TEAR DOWN FENCES NOT BUILDINGS

SOCKENBACKA IN TRANSFORMATION

Pinja Myllykoski
Master's Thesis 2025

Chalmers School of Architecture
Department of Architecture and Civil Engineering

Examiner: Julia Fredriksson
Supervisor: Louise Didriksson

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Student Background

Education

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Abstract

Urban development in the Western world increasingly focuses on densifying and transforming sites with complex conditions. In Helsinki, where the 2016 city plan directs growth around transport nodes, business districts are now emerging as opportunities for urban transformation.

The Sockenbacka business district in northwest Helsinki has the highest rate of vacant office space in the capital region of Finland. While the City of Helsinki is about to explore how housing can be integrated here, current densification practices favour demolition and rebuilding, despite high environmental costs. Instead of replacing them, this thesis explores how existing buildings and structures in business districts can be transformed and reused for housing and other purposes, rethinking sustainable urban planning.

Drawing on theories of transformation and adaptive reuse, the thesis defines design approaches for transformation and reuse. These are applied in a transformation-driven pre-study for a local master plan. Methods include site visits, literature review, iterative design process, and discussions with professional planners.

The analysis identifies areas suitable for residential transformation, areas to be kept as business-focused, and others best suited for mixed-use. Particularly, the district south of Gjuteriet station and west of Vichtisvägen is explored more closely. The reuse potential of existing buildings is assessed based on their characteristics and context, and a future mixed-use urban plan is envisioned for these blocks.

The thesis gives a spark for imagining a possible mixed-use future for Sockenbacka through transformation and reuse of its existing building stock. Realising this potential, however, requires integration into higher levels of planning, and close collaboration with existing property owners. The thesis also demonstrates how planning for transformation challenges conventional planning scales.

As a contribution to transformative urban planning in Helsinki, the work encourages a shift in planning practices, from demolition toward reuse-based approaches. It calls on planners to rethink norms, collaborate across disciplines, and, to tear down fences, not buildings.

Keywords: urban transformation, adaptive reuse, business districts, mixed-use

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Contents

INTRODUCTION

Background and Relevance

At present a significant share of urban development in the Western world takes place through densification and transformation of sites with ever complex circumstances and temporalities (Dahl & Diedrich, 2020). In Helsinki the 2016 city plan (also referred to as a master plan; figure 1) directs the growth of the city towards a compact city, concentrating much of new construction around light rail hubs and significant train and metro stations (City of Helsinki, n.d.-a). This strategy includes densifying along existing rail lines, implementing 'boulevardisation' by constructing new light rail lines on the city's arterial roads, and densifying around these routes.

As the 2016 city plan is being realised and moving forward to detailed planning, some patches of local nature are subject to being transformed into residential blocks. Finding alternative sites for densification has thus become important for some politicians. Areas designated for industries and businesses outside of the city centre have been brought up as potential transformation sites, as some of them have a significant share of underutilised office spaces (Salomaa, 2023). However, there is no clear consensus among politicians regarding the conversion of business districts into mixed-use areas with housing. Proponents argue that building on already built land that is not in intensive use could reduce the pressure to build in green areas (Kivekäs, 2022; Kivekäs, 2024). Conversely, opponents claim that combining industries and housing is problematic due to issues such as heavy traffic, noise and smell (Helsinki Region Chamber of Commerce, 2023).

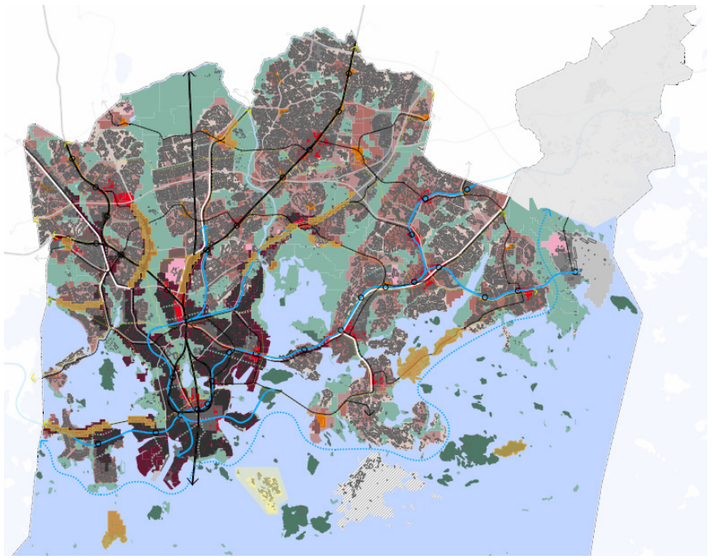


Figure 1.
The 2016 city plan of Helsinki. Image: The City of Helsinki

One of the districts under debate is Sockenbacka, located in the northwestern part of Helsinki (figure 2). It lies in the future crossroads of two light rail lines, out of which one is already operating. Furthermore, the district is served by two commuter train stations. Sockenbacka hosts both residential and business areas, but these functions are separated, with business premises occupying more floor area than housing. The business district of Sockenbacka is one of the key employment hubs in Helsinki, with a mix of industrial sites and office buildings (City of Helsinki, n.d.-b).

The business district struggles with underutilisation, with 26.7% of its office spaces vacant – the highest rate in the Helsinki capital region (Rakli, 2024). After considerable debate in the city council, the city has decided to investigate the possibility of adding housing to the area zoned as a business district (Sinkko-Westerholm, 2023). To enable this, a local master plan will be required, as the current master plan does not permit the construction of residential units in the area. A shift from business district to a mixed-use area requires explorations in how housing can be integrated while considering the district's urban fabric and functions. This makes Sockenbacka a case in point of the current challenges in urban planning, both in Helsinki and more broadly in the Western world.

Figure 2.
Sockenbacka, located in northwestern Helsinki, sits by a commuter train line and the future crossroads of two light rail lines.

The Fate of Underutilised Office Buildings

When exploring the next steps of Sockenbacka's transformation, a critical issue arises: what should be done with the existing, underutilised office buildings? And beyond them, how should the district's entire building stock be treated, as it is already rather densely built? In many contemporary urban renewal projects in Western Europe, demolition has been the default approach (Huuhka, 2023).

Sockenbacka features buildings in varied configurations and densities, which some might critique for lacking both a cohesive identity and aesthetic quality. The perceived shortcomings of its office buildings are often cited as a reason for their underutilisation. They do not live up to the standards that many companies seek in the era of hybrid working (Niskakangas, 2025). As technology, economics, and land use continue to evolve, these buildings risk becoming obsolete – often leading to demolition (see Abramson, 2017). In Finland, non-residential buildings are demolished at a higher rate than residential ones, and their lifespan is also shorter (Huuhka & Lahdensivu, 2016).

Architectural historian Panu Savolainen (2024) highlights two key societal factors driving demolition in the present day: a persistent desire for novelty, tied to ideals of wealth and comfort, and buildings that no longer serve their original purpose or fit their context. Both factors could be argued as justification for demolishing the underutilised office buildings in Sockenbacka. Such demolitions would not be unheard of, as the pace and scale of building demolition in Finland today exceed those of the 1960s, when city centres underwent renewal through widespread demolition (Savolainen, 2024). Research by Huuhka and Lahdensivu (2016) also found that Finland's demolition rate was among the highest in Western Europe.

However, this ongoing demolition trend has significant environmental consequences in the form of emissions and waste. The process of demolition and the construction of replacement buildings generate substantial greenhouse gas emissions, particularly from embodied carbon in materials, and demolition and construction processes (University College London, n.d.). In Finland, the building sector also produces the second-largest amount of waste, surpassed only by the mining industry (Ministry of the Environment & ELY Centre of Häme, 2024). Unless built with reused material, replacing old buildings with new ones also requires the extraction of raw materials, which in its turn leads to biodiversity loss. In fact, 90% of biodiversity loss is linked to the extraction and processing of natural resources (United Nations Environment Programme, 2024).

Huuhka (2023) notes that the durability of buildings is rarely appreciated, particularly among professionals in the construction field – older buildings are often seen as obstacles rather than assets to carbon emission reductions. However, in the past decade, the focus in academic research has shifted from operational energy consumption towards the full lifecycle emissions of buildings, and more attention is being paid to embodied emissions (Röck et al., 2020). In the light of this, research by Huuhka et al. (2023) highlights the importance of prioritising preservation and renovation over demolition. Their study demonstrates that replacement buildings often require decades to offset the embodied CO2 associated with their construction, undermining urgent climate mitigation efforts. By renovating and adapting existing buildings instead, significant emissions can be avoided over the coming decades, a crucial period for both mitigating and adapting to climate change (Huuhka et al., 2021).

Despite this shift in research, the City of Helsinki's Carbon-neutral Helsinki 2035 Action Plan primarily focuses on reducing emissions from heating, which according to the City's calculations accounts for around 50% of the greenhouse gas emissions (City of Helsinki, 2018). The full life-cycle emissions of buildings, including those from demolition and new construction, are being overlooked. Recognising the environmental benefits of preserving existing buildings could take Helsinki's ambitions of becoming carbon-neutral a step further.

Yet realising this potential requires changes not only in building practices but also in planning. As Huuhka et al. (2021) highlight, the guidance system for land use and construction is hierarchical: decisions made at higher planning levels – such as master and detailed plans – shape the possibilities for renovation and reuse at the building scale. The lifespan extension of buildings should be systematically promoted across all levels of planning. Currently, this kind of systemic support is lacking, making it harder to hold on to and transform the existing building stock.

With the adoption of the 2016 master plan, Helsinki has entered a new chapter in its urban planning. While in the past decades the city was shaped by large-scale expansions into greenfield sites or other vacant lands, like former harbours, the current challenge is to accommodate growth within the existing urban fabric. This shift means that planners can no longer work with a blank slate, but they must consider the complexities of existing structures, land use patterns, and urban functions. Given the urgency of the climate crisis and the accelerating loss of biodiversity, the practice of demolishing and rebuilding should increasingly be questioned. New planning approaches that promote transformation and adaptation are required.

Purpose of the Thesis

The aim of the thesis is to explore the potentials for transformation in business districts within densifying urban areas. The focus lies on identifying values in the existing urban environment and defining approaches for its transformation, reuse and adaptation. The approach is pragmatic rather than conservation driven.

The business district of Sockenbacka in Helsinki serves as a case study. Through transformation, adaptation, and reuse, the goal is to better integrate it to its evolving urban context and extend its life by introducing housing and other functions, creating a more mixed-use district.

The thesis is conducted in collaboration with the City of Helsinki and serves as a pre-study for a local masterplan for the Sockenbacka business district. As a case study, Sockenbacka offers an opportunity to explore how the City of Helsinki might approach planning in business district and other areas with existing built environments, with transformation, reuse and adaptation in mind. In doing so, the thesis also aims to encourage the integration of building reuse as a guiding principle at the general planning level, as advocated by Huuhka et al. (2021).

Research Question

The research question is:

How can Sockenbacka business district transition into a more mixed-use urban area through the reuse and adaptation of its existing built environment?

Thesis Outcome

The thesis contains both academic and design-oriented outcomes. The academic part includes an analysis of the current state of the study area, as well as a compact literature review that presents relevant theories to support the design project. Based on the literature review, a collection of design approaches has been outlined to support the design section of the thesis. The theoretical findings, together with the design explorations, will inform a set of recommendations highlighting aspects worth considering in the future planning and transformation of business districts. These include approaches to working with the existing built environment – its structures, spatial qualities, and materials – with a focus on reuse and adaptation.

The design deliveries consist of a proposal for the transformation of Sockenbacka business district. This is presented through schematic plans and diagrams that provide an overarching vision for the whole study area. In addition, more detailed explorations illustrate the spatial and functional potentials of selected blocks, buildings and public spaces within the site.

Scope

This thesis examines aspects of transformation and reuse at an urban scale, focusing on identifying an overarching direction for the Sockenbacka business district and exploring a smaller section of the study area in greater detail through design. The emphasis is on working with what already exists in Sockenbacka and uncovering its value, while also considering the needs of a growing city, in line with the 2016 city plan of Helsinki.

The thesis does not approach the existing built environment from the perspective of architectural heritage or conservation. Instead, it adopts a more pragmatic view of buildings as resources with the potential to accommodate new needs – aligned with the principles of adaptive reuse and circular economy (rethink, reduce, reuse, recycle) – in anticipation of future resource scarcity. The existing buildings have been studied externally, using site visits, maps, urban plans and digital 3D-models. Their interior layouts have not been considered in the design explorations.

While aesthetics is an important aspect of how we perceive value, it will fall outside of the scope of the thesis. Similarly, financial feasibility and detailed social implications are not delved into. An essential underlying question in the case of Sockenbacka is which functions can find space in the city and how they can be integrated. The thesis focuses on the latter aspect, as it is a given that the City of Helsinki wants to explore how housing can be incorporated into the business district. While not explicitly focused on housing design, the thesis responds to a broader planning interest in the adaptive reuse of commercial and industrial buildings for residential purposes.

Methodology

This thesis focuses on urban transformation in a complex setting. Therefore, site visits and observations played a central role in capturing the essence of the study area. As Dahl and Diedrich (2020, p. 6) argue, “speculation about the future starts from site and in the present”, emphasising the importance of grounding the transformation in the current context. In addition to on-site observations, the area was also studied through digital 3D models, aerial photographs, maps and urban plans.

Conversations with planners responsible for the district and its neighbouring areas served as a key tool for identifying the potentials of the study area. A compact historical review was also conducted to provide an overarching understanding of the area’s phases.

The theoretical framework was established through a literature review on urban transformation and adaptive reuse. The development of the design approaches and their use was strongly based on this literature review. An inventory and classification of selected existing buildings and their surroundings was also carried out to identify their spatial, functional, and material qualities. This analysis supported the more detailed design explorations by identifying elements with potential for adaptation and reuse. Reference projects with similar themes and in similar contexts were studied to gain a broader perspective on how to approach adaptive reuse in practice.

To investigate my aim and research question, an iterative design approach was adopted. Sketching was used to define problems and explore possible solutions, while analysing and evaluating the solutions helped to refine the design.

Artificial intelligence (AI) was used selectively through the process. ChatGPT by OpenAI was used to evaluate and develop the thesis structure, to discuss some of the references, and to proofread most of the written material. All AI-generated outputs were critically reviewed and edited to align with the author’s intent.

THEORETICAL FRAMEWORK

Urban Transformation

The transformation of urban areas is increasingly understood not just as a reaction to decline or abandonment, but as an opportunity to rethink and rework existing environments. While Sockenbacka has not fully reached a state of redundancy and therefore cannot be classified as a truly post-industrial landscape, its ongoing transition from an industrial district to a mixed-use area reflects dynamics often studied in post-industrial urbanism. Ellen Braae (2015) suggests that theories and methods developed for derelict industrial sites are broadly applicable to a range of activities focused on reusing and transforming existing built environments.

Braae outlines three key aspects of transformation relevant to this thesis and Sockenbacka's transformation. First, creative reuse – reinterpreting and repurposing existing structures – plays an important role in "contributing to a renewal of the thinking behind sustainability" (Braae, 2015, p. 10). Second, our understanding of cultural heritage is evolving. The focus is moving away from traditional notions of heritage, which prioritise grand or aesthetically significant buildings, toward a broader view that embraces everyday buildings and places of communal significance, linking preservation and creative reuse. Third, there is the theoretical question of how we relate the past to the present and future. This gives a deeper understanding of transformation as a design practice and differentiates it from traditional design thinking. This theme promotes a reflective approach to urban change, considering how historical context influences current and future design decisions.

Braae (2015, p. 276) describes transformation as part of a "pragmatic turn" in architecture—one that deals with limited resources, foregrounds what already exists, and reframes design as a process of finding rather than inventing. This sets a theoretical foundation for working with what is already there, rather than clearing the ground for something new.

Adaptive Reuse

Where Braae approaches transformation from an urban and landscape perspective, the theory of adaptive reuse engages the building scale. Adaptive reuse is defined as the process of repairing and reconfiguring existing buildings for new or continued use (Plevoets & Van Cleempoel, 2019). Though the term is contemporary, the practice is ancient, rooted in necessity and scarcity of resources (Wong, 2017).

Adaptive reuse responds to several overlapping pressures: environmental concerns related to the building industry, evolving views on cultural heritage, and changing programmatic needs. It challenges the dominant 20th-century model of either preserving monuments or demolishing and replacing the ordinary (Plevoets & Van Cleempoel, 2019). Instead, it offers a third way, one that embraces change and continuity simultaneously (Wong, 2017).

In contrast to strict conservation, adaptive reuse acknowledges that not all buildings can or should be restored to an idealised original state. Rather than freezing time, it seeks to re-engage with heritage, function, and memory in ways that are relevant for the future (Plevoets & Van Cleempoel, 2019). This approach, then, becomes not just a technical or aesthetic exercise, but a cultural and urbanistic strategy.

Toward Circular Urban Planning

Transformation on the urban scale and adaptive reuse on the building scale are closely intertwined. Both practices require a revaluation of what already exists and a willingness to work within constraints. As Braae and others suggest, this shift from development to transformation involves new design methods, new attitudes toward value, and new ways of relating past to future.

To move toward a more circular approach to urban planning – one that limits waste, respects existing structures, and adapts over time – there must be greater integration between building- and city-scale thinking (figure 3). This process often requires alternating between these scales, allowing insights from one level to inform decisions at the other. This thesis explores how adaptive reuse can become a driving force within broader urban transformation, offering an alternative to demolition-led development and supporting more sustainable, resilient urban futures.

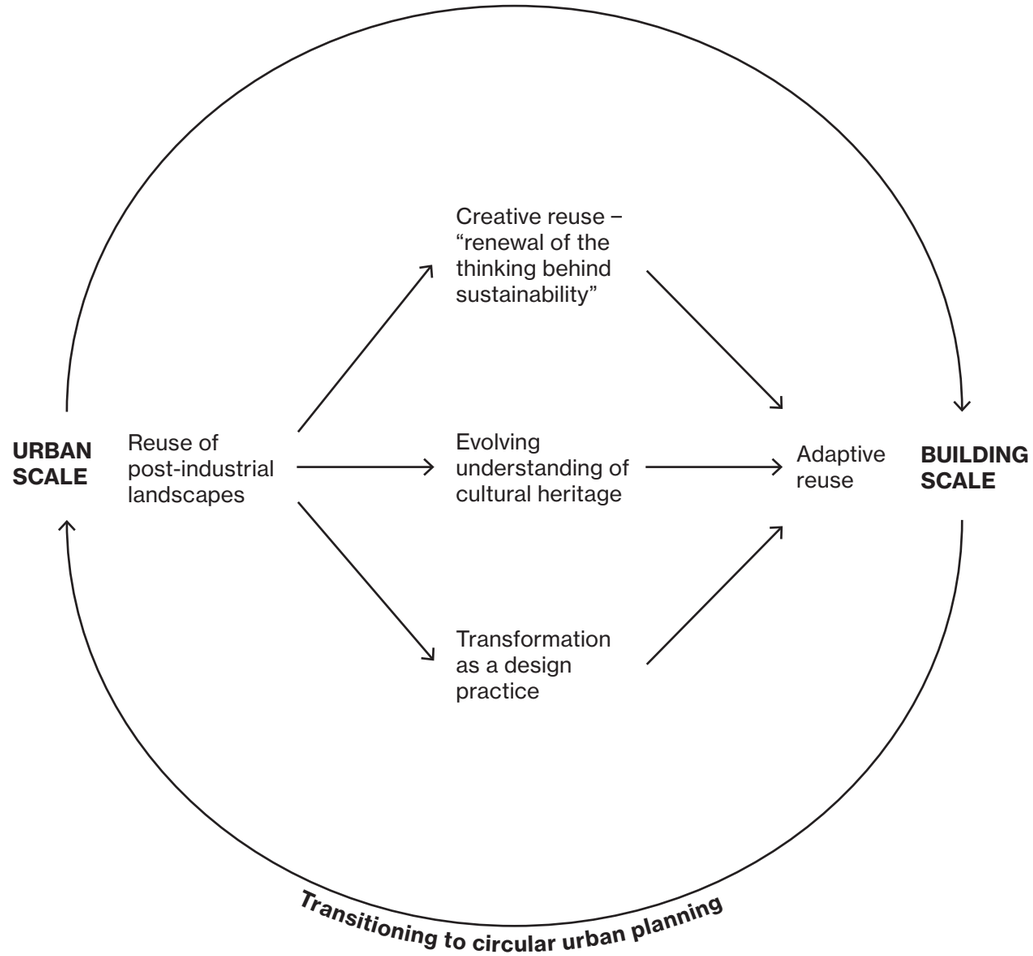


Figure 3.
A conclusion of the theoretical background, addressing the need to work with reuse across scales.

CONTEXT

Historical Development of Sockenbacka

Sockenbacka has been in transition for the past century, from forests and fields to an industrial and office dominated landscape. The industrial development of Sockenbacka began in 1911 when the electromechanical company Oy Strömberg Ab acquired a plot of land for its new factory in the area. The factory began its operations in 1916. In 1934, the company moved its headquarters to Sockenbacka (figure 4). The premises of Strömberg have grown since, and the main building and its adjacent park are now designated as built heritage. Through several acquisitions and merges, the company is today a part of the Swedish-Swiss electrical corporation ABB, which still operates on the same premises (ABB, n.d.).

In the 1950s, more industry began taking over land from agriculture and forests in Sockenbacka, while the street network that still largely exists today started to take shape (figure 5). Later at the end of the 20th century and early 2000s, many industrial buildings were demolished, and offices were constructed (figure 6). The Finnish ICT-boom, followed by the rise of Nokia, was the spark for the office developments, and Sockenbacka was even titled the Silicon Valley of Helsinki (Valkama, 2000). During that time, Sockenbacka was considered a prime location due to its transportation connections, and all available office space was leased. Several detailed plans were prepared to support office development, enabling the demolition of existing industrial and warehouse buildings and their replacement with office buildings. However, not all these plans were implemented before the market began to shift. Just over a decade later, Sockenbacka started to lose its appeal, and the vacancy rate rose closer to 20% (YLE, 2010). The issue of underutilisation remains today.

Figure 4.
The newly built Strömberg headquarters in 1934.
Photo: Foto Roos, Helsinki City Museum.

Figure 5.
When insudstries took over more space in the 1950s, the street network, still evident today, was formed. Strömberg in the background.
Photo: Veljekset Karhumäki Oy, Helsinki City Museum.

Figure 6.
An aerial image of Socken-backa from the 1980s. Industries and offices cover the area.
Photo: Scan-Foto, Helsinki City Museum.

Current Conditions and Future Possibilities

Industrialisation has shaped the urban landscape of Sockenbacka, but deindustrialization and shifts in the global economy and local land use have been the most recent forces influencing its development. While Sockenbacka could be described as a post-industrial landscape, this label may not immediately come to mind, as such landscapes are often characterised by redundancy, abandonment, or even as ruinous, expansive open spaces (see Braae, 2015). In Sockenbacka the situation is more subtle: although the district is not dominated by abandoned industrial sites, the underutilisation of its office spaces reflects a similar challenge and pattern of change often seen in post-industrial areas.

What characterises Sockenbacka today, and which is also typical of post-industrial landscapes, is fragmentation (see Braae, 2015). The area hosts both residential and business areas, but these functions are separated, with business premises occupying more floor area than housing. Looking more closely at the business district, there are clear borders between the plots in the form of fences and walls. Green infrastructure within the business district is scarce, and most of the ground surfaces are impermeable. Public space is also lacking. Much of the space surrounding the buildings is allocated for cars and logistics in the form of loading docks, ramps and parking lots. The car-centeredness and the large sizes of some of the industrial properties and the office buildings create barriers for pedestrians within the area. Following the ideas of Kevin Lynch (1960), the district can be read through its defining elements such as nodes, paths, edges, and landmarks (figure 7), which help to understand its logic.

The business district and its surrounding areas can be divided into five different urban typologies (figure 8). Their characteristics are determined by the time the buildings were constructed and the functions they were designed to support. The most recently built office buildings often span an entire urban block, while the multipurpose industrial-commercial buildings from mid-20th century are smaller and form a finer urban grid that is more human-scaled. ABB, one of the main actors in the area, has its own well-fenced and extensive premises, which consist of multiple architectural layers. They have expressed their wish to stay located in Sockenbacka. Another major industry present is the paint factory Teknos, located in an area designated as a business and service centre in the 2016 city plan (figure 9). However, the plan is currently not valid in this area, as it allows for housing development, which is not compatible with the operations of the factory. Whether Teknos will continue to stay in the area or not is still unresolved. Another traditional, still operating factory in the area is the confectionery factory of Halva.

As the district began shifting towards office use in the 1990s, many IT companies moved in – some are still present, such as CGI and Fujitsu. Telia has also recently built a new data centre in Sockenbacka.

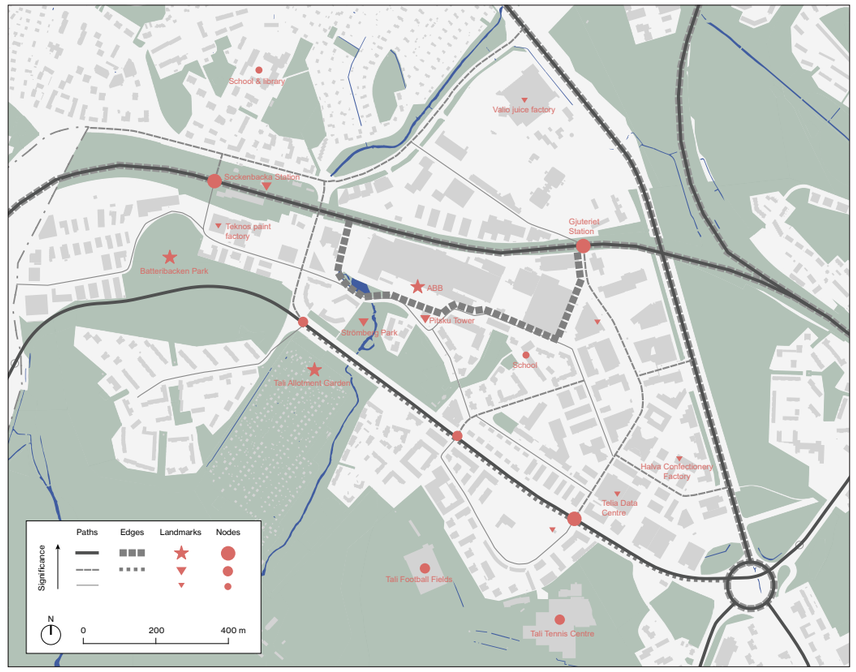


Figure 7.
An applied Lynch analysis of the area.

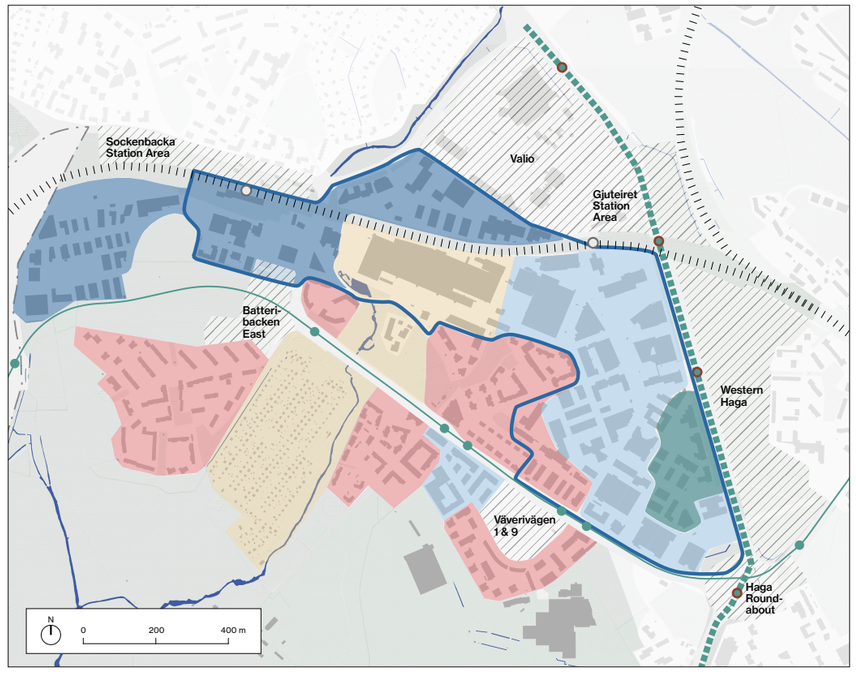


Figure 8.
The urban typologies of Sockenbacka.

- Study area
- Helsinki cultural landscape and built heritage (Strömberg & Tali Allotment Garden)
- Detached houses and blocks of flats
- Newer office and industrial buildings, some spanning entire cityblock
- Low-rise industrial and warehouse buildings
- Office and industrial buildings mainly from the 50s and 60s, smaller scale
- New plans in progress
- Future boulevard
- Future light rail stop
- Commuter train station
- Light rail stop

The blocks of flats near the ABB factory were also mostly built in the 1990s. Parts of the industrial landscape are soon to be transformed to a more residential character, as one of the district's major companies, Valio, is relocating its juice factory and warehouse (Valio, 2024). The move follows the 2016 city plan, which designated Valio's premises in Sockenbacka for residential use. However, the Valio premises fall outside of this thesis' study area as the new plan is already in progress. In addition to the Valio site, there are several other plans underway in and around Sockenbacka, including the much-debated Western Haga detail plan that allows for the construction of new residential blocks in the green area of Djurbergsparken.

The historical, current, and anticipated future shifts in land use within Sockenbacka reflect broader patterns of post-industrial and post-pandemic urban conditions seen in growing Western cities. There is an urgent need for (affordable) housing and densification opportunities are seen everywhere – industrial activity is increasingly being displaced, and smaller patches of local nature are being targeted for residential development. At the same time, the expectations for white-collar office environments have risen – many workers prefer remote work over returning to outdated offices. Despite Sockenbacka's good transport infrastructure, the district seems to have fallen off the radar for many companies, as much of its office stock is either unattractive or fails to meet contemporary demands. This underutilisation is evident in the usage statistics of the district's office spaces (figure 10).

In the light of these trends, the city has decided to investigate the possibility of adding housing to the area zoned as a business district. To allow for the future transformation of Sockenbacka, a local master plan will be necessary to enable housing construction within the study area, as the current master plan does not permit it. The main arguments for converting Sockenbacka into a mixed-use district with more housing include its already built-up character – reducing pressure on greenfield land – and its excellent public transportation connections. The area is currently served by two commuter train stations, an east-west light rail line, and several bus routes. With the planned boulevardisation of Vichtisvägen, a new light rail line will further connect the district to the city centre.

Sockenbacka can also be seen as a site already well-suited for urban transformation and adaptive reuse. Its industrial character has historically required an adaptive approach; buildings have been altered and expanded to meet the evolving needs of the companies operating in the area. Although some of the industrial heritage has been demolished, this pragmatic and layered approach to transformation is still visible in how industrial properties have been adapted over time to accommodate not only production but also a broader range of commercial and office uses. The next step – enabling the conversion of these multipurpose buildings into housing – would not only represent a continuation of this adaptive approach, but also highlight Sockenbacka's identity as a dynamic, evolving urban district. Introducing housing would add diversity to the area and support a more vibrant environment.

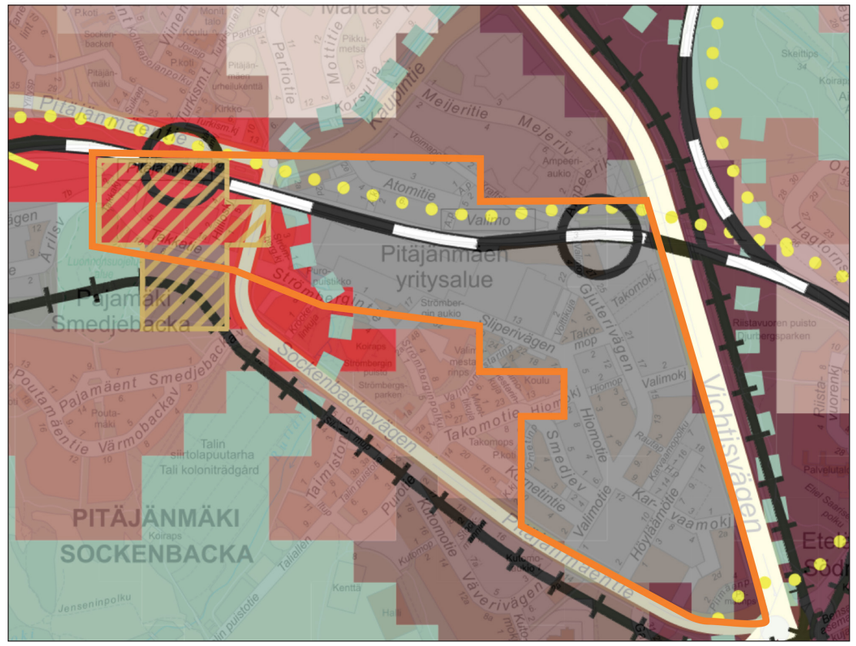


Figure 9.
The 2016 city plan applied to Sockenbacka. Study area outlined in oraange. Image: City of Helsinki.

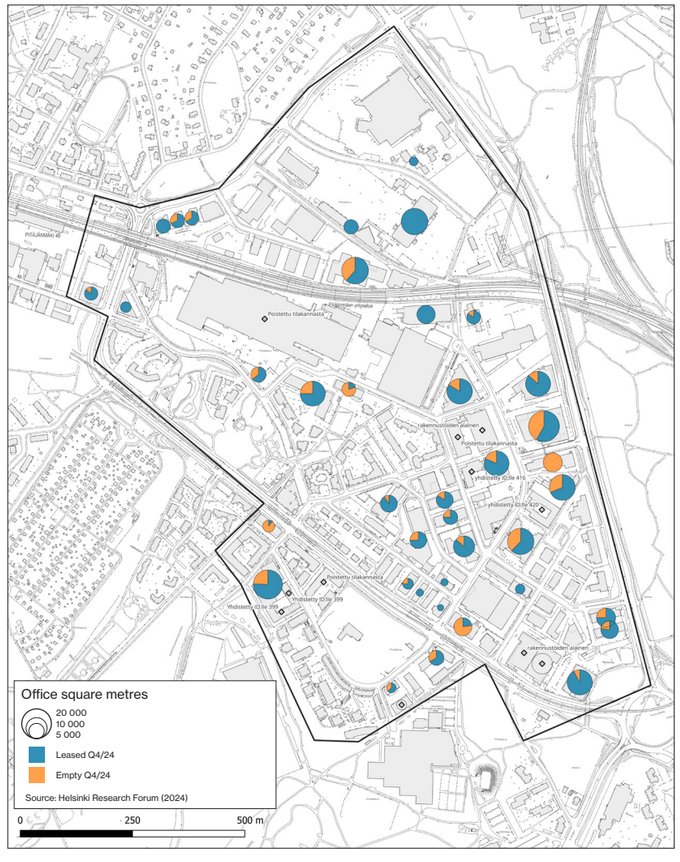
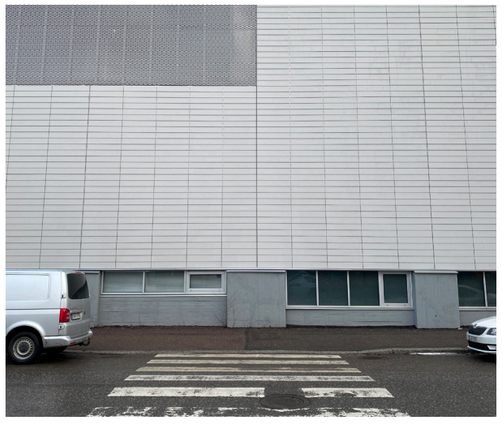


Figure 10.
A map showing the share of rented office spaces per building in Sockenbacka. Map: Iirs Karvinen.


ABB



TRANSFORMATION PLAN

Integration, Adaptation, Circularity

The objective of the broader transformation of the business district is to strengthen urban continuity and establish new connections to the surrounding areas, where several development plans are currently underway (figure 11). The edges of the district play a key role in forming these relationships with nearby urban structures and public transport routes, while the core is retained for continued business activity.

Two areas within the district have been identified as particularly suitable for transformation into mixed-use and residential blocks. The first lies in the west, just south of the Sockenbacka train station where the Teknos paint factory is currently located. The second is in the east, south of the Gjuteriet station and along the planned boulevard. Their locations next to existing and future public transit nodes – train stations, light rail lines – and other housing developments make them especially promising for transformation. In the eastern part, several office buildings also suffer from high vacancy rates, adding further potential for change.

Between the Valio and ABB premises, the area will largely remain in business use due to limitations imposed by noise and vibration from ABB's operations. However, closer to Valio, there may be room for new residential development. This transitional zone could also serve as a relocation area for businesses displaced from plots closer to the new boulevard.

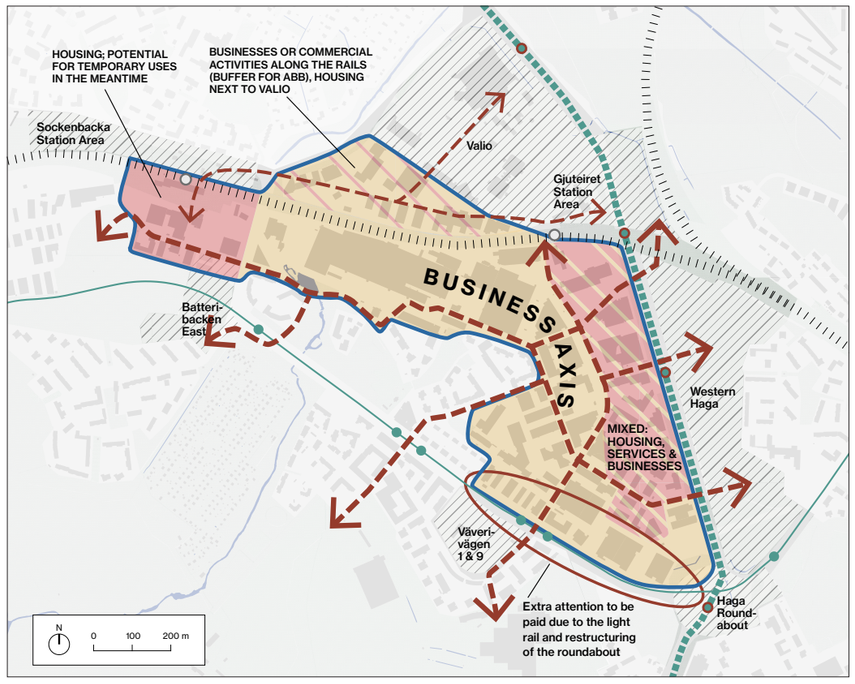


Figure 11.
A transformation plan for Sockenbacka business district.

A continuous business axis is preserved at the core of the district, allowing key employers such as ABB to remain. In the southern part, along Sockenbackavägen and near the reshaped Haga roundabout, particular attention should be paid to how new development and adaptive reuse can contribute to a more urban edge. There may also be opportunities for selective residential conversion in this zone.

Transformation is understood here as a gradual and long-term process. Temporary uses can play a valuable role during this transition – offering ways to test new functions, activate the area, and draw in new user groups. These meanwhile strategies can also help identify strengths and limitations in both space and structure.

Given the district's industrial character and existing business base, Sockenbacka is well-positioned to support a broader vision for circular urban development. The area could become a testing ground for circular economy principles and the ongoing green transition. While some demolition is inevitable, a district-wide circularity strategy should aim to reuse as much material as possible on site. This would require the creation of a reuse depot and logistical system to handle salvaged materials, potentially serving as a pilot that could be scaled to other parts of the city.

Several actors already based in Sockenbacka could support such a vision. ABB remains a major force in electrification, alongside other relevant organisations such as STEK ry (the Centre for Electrical Engineering and Energy Efficiency), while Lassila & Tikanoja – a company focused on recycling and facility services – has its headquarters in the district. These actors could play an important role in shaping a district rooted in reuse and circular practices.

TRANSFORMATION & REUSE IN PRACTICE

A Paradigm Shift in Building Practices

Given the environmental impact of current construction practices, which pose a serious threat to planetary health, Matti Kuittinen (2023) calls for a paradigm shift in how we meet spatial needs: prioritising alternatives to new building. He outlines a four-tier hierarchy for resource-efficient building practices: utilise, renovate, extend, and only as a last option, build new (figure 12).

The top priority in this hierarchy is to utilise existing buildings and spaces, adjusting our needs to fit them (Kuittinen, 2023). This would require a cultural and behavioural shift, as all spaces do not suit society's need perfectly. Kuittinen (2023, p. 569) suggests that a "tolerance for some imperfection" is needed – a perspective that is in line with Panu Savolainen's (2024) critique of our persistent desire for novelty, which often drives unnecessary demolition.

Kuittinen (2023) also calls for imaginative thinking to find new ways of using spaces we already have, which is crucial in the second level of the hierarchy – renovation. Through renovation existing spaces can be better adapted to our needs. Research by Huuhka et al. (2023) confirms that renovation significantly reduces emissions and conserves natural resources compared to new construction. Kuittinen (2023) also emphasises the added value renovation can bring in terms of functionality, performance, and property value. Importantly, energy-efficient refurbishments reduce operational emissions, freeing up energy resources for other essential societal functions.

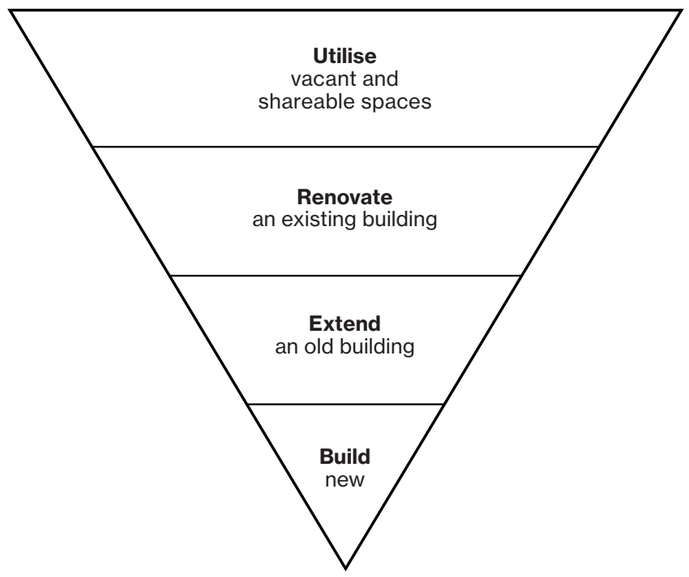


Figure 12. Hierarchy for resource-efficient construction. Applied from Kuittinen (2023).

The third level – extending existing buildings – offers an additional way of reducing emissions. Kuittinen (2023) highlights that foundations and structural frames are often the most emission-intensive elements of a building. By extending rather than building completely new buildings, emissions can be minimised, existing infrastructure reused, and land preserved. This argument is highly relevant in the context of Sockenbacka, where utilising the district's existing structure supports its transformation into a more mixed-use neighbourhood.

The least preferred option in Kuittinen's (2023) suggested hierarchy is building new buildings. While sometimes necessary, such as in areas with substandard housing and rapid population growth, new construction should be the last alternative. Kuittinen points out that current economic practices do not recognise the environmental and social costs of demolition and new construction. This creates a financial bias that favours demolition over renovation, when new developments seem to offer higher profits than renovating old properties. Where new construction cannot be avoided, it should aim for low embodied carbon and long lifespans, supporting circular building practices.

To implement this hierarchy, we must begin to see our built environment – and how we use and plan for it – in a new light. Kuittinen (2023) recognises that applying this shift is not done without its challenges. It requires both determination and a context-sensitive approach. Adaptive reuse is necessary for this paradigm shift to take place, and cities like Helsinki could use areas such as Sockenbacka as a testing ground for more transformative building practices. Yet, bridging the gap between vision and practice presents a range of challenges.

Challenges to Adaptive Reuse in Practice

The practical application of adaptive reuse often runs into economic, regulatory, and cultural barriers. A recent study by Boverket (2024), the Swedish National Board of Housing, Building and Planning, highlights how these barriers complicate the conversion of commercial and office buildings into housing. One of the main challenges is making these projects economically viable. There are many uncertainties involved in the process that contribute to financial risk – starting from detailed planning and building permit requirements to unforeseen conditions discovered during the transformation. These risks are linked to and amplified by a general lack of knowledge and experience with building transformations.

In addition, Boverket (2024) notes that there is currently no national overview of how many commercial buildings could realistically be converted into housing. This lack of data makes it difficult to assess the full potential of adaptive reuse as a housing strategy and hinders systematic planning for realising it.

The building sector's approach to sustainability also presents challenges. The narrow view focusing on the potential of new buildings rather than the possibilities within the existing stock is still dominant. This view is supported by certification systems, which are typically designed for new buildings and do not take the full life cycle of buildings into account. As an example, Boverket (2024) note that a newly built project can receive the highest sustainability rating even if it replaced a functional, existing building. This contradicts current research, which emphasises the importance of renovation and reuse to reduce environmental impact over time.

To enable more adaptive reuse in practice, Boverket (2024) identifies a need for targeted economic incentives and measures that can reduce the uncertainties and risks associated with transformation projects. Strengthening knowledge, improving tools and working methods, and promoting interdisciplinary collaboration are also essential. Designers, planners, engineers, and construction site workers must all be equipped with the knowledge and skills required to work with existing structures – especially since current professional training and education often focuses on new construction (Boverket, 2024).

Beyond the need for knowledge, Boverket (2024) emphasises that the transformation process itself differs significantly from new construction. Adaptive reuse projects require a more iterative and flexible approach, with early feasibility studies and continuous collaboration across disciplines. A key difference is that standardised solutions rarely apply. Each building has unique technical, spatial, and historical conditions that must be addressed on site, often requiring tailored design and construction strategies.

These complexities are not limited to the building scale: business districts like Sockenbacka also present broader urban challenges, where fragmented functions, circulation patterns and spatial hierarchies must be reconsidered. This aligns with Ellen Braae's (2015) view of transformation as a distinct design practice – one that adopts existing layers, relationships, and incompleteness rather than erasing them. In this view, transformation is both a building-specific and urban practice, requiring sensitivity to context, time, and continuity.

Finally, changing attitudes plays an important role. Norms around aesthetics, architectural value, and building practices must be challenged (Boverket, 2024). How we describe and frame the value of our younger cultural heritage (buildings from 1950s and onwards) influences both public and professional perceptions. Boverket stresses that stricter regulations around demolition are needed: making it harder to tear down functioning buildings would encourage more serious consideration of transformation.

Design Approaches to Transformation and Reuse

The terminology used to describe the transformation and reuse of buildings is broad, with no single, widely recognised term in academic literature to refer to the practice of altering existing buildings both architecturally and functionally (Plevoets & Van Cleempoel, 2019). There are many expressions that are used synonymously, yet they differ in nuance and can be understood in varied ways. This issue is also highlighted by Boverket (2024). Especially the word "reuse" can often create confusion. It may refer either to the reuse of building materials in new constructions or to the reuse of entire buildings in their original locations, fully or partially.

In this thesis, reuse is understood in a broad sense: as the reuse of existing buildings, urban layouts, and potentially, building materials. However, the reuse of materials is not a mandatory requirement of the approaches described. The focus lies on the reuse of existing structures within their original contexts, and the described design approaches are seen as a part of a wider transformation process.

To establish a design methodology, two sets of design approaches to transformation and reuse are outlined: one at the building-scale, and one at the contextual or urban scale. These are drawn from adaptive reuse literature and describe architectural, spatial, and functional change. While they overlap conceptually with Kuittinen's (2023) resource-efficiency hierarchy, they serve a different purpose. Kuittinen framework is strategic and policy-oriented, offering a theoretical hierarchy. The approaches described in this thesis are design-level tools, intended to support decision-making in specific projects like Sockenbacka.

In addition to these approaches, Plevoets and Van Cleempoel (2019) also identify intervention strategies, which relate to the material and immaterial aspects of adaptive reuse, and how architects engage with the qualities of existing buildings. These strategies consider how to relate to the history of the building, how the existing is perceived, and how the contemporary alterations should be handled. While central to the broader discourse on adaptive reuse, this thesis takes a more pragmatic approach and therefore does not delve into these aesthetic and theoretical strategies. Instead, it focuses on identifying and applying concrete transformation approaches relevant to the case study.

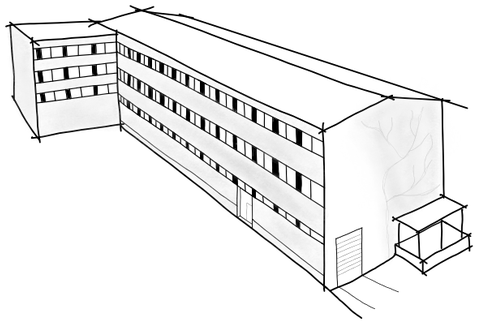
Building-Scale Transformation Approaches

The first set, referred to as building-scale transformation approaches, is drawn from the work of Plevoets and Van Cleempoel (2019), who define a terminology to describe the degree of architectural and functional change to an existing building. These range from renovation (implying maintenance or improvement) to remodelling (implying complete transformation). The steps in between include adaptation and alteration, each describing varying degrees of spatial and programmatic change. These approaches are illustrated through the transformation that the industrial building in Garverigränden 6 has gone through until this day, from renovation to alteration (figures 13a–c), and an imagined remodelling of the building in the future with the transformation of Sockenbacka (figure 13d).

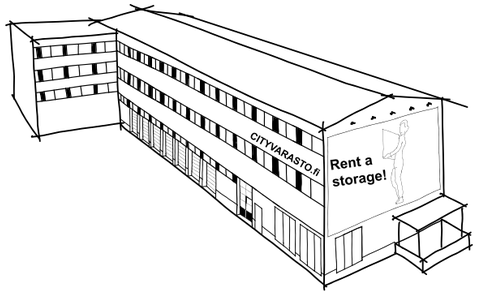
To further develop this framework – and in line with Linnéa Ek Eklind's (2024) application of these terms – two additional building-scale approaches are included in this thesis: partial demolition and reuse of materials. These may result as consequences of the aforementioned approaches. The greater the level of change, the more likely partial demolition becomes. Wong (2017) even argues that adaptive reuse must begin with some form of demolition, as it implements change. Removing parts of a building may be necessary to make way for new functions. This also opens the opportunity to be resource-smart by reusing materials from the demolished parts.

The following definitions are applied from Plevoets and Van Cleempoel (2019), unless otherwise stated:

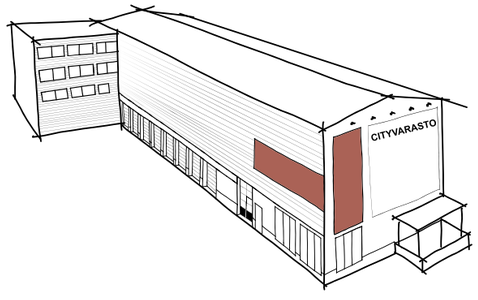
- **Renovation** – Updating a building to meet contemporary standards of comfort, safety, and environmental performance, without altering its function or core structure.
- **Adaptation** – Modifying a building beyond routine maintenance to meet current standards (e.g. environmental or accessibility) or evolving needs. May or may not involve a change in function.
- **Alteration** – Making distinguishable changes that affect a building's architectural character, spatial configuration, use, and possibly function.
- **Remodelling** – A major transformation that reshapes a building through architectural changes, involving a new function and possibly layout. May include extensions or partial demolitions (Brooker & Stone, 2004, as cited in Plevoets and Van Cleempoel, 2019).
- **Partial demolition** – Removing parts of a building to improve functionality, enable new uses (Machado, 1976, as cited in Plevoets & Van Cleempoel, 2019), or restore an earlier architectural state (Wong, 2017).
- **Reuse of materials** – Incorporating materials from demolished parts into the reshaped building, supporting material continuity and reducing construction waste (Robert, 1989, as cited in Plevoets & Van Cleempoel, 2019).



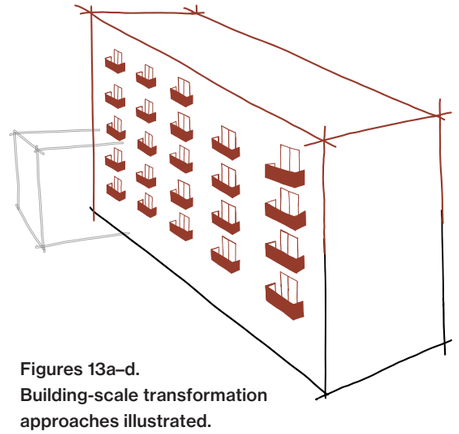
Renovation – At Garverigränden 6, the climbing plant on the gable was cut back and the façade painted white. The building's earlier use is unknown to the author.



Adaptation – The ground floor was perforated with new openings as the building was converted into a self-storage facility.



Alteration – The building received a new expression: the façade was clad and most windows covered with corrugated metal.



Remodelling – As part of a conceptual vision for Sockenbacka's future, the building is imagined as housing. The short wing is removed, additional floors are added, and both façade and interior are remodelled.

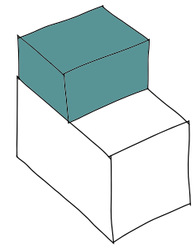
Figures 13a–d.
Building-scale transformation approaches illustrated.

Contextual Transformation Approaches

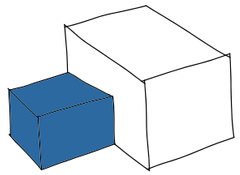
To address the spatial aspects of transformation and reuse, this thesis introduces a second set of approaches, referred to as contextual transformation approaches. These extend the capabilities of the existing building and describe architectural additions or spatial interventions that affect not only the building itself but also its relationship to its context (Wong, 2017).

Drawing on the vocabulary of Robert (1989, as cited in Plevoets & Van Cleempoel, 2019) and Wong (2017), these approaches include building over (vertical addition), building alongside (horizontal addition) and building around (adding new buildings next to existing ones) (figures 14a–c). A fourth approach, changing the context of, identified in Ek Eklind's thesis (2024), involves reshaping of spaces around a building to alter its functional or experiential relationship with the site (figure 14d).

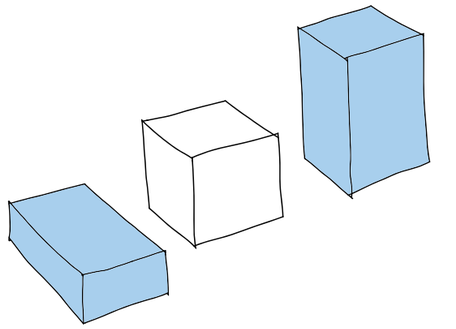
The effects of these approaches extend beyond simply increasing floor area or altering a building's immediate surroundings. They can raise the property's value, but also change the building's role within the larger urban and historical context (Wong, 2017). While these approaaches may target individual buildings, their combined effect can shape the surrounding urban environment – especially in areas like Sockenbacka, where several interventions contribute to a shift in land use. In this way, contextual transformation approaches can also contribute to urban densification when they lead to intensified land use.



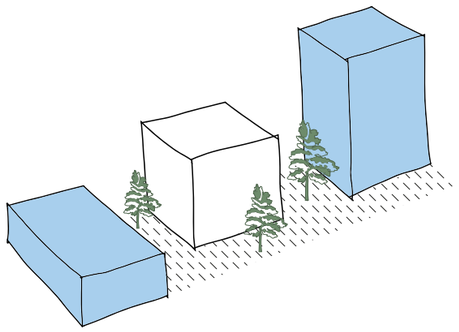
Building over – Vertical additions to a building within its existing footprint. Can be applied at different scales from one to several floors. The scale of the addition can affect the relationship between the original structure and the new volume (Wong, 2017).



Building alongside – Horizontal addition to a building that extends its footprint. This approach can help to address issues of urban discontinuity by creating new relationships and connections (Wong, 2017).



Building around – Constructing new buildings next to an existing one and redefining its setting. Similar to 'building alongside' but may involve multiple structures or spatial interventions that reshape the surrounding context (Ek Eklind, 2024).



Changing the context of – Reshaping the spaces surrounding a building to transform its functional, visual, or experiential relationship with its site (Ek Eklind, 2024).

Figures 14a–d.
Contextual transformation approaches illustrated.

Reference Projects

Finally, to illustrate how adaptive reuse can be implemented in practice, a selection of reference projects is presented (figures 15a–b and 16a–b). These examples focus on alteration and remodelling and illustrate the aesthetic dimensions of adaptive reuse – an aspect not explored in depth elsewhere in this thesis. Successful transformation projects rely on a thoughtful combination of both design approaches and intervention strategies.

In the Boverket (2024) report the following aspects are mentioned key for a successful conversion from office to housing: a structure favourable for alteration or remodelling, a suitable location for housing, political will, a property owner that sees the transformation profitable, competence and capacity to transform a building, and lastly the possibility to expand the built area on the property through building over, alongside or around.

Insights from completed transformation projects further describe the complexity of adaptive reuse. Common challenges include deep floor plans that limit daylight access, structural constraints, hazardous materials such as asbestos, and difficulties in meeting accessibility standards. These issues have been addressed through a variety of strategies, such as placing bathrooms and storage in the building core, using single-sided apartment layouts, and incorporating external ramps or new elevator shafts. Successful projects often share key characteristics: a committed client, a collaborative and experienced project team, and a willingness to adapt design solutions to the specific conditions of the existing building (Boverket, 2024).

Figures 15a–b. Former ING bank remodelled into a residential building in Amsterdam by Elephant. Front gardens and elevators are incorporated into the façade.

Figures 16a–b. The former Welding and Boiler Workshop in Malmö will be altered to include housing, commercial spaces, offices, and a parking garage. The residential units are going to be built over, on the roof of the building (design by Förstberg Ling). Some additional area will be constructed by building alongside. The façade will be renovated with reused materials (design by Open Studio).

FOCUS AREA & BUILDING INVENTORY

Gjuteriet: A Testbed for Transformation

The selected focus area stretches from the Gjuteriet train station in the north to the Halva confectionery factory and its surrounding blocks along Garverigränden in the south (figure 17). It is framed by Vichtisvägen – soon to be transformed into an urban boulevard – to the east, and by Gjuterivägen to the west. This location was chosen for its strategic position next to key mobility infrastructure and ongoing development plans, as well as for its mix of building types and scales: from the large office volumes in the north to the finer-grained industrial structures further south.

Gjuterivägen is defined by office buildings dating from the latter half of the 20th century. The street functions as a local connector, linking the train station with the tram line along Sockenbackavägen. It curves over a small ridge, creating varied sightlines and views. These characteristics offer both spatial challenges and opportunities. While many buildings are currently underutilised and present strong candidates for residential conversion, the area faces typical barriers to adaptive reuse: deep floor plates, inactive ground floors, and buildings that turn away from the street and the future boulevard. Large open spaces and paved areas prioritise car access, while greenery is limited.

In contrast, the southern portion of the focus area offers a more human scale. It includes mid-century industrial buildings, many still in active use, including the Halva confectionery factory. While no official vacancy data exists for this part of the site, the level of activity varies: some buildings are completely empty, others advertise leasable space, and several appear to house functioning businesses. Architecturally, this area is characterised by ribbon windows, light brick or plaster facades, and a visible patina, though some structures are in need of repair.

A key spatial feature across the entire focus area is the prevalence of freestanding buildings with significant setbacks from the street. While this dispersed urban form contrasts with current planning norms that favour compactness, it also opens up new design possibilities. The generous spaces currently used as parking could be reimagined as public squares, shared courtyards, or transitional zones that mediate between public and private. By working with the existing building stock and spatial structure, there is a unique opportunity to explore alternative forms of density and new urban typologies rooted in reuse.

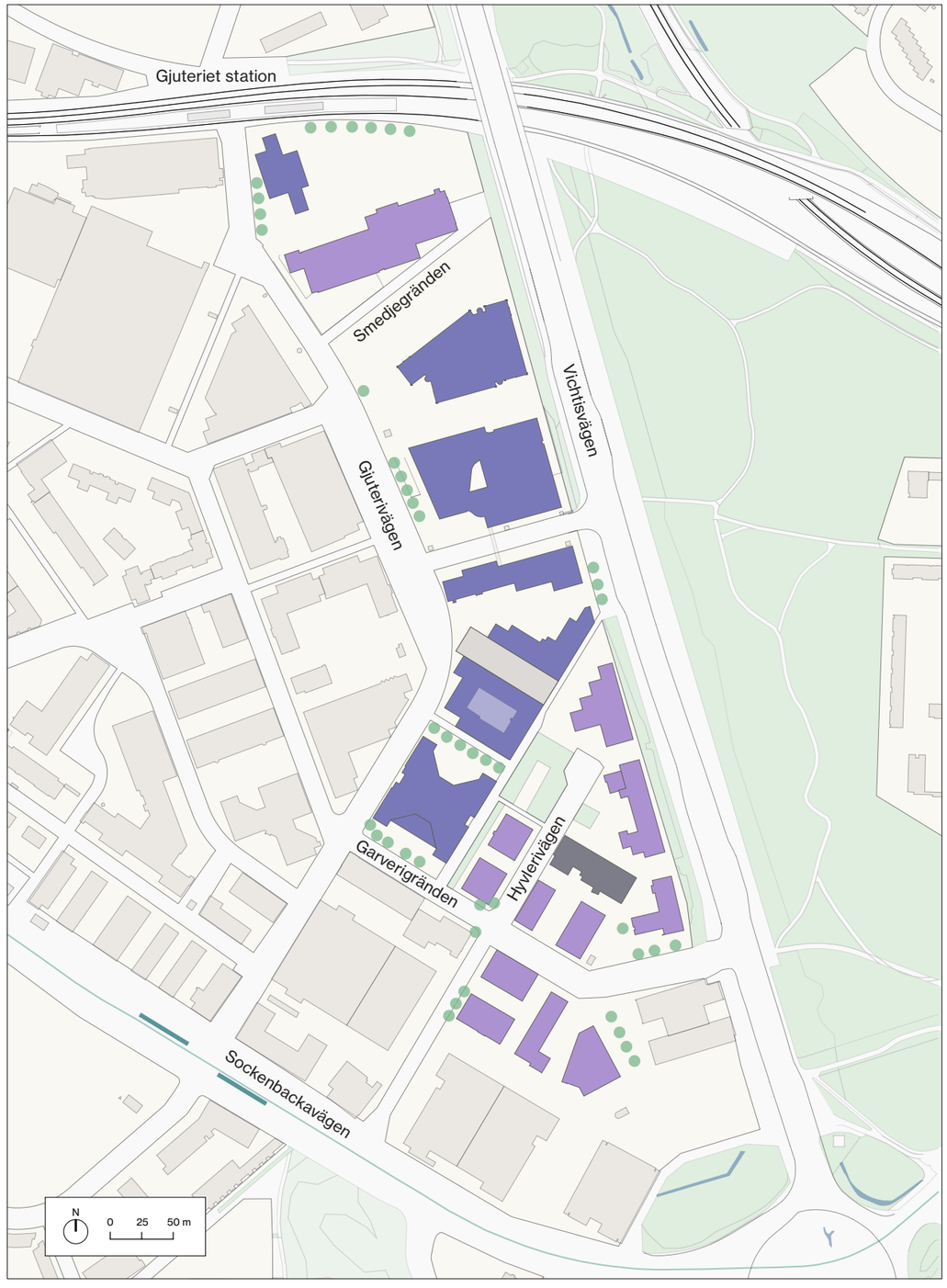


Figure 17.
The buildings within the focus area classified by their current use.

Building Inventory

This section presents an inventory and classification of selected existing buildings and their surroundings within the focus area, focusing on spatial, functional, and material characteristics (figure 18). Each building is analysed through key variables such as current use, level of activity, structural and spatial qualities, and integration with the urban landscape. The aim is to assess the buildings' potential for adaptation and reuse – identifying what can be retained, what can be transformed, and where challenges might arise.

Figure 18.
An aerial image showing the focus area today. Buildings included in the inventory are numbered on the image.

1. Garveri-gränden 1
1960s

2. Hyvleri-vägen 9
1950s

3. Hyvleri-vägen 18
1960s

4. Gjuteri-vägen 15
1950s

5. Gjuteri-vägen 17
1990s

6. Gjuteri-vägen 25
1960s

Garverigränden 1
1960s

Current Use
Multipurpose commercial building; current occupants are a software business, an electronics repair shop, a cleaning and staffing agency, and an interactive game venue

Level of Usage
No official information available, but considering the amount of tenants the usage seems to be active and rather high

Building Characteristics
Number of floors: 3

Floorplate depth: 15.5 m

Relationship to landscape: built on a rocky slope, has a split-level design; surrounded by parking spaces and some trees

Façade material and condition: light brick, mostly ribbon windows, rather closed

Ground floor characteristics: parking garages, loading dock, few openings

Potentials
Stands at the junction of Vichtisvägen and Garverigränden, could mark the entrance to the area (currently overshadowed by the large office building that is opposite to it); building depth manageable for apartments

Challenges
Set back form both of the streets, the rocky slope towards Vichtisvägen

Hyvlerivägen 9
1950s

Current Use
Industrial property; Halva confectionery factory

Level of Usage
In active use

Building Characteristics
Number of floors: 4

Floorplate depth: 18–24 m

Relationship to landscape: built on the corner of a gentle slope; surrounded by some parking spaces, the building fills most of the narrow plot, no clearly defined street space in front of the building

Façade material and condition: yellow plaster, painted concrete and red brick; facade rather open for a facotry; gives the impression that the factory building has been extended and raised; in need of maintenance

Ground floor characteristics: three entrances towards Hyvlerivägen (one for the factory shop), goods receiving area, loading dock; the ground floor meets the slope and at the back of the building the 1st floor becomes the groundfloor

Potentials
The narrower part of the building could have potential for being turned into loft apartments, the wider part could host a commercial activity such as a sports facility or a cultural activity; as the building's layers are visible, adding one more layer by extending it vertically could be an option

Challenges
Judging by the facade, the building is in need of care and maintenance; floorplate depth challenging for residential uses; limited space around the building

Hyvlerivägen 18
1960s

Current Use
Multipurpose commercial building; current occupants include a printing house, dog training centre, office of a clothing brand, precision engineering workshop, company providing energy technology solutions, and a video production company

Level of Usage
No information available, but considering the amount of tenants the usage seems to be active

Building Characteristics
Number of floors: 5

Floorplate depth: 11.7–42 m

Relationship to landscape: built on the top of a hill on a slope, surrounding height difference up to 7 m

Façade material and condition: white brick, ribbon windows that circle the building on each floor; in need of maintenance

Ground floor characteristics: loading dock, parking; one clear main entrance, but has several doors where one can enter the building

Potentials
Located along Vichtisvägen almost at the same level as the road and close to a future tram stop; situated on top of a hill, if more floors are added could become a landmark – in that case the original floors could still be designated for commercial use, and the new floors for housing

Challenges
Judging by the facade, the building is in need of care and maintenance; floorplate depth challenging for residential uses

Gjuterivägen 15
1950s

Current Use
Office building

Level of Usage
Vacant, currently no occupants

Building Characteristics
Number of floors: 5

Floorplate depth: 16 m (original building), 22.7–30.3 m (extension from 1990s)

Relationship to landscape: built on a flattened surface; adjacent street slopes up towards Vichtisvägen, creating height difference between plot and street; the building is slightly set back from the street

Façade material and condition: the original volume has a white plaster façade, the extension from late 20th century is built of white concrete elements, parts of the façade are clad with metal sheets

Ground floor characteristics: the building does not have a clear front or main façade, one entrance at the gable to the west, otherwise loading docks and hard paved surface (original volume); ground floor of extension has open parking covered by upper-floors, walk-through access

Potentials
Location adjacent to Vichtisvägen, next to a future tram stop; the original volume has the greatest potential to be converted into housing; could host a mix of residential units and businesses

Challenges
Location next to ABB transportation route; floorplate depth of the extension is challenging for a housing conversion

Gjuterivägen 17
1990s

Current Use
Office building

Level of Usage
Roughly 40 % of the space is vacant

Building Characteristics
Number of floors: 6

Floorplate depth: 14–26 m

Relationship to landscape:

Façade material and condition: white tiles and concrete; in good condition

Ground floor characteristics: one clear main entrance, additional backdoors and loading docks; ground floor partly open in the eastern part of the building for parking spaces; two ramps to underground parking

Potentials
Located along Vichtisvägen close to a future tram stop; inner courtyards break up the volume, favourable floorplate depth for housing in some parts of the building

Challenges
The building's large volume might be a challenge, but could be handled with partial demolition

Gjuterivägen 25
1960s

Current Use
Classified as a warehouse building, occupants also include a car wash and a trampoline park

Level of Usage
No information available, but seems to be in rather active use

Building Characteristics
Number of floors: 6

Floorplate depth: 34.6–44 m

Relationship to landscape: stands on a flat surface, but the adjecent Vichtisvägen is elevated next to it (height difference some 8 metres)

Façade material and condition: mainly red brick, a small section with glass brick; ribbon windows in one half of the building, very small and few windows on the other half

Ground floor characteristics: loading docks and a ramp that leads up to an elevated parking space; ground floor façade very closed

Potentials
Located next to the train station; its size and volume are best suited for a building with services or other commercial activities; the elevated parking space facing south offers potential for creating a unique outdoor space

Challenges
The height difference to Vichtisvägen

DESIGN EXPLORATIONS

Guiding Considerations

This chapter introduces the design explorations through key themes and considerations that emerged during the process. These explorations aim to illustrate how transformation and reuse can be approached in practice, balancing contextual conditions, existing structures, and urban ambitions.

Transforming the Existing: Building-Scale Approaches

The design explorations begin with applying the building-scale transformation approaches to each building within the study area. Each building is first presented in its current state and then recommended an approach – renovation, adaptation, alteration, or remodelling (figure 19). This recommendation is based on each building's external characteristics, location in the urban form, and usage statistics when applicable. Most of the buildings are recommended a remodelling, due to the bigger changes required when converting from office or commercial use to other functions. However, when moving forward to more detailed studies of each building, in some cases, an alteration might be enough, depending on how great the changes in the façade will be, for instance.

Some of the buildings are recommended to be maintained as they are, or at most to be adapted to the shifting context around them. This is done in sites where the space around the buildings is to have a more public character. No building within the study area for the closer design explorations has been demolished in its entirety. However, partial demolition has been applied in some cases to enable meaningful transformation, for instance, to improve spatial connections or enable better integration with the changing surrounding context.

Figure 19.
Reuse potential within the focus area. Building-scale tarnsformation approaches have been applied to each building.

Extending the Existing: Contextual Approaches

Another factor that impacts the degree of change is the magnitude of the contextual design approaches applied to the buildings – in other words, the size of additions to the existing buildings (figures 20 and 21). As Wong (2017) points out, how the additions are applied in relation to the old determine whether they will be seen as part of a continuum or not – whether they together create a whole form or not. If the size of the extension is too big, it might threaten the integrity of the original structure. "When the scale of such transformations compromises the identity of the existing structure, they are no longer additions. Rather, adaptive reuse is a pretext for development" (Wong, 2017, p. 195).

This aspect has mostly been taken into consideration when adding new floors to the buildings, with one distinctive exception: Garverigränden 1, where the original building is "eaten up" by both building over and building alongside (figure 22). The main argument for this radical change is the building's location along Vichtisvägen. It shapes the characteristics of the future boulevard and reflects the changes in urban from across the street, in Western Haga.

In general, additions to existing buildings are often a necessity to make the execution of transformation projects profitable (Boverket, 2024). Building over is less emission-intensive than building alongside or around, as the existing structure and foundations can be made use of. However, as Wong (2017) emphasises, only smaller-scale vertical additions can be built on top of the existing structure without supplementary structural support – it can carry extra gravity loads of up to 5 per cent. Larger-scale additions require supplementary structural support, and they are most efficiently executed by complementing the original structure.

The remodelling of the buildings will of course require closer examination than what has been done in this thesis. The depth, floor heights, and structure of the buildings can pose challenges when converting to housing. Moreover, their condition should be closely studied to see if there are any harmful substances, and if the loadbearing structure can be complemented to carry additional floors.

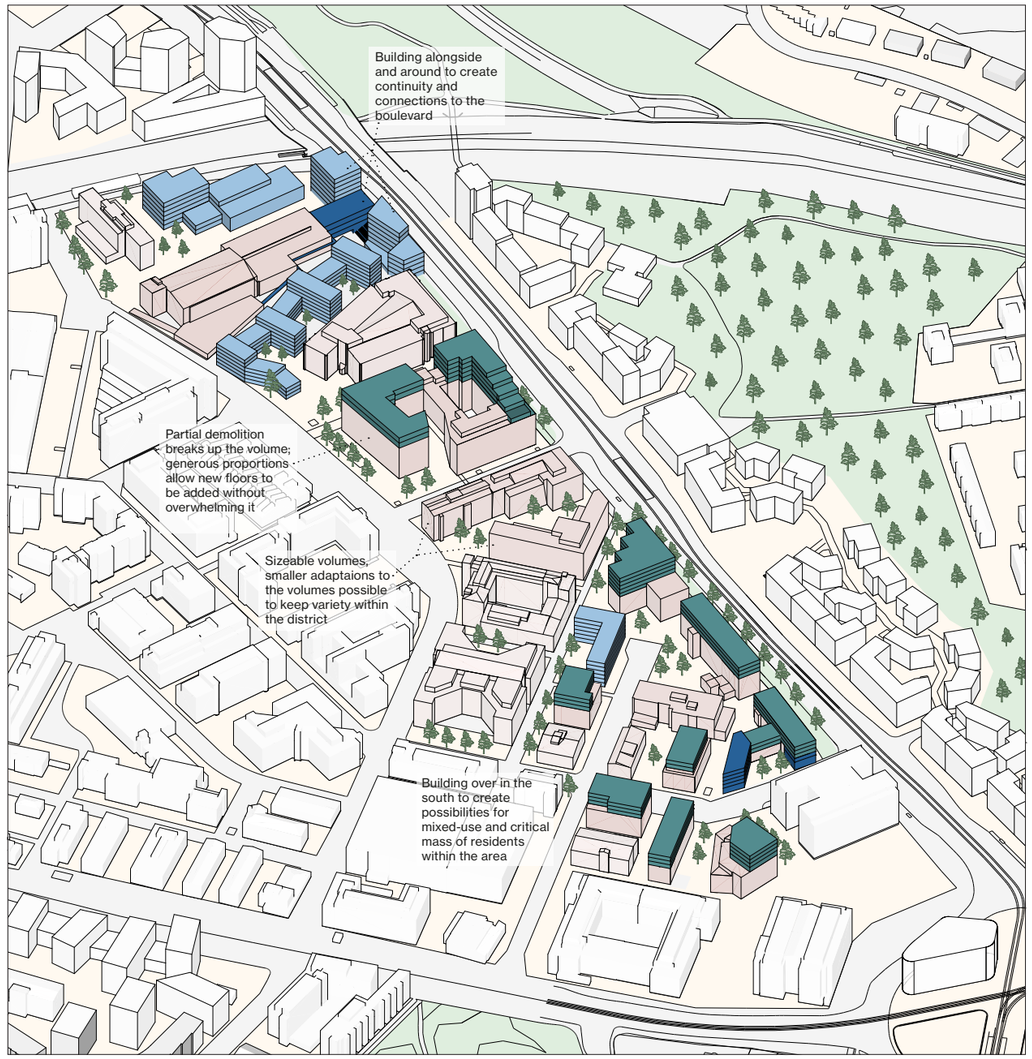


Figure 20.
Transformation potential within the focus area. Contextual tarnsformation approaches have been applied to selected buildings.

Figure 21.
The guiding principle for building over has been to respect the integrity of the original structure. Here, an imagined addition to Hyvlerivägen 18 reflects the form and character of the existing volume.

Figure 22.
Garverigränden 1 illustrated with vertical and horizontal additions.

Transformation vs. Development

The magnitude of building around in this design exploration should also be reviewed critically (figure 23) – can the volume of new builds still be said to be transformation, or is it leaning towards development? From an environmental perspective turning the unbuilt areas into parks would have been the best option – fewer emissions and a good stormwater management strategy. However, the question of how to balance the growth of Helsinki comes into play. Huuhka et al. (2021, p. 105; translated by ChatGPT) point out: “In growing urban regions where extending an existing building cannot achieve the same number of residents or users as demolition and new construction, some new construction must be located elsewhere, either by densifying other parts of the city or by establishing entirely new areas.” Building some new buildings in Sockenbacka might save other existing buildings at risk for demolition, and in the best case decrease the need for establishing entirely new areas. After all, Sockenbacka is located next to excellent public transportation connections, and a critical mass of residents is necessary so that the area does not feel empty in the evenings – properly supporting a mixed-use character.

Still, in the longer run from the environmental perspective it would be desirable that the planning in Helsinki in general would shift focus from development to transformation.

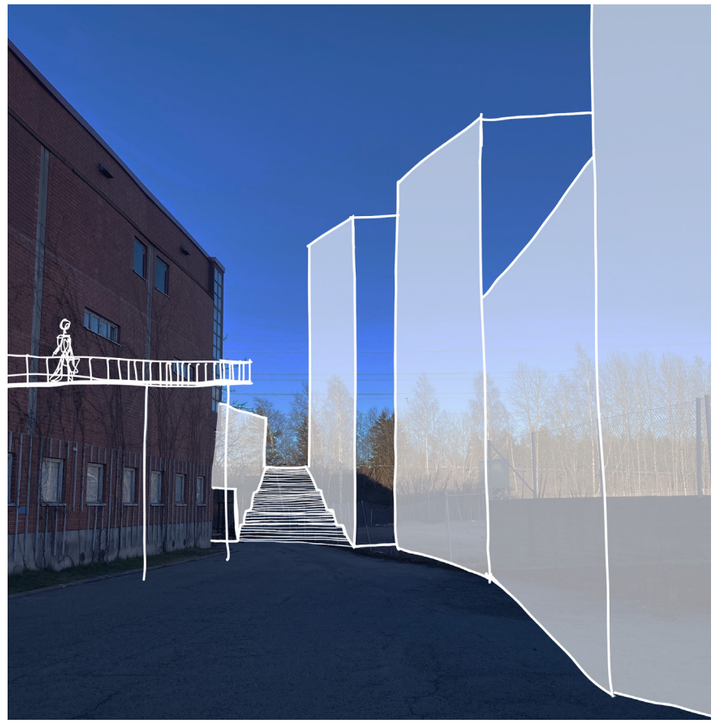


Figure 23.
New buildings along Smedjegränden create an urban space and establish a connection up to the future boulevard.

Changing the Context

How to integrate the district to its evolving urban context is also one of the aspects studied. The scale of the existing buildings and the urban structure around the Halva confectionery factory is particularly suitable for transforming into housing blocks. However, mixed-use should also be promoted here, especially along Vichtisvägen. In many cases, the goal is to reserve space for existing businesses within the same buildings they currently occupy, so that displacement can be reduced. This can be done by having residential spaces only on floors added on top of existing buildings, or by reserving the lower one or two floors for commercial use. These spaces are envisioned for a broader range of commercial activities than traditional street-level shops, including offices and other business types – like those already operating in Sockenbacka, particularly around the Halva district (figure 24). However, it must be considered that not all the current businesses in the area are compatible with housing. These businesses could be offered a new space just north of the ABB premises, on the other side of the tracks that acts as a buffer between housing and the ABB factory.

The area south of the Gjuteriet station is not as well suited for housing due to its proximity to the train tracks, the poorly defined spaces around the existing buildings, and the large scale of them. This part of the study area is better suited for commercial, and workplace uses, but housing can also be added through some remodelling and the construction of new buildings alongside the existing ones (figure 24).

Adapting to the future boulevard has also been a central question in this regard. The existing buildings are mostly turning their backs to Vichtisvägen, and turning a backside into a new frontside has not always been easy. In the Halva district this has been an easier task as the height difference between the buildings and the road is not too extensive – big interventions have not been required. However, the large office blocks and the warehouse building south of the Gjuteriet station have been trickier to handle. The warehouse building has been extended to reach to the future boulevard to improve the connections in the area. The office building in Gjuterivägen 19 is adapted so that despite its distance to the future boulevard, it now faces the street instead of turning its back to it.

To make the area feel like a mixed-use district that also accommodates residential functions, the streets and public spaces will need to be reworked. The urban grid remains nearly the same, as none of the buildings are demolished in their entirety. Some new connections are created. Much of the spaces around the buildings are to be converted into residential use, making them semi-private. How to define the borders between the public and more private spaces should be studied in more detail further on. Stormwater management strategies should be considered when reshaping the streets and public spaces to meet the demands of growing amounts of pedestrians and cyclists. These should be further studied in later stages in planning.

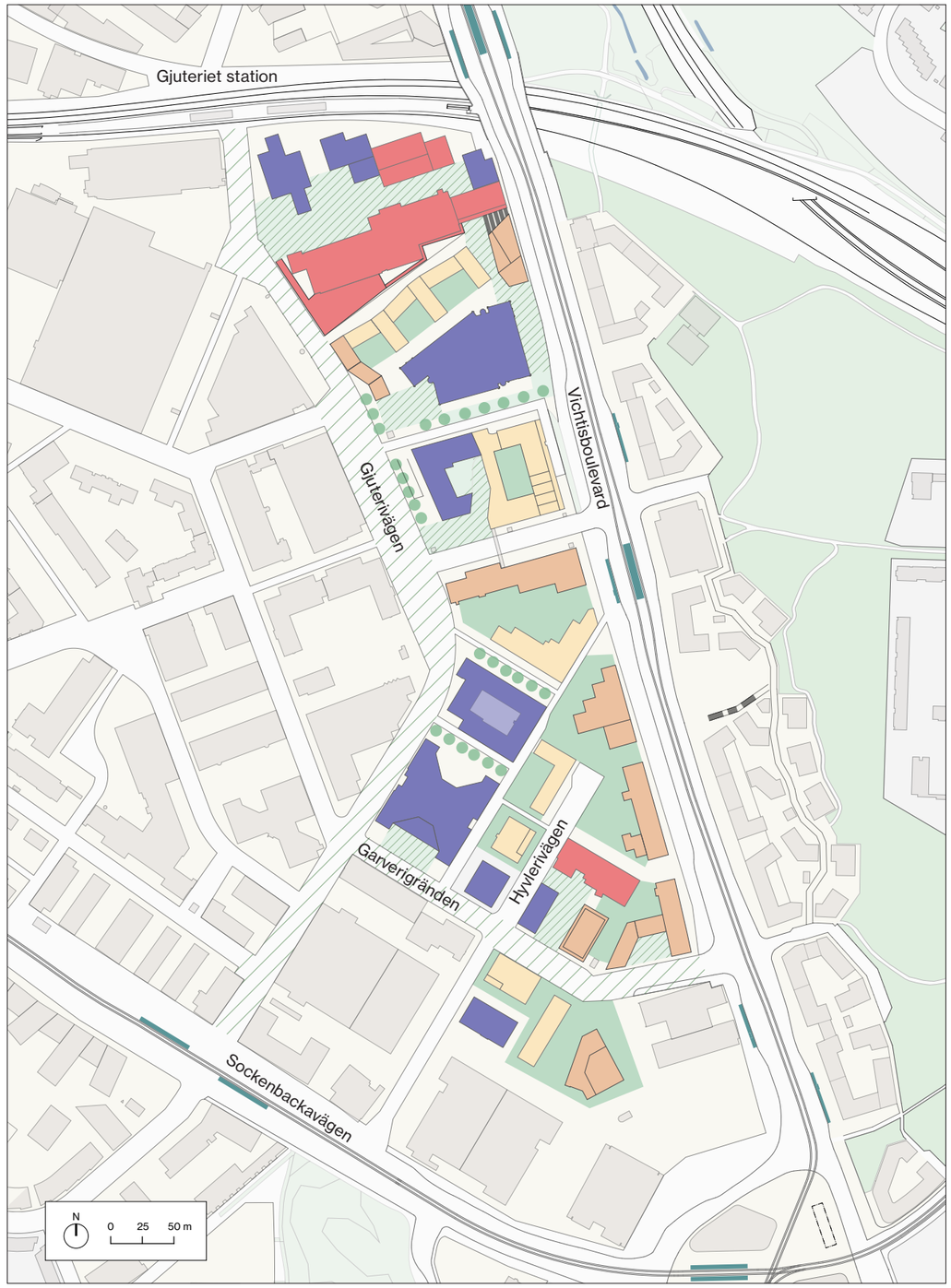


Figure 24. Illustration of new urban spaces and functions within the focus area.

DISCUSSION

Shifting Scales, Shifting Values

The business district in Sockenbacka has strong potential for transformation into a more mixed-use area, especially when viewed in relation to the future changes in land use planned around it. Several buildings in the district have already undergone adaptive reuse within business and industrial functions; enabling a next step toward residential functions would continue this logic. While some businesses in areas designated for housing may need to relocate, many existing actors – most importantly ABB – will be able to remain within the broader business district. Ideally, even in areas transitioning to residential use, some current businesses could continue operating by retaining commercial functions on the lower floors of existing or new buildings, ensuring continuity and preserving the district's mixed character.

The design approaches developed and applied in this thesis enabled exploration of transformation at a level of detail beyond that typically seen in local master plans, which often remain abstract and focus primarily on zoning and land-use allocation. Here, the goal has been to move closer to the physical and spatial realities of transformation, showing that the shift from office and commercial functions to residential use is not only possible but full of potential. While the work leaves room for the reader's imagination, it aims to spark ideas and reframe perceived limitations as opportunities for creativity, adaptability, and future adaptability.

Of course, the proposals remain hypothetical. To fully assess the feasibility of transformation, each building would eventually need to be examined in detail, evaluating structural capacity, material conditions, and spatial flexibility. This underlines the importance of working in close collaboration with property owners, existing businesses, and professionals within the building industry. Yet if adaptive reuse is to become a meaningful alternative to demolition, it must be supported already at higher levels of planning. In this context, early-phase studies like this one can play a key role by creating a bridge between long-term visions and site-specific realities.

At the same time, it must be acknowledged that standardized solutions are rarely applicable in reuse projects, particularly when working within the constraints of existing structures. These limitations, however, open the possibility to developing new housing typologies and spatial strategies that respond to context rather than conformity. Holding a design competition for the transformation of key mixed-use blocks could be a productive way to generate diverse and innovative proposals, supporting creativity while anchoring development in real conditions.

Transformation challenges conventional planning processes. As Ellen Braae (2015) notes, it demands a different design mindset – one that accepts constraints and engages with what already exists. This thesis moves between scales, and doing so has revealed how tightly urban and architectural questions are intertwined in transformation contexts. Working with a partially built environment makes it impossible to stay only at the master plan level. The ambition to retain and reuse existing buildings naturally pulls the work toward the scale of individual structures and spaces. Planning in such contexts calls for alternating between scales – zooming in and out – to connect spatial imagination with practical implementation.

If large-scale transformation is to become reality, we must look beyond environmental and economic arguments alone, even though they are essential. A broader, more nuanced perspective is needed, one that includes technical, architectural, historical, spatial, and programmatic dimensions. Reuse must not only be efficient, but also culturally and urbanistically meaningful. Many of the existing buildings in Sockenbacka may not be officially protected or architecturally celebrated, yet they hold value that goes beyond utility – in their material presence, their spatial qualities, their connection to local memory. As Braae (2015) notes, we need a renewal of the thinking behind sustainability. Ultimately, this calls for a paradigm shift: adaptive reuse and transformation must become standard practice, not the exception, supported by new methods, policies, and most of all, a revaluation of what we consider worth keeping.

Norms will have to be challenged if transformations at the suggested scale are to happen; the norms of building practices, what kind of spaces we live in, the aesthetics we appreciate. To mitigate and adapt to climate change, we have no option but to accept some imperfections, like Kuittinen (2023) stressed – but in the longer run, maybe they will not feel like imperfections anymore, but exactly what we needed. With this thesis, I hope to encourage planners in Helsinki and beyond to take on these challenges, tear down obstacles and fences instead of buildings.

REFERENCES

ABB. (n.d.). Suomalaiset juuret. Retrieved January 7, 2025, from https://new.abb.com/fi/abb-lyhyesti/historia/suomalaiset-juuret

Abramson, D. M. (2017). Obsolescence : an architectural history (Paperback ed.). The University of Chicago Press. (Original work published 2016)

Boverket. (2024). Omvandling av lokaler till bostäder (237/2024). https://www.boverket.se/globalassets/publikationer/dokument/2021/forutsattningar-for-omvandling-av-lokaler-till-bostader.pdf

Braae, E. (2015). Beauty Redeemed. Recycling Post-Industrial Landscapes. Ikaros Press and Birkhäuser Verlag.

City of Helsinki. (2018). Carbon-neutral Helsinki 2035 action plan. City of Helsinki. https://www.hel.fi/static/liitteet-2019/Kaupunkistrategia/Carbon-neutral-Helsinki-2035-Action-Plan.pdf

City of Helsinki. (n.d.-a). City plan. Retrieved November 28, 2024, from https://www.hel.fi/en/urban-environment-and-traffic/urban-planning-and-construction/planning-and-building-goals/city-plan

City of Helsinki. (n.d.-b). Sockenbacka. Retrieved November 19, 2024, from https://www.hel.fi/en/urban-environment-and-traffic/urban-planning-and-construction/urban-development/pitajanmaki

Dahl, C. & Diedrich, L. (2020). Building transformative capacities: integrating design research into port-city transformation. PORTUSplus, 9, 1–21. https://res.slu.se/id/publ/108995

Ek Eklind, L. (2024). Re-framing the disregarded: Developing tools of adaptive reuse to re-value the ‘60s built environment threatened with demolition. [Master’s thesis, Chalmers University of Technology]. Chalmers School of Architecture. https://projects.arch.chalmers.se/wp-content/uploads/2024/06/ekeklindlinn%C3%A9a_27255_3505754_Ek-Eklind_Linn%C3%A9a_Urban-Rural-design-and-planning_MT-2024-Booklet.pdf

Helsinki Region Chamber of Commerce. (2023, October 13). Onko teollisuudelle tilaa tiivistyvässä kaupunkirakenteessa? https://helsinki.chamber.fi/toimitusjohtajalta-onko-teollisuudelle-tilaa-tiivistyvassa-kaupunkirakenteessa/

Huuhka, S. (2023). Understanding demolition. Buildings and Cities, 4(1), 927–937. https://doi. org/10.5334/bc.398

Huuhka, S., & Lahdensivu, J. (2016). Statistical and geographical study on demolished buildings. Building Research & Information, 44(1), 73–96. https://doi.org/10.1080/09613218.2014.980101

Huuhka, S., Moisio, M., Salmio, E., Köliö, A., & Lahdensivu, J. (2023). Renovate or replace? Consequential replacement LCA framework for buildings. Buildings and Cities, 4(1), 212–228. https://doi.org/10.5334/bc.309

Huuhka, S., Vainio, T., Moisio, M., Lampinen, E., Knuutinen, M., Bashmakov, S., Köliö, A., Lahdensivu, J., Ala-Kotila, P., & Lahdenperä, J. (2021). Purkaa vai korjata? Hiilijalanjälkivaikutukset, elinkaarikustannukset ja ohjauskeinot (Ympäristöministeriön julkaisuja 2021:9). Ympäristöministeriö. http://urn.fi/URN:ISBN:978-952-361-221-1

Kivekäs, O. (2022, September 21). Aloite Valimon itäreunan rakentamiseksi (attachment). https://paatokset.hel.fi/fi/paattajat/kaupunginvaltuusto/aloitteet

Kivekäs, O. (2024, November 6). Aloite Herttoniemen ja Roihupellon tulevaisuuden suunnittelemiseksi (attachment). https://paatokset.hel.fi/fi/paattajat/kaupunginvaltuusto/aloitteet

Kuittinen, M. (2023). Building within planetary boundaries: moving construction to stewardship. Buildings and Cities, 4(1), 565–574. https://doi.org/10.5334/bc.351

Lynch, K. (1960). The Image of the City. The M.I.T. Press.

Niskakangas, T. (2025, January 7). Tyhjien toimistojen maa. Helsingin Sanomat. https://www.hs.fi/visio/art-2000010912178.html

Plevoets, B. & Van Cleempoel, K. (2019). Adaptive reuse of the built heritage : concepts and cases of an emerging discipline. Routledge.

Rakli. (2024, October 1). Helsinki Research Forum: Pääkaupunkiseudun toimistotilojen vajaakäyttö kasvaa – yli 650 000 neliötä tyhjää toimistotilaa. https://www.rakli.fi/rakli-tiedottaa/helsinki-research-forum-paakaupunkiseudun-toimistotilojen-vajaakaytto-kasvaa-yli-650-000-neliota-tyhjaa-toimistotilaa/

Röck, M., Saade, M. R. M., Balouktsi, M., Rasmussen, F. N., Birgisdottir, H., Frischknecht, R. Habert, G., Lützkendorf, T., & Passer, A. (2020). Embodied GHG emissions of buildings – The hidden challenge for effective climate change mitigation. Applied Energy, 258, Article 114107. https://doi.org/10.1016/j.enpol.2008.09.022

Salomaa, M. (2023, May 25). Helsingin poliitikot puolustivat teollisuusaluetta rakentamiselta. Helsingin Sanomat. https://www.hs.fi/pkseutu/art-2000009609296.html

Savolainen, P. (2024). Arkkitehtuurimme vuosituhannet : Suomen arkkitehtuurin historia alusta loppuun. Sammakko.

Sinkko-Westerholm, P. (2023, September 29). Helsinki selvittää teollisuusalueen rakentamista Vihdintien varrella. Helsingin Sanomat. https://www.hs.fi/pkseutu/art-2000009888413.html

United Nations Environment Programme. (2024). Global Resources Outlook 2024: Bend the Trend – Pathways to a liveable planet as resource use spikes (DTI/2618/NA). https://wedocs.unep.org/20.500.11822/44901

University College London. (n.d.). Fact sheet: Embodied carbon and social housing. Retrieved from https://www.ucl.ac.uk

Valio. (2024, December 12). Vantaa plant and Sockenbacka warehouse to close in coming years: Operations to be relocated to Joensuu and Riihimäki. https://www.valio.com/news/vantaa-plant-and-pitajanmaki-warehouse-to-close-in-coming-years-operations-to-be-relocated-to-joensuu-and-riihimaki/

Valkama, H. (2000, August 5). Nokia ostaa Helsingin piilaaksoa paloittain. Helsingin Sanomat. https://www.hs.fi/talous/art-2000003902007.html

Wong, L. (2017). Adaptive Reuse: Extending the Lives of Buildings. Birkhäuser Verlag.

YLE. (2010, June 14). Pitäjänmäen toimistot kaikuvat tyhjyyttään. https://yle.fi/a/3-5579811

APPENDIX

Use of AI Tools in Thesis Work

Throughout the process of writing and editing this thesis, I have used OpenAI's ChatGPT as a language-based assistant to support certain tasks. The use of this tool has been limited to specific, clearly defined purposes and has not replaced my own critical thinking, analysis, or authorship.

Prompts and Use Cases

I have used AI assistance in the following ways:

Text refinement and clarification: I asked for help improving sentence flow, grammar, and clarity in various parts of the thesis, particularly the abstract, introduction, discussion chapter, and section titles.

Structural feedback: I consulted the AI to help evaluate the structure and coherence of certain chapters, such as where to move or expand specific reflections (e.g., what belonged in the "Design Explorations" chapter versus the "Discussion").

Suggestions for headings and subtitles: The AI provided alternative formulations for section and chapter headings to better reflect the content and tone.

Summarising or integrating content: In a few instances, I asked the AI to help integrate previously written content into revised chapters or to condense text to meet word count requirements (e.g., for the abstract).

Bullet point synthesis: I used the AI to generate lists of possible discussion points based on previously written material to ensure completeness.

Authorship and Responsibility

All content in this thesis is written, selected, and critically reviewed by me. AI-generated suggestions were always evaluated and, when necessary, adapted to match the aims, tone, and context of the thesis. The final content reflects my independent academic work, arguments, and design thinking.

The AI was not used to generate new research content, design solutions, or citations, nor was it used to produce final visual material. Its role has been similar to that of a writing assistant, supporting with clarity and structure rather than substance.