AN URBAN NARRATIVE

The challenge of urban spatial continuity in the heritage re-design of post-war shopping malls

Research Paper

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Graduation studio 2022-2023
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May 2023

contents

abstract

The purpose of the following research is to address the upcoming issue of the Dutch shopping malls' re-design, while taking into consideration their spatial significance and their interdependence and connectivity with the city fabric. Initially, the idea of the shopping mall as an integral core element in Dutch post-war urban planning is presented, followed by the problem statement and its positioning within the societal and heritage context. Subsequently, the theoretical framework and the method and tools of the research are described. The research focuses on Hoog Catharijne as a case study to apply the proposed method and examine its spatial significance and the spatial impact of the re-design intervention implemented upon it. After comparatively analyzing the situation before and after, the influence of the re-design on urban spatial continuity is indicated and five relevant principles are deduced. Lastly, an alternative design-related application of the method is explored, and also, the limitations and potential directions of the research are stated, aiming at unraveling the capacity of the Dutch shopping center, as new heritage, to adapt while conserving urban spatial continuity.

Keywords: Dutch shopping center; shopping mall; urban spatial identity; spatial significance; urban spatial continuity; 20C heritage; heritage re-design.

01

introduction

1.1. The urbanity of the Dutch modern mall

Shopping has always been closely related to the notion of urbanity (McMorrough, 2001; Rao, Dovey & Pafka, 2021). However, it wasn't until the 1950s that a new form of shopping emerged and became established as a core element in post-war urban planning (Herman, 2001; Matuke, Schmidt & Li, 2021). The shopping mall, or shopping center in Europe, contrary to the American example, was not solely placed in the suburbs but was also incorporated into the existing urban fabric, adapted to city center conditions, and closely related to the human scale (Galema & van Hoogstraten, 2005; van de Water, 2021).

In this context, the principle governing Dutch post-war shopping centers was the creation of internal spatial cohesion within an urban area. The shopping centers were designed, not as inward-looking, independently functioning units, but as integral urban structures. However, in the 1990s, the majority of shopping centers underwent transformations that affected their spatial characteristics and, thus, their integrated presence in the urban fabric (Galema & van Hoogstraten, 2005).

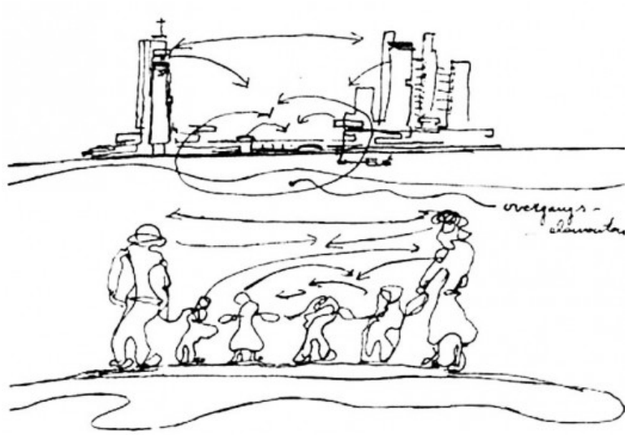

Figure 1.

'Vriendschapmodel' [Friendship model] by J. P. Bakema, illustrating the interrelation between people and buildings in an urban core. (van de Water, 2021, p.39)

1.2. Problem statement

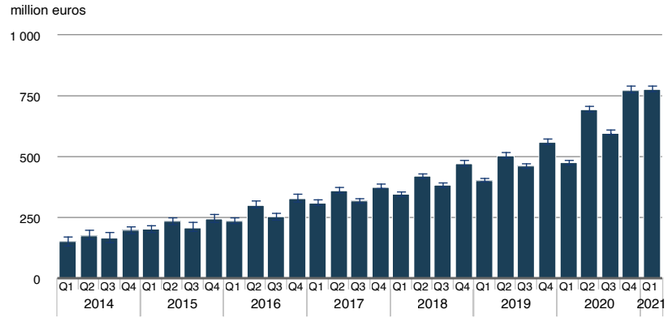

Figure 2.

Online sales to Dutch customers by EU webshops [provisional data] (Statistics Netherlands CBS, 2021). [edited by the author]

Nowadays, the emergence of e-commerce and its current dramatic rise due to the recent global pandemic formed a new condition that should be regarded. Consumer needs, current trends and technological advancements are, yet again, altering the structure of the retail market. Consequently, shopping malls are increasingly becoming assets for future redevelopment due to their strategic positioning at the core of urban areas and their ability to accommodate mixed-use developments (IVBN, 2016).

It is already evident that several of them are being currently transformed to keep up with recent events (CBRE, 2022). These interventions may lead to the gradual expansion or enclosure of the mall, as formerly seen in the remodeling of winkelcentra Alexandrium in Rotterdam and Leidsenhage in Leidschendam, or even to other spatial modifications. Subsequently, problems of scale and frontage inversion that render the mall autonomous and disconnected from its urban environment should be tackled. Such issues can significantly affect the urban area surrounding the building complexes, often resulting in the creation of ruptures in the urban fabric, absorbing public activity to the interior; a situation that contradicts the key principle of Dutch shopping centers, namely spatial continuity.

Having the principle of spatial continuity in mind, the research is structured upon the upcoming issue of the mall's adaptable re-design. A re-design that renders the mall able to adjust to new uses or purposes, in such a way that the retention of its spatial significance and a lasting coherence with its urban surroundings will be ensured.

Therefore, the following question arises:

> "*How can the urban spatial identity of Dutch post-war shopping malls be employed in their redesign in order to ensure urban spatial continuity?*"

and can be further divided into three consecutive sub-questions so as to be approached:

1. *What constitutes the urban spatial identity of the mall?*

2. *Which are the spatial attributes rendering the shopping mall a consistent urban structure?*

3. *How have different re-design interventions created spatial continuity or discontinuity in the urban fabric?*

1.3. Societal and Academic relevance

As already mentioned, consumer needs and demands are altering, as the online market is growing, revealing a new era for mall types (IVBN, 2016). In this transitional phase, the significance of spatial order to social function needs to be acknowledged. Since temporal continuity is indisputable, spatial continuity should follow to accommodate social patterns (Trancik, 1986). In the rapid developments of contemporary life, buildings should continue to adapt, while remaining in constant dialogue with their past images and their urban surroundings. To that end, malls need to be preserved as nodes of social activity and engagement, as stable points within the city for the community to refer to, not as freestanding entities detached from their context.

In the spirit of the times, where more and more post-war buildings are being documented, or even recognized as heritage, shopping centers are about to be placed in the foreground. However, little action has been taken toward the systematic analysis of the malls' integral spatial characteristics and varying typologies, while taking into account its relation to the urban fabric. In the Netherlands, a step towards official documentation has already been made in 2005. The Cultural Heritage Agency published a report introducing a pre-selection of pre- and post-war shopping centers worth preserving. The selection was made according to their cultural-historical and architectural value, amongst other criteria that weren't considered, as their spatial significance in the urban context. A case in point is Hoog Catharijne in Utrecht, which will be examined in the context of this research. (Galema & van Hoogstraten, 2005).

Therefore, the spatial impact of former and prospective redevelopments needs to be examined if shopping malls are to be preserved and to continue functioning as well-incorporated urban centers.

Figure 3.

Hoog Catharijne, Utrecht, 1984 (SERC, 2015).

Figure 4.

Hoog Catharijne, Utrecht, 2020 (Opvallend Utrecht, 2020).

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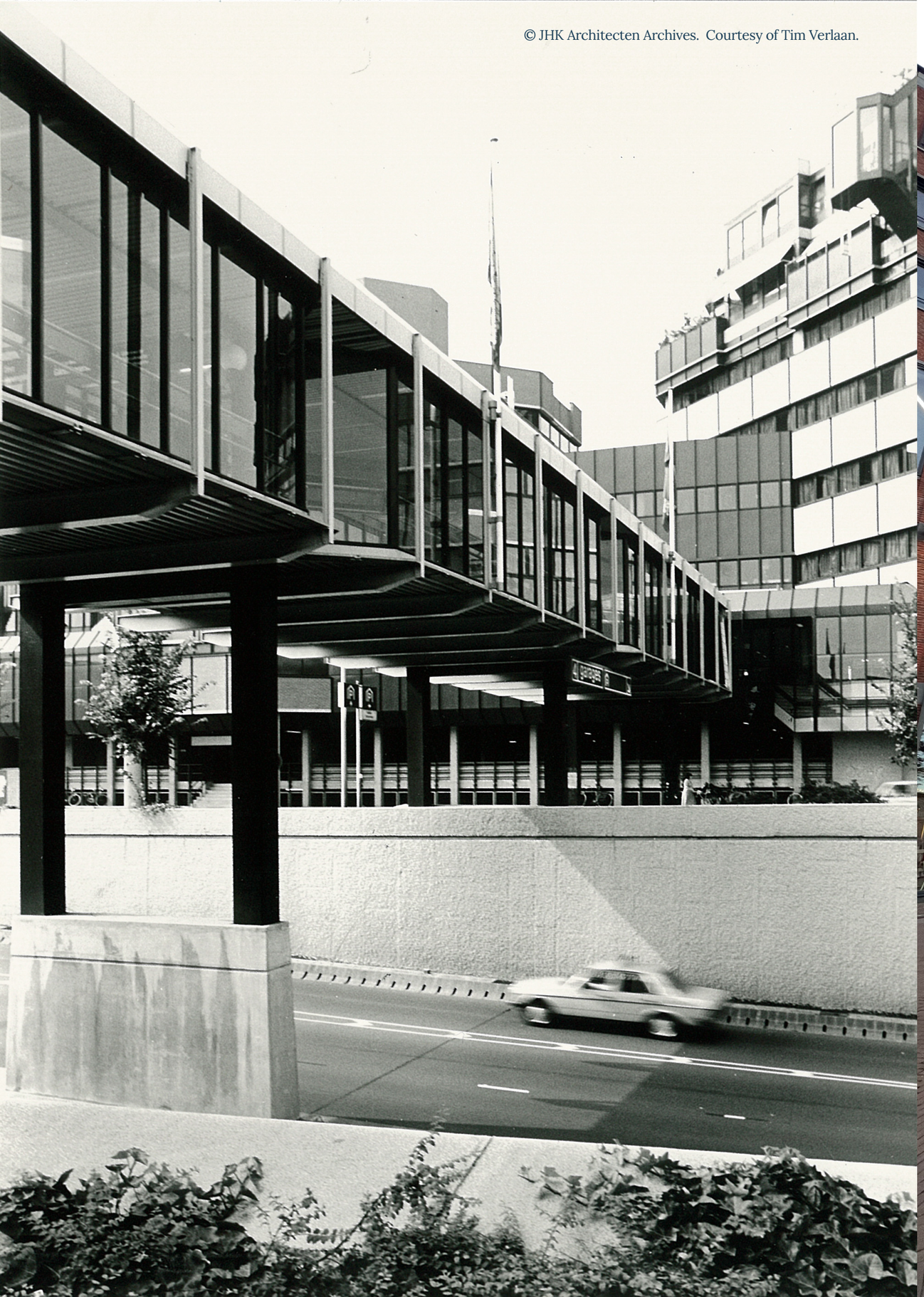

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02

theoretical framework

Concerning the theoretical framework, the topics presented in the sub-questions will be elaborated upon in order to formulate a solid basis for the conduction of the research.

Starting with the **concept of the mall**, in the present context, it will be defined as a building complex or ensemble–open, semi- or fully- enclosed–designed in relation to its surrounding area, being either part of an urban expansion plan or of an existing city center; hence, it will be referred to as shopping or retail center and shopping or retail mall (Galema & van Hoogstraten, 2005).

Moving on to a wider scale, the adoption of the mall as an integral urban element and, subsequently, its centrobaric positioning within the city influenced the reading of the city as a whole. This is also indicated in a publication of Rijksdienst voor het Cultureel Erfgoed, where the significance of the shopping center as a focal point in the appearance of a city, district or neighborhood is stressed (Galema & van Hoogstraten, 2005).

In order to define the concept of **urban spatial identity**, within this framework, the urban theories of Aldo Rossi (1984) and Kevin Lynch (1960) will be introduced. Having Rossi's theory of urban artifacts (1984) as a starting point, the mall could be considered a primary element, a "fixed point in the urban dynamic", since it has permanently contributed to the formation and evolution of the city over time. As such, it can be identified and evaluated by its form in relation to its presence in the city.

Accordingly, Lynch links a legible city image, which provides orientation and is to be preserved, with three components: identity, structure, and meaning. These components are correspondingly interpreted as the recognition of urban elements as distinct entities, their spatial relation to other objects, and their practical and emotional value to the observer (Lynch, 1960). In this sense, it can be argued that urban spatial identity is determined by the form and function of the shopping mall (identity), the spatial relation with its urban context (structure), and the significance of this relation (meaning).

Subsequently, the theory of Maitland will be adopted so as to delve deeper into the research topic and the idea of the mall as a "remarkably consistent **urban structure**" (Maitland, 1985, p.167). More specifically, the architect claims that the key feature, from which the morphology of the mall derives, is the organization of its system in relation to the city since it cannot be examined as an "isolated form-type" (Maitland, 1985, p.91). The mall system consists of node squares and route links, generating a variety of patterns that also relate to the configuration of the retail area's boundaries (Maitland, 1985). These patterns and boundaries, also adapted in diagrammatic spatial relations, can be recognized as the factors that render the mall persistent over the years, despite resulting in different spatial manifestations of urban retailing (Rao, Dovey & Pafka, 2021).

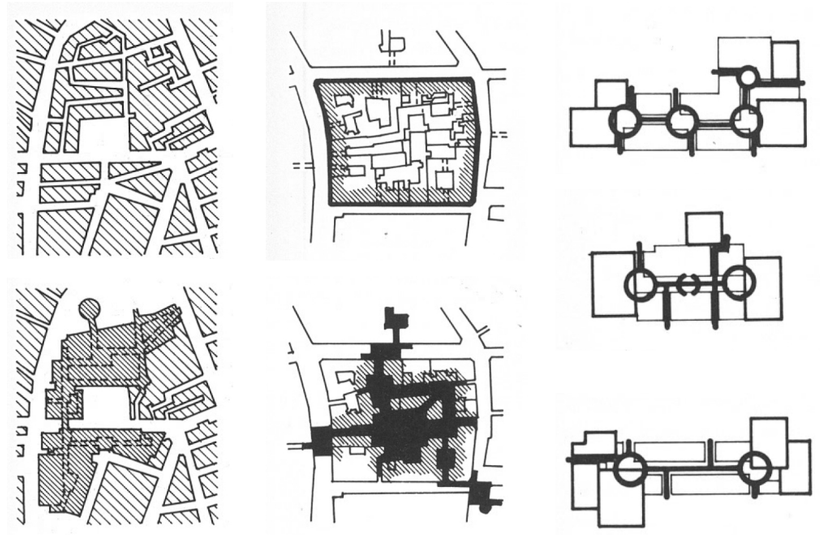


Figure 6.

Building patterns (left), boundaries (center) & node structure diagrams (right). (Maitland, 1985, pp. 102, 170, 111).

Furthermore, these spatial attributes of malls will be linked to the urban context through Trancik's work on finding lost space by the use of three urban spatial design theories and respective graphic representation; the figure-ground, linkage, and place theory. According to him, these theories, conveyed in five concepts (lateral enclosure & edge continuity, integrated bridging, linking sequential movement, indoor/outdoor fusion, axis & perspective) are key to preventing the creation of gaps that disrupt the overall city pattern, conserving **urban spatial continuity** (Trancik, 1986).

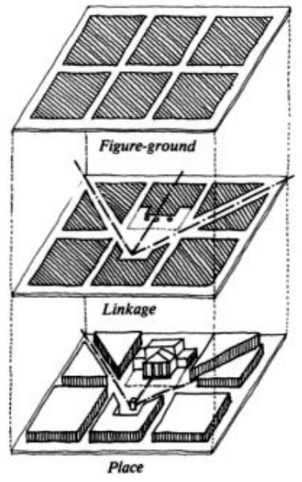


Figure 5.

Trancik's urban spatial design theories (Trancik, 1986, p.98).

Lastly, regarding **intervention strategies**, the frame of reference is Pereira Roders' taxonomy (2007) in Re-Architecture, where different scales of intervention actions are determined. Nevertheless, only the ones that impact the form and function will be employed, because of their relevance.

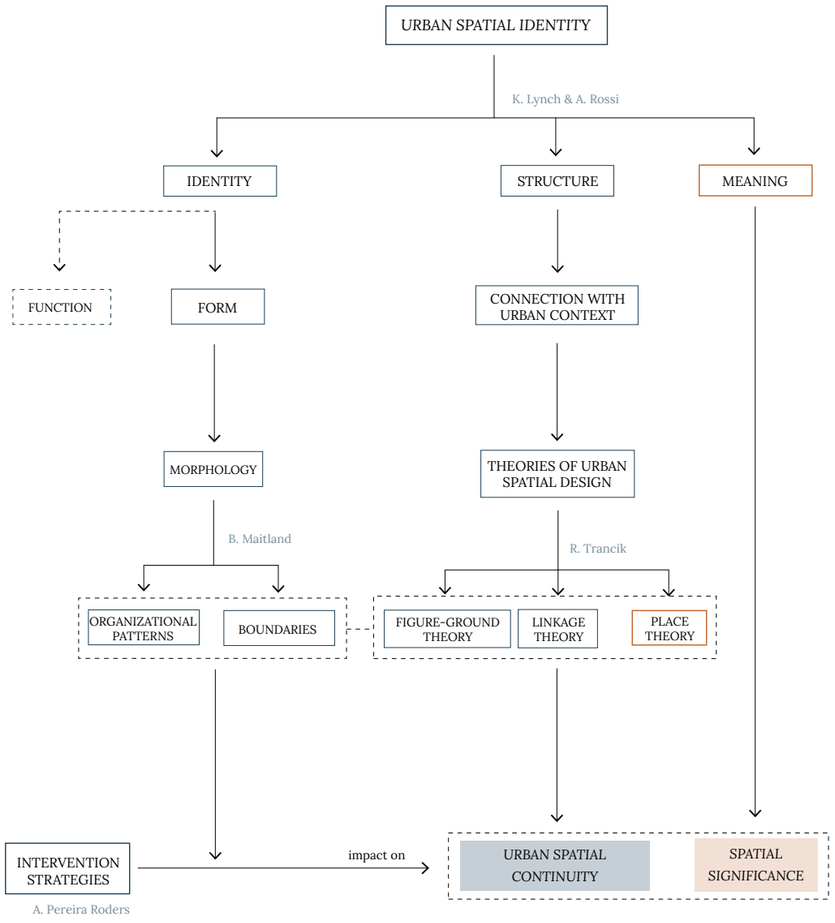


Figure 7.

Theoretical Framework (Psarri, 2023).

method

03

The conduction of the research was divided in three parts, relating to the sub-questions posed. In each part, different combinations of methods were employed.

Concerning the first sub-question, literature research was used for data collection, while a theoretical framework was drawn for data analysis and interpretation. As a result, the criteria defining the urban spatial identity of the mall were formulated.

As for the second sub-question, the spatial attributes were identified and classified through literature review in order to establish a framework for the analysis of the research reference case, namely, Hoog Catharijne. The data needed to analyze the reference case were documents and information about the former and current state and relevant interventions, historic photographs, architectural drawings, and master plans. These data were collected through historical and archival research. Historical and contextual analyses, as well as examination of the attributes, namely, organizational patterns and boundaries, followed respectively.

Finally, the third sub-question was approached through the comparative analysis of the case study's state before and after the intervention, while also following the 'research by design' methodology. 'Research by design' is defined as "*any kind of inquiry in which design is a substantial part of the research process*" (Hauberg, 2011, p.51). More specifically, the expressive and systematic tools and working methods of architectural practice are employed in order to produce new knowledge by interweaving process with results, or else, analyzing with experimenting and proposing (Hauberg, 2011; Ouwerkerk & Rosemann, 2000).

In the present research, initially, the intervention strategies' classification was determined through literature research and theoretical review. The attributes were examined in the scale of the district for both states, under the scope of the three urban design theories of Roger Trancik (1986) and respective graphic representation; using design tools (diagrams, sketches, mapping). Then, they were comparatively analyzed through axial and isovist maps (Benedikt, 1979; Hillier & Hanson, 1984). The tools used were DepthmapX and the isovist component in grasshopper (Turner, 2004). The comparative analysis served as means to indicate what changed in the spatial relation between building and context through the intervention strategy. Subsequently, it resulted in the assessment of the intervention's spatial impact through Trancik's (1968) five concepts and according to a five-point scale of significance; ranging from major beneficial to major adverse (ICOMOS, 2011). The results, combined with on-site observations on pedestrian concentration, revealed potential guiding principles for a re-design that would prevent the creation of ruptures in the overall city pattern, conserving urban spatial continuity.

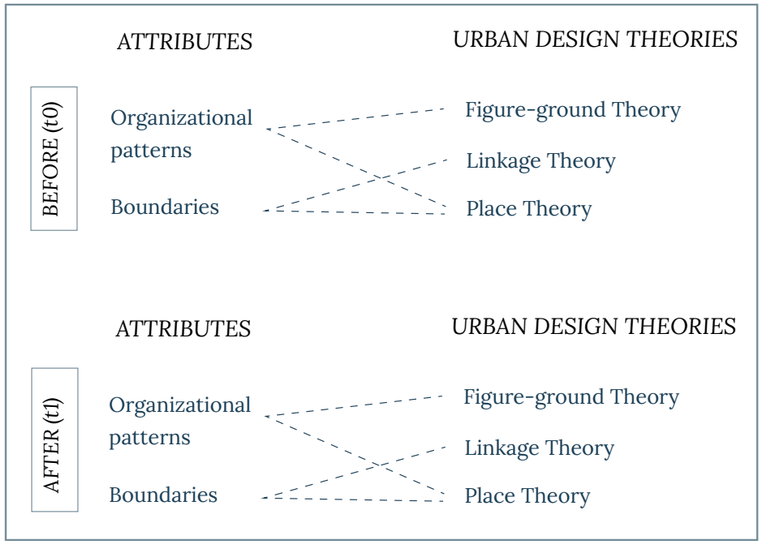


Figure 8.

The method of assessment (Psarri, 2023).

04

results

4.1. The spatial significance of Hoog Catharijne

Hoog Catharijne is located in the center of Utrecht. A city characterized by its historic center and its significance as the most important railway junction in the Netherlands since 1834. Utrecht's central station, as known today, is situated on the west side of the historic city center. However, Utrecht's core, even from the beginning of the 20th century was enclosed on three sides by railways and local stations. These railway lines, along with the growing road traffic, started forming a barrier, leading to congestion problems. To counteract this issue, the entire rail network was raised, resulting in safer crossings, but an even greater barrier (Hoog Catharijne, 1975; Renes, 2020).

Throughout the years preceding 1973, the city expanded towards all directions, but further expansion was still imminent in order to address the post-war housing shortage. From the mid-1950's Utrecht's city council had to face these issues, relating to the growing traffic congestion, the population growth and the city formation, as the expansion would create a growing pressure to the city's core (Verlaan, 2017).

Therefore, a vision for the inner-city future and a drastic adjustment of the road system was needed, as the historic core with narrow streets and dense development was unsuitable to handle large flows of cars. After discarding the proposal of German traffic expert Max Feuchtinger on the grounds that it contradicted the Urban Development Department's memorandum of 1956, Johan Kuiper was appointed to develop an urban overall vision for the city center. In his basic plan of 1962, Kuiper proposed the preservation of the canals, with the exception of part of the Catharijne- en Weerdsingel, on the western and northwestern side of the historic center, where the nineteenth-century neighborhoods were located. In 1968, the municipality only partially approved this proposal (Renes, 2020; Verlaan, 2017).

At the same time, the Bredero construction company designed a large shopping center with offices, residences and parking garages that would entirely replace the aforementioned declining nineteenth-century area and adjacent train station. The plan was incorporated into Kuiper's plan and became known as Hoog Catharijne; a building complex five and a half meters above street level that would connect the elevated station with the historic city center and the Jaarbeurs and remove the existing barrier. (Hoog Catharijne, 1975; Verlaan, 2017).

After multiple design revisions, lots of criticism and objections, Hoog Catharijne finally opened to the public in 1973. It gradually became a hub of services, mobility and consumption, a megastructure that wouldn't serve as a counterpart to the old city center, but rather as a driving force for the city's development just outside its revived center, so that old and new could merge smoothly (Hoog Catharijne, 1975). In fact, Hoog Catharijne still constitutes, even after its re-design in 2021, the core and reason of Utrecht's expansion to the west.

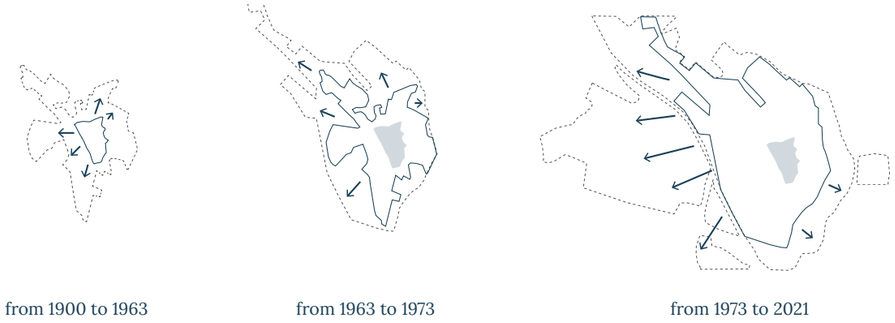


Figure 9a.

Utrecht's urban expansion in relation to the historic city center (diagrammatic explanation). (Psarri, 2023).

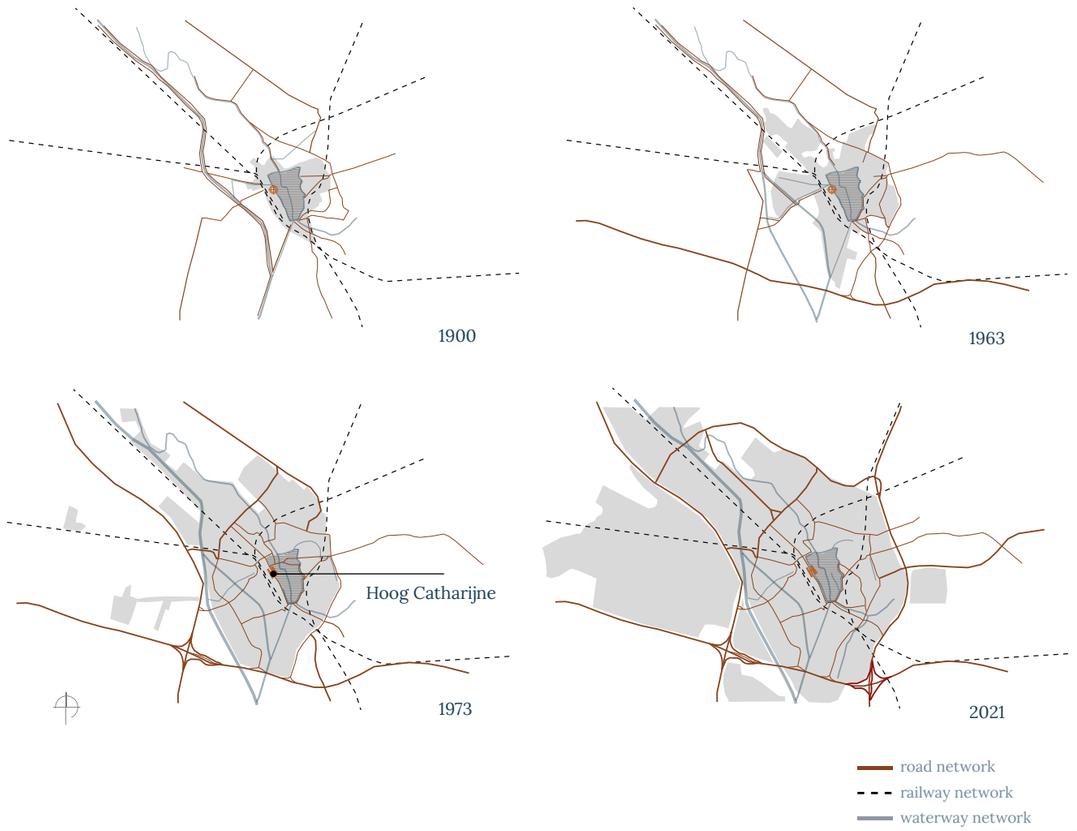


Figure 9b.

Utrecht's core, surrounded by railway lines, expanded towards all directions until 1973. From then on, the positioning of Hoog Catharijne prompted the city's expansion, mainly, towards the west. (Psarri, 2023) [illustrations based on maps retrieved from Topotijdreis (n.d.) and from the book "Nieuwe historische atlas van de stad Utrecht" (Renes, 2020)].

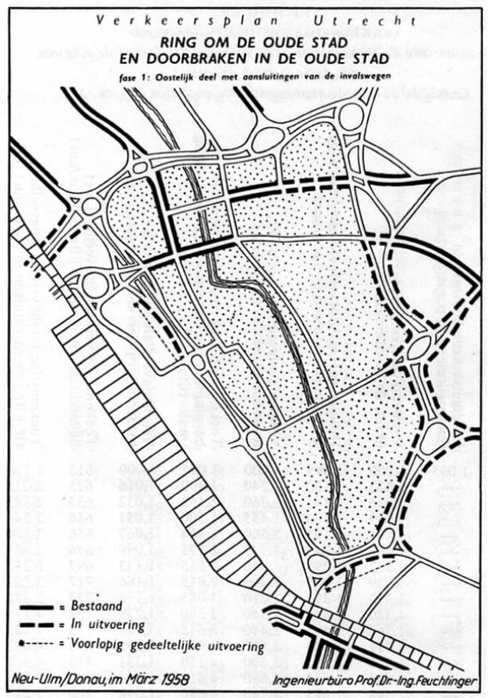


Figure 10.

Max Feuchtinger's proposal of 1958 entailed the replacement of the canals with a ring road and four connections that would cut through the old city center (Ridderschapkwartier, n.d.).

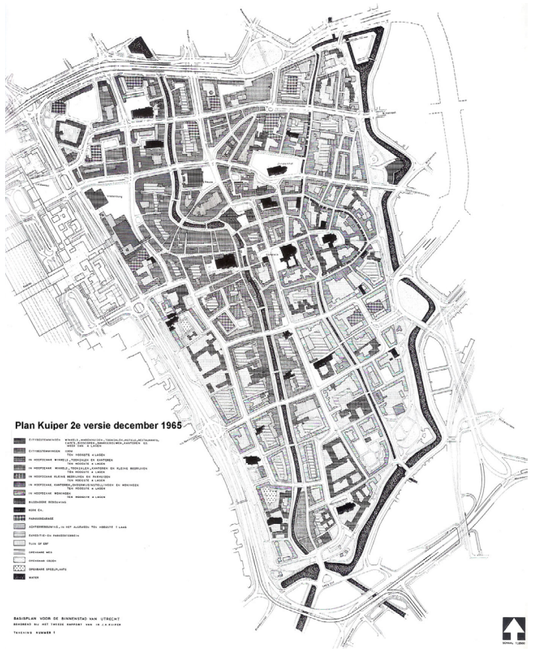


Figure 11.

Johan Kuiper's in his plan of 1965 refrained from any major breakthroughs and proposed the preservation of the east and southeast canals and the placement of the ring road in the 19th-century neighborhoods around the city center (Bicycle Dutch, 2020).

4.2. The intervention and its re-design: Patterns & Boundaries

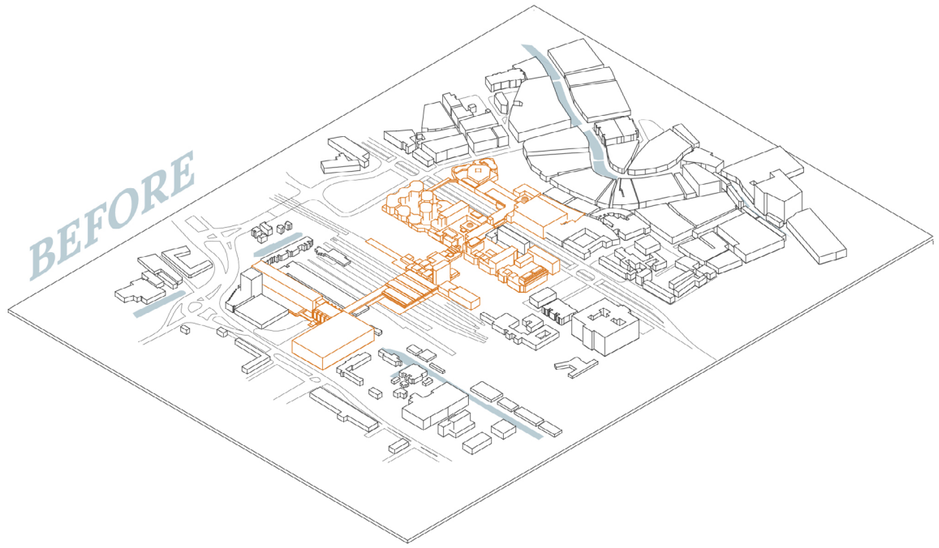


Figure 12.

The situation before and after the re-design on the urban scale. The relation between the building (highlighted in orange) and its context is clearly altered, especially in terms of scale. (Psarri, 2023) [illustrations based on drawings and photographs that are courtesy of Tim Verlaan and of Stir architecture and on material retrieved from Utrecht's Municipality archives].

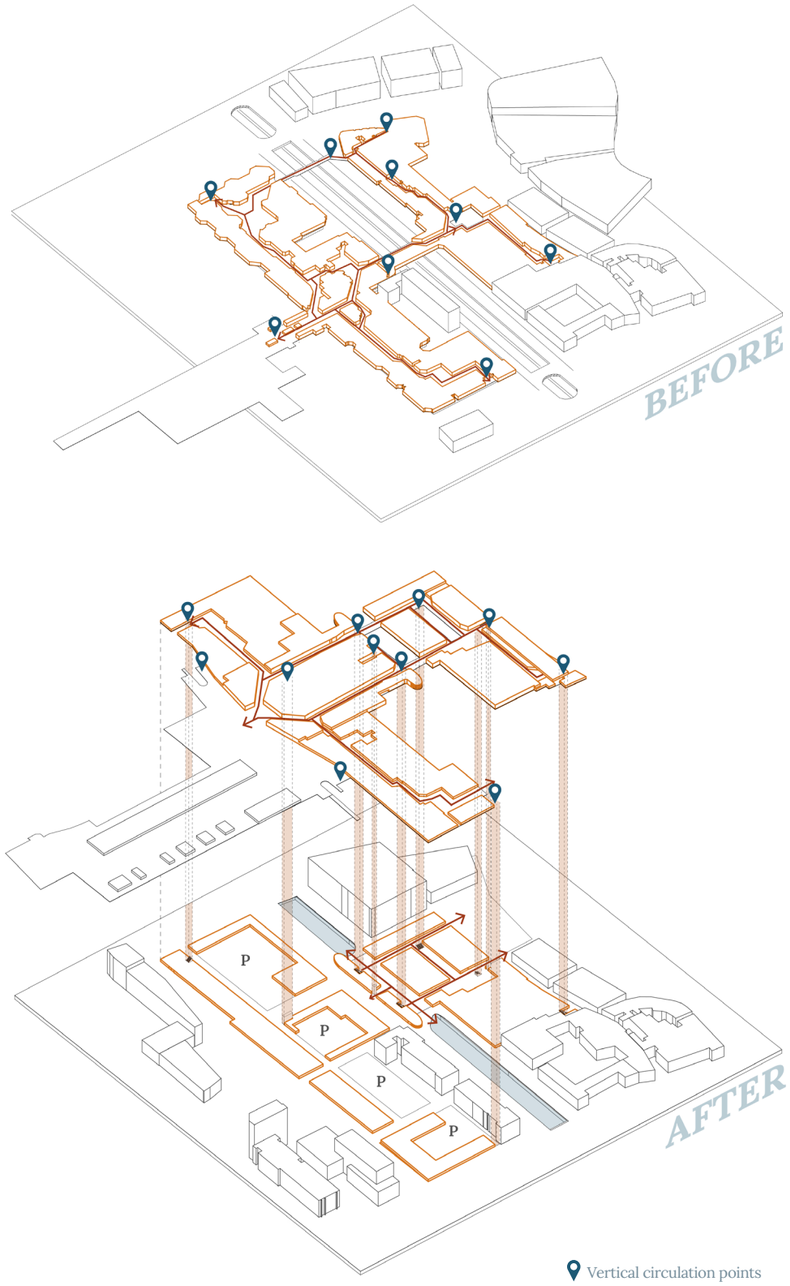


Figure 13.

The situation before and after the re-design on the building scale. The shopping mall expanded on two levels, allowing for the creation of a new square and the canal's re-opening. (Psarri, 2023) [illustrations based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

The initial design concept of Hoog Catharijne was the strict separation of motorized and pedestrian traffic in two layers. As already mentioned, this separation was achieved by filling part of the canal in order to create a motorway and by establishing a direct east-west connection; a pedestrian traverse extending from the station and the areas west of it to the inner city. Even though the original intention was to leave the pedestrian crossing largely uncovered, it was not realized due to climatological considerations. Therefore, the building area further expanded in the final design (Hoog Catharijne, 1970; Hoog Catharijne 1975).

In the re-design of 2021, the building expanded even more, the scale increased and the adjacent public spaces were re-defined, also with the creation of a station square. The street level was re-activated by extending the shopping area to the ground floor and by re-opening the canal in Catharijnesingel (Stir architecture, n.d.).

Through examining the relation between building mass and open space over the years, it is evident that the urban pattern of the area under investigation and the scale have inevitably changed; former building blocks have been transformed into urban blocks. As a result, the ratio between urban solids and voids has been reversed, with the latter ones shrinking overtime; yet becoming better defined.

Focusing on the building scale, after comparing the situation before and after the intervention, the strategy identified is "Rehabilitation-Reuse", since the function was retained and mainly additions were made (Pereira Roders, 2007).

Regarding the spatial attributes, the boundaries of the building have changed after the re-design. The mall was initially more enclosed with few openings where stairs, escalators and elevators were placed to connect the street level with the retail spaces. Now, Hoog Catharijne consists out of two levels and, thus, is opened up towards the open public spaces on both sides. Moreover, the organizational patterns before and after the intervention, also, significantly differ. The mall was formerly configured upon complex intertwined routes, while in the current situation, the spaces are arranged upon two main paths that are straight, parallel to each other, and directly linked.

These routes constituted the extension of the inner-city pedestrian area towards the station and the Jaarbeursplein, even from 1973. The aim was that the original structure should allow for customization and expansion to follow potential urban planning changes (Verlaan, 2017). In fact, the intervention of 2021 was based on the municipality's masterplan for 2030 to create a significant axis, a promenade for visitors, called Centrumboulevard. This route would extend even further, specifically, from the Vredenburg to the Expoplein, and function as a connection between public destinations positioned along it (Gemeente Utrecht, 2017; Verjongd stadshart, 2016).

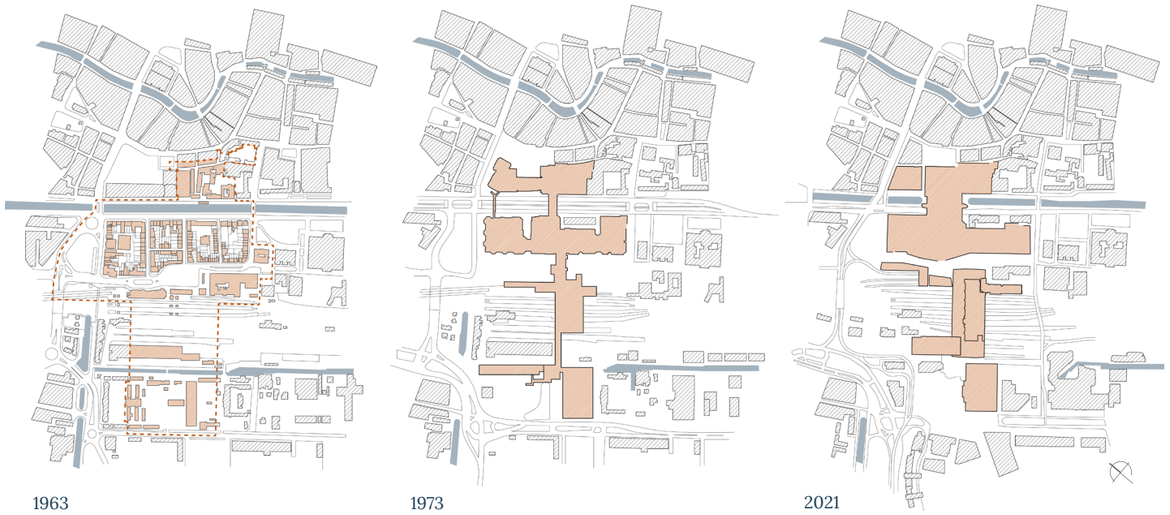


Figure 14.

The change of urban pattern, relating urban voids with urban solids. (Psarri, 2023)[illustrations based on drawings and photographs that are courtesy of Tim Verlaan and of Stir architecture and on material retrieved from Utrecht's Municipality archives].

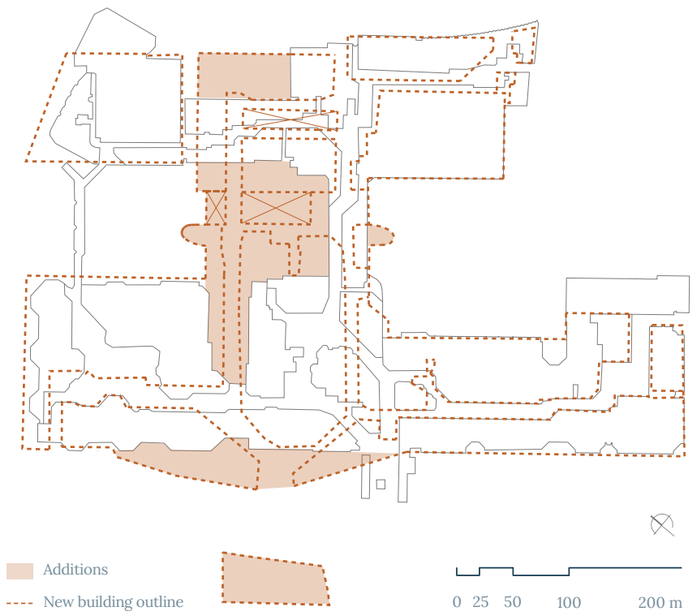


Figure 15.

The two layers of intervention. (Psarri, 2023) [illustrations based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

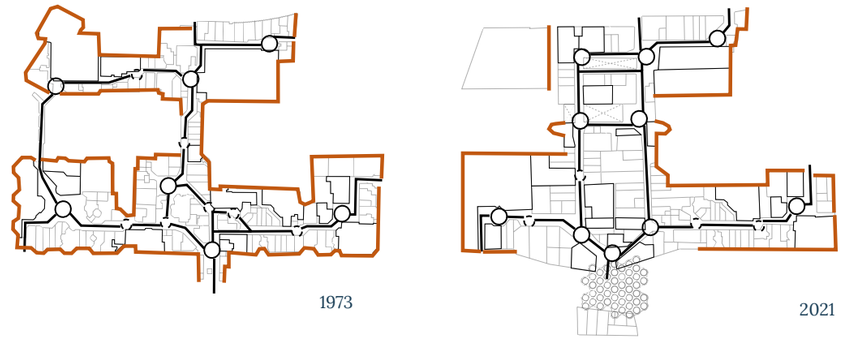


Figure 15.

Boundaries & organizational patterns before and after the intervention. In the after state, the mall is less enclosed with a clearer layout, composed upon two vertical axes. (Psarri, 2023) [illustrations based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

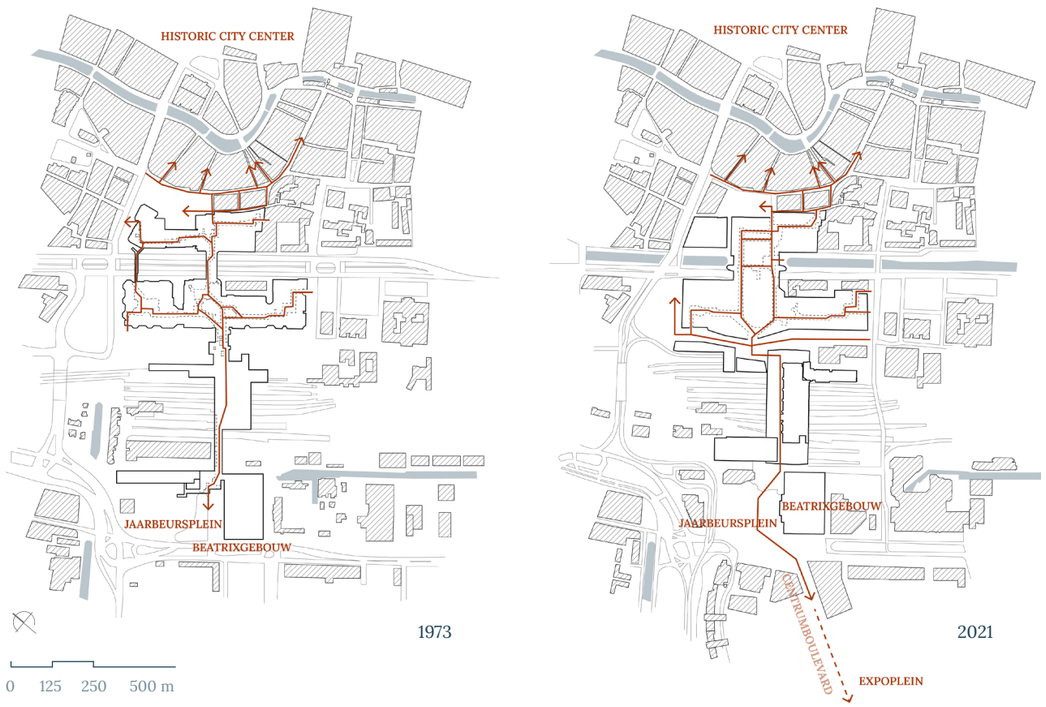


Figure 16.

Routes and urban connections before and after the intervention. The mall consituted the continuation of the city center's pedetrian network; a network further extended towards the southwest after the re-design. (Psarri, 2023) [illustrations based on drawings and photographs that are courtesy of Tim Verlaan and of Stir architecture and on material retrieved from Utrecht's Municipality archives].

4.3. The assessment: Is spatial continuity altered?

In order to assess the spatial impact of the intervention, the aforementioned attributes were comparatively examined in relation to the site through five criteria: lateral enclosure & edge continuity, integrated bridging, linking sequential movement, indoor/outdoor fusion, axis & perspective.

As regards lateral enclosure & edge continuity, it is evident that the impact of the re-design is minor beneficial. More specifically, another square was created and the existing one was better defined through the formation of continuous frontages. This is also supported by the fact that most of them are now characterized by transparency and permeability. However, the relation between the building's height and the scale of the adjacent public spaces mostly remained the same.

Concerning integrated bridging and sequential movement, the routes linking the shopping mall to its surroundings were comparatively analyzed through axial maps, for the states before and after the intervention. The spatial impact in both cases is minor beneficial. In particular, the changes in the organizational patterns and the extension of the routes with the addition of two destination areas have resulted in the creation of a continuous, centrobaric axis. Contrary to the situation before, this axis is indicated both as highly integrated, namely, having more potential for attracting pedestrian movement, and highly connected, that is, being directly accessible from other spaces.

As for indoor/outdoor fusion and axis & perspective, the views from outside towards the inside of the mall, and vice versa, were analyzed, respectively. This analysis was conducted for the before and after states, through isovists. The spatial impact is major beneficial for both criteria. More precisely, in the former situation there were only three openings covering the length of the bridges positioned above Catharijnesingel and the transition between outside and inside was not seamless, as the building was not only lifted above ground, but also introverted. On the contrary, after the re-design, more visual, and also, physical connections were established from, and towards, the city center, especially, by framing views to provide orientation.

Consequently, as can be deduced from the comparison and considering that the overall impact assessment is minor beneficial, spatial continuity with the urban fabric was, indeed, enhanced after the implementation of the intervention.

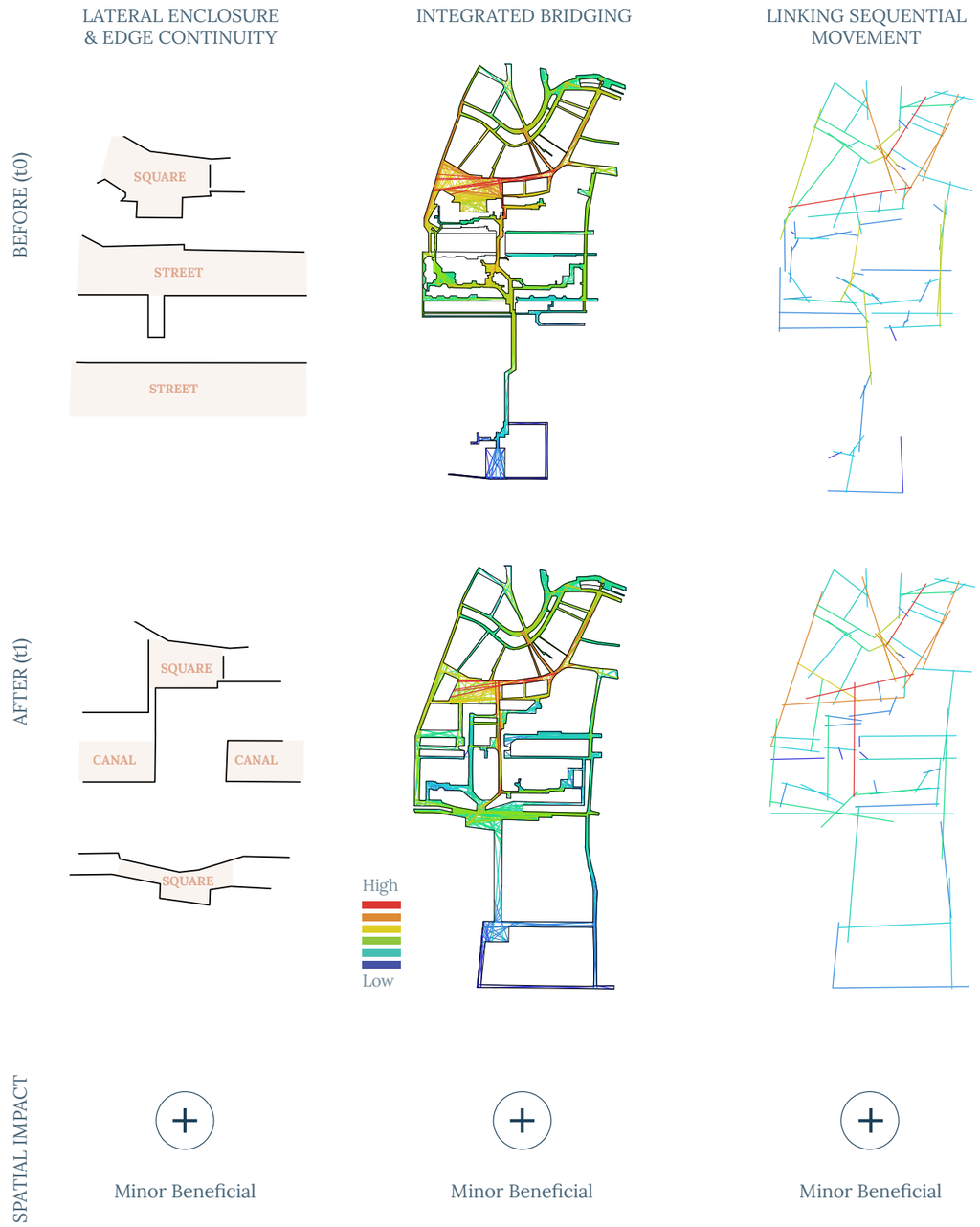
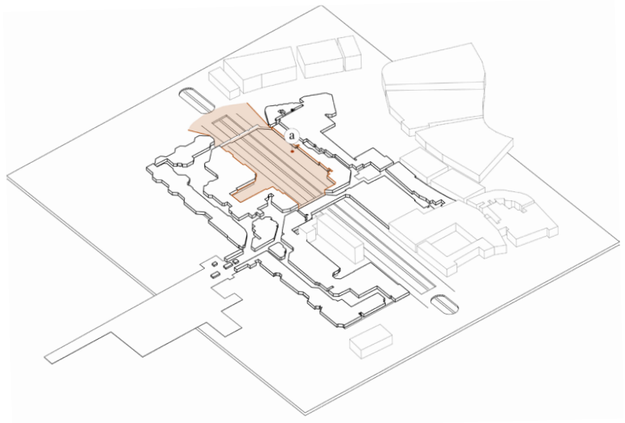


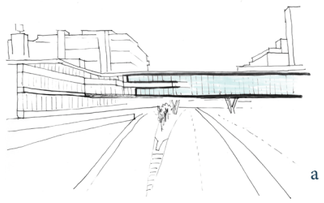
Figure 17.

The spatial impact of the re-design regarding the first three criteria. Diagrams portraying the different types of urban solids and voids (left), axial maps depicting integration (center) & connectivity (right). (Psarri, 2023) [illustrations based on floorplans retrieved from Utrecht's Municipality archives].

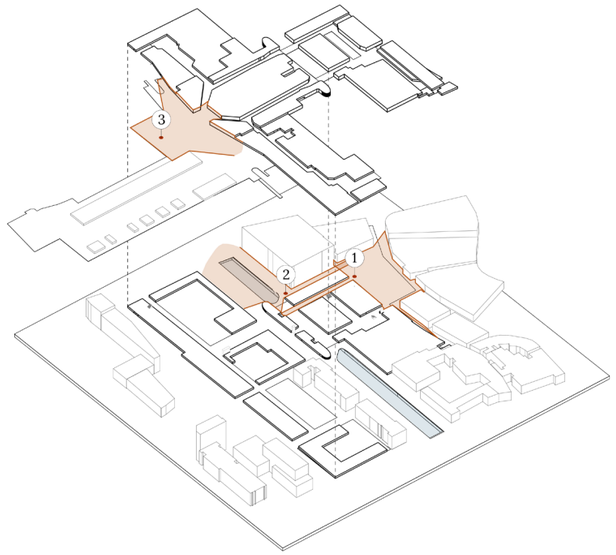
INDOOR/OUTDOOR FUSION

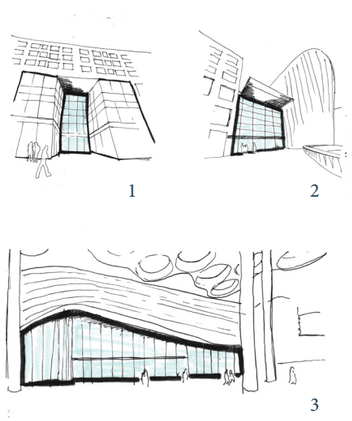
BEFORE (t0)





AFTER (t1)





SPATIAL IMPACT

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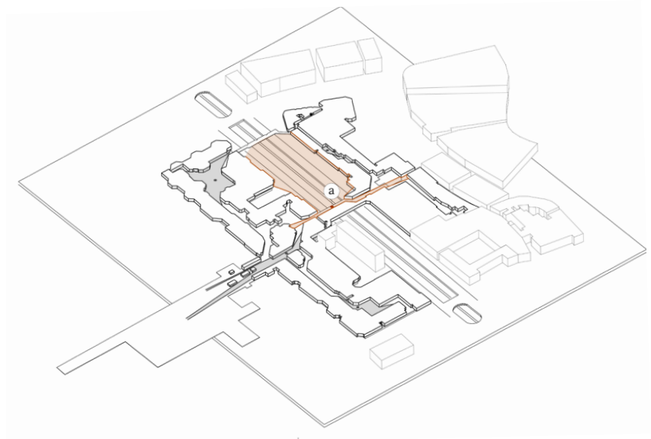
Major Beneficial

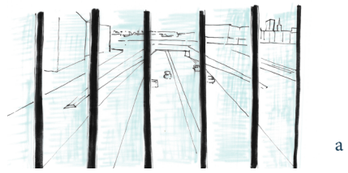
Figure 18.

The spatial impact of the re-design regarding the criterion of indoor/outdoor fusion. The isovists are depicting the range of vision from a specific point and are supplemented by sketches of the respective viewports from outside towards inside. (Psarri, 2023) [illustrations based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

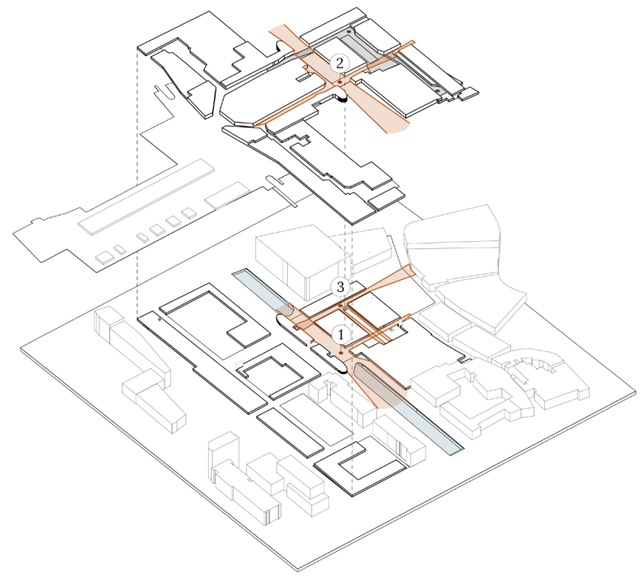
AXIS & PERSPECTIVE

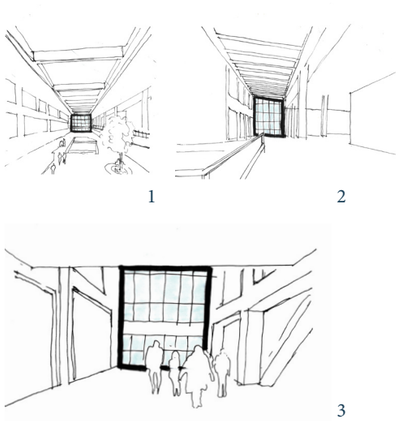
BEFORE (t0)





AFTER (t1)





SPATIAL IMPACT

++

Major Beneficial

Figure 19.

The spatial impact of the re-design regarding the criterion of axis & perspective. The isovists are depicting the range of vision from a specific point and are supplemented by sketches of the respective viewports from inside towards outside. (Psarri, 2023) [illustrations based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

05

discussion

5.1. The principles

Through the interpretation of the research results presented above that were combined with on-site observations, five spatial principles were extracted. These principles can potentially be used as guidelines throughout the process of a retail center's re-design directed at sustaining, restoring, or enhancing spatial continuity with the urban fabric.

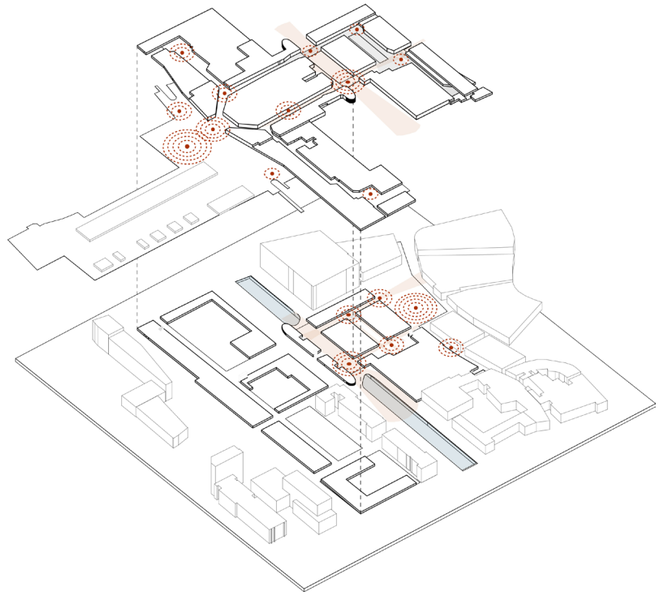


Figure 20.

Higher pedestrian concentration was observed mainly at the two squares adjacent to the building and upon the routes linking visually and physically inside and outside. (Psarri, 2023) [illustration based on drawings that are courtesy of Stir architecture and floorplans retrieved from Utrecht's Municipality archives].

The first principle, relating to lateral enclosure & edge continuity, is that a defined urban setting, whose edges are activated and penetrable, can serve as a stimulus of street-level vitality fostering public activities. For instance, in the case of Hoog Catharijne, the two squares created after the re-design are the locations with the higher pedestrian concentration.

The second and third principles derived from the assessment of the routes linking the shopping mall to its surroundings. Touching upon integrated bridging, less obstructions can enhance fluidity in movement, and also, the addition of decompression areas– destinations–along an axis, especially when positioned at access points, can create potential for more connections; as shown in the research case examined. As regards linking sequential movement, it becomes apparent that by forming simple direct connections to the main route, with shorter walking distances, the sequential movement of pedestrians can be optimized.

Lastly, the fourth and fifth principles were deduced from the visibility and permeability assessment. After observing the pedestrian concentration, the conclusion drawn was that most visitors selected the framed routes while wandering inside the building. In addition, the highest concentration was detected in the transition areas between inside and outside, which were characterized by transparency. Thus, it can be argued that, regarding indoor/ outdoor fusion, seamless transitions between indoor and outdoor spaces are of the utmost importance, since the combination of visual and physical connectivity can attract more people. Additionally, with reference to axis & perspective, framing can be used as a tool to direct movement and spatially orient the visitor.

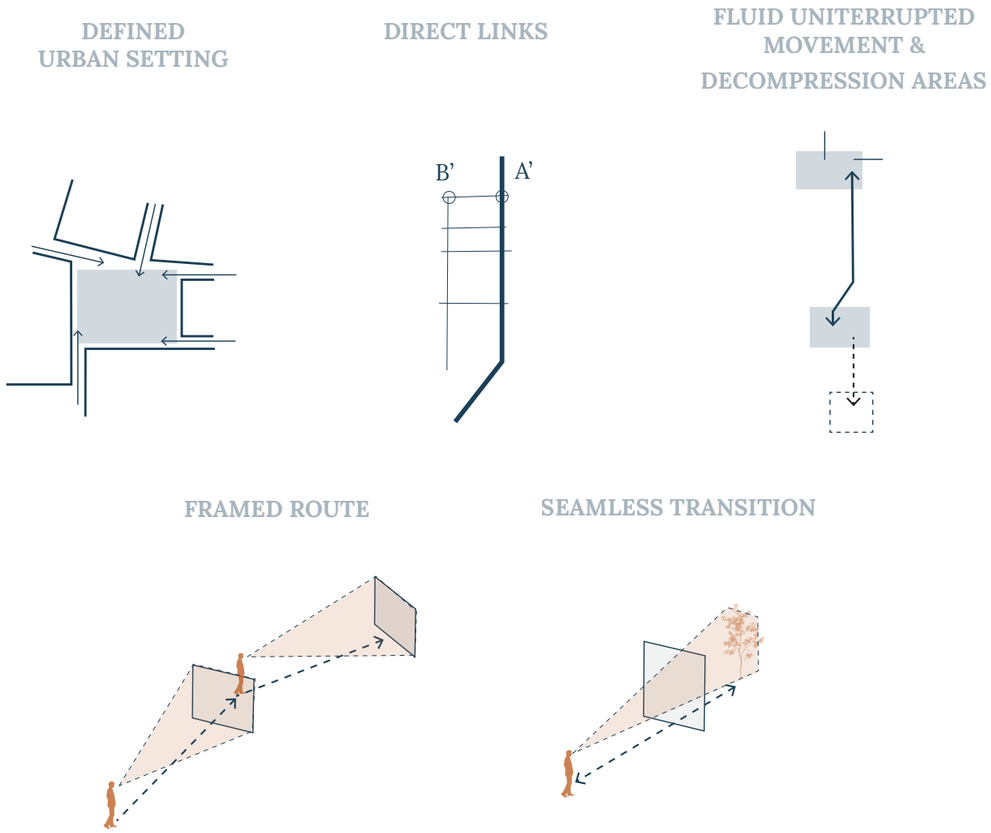


Figure 21.

Five spatial principles (Psarri, 2023).

5.2. Testing re-design scenarios

Apart from the formulation of spatial principles, the method explained can also be employed in order to test different heritage re-design scenarios, according to the concept of 'research by design'. The decisions made throughout the re-design phase on the urban and the site scale can create spatial conditions that influence the coherence with the urban context. After conducting a historical and contextual analysis and a value assessment for the existing situation of the selected case and establishing the starting points of the heritage re-design, alternative proposals, originating from these specific starting points, can be tested. Thus, research stems from the act of designing itself, as new insights on spatial relations are revealed throughout this process. By analyzing the different schemes and volumetric models for each option through axial maps, isovists and sketches, the impact of the proposed intervention can be assessed. Then, based on this assessment that reveals whether spatial continuity was ruptured, preserved or enhanced, decisions can be taken on how to proceed. If the proposed scheme is functioning sufficiently, then the re-design can be made more explicit, otherwise another option can be tested using the same methods.

Moving on to my graduation project, the presented research not only set the basis for the selection of the post-war shopping mall to be re-designed, but also served as a tool to test three of the principles that were deduced from the research and assess the spatial impact of the proposal, during the initial phase of the re-design. The shopping center selected is Winkelcentrum Leyweg, located in Den Haag Zuidwest. From a shopping street to a shopping center, Leyweg already underwent a transformation in the late 1990's. Based on a historical analysis and a value assessment conducted for the situation before and after its implementation, it became evident that this transformation altered the spatial relation to its surroundings, as the continuity and coherence of the urban plan was ruptured (Gemeente Den Haag 1997; Gemeente Den Haag, 2002). Therefore, the re-design proposal aims at restoring this spatial relation.

Three core values guide the re-design and are supplemented by four principles interpreted in relation to the context. The proposed scheme was tested through axial maps demonstrating that the recommended spatial organization results in a highly integrated and connected urban structure. Also, isovists and relevant sketches were used to examine the concept, focusing on axis & perspective.

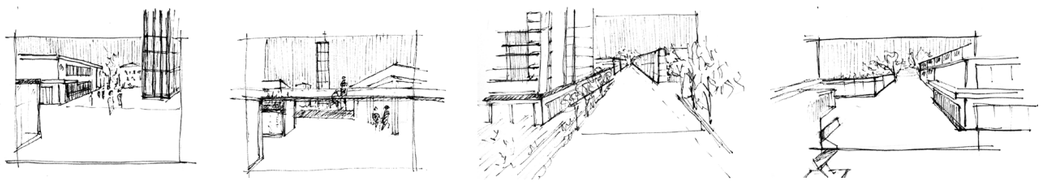


Figure 22.
Sketches illustrating the framing of the re-design's central route (Leyweg axis) (Psarri, 2023).

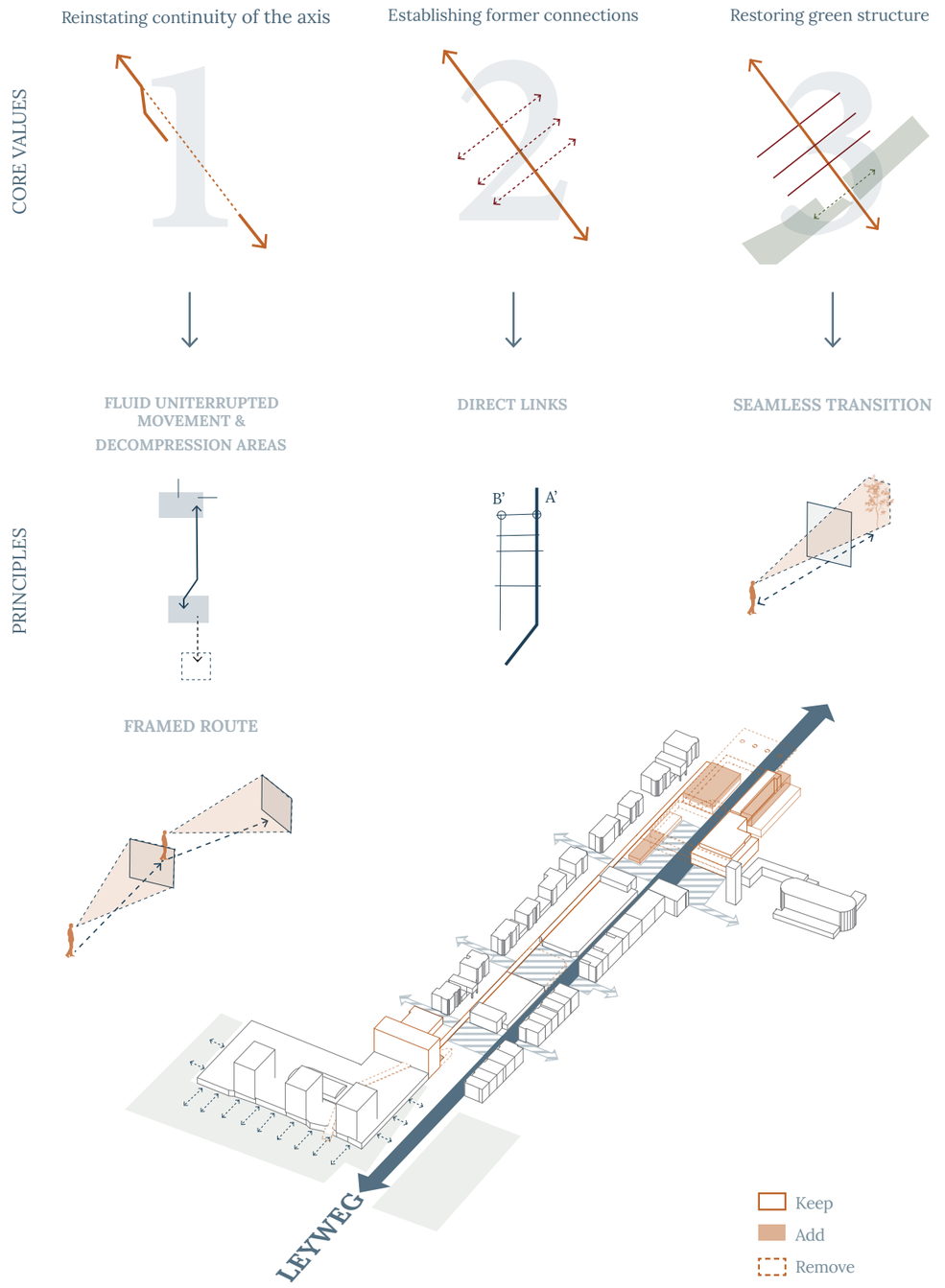
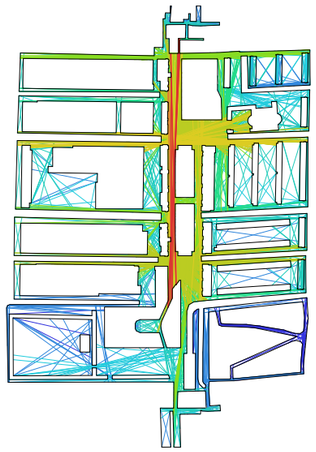


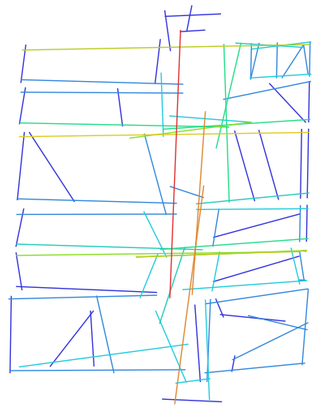
Figure 23.
The core values and interpreted spatial principles of the re-design and the proposed scheme (Psarri, 2023).

INTEGRATED BRIDGING

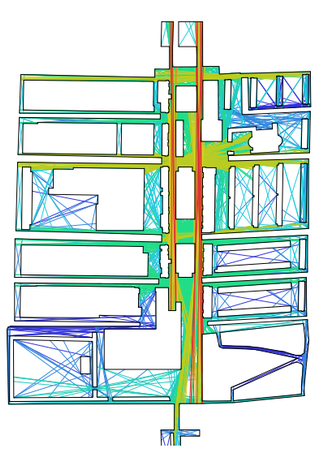
LINKING SEQUENTIAL MOVEMENT

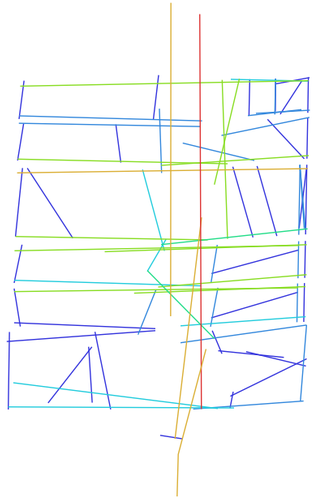
EXISTING (t0)





PROPOSAL (t1)





High

Low

SPATIAL IMPACT

Minor Beneficial

Minor Beneficial

Figure 24.
The assessment of the proposal (Psarri, 2023).

conclusion

06

In conclusion, the present research establishes a framework and relevant methods in order to assess the spatial impact of re-design interventions implemented upon Dutch post-war shopping malls on the urban scale. The case of Hoog Catharijne is used in order to examine the applicability of the method and explore how spatial continuity was altered through the interpretation of the research results. Since the overall impact of the intervention was minor beneficial, meaning that urban spatial continuity was improved, this interpretation led to the detection of re-design principles. The extracted principles that were considered relevant to the re-design case of my graduation project were subsequently tested, using the same tools, after being implemented on the re-design proposal. The aim was to investigate whether the spatial impact of the proposed intervention would be beneficial after employing the principles. Even though, the findings indicated that the principles used achieved a higher spatial coherence, they cannot yet be generalized, since the sample size from which they were deduced is limited to one research case due to time constraints.

Therefore, in order to improve the accuracy of the research it is recommended that a larger sample size is analyzed and assessed. The interpreted results will reveal the capacity of the Dutch shopping center to adapt and respond to societal changes without losing its spatial coherence with its urban context through the formulation of defining principles. These principles can provide a practical re-design toolkit that may even be proven essential in the context of the growing recognition of post-war shopping malls as heritage; setting guidelines for their future management.

However, since there are different mall types the question arises as to whether this research can be applied to all of them. Can the method be modified to address all cases? Is it possible that both enclosed and open-air shopping centers be assessed through the same criteria? Can the method be extended to involve other scales or different tools? All these questions constitute potential research opportunities to be explored.

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List of Figures

Figure 5

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Figure 6

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Figure 11

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