FROM INDUSTRIAL SHELL TO CIVIC HEART: THE TRANSFORMATION OF LOCHAL

Ruth Adalgiza IACOB - *"Ion Mincu" University of Architecture and Urban Planning | adalgiza.ruth@uauim.ro*

Abstract. The transformation of Tilburg's LocHal from a former locomotive repair hall into a public library exemplifies sustainable urban renewal through adaptive reuse. Rather than treating the structure as a mere shell, the project reactivates its historical presence as part of the city's collective memory, introducing a flexible cultural program that repositions the building as a contemporary civic forum. More than a library, LocHal is a public stage that fosters social inclusion, education, and creative collaboration. The architectural intervention balances environmental and social sustainability, offering a powerful alternative to demolition and new construction. LocHal shows how industrial heritage can serve as infrastructure for the future of urban communities.

This paper adopts a critical case study methodology, combining spatial analysis, theoretical research, and architectural interpretation to examine LocHal's regenerative transformation. In addition to its symbolic and social resonance, the project employs circular economy approaches. The transformation demonstrates regenerative strategies through its use of retained steel structures, daylight-optimized glass façades, movable textile systems used for both spatial zoning and daylight control, along with flexible interior spaces that minimize the need for carbon-intensive construction. LocHal illustrates not only symbolic reuse, but also a circular, low-carbon approach that positions architecture as active infrastructure in the metabolism of the city.

Keywords: Adaptive Reuse, urban regeneration, LocHal, library, industrial.

Introduction

The LocHal Library in Tilburg is a place Nicolae Iorga would have described as "beautiful" in the sense used by the famous Romanian historian: a harmonious, whole, complete form, suggested by the Latin formosus (Iorga, 1968). Elements of the old architecture sit in harmony with the new; they enhance one another and form a balanced, coherent whole with a renewed identity. This formal coherence extends into lived experience. Through an atmosphere that can genuinely move one, LocHal belongs to what Peter Zumthor calls quality architecture: "Quality architecture to me is when a building manages to move me" (Zumthor, 2006, p. 11). In this sense, LocHal does not merely preserve traces of its industrial past; it renders them perceptible in a way that evokes the site's memory and creates a living, relevant place for the local community, the wider city, and visitors alike. The resonance of this intervention is also evident in professional recognition. The LocHal Library in Tilburg has received numerous awards: "It was shortlisted for the IFLA/Systematic Public Library of the Year award and winner of the World Building of the Year 2019 at the World Architecture Festival. LocHal has won many other awards for creative reuse, best building, liveability and social cohesion, interior design, habitat, rebirth and conservation (...)" (Boemaars, 2021, Chapter 12, p. 190).

Yet beyond the experiential dimension and the validation of awards, LocHal remains relevant as a case study for debates on adaptive reuse and urban regeneration. The intervention's major value exceeds the narrow frame of the architectural object: it operates as a civic anchor with an urban activation effect. What it achieves at the scale of the city is all the more significant given that, in the past, the building belonged to an ensemble closed to the public—one that separated parts of the city. Against this backdrop, this article pursues two research questions: (1) How does the adaptive reuse transformation of LocHal creates regenerative effects at urban, social, and symbolic levels? (2) How do program decisions and spatial–material strategies contribute to the intervention's circular performance and carbon reduction, while sustaining the site's character and memory? Methodologically, the article develops a critical case study of LocHal through documentary and theoretical analysis, spatial–architectural analysis, and on-site observation.

Adaptive Reuse

Adaptive Reuse is generally understood as the practice through which existing structures—unused or underused—receive new functions and become an alternative to demolition or to simple conservation (as passive preservation), offering buildings the possibility of new stages of development (Wong, 2017). In this way, unused buildings enter new active phases in response to new requirements and needs—new chapters of inhabitation and integration into the life of the neighborhoods and cities to which they belong—supporting the continuity of urban history.

Historically, up to the Industrial Revolution—when demolition and building from scratch became the rule—buildings most often followed a process of re-functionalization, because structure typically outlives function (Cantacuzino, 1989). Before industrialization, buildings were continually reused for pragmatic, functional, and financial reasons (Powell, 1999), and later also for symbolic reasons (Lanz & Pendlebury, 2022). Industrialization accelerated urbanization, overcrowding, and public health crises, which fueled waves of interventions in which "cleaning" and "renewing" the city became legitimate. Land became more valuable than making use of what already existed. The loss of built landmarks—and of entire layers of urban history inscribed in collective memory—generated a reaction and a shift in paradigm: reuse began to be understood as a broader strategy, not only for protecting isolated architectural objects, but for regeneration. Alongside old churches, cathedrals, or manor houses, other building types entered focus: warehouses, industrial sheds, and factories. The entire built stock came to be seen as an economic, social, and ecological resource capable of supporting urban regeneration (Cantacuzino, 1989). The underlying question can be stated as follows: how can an existing structure be used so that it becomes useful and relevant to the city again, without losing the character that gives it value?

Within this framework, Adaptive Reuse gained momentum in the second decade of the twenty-first century. Wong notes that if, in 2008, a Google search for the phrase "Adaptive Reuse" produced few results, in 2022

the same search generated 45,700,000 results in 0.6 seconds: "adaptive reuse practice exploded onto the forefront of the architectural profession" (Wong, 2023, p. 12). Interest in the topic has grown over the last decade not only in practice, but also in academic research (Lanz & Pendlebury, 2022). A major motivation for this growth is sustainability: Adaptive Reuse can reduce the environmental impact of new construction by limiting resource consumption, leveraging embodied energy, and avoiding demolition and the associated waste (Lewin & Goodman, 2013). The UN's 2030 Agenda, structured around 17 Sustainable Development Goals (SDGs/Global Goals), provides a reference framework for urban policies and practices oriented toward sustainability (United Nations General Assembly, 2015; UNDP, n.d.). In this context, the reuse of urban structures is associated with multiple benefits for sustainable urban development (Szopińska-Mularz et al., 2025). Adaptive Reuse is also described as a form of sustainable urban regeneration because it can offer a long-term outlook to buildings threatened by deterioration, vacancy, and ultimately demolition (Douglas, 2006), while reducing pressure to replace existing built stock through new interventions (Yung & Chan, 2012).

The benefits of Adaptive Reuse are easy to trace in the LocHal project. Avoiding demolition and socially reprogramming the building—while retaining the structure and characteristic elements—generates environmental, urban, and cultural impact. By adapting to a contemporary public program, the project extends the life of an industrial structure and generates cultural sustainability. At the same time, it produces urban regeneration by transforming an abandoned building into an active civic hub that attracts new uses and interactions in that area. The LocHal public library, located in the center of Tilburg in the south of the Netherlands, was formerly a locomotive hangar—the most important workshop within a 75-hectare zone used as a production and repair center for Dutch trains. The city was recognized for this working-class activity, which involved a substantial part of the population in work connected to the Dutch railways. Built in 1932, the workshop was intended for locomotives (Boemaars, 2021) and was owned—together with the entire Railway industrial zone—by the Dutch Railways until 2010, when it became the property of the municipality of Tilburg (Arfa et al., 2024). Between 2017 and 2019, construction works were carried out for the new LocHal project, grounded in working with what was already there and, above all, with the character of the industrial building—a sustainable approach whose motto was "work with what you have" (Boemaars, 2021).

Urban Regeneration

The new library is part of a broader project to revitalize the former industrial area—the new City Campus (Mecanoo, n.d.)—which now hosts a range of functions such as restaurants, parks (Spoorpark), and cultural spaces. The Railway Zone, completely closed to the public in the past, has now opened up to the city, and LocHal is "the epicentre of the city" (Boemaars, 2021, Chapter 12, p. 182)—the building that activates and regenerates the area: "a cultural destination that breathes life into an iconic industrial site" (Arup, n.d.). Integrating community- and city-oriented activities into Tilburg's new library is not only a response to urban needs; it also improves social cohesion, quality of life, and the resilience of urban life (Zhang et al., 2025). In fact, the new library is one of the few public spaces in Tilburg open to anyone (Boemaars, 2021). LocHal is an urban space—a covered public interior—a community meeting place. As Khodadad & Sanei describe the notion of "urban space," LocHal is a place shared both with friends and colleagues and with strangers, hosting diverse activities and key city events—cultural and curatorial, recreational, professional, and more—generating a positive impact on the city (Khodadad & Sanei, 2017). It actively participates in Tilburg's public life and repositions itself as a contemporary civic forum.

Through free access and by facilitating activities for all age groups—from children's areas, with books at children's scale and functions for listening to stories, to adult-focused work, study, and reading spaces—LocHal maximizes usability and accessibility (Boemaars, 2021). LocHal is also accessible in terms of location: it sits in the city center and connects to major transport nodes, close to Tilburg Centraal train station and bus terminal (Mecanoo, n.d.). It thus becomes a catalyst for social and urban inclusion, an important example of urban and social regeneration, and a symbolic repair site.

Over time, LocHal has retained an important place in collective memory and forms part of the city's identity. This site memory is sustained within the new function, supporting the symbolic regeneration of the site. By protecting the existing character, the site's atmosphere, and elements tied to traditions and history associated with that specific place, the project sustains the genius loci (spirit of place) defined by the Norwegian architect and theorist Christian Norberg-Schulz. The identity of a place is closely linked to human identity—both collective and individual—and design that remains sensitive to a site's history helps people to dwell poetically (Norberg-Schulz, 1980). "The process of adaptive reuse may hence be an opportunity to recreate, rethink, or strengthen the genius loci of a building, a site, or a landscape" (Plevoets & Van Cleempoel, 2019, p. 92).

Function

In terms of its primary function, LocHal is a different kind of library—a new library typology (Civic Public Architecture, n.d.) that opens up new perspectives for a technologized era, with a vibrant atmosphere enriched by activities that support learning, information uptake, and personal development. The project manages to reactivate its historical presence as part of the city's collective memory while introducing this flexible cultural program. It has been called "the next big thing in public libraries" (Civic Public Architecture, n.d.). In addition to the Midden-Brabant Library, LocHal also hosts "the cultural institutions Kunstloc and Brabant C and the co-working spaces of Seats2meet" (Mecanoo, n.d.) and "Tilburg's center for architecture and town Planning," CAST (Boemaars, 2021, Chapter 12, p. 181). So, in this new library one does not find only books.

What one notices from the start—and what becomes the attractor that invites one to move through the space, positioned opposite the entrance—is the bar with red, brown, and gold ceramic tiles. "The eye-catcher is the city café" (Arqa, n.d.). It is a place where you can have a drink while you read or work. It is a coffee kiosk and an exhibition area (González, 2019). The bar is surrounded by various types of furniture that invite all kinds

of activities—individual and collective, creative and recreational, tied to learning and work, tied to books, but also to art and culture, and more. LocHal also offers a diversified range of private rooms for learning and development—from rooms for one or two people to rooms for groups. At the same time, there are study spaces within the main open area of the library. Throughout the building, LocHal provides thematic labs for learning new things. These are interactive and creative spaces: "The thematic labs, with their remarkable design, can be found throughout the building: a FoodLab, WoordLab/WordLab, DigiLab, GameLab, TijdLab/TimeLab and FutureLab" (Boemaars, 2021, Chapter 12, p. 186). The stepped seating area—the discussion forum—supports both individual and group use, open or private, through the use of textile screens that define spaces. The forum also supports the city's cultural events—public debates, cultural presentations, book launches, and more. Large movable textile systems are used for daylight control but also for spatial zoning, creating flexible interior spaces in different zones of the library. In addition, part of the furniture is flexible, capable of different physical arrangements, adapting to different uses.

LocHal's type of library ensures adaptability and long-term social sustainability, fostering a durable, relevant use that prevents abandonment: "So far, LocHal seems to be acting as more than just a public living room. For Tilburg residents, it's also becoming the dining room, the kitchen, the garden shed and the corridor — that's what happens when, through insider nods and spatial flexibility, people develop a sense of ownership of their social spaces. So, for the city itself, it might just be so much more" (Messina, 2019). The association with different rooms of the home points toward an authentic and profound way of using the library space—perceived as a "home"—with strong resonance in phenomenological thinking. Heidegger shows that the realm of human dwelling extends beyond private space when one feels at ease in a place (other than one's literal home) and enlivens it through sustained activity (Heidegger, 1971). Moreover, Norberg-Schulz argues that the purpose of architecture is to enable people to dwell—to feel "at home" in the world. He shows that "to dwell" (a concept taken from Heidegger) has multiple dimensions: it does not mean only having a roof over one's head, but meeting others and exchanging ideas, experiences, emotions, and things; living together with others; and appropriating a meaningful environment (Norberg-Schulz, 1984). LocHal supports this meeting with others and the fertile exchange of ideas, knowledge, and even things, shaping an authentic, productive, and deep experience at both individual and collective levels.

Structure and Materials

The project conserves the embodied energy stored within the structure, minimizing the need for materials for new structural elements. For the most part, the structure is not only retained but also left visible, as a means of activating site memory. "The main structure determines the rhythm and language of the new architecture" (González, 2019). The massive industrial columns, still bearing layers of earlier paint, are transformed into intimate study places; they greet the visitor at the entrance and accompany them along a so-called "inner street" (Mecanoo, n.d.)—a rhythmic colonnade—toward the heart of the library, where the space suddenly opens up. The original height of approximately 15 m, together with the wide spans supported by the metal beams and frames of the industrial hall (a 90 x 60 m footprint), remain legible and become the support for a core conceived as a covered civic center—a generous, protected space able to accommodate a range of activities, from individual uses to events for large groups. "An ingenious system of climate zones preserves the openness of the building; heating visitors in key contact zones and not entire spaces" (Civic Public Architecture, n.d.). This is why, the Civic Public Architecture team explains, it was possible to work with the whole space—with the ensemble in its entirety—without closing it off or subdividing it into smaller rooms (Civic Public Architecture, n.d.). The intention was to optimize the existing structure, to work with what is there, and to build further on the original logic (Boemaars, 2021). The original concrete floors, with traces of earlier activities, are likewise retained and used together with the vertical steel structure to support new slabs and platforms. Responsible material consumption—maximizing the use of existing resources—positions LocHal as a project that supports circularity and environmental sustainability.

The tracks along which locomotives once moved remain as testimony for new generations, embedded in the concrete floor. Movement mechanisms incorporating the original locomotive wheels now support three "train tables" (Mecanoo, n.d.), which can form a large timber platform used both as a performance stage positioned in front of the stepped seating and as study and work tables. "They can also be moved outside to form a stage for outdoor events" (Mecanoo, n.d.). The history of the former function remains imprinted in collective memory, and defining elements of the past become an active part of the building's new life.

Contemporary oak combines with black-painted steel structures, or with older layers of grey and orange (Boemaars, 2021), with the concrete floors, and with various textiles used in curtains that define work areas or regulate the amount of light entering the interior. Materials matter for sustainable adaptive reuse because their durability and compatibility influence visual continuity and the retention of the historic character of a building that has changed its function (Zhang et al., 2025).

The large openings and the various mezzanines and level changes engage one another diagonally, with the project drawing on the spatial typology of the raumplan. The result is a spatial structure that combines the imposing existing framework with new elements through which the building enters a new life cycle.

Conclusion

The transformation of LocHal confirms the potential of Adaptive Reuse as an urban regeneration strategy that goes beyond conserving an isolated object and operates simultaneously at urban, social, and symbolic levels. At the urban scale, the project contributes to reactivating Tilburg's City Campus by opening a former industrial enclave to the city and consolidating a civic anchor with public access, connected to mobility networks. At the social scale, the diversity of activities and free access support meeting, learning, and collaboration, while spatial flexibility enables multiple uses without reducing the library to a single activity type. At the symbolic scale, preserving the industrial character and traces of the former function sustains site memory as an active dimension of experience, supporting the

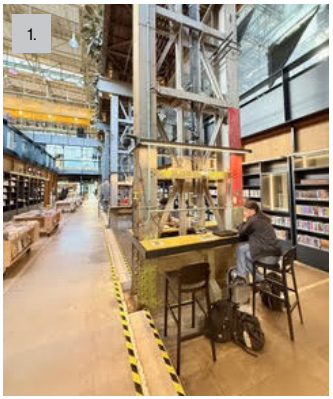
continuity of the site's identity. From this case study, several transferable principles can be extracted for similar projects, such as retaining and keeping the structure legible, flexible public programming, reversible systems, and integrating historical traces as identity resources.

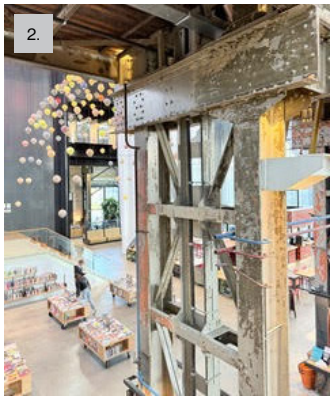
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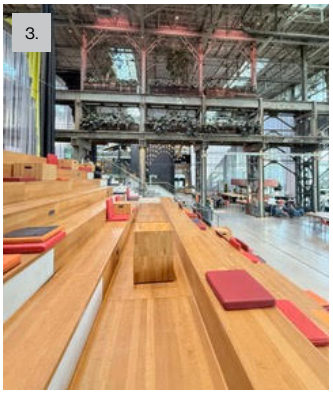
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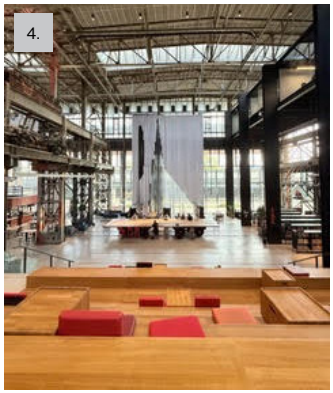
Figures.

Figure 1 – The reading area at the base of the steel columns / Photo: Author.
Figure 2 – Diagonal communication enabled by the spatial configuration / Photo: Author.
Figure 3 – A view from the stepped seating toward the café / Photo: Author.
Figure 4 – A view from the stepped seating toward the train table / Photo: Author.









RISKS, RUINS AND URBAN VOIDS: THE GHOST TOWN OF APICE AS A FIELD/

Giovangiuseppe VANNELLI - *Department of Architecture, University of Naples Federico II, Naples, Italy*

Email: giovangiuseppe.vannelli@unina.it

Abstract. Funded by the National Recovery and Resilience Plan (NRRP) within the GRINS (Growing Resilient, Inclusive and Sustainable) research project, this paper examines the village of Apice (Benevento) between Sannio and Irpinia regions in Italy. The study builds upon research conducted at the University of Naples Federico II within the Multidisciplinary Territorial Policy Lab set up by the GRINS Research Unit. It analyzes Apice by intertwining the concept of urban voids – principally referencing Sergio Lopez-Pineiro's A Glossary of Urban Voids – with notions such as territorial sustainability, new accessibility, wildness, intermittent city and cohabiting with risks. This theoretical framework offers novel perspectives for reinterpreting the region's abundant ruins. Concurrently, this study frames risk as a complex phenomenon with a critical political dimension. Apice provides a compelling case study due to its seismic history, marked by major earthquakes in 1930, 1962 and 1980. This localized hazard triggered a protracted displacement process from the historical hamlet to Apice Nuova, a modern settlement serving as the old site's alter ego. Recently, Apice's marginal status as a "ghost town" has been challenged by the construction of the Naples-Bari High-Capacity/High-Speed railway line and mainly the Apice-Hirpinia section. This infrastructure project alters trans-municipal and regional territorial balances, raising crucial questions about the impacts of large-scale networks on atavistically isolated, internal regions. Amid profound demographic and territorial shifts, these physical traces – abandoned villages, new towns, and transient heritage – require systemic rethinking. By problematizing the urban void through narratives of risk and ecological succession, this paper positions Apice as a laboratory for design and policy experimentation. This ongoing research integrates educational activities, desk analysis, and fieldwork to decode a complex territorial palimpsest across multiple scales and temporalities.

Introduction. The research unit at the Department of Architecture of the University of Naples Federico II, which worked on the 'Growing Resilient, Inclusive and Sustainable' (GRINS) research project funded under the National Recovery and Resilience Plan (NRRP), adopted the classification of the territory into metropolitan areas, intermediate areas (the Middle Italy) and inner areas (Lanzani, 2024) as its interpretative framework for investigating territorial sustainability in Italy. This classification has led to the adoption of an oblique perspective, capable of linking contexts that are generally regarded as separate and distant, thereby challenging the entrenched dichotomy between metropolitan areas and mountain areas. Indeed, a dominant narrative of the contemporary era interprets the former as emblems of progress and growth, and the latter as examples of a rural way of life that is now outdated and doomed to disappear.

In light of these considerations, two editions of the National Strategy for Inner Areas (SNAI 2014–2020 and SNAI 2021–2027) have been drawn up in Italy, shining a spotlight on those territories undergoing a process of exponential marginalisation (De Rossi, 2015). These inner areas, which constitute the bulk of the national territory, are generally regarded as territorial urban voids, as the 'black holes' of the other Italy (Cucinella, 2018) – portions of the landscape deprived of their potential simply because they lack the presence of cities. Yet cities, as they are understood today, have no prospects for sustainability unless considered in relation to those territories that are 'less' urban than the city itself, i.e. the extended city (Indovina, 2009).

Therefore, on this basis, the research has focused on the territories of Middle Italy, a rhetorical and cartographic expedient that calls for an interpretation that is no longer based on a dichotomy and opposition between metropolitan areas and inner areas, but rather a cross-cutting understanding of the relationships between these 'differently' urban systems. Within this research context, one of the main fields of research for the Research Unit at the University of Naples Federico II has been the inland areas of the Campania region, in particular the regions of Irpinia and Sannio.

This territory has been studied in light of the current construction of the High Capacity/High Speed railway line, a project of international significance linking two of southern Italy's main metropolitan areas: the city of Naples, on the Tyrrhenian Sea, and the city of Bari, on the Adriatic Sea (D'Agostino & Cerreta, 2024). The location of the two end points of the railway line under construction is significant because it aims to link the maritime traffic serving the two ports and implies the connection between the 'Scandinavian-Tyrrhenian' and 'Baltic-Adriatic' corridors of the European TEN-T network. (Figure 1)

Within this inland area of the Campania region, the municipality of Apice has been identified as a case study from which to begin the investigation, as it is concerned by the construction of the Apice–Hirpinia section of the HC/HS railway line and is emblematic of some specific characteristics of this landscape of the Middle Italy. Indeed, surrounded by the rivers Ufita, Miscano and Calore, Apice demonstrates the essential need to understand the relationship between landscape and settlements within a territorial system in which hydrographic elements represent the original infrastructure that shaped the landscape. Furthermore, the urban structure of Apice has been significantly transformed by the impacts of seismic activity; indeed, the series of earthquakes in 1930, 1962 and 1980 led to a gradual internal migration of residents, who subsequently established a new, modern town not far from the historic centre (De Bellis, 2004).

Based on this background, as part of the Multidisciplinary Territorial Policy Lab set up by the GRINS research project, the territory stretching between the regions of Sannio and Irpinia was investigated, starting from Apice and the valleys that cross this section of the Apennines. Following a desk research phase – aimed at systematising data capable of describing socio-economic dynamics over time – and a field research phase – necessary to understand the territory and its stakeholders and placemakers – the architectural design served as the primary investigative tool. By reiterat-