

MASTER THESIS

Octa-Oasis

Activation of underutilized public space at Leipziger Platz
in Berlin to promote community engagement

Richard Alves



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Activation of underutilized public space at Leipziger Platz
in Berlin to promote community engagement

Master Thesis for the Faculty REAP -
Resource Efficiency in Architecture and Planning

presented by

Richard Alves
Hamburg, Germany

Supervisors

Prof. Dr. rer. nat. Udo Dietrich
Building physics, Resource Efficiency, Integral Planning

Thomas Fraser
Realestate Management and renewables

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DECLARATION OF AUTHORSHIP

"I do solemnly declare that I have written the presented research thesis by myself without undue help from others and without using such tools other than that specified.

Where I have used thoughts from external sources, directly or indirectly, published or unpublished, this is always clearly attributed. In the selection and evaluation of research materials, I have received support from HafenCity University and Prof. Udo Dietrich.

The presented intellectual work of this research thesis is my own. In particular, I have not taken any help from any qualified consultant.

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September 15, 2020

Richard Alves

Name: Richard Alves

Course: M.Sc. REAP - Resource Efficiency in Architecture and Planning

Matriculation number: 6058071

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Thank you all for being your unique selves!

"The value of things is not the time they last, but the intensity with which they occur. That is why there are unforgettable moments and unique people!"

– Fernando Pessoa



Figure 1. Aerial view of Berlin's city center with Leipziger Platz in the center (ca.1947) (Senator for Construction and Housing, n.d.)

EXECUTIVE SUMMARY

AT A GLANCE

Public squares are legacy elements in the urban structure of our cities. These multi-functional spaces serve a multitude of uses varying in their nature of use - political, recreational and cultural. Across European cities in the late twentieth century, an effort was made to regain control of these public spaces for the benefit of pedestrians and cyclists. This has resulted in a more active community-level engagement. However, the former dominance of the vehicular aspect is still seen in some squares in European cities, as in the case of Leipziger Platz in Berlin.

Leipziger Platz in Berlin has a historical significance in the city as this is a square that was once seen as part of the city's shopping axis housing one of Europe's largest departmental store, Wertheim back then. The heritage buildings along its iconic octagonal profile were then gradually abandoned and destroyed as the Berlin wall was erected. For the next decades, the square which was once part of the city's urban core was disused and lost its significance. However, after the fall of the Berlin Wall and through efforts and funding from private developers the entire area around the square was redeveloped into a hub of office and commercial activity, as it stands today. Gradually the city made efforts to restore the legacy of the former spaces. However, the important traffic route that once passed through

the center of this square was restored and led to the divided nature of the square we see today.

In Berlin today this square remains a space that is not actively used but has considerable pedestrian movement along its central axis due to the recent opening of the Mall of Berlin in place of the former departmental store. This thesis aims to activate pedestrian usage within the square with the implementation of urban design interventions that foster community interactions while addressing the traffic situation in the area. In doing so the project aims to give the city of Berlin an activated space that will serve as a respite for the many commuters that pass through the central district.

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LIST OF ABBREVIATIONS

BC	Before Christ
ca.	circa / about
SenUVK	Senatsverwaltung für Umwelt, Verkehr und Klimaschutz Senate Department for Environment Transport and Climate Protection
SDUK	Society for the Diffusion of Useful Knowledge
SenSW	Senatsverwaltung für Stadtentwicklung und Wohnen (Senate Department for Urban Development and Housing)
WHO	World Health Organization
UNEP	United Nations Environment Programme
dB	decibel

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1. INTRODUCTION

1.1 Aim and scope of the Thesis

The aim of the work described in this thesis was to activate the historic Leipziger Platz in Berlin, Germany using a people-driven pedestrian-friendly approach. The four objectives include:

To investigate the uses of public squares and their historical influence on design in select European cities which have high human development and a high quality of life.

To activate the existing square to reflect its historical influence through permanent and seasonal uses that will play a pivotal role in its usage pattern and highlight the space in the city.

To investigate the building use pattern within Leipziger Platz and in the surrounding one-kilometer radius from the site including the impacts of these uses on the existing square.

To retain existing trees and incorporate them within the overall redesigned activities for the regeneration of the Leipziger Platz.

The above four themes form the ground of my research, which I will investigate. While they are all not connected to each other, for the purpose of this research and in line with objectives of the master program, I will analyze them together at

various points in this thesis and reevaluate these objectives in the conclusions. To provide a better understanding of this work, I discuss in the next sections the limitations as well as the methods and empirical material used for the master thesis.

Chapter 1 details out the aims and scopes of this research, lays down the limitations and the methods and materials used.

Chapter 2 introduces the context while studying the role of public squares and spaces in Europe and in Berlin. It analyses a one-kilometer radius around Leipziger square from an urban development point of view through the use of maps.

Chapter 3 lays down the conceptual basis of this research highlighting four squares in Europe based on literature research, on-site reviews and online surveys.

Chapter 4 presents the renewed proposal for Leipziger Platz and evaluates these from the viewpoint of sustainable design to present the vision for the regeneration.

Chapter 5 serves as the conclusion for the activation proposal of the square.

1.2 Research Questions

Main research question

How can we activate public squares to improve their usability and to promote community engagement while having a positive impact on a user's urban quality of life?

Subquestion 1

What activation measures can be used to adapt the usability of public squares in different seasons?

Sub question 2

How can community engagement be fostered between different user groups?

1.3 Limitations

The time frame of five months leads to limitations for the completion of this master thesis.

A sample size of twenty-five people is analyzed for each square surveyed as the fundamental purpose was to understand the functional significance. More participants should be considered for further research in this field.

The data collected for qualitative research is not independently verified. This literature-based research is a more holistic approach to the many complex and interacting dimensions of urban design concepts.

1.4 Methods and Material

To analyze the square, literature analysis of important scientific articles and books is carried out, written by valued and diverse researchers in the desired field. Visits to Berlin in November 2019 and July 2020 were taken to further examine the square and its urban surrounding and conduct verbal surveys with pedestrians and other users.

A qualitative approach was fitting to make conclusions for this research and get a more profound understanding of Leipziger Platz, parameters that are not possible to be perceived with the same depth and understanding with a quantitative approach. To reach conclusions on the urban planning in the districts, quantitative data was used for the analysis of the maps.

The investigation of the area's history combined with the study of literature in urban design and users perspectives makes this an in-depth research. Further in order to understand the role of public squares in European cities, a survey was conducted in four cities across Europe and data from this was used to infer necessary interventions for the success of such spaces and will be used in the proposed redesign of Leipziger Platz in Berlin.

The structure and nature of these methods and results they would provide would not provide

an extensive understanding of the research.

The adopted approach is fitting to get the needed information and it will not be possible to carry the exact research again as the survey responses will vary and the area will be observed from different points of view based on those of the respondents.

2. CONTEXT

2.1 Public squares in Europe

European cities are known for their public squares which foster sociable and lively interactions within centuries-old, multi-functional spaces. These civic spaces continue to engage users and are known to be communal spaces to exercise the rights of assembly and free speech, elements of civic space essential to participatory democracy and a good life. Architecturally, squares are defined as civic spaces that are outdoors places enclosed by the town's fabric (the buildings), of a size and shape that allow members of the public to interact as social groups intended, as regulated and designed public commons, commons being physical spaces that are ideally open to all people for the exercise of their rights (Childs, 2004). The varied forms of urban squares have set distinctive characteristics in defining European cities for over two thousand years.

The first-ever urban level square was created between the tenth and eighth century BC by the ancient Greeks – the Agora (figure 2), a place for people to gather or assemble. It served as a focal point of political, commercial, cultural, religious and social activities and is where the idea of Western democracy was born. Although an Agora was surrounded by private houses in the earlier years, later temples and sanctuaries were built on the periphery alongside covered walkways

and porticoes (Camp II & Mauzy, 2009). The Agora was imitated by Romans in the forum (figure 3) around the fifth century BC as a rectangular shape square with a proportion of 2 to 3 surrounded by porticoes. It blended both religious and civic activities housing temples, basilicas, shops and markets. It was common to also find a theater, a public bath, a curia (used for city council meetings) and a comitium (political meeting). Eventually, Forums became more defined and enclosed, forming a series of separate spaces around the central focal open space (Watkin, 2009).



Figure 2. The Greek Agora (Architectural moleskine, 2011)
 The most ancient referent of the western public space, the Agora is seen as a predecessor of modern squares. It is a multi-dimensional space formed to accommodate the social and political functions of the city while allowing for commercial and leisure activities to sustain.

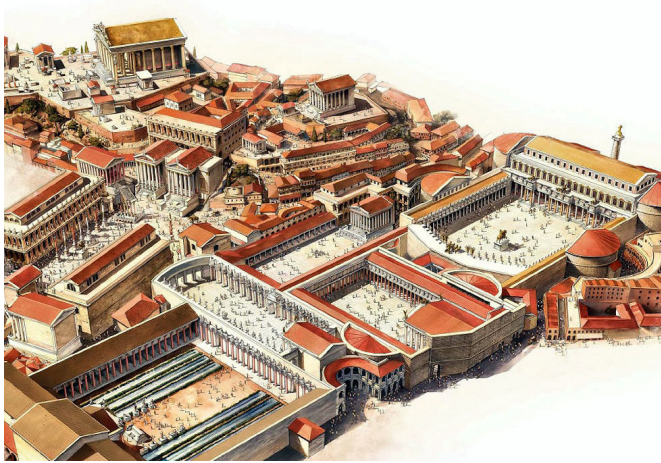


Figure 3. The Roman Forum (Teggelaar, R., n.d.) A civic space that developed gradually and organically over centuries that was once the center of day-to-day life in the city of Rome. This multi-functional site accommodated various functions of political, social, judicial and commercial nature alongside statues, arches, basilicas and other buildings that were constructed to accommodate the gatherings in this civic space.

While the Greek Agora and Roman Forum were spaces open to citizens, they were not accessible to slaves. Usage of public spaces by all citizens was gradually realized over the next centuries.

The Agora and Roman forums were reinvented in the Middle Ages from the eleventh to the fourteenth century when hundreds of market squares were created as the center of new European cities. In this period, cities were a place of trade and markets were the main public space within these cities. Monumental cathedrals were the main institutions in this period leading to the market squares being placed adjacent to these edifices to benefit from the constant activity in the vicinity. During the fifteenth and sixteenth centuries Renaissance period, squares were formal spaces that were well planned and designed to show proportions and symmetry by use of uniform facades of the buildings surrounding these squares. It was in this period that the semi-public nature of squares began to be used for more residential districts, initially for higher-income households (Calabi, 2004). During the modernist period (ca.1900-1940), functionalism prioritized cars and fast movement of people in urban areas while neglecting the past role the public squares played in urban life, thus undermining the close relationship between open spaces and the building surrounding them. Designed spaces as an organized system led to expanded open spaces

and higher buildings with no other connections to the rest of the city, spaces where sociability was impossible to continue (Arch20, 2017).

In European cities today, public spaces are increasingly threatened by capitalism and privatization which alter their social and physical forms and reduce the once-dominant public realm of city squares. Since the nineteen sixties increased public pressure has been seen across European cities to return these civic spaces to their former communal uses and restore their identities to fit into the urban environment of our cities today. This has resulted in mixed-use spaces which in many ways reflect the character of the Agora, the Roman Forum, and their gradual adaptation to meet the utilitarian needs of medieval, renaissance and contemporary cities. The success of public spaces today does not rely on a specific group of planners or designers but rather in the ability of the users to adopting, using, and managing the spaces. Increasingly the notion that people define the spaces is being used in public redevelopments and is resulting in better pedestrian and user-friendly open public spaces in urban areas.

CONTEXT



Figure 4. Figure-ground diagram, Barcelona (Saldana, 2011)
The renowned La Ramblas street in the center characterizes the relationship between built and unbuilt space in Barcelona. The presence of voids across this map indicates a good amount of connectivity, the extent and continuity of which are visible in the Eastern part. Streets have been transformed into walkable, mixed-use public spaces called "superblocks," where pedestrians and cyclists mix in safety.



Figure 5. La Ramblas Boulevard (Portwood, 2015)
This pedestrianized street has two narrow one-way traffic roads that run on either side of the central Boulevard. The city council restricted traffic flow through the boulevard and pedestrians dominate the area. Unlike cities that have huge roads running through their core, Barcelona has chosen to structure the road system so that the city center is primarily pedestrianized with larger roads servicing the periphery.



Figure 6. Figure-ground diagram, Copenhagen (Saldana, 2011)
With redevelopment beginning in the nineteen sixties, the city created the "Stroget," a pedestrian-only area of shopping streets in the city center, as seen above the Christianborg palace in the lower center of the map. The canal that wraps around the palace further adds to the open space of the old city. The dark blocks indicate closely built buildings in the northern section that also have a few large voids of green spaces, characteristic of the Danish capital.



Figure 7. The Stroget, a series of streets (Michelin, n.d.)
These streets widen at some locations into squares while still retaining a sense of local character, as being part of the old town. While passing through the town hall square (Rådhuspladsen) and the new royal square (Kongens Nytorv), the ground floors of the historical buildings are occupied by a mix of commercial uses that cover the numerous basements too, a Scandinavian peculiarity seen in the city.



*Figure 8. Figure-ground diagram, Paris (Saldana, 2011)
Georges-Eugène Haussmann is credited in the nineteenth century with the intricately planned streets of the once densely packed medieval town. Neighborhoods deemed overcrowded at the time made way for the building of wide avenues, parks, squares and the construction of new sewers, fountains and aqueducts. Paris today is largely characterized by these developments.*



*Figure 9. An avenue besides Arc de Triomphe (Glancey, 2016)
The avenues radiating outwards from the Arc de Triomphe resulted in an impressive plan due to sustaining a high and uniform standard. These wide avenues had well aligned and proportioned neo-classical apartment blocks faced in creamy stone and streets lined with trees allowing for a sense of human scale.*



*Figure 10. Figure-ground diagram, Rome (Saldana, 2011)
A user is enabled to explore the elaborate built pattern of the eighteenth-century city through a system of open spaces throughout the city as the buildings are publicly accessible within this system of voids. The public spaces, greenery, and monumental architecture were an important early model for the circulation of traffic and commerce in and out of the city. A distinctive feature of Roman urban planning was its orderly grid of streets, not so evident in the old city here.*



*Figure 11. The Piazza Navona (FromHometoRome, 2018)
While adapting the piazza to suit its current mixed-use on a former stadium site, the Stadium of Domitian's open space was maintained. With three fountains, baroque buildings and diverse use of commerce, the square is a vibrant center in Rome today post its adaptation in its current form as opposed to a market in the previous centuries. Although there is a lack of green cover (trees or lawn), the mixed-uses result in wide spread usage of this Italian city's square.*

2.2 Berlin and the public sphere

With a population of 3,66 million spread over an area of 89,112 hectares (Amt für Statistik Berlin-Brandenburg, 2018), Berlin is one of Europe's most populous and largest cities. At 3,944 inhabitants per km², the population density of the city is 41 people/hectare, a figure that is in the middle range for German and European cities. In comparison, the German city of Hamburg has an average of 43% fewer people per hectare while in the inner city of Paris the population density for a similar area is almost five times as high (Senate Department for Urban Development and Housing, 2017).

The city has a large share of its land use as urban green and open spaces with 17.7% forests, 4.1% agricultural, 6.6% water bodies, and 1.1% other vegetation, all of which help provide a high quality of life for the city's residents. Berlin is made up of over 2500 public parks and gardens alongside city squares and green strips of various sizes and shapes all of which allow for a wide range of recreational uses (Amt für Statistik Berlin-Brandenburg, 2018). The protection, care, maintenance and development of the urban green spaces are the common tasks of the departments of green spaces in the boroughs and the Senate Department for Urban Development and the Environment in the municipal area (SenUVK, 2020). The "Grosser Tiergarten" at around 200 hectares is

the oldest public park and largest designed park in the city with more than 500 years of development. It connects to the English garden to the northwest and Zoological garden to the southwest. Together these form one of the largest parks in the city center, although there are smaller parks and green spaces around them, most notable being the Platz der Republik, a four-hectare lawn with minimal trees in front of the historic Reichstag (parliament) building. While the individual lots are more closely built and often of a higher density in the inner city, the presence of inner courtyards in many of these structures make them more inviting to the building's users. Over 433,000 trees along the streets and in the parks give the cityscape a distinct character while improving the city's climate in a sustainable way (SenUVK, 2020). Green spaces are found to provide various social, economic, and environmental benefits, which improve the physical, psychological, emotional, social, and material wellbeing of individuals by enhancing their quality of life. In the city of Berlin in addition to the parks and trees, around 180 km of navigable waterways enhance the public sphere making for an alternate transit mode and variety of leisure contributing to a better way of life for the city's residents.



*Figure 12. Vegetation at the city library (Alves, 2020)
The diverse fauna at the city library (Staatsbibliothek zu Berlin - Preußischer Kulturbesitz) is in viewing sight from the high-density Potsdamer and Leipziger squares and provides a much-needed breather space for cyclists, commuters and other users. The building is located beside Potsdamer street, part of the German federal highway network.*



*Figure 13. Brunnenschale, a respite from the city (Alves, 2020)
The Brunnenschale, a historic landmark inside the "Grosser Tiergarten," serves as a calm respite space from the bustling city. In this space, one can find people reading, relaxing and admiring the colorful flowers around. This space located beside the Tiergarten waterways is a fishing spot with tall trees and centuries-old iron bridges.*



*Figure 14. Streets around Potsdamer Platz (Alves, 2020)
In the city core, private redevelopments that were done in the second half of the twentieth century are lined with closely spaced trees to reduce the impact of the towering buildings. The resulting spaces create an interesting play of form, texture and material while giving the adjoining streets a sense of human scale.*



*Figure 15. Bike path along major streets (Alves, 2020)
Long linear and well-spaced paths are parallel to major roads in the city and often have a hedge separating it from the vehicular traffic. Occasional meandering pathways into the woods and benches at regular intervals allow for welcoming rest stops.*

2.3 Leipziger Platz

2.3.1 History

In the 17th century the Leipziger Platz was built and the road from Potsdam entered the city at this square, which was then known as the "Square in front of Potsdam Gate". By 1831, the Potsdamer gate area was a tourist center with a railroad station, hotels, and restaurants and the district gained popularity as modest summer houses built from the 1830s to 1870s made way for some four-story apartment buildings with shops at the ground level (figure 16). The resulting shopping district turned the area into a major traffic junction with interactions between bicycles, horse-drawn buses and trams, horses, carts, cabs, hand carts, and pedestrians (Miller & Reed, 2008).

In the 1930s, the neighboring Potsdamer Platz (see figure 19) was known as Europe's busiest intersection and was surrounded by hotels, restaurants, and stores, which had an impact on the use and character of Leipziger Platz. At the time, there was pride and optimism in having an intersection that could compare with the traffic in other major metropolises like Paris and London. Potsdamer Platz was the busiest traffic knot in Europe with a rapid transit train line, the Berlin metro, 26 trams and five bus lines. More than 20,000 cars crossed here daily and 83,000 travelers were counted at Potsdam Railway Station. In 1924, the five-cornered traffic tower was erected – Europe's first traffic light. It became a landmark, the symbol

of the pulsating metropolis Berlin, of which Leipziger street passed through Leipziger Platz (Potsdamer Platz, n.d.). After Berlin was occupied in the second world war, the British, American, and Soviet sectors came together at the ruins of the surrounding Potsdamer Platz, once a hub of commercial activity. When the Soviet sector was sealed off on 13 August 1961, barricades were set up between Potsdamer Platz and Leipziger Platz. This wall eventually transformed this area into a gigantic wasteland in the heart of the city - the



Figure 16. Leipziger Platz in 1919 (Stadtmuseum Berlin, n.d.) The once-bustling octagonal square was an active pedestrian route and vehicular traffic route as people made way from the transportation hub (Potsdamer Platz's extensive trams lines can be seen going through the busy traffic square) to Wertheim in the northeast corner of Leipziger Platz, which was a large department store, the biggest in Europe at the time (refer figure 19 for the orientation of the square with respect to cardinal directions).

“no man’s land” running between the inner and outer walls on East Berlin territory and an empty expanse on the West Berlin side (Berlin.de, n.d.).

Located in the heart of Berlin Mitte district, this octagonal square was part of the “no man’s land” after the construction of the Berlin Wall in 1961. Leipziger Platz became part of the border zone and all buildings still standing then were gradually torn down. The ruins on the western side of the wall were purchased by the Berlin Senate and pulled down gradually over time. The remains of the Prinz-Albrecht-Palais, the Vox-Haus, the Natural History Museum, the Haus Vaterland and even the railway station Anhalter Bahnhof farther to the south, were all gradually carted off in this way. Extensive plans in the nineties to construct an expressway here were never executed but after the reunification the Tiergarten Spreebogen tunnel was built nearby. Since the fall of the Berlin wall, an unprecedented level of redevelopment transformed the area into urban mixed-use development. However, the area’s redesign by world-renowned architects largely neglected the architecture and planning of the surrounding area, often leading to the site being seen as a superficial image of the city and an urban tourist space in a singular capacity. At the end of the 1990s, Leipziger Platz was envisioned by the city to become as chic and beautiful as the Place Vendome in Paris, with fine shops, sophisticated apartments and style-defining facades. In the present day, the area attracts 110,000 visitors from Berlin, Germany and abroad with a variety of land uses from offices and entertainment to shopping and housing (Potsdamer Platz, n.d.).



Figure 17. Leipziger Platz in 1962 (MSN, 2020)
The Berlin Wall, constructed in August of 1961 ran through Leipziger Platz (inner wall) and Potsdamer Platz (outer wall). All the buildings on the eastern side of the wall which included all on Leipziger Platz and its surroundings were cleared to give border guards open fields and views. On the west of this wall, tourist kiosks were set up allowing people to look at and over the Wall. The inner wall ran through Leipziger Platz, two portions remain standing today.



Figure 18. The square today (Bruns, 2015)
The square was redeveloped in the nineties in what was then one of Europe’s largest private-sector construction. The neighboring Potsdamer Platz (not pictured) was made a primary transportation hub for Berlin with lots of road traffic at street level, as well as subway and train lines underground while Leipziger Platz was modeled as a mixed-use development with buildings following the octagonal pattern of this 17th-century square.



Yellow dot

Purple dot

Pink dot

Orange dot



Legend for historical locations

- Incorporated remains of Hotel Esplanade in the Sony center (figure 20)
- Bundesrat / Federal council (figure 21)
- Future sections of the Berlin wall that remain standing today (figures 26 and 31)

Figure 19. Map of Berlin, 1883 (SDUK, 1883). Leipzig Platz, the octagonal square seen on the left of the map highlights Leipziger street that runs through its center. The street can be seen here running to the river Spree on the Eastern half of the city denoting its importance as an East-West corridor, an important place it continues to hold to date (also known as Bundesstrasse 1, a German federal highway). The absence of the Berlin wall during this period can be seen in the urban planning measures

Cöpnicker Feld

Cöpnicker Feld



*Figure 20. Hotel Esplanade (Alves, 2020)
The Belle Époque style section of the former Grand Hotel Esplanade that remained standing was incorporated into the Sony center on Potsdamer Platz, a historic stone facade to an otherwise modern glass and steel development. During the 1920s, the hotel was one of the most famous in Berlin but was largely destroyed during a bomb attack. The remains were put under protection as monuments after the fall of the Berlin wall in 1989. The standing small part – the Kaisersaal remains integrated into the Sony Center as an architectural exhibit.*

*Figure 21. Bundesrat building (Alves, 2020)
The three-wing ensemble Bundestrat (federal council) building was partially destroyed in the wars but restored at the end of the nineteenth century. This view of the imposing main facade is seen from Leipziger street and flaunts the monumental proportions typical of Neo-Classicism. The federal structure sits immediately in the vicinity of Leipziger Platz, however, the curb adjoining the building is least used by pedestrians possibly due to the availability of the colonnaded arcade of the Mall of Berlin on the opposite side.*



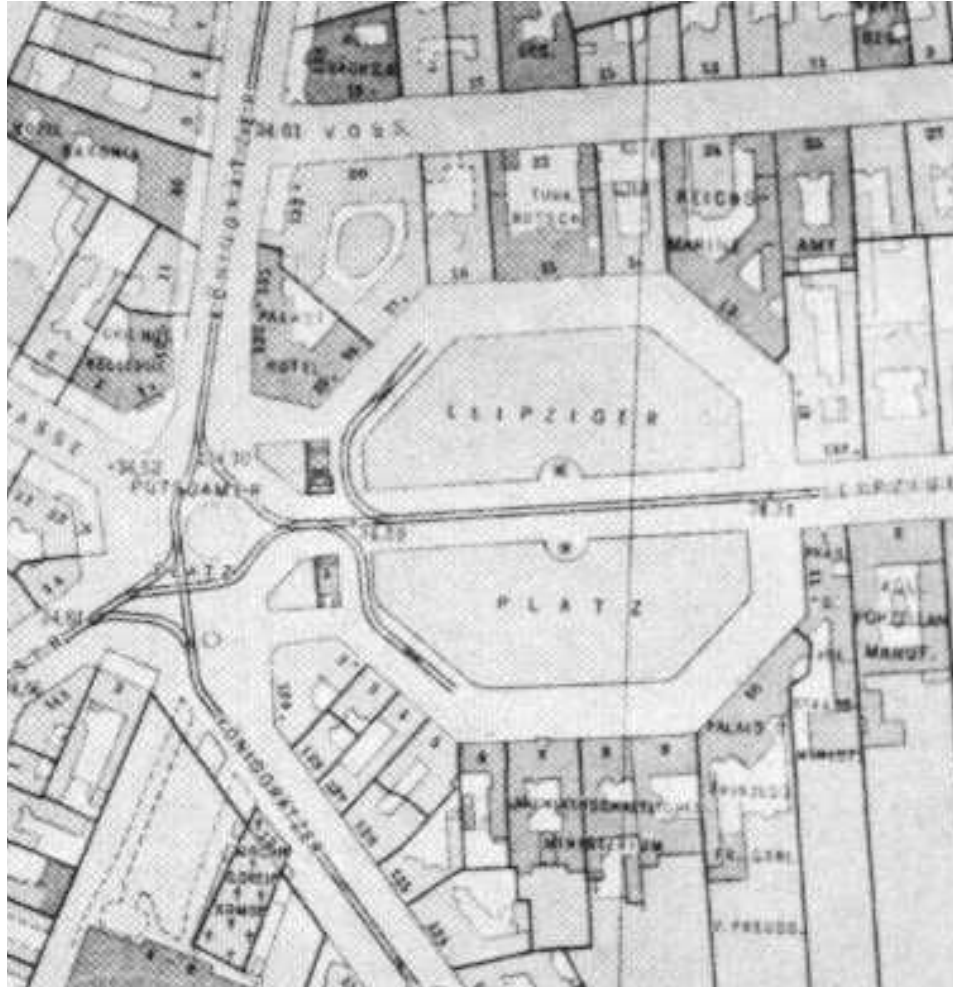


Figure 22. Leipziger Platz and its surroundings in 1902 (Bruhaha.de, 2008)
This map shows the Leipziger street, Leipziger Platz and the neighboring Potsdamer Platz. The urban planning here saw no changes for around a century until the destruction that razed much of the area in the 1950s and 1970s. In today's Berlin, Leipziger street and the surrounding streets retain their original locations except for a new street that was added behind the buildings on the southern part of the square (refer figures 45 and 50). The tram lines can be seen on this map, most of which do not exist anymore with small fragments present on Leipziger street within the Leipziger Platz (discontinued tram line).

2.3.2 Observations

Based on verbal interviews with users in Leipziger Platz detailing their experiences and opinions of the square, it is possible to summarize the observations in the following points.

No defined planning mechanism for the overall development of the area

The Potsdamer Platz development (inclusive of Potsdamer Platz and Leipziger Platz) had to reunify two parts of Berlin on a 126 acres plot in the heart of the new city of Berlin. When the city launched a competition in 1991, sixteen teams were invited to design the area including the urban centers of Potsdamer Platz and Leipziger Platz, two landmark squares. The large-scale approach used for the development contrasted with Berlin's real estate market and the western part of the perimeter turned into a marketing showdown between corporate companies with no core real-estate businesses. According to German planning law, a building permit could only have been delivered based on an existing zoning plan (Bebauungsplan) which did not exist for the location because of the recent changes in ownership as a result of the reunification. Hence the resulting mixed-use developments of varying proportions were conceived with not much to consider in terms of urban planning due to the existing flattened site. Today the site is seen as a success in Berlin's redevelopment, but the

compromises with planning authorities to achieve a floor area ratio (FAR) of 5 led to massive blocks of rigidly planned development with a futuristic appeal (Firley & Grön, 2013).

The dominance of Leipziger street in the square

Leipziger street had developed into Berlin's important shopping and business street back in the 1880s. Large department stores and exclusive shops replaced the old buildings, leading to 19 tram lines and three bus lines running through the lively street. Even today post the fall of the Berlin Wall, the street has been restored as an important



Figure 23. View of facades in Leipziger Platz (Alves, 2020) Monotonous facades with similar profiles create a lack of interest for users, a feature that is not observed in two-tone facade of the German spy museum building on the extreme left of the image.

east-west connection in the city. While the trams no longer run here, buses and a transport hub (regional and metro trains, buses) at Potsdamer Platz contribute to the footfall in the area. The cars have an advantage over other transport means given the linear axis (Mende, 2015), but controlled pedestrian crossings exist on both square ends.

Commerce-focused pedestrian usage within Leipziger square

Most pedestrian usage is observed between the northern entrance of the Potsdamer Platz station (which opens onto Leipziger Platz) towards the Mall of Berlin on the north eastern side of Leipziger square and on the northern side of Potsdamer square. The dominance of commerce and retail in channeling scores of people in both directions is a distinct feature noticeable during retail opening hours. The other sections of the square see minimal usage, generally by users or visitors of the buildings adjoining the sidewalks. Three cafes exist in Leipziger square, two on the south side and one on the north side. Two cafes are located on the building corners on the southern part of the square where the octagonal form is cut by the street. The third is beside the Mall of Berlin (northern side) in one of the Octagon's corners.

Lack of adequate amenities in the green spaces

While the establishments like the cafes and museums have added some street furniture to the square, the absence of street furniture in the green areas contribute to their reduced use. It is possible to see people gathered around the green spaces in the northern part of the square due to the prevalence of retail, fewer people are



Figure 24. Traffic flow through the square (Alves, 2020) Leipziger street widens from four lanes to six lanes as it enters the square on its Eastern side and continues towards the Postdamer Platz on the West. The lane adjacent to the sidewalk is used for car parking near the Mall of Berlin on the North East corner. The mall facade facing Leipziger street and the Leipziger Platz is for pedestrians while vehicular access to the basement parking is from the smaller Voss street on the Northern side of the building.



Figure 25. Pedestrian flow on the East-West axis (Alves, 2020) Pedestrian movement is the highest on the Northern side sidewalk of the square due to the Mall of Berlin's footfall. Most people move from the metro station at the square's western end towards the mall on the squares eastern end. The presence of a major bus line on this half of the street also adds to the flow of people in both directions.



Figure 26. Lack of pedestrian facilities in green spaces (Alves, 2020)
 The usage of the sidewalk beside the buildings is apparent because of the presence of street furniture like bike parking racks, concrete benches and trash cans. Creative seating outside the German spy museum (left side of image) has a more inviting appeal for a user and adds an interesting variation to the planned straight lines of the building facades.

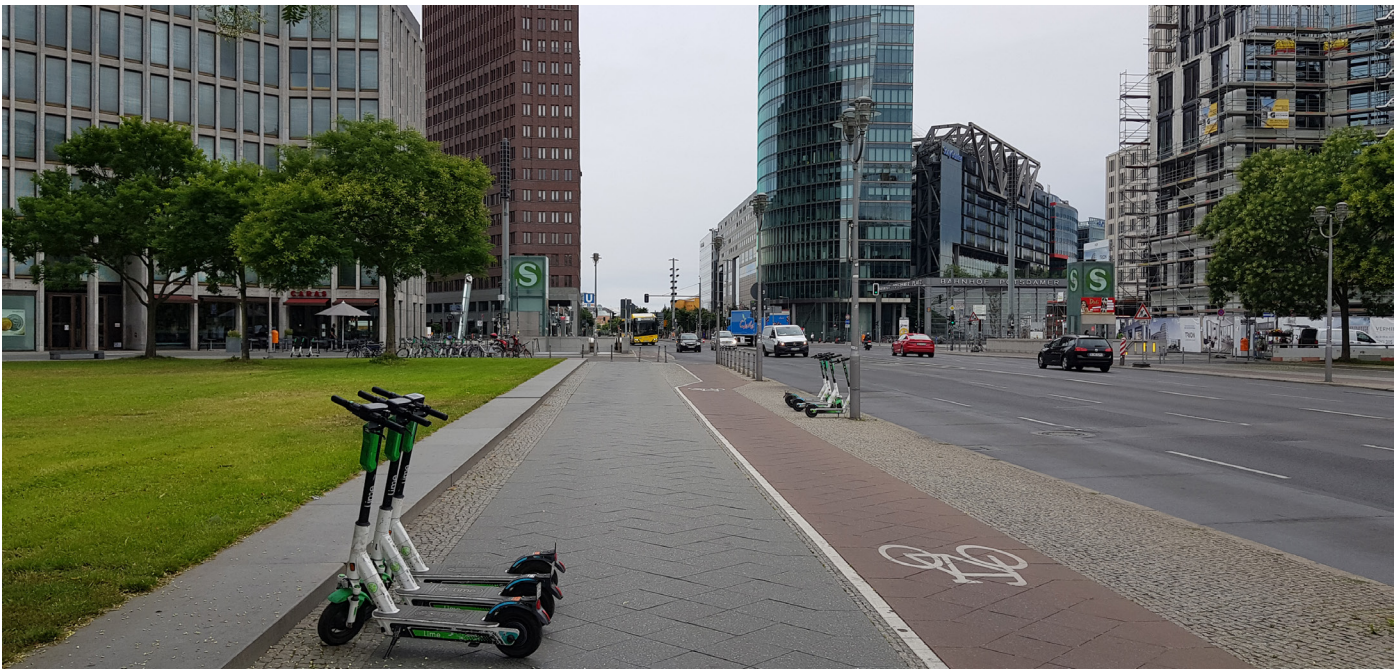


Figure 27. Human scale lost in the maze of glass, steel and concrete (Alves, 2020)
 While walking along Leipziger street that cuts through the center of the square, it is evident to pedestrians and cyclists that design priority was given to vehicular use in this context as the broad street forms a significant East-West connection in Berlin. Leipziger street is six lanes wide within the square and has a relatively constant flow of traffic. The traffic that holds at the signal on the southern end (pictured) does not go too far into the square, except during rush hours twice a day. The signal on the northern end (figures 30 and 34) is for a pedestrian crossing and rarely sees any vehicular traffic holdup.



Figure 28. High-rise private developments (Alves, 2020)

The redevelopment of the Berlin Mitte district continues to be dominated by private developers. While the aspect of using private players to redesign the area is appreciated, lack of community engagement resulted in a high-density area with poor urban planning evident in the placement of street furniture like the unused bench in the central median seen here.

seen on the southern side of Leipziger street due to the buildings catering to offices and museums.

Lack of Human scale on the periphery of the square

The presence of huge glass and concrete towers on the main street and similar dominating structures in the octagonal blocks within the square does not make the peripheral spaces user friendly or suited to human activity. The addition of trees navigates this issue in the square, while the placement of colorful and engaging seating or exhibits around the buildings makes them more approachable, however, the bulk of the square's main pedestrian routes remain large spaces with no relaxation areas.

Private development model promoted capital-

based uses

Due to private focused development and vague government regulation, only 20% of the built-up area in the redevelopment is housing as developers wanted to create more profitable models and limited usages to commerce, retail and offices (Firley & Grön, 2013). This led to an active day time scene in the area and less activity in the late hours.

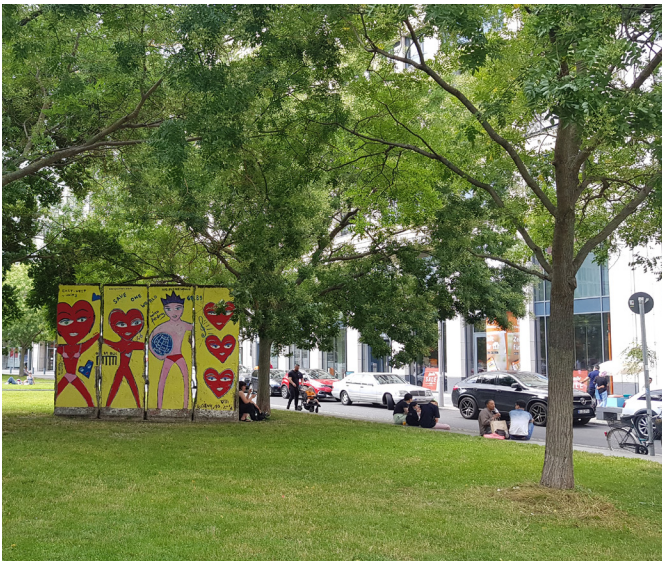
Based on the above points, it is possible to conclude that Leipziger Platz's public spaces need activation by engaging its users and creating a welcoming space that connects to its history. This can lead to a human-friendly environment for pedestrians and cyclists. As the street is a major transport corridor, a physical and visual disconnect from within the square's green areas is necessary.



*Figure 29. Cycle parking (Alves, 2020)
The unused green areas are evident here as the cyclist stands are occupied but there are no people in the green spaces behind. This aspect remained the same on a weekday and on the weekend, pointing to a lack of engagement for a user of the square.*



*Figure 30. Northern entrance of train station (Alves, 2020)
The heavily used entrance of the Potsdamer Platz train station is located in the Northern part of the square and is the reason why the sidewalk is more actively used in this part of the square. Nine services currently call at this station, the majority being regional and S-Bahn lines except for the U2 line of the U-Bahn.*



*Figure 31. Wall remnant in the square's north (Alves, 2020)
As in other parts of Berlin, the remains of the Berlin wall have become places for expression of thoughts and ideas through art. This standing facade on the Northern part of the square beside the Mall of Berlin is used as a resting area and people can be seen gathering here in small numbers on weekdays and weekends. A similar wall on the Southern side on the opposite diagonal corner is not used in the same way because of the surrounding buildings mostly housing offices.*



*Figure 32. Pedestrian walkways used to relax (Alves, 2020)
Two linear walkways divide the green spaces and connect the sidewalks on Leipziger street (also cut by the main street) with the inner ring street alongside the edges of the square on the Northern and Southern sides. The slightly raised curb of the sidewalks is used by people to sit, talk and eat a quick meal on these infrequently used pedestrian paths.*



*Figure 33. Use of the main street curb (Alves, 2020)
At the end of the day, it is evident that a lot fewer users are on the street as seen in this image taken at 2000 hours on a weekday. An interesting point to note is that the absence of heavy vehicular traffic now encourages people to sit on the curbside along the main Leipziger street, unthinkable during the traffic hours all day.*



*Figure 34. Fewer people in the early hours (Alves, 2020)
At 0830 hours on a weekend morning, the lack of pedestrian movement in the square is a visible difference as opposed to usage at the same time on a weekday when few employees can be seen moving to their places of work.*



*Figure 35. Parking free streets in the morning (Alves, 2020)
Few cars can be observed in the early morning hours on the inner ring streets on both sides of the square, on both a weekday and a weekend in contrast to fully occupied slots during most of the working day. The paid parking is on one side (the side closer to the building) and the streets are one-way roads only with parking meters located on the sidewalks.*



*Figure 36. Mall of Berlin entrance on the square (Alves, 2020)
Cafes located immediately outside the Mall of Berlin lie empty during the early hours of the day, in contrast to the hub of activity it is during the day. The mall attracts a lot of visitors who spill into the neighboring square and occupy the curbside in the vicinity.*

CONTEXT



Figure 37. Passage to Erna Berger street (Alves, 2020)
The use of color, voids, lighting and projections makes this path interesting and welcoming for users to the building which house museums, exhibition spaces and offices.



Figure 38. Erna Berger street (Alves, 2020)
The pedestrian pathway (figure 37) connects to Erna Berger street which houses the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety on the left (BMU).



Figure 39. View towards the mall when the area is not actively used (Alves, 2020)
The square as a space in the early morning hours and late evening hours is devoid of traffic, both vehicular and pedestrian. The entrance to the U-Bahn Potsdamer Platz can be seen in the background, an entry exists on either side adjacent to Leipziger street at an angle not aligned to the street or buildings (as the line is diagonal from the northeast to the southwest corners).



Figure 40. Ebert street (Alves, 2020)
 Ebert Street, a four-lane road connection to Potsdamer Platz and going towards Brandenburg gate is more human scale and pedestrian-friendly than the broader six laned Leipziger Platz.



Figure 41. Leipziger street towards Leipziger Platz (Alves, 2020)
 The German Ministry of Finance (building on the left after fence) seen opposite the Mall of Berlin leads to a dense pedestrian-friendly development where accessibility is as desired.



Figure 42. View towards Leipziger Platz (Alves, 2020)
 Glancing at the portion of the Berlin wall in the Northeast corner of the square, the dominance of cars over pedestrians can be observed. As one goes further into the green space, the car as a domineering component begins to fade due to the size of the square.



Figure 43. Berlin Tiergarten (Alves, 2020)

This 520 acres park is one of Germany's largest parks and was once also the largest in Berlin only surpassed by the Tempelhofer Park (previously Berlin's Tempelhof airport). The park has ample spaces for leisure and sports and is often dotted with busts of notable people. Berlin zoo is part of this expanse of green space which also houses the captivating English gardens.



Figure 44. Tilla Durieux park (Alves, 2020)

Being part of a 40-kilometer North-South hiking Trail in Berlin, the park consists of two steeply sloping lawns rotated along the longitudinal axis, so that the highest points of the lawns are at the southwest and northeast end of the park. A sculpture of five 21-meter-long seesaws makes for an interesting use of the public space.



Figure 45. Vision of the area around Leipziger Platz (Rocha, n.d.)

While the area is highly dense, the presence of the Berlin Tiergarten (figure 43), one of the largest city parks and the 4985m long Tilla-Durieux Park (figure 44) with its 30m width adds a sense of flair and character to the area. The former is a well maintained oasis in the city while the latter is a long steep expanse of grass used extensively by Berliners to sun bathe and lie on the grass in the summer months.

2.4 District Mapping

2.4.1 Figure ground diagram

Figure 46 depicts contrasting relationships between positive and negative spaces, solids and voids or shadows and light. The use of such maps in town planning relates to a topographical uniqueness of space by omitting information like highways, streets names, landscape features and administrative boundaries, aspects typically mapped in built-up areas and instead presenting just solid building planforms. However, these voids allow a user to reflect on the resulting open spaces of streets, squares, gardens, parks and empty lots to analyze the quality of an urban area or district (Hebbert, 2016). For the analysis of Leipziger Platz, a one by one square kilometer area comprising the districts of Berlin Mitte and Friedrichshain-Kreuzberg is selected. While seventy-five percent of the square from its south-east up north towards the south-west is in the Berlin Mitte district, a small section of the south-eastern part of the map is in the district of Friedrichshain-Kreuzberg.

The octagonal-shaped Leipziger Platz has a visibly distinct influence on the character of the district, the extent and continuity of open spaces can be observed from the northwest towards the southwest, representing two of Berlin's extensively used green spaces, the Grosser Tiergarten in the upper section and the Tilla Durieux park in the lower section. The latter was once "no man's land" within the restricted zone of the inner and outer

Berlin walls. A visibly denser portion in the district pattern and structure is noted in the central location going west and southwest as these are the newer privately funded developments undertaken at the end of the twentieth century after the fall of the Berlin wall. Portions of the wall are preserved in the developments - an outer wall segment is preserved in Potsdamer Platz and two portions of the inner wall are preserved in Leipziger Platz. The less-dense areas of the Eastern part reflect relatively older developments that today house a host of German federal buildings.

While a sense of flow of space can be observed in the Western areas due to the use of irregular forms and interconnected walkways between the buildings, this is visibly absent in the older Eastern half of the area, where rows of large buildings are placed closer to the street. The presence of enclosed courtyards reflects private spaces and influence the higher openness in the square or rectangular plans of the older blocks. The buildings aligned closer to the roads not only results in streets that appear less welcoming but due to a regular grid and no visible nooks and corners, the space is utilized less effectively. On-street parking is seen on all major and minor streets except for Leipziger street (serves as an east-west city corridor), although a few cars can be seen parked on a section of the street within



Figure 46. Figure-ground diagram of 1x1 square km with Leipziger Platz in the center (Alves, 2020 *Basemap from SenSW*, n.d.)

Leipziger Platz near the Mall of Berlin. The inner clear distances between the buildings at Leipziger Platz are 162m and 167m on the north-south and east-west axes respectively. While vehicular access is maintained at all streets, all sidewalks adjoining the square's main streets are a minimum of 2.5m wide, which is essential for a good network (Salat, Labbé, Nowacki, & Walker, 2011). In the Leipziger Platz area, the curbs adjoining the buildings are 9m wide and the one's on opposite side of the inner ring street are 2.5m wide. The curbs on either side of the main Leipziger street are 6.5m wide. The district coverage ratio of 0.3 (includes

new approved buildings) indicates that 30% of the district comprises built-up areas while 70% is made up of voids like streets, parks and unbuilt plots. In comparison, an analysis of a section of HafenCity, one of Europe's largest inner-city redevelopments, derived a district coverage ratio of 0.19 (Alves, Altan-Ulzii, Aringueri, & Boncukçu, 2019). In older European city districts, higher figures are reached, as in the case of Paris where a very high value of 0.60 is achieved (LSE Cities, 2014). However, it is important to consider factors like building heights which cannot be interpreted in this map (covered in upcoming sections).

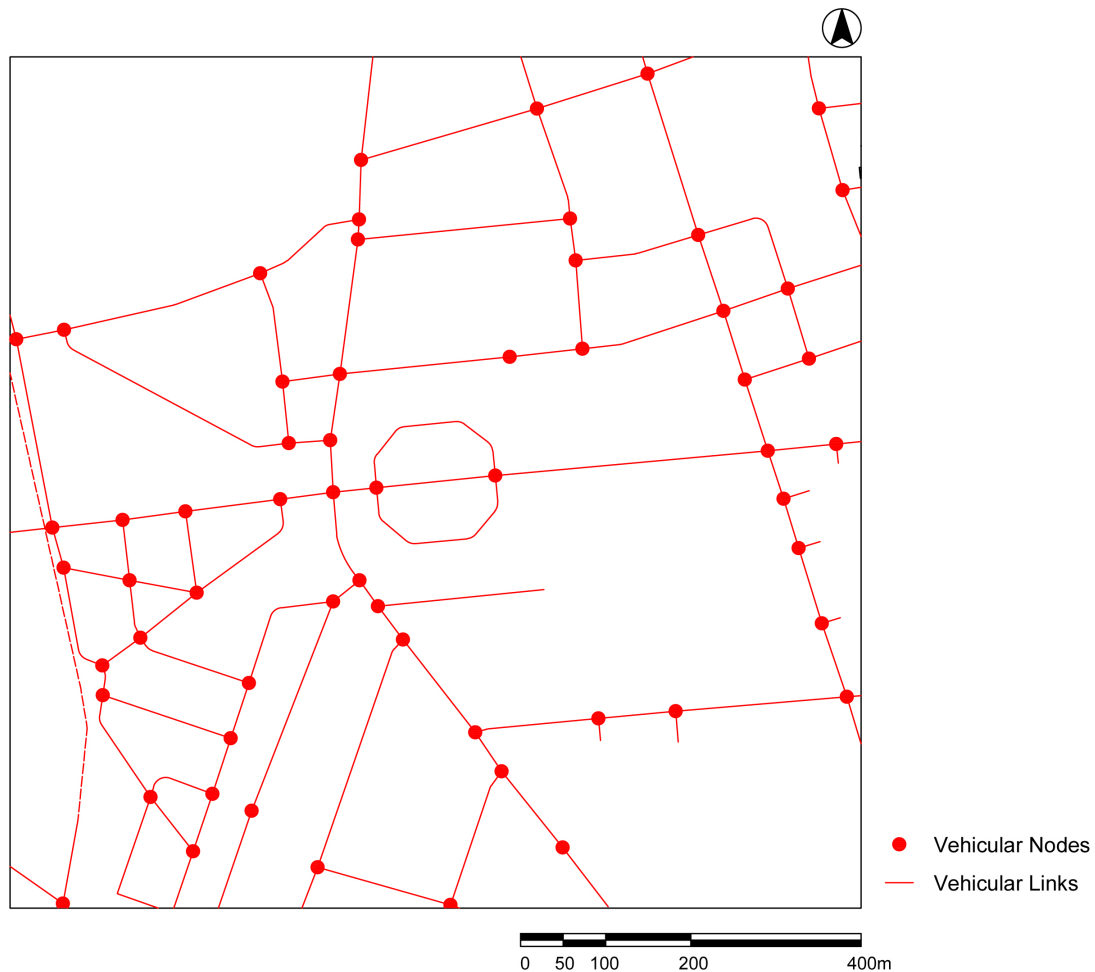


Figure 47. Mobility map depicting vehicular connectivity using nodes and links (Alves, 2020)

A cyclomatic number shows the availability of alternative, rather than unique routes between nodes in a network (Sevtsuk, 2017). The higher a cyclomatic number, the more diversified the possible routes and less congested the city will be. In figure 47, with 60 nodes and 105 links, we achieve a vehicular cyclomatic number of 44. In figure 48, with 127 nodes and 246 links, we achieve a pedestrian cyclomatic number of 108. For pedestrian-friendly cities, the number should be a minimum of 40 (Salat, Labbé, Nowacki, & Walker, 2011). In the case of the area in figure 47, the pedestrian cyclomatic number indicates that

there is far better connectivity inside the district, a factor good not only for reducing travel times but also for human scale. While connectivity for cars is also good the considerably higher value for pedestrians and cyclists means they have more routes to avoid a routine, presenting a more diversified city atmosphere. Berlin, being a European capital built around a large public transport system benefits from the aspect of better pedestrian mobility, more so given the high number of users of the inner-city developments like Potsdamer Platz and Mall of Berlin (public transport access possible through Leipziger Platz).

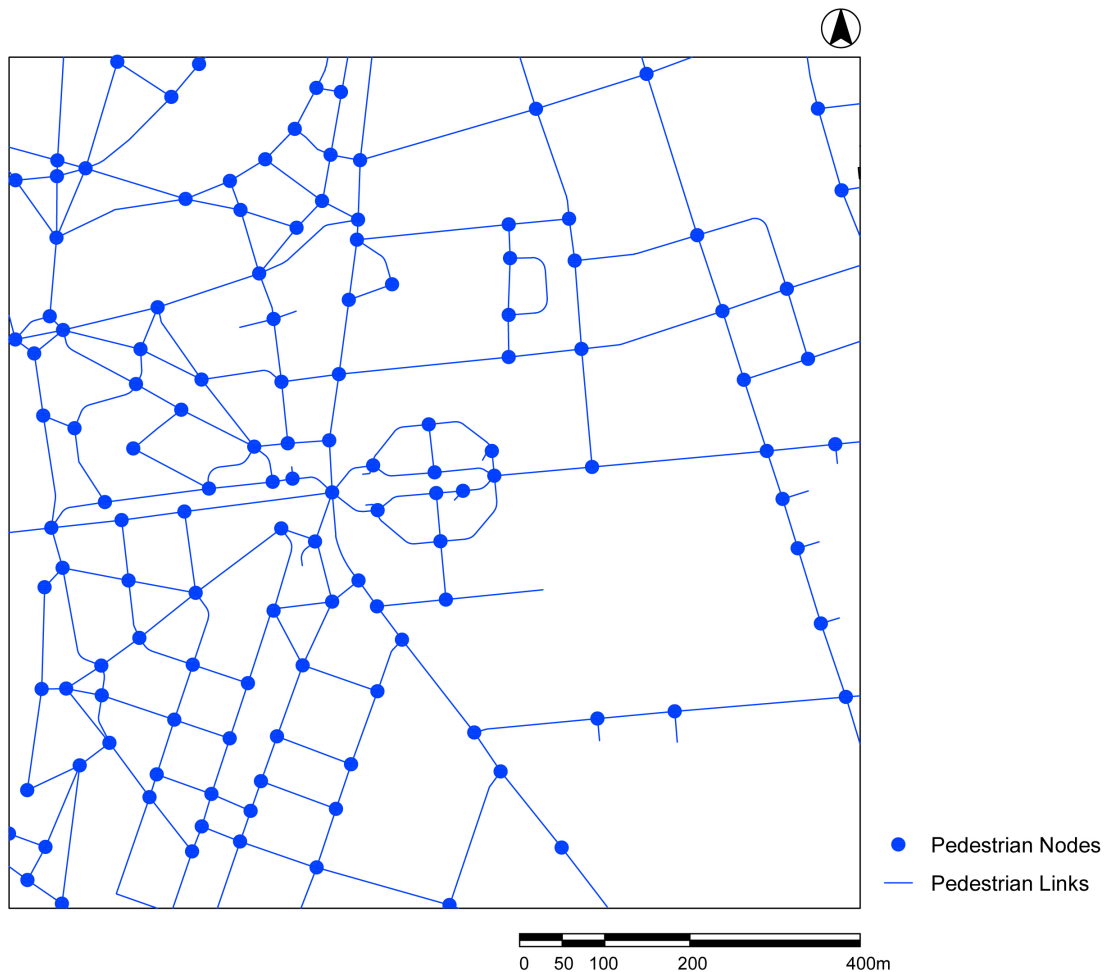


Figure 48. Mobility map depicting pedestrian connectivity using nodes and links (Alves, 2020)

The pedestrian cyclomatic number for the same area is two and a half times higher than the vehicular value for the same area. This is in part due to the easy navigability between buildings or through them as in the case of Potsdamer Platz Arkaden, located across the street from the iconic Potsdamer Platz development. In the case of Leipziger Platz, while from a surface point of view one sees only two possible access routes, on analysis of the area, there are seven possible routes – one each on both the eastern and western sides of the square, two metros accesses each on either end of the square as well as a 4.5m wide passage

between the square and Erna Berger street on the south of the octagonal square. Additionally, if one walks 115m from the square's eastern end in the colonnaded path of the adjoining building, a 15m wide passage also connects to the Voss street on the north of the square. Both the passages on the north and south are covered only on the top and remain open on either end.

2.4.2 Land use map

Over the last few decades, land use planning has evolved from a top-down, expert-driven approach towards a more integrated approach, involving planning experts, decision-makers, and ordinary citizens alongside the appraisal of factors related to sustainability (social acceptance, economic viability, physical suitability, and environmental sustainability (Metternicht, 2017)). In analyzing the diversity of the built form in figure 50, the mixed-use share (figure 49) is more than one and a half times that of the offices and industries and sixteen times the residential share. The mixed-use developments along Leipziger street are commerce and office driven while the mixed-use buildings in the northeastern and southwestern parts are commerce and residential. The city intends to somewhat restore the legacy of Leipziger street, and this is evident in the new retail-driven developments in the area.

On further analysis, it is possible to conclude that the inner-city developments increase the share of residential units to around 45% in the district which was dominated solely by office uses. However, this figure will be altered again in the future given the developments of older lots into more mixed-use spaces with lower-level commerce areas combined with both residential and office uses in the upper levels.

In Berlin today, the mixed-use spaces formed in the residential blocks are such retail areas that promote local economic generation activities specifically driven by smaller local businesses (mostly restaurants and cafes) in older housing blocks, a factor that protects the local economy from large scale retailers. Given the historic shopping legacy of Leipziger street, the privately-funded developments of Mall of Berlin and Potsdamer Platz, both in the vicinity of Leipziger Platz lead to a higher footfall of users in the district, so it can be an inference that a good balance of small and large scale developments are healthy for the character of the area, an aspect missing in the new structures of Leipziger square.

The existence of museums like the Memorial to the Murdered Jews of Europe (2,711 columns

Land usages of the plots in the selected district	Plot Area (m ²)	Land use share (%)
Civic buildings	35,385	11.80
Hotels	10,530	3.50
Mixed use buildings	153,240	51.00
Offices and Industries	88,825	30.00
Residential buildings	10,070	3.20
Retail buildings	1,955	0.50
	300,005	100

Figure 49. Land use shares of the plot areas (Alves, 2020)

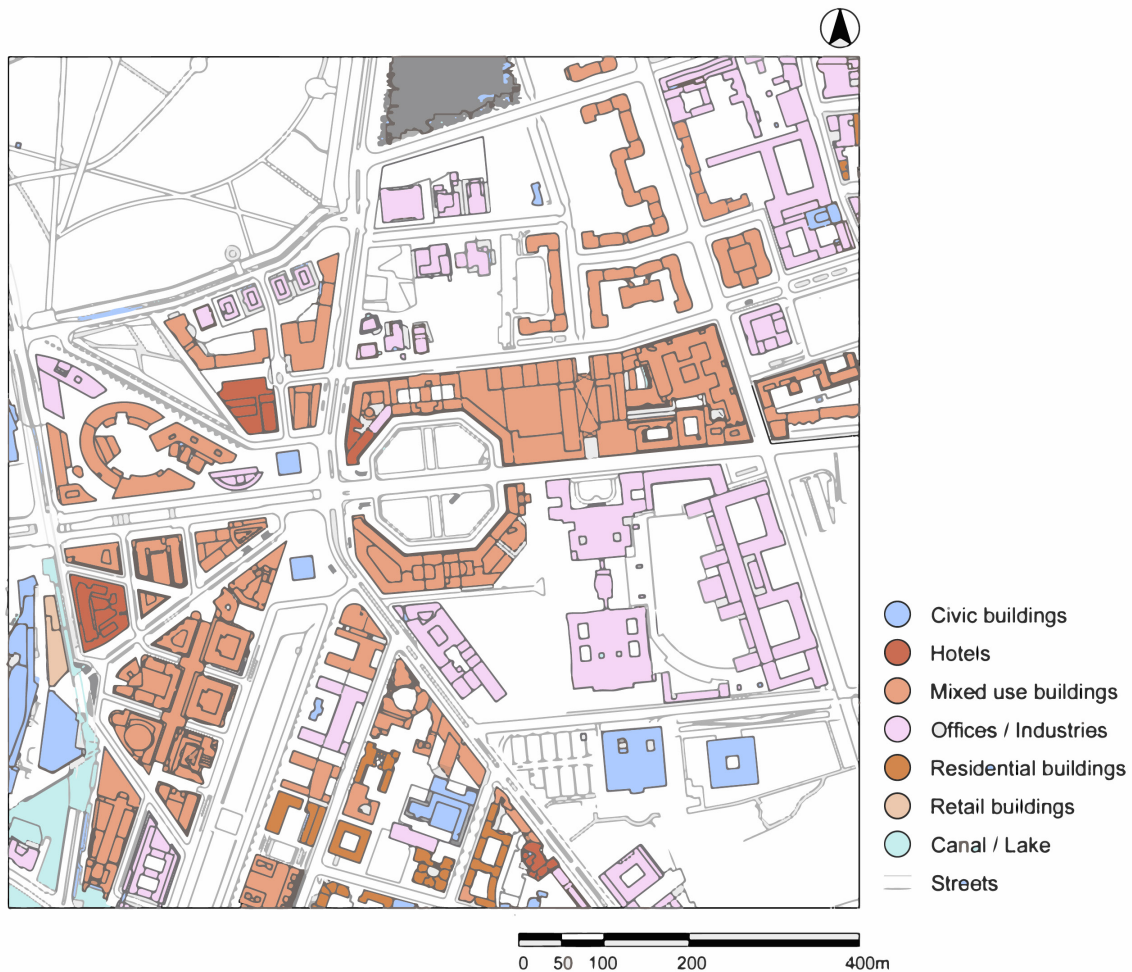


Figure 50. Land use map of a 1x1 square km of the districts (Alves, 2020 Basemap from SenSW, n.d.)

forming a maze with underground exhibition areas) and essential public transport infrastructure, specifically the hub of Potsdamer Platz add to the share of the civic spaces in the district. As one goes off Leipziger Platz towards the west, a theatre and city library can be found overlooking the Piano lake (southwestern edge of the map). Two of four hotels are located beside the Postdamer Platz development while an under-construction hotel sits on the western edge of Leipziger Platz and the fourth one is located a few meters off Potsdamer Platz's traffic junction on Stresemann street.

The presence of several large-scale office buildings on the east of Leipziger Platz is due to these being federal ministries and related sections of the German administrative system. One such building is the Bundesrat, a federal office located just east of Leipziger square. The western sections of the map tend to reflect more of a diversity in the use of the land owing to their newness and a change in usage pattern in the city center (Senate Department for Urban Development, 2007).

2.4.3 Green spaces map

Green spaces in urban areas are nature-based solutions that tend to offer innovative approaches to increase the quality of urban settings, enhance local resilience and promote sustainable lifestyles while improving the health and the well-being of urban residents. The definition above encompasses parks, playgrounds or vegetation in public and private places within city districts, both open and enclosed (World Health Organization, 2017). For the analysis of the selected Berlin districts, the green spaces are classified on the nature of their usage and accessibility. 20% of the district's area is green spaces and these are detailed out in figure 51. Given the observations of the area (detailed in section 2.3.2), it can be inferred that about 85% of this area is soft scapes, vegetation that is incorporated into a landscape (Merriam-Webster, n.d.). The balance open space area is either open lots for development or streets and curbs, areas that are largely hardscaped and not supportive in reducing the negative impacts of the climate in the urban core.

The Grosser Tiergarten (figure 52, A) is also one of Berlin's least paved areas and even on the edges of the garden where it meets the streets the surface material is natural turf. The influence of this space on the city is even larger as a considerable section of the space can be observed in figure 60. The park in this section itself has a little over

1000 trees, but this figure is even substantial for the district as considerable trees are also located in the parking place Gropius-Bau (B), the Prinz Albrecht palace site on the lower right of the map (destroyed in the 1944 Battle of Berlin) and alongside most streets.

The share of private spaces at five percent is quite low in contrast to their visibility on the map. Most of these spaces are inner courtyards of buildings or surrounded by buildings on all sides with the only sizable exception being the private garden (C) on the right of the Tiergarten in the backyard of public buildings along the street. The single semipublic park (D) opens to the public for events but can also be leased out for private events but is not preferred by residents due to the presence of a much larger and tree-dense space

Nature usage of the public space	Plot Area (m ²)	Land use share (%)
Public	121,240	12.00
Semi-public	4,230	0.50
Private	50,475	5.25
Platz / square	10,125	1.00
Playground	2,005	0.25
Water bodies	9,285	1.00
	197,360	20

Figure 51. Share of green spaces in the district (Alves, 2020)



Figure 52. Green spaces map of a 1x1 square km of the districts (Alves, 2020 Basemap from SenSW, n.d.)

adjoining it. The only playground (E) is where multiple residential units are located, and is in part due to the gardens and parks in the city having such dedicated and secure spaces, apart from the office dominated nature of the district. The Piano lake (E) is the only waterbody along with a small section of the Landwehr canal that connects to this lake. The lake hosts a lot of cafes and dining areas on its waterfront and due to limited traffic is quite a peaceful space. The use of trees on both sides of the street adds human scale making the area more usable for pedestrians while also minimizing the larger blocks that are closely

placed in the newer mixed-use developments.

The overall visual perception of the area is influenced by the user's location and the possibility of a tree lined street. On streets with no trees and all buildings, users did not halt to have conversation or look around but continued their journey as in the case of the busy Leipziger street. However, even in the narrower street in the west with higher buildings, users paused and took a break resulting from the influence of human scale, lower visibility of traffic, and additional green cover in the area.

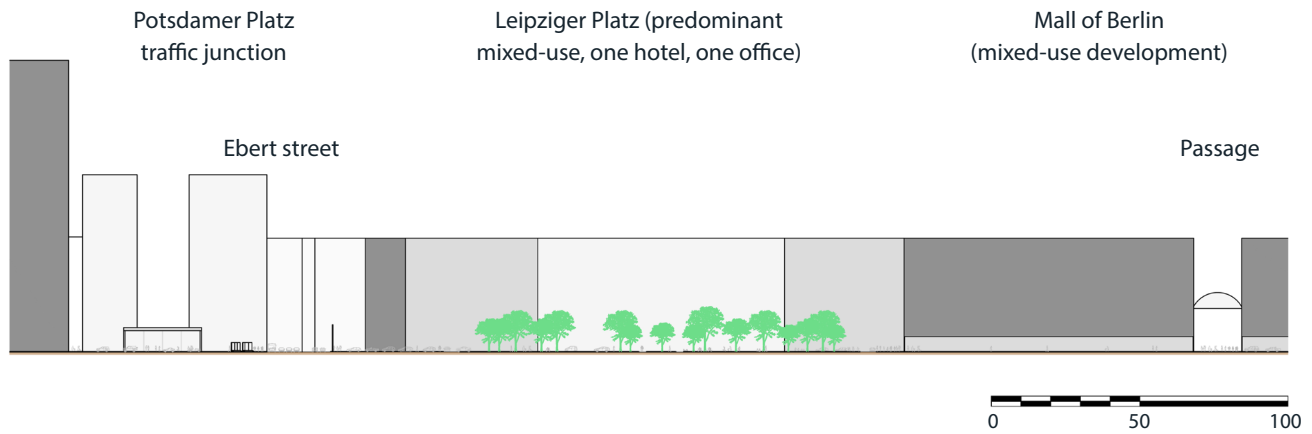


Figure 53. Section X along Leipziger street cutting through the center of Leipziger square (Alves, 2020)

The influence of trees in adding human scale and value to Leipziger square can be seen in the section X and Y (section lines in figure 52) resulting in a few people relaxing and engaging within the square. In contrast the absence of any vegetation in Potsdamer Platz (figure 54) does not allow for many interactions in this space. It remains heavily used due to the commerce and public transit hub there. The presence of a colonnaded path on the right of the square (figure 53) protects people from the climatic elements and creates a

welcoming space for pedestrians (cyclists must use the street). Another driving factor for lack of engagements is the building heights – the 103m high Bahn tower and its neighboring 70m high towers. While the 40m high towers in Leipziger square are also imposing the absence of a building across the inner ring street reduces its impact on users. Section Y (figure 56) shows pedestrian connectivity between the square and the Erna-Berger street on its right. No connection is within the square to access Voss street on the

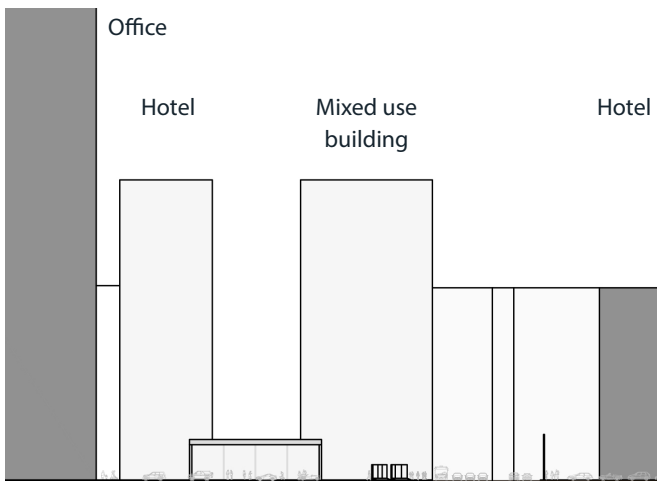


Figure 54. Potsdamer Platz enlarged section (Alves, 2020)

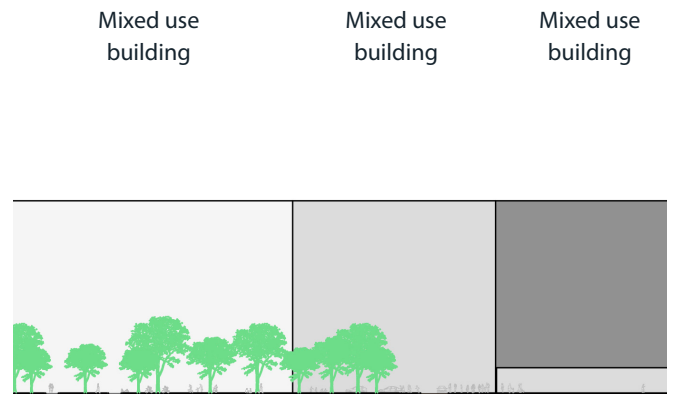


Figure 55. Leipziger square enlarged section (Alves, 2020)

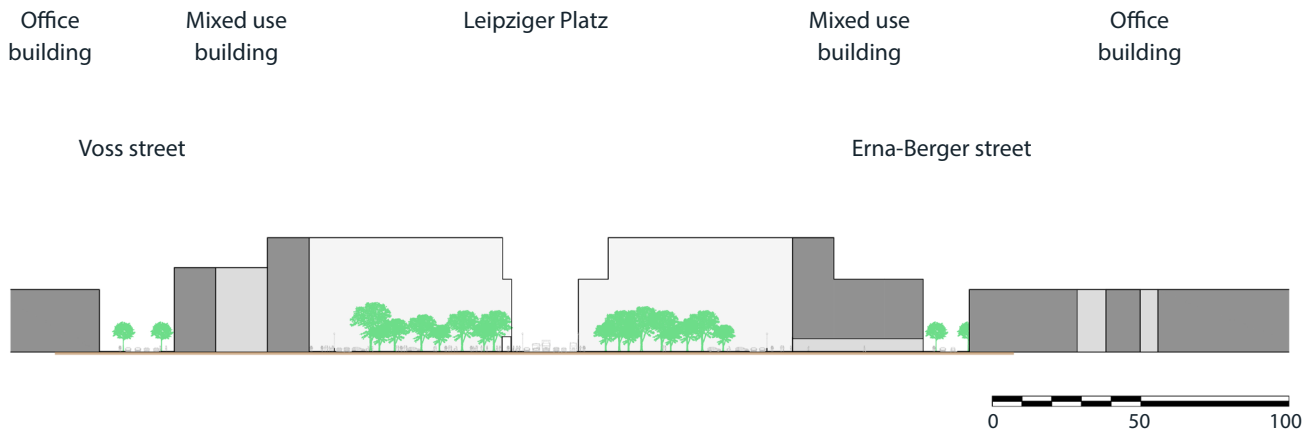


Figure 56. Section Y through the center of Leipziger square and its adjoining streets (Alves, 2020)

left, but a passage is possible 100 m north in the Mall development (see extreme right of section X). Both streets while having an acceptable aspect ratio (1.06 and 1.50 respectively) of building height to street width (Salat, Labbé, Nowacki, & Walker, 2011) are not so desirable due to the use of the former for vehicular access to the Mall development and the height of the building block on the latter. The street height to width ratios are compensated with use of vegetation (Voss street is dotted with commercial establishments further

north where older residential buildings are located a few meters away). Leipziger street (main street) has an undesirable aspect ratio of 1.70 at a 25m portion on the square's eastern end. The busiest part of the square is also observed on the left half as seen in section Y due to the commerce establishment adjoining it. The central part of the Leipziger square (figure 58) is the busiest due to the commerce driven Mall of Berlin and as it also caters to several bus routes for the city.

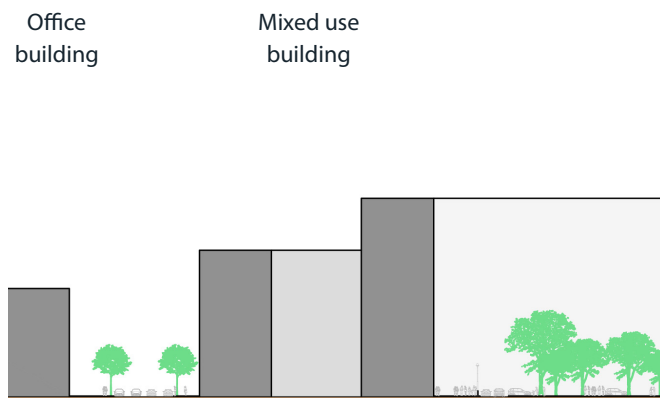


Figure 57. Enlarged section through streets (Alves, 2020)

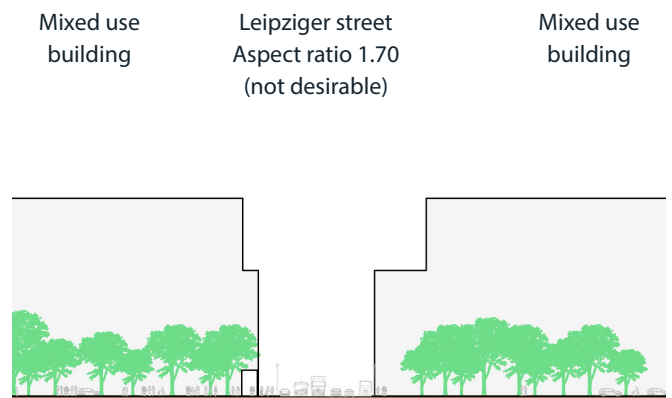


Figure 58. Leipziger square enlarged at center (Alves, 2020)

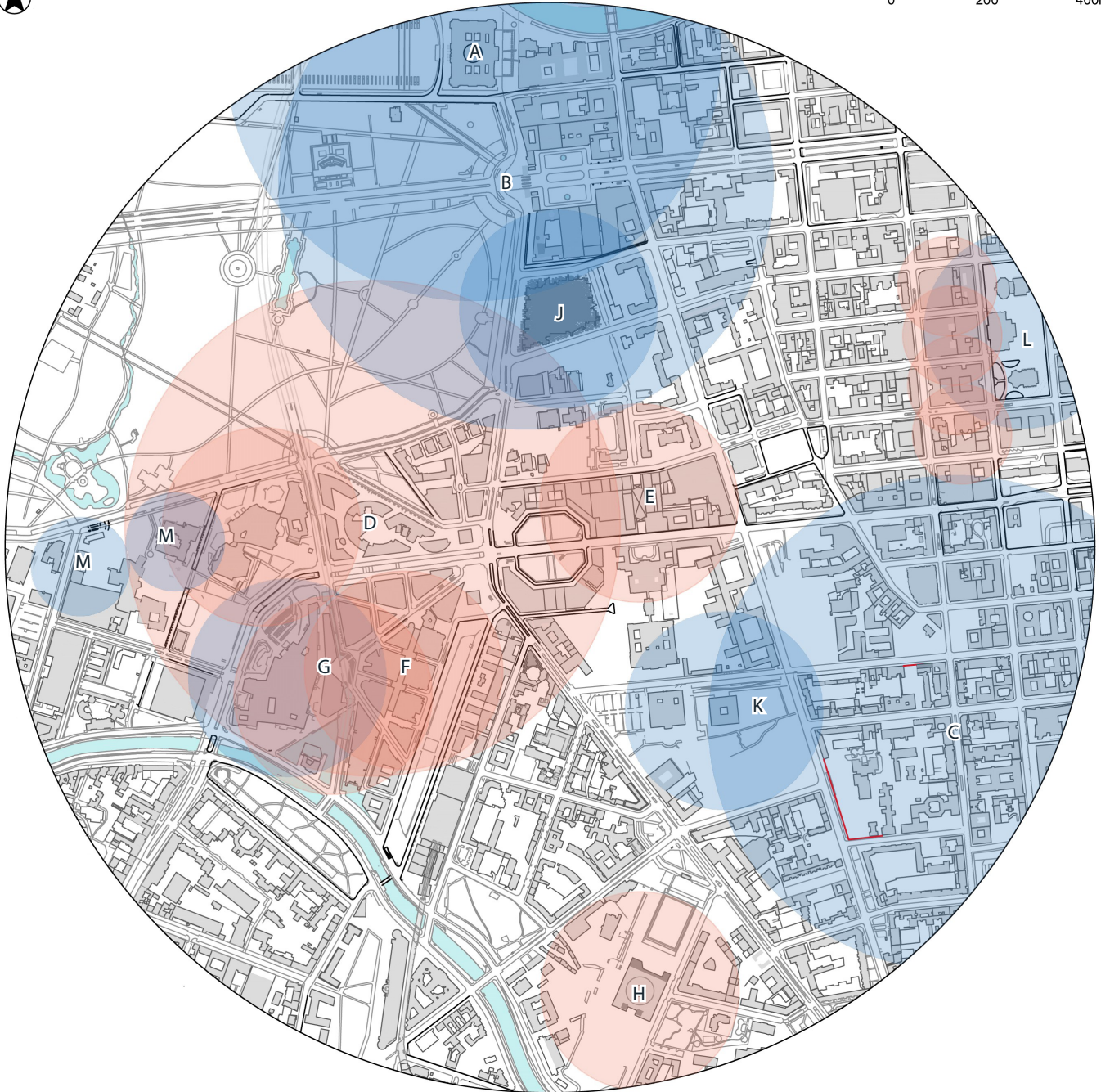
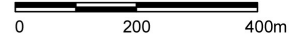
2.4.4 Sub-centers map

A sub-center can be defined as a place with a significantly larger employment density and with intense spatial interaction with its surrounding areas (Cladera, J., Duarte, C., Moix, M., 2007). Such a space must be mixed-use with a comparably higher density than its surrounding area and take form of a square or plaza or be at an intersection with a major street (Anacker, K., Nguyen, M., & Varady, D., 2020). Considering this definition, data from onsite interviews and the author's observations, the district area is influenced by subcenters of a commercial and touristic nature based on pedestrian influence in the surrounding area and the city.

To understand the nature of influence, radii of 500m, 200m and 100m were assigned for uses, derived from impacts of pedestrian footfalls at the sub-centers. The largest area influence of 500m is based on a city level and is observed at the Bundestag building (German parliament), the Brandenburg Gate, Checkpoint Charlie and the Potsdamer Platz development (figure 59, points A, B, C and D respectively). While the initial three are touristic, the fourth is commercially driven. It is important to highlight that no major commercial activity exists alongside the parliament and Gate, yet their historic appeal makes them an area with a high number of daily visitors. Checkpoint Charlie while historic does have major commercial

establishments around, although the area also remains a Berlin landmark. The development at Potsdamer Platz is market-driven and is a space where users indulge in the café culture of its central foyer, a moments respite from the traffic on Leipziger street. The 200m influence areas can be said to have a wider neighborhood-level impact and reflects commercial areas of the Mall of Berlin, Potsdamer Platz Arkaden, the casino and the Tempodrom arena (figure 59, points E, F, G and H) - spaces that serve as economic drivers. In this radius of influence, such an impact is observed at museums (memorial to the Jews and Topography of Terror, seen in figure 59, points J and K respectively) and the historic eighteenth-century Gendarmenmarkt (figure 59, point L). Lastly, the 100m influence can be seen commercially at the galleries behind the Gendarmenmarkt (square) and touristic decorative arts museums in the city's west (figure 59, points M).

It is also noteworthy to mention that although the influence of commerce is felt at Leipziger square, this is mostly a result of transit-oriented passage rather than a driver within the square. At the same time, the historic sections of the inner wall in the square do not gather people but function in a utilitarian way to allow for a resting space or a shaded area.



- Commercial meeting points with catchments area radii of 500m, 200m and 100m
- Tourist attractions with catchments area radii of 500m, 200m and 100m

- Buildings
- Water bodies

Streets

Figure 59. Sub-centers map of a 1.1 km radius from the center of Leipziger Platz (Alves, 2020 Basemap from SenSW, n.d.)

2.5 Catchment areas of Public parks

Parks are emerging as important public health solutions in urban communities globally as evidenced in around 40 years of research confirming that nearby nature, including parks, gardens, the urban forest and green spaces, support human health and wellness (Wolf, 2017). In the selected area of Berlin, it is evident in figure 60, that Leipziger square is covered by three parks. To further understand this, the radii of influence of the parks are set at 1000m, 500m, and 200m based on the impact of pedestrian usage.

The Grosser Tiergarten (figure 60, point N) of the Berlin Mitte district is understood to influence the entire city of Berlin due to it being an oasis of calm and peace in an otherwise bustling city. The 520-acre park is the second largest in the city after the Tempelhof airport and has a variety of areas within its spaces to cater to sporting and leisure activities that result in it having a 1000m influence on the surroundings. Although only a small portion of the park representing one third its area is shown in this map, the green open spaces, lush vegetation and lakes can be seen that influences the pedestrian footfall in the space. The next influence of 500m is associated with the Tilla-Durieux park (figure 60, point P), also in the Mitte area of Berlin. This 50m wide strip of grass bare of any trees is a visited space during the summer months. Its sloping sides allow for an interesting

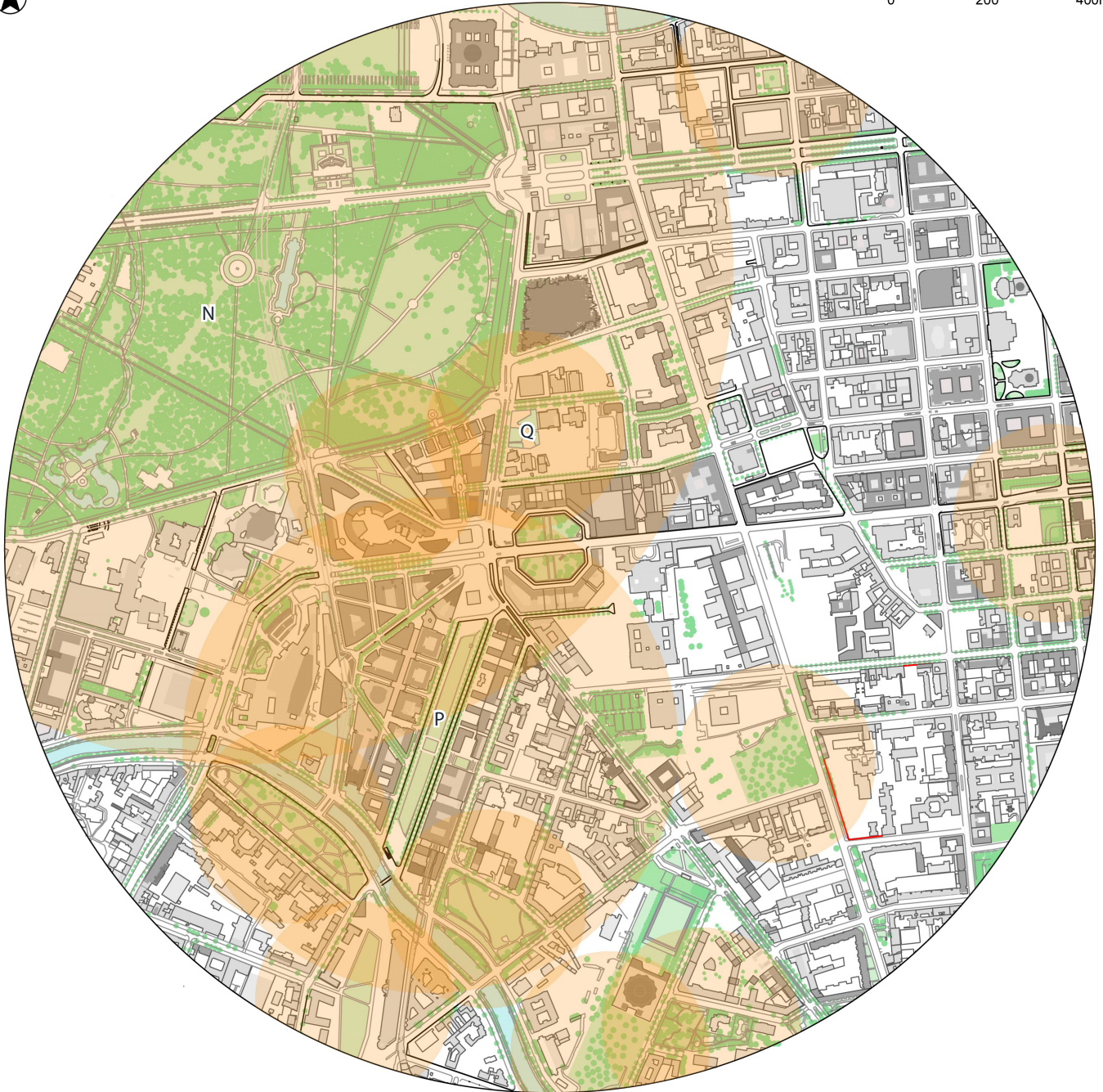
play of forms and texture in an otherwise planned and grid-oriented layout. The park sits on what was once the section between the Berlin wall that was inaccessible, however today this area is a distinguishing green space in the city. The 200m influence of the other parks in the area allows for good coverage of the built-areas and provides much needed green areas in the dense inner city of Berlin.

The absence of any parks in the government districts does not reflect a lack of any green spaces, there a significant private courtyard (see figure 52) within these centuries-old structures but these are not reflected on this map. This map only indicated the publicly accessible spaces of the area and one semi-public park, the Ministergarten (figure 60, point Q) that is also accessible free to the public when it is hosting events – it is often available for private events also.

The presence of the Grosser Tiergarten and other secluded green spaces nearby has an impact on a less usage pattern of Leipziger Platz. While the square is an oasis of calm (observed from within the green areas), the presence of the busy street combined with the bustling commerce scene surrounding it and lack of any facilities within it influence its usage pattern.



0 200 400m



Public parks with catchments radii of 1000m, 500m and 200m

Buildings

Streets

Water bodies

Figure 60. Catchment areas of green spaces 1.1 km from the center of Leipziger Platz (Alves, 2020 Basemap from SenSW, n.d.)

3. CONCEPTUAL ANALYSIS

3.1 Contexts for Urban Design

Urban design can be split in a broad set of contexts, namely; local, global, market and regulatory that serve as constraints to the development of urban public places (Carmona, Heath, Oc, & Tiesdell, 2003). The local context involves the site and its surrounding boundaries but can also include the area outside these boundaries in the case of development projects - scale being a deciding factor. The architect and planner Francis Tibbald's rule that "places matter most" derives from the idea that respect and appreciation of the context are vital for successful design, both socially and environmentally (Carmona, Heath, Oc, & Tiesdell, 2003). The relationships among people and the behavioral norms of society add to social and cultural aspects of a space, both of which influence their localized environments. The global context embeds these local actions in planning aspects as they in themselves have global impacts and consequences for development. These aspects involve integration with existing development, usage patterns of the buildings (land use or transit-based), site layouts (density, access to daylight and landscaping) and individual building designs (form, orientation, reuse, microclimate adaptability). The contexts of markets and regulations are connected better to each other while contrasting with the former two contexts. As we live in market economies, supply and demand are based on financial returns or

rewards which are limited by budgets. To put this in perspective, urban designers need to understand financial and economic processes by which places and developments are formulated. While it is understood that the regulatory context is referring to the government, a distinction is made between politics and regulations as the latter can have a substantial influence on the design of urban areas.

The definition that urban design is a "process of making better places for people than would otherwise be produced" asserts the interconnectedness and importance of the four themes within a development (Carmona et al., 2003). Some goals of development in public sector projects includes the increase in high-quality environments (new or existing), the creation of local jobs, additional local tax base, provision of long-term investment opportunities and availability of social benefit for communities, all while addressing local needs. Essentially, the value of a place should benefit local and global contexts while adhering to social, economic and environmental factors, key principles of sustainable design, yet remain core to the motive that urban design is for and about people.

3.2 Dimensions of Urban Design

3.2.1 Morphological

Morphology is the study of the form and shape of settlements (Carmona et al., 2003). This layout and configuration of urban space are essential in defining urban forms and layouts which have an impact on the urban block patterns, grid of the districts and permeability of streets. To ensure a desirable level of permeability (physical and visual), dead-end streets should be avoided and a robust street layout that is capable of adaptation in the future should be planned. Regular and ideal urban grids have some degree of geometric discipline, which tends to be more organic in their development (natural flow and growth over centuries) as opposed to the orthogonal grids of newer cities. Deformed grids are more appealing to users as opposed to monotonous grids (Carmona et al., 2003).

Buildings in the medieval ages had a means of distinction, often seen in the massing of specific uses like churches, town halls and palaces, typically public. In the modern period, many more private buildings have been used as such objects often leading to chaos in the urban fabric of the area. The use of active and passive facades is now a means for interaction and exchange to make the communities socially livable (Carmona et al., 2003). According to Rob Krier (1991), European urban spaces fall into three main plan shapes; squares, circles and triangles, which are adapted

by the use of distinctive elements to make them regular or irregular. These elements of use are angling, segments, additions, merging, overlaps and distortion. This combined with the play of facades leads to spaces that are open or closed.

In sustainable urban design, the usage patterns of streets must cater to all forms of mobility, often resulting in a multipurpose public space where usage patterns overlap. Only in necessary cases, vehicular and pedestrian movements can be separated but keeping in mind that social interaction and activities must continue to sustain (Buchanan, 1988). It is necessary to evaluate the context of a specific location when considering patterns related to the urban morphology of the area. A pattern that works in an inner-city core may not function as well in a suburban area. Likewise, the use of multiple public transit options in an area where cars can be avoided, generally high-density urban areas is feasible as compared to outer city districts with one bus line as the only mode of transit. In such a situation the use of private modes is necessary. When designing city grids or planning out developments, holistic approaches encompassing all possibilities must be taken into consideration.

3.2.2 Perceptual

Perception is a dimension of urban design that deals with the awareness and appreciation of the environment, in particular the experience of “place” (Carmona et al., 2003). The evaluation of this dimension is largely influenced by the people and their perception of spaces through psychological aspects, intellectual or emotional (such as the inviting nature of a public area). Urban spaces are not necessarily defined by the age of an area, it can be a new creation, what matters is its ability to engage a user. For places to be successful, they must fulfill four attributes; comfort and image, access and linkage, uses and activity as well as sociability (Carmona & Tiesdell, 2007).

The intangibles in Comfort and image include safety, charm, history, attractiveness, walkability, cleanliness, greenness and sittability, which can be measured using crime statistics, sanitation data, buildings appearances and environmental data. The intangibles in access and linkage include readability, walkability, reliability, continuity, proximity, connectedness, convenience and accessibility which can be measured using traffic data, transit usage, pedestrian activity and the parking usage patterns. The uses and activities include the intangibles of realness, sustainability, specialness, uniqueness, affordability, fun, activity, usefulness, celebration, vitality, and homegrown quality. These can be measured by property

values, land use patterns, rent levels, retail sales, and local business owners. Lastly, the sociability intangibles include cooperation, neighborliness, stewardship, pride, welcoming, gossip, diversity, storytelling, friendliness and interactivity. These can be measured by street life, social networks, evening use, volunteerism, number of women, children and elderly (Project for Public Spaces, n.d.).

The public perception of space is largely dependent on factors that are influenced in the planning stages of a space. The ability of planners to understand these factors and adapt spaces to cater to the varying needs of society, in terms of age groups, diversity and usage leads to the successful design of urban areas. The resulting spaces are then seen as having a positive or negative impacts based on their ability to cater to the local area, for instance, the addition of hardscapes to open spaces in heavily urbanized city cores will be a negative aspect as opposed to the retention or creation of softscapes like grass. In the end, it is the public that is the decisive factor in deciding the success of places in public areas and their basis for evaluation is largely based on their ability to connect with a place.

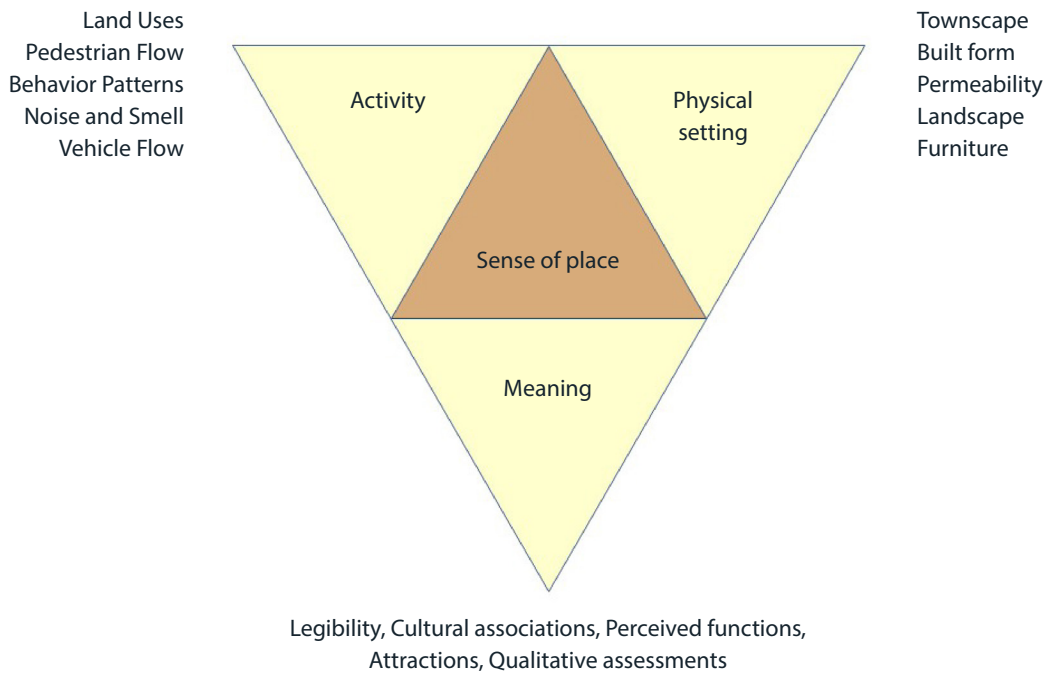


Figure 61. Descriptive components of place identity by John Punter (Alves, 2020 Adapted from Carmona et al., 2003)

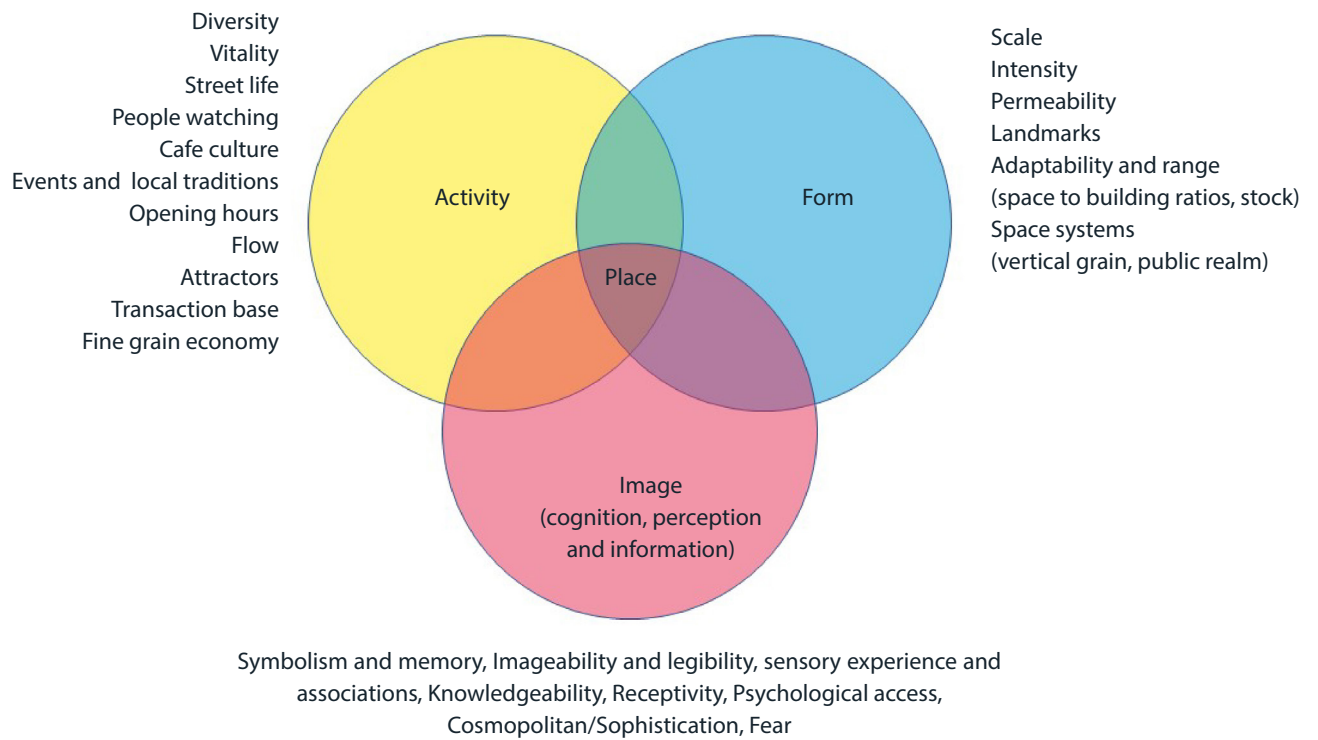


Figure 62. Descriptive components of place identity by John Montgomery (Alves, 2020 Adapted from Carmona et al., 2003)

3.2.3 Social

Society and space are closely related, it is difficult to conceive one without the other as it is often seen as a two-way process, where people who create and modify spaces are influenced by them in many ways. Hence, by shaping the built environment, urban planners and designers influence patterns of human activity and social life. Human behavior is situational; it is embedded in physical, social, cultural and perceptual contexts (Carmona et al., 2003).

Despite individualistic and complex demands of human values, goals and aspirations, the existence of the overarching hierarchy of needs is proposed. A five-stage hierarchy was identified by Abraham Maslow (1968) for these basic needs; physiological (warmth and comfort), safety (feels safe from harm), affiliation (belong to something like a community), esteem (be valued by others) and self-actualization (fulfillment and artistic expression).

The influence of design on human behavior is a deciding factor in the use of public spaces. Design for outdoor activities can be simplified into three categories; necessary, optional and social. While activities like going to work or school are necessary, taking a walk or going for a coffee is optional. Likewise, social activities are largely dependent on the presence of other people in a space to promote communal activities. It is possible

to state that when a conducive environment is present, spontaneous social behavior is observed as a direct consequence (Gehl, 2011).

In a public space, individual and collective needs have to be balanced and managed – a balance between freedom and control. The recognition that public space is a shared space must prevail in situations where activities of choice are to be carried out. This warrants the need to create marginal spaces in public areas where free behavior can go on but with little damage to the ethos of the place. While the social aspect is catered to by addressing accessibility, safety and security for all and current economic trends (and of an increasing nature in cities globally) of creating a space only for private interactions and paid recreation must be controlled so as not to lose the value of such spaces for all income levels of societies (Carmona et al., 2003).

3.2.4 Visual

Visual aesthetic in design derives from the notion that architectural and urban planning situations are merely urban public art forms, one's that the public must experience in their daily lives across their urban commutes and varied ways of lives. In general, people have a wider liking for their environments than just an aesthetic appeal (Carmona et al., 2003).

According to Jack Nasar (1998), there are five attributes of liked environments; Naturalness (predominance of nature overbuilt spaces), Upkeep/civilities (maintained spaces), Openness and defined space (blending of spaces), historical significance/context (areas of favorable associations) and order (organization, clarity and coherence). When talking of organization and coherence, six principles come to mind; the principle of similarity with identical elements and repetition of form and characteristics, the principle of proximity enabling elements that are closely placed to be read as a group as opposed to ones that are placed apart, the principle of common ground and common enclosure where elements within and outside are distinguishable, the principle of orientation where common elements are grouped either by geometric means or as solids and void, the principle of closure where incomplete or partial components can be perceived as wholes and lastly the

principle of continuity where patterns can be recognized although not always having been planned or conceived that way (Meiss, 1990).

Urban space can be classified as positive or negative based on defining elements. Positive spaces are enclosed, outdoor spaces that have a distinctive and definite shape. These conceivable spaces can be measured, have boundaries and have as much an impact in its shape as that of the surrounding buildings. On the other hand, negative spaces are shapeless and are more often than not leftover spaces resulting from development. These inconceivable spaces lack defined edges or form and can be adapted to respect surrounding buildings. It is important to note that such spaces formed outside buildings are not always seen as negative. The hard (bound by architectural walls or solid surfaces) and soft elements (green areas like parks or even linear greenways) of a space can be played with to adjust the character of such space (Alexander, Ishikawa, & Silverstein, 1977)

3.2.5 Functional

The functional aspect involves the way spaces work and how an urban designer can allow for better social usage and visual aesthetic through the utilized approaches. The functional aspect is a pure design process and must fulfill the criteria of firmness, commodity, delight and economy simultaneously. Comfort, relaxation, passive engagement, active engagement and discovery are essential for public spaces to support and facilitate activities (Carmona et al., 2003). As well as being meaningful spaces (allow people to make strong connections) and democratic (protecting rights), public spaces must be responsive – that is, designed and managed to serve the needs of its users (Carr, Francis, Rivlin, & Stone, 1992). Visual permeability must be prioritized over enclosed spaces to allow for public spaces to flow into a sense of connectedness for pedestrian users. Avoiding such integration by over localizing the space disrupts it from its environment and often leads to unused spaces. Places are not local things, but layers in the larger city-wide aspects of mobility. Places do not make cities but cities make places (Hillier, 1996).

The design of the edges of public spaces is the most important element of space design. The life of a public square forms naturally around its edges where people linger as opposed to being in the central open space. If edges are designed well,

spaces succeed, as they become areas to stop in and not just pass by. The additional formal and informal spaces to sit enhances the edges of public areas (Carr et al., 1992). The edges of buildings should also allow for activities that benefit the public realm. While enabling interactions, a sense of privacy must also prevail. The spatial and temporal concentration of varying land uses is also essential in creating a lively and well-used space.

The microclimate of spaces is often neglected in design but is an underlying factor in the success of spaces. The way access roads are placed, the orientation of internal and external space based on sunlight and shade, the wind environment, relationships of the buildings and open spaces, the position of main entrances and landscape features all have an impact on space use. Sunlight in urban spaces is as desired as daylight in buildings, it encourages outdoor activity and has a lasting impression on the mood of people. Lighting both statutory basic lighting and amenity lighting is essential to allow for the use of space in the day and at night. Well-lit spaces make users feel safe and secure and add to the functional dimension of public space.

3.2.6 Temporal

Time and space are intimately related, as time passes, spaces become more lived-in and meaningful by their time-thickened qualities. Designers must understand the implication of time on places, both in cycles (seasons) and progressive (gradual unfolding). As Kevin Lynch (1960) observes, as users we experience the passage of time in the urban environment in two ways; through rhythmic repetition and through progressive and irreversible change. Patrick Geddes' quote "a city is more than a place in a space, it is a drama in time" reinforces the need for designers to create and manage spaces that can accommodate the inevitability of time's passage. Cycles of activities in public spaces are grounded in season changes and climatic locations for instance in a northern hemisphere winter, the use of public spaces is less as compared to their usage in spring when the trees bloom due to the higher level of the sun – the spaces activate.

Conservation and uniqueness of places and their history define many current approaches in urban design, stressing the need for continuity rather than a break from the past. Due to constant change, some aspects of a city are retained, the movement networks and civic buildings have sustained the passage of time and are seen more or less as permanent elements. Likewise, the relative permanence of urban

spaces establishes qualities of them as more meaningful places, where this physicality provides a tangible record of the passage of time and embodies a social memory (Carmona et al., 2003).

Organic growth can derive from seven rules; the notion that no project is too large and a mixed flow of project scales are essential, the growth of larger wholes should be incremental, the vision of projects must be experienced before its execution, buildings should create a coherent and well-shaped positive urban space, layouts of larger blocks should be thought in terms of access and climatic factors, a whole physical fabric should be generated through construction and the formation of centers is essentially the result of making things whole (Alexander, Neis, Anninou, & King, 1987).

3.3 Strategies for Sustainable Urbanism

One of the earliest strategies for sustainable development and design addressed the issue of the requirement of open and civic spaces to improve health and quality of life (Commission of the European Communities, 1990). It further stressed the need for compact and mixed forms of development focused on reducing travel times, recycling and energy-use reduction. At the same time, the need to maintain regional identities and integrate planning across disciplines was highlighted. In the same year, Ian Bentley points out the role energy-efficiency (indoor passive and outdoor), adaptability of built forms, pollution reduction, wildlife support and permeability provide to urban spaces (Carmona et al., 2003). Michael Breheny (1992) spoke of the rejuvenation of town centers and inner cities while reinforcing the need for mixed-use developments. He also stated the need to improve public transport infrastructure. The needs of democracy and appropriate scales of built form alongside organic design were later covered (Haughton & Hunter, 1994).

The need for attractive and human-scale quality in spaces is essential for the success of urban spaces. A critical mass of facilities to sustain developments and a sense of place mixing are driving factors to ensure quality driven environments. It was Richard Rogers

(1997) who classified cities based on functional and social aspects as a just city (fairly distributed necessities), beautiful city (art and architecture move people spiritually), creative city (open-mindedness and experimentation), ecological city (balance of landscape and built form), city of ease of contact (public realms encourage community activities), polycentric/compact city (maximizes proximity and protects the countryside) and diverse city (broad range of public activities).

In the implementation of such strategies, it is necessary to evaluate the impacts these can have not just in the short time, but over a longer period. It is also important to address these strategies specifically for an area of redevelopment, as the localized impact varies according to the local ethos and cultural adaptability of a city or neighborhood.

3.4 Climate data for Berlin

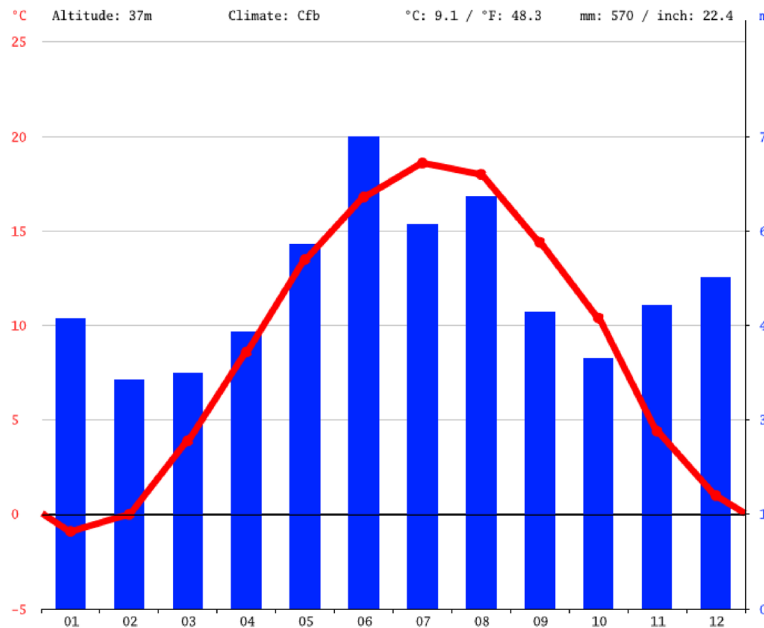


Figure 63. Berlin Climate graph (Alves, 2020 Adapted from climate-data.org, n.d.)

Following the Koppen-Geiger classification, Berlin, the capital of Germany is classified in the climate category Cfb (Marine West Coast Climate). The city has four seasons; Spring (March to May), Summer (June to August), Autumn (September to November) and Winter (December to February). While the average yearly temperature is 9.4°C, July is the warmest month (average temperature of 18.3°C) and January is the coolest month (average temperature of -0.6°C). The city's mean rainfall is 570 mm with June being the wettest month (average of 70 mm) and February being the driest (average of 34 mm). There is an average of 225 days of precipitation of which an average of 205 days is liquid precipitation days (climate-data.org, n.d.).

and frequent but it is often of low intensity. Fog is common in autumn and winter, but thunderstorms are infrequent. Strong gales with high winds may be encountered in winter. Temperatures in the winter tend to be mild, while summer temperatures are moderate. The city has natural weather hazards in the form of storms, floods, earthquakes, and wildfires. Spring flooding is frequent in low-lying parts of the city. Extreme temperatures are rare, but cold waves and heat waves trigger fatalities as in the past years 1996 and 2003. Thunderstorms and even hailstorms occur in spring and summer, while winter storms, though rare, occur periodically. Berlin has many forested areas that are prone to wildfires at the peak of summer (Weather Atlas, n.d.).

Precipitation is plentiful, reliable

3.5 Casestudies of European squares

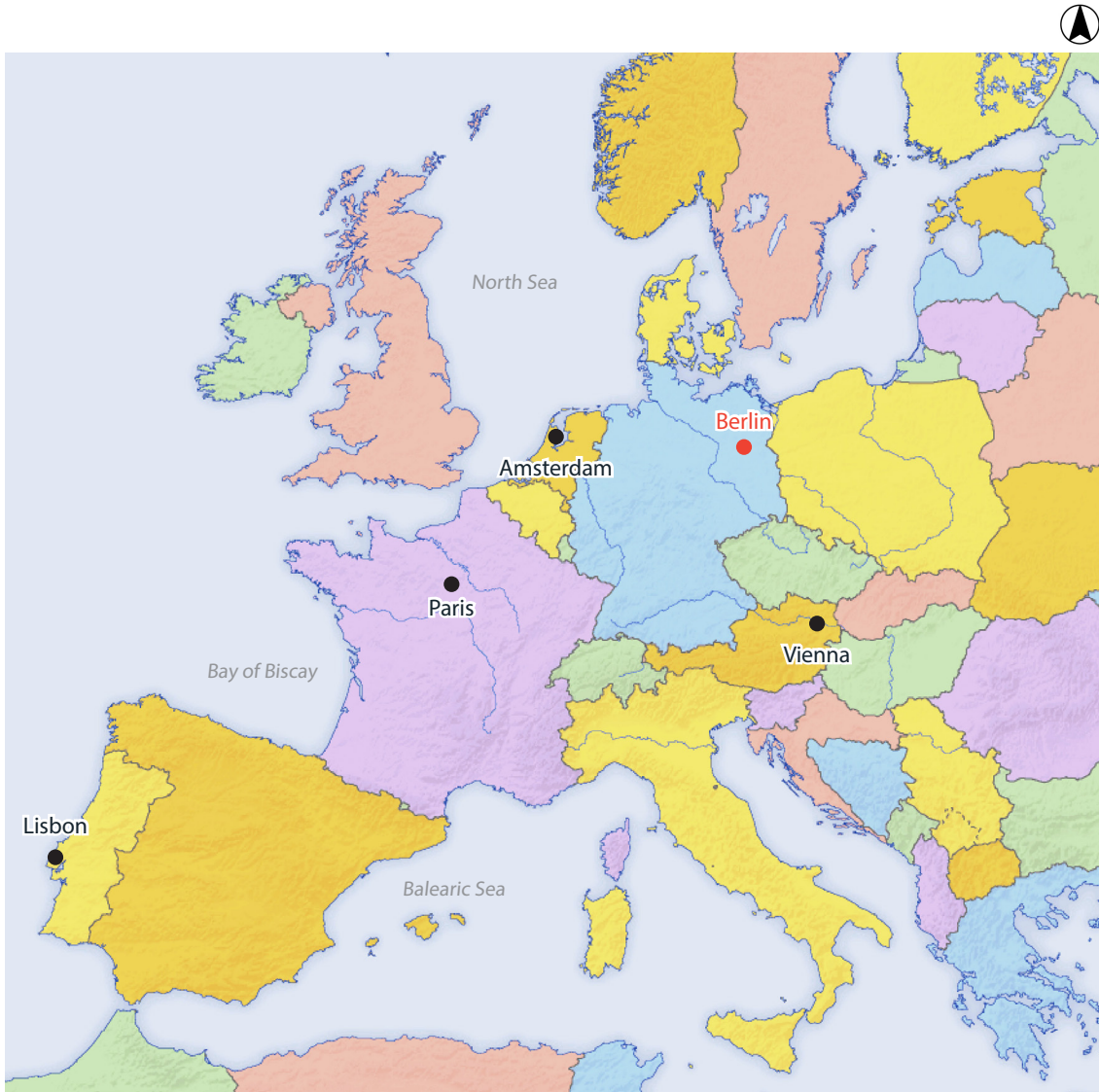


Figure 64. Map with the surveyed cities in black and Berlin in red (Alves, 2020 Adapted from Gifex, n.d.)

Four cities in Europe were selected based on their varying geographical location and rankings in world data for the analysis of their prominent public squares. The countries of Netherlands, Portugal, France and Austria were ranked in the top 40 countries worldwide based on the human development index 2019 (United Nations Development Programme, 2019). The index considers the dimensions of life expectancy (at birth), knowledge (expected years of schooling and mean) and a decent standard of living (Gross National Income per capita) (United Nations Development Programme, n.d.) Based on the index, the Netherlands, Portugal, France and Austria ranked in the positions 10, 40, 26 and 20 respectively. Further based on the European Quality of Life index 2019, the cities of Amsterdam, Lisbon, Paris and Vienna ranked 23, 44, 64 and 5 respectively. What is interesting to note is that three cities saw a considerable drop in ranking from a year earlier when the position for the cities of Amsterdam, Lisbon, Paris and Vienna were at 14, 31, 48 and 9 respectively (Numbeo, 2019). Vienna is the only city that climbed the ranks. The Quality of

Life Index is an estimation of overall quality of life taking into account purchasing power, pollution, house price to income ratio, cost of living, safety, health care, traffic commute time and climate (Numbeo, n.d.), which indicates the overall complexity of the index and its many parameters that contribute to urban life. Vienna has fared well for years due to its compact planning (easy access to all services), good and affordable public transport and a considerably low cost of housing (compared to other European capital cities).

Lastly, based on a survey by the European Union on the Quality of life in European cities in 2015, satisfaction rates for all four cities are among the highest in Europe. The survey asks respondents about their satisfaction with public spaces such as markets, squares and pedestrian areas. The cities of Amsterdam, Lisbon, Paris and Vienna had satisfaction rates of 84%, 75%, 81% and 88% respectively. In comparison, Naples, Athens, and Rome had satisfaction rates of 48%, 52% and 55% respectively, considerably lower than their counterparts (European Union, 2016).

The survey data on pages 72-89 are the result of one hundred and five online surveys, some of which were later discussed with the respondents. Due to ongoing travel restrictions and social distancing regulations, interviews were conducted online for the squares, except for Berlin where verbal interviews were done alongside an overall urban analysis of the selected area.

3.5.1 Museumplein, Amsterdam

Museumplein, laid out to host the World Exhibition in 1883 is home to some of Amsterdam's best museums - the Rijksmuseum, Stedelijk Museum and the Van Gogh Museum giving it the title the city's cultural hub. In addition to being a mixed-use space host to a formal grocery store below, informal stalls on specific Sundays dot the square above, while the other end of the sloped lawn faces the Concertgebouw, a neoclassical concert hall. Located in Amsterdam South, the square plays an important recreational function in a city with closely built buildings. The grass areas of varying sizes alongside a pond and playgrounds are also the city's event hub - both political and cultural. On November 21, 1981, a large

demonstration took place on the Museumplein where 420,000 people demonstrated against the placement of new nuclear weapons in Europe. The Museumplein was reconstructed in 1999 to include underground parking spaces and an underground supermarket. In the winter, the pond is transformed into a series of artificial ice-skating rinks, popular with the city's residents and tourists alike. These redesigns no longer allowed for vehicular traffic flow as before, although a few cycle paths run through it. On the north side of the Museumplein are spacious houses that date to the early twentieth century, many of which now serve varying functions, often mixed-use and offices (ThingstodoinAmsterdam, n.d.).



Figure 65. Sloping lawns looking towards the Kurokawa wing of the Van Gogh museum (ThingstodoinAmsterdam, n.d.)



Figure 66. Map showing land use and green spaces around Museumplein (Alves, 2020 *Basemap from OpenStreetMap, n.d.*)

As seen in figure 66, the land use pattern of the square is dominated by the civic functions of the museums on its northern end and somewhat the concert hall on the west. Several offices, foreign embassies and consulates occupy the stately villas on the southern side while the area on the west is a mix of housing and offices on the upper levels and retail on the lower levels. The park is one of the larger green areas in the city and is a large expanse of grass that is widely used in the summer months (figure 66). The plein or square portion is a hub of human activity (figure 67) and is an inviting space with the large water

body (figure 68) at its center which splits the play areas and the commerce stalls located on either side. The museum civic facilities are the only large scale constructions visible in the area. Tramlines can be seen running on the street adjoining these buildings continuing towards three directions in the city, the north, west and south. This allows for good connectivity in the city and an easy movement of people during large scale activities as they run on dedicated areas in the center of the road separated by medians from vehicular traffic and only cross traffic at signalized intersections.

CONCEPTUAL ANALYSIS



Figure 67. Square beside Rijksmuseum (Joy Della Vita, 2016) A performer overlooking a part of the square with human activity and the iconic (and heavily photographed) tourist sign in the background. The area is an active pedestrian and bicycle zone with no vehicular movement.



Figure 68. Ice rink (Yourlittleblackbook, 2019) A water feature in the center of the square is used as an ice rink in winter, a status it held in the previous centuries too (restored in 2000). On the right, it has a skate area, playfield for ball sports and swings.

Most of the visitors that come to the square do so for the museums and flair of the area as seen in figure 69. It is interesting to note that 57% of the journeys are done on foot and 17% by bike. In figure 70, it is interesting to note that while 82% of the people find the area welcoming, only 52% find it easy to talk to an unknown person here. The opinions received in the surveys highlighted that while there are ample green areas and open spaces in the square, it is often busy with visitors. In addition, the mixture of spaces alongside the presence of a canal (behind the Rijksmuseum, not seen in figure 66), bridges, walkways and old buildings gave the space a sense of local character. However, the area was often pointed as being too crowded probably due to the presence of some of the best art museums around. Further in figure 70, while 74% of people find the space interesting, only 55% would drink a coffee with a friend here. The users found the multiple connections

with important buildings of varied architectural styles intriguing and thought that the presence of the water feature enhanced the space. A very centralized approach to the area that focuses on a major usage pattern was disliked by many users.

The respondents also suggested that additional seating would be welcome, and some sort of maintenance of the sand and stones path of the square would help reduce the impact of the dry dusty air around this part (when it is warm and Sunny). More signboards to assist tourists, in English were also suggested.

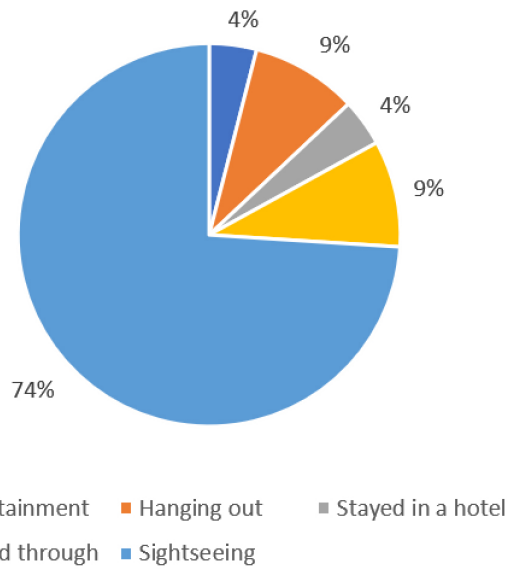


Figure 69. Chart depicting purpose of visit (Alves, 2020)

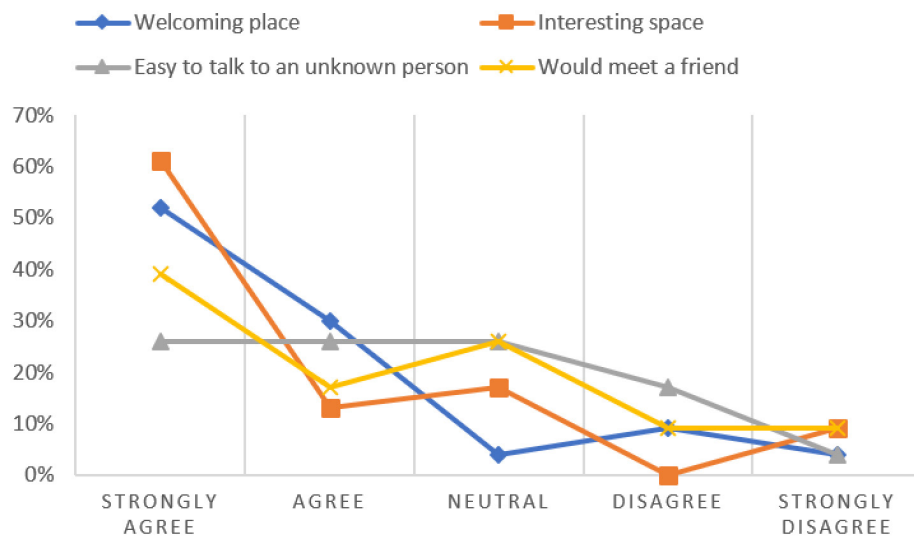


Figure 70. Graph indicating visitors opinions of the square (Alves, 2020)

3.5.2 Praça do Comércio, Lisbon

Praça do Comércio, locally known as Terreiro do Paço, is one of Europe's largest squares and was once where the palace (paço) stood before it was destroyed in the earthquake of 1755. The square is seen as a symbol of the city and is home to some of Lisbon's top attractions - Patio da Gale (event venue), Cais das Colunas (former noble entrance into the city on the waterfront), and the innovative Lisbon Story Centre. A statue of King José I of Portugal is centered in the square which features a crisscross pattern (figure 71) on the floor that breaks symmetry with the rectilinear forms of the surrounding buildings and areas (Turismo de Lisboa, n.d.).

The grand square is surrounded on three sides by distinctive yellow Pombaline style (18th-century Portuguese architectural style) buildings, with the southern side facing out over the Tejo Estuary and the Northern side aligned with the Arco da Rua Augusta. Numerous restaurants and cafes line the east and west sides and in the northeast corner is Lisbon's oldest restaurant, the Martinho da Arcada, dating to 1782. The Praça do Comércio is a high activity pedestrian and vehicular zone (periphery only) with tourists, locals rushing for trams and buses and government workers accessing the many government offices here (LisbonLisbonPortugal, n.d.).



Figure 71. View of the square with the statue of king Jose I and the Arco da Rua Augusta in the background (Alves, 2017)

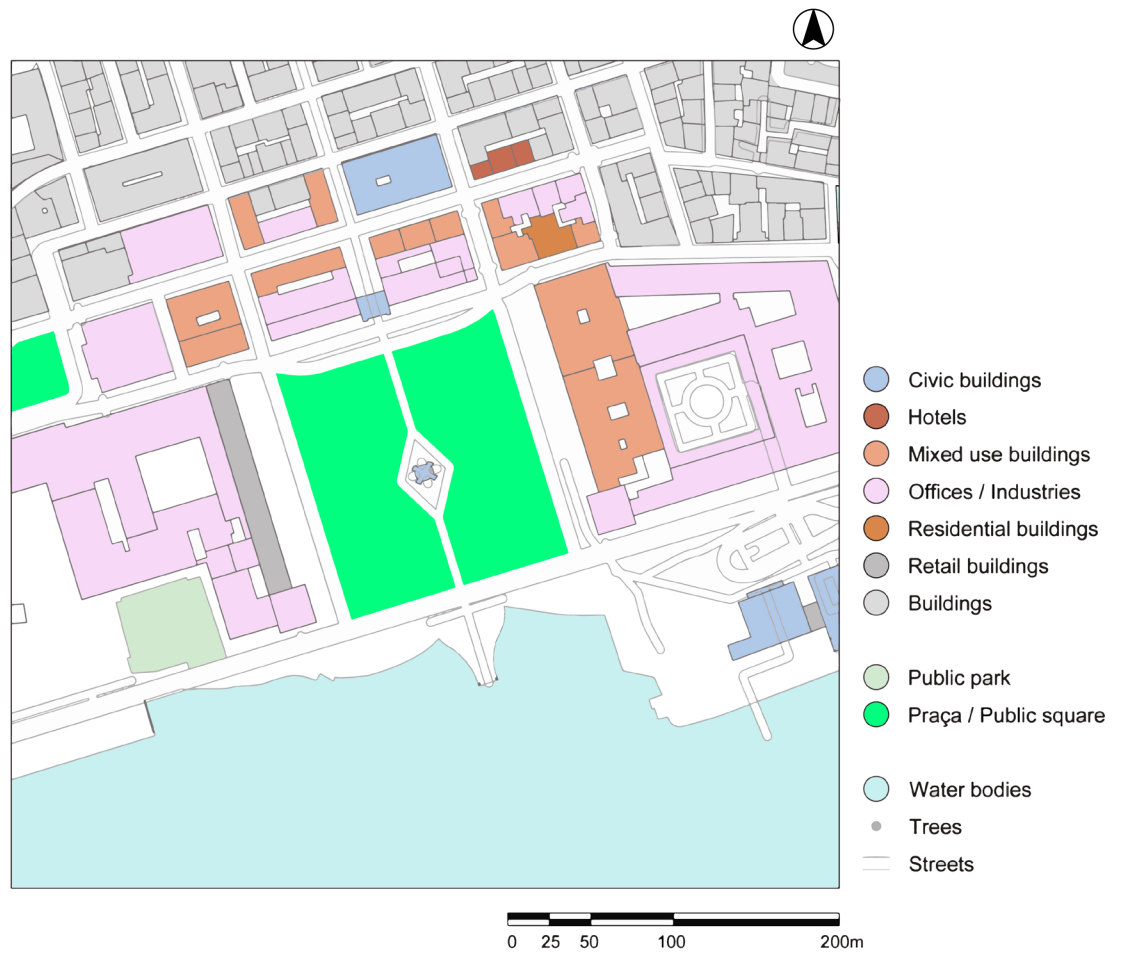


Figure 72. Map showing land use and green spaces around Praça do Comércio (Alves, 2020 Basemap from OpenStreetMap, n.d.)

The square is a large space void of any vegetation and lined with colonnaded buildings on three sides and the Tagus estuary on the fourth. While the central areas and the buildings on the waterfront are government offices, many of them have some retail and commerce on the facades lining major the streets (figure 74). As one moves northward into the denser Baixa-Chiado quarter, a grid pattern emerges with mixed-use buildings housing retail on the lower levels and houses or offices on the upper levels. The grid pattern (figure 73) of this region is in contrast to the otherwise organic growth of the other parts of

the city, a result of being completely rebuilt after the earthquake of 1755. While this area of the city is denser and has few trees and green spaces, the presence of pocket parks in between buildings is a welcome sight. In figure 72, the empty void on the bottom left housing the Portuguese navy offices has a substantial green space to its left. This area can be accessed along the Ribeira das Naus road on the southern end of the square.

CONCEPTUAL ANALYSIS



*Figure 73. Rua de Prata view towards square (Alves, 2017)
The street beside Supremo Tribunal de Justiça (courthouse) building that houses the historic triumphal arch is often closed to vehicular traffic to be used for leisure activities, here it is playing host to the Lisbon run of 2017.*



*Figure 74. View from the north east corner (Alves, 2017)
The dining areas on the east and west of the square extend 15m into the square, while still leaving the entire central portion void of any commercial establishments. The square once housed the Paço da Ribeira palace, destroyed in 1755.*

Most of the visitors come to the square for sightseeing as seen in figure 75. It is interesting to note that 63% of the journeys are done on foot and 23% by rapid transit. In figure 76, it is interesting to note that while 54% of the people find the area welcoming, only 37% find it easy to talk to an unknown person here. The large open space allows for skaters to use the area freely, seen as a negative aspect for pedestrian users. However, users appreciated its historical meaning and connection with the river and overall impact the local urban morphology as it forms one end of the grid planned Baixa-Chaido neighborhood.

Further in figure 76, out of 60% of people who find the space interesting, a whopping 57% would also drink a coffee with a friend here. The users found the area vibrant and colorful filled with old-world charm represented through its built style. The location beside the waterfront

with open access was also highly commended in the reviews. Alongside the architecture and food, the mesmerizing street performers and friendly locals were also highlighted.

The respondents suggested that additional seating and trees would be a welcome move. Some users also pointed out that this space needs more facilities for residents and not just tourists. Users also found the electric personal mobility vehicles distracting and some local users requested the trees on the southern end to be added again.

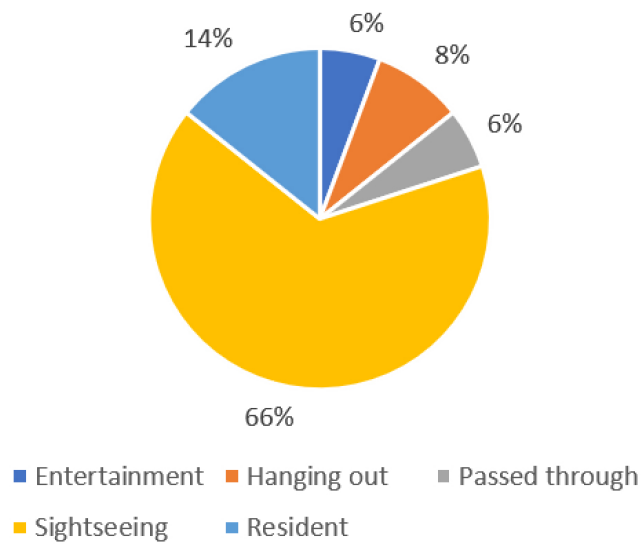


Figure 75. Chart depicting purpose of visit (Alves, 2020)

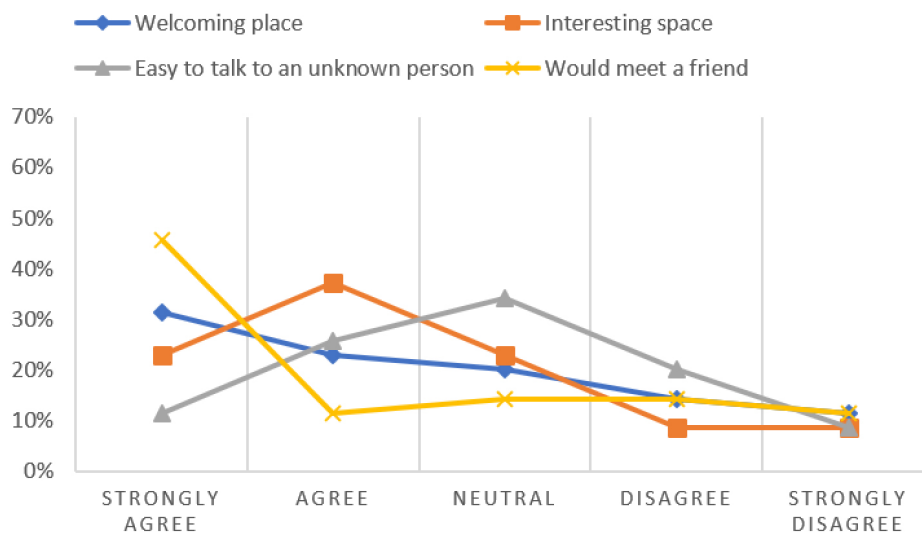


Figure 76. Graph indicating visitors opinions of the square (Alves, 2020)

3.5.3 Place de la République, Paris

The Place de la République (formerly Place du Château-d'eau) built in 1854 and housing a ten-meter high statue of the Republic (Paris 1900, Lartnouveau, n.d.) is the largest pedestrianized square in the city of Paris designed to be an open space suited to various urban uses (Frearson, 2014). The redesign in 2013 eliminated the traffic circle reducing the dominating constraint of vehicular traffic. The only built form within the square is the iconic Monde & Médias Pavilion (World and Media pavilion), a space that hosts a café and can be adapted to host different public activities. Three kinds of concrete slabs were used to create the surface of the square interspersed with trees and lighting columns.

A circular water basin has been added around the nineteenth-century statue at the center of the square, while a second water feature comprises a plane of water covering a small area outside the café. Due to its exceptional size (120m by nearly 300m), its symbolic dimension occupies a special place in the city. The creation of the concourse marks the return of calm in an airy, uncluttered two-hectare space in this part of the city and a shift to more people and pedestrian-friendly urban planning (Frearson, 2014).



Figure 77. View from the south east corner looking north west with the statue of Marianne, a French icon (Kronimus, n.d.)

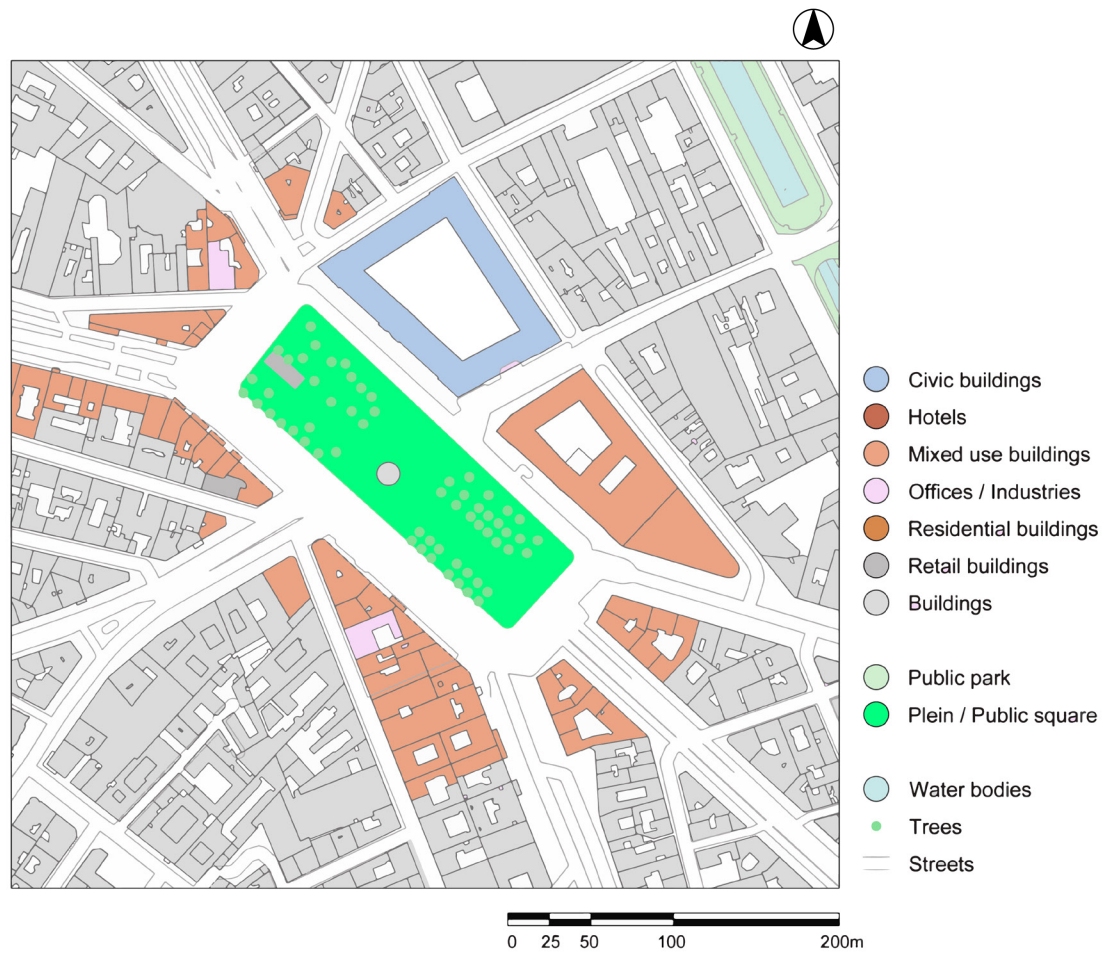


Figure 78. Map showing land use, green spaces around Place de la République (Alves, 2020 Basemap from OpenStreetMap, n.d.)

The square's positive influence in the urban structure of a city known for its dense planning can be seen in figure 78. The dominance of mixed-use planning in the area is evident and leads to the successful use of the public space around the buildings. The resulting road pattern moves around the square (figure 77) instead of through it, reflecting the prioritization of the public component in the square (figure 79). While a few offices can be seen around the area, retail and commerce are seen in almost every building with housing or offices above. The intersection of six major streets of Paris once circled the statue in

the center of the square but has been remodeled to move around the new development. Only one major government building can be seen in the northeast of the square and it remains one of the largest buildings in the area. The lack of green spaces within building courtyards, a feature seen in the case of Amsterdam makes this square a place of respite in the urban context of the city.

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Figure 79. Stepped seating feature (Kronimus, n.d.) Stepped elements built into the hardscape of the square allow for informal socializing areas. The presence of the tree and a solid form behind defines it as a corner that can be utilized by its users.



Figure 80. Segregation of movement (Kronimus, n.d.) Vehicular and pedestrian traffic is segregated by the use of dense, closely placed trees which act as physical and noise barriers. A network of underground walkways ensures that a person can walk to any end without the need to cross streets.

While 33% of the users simply passed through the square as seen in figure 81, at 17% each, the users who visited for sightseeing and to hang out have an equally substantial impact. A higher public transport usage in the city and the square being an important transit hub leads to 50% of people arriving by rapid transit and a further 33% by bike. In figure 82, it is interesting to note that 59% of the people find the area welcoming, only 52% find it easy to talk to an unknown person here. The users found the political spirit in the square good, seen through the openness (figure 80) of the built areas and ability to socialize easily in the square.

Further in figure 82, out of 74% of people who find the space interesting, at 56%, a lower percentage would drink a coffee with a friend here. While people appreciated the diversity of bars and restaurants and alternative culture, their

location around the square across the streets makes them less appealing from within the square. Respondents also found enough space to be appropriated by many users and a respite from vehicular traffic. The desirable human scale of the esplanade was also highlighted.

The respondents thought a reduction in noise from the vehicles would be a good addition to this space. They also found it lacked a bit of security due to the presence of major streets around and heavy traffic patterns on them all thought the day.

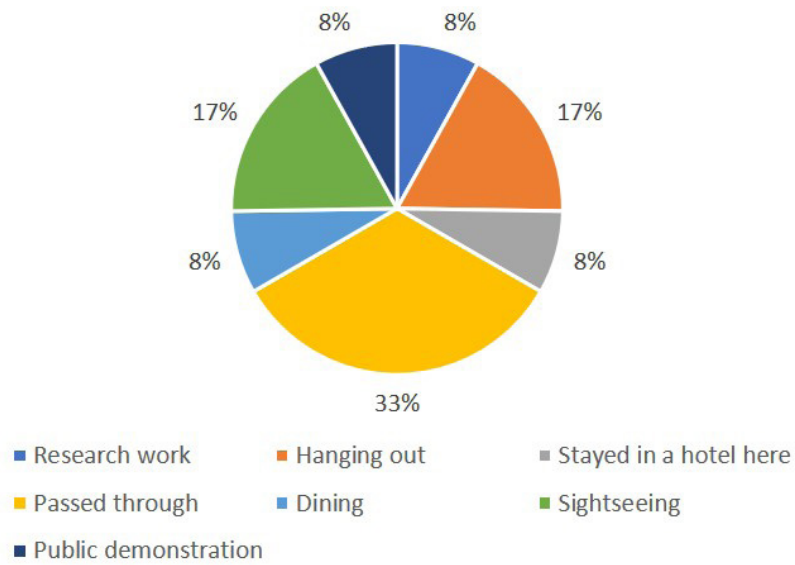


Figure 81. Chart depicting purpose of visit (Alves, 2020)

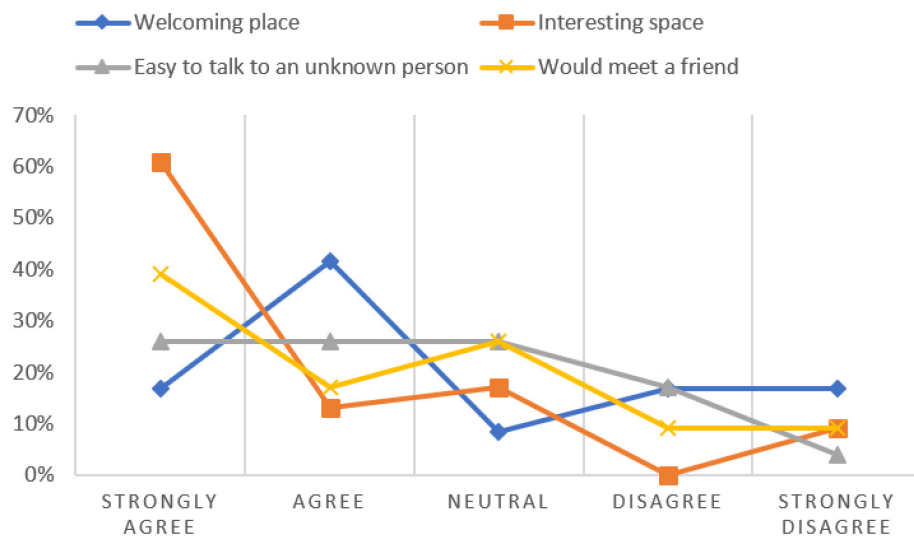


Figure 82. Graph indicating visitors opinions of the square (Alves, 2020)

3.5.4 Stephansplatz, Vienna

Stephansplatz is one of Vienna's most important squares and is the geographical center of the Austrian Capital. It is a central stopping point on the U-Bahn both for changing lines and also for accessing so much of the city that is within walking distance. Although it became part of the city around 1200, it wasn't until 1978 with the opening of the U-Bahn station that the square became central to the city. While the square and its surroundings is a shopping haven, most visits to the square are to view the iconic gothic St. Stephen's Roman Catholic Cathedral (Naschmarkt Vienna, n.d.).

townhouses and other historical buildings on most sides, with the exception being the eclectic architectural styles on the northwest corner that have come to define a good blend between old and new (Brownlow, 2020). The square is an open irregular plan area that is characterized by the buildings adjoining it on the specific side but is always characterized by the towering cathedral at its center. It is also home to one of Vienna's smallest but admired Christmas markets, owing to the influence of the old heritage buildings and cathedral surrounding it.

Stephansplatz is surrounded by

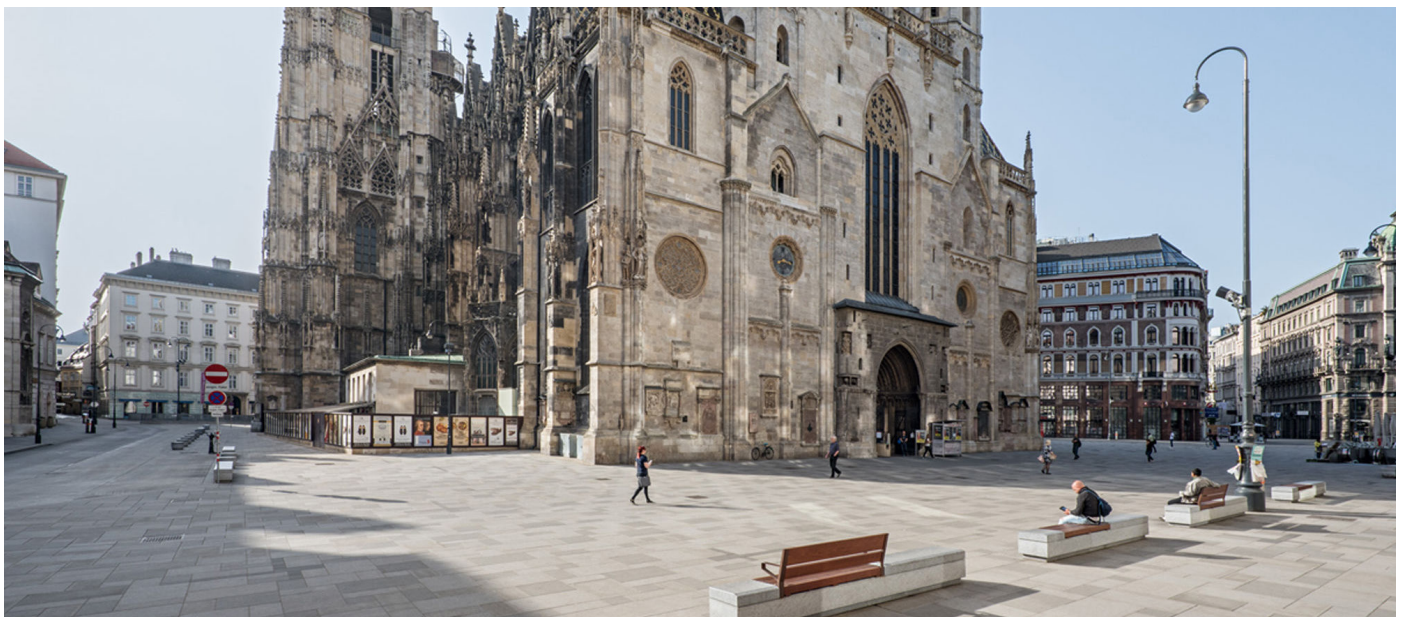


Figure 83. View of the irregular square with the dominating Stephansdom in the center (Archello, n.d.)

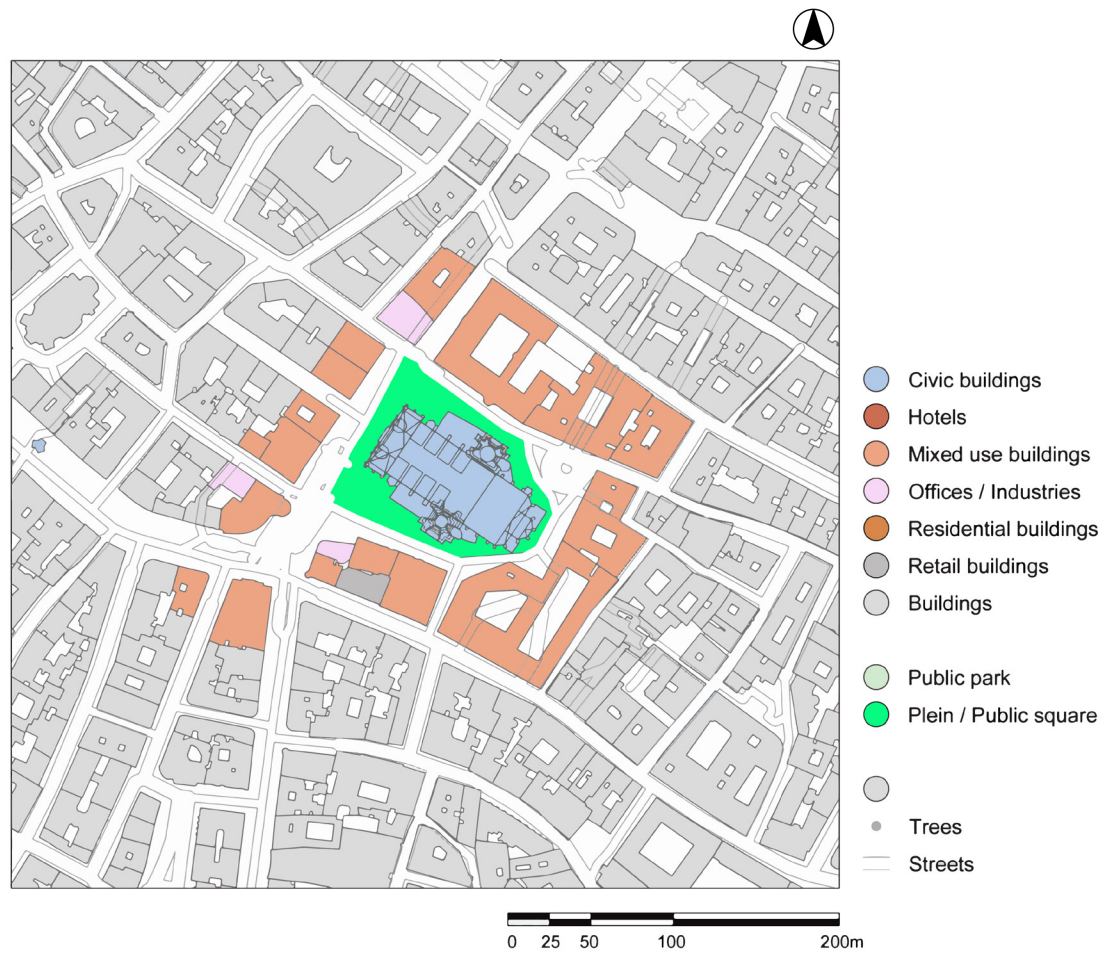


Figure 84. Map showing land use and green spaces around Stephansplatz (Alves, 2020 *Basemap from OpenStreetMap, n.d.*)

The imposing and elaborate cathedral (figure 83) can be noted as the single most influential building within the square occupying a major portion of its footprint. It is interesting to note the mixed-use nature of the buildings around the square which influences the footfall to the area. The lower levels are retail and commerce-driven with houses and offices on the upper floors. Some of the mixed-used buildings here even house hotels and museums, a characteristic not seen in the plans of the other cities (section 3.5.1 to 3.5.3) which generally had independent museum buildings. A notable feature of the plan

is the presence of internal courtyards in most buildings in an area that has a very high built pattern. The dense nature of the city leaves less room for green spaces around but the Wiener Stadtpark which houses green spaces and water bodies is a welcome space in the compact city. The free flow nature of movement for pedestrians between the square and Stock-im-Eisen Platz is seen in figure 88 and the influence of built form on the square can be seen in figure 86.

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Figure 85. View towards Stock-im-Eisen Platz (Archello, n.d.) The connection of the Stephansplatz to the Graben pedestrian street leads to high pedestrian activity on this western end of the square. The buildings around differ in their usage adding to multiple circulation patterns.

While 57% of the users were sightseeing, another 14% passed through the square and 14% attended a service at the cathedral, as seen in figure 87. 76% of the people walked to the square due to it being a pedestrian area and 24% arrived with public transit (located just off the west end). The absence of any vehicular access leads to a more people friendly space.

In figure 88, it is interesting to note that 62% of the people find the area welcoming but only 47% find it easy to talk to an unknown person here. While respondents liked the different architecture styles and periods in their interesting and clever combinations but were quick to point out the lack of any green areas within the square. Further in figure 88, out of 81% of people who find the space interesting, at 62%, a lower percentage would drink a coffee with a friend here. Users found the atmosphere interesting with the urban



Figure 86. Corners created by the cathedral (Archello, n.d.) The rear of the cathedral results in an interesting play of light while creating nooks and corners. Benches positioned at uneven patterns, often parallel to the nearest building edge, create a vivid and interesting character.

setting including the cathedral. They also found the atmosphere vibrant and appreciated the history, architecture and varying building uses.

Apart from the additional green areas, the respondents the gentrification should be somewhat restricted to protect the historically important location by promoting local businesses. Additional seating areas were also advised, but seem hard to achieve given the narrow layout and limited area of the square.

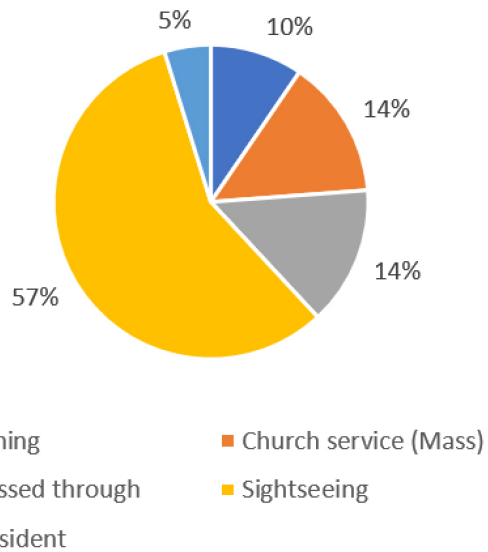


Figure 87. Chart depicting purpose of visit (Alves, 2020)

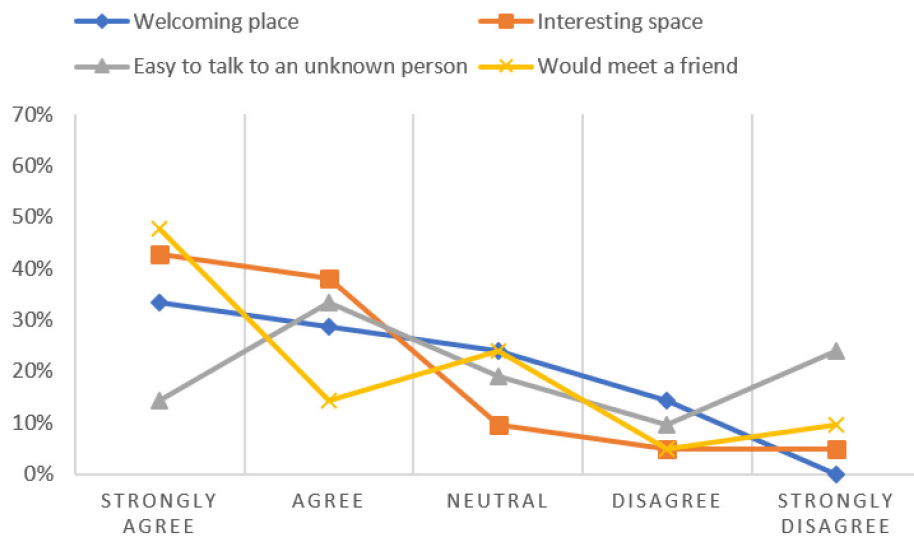


Figure 88. Graph indicating visitors opinions of the square (Alves, 2020)

3.6 Inferences for project proposal

From the viewpoints of the respondents to the surveys in sections 3.5.1 to 3.5.4, the following points can be inferred;

Users of public spaces prefer to have some sense of security and safety in the spaces they visit. These spaces must be planned in a way that undesired corners or spaces that are too close to active traffic lanes must be avoided. A physical barrier in the form of walls, fences, stepped levels or trees is preferred if major roads are in the vicinity.

The presence of water features, green areas and trees enhances the space and make it more functional. People are more likely to use specific green areas in summer months given the presence of elements like water and trees to combat the heat, provide for relaxation or simply present itself as a barrier to space.

Services and amenities are desired to ensure a higher footfall in the squares. The presence of more mixed-use buildings seems to have a direct impact on the footfall and desirability of a square.

A historical identity, if present must be preserved so that the square remains unique in its character. This could be the presence of a river, building, statue or even a pattern or form that has had a lasting visual or physical

impact on the use of this space over time. The usage patterns of spaces must be carefully thought to provide for multiple urban uses. For instance, a square that has a large open space must make use of this space at different periods to ensure periodic activities (ex: Christmas markets, political rallies, music festivals).

Spaces must be adapted to reflect the needs of society at large and not serve as areas stuck in time, yet allow for political, creative and cultural freedom to prevail. This can be done by the addition of a minimal amount of commerce (like temporary kiosks), hosting local farmer's markets to benefits local communities or simply having information days about the history of spaces.

Accessibility leads to the success of public squares and the ability of users to visit these spaces without having to navigate through heavy traffic situations and in the shortest distance possible is key to better usability.

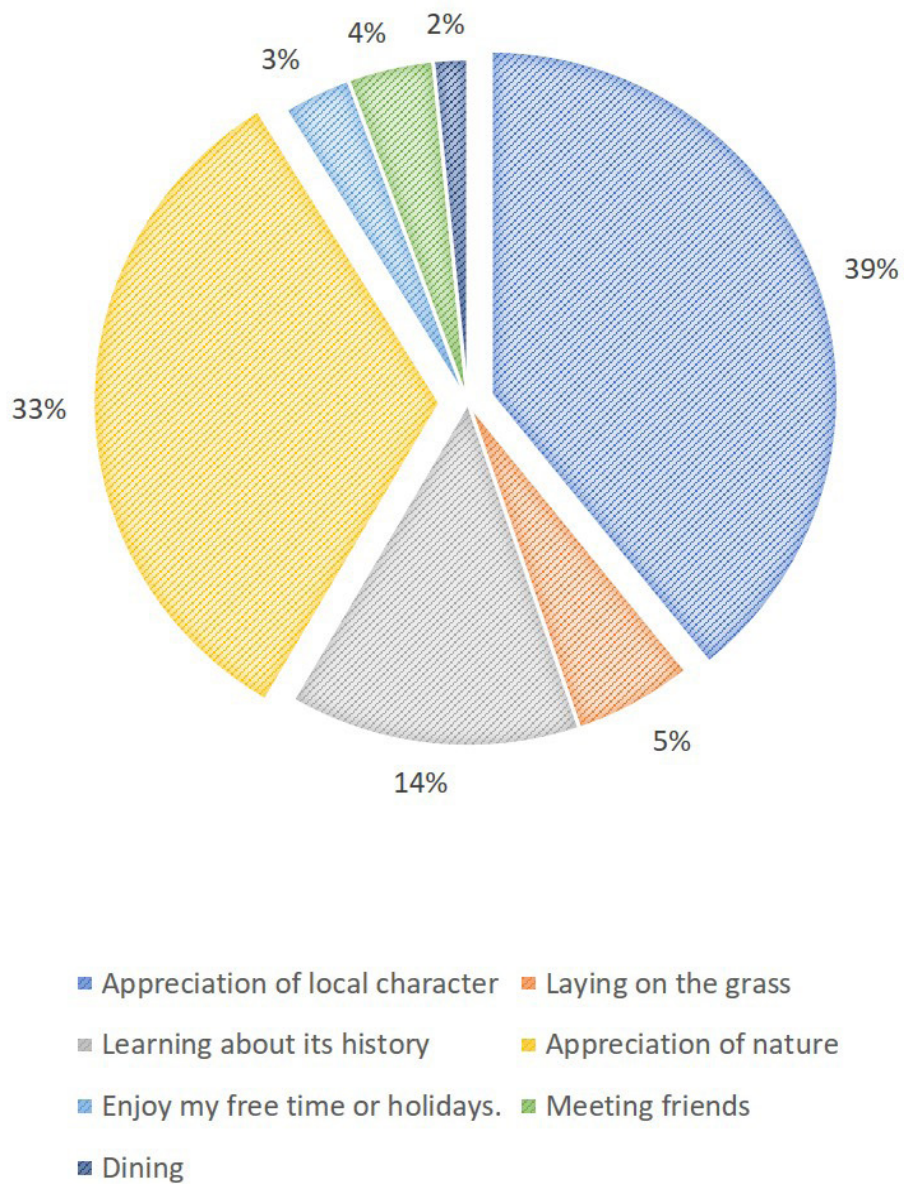


Figure 89. Graph indicating likely reasons why a user would visit a square (Alves, 2020)

The data in all survey is based on the responses of one hundred and five survey respondents in 13 countries, in Europe, North America, South America and the Middle East. The respondents include tourists and residents and is inclusive of change in use of the activities for a public square across seasons (as in the case of Amsterdam's water body, refer figure 68). The surveyed data for the four squares was not consistent to allow for residents and tourists to be recorded individually.

This graph is not specific to any of the four surveyed public squares but was set as an additional question to all respondents so as to analyze the usage of public squares in general. The users were asked to cite only one reason as to why they would visit a public square.

4.1 Vision for Leipziger Platz

The objective of this project is to activate the underutilized public square to serve as a respite space in day-to-day urban travel scenarios and retail dense city centers. In the case of Leipziger Platz in Berlin, the concept focuses on community engagement as there is already a substantial presence of large-scale commerce and retail establishments in the vicinity of this square. The social value of public space is wide-ranging and lies in the contribution it makes to 'people's attachment to their locality and opportunities for mixing with others, and in people's memory of places' (Worpole & Knox, 2007). This development aims to allow for the square to provide opportunities for social interaction, social mixing and social inclusion to facilitate the development of community ties while still maintaining a sense of privacy and individual freedom. The project aims to achieve this by addressing the following;

Creating a barrier between the street and the existing green spaces to allow for segregated yet functional pedestrian and vehicular uses.

With the use of hedges on the periphery of the green spaces and alongside Leipziger street, noise reduction can be attained and privacy can be established (Brun, 2015) while allowing for the continuation of existing vehicular routes, and continuation and addition of pedestrian routes.

Enhancement of the nature of the public space through the addition of community-driven activities resulting in a mix of public and private areas of use.

While the section of the public square near the mall could be enhanced by small scale commerce-driven activities to gain capital and benefit from the already crowded area, the resulting space will be less private (Carmona et al., 2003). It would hence be necessary to allow for semiprivate and private areas in the other three sections of the square to balance the perceptual and social dimension of the urban space.

Carving out leisure or pause areas in an otherwise commerce and retail dense part of the inner-city developments.

The existing square is a large open space within the octagonal development known as Leipziger Platz. The essence of this public square can be carved out in its edges as opposed to the open space within, as the former become spaces to stop and not just pass by (Carr et al., 1992). The spaces envisioned in the square intend to break from the otherwise commerce-driven nature of the area.

Promotion of local identity and character with the establishment of limited local food kiosks and an

exhibition area on the history of the space.

To bring out the local character of the German capital in this square, one has to be connected to the passage of time in the space through exhibits and cultural drivers like food kiosks to embody a lasting social memory of the space (Carmona et al., 2003).

This development will result in a more people-friendly, community-driven and community-oriented space. By using a mix of predominantly public and few private spaces, the

resulting square will benefit from users all year long by adapting the space to serve other functions during the colder winter months. For instance, the kiosk area can be an open space in the summer but enclosed temporarily in the winter when the usage pattern of the square would be limited (by scaling down to sell items like Glühwein only). This change in a function wherever possible is key to ensuring that public spaces remain usable all year long or at least for most parts of the calendar year.

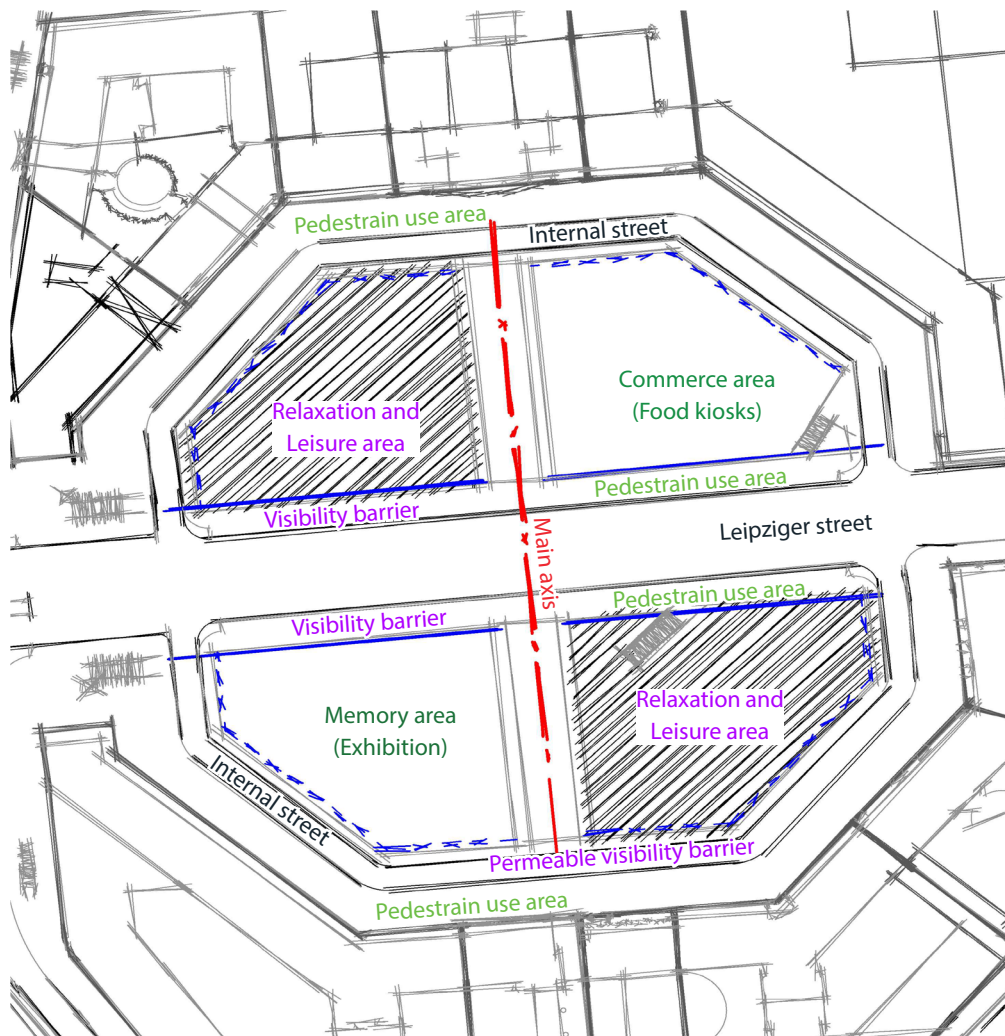


Figure 90. Conceptual zoning for the proposed vision (Alves, 2020)

4.2 Strategies and Actions

To achieve the goal of activation of the underutilized public space at Leipziger Platz to promote community engagement, five main strategies are adopted. (refer figure 91) The strategies vary in their focus and scale based on the applicability of the desired actions. The strategies are listed below;

A - Improve visibility in the area

One of the core measures to make the space usable is to segregate it from the active major Leipziger street that cuts through the center of the square. This is achieved by the addition of vertical softscape elements called hedges that not just add to the green cover of the area but allow for a physical, visual and noise barrier between the two user groups – pedestrian and vehicular (Blanusa, Garratt, Cathcart-James, Hunt, & Cameron, 2019). Existing noise levels of 55-60dB are observed for facades within the square and 65dB around the corners where the roads and buildings meet (Center for Data Innovation, 2018). Few species of hedges (*Ilex aquifolium*, *Photinia x fraserii* and *Berberis*) are promising noise attenuators, reducing noise levels by 4–10 dB depending on noise frequency and hedge thickness (Blanusa, Garratt, Cathcart-James, Leigh, & Cameron, 2019). The addition of water features plays a historic and aesthetic role in the European context while impacting the microclimate in the hotter months.

In the colder winter months, due to the low temperatures, it can still function as an aesthetic element albeit as a stationary feature void of the spouting water (Nowacka-Rejzner, 2019). When temperatures are really low, a temporary ice rink for children (due to the small scale of the feature) can be set up. Additionally, due to the scale of the square, the use of additional ambient lighting elements below the surfaces of the seating areas within the green spaces will increase the security in the area will still allowing it to be functional in the late hours of the day (Woolley & Rose, n.d.).

B - Enhance local identity of the square

The character of the urban form has been maintained at the square for over 100 years despite the destruction of the built form in this space in the mid of the twentieth century. Given the historic significance, the area had, the creation of an exhibition area to reflect on this past and to provide thinking space for its visitors will help restore the identity of the square. While the minimalistic approach to the design of the surrounding areas will be used to maintain the present local character, wooden elements will be used to provide a sense of rustic charm to the square. To benefit the identity of space from a social and interactive perspective, visual screens can be placed in opposite areas of the square to foster visual dialogue.

C - Link surrounding buildings to the square

The presence of the internal streets disconnects the square from the buildings surrounding it. While access to the blocks requires the continued use of the road, also in terms of fire access, the closure of the streets is not an alternative. Instead by aligning opening in the hedges on the green space periphery, a sense of visual and physical connectivity can be established. Further, by maintaining the central axis of the square on both sides of the Leipziger street, a sort of cohesion can be achieved and the spatial elements of the street and square are linked (Gaston, n.d.). The replication of the geometric patterns of the square and the building in the green spaces can also create a sense of continuity of space alongside the relaxation and dining area for the building users.

D - Promote a healthy behavior

People will be driven to use public spaces based on the presence of interest elements in these spaces. Hammocks in an urban environment will add a relaxed flair to space while a wood and rope bridge across the water bodies on both sides will not just be inviting but promote physical activity and interactions across age groups. A narrow wood and rope bridge will build social bonds across age groups as people will have to engage visually and often verbally to go across. Further wooden loungers and benches will result in healthier lifestyle choices and promote activities like reading that help improves mental health (Mesimaki, Hauru, Kotze, & Lehvavirta, 2017). Shared exercise equipment and game areas not just add to the social cohesion but

provide a life lesson in the shared value of public spaces and infrastructure. As per a report by the Robert Koch Institute (2016), one in four adults in Germany is obese. All the above elements could help reduce these obesity levels by promoting more engaging activities to a user.

E - Contribute to local small-scale economy

Food kiosks that are sponsored by corporate establishments can be essential to generate income to maintain some of the facilities within the redesigned square. At the same time, the allocation of smaller rentable kiosks to benefit Berlin's residents will allow for cultural exchanges in a public sphere and can also become an engaging space to foster cross-cultural exchange (Herhesheimer & Kennedy, 2010). Smaller spaces for more relaxed group activities can help contribute to local intellect that will in turn benefit the economy financially, for instance, a Zumba class by a resident who charges a minimal fee. At a city level, the hosting of season-specific events like a Christmas market ensures that space sets memory for people and is used to benefit the community at large (Hallberg, 2000). The activities can be coordinated by local residents to benefit at a city-level.

While it is interesting to note the varying usage across the four quadrants, the unifying theme of the water element instills interest in the space. The resulting development will be a space that provides refuge and relief from Berlin's urban core in contrast to the surroundings, resulting in an Oasis, hence Octa-Oasis (Octa referring to the Octagonal form of the public square).



Figure 91. Strategies and Actions for the proposed activation at Leipziger Platz (Alves, 2020)

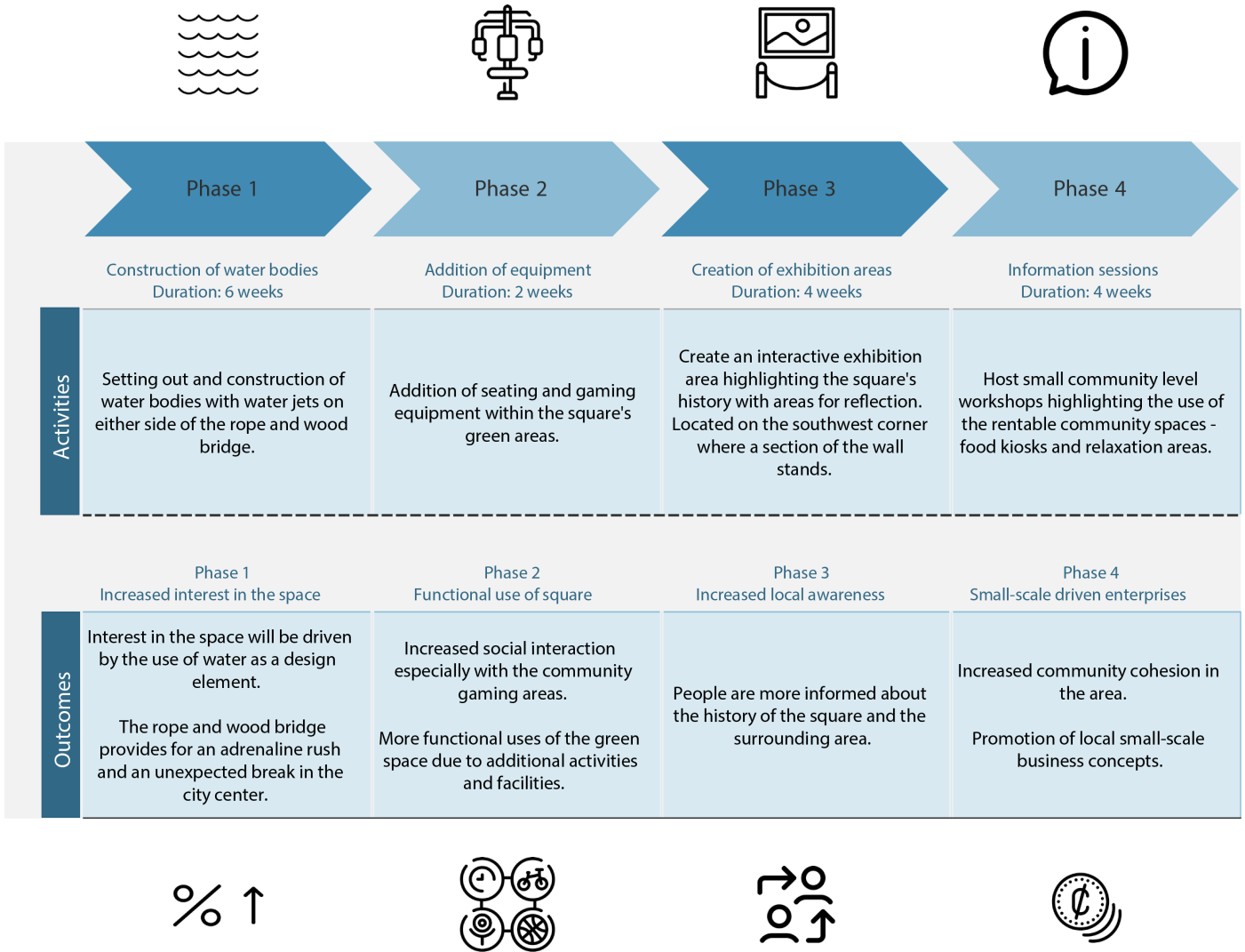


Figure 92. Phase-wise execution of the activities and outcomes of the proposal (Alves, 2020)

4.3 Activation proposal for Leipziger Platz

The core focus of the proposal is the activation of underutilized public space. Berlin is a city that has a large share of public open spaces (12.2%) and a 20% share of green cover (refer figure 51), although not all these areas are practical and functional public spaces as seen in the case of Leipziger Platz. The following spaces are proposed for the public square redesign;

- Hedges as noise and visual barriers
- Planters to add human-scale and aesthetics
- Water features with bridges to the islands
- Interactive
- Seating with integrated lighting
- Historic memory area with interactive screens
- Food kiosks, corporate and community-driven
- Exercise and Gaming equipment

With the design of these spaces, the proposal at Leipziger Platz aims to add a functional character to the development while ensuring a mix of private and community engagement areas. The use of water as an element to feel and hear is what benefits the users of this space (Whyte, 2008) as is integrating nature into public spaces improves mental health, leads to people's psychological well-being and increases social engagement (Roe, 2020).

The use of exhibition areas obeys an inner

logic that goes beyond the mere study of the objects on display – they often follow a 'scenario' designed to deliver a clear message to the public. When held in public places, they are events of a cultural and social nature and great care is taken over for their promotion, using other media like the press, radio and television (Montpetit, 1995).

Combining the memory space above with nature using a garden is essential for users to benefit from the character of the designed area. Plants have the power to soften and civilize public urban space, even in places thought to be dangerous. These green oases give pleasure to millions who crave a connection with nature in their lives and the lack of any flowering plants in this important city node is a factor that does not let it have a lasting impression on its users (Miller, 2014).

Public spaces have gone hand in hand with commerce for centuries in cities across the world. This vibrant economic activity when scaled-down and in a way that it does not overpower the square ensures a steady flow of users to space while allowing for income generation activities for municipal bodies that own these public spaces. This community-engaging initiative in this proposal aims to benefit the local neighborhood in the process of redevelopment (Project for Public Spaces, 2003).

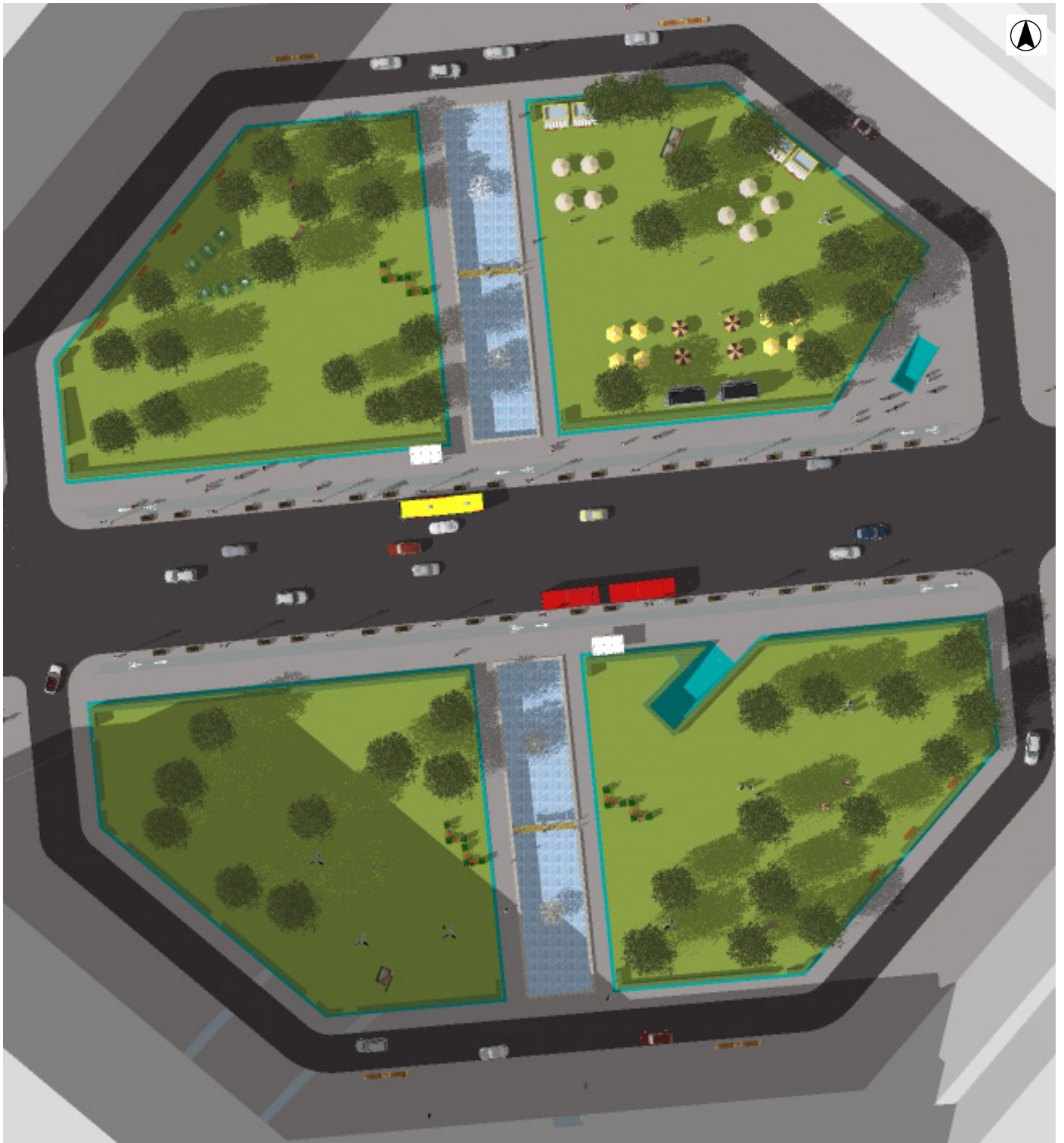


Figure 93. Conceptual site plan for Leipziger Platz (Alves, 2020)

The sun orientation for the proposal views on pages 99-103 and 110-111 represents August 15 at 15:30 hours.



Figure 94. Corporate and community kiosks (Alves, 2020)

The section of the square immediately surrounding the Mall of Berlin is planned as a commerce zone as this is already an area that receives a lot of footfall due to the presence of the mall. The addition of the kiosks will encourage more people to venture into the open realms of the square gradually resulting in the exploration of the new space. The two larger private kiosks on the left are planned so as to allow for finance generation on-site for minor maintenance. Covered seating ensures the usability of the space in hot as well as rainy weather.

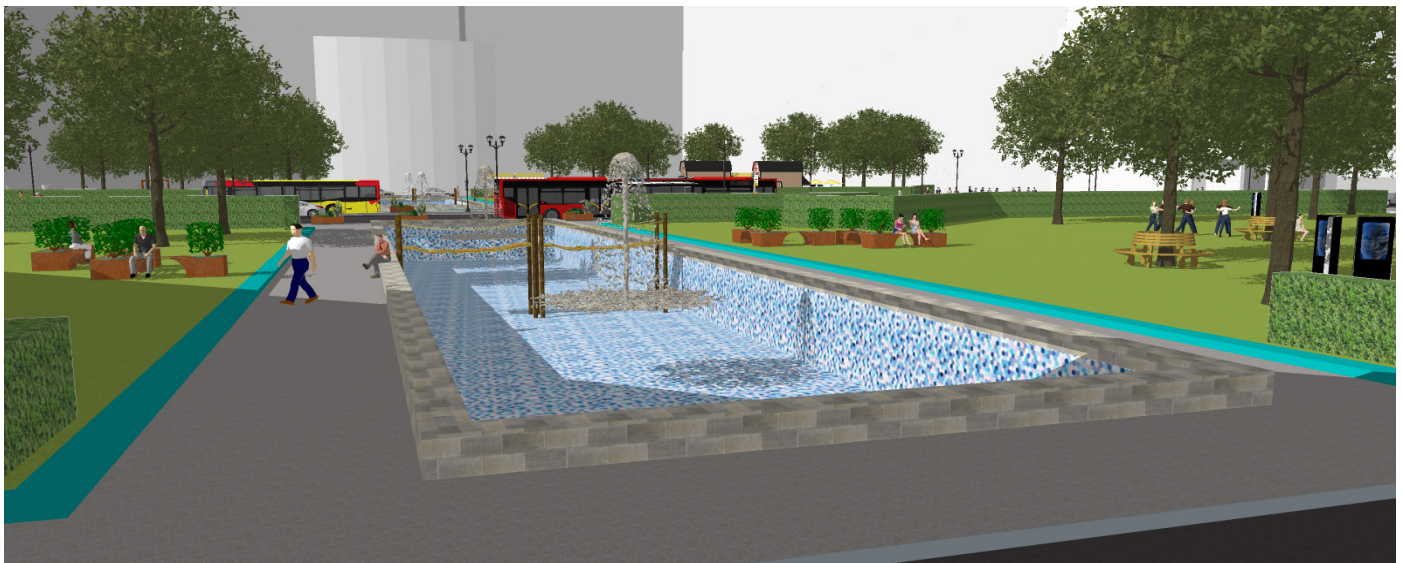


Figure 95. Water features alongside the wood and rope bridge (Alves, 2020)

The added water features on either side of the square not only provide for a visual axis but allow for a relaxation area where users of the public space can unwind. A higher seating area is planned on all four sides of the feature while a wood and rope crossing is designed in the center with two water fountains on the side. The water fountains on both sides of the bridge will ensure a reduction in vehicular traffic noise while allowing for a calming element in the space. The water features are located in the center so that from any of the four quadrants, a visual connection is always ensured for a user.



Figure 96. Exercise and relaxation area (Alves, 2020)

Exercise equipment in the quieter northwest quadrant of the square allows for a more focused and result oriented approach to one's exercise plan. In the same area relaxation points in the form of the open grass area, seating and hammocks are provided so that users can benefit from the peaceful nature of the space as opposed to the noise on the main street and the northeast quadrant adjoining the mall of Berlin.



Figure 97. Memory space with a section of the Berlin Wall (Alves, 2020)

Interactive screens are provided where users can learn about the square's history in digital format and also engage in community quizzes across the screens to test their reading and visual skills. The space is planned with seating incorporating flowers and besides the water as a symbolic and welcoming gesture to those who visit the area to reflect on a journey they may have taken at this location decades ago, before the fall of the wall. The seating is also placed in two other quadrants (except the commerce area) so that a sense of continuity can be achieved.

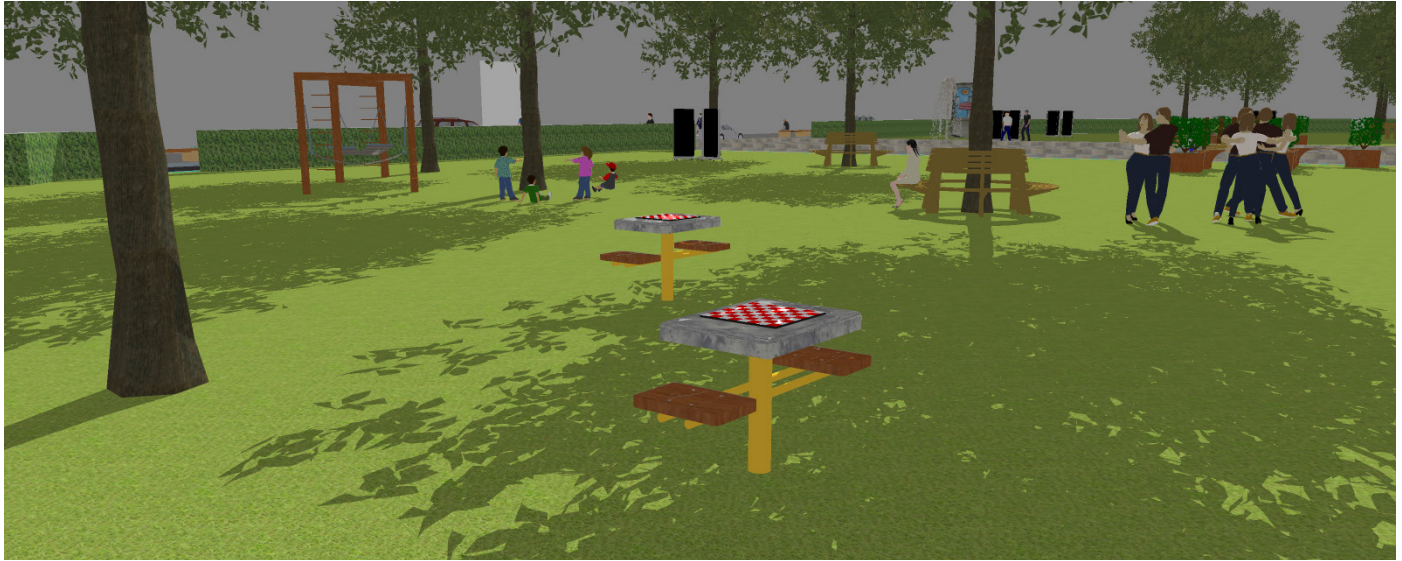


Figure 98. Gaming and activity area with leisure facilities in the distance (Alves, 2020)
Board games and an interactive screen allow for engaging in-person or virtual interactions. The screen is also connected to a similar one on the other side of the street in the commerce area so that interactive sessions (as well as standard single-player games) can be played while allowing for the option of data privacy (if preferred). This section can also house community-level activities like the tango dance classes in session in the background. This space also houses benches alongside the hedge (not seen) and hammocks for relaxation.



Figure 99. Seating option on the internal streets (Alves, 2020)
Four one-sided use benches are placed on either internal street to encourage conversation between building users. The design allows it to be used only from the pavement side and not from the street side where cars are generally parked (city-level income generation). The sides towards the building are left blank as some establishments have personalized their areas leading to a diverse and creative play of color and form (refer figures 26 and 36).



Figure 100. Seating options and hedge heights (Alves, 2020)

Apart from the commercial area and the water feature, three other seating options are possible within the redeveloped Leipziger Platz. The L-shaped benches on the left, the curved benches around the trees and the benches alongside the hedges (see figure 97, background). The benches along the hedges are the most private and benefit from the location on the ends of the quadrants. The one's around the trees are short term pause areas and can be used as spaces where users can have a quick snack or observe activities. The hedges are 1.80m high and 0.80m thick along the main street to cut the noise and visual connection in the crowded section of the street (breaks at water feature though). They reduce to 1.20m high on the internal street and a width of 0.60m due to less noise and a preferred visual connection. The human eye can see over the 1.20m fence (while standing) but not over the 1.80m fence (refer section 4.1).



Figure 101. Main street section with planters (Alves, 2020)

Planters between the cycle lane (raised on the pavement) and the street create a physical barrier between the pedestrians, cyclists and vehicles. As the street is of historical significance to the city, it was not possible to realign it, even more so due to the existing realignment of the main street at Brandenburg gate. While the traffic volumes are high at peak hours, there is never a hold up within the square as the signals are synchronized. The planters are placed in a way that they do not obstruct the opening of either the two-door buses or the four-door articulated buses, both of which are frequently used on the route.

4.4 Stakeholder Analysis

Stakeholder Analysis is a widely used technique for stakeholder identification and analysis of their needs (Smith, 2000). The objectives of conducting such an analysis involve four aspects - getting projects into shape (opinions and support of powerful stakeholders), winning resources (people, time or money), building understanding (timely communication) and getting ahead of the game (anticipate and predict reactions as the project develops) (Mind Tools, n.d.). Based on this analysis and given the public nature of the activation project at Leipziger Platz, the following stakeholders are identified;

Local Authorities and Small-scale entrepreneurs

The maintenance and development of urban green spaces in Berlin are a common task of the Departments of Green Spaces (Berlin) and the Senate Department for Urban Development and the Environment (SenUVK, n.d.). As high power and high-interest stakeholders, these departments must be closely managed in the execution of this project proposal. This can be done by actively engaging the departments from the initial phase and making the greatest efforts to satisfy them with the objectives of the project. Likewise, the success of the commercial aspect of this project relies on small-scale businesses run by local entrepreneurs. In order for them to be convinced to establish a shop in this project,

the goals and outreach of the project must be highlighted. They are also a group of stakeholders that must be closely managed in the project phases.

Local residents and corporate organizations

The success of public squares during the day banks on the city's residents and visitors but by night also relies on the residents living in the surrounding these spaces. These combined with corporate organizations that can help finance the maintenance of such newly developed spaces results in a group of stakeholders with high power but less interest in the project development. The lack of interest comes from the presence of ample green areas in this section of the city while the corporate players would require some sort of incentive (like corporate social responsibility) to be persuaded to contribute to this project. It is therefore necessary to put efforts and work to keep these stakeholders satisfied but stand short of getting them bored due to an overload of information.

Visitors and community groups

The high number of people visiting the Mall of Berlin, the German museum or other commercial and civic spaces in the city have a high interest in the nature of the public areas around them. Community groups that are planned to be



Figure 102. Phase-wise execution of the activities and outcomes of the proposal (Alves, 2020)

engaged in these activated spaces are also a part of such a scenario as they would be essential to the local character of the square. As these groups are low power but high-interest stakeholders, it is necessary to adequately inform them to ensure that no major issues are arising with the development. These stakeholders are often very responsive and can be helpful in detailing the project targets (as seen in the surveys in section 3.5).

Office users and students

While most buildings located in the square and major streets are mixed-use, their core function is corporate for local and multinational companies. The Canadian Embassy and the hotel are exceptions, both being single-use buildings. The European University of Business is located in Leipziger Platz in a mixed-use building. All users of services listed above are low power and less interested people in the redevelopment. As such, these stakeholders can be engaged by monitoring them and providing them with the minimum information of the activation project.

4.5 Feasibility Analysis

A feasibility study is an analysis of the viability of an idea in a project. This evaluation and analysis aim to study the viability of a specific project based on economic, technical, operational and scheduling feasibilities (Hofstrand & Holz-Clause, 2020). The viability factor is based on how profitable or commercially successful an idea or project might be. In the case of the activation of the underutilized public areas at Leipziger Platz, the project can be seen as viable based on the location and the interviews conducted with users of the square (a vast majority of people felt that the square lacked a functional aspect).

The degree to which economic advantages of something to be made, done, or achieved are greater than the economic costs is defined as its economic feasibility (Cambridge English Dictionary, n.d.). In the instance of the public square in Berlin, the project can be easily identified to be an advantage to the neighborhood. While the initial cost of the proposal may take a few years to break even, the value which the project will bring to the entire area is substantial. The redevelopment projects a rise in footfall at the square due to the addition of more functional areas as well as commerce and memory-driven space. Income from the commercial activity in one section of the square will go towards the maintenance and upkeep of the spaces. It is located in an area that

is already heavily used by users who frequent the large-scale commercial establishment (Mall of Berlin). In terms of financing the project, three stakeholders are identified; 65% financed by the Senate Department for Urban Development and the Environment, 15% financed by the Quartiers management program (Social city program, focuses on community-level cohesion) run by the Senate Department for Urban Development and Housing and 20% financed by the corporate organizations in the area.

While technical requirements for a project will be designed with the aim of defining a feasible project, the development of specific technical feasibility criteria can be useful to organize the information properly, increase overall transparency, and promote a stronger base for the recommendations provided. Assessing technical feasibility highlight specific risks of a project that should be considered before considering its initiation (APMG International, n.d.). For the redevelopment at Leipziger Platz, the proposed infrastructure meets the needs of the area's usage patterns and these architectural and engineering elements are achievable. There are no foreseeable risks in the project as the intervention require expert technical expertise for the water body only, which has been achieved in the past within the city of Berlin itself. As the project does not use

an Initiative with technological complexities or difficult engineering innovation, no major risk is attributed to its execution.

Operational feasibility is dependent on human resources available for a project and involves projecting whether the system that will be used is developed and implemented in the past (Ogbebor, 2011). As the project is in the heart of a major city, any operational issues that will occur during the execution phase can be addressed. As the development is using methods and systems previously used in the city's public sphere, notable expertise will be easily available. There are no foreseeable social or internal issues (manpower problems, labor objections, manager resistance, organizational conflicts and policies) and no external issues (legal aspects and government regulations). Social acceptability of the new system will be welcome as the square will have an increased privacy factor and will be used for varied personal or civic uses.

Schedule feasibility is the probability of a project to be completed within its scheduled time limits, by a planned due date. If a project has a high probability to be completed on-time, then its schedule feasibility is appraised as high (Task Management Guide, n.d.). As the scale of the project and its timeline is well spread out (see figure 96), the case of it being unsuccessful due to extension of the proposed sixteen weeks is not seen, However, external environmental conditions may change or adapt this timeline leading to a delay in its benefits, expediency and profitability. Given the nature of the work involved and the

proposed time frames for execution alongside the right use of resources, there are no foreseeable delays to the project due to scheduling.

The above data outlines and analyzes methods of achieving success in the said project. The use of this feasibility study helps to narrow the scope of the project to identify the best possible scenario. As this is a public square redevelopment, there is no alternative proposal that may be as viable as the activation proposed here using a mixture of public, civic and private spaces that are thought out considering the current usage patterns in the specific sections of the square.

4.6 Sustainability Analysis

The sustainable goals of the United Nations include good health and wellbeing, sustainable cities and communities and industry, innovation and infrastructure as part of the development mechanisms. Increasingly we are living in more urban environments leading to the pressure of making cities adapt to the inflow of people in a limited time (WHO, n.d.). The overarching goal is to make our environments safe, inclusive and sustainable to attain the desired sustainable development (Fleming & Roberts, 2019).

When considering the economic indicators, the contribution to employment and innovation through the commercial idea of rentable and permanent kiosks adds value to the project. The nature of the spaces is flexible due to their uses as per seasons or their openness to local community level events (Yamagata & Yang, 2020). This new development of a civic nature with minor commercial input increases human comfort and reflect progress (Fleming & Roberts, 2019).

From a social point of view, the skills and education of the people are used in the activity areas of the development while the addition of shared exercise and gaming equipment benefits the health indicator. Additionally, the use of lighting and maintaining the openness of the space contributes to the safety and security of the

users (Yamagata & Yang, 2020). The resulting space ensures that the rights of all groups are protected in its civic nature adding to the progressive nature of society (Fleming & Roberts, 2019).

The indicators in the environmental sphere take into account the waste network of the city for dry waste from the green spaces and commercial establishments. The wet waste from the latter (only kitchen water) will be recycled and let back into the groundwater. A composting area can be set up for food waste and visitors can be informed about these initiatives. No existing trees will be felled, and additional hedges will be added, together contributing to better air quality in the area. The kiosks will be made of recycled wood sourced from sustainable sources while they can be further reused as construction formwork post this usage (Yamagata & Yang, 2020).

A collective approach that respects all the involved stakeholders and takes the local environment and economy into concern ensures the most sustainable outcomes for this project. Due to the limited use of carbon-intensive resources, the impact of the space on the city and surrounding air quality is reduced. However, the social impact is foreseen as a legacy element for the city and its public spaces resulting in social interactions, the object of the project for the



Figure 103. Three dimensions of Sustainability with influencing indicators (Alves, 2020)
 Concepts adapted from (UNEP, 2015) (Yamagata & Yang, 2020)

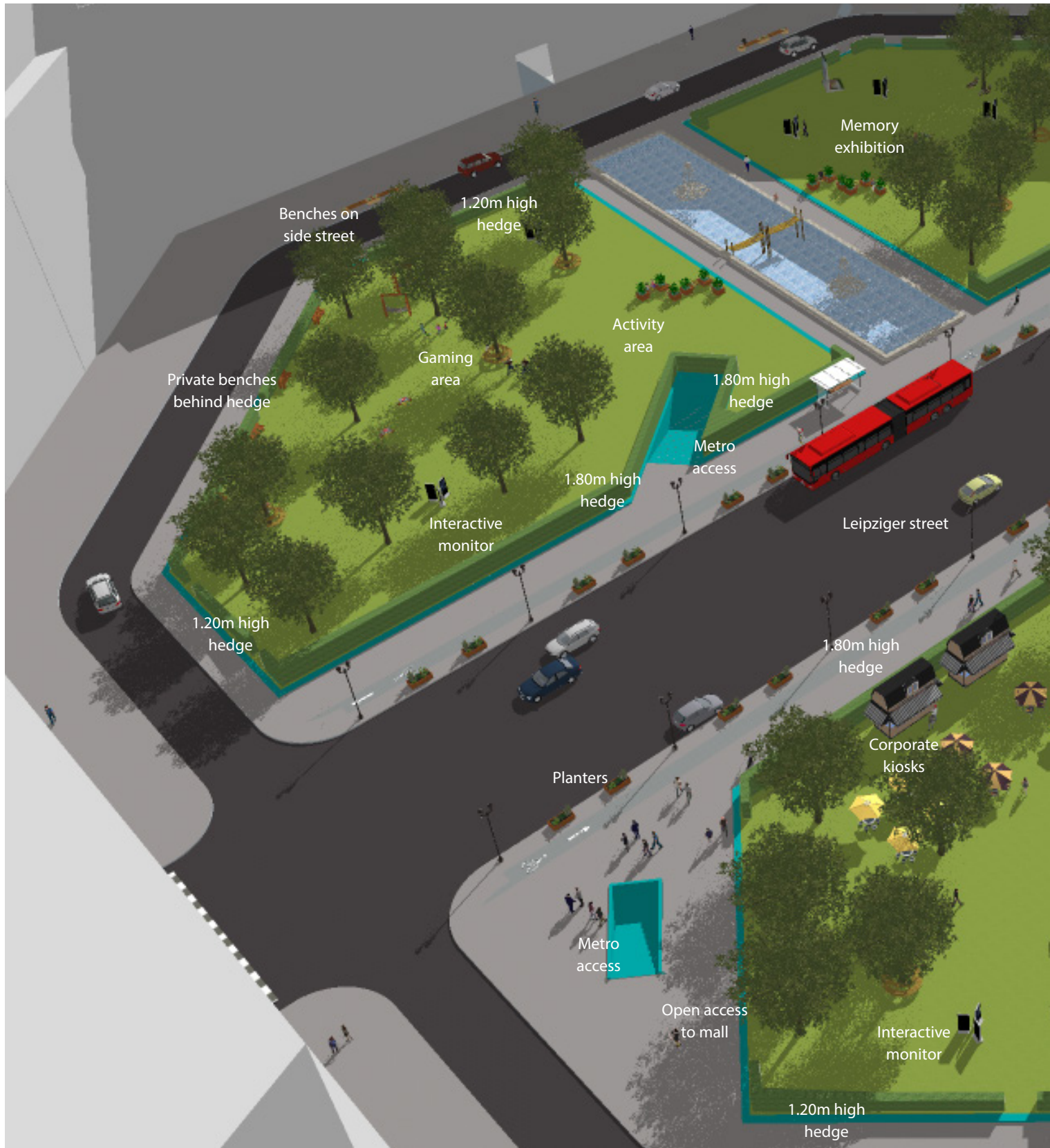


Figure 104. Perspective proposal for the activation of Leipziger Platz (Alves, 2020)



5. CONCLUSION

When activating public space, care must be taken to enable functions that cater to different age groups of users to ensure the space is successful for the greater benefit of the community and city. With Leipziger Platz, the redevelopment will not just benefit users of the public infrastructure or visitors to the city but will also create a community level space for surrounding residents to engage in small-scale business setups.

The functional usability of the space can be tackled using activities that engage a user in more than one dimension, as in the case of the water body (touch and hear). In the case of the square, this element is used to set an axis that connects the two sides of the square otherwise physically separated by the street. Additional spaces that can be used by the public to promote relaxation (seating areas), stimulate their thoughts (memory/exhibition area), connect them to nature (garden area) and allow for them to socially engage (kiosks and bridge) will further add functional flair to the once underutilized space. The functionality of a space is better when it is versatile (Li, n.d.). This ability of space to serve diverse functions at different periods allow for these spaces to be engaging at different times of the calendar year. For instance, the objective to host a Christmas market in the existing commerce area outside the mall ensures that this space is used in the winter

season when the use of such spaces reduces. Likewise, the use of community initiatives to engage residents through local small-scale commerce activities like the kiosks or an exercise group allows for the community to benefit from this public space in an area designed to cater to corporate uses. When activities tend to require some level of supervision or participation (like the rope bridge and gaming areas respectively), they automatically require the participation of different user groups (say a parent and a child or an elderly person and a kid) creating a sense of responsibility that nurtures care in the community.

Through this redevelopment, the proposal at Leipziger Platz aims to foster community engagement in envisioning the activation of the underutilized public square in Berlin. In doing so, the city and its users will benefit from a public space that will allow for a multitude of uses, all within the same octagonal development that has stood the test of time – restoring the historic nature of the space for its pedestrian users too.

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Email and LinkedIn profile
richard9022@hotmail.com
[linkedin.com/in/alvesrichard](https://www.linkedin.com/in/alvesrichard)