by noise, disturbances, traffic jams, and air quality problems during the construction phase. Business closures during reconstruction may result in employment losses and economic downturns. Complicating matters are safety concerns and district regeneration delays.
Developing a strategic policy framework is necessary to address these weak points. It is essential to have comprehensive urban planning that strikes a balance between environmental sustainability, economic growth, and community well-being. Legislators ought to give top priority to policies that lessen the adverse effects of construction, assist neighbourhood companies through changes, and guarantee the community's safety and security.
Furthermore, active community involvement and engagement are necessary for redevelopment to be successful. More sustainable and socially responsible results can result from inclusive policies that include stakeholders from a variety of backgrounds, including political, bureaucratic, special interest, general interest, and experts.

7.1 Recap of Research Questions:

Fundamental inquiries about the complexities of urban regeneration, particularly in the context of brownfields and with a particular emphasis on Turin's Lancia District, marked the beginning of this study. The investigation of historical importance, stakeholder dynamics, and tactics necessary for sustainable change was guided by these questions, which also acted as guiding beacons. Carefully considered, the study questions aimed to reveal the benefits and problems that come with redeveloping brownfield properties. The research tackled the general topic of how the urban regeneration process may successfully negotiate the challenges of a region with a significant industrial background by delving into the historical fabric of the Lancia region. Furthermore, . In order to better understand how important stakeholders' engagement affects the effectiveness of regeneration programs, the research aimed to identify these stakeholders and their responsibilities.

- Achievement of Goals and Objectives:

The introduction's goals and objectives acted as a guide for the whole study project, and it is a noteworthy accomplishment that they were successfully realized. The research methodically worked its way through the Lancia District's historical backdrop, interacting with relevant parties, doing a SWOT analysis, and putting up workable plans for the district's change.

A thorough examination of the Lancia District's historical development achieved the main objective of recognizing and emphasizing its potential and limitations. Another important goal, stakeholder involvement, was accomplished by using techniques like SWOT analysis and stakeholder identification. A crucial component of the goals were the suggested solutions, which offered practical advice for promoting sustainable development in the region.

Brownfields and Urban Regeneration:

7.2 Insights on Brownfields in Urban Contexts:

Crucial insights into the dynamics of brownfields in urban settings were unearthed by the research, providing a wide view of the issues and patterns related to these abandoned industrial zones. The research shed light on the wider consequences of industrial transfers by closely examining Turin's Lancia District. It identified urban degradation, economic slump, and environmental degradation as common issues experienced by these areas.

Beyond merely labeling problems, brownfield analysis delved into the underlying causes and effects, adding to a more detailed knowledge of the intricate relationship between industrial past and modern urban dilemmas. For scholars, politicians, and urban planners who are tackling the complex issues of brownfield regeneration, this understanding is essential.

- Contribution to Urban Regeneration Programs:

The study's conclusions significantly advance the conversation on urban renewal initiatives. This research offers a methodology for tackling issues and taking advantage of opportunities associated with revitalizing abandoned industrial zones, with a focus on the Lancia District. Urban planners and lawmakers navigating comparable efforts might refer to the blueprint provided by the project's emphasis on sustainability, stakeholder participation, and phased development.

Moreover, the study provides a useful framework for comprehending the complexities involved in incorporating historical importance into revitalization initiatives. The story of the Lancia District is one of both rehabilitation and balancing industrial legacy with modern urban requirements. The research findings have significance in assisting European cities facing comparable changes by providing helpful guidance for developing efficient policies and initiatives related to urban

renewal.

Essentially, the study goes beyond the particulars of Turin's Lancia District and serves as a model for urban renewal initiatives facing the difficulties associated with deserted industrial areas. It emphasizes how crucial it is to take a comprehensive approach to sustainable and thriving urban futures, taking into account historical, environmental, and socioeconomic considerations.

7.3 Recap of Lancia District Characteristics

Examining the unique characteristics of Turin's Lancia District again reveals how the district's industrial and historical past have impacted and challenged the area's possibilities for redevelopment. The district's transition from a thriving industrial center to one facing post-industrial difficulties is highlighted by the historical background. The architectural landscape, with its historical vestiges, offers problems in cultural heritage preservation as well as potential for adaptive reuse.

The physical, sociological, and environmental aspects of the Lancia District are explored in detail in Chapter 5's thorough site investigation. It describes the shift from a mostly industrial environment to one that includes modern urban components. A comprehensive picture of the district's existing condition is provided by the analysis of Brownfield areas, Parco San Paolo, and the whole urban infrastructure. This information serves as the basis for strategic proposals that will be discussed in coming chapters.

- Evaluation of Brownfield Regeneration in Borgo San Paolo

The analysis of Borgo San Paolo's brownfield regeneration highlights the complex interactions that exist between environmental sustainability, economic revival, and historical preservation. One prominent example is the Spina 1 redevelopment project, which successfully reimagines the urban landscape by fusing residential complexes with modern art. This case study sheds light on the difficulties associated with industrial activity divestiture and demonstrates how well-planned interventions may result in brownfield rehabilitation.

As shown in detail in Chapter 6, the multi-methodological approach provides a thorough framework for decision-making in the field of transformation. In-depth examination of the sociological, technological, environmental, economic, and policy facets of the Lancia District's current situation is provided by the SWOT analysis. Key players are introduced through stakeholder analysis, which aligns with inclusive urban development principles by highlighting the significance of their involvement in decision-making processes.

- Navigating the Economic Landscape of Borgo San Paolo Redevelopment

As we move toward a resolution, it is critical to examine the economic aspects that are deeply entwined with Borgo San Paolo's reconstruction. Many insights have been uncovered via collaborative efforts, highlighting the intricate economic relationships supporting the urban renewal projects in Turin's Lancia District.

- Economic Considerations and Stakeholder Dynamics:

The Borgo San Paolo redevelopment's economic aspect is intricately linked to stakeholder dynamics. These stakeholders, which include the local population as well as private investors and commercial entities, have a significant impact on the district's economic trajectory. The area's economic health depends on a delicate balance between the interests of these diverse stakeholders, which occasionally overlap.

The analysis conducted by the stakeholders explores the financial incentives driving their participation. Urban regeneration is a catalyst for local

firms to develop, while private investors want returns on their investments due to economic concerns. This complex dance of economic interests calls for a strategic policy framework that protects individual stakeholders' financial well-being while simultaneously promoting group development.

- Unveiling Economic Opportunities:

The joint investigation revealed business prospects included into the revitalization projects. The infusion of fresh commercial ventures, services catering to students, and employment hubs inside the towers holds promise for revitalizing Borgo San Paolo's economy. In addition to strengthening the socio-cultural fabric, the planned green corridor and cultural centers have the potential to be economically beneficial by drawing tourists and supporting nearby companies.
Furthermore, the focus on inclusive economic development advances the notion that gains from economic progress should be distributed to a variety of community sectors. This inclusiveness enhances Borgo San Paolo's overall economic resiliency in addition to being in line with ethical standards. It establishes the framework for an ecosystem of the economy that is sustainable and depends on community well-being and variety.

7.4 Broader Implications of the Study

This study's wider consequences go beyond the particular circumstances of Turin's Lancia District. The examination of stakeholder involvement, urban planning, and brownfield regeneration yields insights that further the conversation on sustainable urban development. Through tackling the issues that post-industrial regions face, the research provides insightful insights that are relevant to comparable situations across the world.

The suggestions delineated in Chapter 6, which span from inclusive economic development to community-centric urban design, bear significance for urban policymakers and planners who are confronting brownfield regeneration. Zoning and land use regulations that prioritize flexibility acknowledge the dynamic character of urban areas and offer a framework for flexible approaches that address changing social demands.

-Insights from the 25-Year Regeneration Process: Urban Evolution Over 25 Years:

The extensive restoration of Borgo San Paolo, which began in 1999 and is expected to be finished in 2025, offers important insights into the processes of urban growth. The fabric of society has changed significantly as a result of social and economic developments throughout the past 25 years. It becomes evident that design decisions that were thought fair before the end of the 20th century would not be in line with modern sustainability norms. This comment highlights the global character of these concerns and goes beyond Turin, finding resonance in comparable challenges experienced by initiatives like Confluence in Lyon

-Sustainability Challenges and Adaptive Strategies:

Fountain in the small square: The abandoned fountain in the tiny plaza in front of the Bennet, which is a key location for the road axis of the future residential construction, serves as an example. The current unfeasibility of maintaining the fountain because of its enormous expenses is the reason for its cessation. This situation is similar to those seen in other places, such as Piazza Liberty in Milan and Piazza d'Armi in Turin.

Reimagining Urban Spaces : The most important takeaway from this is the necessity of modern urban alteration, which calls for decisions that revitalize areas and bring them back to use. A practical recommendation would be to remove the fountain to make room for lively events that would attract people to the area. One way to rejuvenate the area would be to turn it into a weekly market, which would encourage community involvement

and improve its aesthetic appeal.

Underutilized Ground-Floor stores: The abandoned and underutilized ground-floor stores in modern constructions provide a second noteworthy example. In order to assist and draw in additional stakeholders, such as employees from surrounding skyscrapers or students from the San Paolo campus, this constraint necessitates deliberate interventions. These commercial facilities may be given new life by investigating services and amenities that are suited to these groups' changing demands. This will promote communal well-being as well as economic vibrancy.

the 25-year revitalization process of Borgo San Paolo highlights the need for adaptable urban development techniques. The difficulties encountered highlight how crucial it is to reconsider design decisions, take environmental issues seriously, and actively reimagine places to better suit modern demands and tastes. These observations are crucial for providing guidance for next urban planning projects and guaranteeing the long-term liveliness of revitalized regions.

7.5 Recommendations for Future Research

This study offers a thorough examination of the Lancia District, but it also suggests directions for more investigation. The suggested tactics—like inclusive economic growth and flexible zoning laws—need to be thoroughly investigated and verified by empirical research. Subsequent investigations may concentrate on the enduring effects of brownfield revitalization, assessing the efficacy of executed tactics and optimizing methodologies for sustainable urban growth, also The ongoing debate surrounding recent urban design interventions in Borgo San Paolo reflects both positive and critical aspects. While some praise the successful implementation of the sustainable mobility project, others highlight the need for further improvement. One issue is the limited accessibility of the Corso Racconigi axis between Piazza Robilant and Via Monginevro, which is hindered by the distribution of parked cars in the central lane. A proposed redesign suggestion involves reconfiguring the layout to allow cars to park while maintaining a central space for public use. This modification is technically feasible and has the potential to enhance traffic flow and public space utilization. The ongoing discourse encourages a collaborative approach to address evolving community needs, reflecting the dynamic nature of urban development.(https://torinocronaca.it/news/home/306752/la-nuova-piazza-robilant-che-non-piace-a-nessuno.html)

- Final Thoughts on the Research

The research's concluding remarks emphasize the importance of the Lancia District as a microcosm that reflects larger urban issues. In order to effectively traverse the intricacies of brownfield regeneration, stakeholder interactions, and strategic urban planning, a fair and inclusive approach is crucial, as the study makes clear.

-key Lessons from the Brownfield Urban Regeneration of Borgo San Paolo

-Possibility of Urban Area Purchase:

The acquisition of the urban area is a crucial need for the project's viability and will determine the outcome of Borgo San Paolo's brownfield rehabilitation.
"Why was this chosen as a case study?" is the question that emerges. The chance to carry out a practically realized revitalization project throughout the past 20 years holds the key to the solution.

-Feasibility in Private Acquisition:

Unlike in other places, Borgo San Paolo's process was made feasible by the industries, such as Fiat and IBM, selling their abandoned properties to pri-

vate companies.
Private citizens and the Municipality worked together to develop a particular regeneration project (PRIN) that could be carried out through public-private economic partnerships.

-Positive Outcomes and Cost Considerations:

Beyond Borgo San Paolo, the larger lesson emphasizes that brownfield redevelopment may yield excellent results provided that expenses are acceptable, especially when it comes to reclaiming old industrial districts.
The regulation applies not only to Turin but to all former industrial districts worldwide, as the profitability of the real estate market is a key factor in luring private investments.

-Closing Remarks and Research Significance

To sum up, this study contributes significantly to our knowledge of post-industrial urban environments. By dissecting the Lancia District, it offers a complex viewpoint on the possibilities and difficulties related to brownfield rehabilitation. The focus on sustainability, adaptive urban planning, and stakeholder involvement adds to the larger conversation about building resilient and dynamic urban communities.

The suggestions made provide a framework for politicians, planners, and community stakeholders in the context of Turin. In addition to its physical rehabilitation, the Lancia District has the potential to be a model for sustainable urban living, preserve cultural heritage, and promote a feeling of community.

The trip through the chapters demonstrates the complex dance that exists between present-day issues, historical accounts, and potential futures. The Lancia District is a monument to how resilient towns can be when faced with changes in the industrial environment. The study process, from formulating preliminary inquiries to putting forth all-encompassing approaches, mirrors the dynamic and ever-changing character of urban studies.

Essentially, the Lancia District is more than simply a geographical area; it is a tale of urban growth that is always being written by the coming together of past influences, current initiatives, and the goals ingrained in strategic urban plans. As the research draws to a close, it encourages more investigation, discussion, and action in the direction of developing urban areas that flourish as dynamic, inclusive, and sustainable communities.

7.6 Final Considerations and Proposals for Continued Research

Preservation and Adaptive Reuse:
Something to Think About It is imperative that the Lancia District's architectural and historical legacy be preserved. Make recommendations for more study on adaptive reuse tactics for certain historical buildings, assessing how well they may fit into the cityscape.
The proposal suggests examining inventive methods for striking a balance between modern requirements and preservation by conducting in-depth case studies on prosperous adaptive reuse initiatives in other cities.

Community Involvement and Cultural Heritage:

Taking into account: Effective urban revitalization depends on community involvement. Examine how successful community involvement was in the Borgo San Paolo instance and brainstorm strategies to improve community involvement in cultural heritage preservation.
Suggestion: Employ qualitative research techniques, such as focus groups and interviews, to get in-depth understanding of how the community sees cultural heritage and its significance to the process of regeneration.

Economic Dynamics and Collaboration Among Stakeholders:

A Thought In Borgo San Paolo, stakeholder interactions and economic issues are intricate. Think back on the cooperative endeavors and contemplate how economic models may be utilized to delve deeper into the complexities of stakeholder engagement.
The proposal is to create a thorough economic model that evaluates the possible economic effects of different stakeholder engagement scenarios while taking into account a number of variables including investment returns, job creation, and business expansion.

Sustainability Metrics and Their Effect on the Environment:
Take a Look The research discusses how the reconstruction would affect the environment and stresses how crucial sustainability is. Examine the suitability of the sustainability measures employed and the possibility of doing more study in this field.
The idea is to work with environmental scientists and specialists to improve sustainability measurements, with an emphasis on measurable markers of ecological health, energy efficiency, and green infrastructure.

Comparative Study with Other Brownfield Projects:
Taking into Account: The research highlights the significance of the Lancia District as a template for other endeavors. Consider the possibility of doing a more thorough comparative study of the difficulties encountered and the lessons discovered in relation to other brownfield rehabilitation initiatives.
The idea is to carry out a comparative analysis of many European towns with similar industrial histories, identifying the similarities and variations in their strategies for brownfield rehabilitation.Cre

ative Technologies and Astute Solutions:

Take into Account: The economic prospects brought about by technical improvements are briefly discussed in the paper. Think about how innovation and smart technology fit into the renovation and how you might incorporate them even further.
Proposal: To improve the sustainability and efficiency of the Lancia District, work with technology specialists to investigate innovative approaches including data-driven urban design, smart infrastructure, and the Internet of Things.

Long-Term Effect on the Welfare of the Community:

Taking into account: The study highlights the possible effects on the standard of living for residents. Consider if a long-term research is required to evaluate the effects on community well-being.
Proposal: Create a long-term research project that monitors changes in community well-being metrics over a number of years, taking into account variables such as social connectedness, mental health, and satisfaction.

The Framework for Policy and Adaptations:

Taking into account: The research highlights the significance of a strategic policy framework. Examine how flexible current policies are and think about modifying them in the future in light of the Lancia District's changing dynamics.
Suggestion: Work with legislators to evaluate the efficacy of the present policies and suggest modifications that take into account the community's and the district's evolving requirements.

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