



how to transform a
monofunctional infrastructure
into a fantastic place

a masterthesis by laura sophie weber

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A BRIDGE TO CONNECT

OR HOW TO TRANSFORM A MONOFUNCTIONAL INFRASTRUCTURE INTO A FANTASTIC PLACE

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INTRODUCTION

For this thesis I want to be an active part in the conversation around the future of the fly-over “Ebene 2”. My aim is to develop a realistic set-up of what I can contribute to this moment in time.

The initial situation is the following: Ebene 2, a fly-over build in the 60s to accommodate the increasing car traffic at that time, is dilapidated and cannot continue to serve its original function. Car traffic has to be discontinued in the next couple of years.

Large infrastructures built in the 20th century for a car-oriented future are becoming gradually obsolete in cities that start to focus on pedestrian well-being. Ebene 2 promised the residents of Hagen to connect the city and help increase the economic growth in a region that was highly damaged by the war. Since then it winds through a neighborhood only to discover that it separates rather than

connects. Now in the 21st century, sixty years after its construction, the bridge is dilapidated and cannot be used for vehicular traffic in the near future. In the public eye the bridge holds, as it is now, no value. But what if the narrative was to change and the bridge could become a vehicle for the changing needs of the city?

When talking about dilapidated, inner-city fly-overs in general, demolition might be the first option to come to mind. Once the purpose is gone, the fly-over is obsolete. The essence of a city is a spatial set of activities that can interact with each other without requiring much mobility to do so. In the past transport was, in fact, a laborious and expensive affair. Large-scale infrastructures, however, made transport much faster and therefore cheaper. But apart from making cities better. The new highway became a catalyst for urban flight and commuting. With other words, the infrastructure promoted the relocation of a

lot of city residents, employment, as well as shops and even schools, to the outskirts. That meant that the inner city was slowly gradually transforming itself into a residential area for disadvantaged groups, while the supply of amenities and even jobs systematically weakened, and vacancy rates increased.

Considering Ebene 2 has contributed to the decay of a whole neighbourhood, one could even argue that the fly-over and the general city planning around it has decreased the liveability of the whole city. If one demolishes the bridge, the neighbourhood will change as well. Maybe well-being will increase once the pollution of noise and fumes is gone. But if there is a motivation to change the image of the neighbourhood and the city, simply the demolition of the structure would not be sufficient and erase the damage of the past. It would require a whole set of considered actions to revitalize the area.

Demolishing the 800-meter-long bridge structure is not that easy. Winding along residential houses and spanning over two-hundred meters of rail field, dismantling the bridge would take time and expenses. Considering that about 22.000 tons of concrete were used for the bridge, means that the bridge holds an equivalent of around 2.800 tons of CO₂. Simply thinking about the CO₂-Budget of the structure should be an argument to be thoughtful with its dismantling.

In my opinion, the space on and around Ebene 2 offers unprecedented opportunities for the city. It is a unique place that holds unique potential. Hagen is a mediocre city. It has its sights, it had its moment in time. But today, there are more negative things to say about the urban situation than there are positive. The inner-city lost value, and there has been little motivation regarding city planning to create qualitative recreational spaces for peo-

ple to meet and increase liveability. But with Ebene 2 losing its original function, a new structure and possibility opens up. A space that is isolating and fragmenting, could rewrite its own conditions. The mediocrity of Hagen can be lifted by a project that has the potential to stand as a beacon. The exceptional character of this place could be reimagined for the future. As an urban place that is not isolating and fragmenting as it is today, but as a place that really adds value to the area. A place that clarifies and at the same time connects the differences. A place that contributes to a cohesive, futureproof and vital district.

The transformation of Ebene 2 should not be brought about by a new „shiny final solution“ for the city. The focus should rather be on a transition process. Transition thinking does not assume a comprehensive project but rather a gradual approach, spread over a longer period of time. Meaning separate, but coher-

ent measures taken to realize a defined policy objective. The transition process for Ebene 2 that I would advocate is an open learning process involving a broad stakeholder field. Ebene 2 will then become a laboratory for the city. A field for experimentation. A space that could be turned into a place, and a place that can be an inspiration for the rest of the city and potentially also for other cities.

So, where am I or where are we standing in this transition process? This is the question that is explored in the course of this thesis. Taking actively part in the advocated transition process means testing, experimenting and learning through the process.



PERSONA

The fly-over Ebene 2 is a unique character in the urban fabric of Hagen. It had the power to shape a neighborhood to neglect and continues to do so. Ebene 2 has segregated and degraded its neighborhood ever since it was built. Winding along the houses, the commuter is put into a voyeuristic place by glimpsing into living rooms and domestic settings while driving 70 kilometers an hour. In the public eye the bridge is seen as a symbol of distress and neighborhood labeled as lost. However, life around the bridge is very alive, in urban spaces of low quality. The bridge dominates the setting and towers above the daily

life. Ebene 2 arrived in the city like a parasite. It took almost five years to construct it. Slowly growing along the houses, already foreshadowing the future that was to come. It is a structure made for motion, so Ebene 2 does not even feel that static. It is a fast-paced structure if you witness it by car. It is almost organic shape gives the fly-over a “thingly” look, and it cannot only be objectified.





HOME

Hagen is a city situated in the western part of Germany, within the state of North Rhine-Westphalia. It is part of the larger Ruhr Area, a densely populated and highly industrialized region.¹ Hagen is characterized by a mix of urban, industrial and natural landscapes.

Like other cities in the Ruhr Area, Hagen had a strong industrial legacy, with a focus on coal, steel, and heavy manufacturing. This industrial base contributed to the need for efficient transportation networks to support the movement of goods and materials. In the course of industrialisation, Hagen was connected to the network of the Bergisch-Märkische Eisenbahngesellschaft in 1848 and developed into an important railway junction.²

Following the damage caused by World War II, there was a need to rebuild and modernize urban infrastructure. This presented an opportunity to design roadways that accommodated the increasing presence of automobiles.

The post-war era was characterized by economic growth, and the increased prosperity contributed to higher car ownership rates. To accommodate this growing car culture, the city tried to solve this by improving road networks.⁴

Hagen's geographic location within the Ruhr Area likely meant that efficient commuting links were important for connecting the city to neighboring urban centers, industrial zones, and transportation hubs, for people to work and the accommodating the increasing economy.



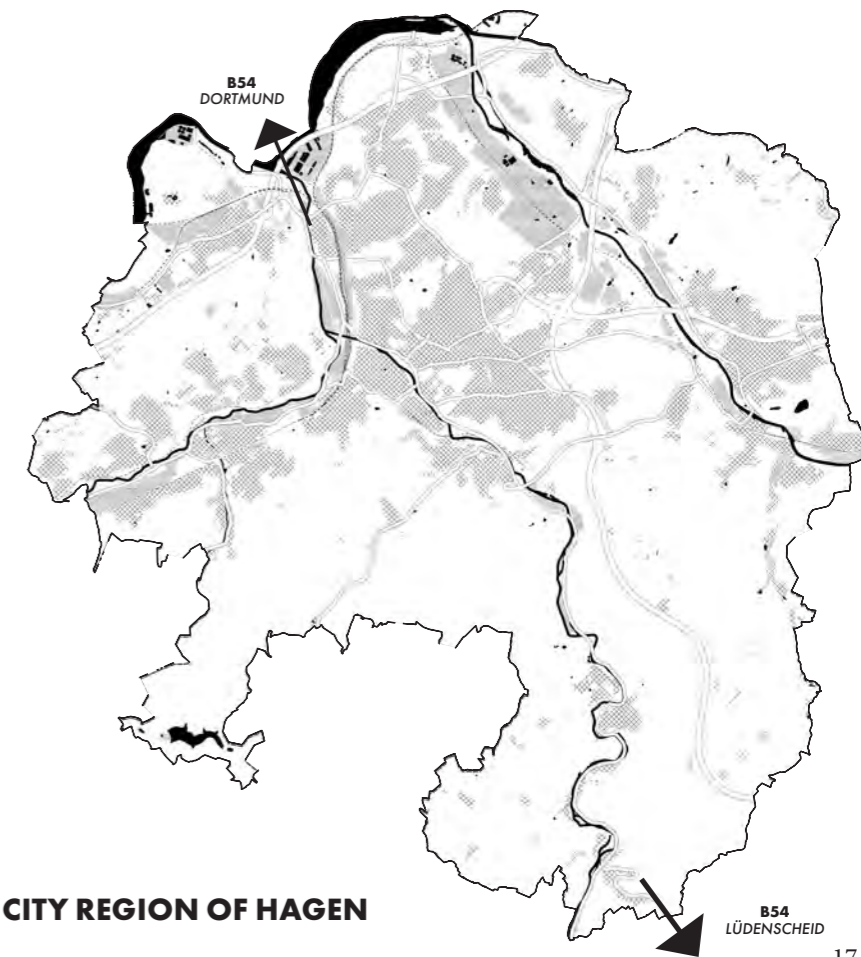
1 Stadt Hagen (2023)
2 ebd.
3 Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008
4 Bundeszentrale für politische Bildung

The Volme River is a significant watercourse that flows through the city of Hagen in North Rhine-Westphalia, Germany. It plays a historical, cultural, and geographical role in shaping the city's development and landscape.⁵ Together with Bundesstrasse 54, which fly-over Ebene 2 is part of, runs together with river Volme for 50km through the city region of Hagen. Bundesstrasse 54 crosses the river various times by bridges, but they are obviously never in physical touch nor share they a felt connection.

The Volme River is a tributary of the Ruhr River, which eventually flows into the Rhine River. It runs for approximately 50 kilometers through various cities and towns, including its course through Hagen. The river has played a crucial role in Hagen's history, serving as a water source for industries, transportation, and trade. Its banks were once home to mills, factories, and other industrial facilities. In the

past, the Volme River powered watermills and facilitated industrial operations, contributing to Hagen's growth as an industrial city. However, the decline of heavy industry has led to changes in the river's significance. The Volme River's significance has evolved over time, reflecting changes in industry, urban planning, and environmental awareness. It continues to be an integral part of Hagen's identity, however regarding recreational and cultural aspects, the rivers potential has been overlooked. Paths next to the river are hardly accessible and the river hides in the urban fabric of the city. The city of Hagen does not fully use the chances, the river offers. Efforts to uplift the area around the river and use it for more quality of life have been unsuccessful and left without the effects anticipated, due to poor planning and unattractive design, the missing of triangulative concepts and attractiveness for gastronomy to settle there.⁷

5 Stadt Hagen (2023)
6 Westfalenpost (2022)
7 cbd



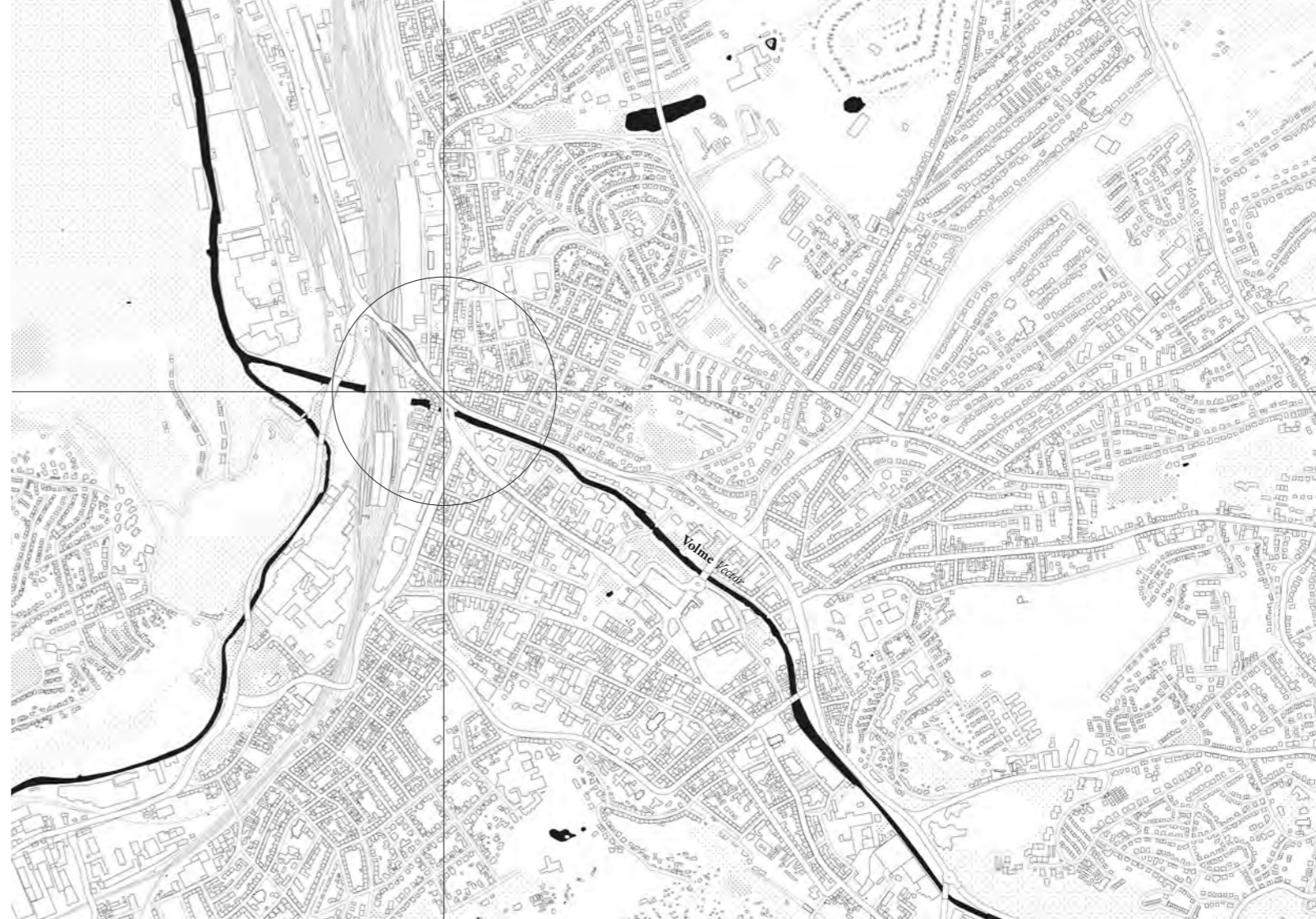
PROFES- SION

Ebene 2, completed in 1968 - before the first oil crisis - was designed to provide a smooth link between the city of Hagen and the modern motorway network.⁸ The car thus took over from the train, which connected the city centre to the railway network similar routes.⁹

The 1960s marked a time when the automobile had become a symbol of freedom, status, and convenience. The widespread adoption of cars led to an increased demand for road infrastructure to accommodate the growing number of vehicles. The economic boom following World War II led to increased consumer spending and automobile ownership. Governments and urban planners often saw the expansion of roadways as a way to support economic growth and boost the automobile industry. The mid-20th century saw the influence of modernist urban planning ideas that prioritized efficiency, functionality, and order. Planners believed that separating traffic

flows (vehicular, pedestrian, and sometimes even bicycles) would lead to more efficient and safer urban environments. The car-centric approach was seen as a symbol of progress and modernity. It was believed that an extensive road network would increase mobility, improve accessibility, and support economic development.¹⁰

The automobile industry and related businesses exerted significant influence on urban planning policies. Additionally, political leaders often supported road projects that were visible and could be presented as indicators of progress. Ebene 2 is nothing exceptional. The reason cities exist at all has to do with the economic appreciation of the mutual proximity of homes, jobs and amenities, making inefficient travel between these places among themselves avoidable. The essence of the city is a spatial set of activities that can interact with each other without requiring much



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Stadt Hagen (2023)

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Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008

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Bundeszentrale für politische Bildung

mobility to do so. In the past transport was, in fact, a laborious and expensive affair. Large-scale infrastructures, however, made transport much faster and therefore cheaper. But apart from making cities better the new highway became a catalyst for urban flight and commuting. With other words, the infrastructure promoted the relocation of a lot of city residents, employment, as well as shops and even schools, to the outskirts.

In this way, the highway was already serving the city less than originally intended. That meant that the inner city was slowly gradually transforming itself into a residential area for disadvantaged groups, while the supply of amenities and even jobs systematically weakened, and vacancy rates increased.

Ebene 2 became partly responsible for the daily supply of thousands of cars, right through the city centre.¹¹ The increasingly busy traffic situation led to additional prob-

lems of noise pollution, air pollution and road safety, while the car increasingly occupied the public space. This effect meant an additional strain on the city's environmental quality, and further reinforced urban flight. A vicious cycle then emerged. The city became more dependent on the car and individual traffic infrastructure increased. Parking spaces, wider roads and junctions increased the traffic flow, noise pollution and therefore decreased the human scale of the city.¹²

Although the choice for more automobility corresponded to a vision of economic expansion, this strategy unintentionally contributed to the undermining of the city: apart from the fact that the new motorway network better connected the cities, it was above all the suburbs and the countryside that became more accessible from the city.¹³ In this way, the new motorway acted as a catalyst for urban sprawl. In other words, the motorway infras-

tructure meant that many city dwellers, but also jobs, shops and even schools, moved to the outskirts of the city. As a result, the inner city slowly but surely transformed into a residential area for underprivileged groups, while the supply of facilities and even employment systematically weakened and vacancy rates increased.¹³

Ebene 2 became partly responsible for the daily supply of thousands of cars to the city centre. The increasingly dense traffic situation led to additional problems of noise pollution, air pollution and traffic safety, while the car took up more and more public space. Recognising the destructive effect of the car in the city is an essential element in reversing the process described above. Reducing road and parking capacity and giving public space back to cyclists, pedestrians and public transport, fits squarely into this picture.

11 Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008
12 Bundeszentrale für politische Bildung
13 vgl. Wohnungsstatistik, Stadt Hagen (2021)



1926
Aerial view of the station district



The junction of Kaiserstraße and Altenhagener Straße near Hagen's main railway station, now completely changed by the construction of the Altenhagen Bridge, photographed in 1956.



1910
Altenhagener Straße from west



1926
Lot at the Altenhagen Bridge



Stop of Construction „Sprungschanze“, 1964.



Construction of the supports for the second level of the Altenhagen Bridge on today's Märkischer Ring. Around 1962.

BIOGRA- PHY

Altenhagen was formerly a factory owners' quarter, where many of the city's great industrialists lived, for example Carl Brandt. It was connected to the streetcar and the architecture reflected the prosperous industry.¹⁴

During the Second World War, the whole city of Hagen experienced massive destruction through air raids. The train station, rail field and bridges were targets of attack. The adjacent Altenhagen was devastatingly destroyed. After rebuilding city, whole Western Germany experienced a time of economic growth. Individual car traffic was booming and the road network no longer met the requirements and the planning of a „second level“ started.¹⁵

In the early 1960s, plans were made to relieve congestion at the junction by building a bridge to carry traffic to and from Eckesey, Vorhalle and Herdecke. When the Deutsche

Bundesbahn (German Federal Railways) undertook massive rebuilding work on its network in preparation for the increasing electrification of trains, the city council seized the opportunity and used the construction machinery provided by the Deutsche Bundesbahn to build the bridge over Altenhagener Platz. But a shortage of funds and a series of cracks discovered by experts in the concrete retaining wall meant that the partially completed bridge remained a warning sign against urban disruption for a good two years, with no sign of progress. Only the approaches and exits on the north side of the planned bridge were largely completed at the time. It was no coincidence that the unfinished structure was derisively called the „Sprungschanze“ which translates to ski jump. The bridge, unfinished for years, was not opened to traffic until 1968.¹⁶

Since 1968, the residents along the bridge can



14 Stadt Hagen (2023)
 15 Stadarchiv Hagen (2022)
 16 Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008

still almost touch the passing cars with their outstretched arm. Residents state, that the exhaust and noise pollution has caused damage to the health and overall diminished their quality.

The preference for flowing traffic, however, has led to a degradation of the business and living quality. Traffic noise, a lack of parking spaces and the shadow of the second street level change the customer structure and the variety of shops. In any case, since 1968 Altenhagener Brücke has literally played a supporting role for the traffic in Hagen's city centre and is an important tangent of the city centre ring road, which was built successively in different construction phases until 1972. At the same time, the completion of the Altenhagen Bridge was an important prerequisite for the route of the A45 motorway planned and built in the 1960s between Hagen and the then independent town of Hohenlimburg.¹⁵

Together with the new motorway feeder road opened in 1967, the elevated bridge was one of the basic prerequisites for ensuring that Hagen - to stay in the picture - did not lose its connection and was connected to the Sauerland line in 1967. In the same year, the first section of the A45 between Dortmund-Süd, Westhofener Kreuz and the Hagen-Mitte exit was inaugurated with great celebration on 17 November. The section to Ludenscheid was opened to traffic in October 1968. The Altenhagen Bridge is still an important part of Hagen's inner city ring road. Residents along the bridge can still almost touch the roofs of their cars with their outstretched arms. Residents can still drive along the bridge with

When in 2010, the Ruhr area was appointed European cultural capital, Hagen was part of it and the city held a week of festivities.¹⁶ For this, Ebene 2 was opened for two days for pe-



CONSTRUCTION

However, a lack of funds and a series of cracks that experts discovered in the concrete retaining wall ensured that the bridge, which was partially completed, stood up in the sky for a good two years like a warning sign against the disfigurement of the cityscape.

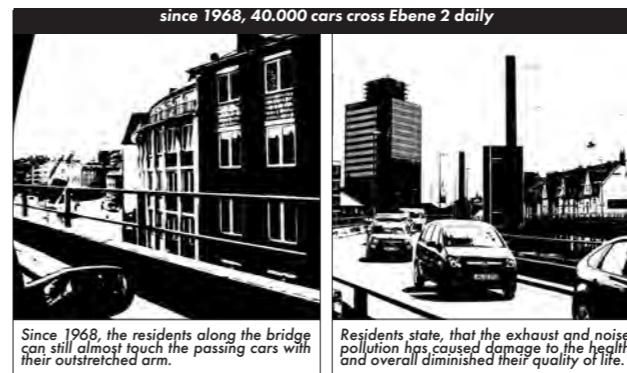


1962-1968

The unfinished structure was popularly derided as „Sprungschanze“ which translates to „Ski Jump“.



The unfinished state of the bridge for several years like a torso was worth a festival float to the Hagen carnivalists in 1962.



since 1968, 40.000 cars cross Ebene 2 daily

Since 1968, the residents along the bridge can still almost touch the passing cars with their outstretched arm.

Residents state, that the exhaust and noise pollution has caused damage to the health and overall diminished their quality of life.



2000

Building Ebene 2 has resulted in a desolation of business and residential quality. Traffic noise, lack of parking space and the shadow of



the second level of the street change the customer structure and shopping diversity

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Ruhr 2010
Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008

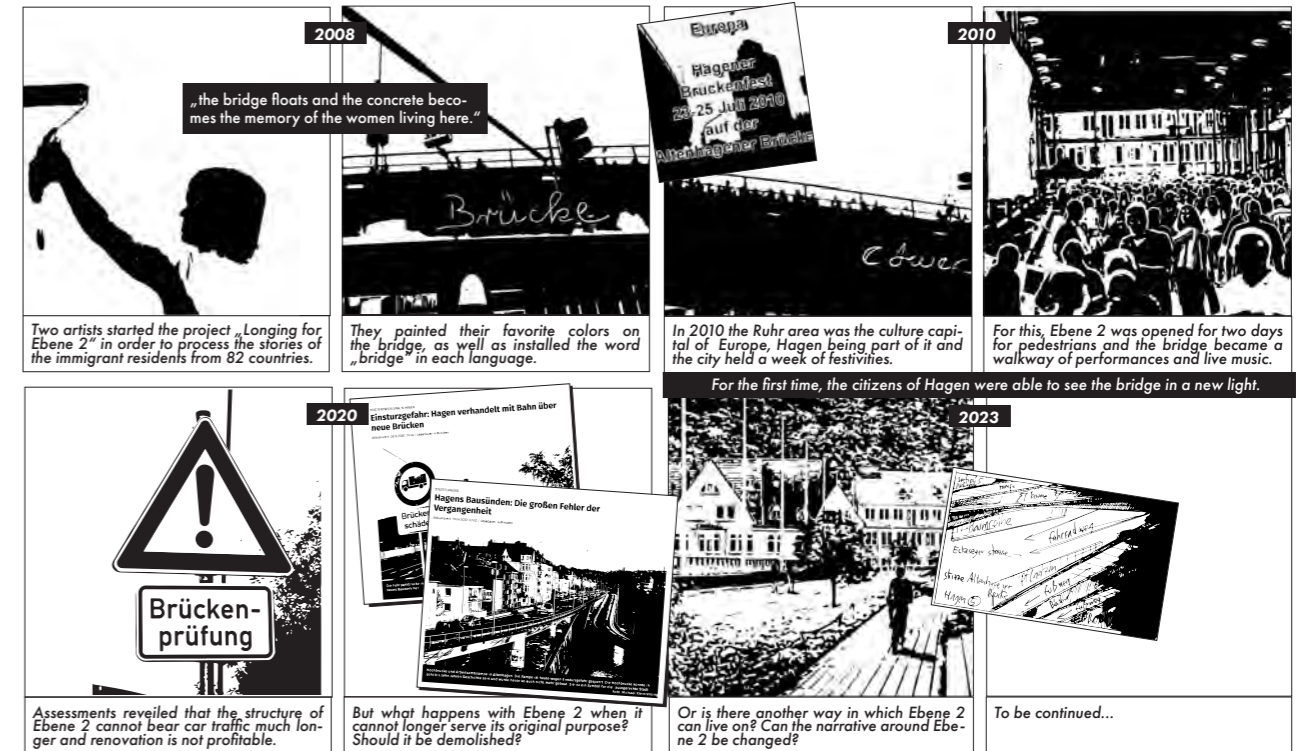
destrians and the bridge became full of performances and music. In 2010 Ebene 2 was the focus of an art project that gave it a new aesthetic quality, a new urban integration and thus a new level of meaning. Milica Reinhart, artist from Hagen and native Croatian, and Marjan Verkerk, artist from Amsterdam, asked women living there from Morocco, Kenya, Nigeria, Greece, Turkey, Bosnia, Serbia and Portugal, Poland, Russia, Italy, Germany and Brazil about their history, the colours of their homeland and their memories as part of the art project „The Longing for Ebene 2“. They painted the memories of 38 local women on more than 6,000 m² of concrete on the sides of the bridge. The painting has completely changed the bridge and with it the flair of the surrounding area. The previously dirty grey concrete had suddenly gained lightness, cheerfulness. „The bridge floats,“ said Milica Reinhart.¹⁷

In 2017, the planning administration of Ha-

gen commissioned an expert opinion on the status of Ebene 2. Originally, the structure was supposed to last until the year 2058, but the recent findings showed that the bridge is decayed further than expected.

According to the instruction the prestressing steels used from the production period of the year of construction (1963) have a particularly high sensitivity to stress corrosion cracking, as a result of which the structure can fail abruptly under service load. Therefore, a computational investigation of the pre-announcement behaviour on cross-section as well as on system level was carried out in the sense of a stochastic verification.¹⁸

A bypass road has been planned. It would divert traffic to the west of Hagen and create additional capacity at the major junction of Altenhagener Straße that could accommodate the extra traffic from the bridge.¹⁹



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Schmsucht nach Ebene2 - Ein Kunstprojekt, Katalog, Hagen 2010
Westfalenrundschau (2017)
cbd.

TYOLOGY: ELEVATED STREET

„FOR INNER-CITY TRAFFIC BRIDGES SHOULD BE AVOIDED AS MUCH AS POSSIBLE, SINCE THEY ARE UNLIKELY TO CONTRIBUTE TO PEOPLE’S WELL-BEING INSIDE THE CITY.“ FRITZ LEONHARD, 1974

During the mid-20th century, many cities around the world embarked on ambitious infrastructure projects to accommodate the increasing automobile traffic and address urban congestion. These elevated streets were typically constructed on elevated platforms or viaducts above the existing urban fabric, allowing for the unimpeded flow of vehicular traffic without intersections or pedestrian crossings. The goal was to expedite travel through densely populated urban areas and provide a direct route for commuters. These projects often had significant impacts on the urban landscape, both positive and negative. Elevated streets physically divided neighbor-

hoods, disrupting social and community interactions, and even causing displacement in some cases.

Fritz Leonhard, a German structural engineer who made major contributions to 20th-century bridge engineering, has published many writings about bridges from the mid 20th-century. In his book „Bridges: Aesthetics and Design“ that is well known throughout the bridge engineering community, he criticises the construction of elevated streets in city centres.²⁰

He states that any traffic above the areas where people move will be perceived as a nuisance, regardless of whether cars race along these elevated roads, leaving behind their exhaust fumes, or whether the recently planned public cable cars run along them.²¹ High-road bridges are a nuisance not only visually but also in terms of noise, especially for the resi-

dents of neighbouring buildings, even if today some of the noise produced by vehicles can be absorbed on the bridge. In American cities in particular, the negative effects of bridges in streets for elevated trains or for automobiles have been demonstrated time and again.²²

In any case, permanent elevated bridges should only be built in our cities where there is sufficient distance between buildings and where green spaces with sound-absorbing lawns and bushes are possible between the bridge and the houses. Even then, the bridge builder has the task of making the elevated road as elegant and light as possible, because a clumsy and heavy bridge does not fit into the interior of a city. Therefore, one must not choose spans that are too large, so that the superstructure does not become too massive, and above all, one must ensure that the bridge piers do not act like a separating wall in the oblique view.

If an elevated road is to be built, then particular importance must be attached to good design. The visible masses of the bridge bodies must be reduced as much as possible, especially if the space under the bridge is to be used for stationary or moving traffic - which is usually the case in cities. Reducing the visible masses means that the superstructures should be slim, so that the visible surfaces of the girders or any massive parapets are not too high and thus have a depressing effect. Therefore, one will not choose spans that are too large - 20 to 30 m are usually sufficient. From a series of 30 m spans, a 40 m opening can also be managed at intersections without increasing the overall height. The choice of support is very important. Elevated roads are usually wide (16 to 25 m). Wide wall-like pillars are unsuitable because they leave little clear view in the oblique view. Double columns are acceptable if their longitudinal spacing is at least about twice the transverse spacing.²³ The best solution is

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Fritz Leonhard: Brücken - Ästhetik und Gestaltung, Deutsche Verlags-Anstalt, Stuttgart, 1982

21

Fritz Leonhard: Ingenieurbau, Carl Habel Verlag, Darmstadt, 1974

22

Fritz Leonhard: Brücken - Ästhetik und Gestaltung, Deutsche Verlags-Anstalt, Stuttgart, 1982

23

Fritz Leonhard: Ingenieurbau, Carl Habel Verlag, Darmstadt, 1974

undoubtedly to limit the number of columns to one central row of narrow pillars or round or octagonal columns. However, these single columns must not be clumsy, i.e. their thickness should not be greater than about half the height, at least in the longitudinal direction.

As a built elevated street that is well designed, Fritz Leonhard gives the example of „Tausendfüßler“ in Düsseldorf. It is the elevated road at Jan-Wellem-Platz, which carries the four narrow lanes with a width of about 14 m and forks into two two-lane descents (width 10 m). The structure was built, just like Ebene 2 in Hagen, in the 1960s. The planning and construction of the elevated road took place at a time when Düsseldorf, just like Hagen, was still in the process of reconstruction and wanted to reinvent itself as a car-friendly city. Individual traffic was to be given priority and allowed to flow through the city as unhindered as possible.

But design wise, thanks to the reduction of the masses of the structure, urban life continued almost undisturbed under the bridge. Design wise, Leonhard states: „The most elegant elevated road was built in Düsseldorf under the influence of the architect F. Tamms, who demanded the utmost „dematerialisation“ from us engineers in order to gain the impression of weightlessness.“ The lower surface is softly curved, from concave to convex to concave. The cornice is also slender at 45 cm high. The railing consists only of strong posts with two longitudinally tensioned ropes.

The floating impression was mainly achieved by making the supports of high-strength steel as slim as possible - for the double-busy part they are Y-shaped supports, for the single-busy parts they are simple, rectangular hollow supports with a strong run-on, which gives the feeling of stability despite the slenderness.

Because of its structural importance and ele-

gant appearance, the elevated road was listed in 1985. But in connection with the planned development of Jan-Wellem-Platz, the city council of the state capital decided in 2007 to route the north-south traffic through tunnels and to demolish the „Tausendfüßler“. The Oberste Landesdenkmalbehörde, which underscored the monumental value of the Tausendfüßler and criticized the city's development plans and emphasised not only the contemporary historical significance of the bridge construction as a rare example of an inner-city street type adopted from American models, but above all its engineering and aesthetic features.

Nevertheless, the Tausendfüßler was demolished on February 25th 2013. The day before, February 24th, 5,000 Düsseldorfers bid farewell to their Tausendfüßler and walked together across the elevated street for the (first and) last time before it was demolished.

Beyond the question of the necessary restoration measures, the problem of this case is obvious: Unlike coal mines and factory buildings from the pre-war period, it is still difficult to make public and political plausibility for architecture from the 1960s. This is all the more true for the construction type of roadways and bridges, which is firmly anchored in the consciousness as the great destroyer of mature urban ensembles. Although the Tausendfüßler also winds visibly and confidently through Düsseldorf's inner city, this was largely destroyed during the war. Against this backdrop, this bridge structure actually appears within its urban environment less like the alleged rough cut that destroys visual relationships than as a component of a sweeping, dynamic overall structure whose traffic connections appear more well thought-out than some later solutions.

ANATOMY

Inner city fly-overs, also known as overpasses or elevated highways, are constructed to provide elevated roadways that pass over existing streets, intersections, or obstacles within urban areas. Ebene 2 was constructed as a box girder bridge, or spine girder, referring to the anatomical structure of a (human) spine. These structures are flexible and can adapt to any curvature necessary, making them ideal for innercity fly-overs. The fly-over has been constructed in a way that adapts physically to the urban fabric. The construction method allows Ebene 2 to curve and therefore wind along houses. The surrounding built environment gives the fly-over its exact shape.²⁷

Like Ebene 2, fly-overs constructed in the 1960s were often built with reinforced concrete due to the prevalent construction methods, materials available at that time, and the engineering practices of that era. Reinforced concrete allowed for versatile design possibi-

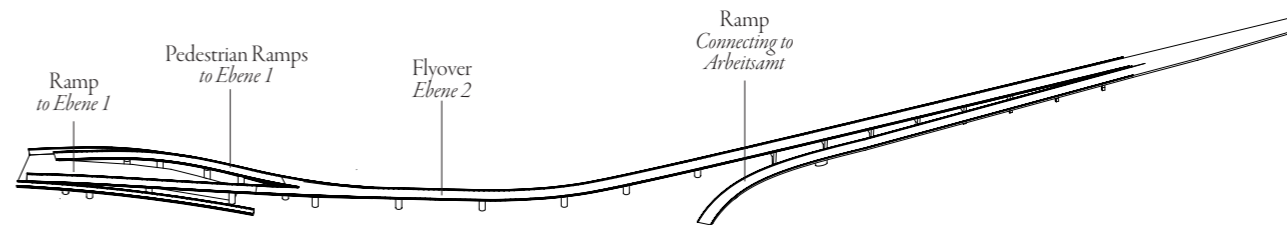
lities, enabling engineers to adapt the structures to the specific needs of urban areas, intersections, and traffic patterns. During the 1960s, reinforced concrete was a well-established and widely used construction material. It was readily available, and construction professionals were familiar with its properties and behavior. Therefore it was relatively cost-effective compared to alternative materials, such as steel. This made it an attractive choice for large-scale infrastructure projects like fly-overs.²⁸

A box girder bridge is a type of bridge structure characterized by its hollow or box-like shape. It consists of two vertical walls connected by a horizontal top and bottom flange, creating a rectangular or box-shaped cross-section. This design provides the bridge with increased strength and stiffness, making it capable of carrying heavy loads over long spans. A box girder is commonly used for construc-

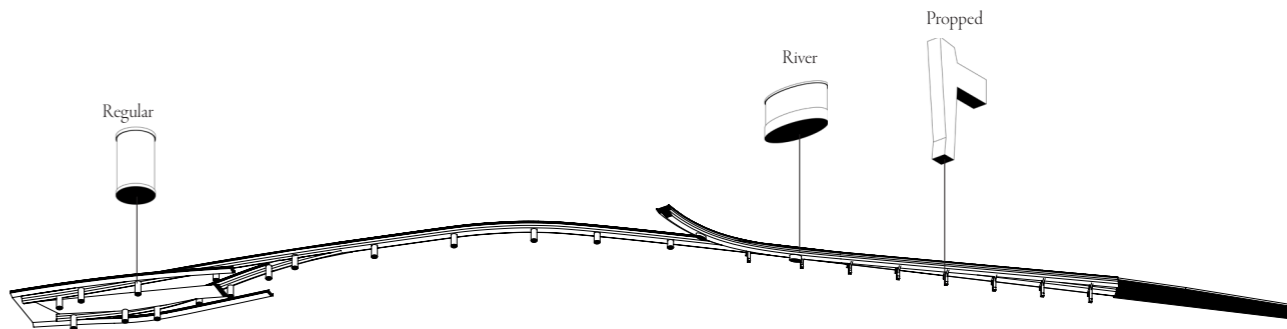
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28

Handbuch Brückenbau - Ernst & Sohn - Berlin 2014
Bridge Engineering Handbook - CRC Press - New York 2014

Anterior View



Posterior View



ting highway flyovers due to its structural efficiency, load-bearing capacity, and flexibility in design. The box shape allows for efficient distribution of loads and provides a higher resistance to bending and torsion compared to other bridge designs. The construction process involves assembling the box girder section by section.

Ebene 2 was constructed with an in-situ casting method to create individual box girder segments. These segments are then lifted into place and joined to form a continuous girder along the length of the flyover.²⁹

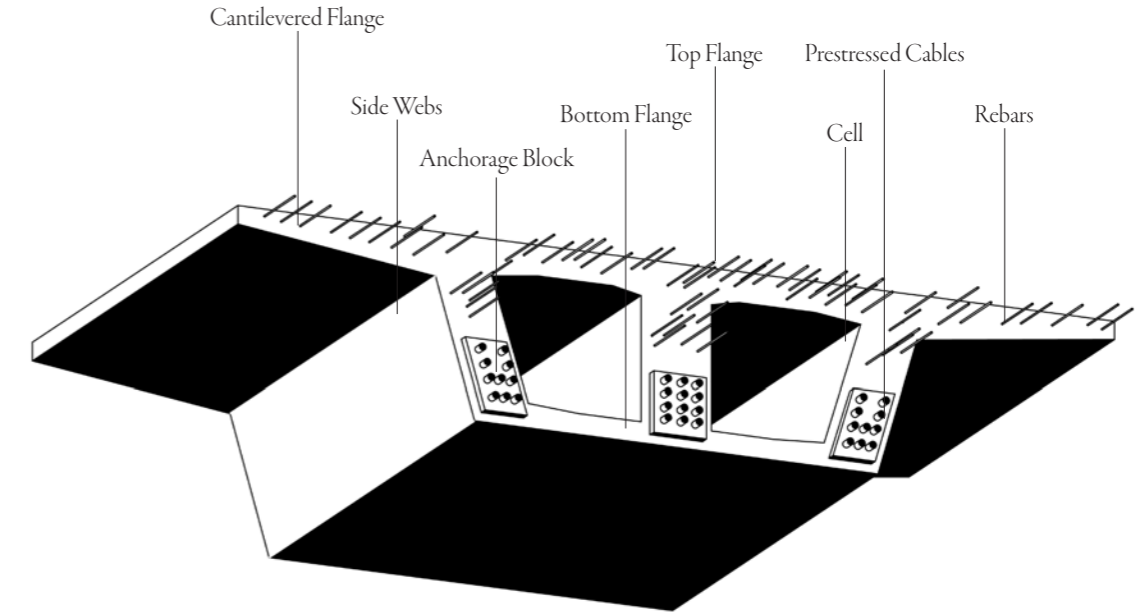
Deck: The deck is the top surface of the flyover that vehicles drive on. It is made of reinforced concrete and serves as the roadway. The deck provides a smooth and durable surface for vehicles to travel on.³⁰

Box Girder: The main load-bearing structure of the flyover is the box girder itself. It's a

hollow rectangular or box-shaped cross-section that spans across the supporting piers and abutments. The box girder is composed of vertical walls called webs and horizontal top and bottom flanges. The webs provide vertical support, while the flanges resist bending and torsion forces.

Webs: The vertical walls that run parallel to the length of the flyover are called webs. These walls provide the primary load-bearing capacity of the box girder. They distribute the loads from the deck and vehicles to the supporting piers and abutments.

Flanges: The horizontal members located at the top and bottom of the box girder are called flanges. These flanges contribute to the structural rigidity of the girder and help resist bending and twisting forces. The top flange is in direct contact with the deck, while the bottom flange connects to the piers.



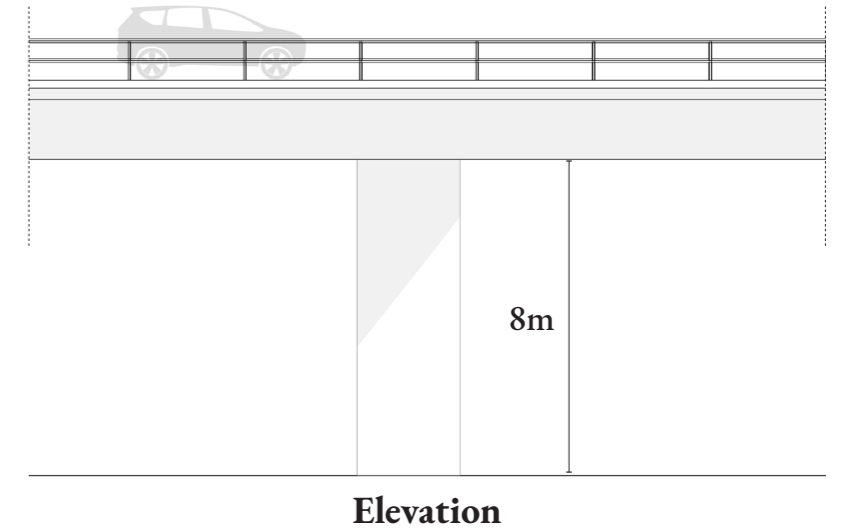
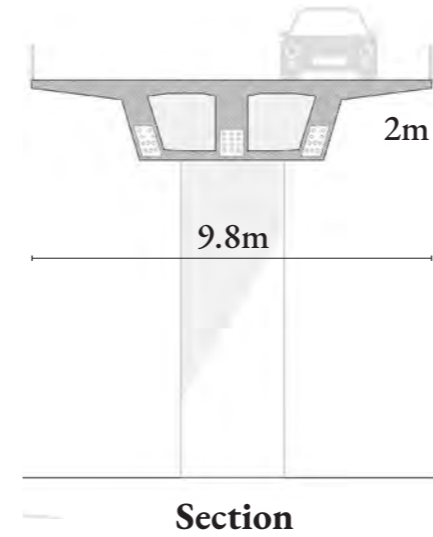
29 Handbuch Brückenbau - Ernst & Sohn - Berlin 2014
30 Bridge Engineering Handbook - CRC Press - New York 2014

Diaphragms: Diaphragms are cross-sectional members that connect the webs of the box girder. They provide additional stiffness and stability to the girder. Diaphragms also help transfer loads between the various parts of the girder.

Piers and Abutments: Piers are vertical support structures that hold up the box girder. They are positioned at regular intervals along the length of the flyover. Abutments are similar support structures located at the ends of the flyover. Piers and abutments are often made of reinforced concrete as well.

Bearings: Bearings are devices placed at the interface between the box girder and the supporting piers or abutments. They allow for controlled movement, expansion, and contraction of the structure due to temperature changes and loads. Bearings help reduce stress on the structure.

The anatomy of an inner city fly-over constructed as a spine girder bridge is designed to ensure structural integrity, safety, and functionality. Engineers consider factors such as load-bearing capacity and traffic flow, when planning and constructing these types of elevated roadways. Unfortunately, aesthetic design and human scale are factors, that are not necessarily thought of, especially in a time of construction where planners wanted to be as efficient as possible. The structures anatomy is able to perform its rigid tasks, but nothing further. Therefore, considering human interactions that go beyond driving, have been neglected and the fly-over became a symbol of hostile city planning.



RELATIONSHIPS

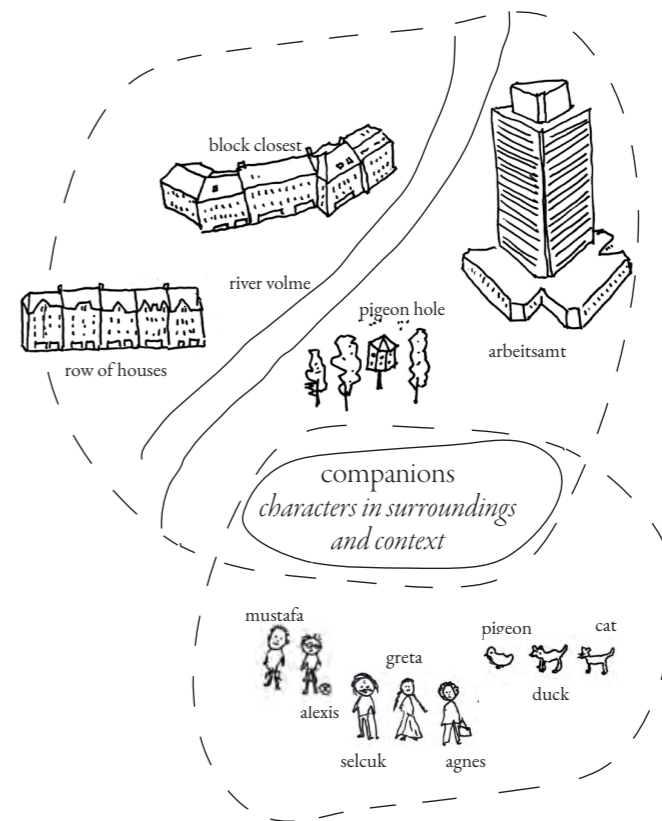
The neighborhood of Altenhagen, which Ebene 2 winds through, is characterised by its diversity. However, the flyover was a catalyst for the neglect of the neighborhood and citizens were left to themselves. Socially disadvantaged families with low incomes moved in since its construction, the proportion of low-income welfare recipients and single parents increased. In addition, there was a strong influx of ethnic minorities. The percentage of foreigners was 38% in 2021. Since 1999, Altenhagen is considered a 'district in particular need of renewal' by the Federal Ministry for Housing, Urban Development and Building.³¹

The relationship between a built structure and the community in the urban realm is intricate and multi-faceted. Built structures, such as buildings and infrastructure, play a significant role in shaping the way a community functions, interacts, and identifies with its

surroundings.

The built structure, such as Ebene 2 and its adjacent buildings and road infrastructure, forms the hard context. The soft context refers to the intangible aspects that contribute to the atmosphere, identity, and social dynamics of a place. This context includes cultural values, historical narratives, social interactions, community engagement, and the overall sense of place. Soft context factors often shape the emotions, perceptions, and experiences of individuals within a space.³²

You can categorize the relationships of a built structure on the one hand in the individuals that habitize the space, people that live there and biodiversity that flourishes. On the other hand it is the other built structures that make up the urban fabric of the surrounding. The small and the big buildings, the shops and the infrastructures. These are the companions.



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vgl. Einwohnerstatistik, Stadt Hagen (2021)
Placemaking: An Urban Design Methodology, Routledge, New York 2016

PEOPLE TO MEET



Herr Krause

I am an engineer. I love constructions like bridges. I also love markets. I go weekly to shop vegetables there and eat currywurst. I have been born in Hagen. I would be nice to see people coming together here (bridge), like they do at markets.



Alexis and Jona

*No he is not my brother. But we are best friends. We meet every day after school. I think he (Alexis) will become a football pro. He is really good. No, he is not playing in a club yet. I train him. We train here. *points to parking lot under the bridge**



My Grandmother

Ever since telling her about my master thesis, my grandmother collects newspaper pieces for me. Whenever I call her, she tells me she has found more interesting articles and sends them to me via mail. She has been living in Hagen for 60 years.



Ulf, Klaus, myself and Bernhard

Together with others they founded the initiative „Grüne Brücke Hagen“ Green Bridge Hagen. They are all residents of Hagen and tired of the slow processes and eager to transform the space around the bridge hands-on.



Selcuk

I own this restaurant for two years now. We do the best kebab of the city I think, it is very good quality and we do it ourselves. If there are no cars on the bridge? I would like to have lots of shops that sell spices and sweets.



Hassan

Do you need help carrying that? Are those chilis? I don't think they are too spicy for me. I am a good gardener, I will grow my own chilis from the seeds. You mean plants on the bridge? Chilis? I think that would be too spicy.



Stephan, mit ph

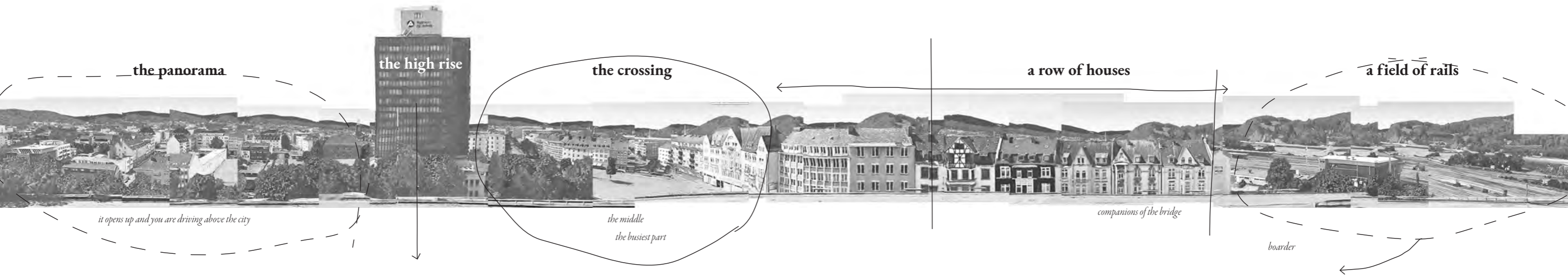
*We work for a construction company, there is a refurbishment of this house. *points to house next to bridge*. We always do our lunch break at Selcuk's Kebab. What do you want to do with this bridge? What about traffic?*



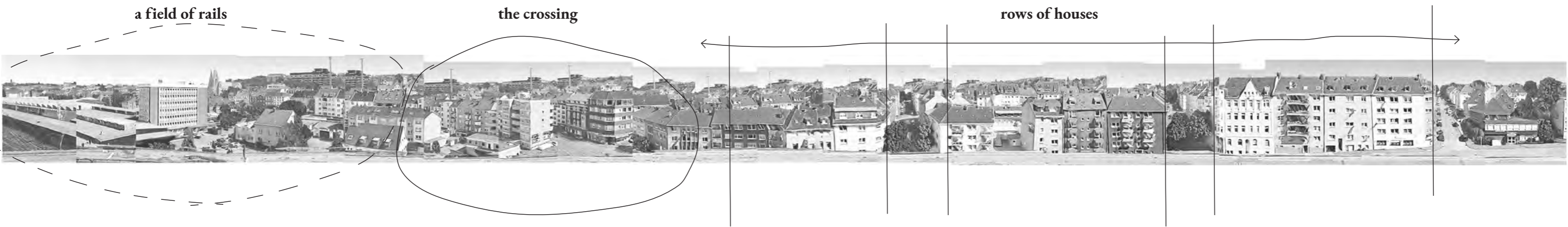
Veta

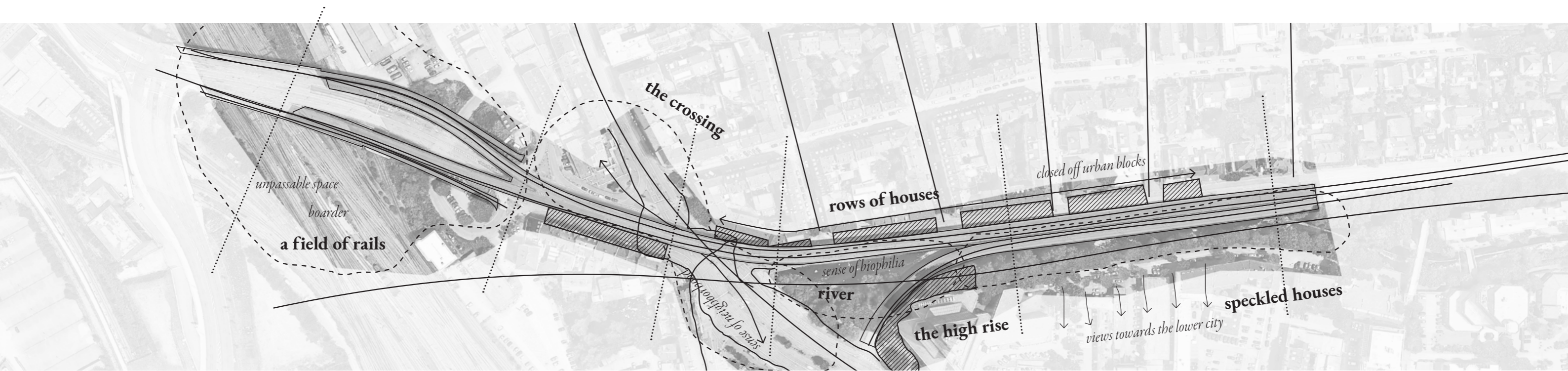
I am new here. We only moved to Germany last year. Now there is no garden. We had lots of flowers. I want to grow a lot of flowers on the bridge and play there with my friends and have a picnic.

EVERY BUILDING NEXT TO EBENE 2

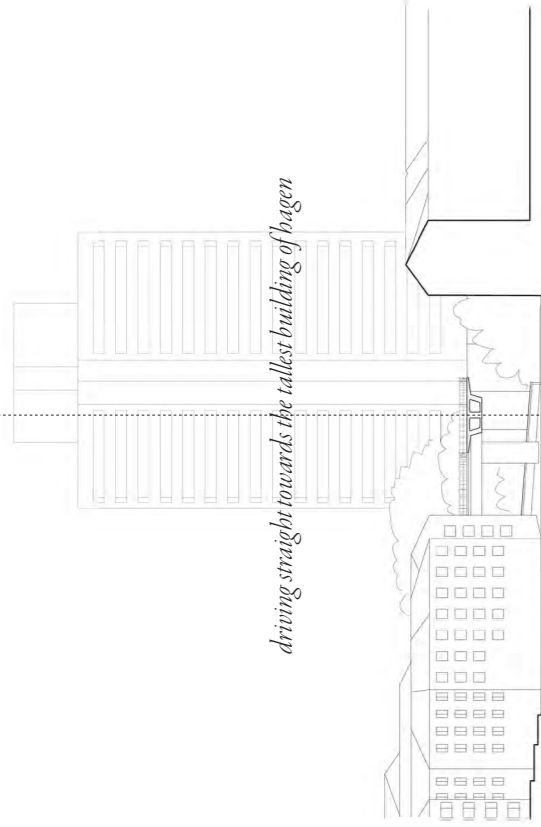


EVERY BUILDING NEXT TO EBENE 2

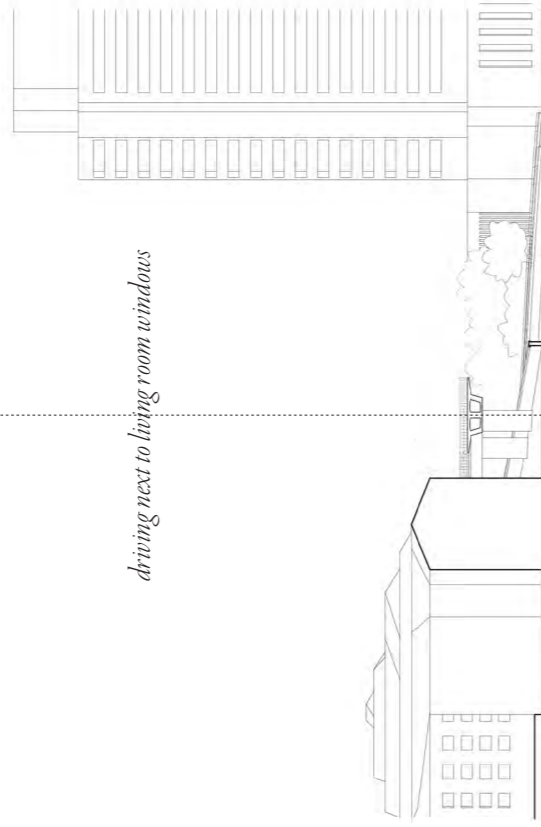




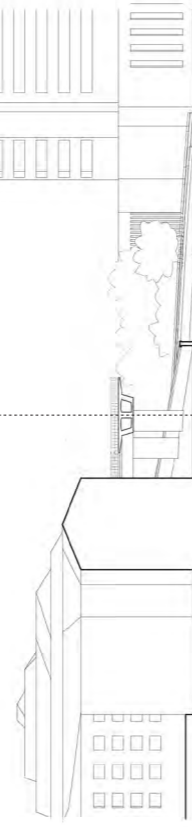
driving straight towards the tallest building of hagen



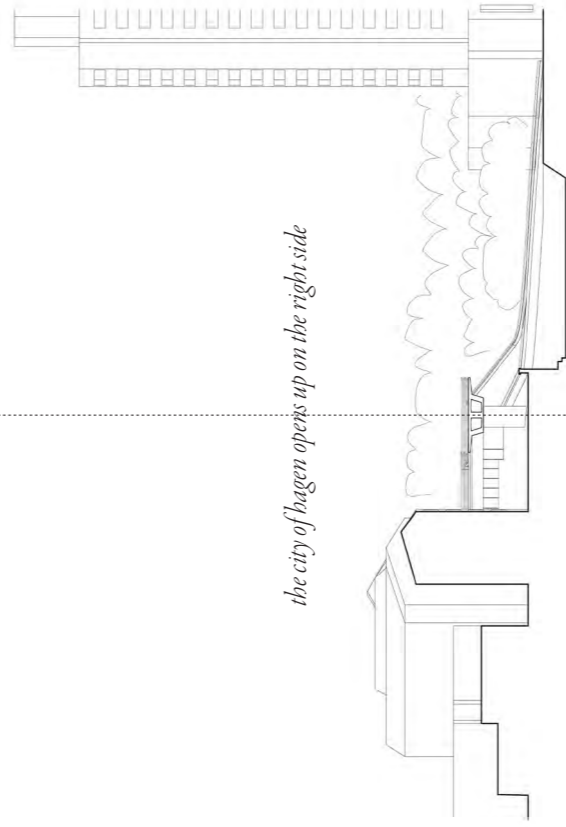
driving next to living room windows



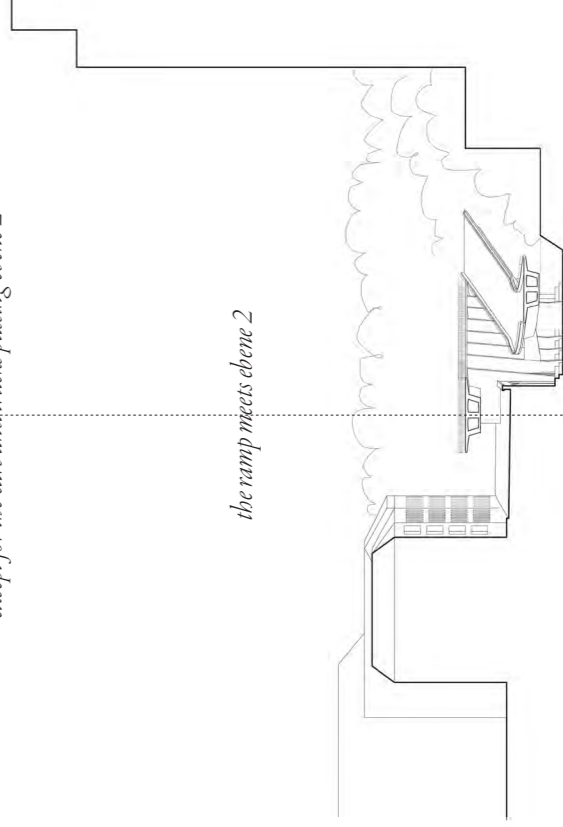
*driving next to a river
but not noticing*



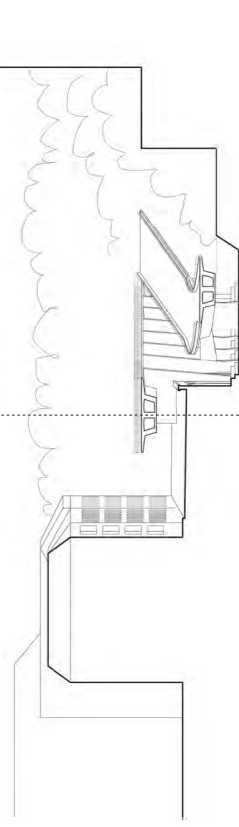
the city of hagen opens up on the right side



*the flats on the left side must have a nice view
except for the cars and trucks passing ebene 2*



the ramp meets ebene 2



crossing ebene 2

CROSSROAD

The situation is the following: Ebene 2, a fly-over build in the 60s to accommodate the increasing car traffic at that time, is dilapidated and cannot continue to serve its original function. Car traffic has to be discontinued in the next couple of years. But what do you do with an obsolete large-scale infrastructure made for car traffic? The following explores possible scenarios.





CRISIS

In 2017, the Hagen planning authority commissioned an expert report on the condition of Level 2. Originally, the structure was expected to last until 2058, but recent findings have shown that the bridge is deteriorating further than expected: according to the report, the prestressing steels used from the production period of the year of construction (1963) are particularly susceptible to stress corrosion cracking, which can cause the structure to fail abruptly under service load. For this reason, a computational study of the prediction behaviour was carried out at both cross-sectional and system level in the form of a stochastic verification.³²

Could the bridge at least be maintained? This is the question currently being asked by the Hagen building authorities, who are taking a close look at the city's many dilapidated reinforced concrete bridges to see which ones are still worth investing millions in. This

is especially the case when these bridges are no longer desirable from an urban planning point of view. With this in mind, Wolfgang Mesenholl, an external planner with decades of experience as an advisor to Hagen's planning authority, suggests demolishing the entire structure and rerouting the traffic. It would divert traffic to the west of Hagen and create additional capacity at the major Altenhagener Straße/Märkischer Ring/Graf-von-Galen-Ring/Körnerstraße junction, which could accommodate the extra traffic from the bridge.³³

This means that car traffic on Ebene 2 will be stopped, no matter what. Refurbishment is not a possibility.³⁴ Meaning, there are two starting points to continue the conversation with; Demolishing or keeping the structure. With the original purpose being gone, the infrastructure is obsolete. When talking about dilapidated, inner-city fly-overs, demolition

might be the first option to come to mind. Once the purpose is gone, the fly-over is obsolete. The essence of the city is a spatial set of activities that can interact with each other without requiring much mobility to do so. In the past transport was, in fact, a laborious and expensive affair. Large-scale infrastructures, however, made transport much faster and therefore cheaper. But apart from making cities better The new highway became a catalyst for urban flight and commuting. With other words, the infrastructure promoted the relocation of a lot of city residents, employment, as well as shops and even schools, to the outskirts. That meant that the inner city was slowly gradually transforming itself into a residential area for disadvantaged groups, while the supply of amenities and even jobs systematically weakened, and vacancy rates increased. Considering Ebene 2 has contributed to the decay of a whole neighbourhood, you could even argue that the fly-over

and the general city planning around it has decreased the liveability of the whole city. If you demolish the bridge, the neighbourhood will change as well. Maybe well-being will increase once the pollution of noise and fumes is gone. But if there is a motivation to change the image of the neighbourhood and the city, simply the demolition of the structure would not be sufficient and erase the damage of the past. It would require a whole set of considered actions to revitalize the area.

But demolishing the 800-meter-long bridge structure is not that easy. Winding along residential houses and spanning over two-hundred meters of rail field, dismantling the bridge would take time and expenses. Considering that about 22.000 tons of concrete were used for the bridge, means that the bridge holds an equivalent of around 2.800 tons of CO₂. Simply thinking about the CO₂-Budget of the structure should be an ar-

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vgl. Gutachten Marx Krontal (2017)

Westfalenrundschau (2017)

Westfalenpost (2020)

When talking about the future of the soon-to-be obsolete fly-over, different opinions emerge. It is a debate that is complex and multilayered, involving various stakeholders.

Now there is a moment in the life of a bridge where its purpose is not being met. Is there a way in which the bridge can live on? A way in which it can survive longer than its lifespan, to reuse the structure and therefore make it more sustainable? Could this old infrastructure get a new meaning?

Ebene 2 has segregated and degraded its neighborhood ever since it was built. Winding along the houses the commuter is put into voyeuristic place by glimpsing into living rooms and domestic settings while driving 70 kilometers an hour. In the public eye the bridge is seen as a symbol of distress and neighborhood labeled as lost.³⁵ In reality, life around the bridge is very alive, in urban spaces

of low quality. The bridge dominates the setting and towers above the daily life. Residents around the bridge do not profit from it. There is no direct car connection or other value. Ebene 2 surpasses its neighbors, takes up space and emits noise and pollution.³⁶

The elements for the bridge are nourished by its context. The bridge is part of its surroundings and amplifies what is already there and desired. In fact, the neighbourhood already has the structure of a functioning urban space. There are shops in the ground-floors with mixed uses. Small-scale local shops, offering fruits and spices, selling Italian, Arabic, Turkish food. There are hairdressers and nail salons. People live their daily life here. Unfortunately, what is missing is the connection within, because it is a segregated neighbourhood where groups are staying within each other.

In order to rewrite the narrative around the fly-over, all these negative connotations need to be turned around. This thesis aims to be a starting point in the positive conversation around future scenarios of a rethought fly-over.

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Hagen – Geschichte einer Großstadt und ihrer Region, Klartext Verlag, Essen 2008
Westfalenpost (2020)

HYPOTHESIS

THE BRIDGE IS A TOOL.

The bridge can be read in many different ways. It is a tool, it is a fluid, incomplete, indefinite frame for events. It is a room for the neighborhood. It can be a flexible, ever-expanding program. It is a tool that is able to meet the needs of the neighborhood and the city. It is a tool that can adapt to the ever-changing circumstances of urban life. The bridge is also a tool for narration. Its is a storyboard, it shapes the movement, it creates the scenography. When you pass Ebene 2 today, by car, you experience a series of sensations. It is not a „normal“ street you drive along, cruising on Ebene 2 rather feels like a roller coaster. It is a defined passage, like a rail, like a train. Somehow the linear movement controls everything that the driver sees at every moment of passing as if it were a movie. So Ebene 2 is a tool for storytelling and the story can be rewritten.

THE BRIDGE IS AN „IN-BETWEEN“ SPACE. IT IS ACTIVATED BY BODIES MOVING THROUGH IT.

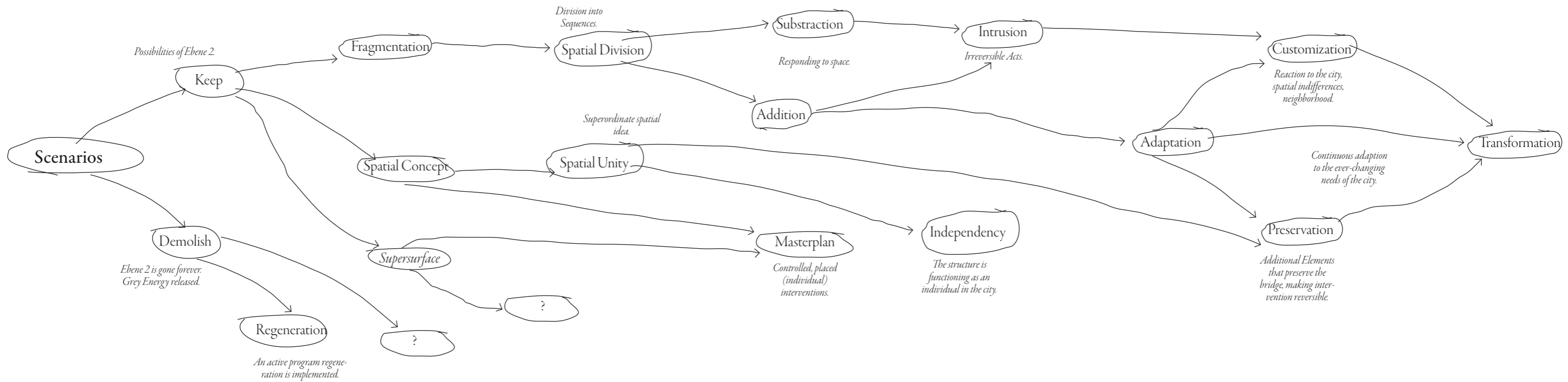
An „in-between“ space is activated by the motion of bodies in that space. Programmed activities, when strategically located can charge an un-programmed space (the in-between). It is about designing conditions, rather than conditioning designs. It is about identifying and releasing potentialities hidden in a site, a program or their social context. The bridge can be anything you want it to be, but it has to be realized with purpose.

THE BRIDGE IS AN ARTEFACT. A NEW READING WILL TRANS- FORM IT.

The bridge is a „superstructure monument; a continuous monument“. It is preserved in memory of a time when cities were (re-)built with no larger plan. To use it means to re-invent it and to appropriate it daily with different wants and wishes. Looking forward means looking back. To look with care at what is there and how it could gain new meaning. To try and understand the interdependencies and how they could shift by bringing in new elements or taking some away. The idea that places consist of many layers of meaning that were built up over time and can be either accepted, transformed or suppressed by design actions.

THE BRIDGE CHANGES THE CONTEXT. THE CONTEXT CHANGES THE BRIDGE.

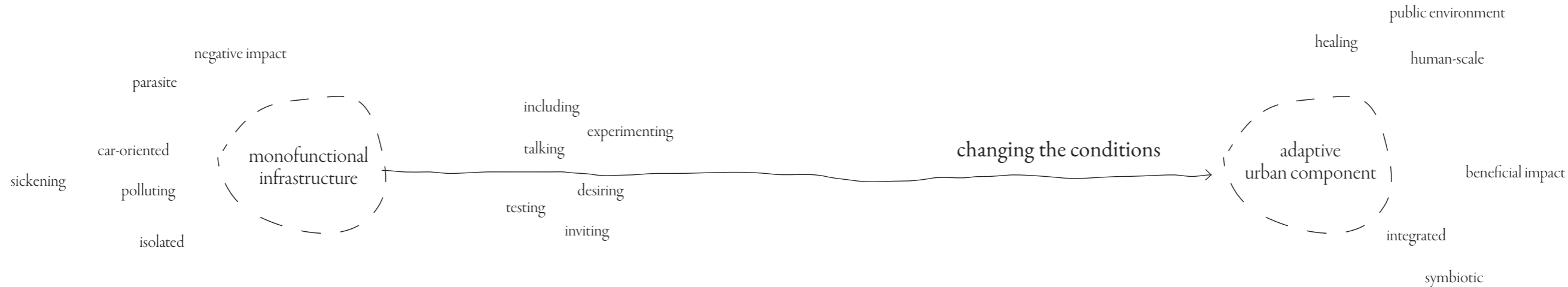
Placemaking: take into account the interactions and co-evolutions between things and between things and their surroundings in order to shape environments. Designing for places requires systems thinking: thinking in relations, thinking in dynamic and iterating models and thinking with time. Relationships are the essence of design; the interrelations between patterns, the meaning for life they generate and trigger. When it comes to solutions, there is no single truth, only an array of possibilities, as moments in an ongoing process of transformation. The bridge will always have an open-ended character.



THERAPY

The arrival of fly-over Ebene 2 in the city of Hagen was a disruptive incision, disguised as a futureproof project securing the economic linkage to the region. The thought of therapy between humans and the built environment recognizes that physical spaces can influence emotions, behaviors, and mental well-being. By intentionally designing spaces to consider these factors, architects, urban planners, and designers can contribute to the creation of environments that positively impact people's lives. How could therapy look like? How can we heal the relationship between the fly-over and its neighbours?





METHOD: PLACE- MAKING

Derek Thomas writes in his book „Placemaking - an Urban Design Methodology“ that end-users provide the most valuable perspective and insights into how public social space should function. He states that much of the failure of urban settings can be related to overstructured urban environments which determine their prescribed usage, thereby inhibiting instead of enabling socio-spatial performance. Placemaking is a collaborative and participatory approach to urban design and planning that focuses on creating and improving public spaces to make them more vibrant, functional, and people-centered. The goal of placemaking is to transform ordinary or underutilized spaces into meaningful, engaging, and culturally significant places that foster a sense of community and enhance the overall quality of life for residents and visitors. Placemaking involves a wide range of activities, strategies, and design principles that take into account the unique identity, history, and

needs of a specific place. It goes beyond just the physical aspects of space and also considers the social, cultural, and economic factors that contribute to its character and the so called sense of place. The sense of place refers to the emotional and psychological attachment that individuals or communities develop toward a specific location or environment. It's a feeling of connection and belonging to a particular place that goes beyond its physical attributes. Sense of place encompasses the unique identity, character, memories, experiences, and cultural significance associated with a place. It can evoke a range of emotions, from nostalgia and comfort to pride and a sense of rootedness.

Space is a general and abstract concept that describes the physical extent of an area, while place refers to a specific location that is imbued with meaning, identity, and significance. The distinction between the two lies in the

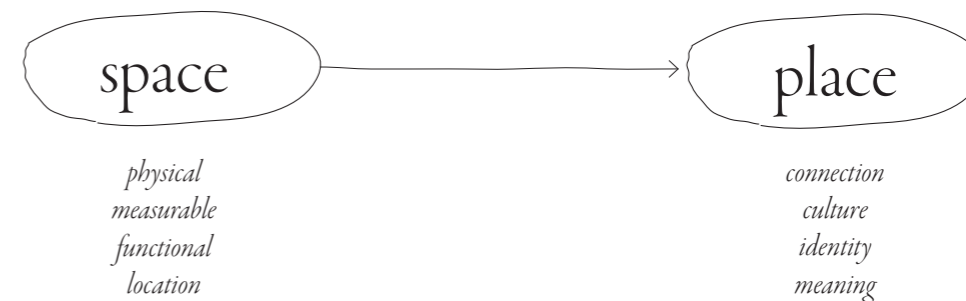
added layers of cultural, social, and emotional context that transform a space into a place. Space can be thought of as a canvas upon which human activities and interactions take place. It lacks the contextual details that give a location its unique identity.³⁹ Places have meaning and significance to individuals and communities. They can evoke emotions and convey a sense of history, culture, and identity. Placemaking is a dynamic process that involves collaboration among various stakeholders, including urban planners, architects, designers, local governments, community groups, and residents. The ultimate goal is to create vibrant and inclusive public spaces that contribute to a stronger sense of community, improved social interactions, and enhanced overall well-being. Bottom-up transformation processes often lead to more sustainable and inclusive changes because they are informed by the actual needs and priorities of the people affected by the transformation.

However, they may also require careful coordination and support to ensure that local efforts align with broader goals and are integrated into larger systems. The attitude is that the community is the expert. The important starting point in developing a concept for any public space is to identify the talents and assets within the community. In any community there are people who can provide historical perspective, valuable insights into how the area functions, and an understanding of critical issues.⁴⁰ Placemaking is also about telling stories and it's the stories told that help people better understand and enhance the place where they live, work and play. Placemaking is a community-led design process and its most active tool is the voice – it powers the ideas and the hammers and paintbrushes. Placemaking happens at the level of the street and the block, it happens across whole cities and globally: but it takes place first and foremost in conversation with each other.

A place-led transformation process involves revitalizing a specific area, neighborhood, or district by focusing on its unique identity, strengths, and potential. It prioritizes the needs and aspirations of the community and aims to create a vibrant and inclusive environment that enhances the quality of life for residents and visitors.⁴¹

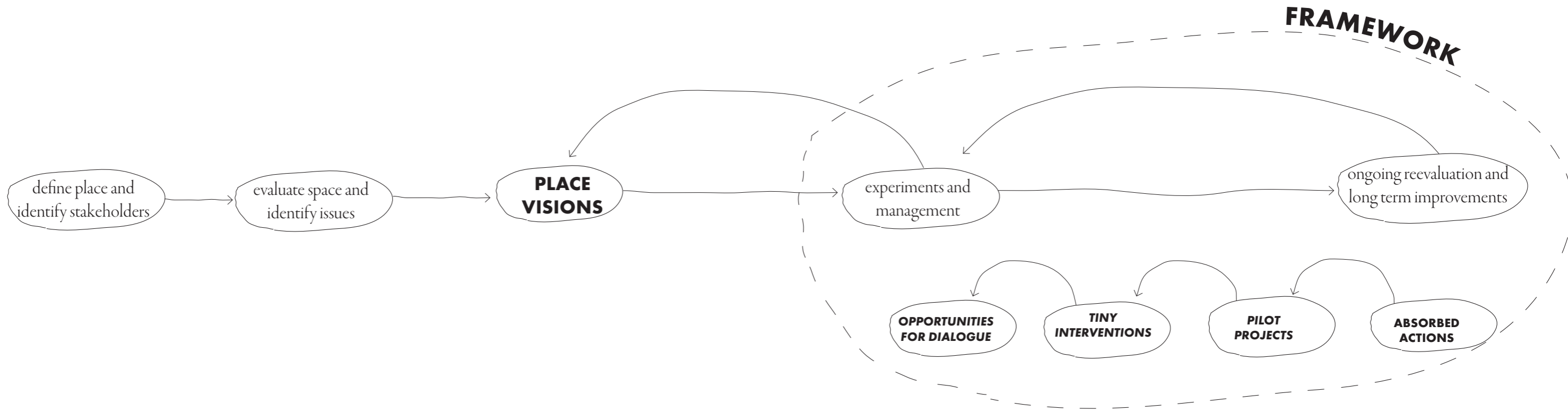
Placemaking is both a process and a philosophy. It is centered around observing, listening to, and asking questions of the people who live, work, and play in a particular space in order to understand their needs and aspirations for that space and for their community as a whole. Working with the community to create a vision around the places they view as important to community life and to their daily experience is key to building a strategy for implementation. Beginning with short term, experimental improvements can immediately bring benefits to public spaces and

the people who use them and inform longer term improvements over time. A truly place-led approach relies not on community input, but on a unified focus on place outcomes built on community engagement. A place-led process turns proximity into purpose, and the planning and management of shared public spaces into a group activity that builds social capital and shared values. Local participants in this process feel invested in the resulting public space, and are more likely to serve as its stewards. It is a new way of thinking. It is not a project-driven, top-down approach. It is not a photogenic project with a singular vision, nor is it led only by design professional. It is rather an approach that focuses on the place in its holistic matter. The following chapter will explore a process, that is place-led.



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vgl. Project for Public Spaces (2023)
Placemaking: An Urban Design Methodology, Routledge, New York 2016





define place and
identify stakeholders

The first step in the process of transforming the space around and within the flyover into a place is to define the place and identify stakeholders. This means understanding and engaging with the specific location.

Defining a place involves understanding its unique characteristics, attributes, and identity. The exceptional character of Ebene 2 and its surroundings form a unique place. Difficulties could soon be read as potentialities. The site of the Ebene 2 fly-over marks an interesting situation in the urban fabric in Hagen. It is a unique place. A transformation should not mean that this space has to conform to the „ordinary“ urban fabric. This place is already characterised today by a strong mix of urban situations: the high-rise building „Arbeitsamt“, river Volme, the 19th-century urban blocks, the train station and rail field. The exceptional character of this place needs to be recreated for the future. But not as an urban space that isolates and fragments as it is to-

day. But as a place that really adds something and creates connections between the various complementary neighbourhoods and places. Interacting with this place means experimenting in programme and space.

Identifying stakeholders involves a systematic process of identifying and mapping individuals, groups, organizations, and entities that have a vested interest in a particular project, initiative, organization, or community. Effectively identifying stakeholders helps ensure that all relevant parties are considered, engaged, and their perspectives are taken into account. Stakeholder identification is not a one-time task; it requires ongoing effort to adapt to changing situations and stakeholder dynamics. Effective stakeholder engagement involves understanding their needs, involving them in decision-making, and communicating with them throughout the process.

STAKEHOLDERS

Local Government and Municipal Authorities

Local government bodies, such as city councils, planning departments, and urban development agencies, often play a central role in regulating land use, approving projects, providing funding, and ensuring that placemaking projects align with the city's overall development goals.

Businesses and Merchants

Local government bodies, such as city councils, planning departments, and urban development agencies, often play a central role in regulating land use, approving projects, providing funding, and ensuring that placemaking projects align with the city's overall development goals.

Educational and Cultural Institutions

Schools, universities, museums, and cultural centers in the vicinity of public spaces can contribute to placemaking by organizing events, exhibitions, and educational programs that activate and enrich the space.

Developers and Property Owners

Private developers and property owners who own or manage land adjacent to public spaces can have a significant impact on placemaking. Their decisions about adjacent developments can influence the overall character and functionality of the space.

Community Members and Residents

The people who live, work, and interact in a specific place are key stakeholders in placemaking. Their input, needs, and aspirations are crucial in shaping the design and function of public spaces. Community engagement helps ensure that placemaking projects are responsive to the local context and address residents' preferences.

Nonprofit Organizations and Community Groups

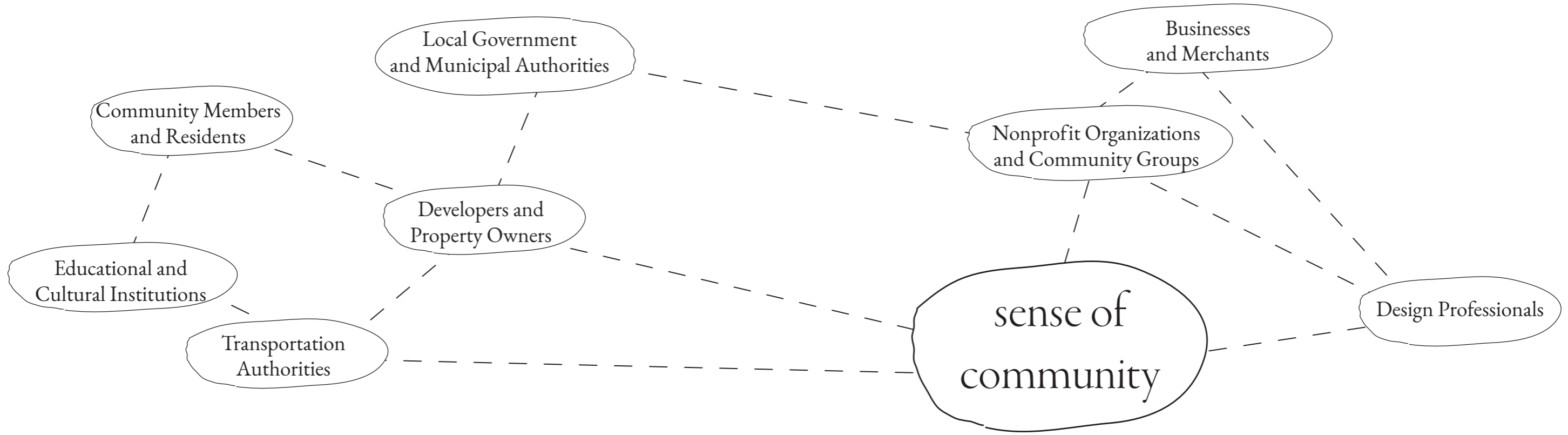
Local nonprofit organizations, neighborhood associations, and advocacy groups often have a strong interest in placemaking. They may initiate projects, advocate for specific improvements, and contribute to community engagement efforts.

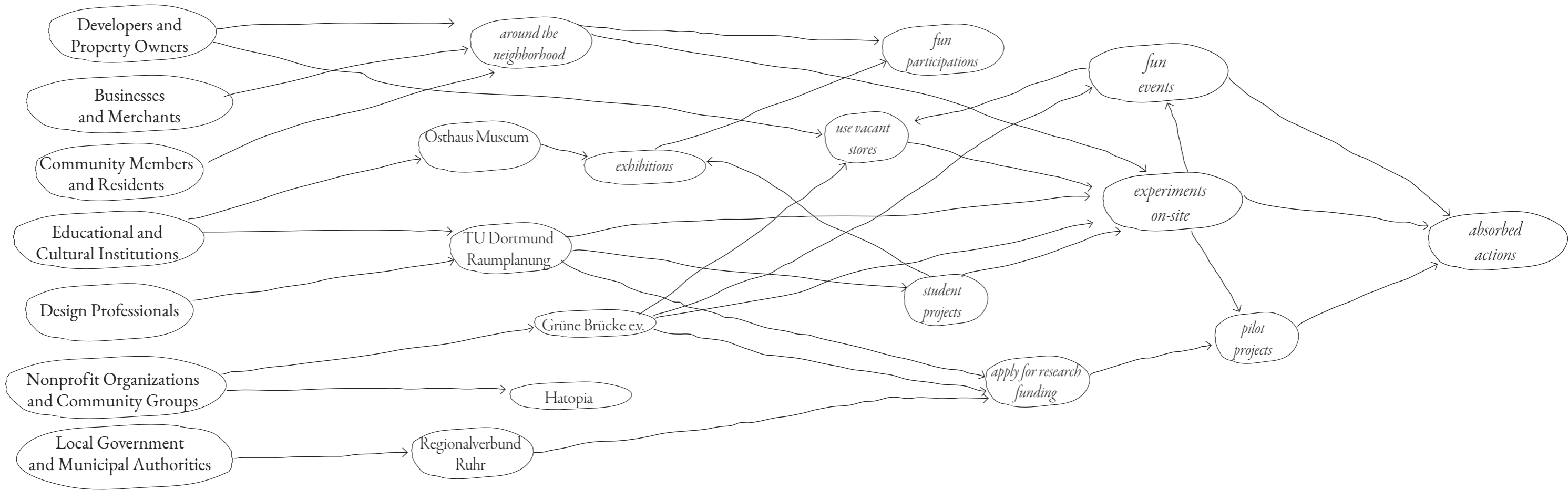
Transportation Authorities

Organizations responsible for public transportation, such as transit agencies, can be stakeholders in placemaking when projects involve integrating transportation facilities with public spaces, creating transit-oriented developments, or improving pedestrian and cyclist access.

Design Professionals

Urban designers, architects, landscape architects, and planners play a critical role in the physical design of public spaces. They translate community input and aspirations into practical designs that enhance the usability and aesthetics of the space.





EXPERIMENTATION

This thesis does not aim for a fixed final picture. The ambition is a transition path with measures that support an environment of joint learning and experimentation.

A transition is a process innovation that completely changes a (part of) society and transcends the boundaries of organizations as innovation. Thinking a transition process does not assume an all-encompassing project but rather a, over a longer period of time, gradual approach of distinct but coherent measures taken to realise an objective.⁴³

A transition path calls for a step-by-step, layered and creative approach, in which various actors should work together on a multitude of projects. A transition process of that order is an open learning process. Changes and interventions to Ebene 2 and its surroundings are researched, implemented and/or tested. Some interventions are definitive and set be-

acons for later project steps, other interventions are temporary and form a provisional intermediate step, a test case for a more definitive realisation. This working method gives stakeholders the opportunity to actively participate in the transition, to learn along the way and adjust where necessary. It also gives them time and space to adapt to the changing situation and provide feedback on it.⁴⁴

The main ambition is to create a network, a coalition around the transition process for the Ebene 2 space on the one hand and realisations on-site on the other. Coordination and overview are necessary to monitor coherence and keep policy objectives clearly in front.

The transition path is a first step. Much more than a final phasing, this is an agenda that is thought in different scopes of time. What can be realized during a day, a week, a month or a

year? What intervention has the most impact while being light and cheap?

Ebene 2 has the potential to become a laboratory for the city: a place where new initiatives and new forms of urban life can be tested. Space for experimentation outlines the possibilities for city and/or citizen-driven experimentation with the fly-over in order to arrive at new insights and better solutions. The transition path places this transformation in a time perspective: not an abrupt and large-scale intervention, but a realistic long-term approach with room for new insights. The course of action is a list of immediate impact interventions, structural responses and possible interactions.

It is within this vision that a proposed transition path could be developed through a participatory process, starting from the premise that the transformation of the fly-over will

not come about through a new, shiny design. This transition methodology is a way of making the project futureproof, in the sense that unexpected evolutions can be absorbed. This incremental approach assumes an open learning path, with space, time and involved stakeholders as preconditions. The proposed transition path could start immediately with minimal interventions, temporary facilities, experiments and events. Ebene 2 would then become a laboratory for the city: a place where new initiatives and new forms of urban life can be tested. Experiments within new partnerships between public and private actors, residents and governments and established values, can feed these dynamics and, after evaluation, they can also be given a more permanent place.

This thesis is a broad exploration of the possibilities, opportunities and constraints presented by the various possible futures of the Ebe-

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vgl. Oxford Dictionary (2023)
Placemaking: An Urban Design Methodology, Routledge, New York 2016

ne 2 and the adjacent urban space offer for the city of Hagen. It explores concepts and builds the transition pathway. The approach is to build on the framework and start to experiment.

There is the possibility of exploration of a number of themes: the fly-over overgrown, connecting the urban nature, the fly-over as an urban playground, the fly-over as an event space and the fly-over as a place for experimentation. The narratives depict very different possible futures for Ebene 2 and its surroundings: the narrative „jungle“ puts maximum effort into greening, the narrative „playground“ exploits the playfulness in a damaged area, and the narrative „living room“ maximises the strengthening of the surrounding neighbourhoods. Even though future scenarios could look different and are executed in many ways, they all have one main goal in vision: transforming the structure together with its context into a resilient area that can

heal from the damages of past planning and grow into a futureproof neighborhood.

The placemaking and transition process is an initial exploration of the spatial possibilities within the space around Ebene 2. It is a start for further research. Many dependencies are currently unclear and policy decisions not yet taken. The process is therefore not a draft, but a foundation for further study, reflection and negotiation. Nevertheless, the underlying philosophy is important. The images, plans and models are conceptual. Much more than exact, they want to be imaginative and exploratory.

On the fly-over, temporary or minimal interventions activate different stakeholders, both in the surrounding neighbourhood and across Hagen. The experimental formats make the return of qualitative space to the residents very tangibly. They can also change

their character: from a sporadic, event-like character to a much more frequent, more day-to-day, use. In this way, residents of Hagen will navigate the fly-over and its new functions in a more self-evident manner. The fly-over in its new reading will become a natural part of the city once citizens acquire it and they will adapt their lifestyle to it.

The city or designated stakeholders take on a director or facilitator role: Good direction is needed to provide experiments with a suitable location within the framework. At the same time, temporariness becomes permanent in the Ebene 2 space: while certain locations continue to evolve towards a more permanent design, other locations become available as experimental space. Guidance from actors takes care of this evolving temporality.

When it comes to solutions, there is no single truth, only an array of possibilities, as

moments in an ongoing process of transformation. The bridge will always have an open-ended character.

EXPERIMENTAL FORMATS

opportunities for dialogue

Opportunities for Dialogue refer to occasions, spaces, or initiatives that facilitate open and meaningful conversations among individuals, groups, or communities. Dialogue is essential for understanding different perspectives, resolving conflicts, sharing ideas, and fostering collaboration. Creating these opportunities can lead to improved relationships, informed decision-making, and positive outcomes.

(tiny) intervention

(Tiny) Interventions are small-scale, subtle, and often temporary actions taken to bring about positive changes or enhancements to a space, environment, or situation. These interventions are characterized by their simplicity, low cost, and the ease with which they can be implemented. While individually modest, their cumulative impact can lead to meaningful improvements in a place's functionality, aesthetics, or user experience.

pilot projects

Pilot Projects are small-scale, experimental initiatives or programs that are implemented to test the feasibility, effectiveness, and potential impact of a new idea, concept, or intervention before it is fully rolled out on a larger scale. They are innovative approaches to existing issues and are key projects that realise ambitions in specific areas. Due to their innovative character they can have a city-wide impact.

absorbed actions

Absorbed Actions refer to activities or initiatives that are integrated into the fabric of a place in a way that they seamlessly blend with the existing environment, culture, and daily life. These actions often enhance the overall quality of the place without disrupting its character or creating a sense of novelty. They describe strategies that organically become part of a place's identity.



PLACE VISIONS

Placing visions requires a collaborative and iterative approach, and it is crucial to involve the community throughout the process. A well-crafted vision can serve as a rallying point, guiding future development efforts and creating a shared sense of purpose and identity for the place. Stakeholders need to understand and implement visions to engage in a transformation process. Motivating stakeholders, including residents, businesses, community organizations, local government, and experts, communication that is engaging is key. Also ensuring that the vision is aligned with the cultural, historical, and social identity of the community and that the vision should resonate with the values and aspirations of the people who live there. The vision should be ambitious but also feasible. It should inspire action without being so far-reaching that it becomes unattainable. Placing visions requires a collaborative and iterative approach, and it is crucial to involve the community throughout

the process. A well-crafted vision can serve as a rallying point, guiding future development efforts and creating a shared sense of purpose and identity for the place.

The following work shows first experimentations in creating a narrative. Different mediums of storytelling were tested to capture the essence of what the place could become. When placing a vision, I wanted to be careful not to produce a final image. What I wanted to produce instead is rather something you see when you squint your eyes. The blurry silhouette of a possibility. Something that leaves the room for each person to add the details. The bridge, overgrown and green. A fantastic playground. In that way, I want to encourage each individual to start thinking of their own desires.

OPPORTUNITY FOR DIALOGUE: DREAM YOUR BRIDGE

At this point I was understanding, that in order to properly produce change, the transformation has to come in small steps. In tiny solutions with wide impact, something that is tangible from the very beginning. In order to already start a transformation process, it must start bottom up. To contribute and to achieve a better understanding of the situation I did a first workshop next to the bridge.

Like I already mentioned, I brought a cake, I brought some tables and chairs, some penants and some templates to draw on. At first I was nervous, and I did not know what to expect. But as soon as we started to set up everything, the kids from the neighbourhood came and asked what we were doing. I also invited the people from the initiative “green bridge”.

To collect ideas I brought a template in which people should draw their personal dreams for the bridge. Something they themselves might

be passionate about or something they would like to see happening. The first response was always „but I can not draw“ or „I am not creative“, but in the end everybody produced an image.

I was surprised how quickly a warranted place could change, when there is a little complementary furniture and of course, people coming together. Also the responses I received were quite positive. Not only about the possibility of daring to dream about future scenarios, but also about appreciating a place that has been neglected for so long. It brought people together that would never talk to each other. I did not expect this small event to be this fun. It felt like a little party, a fun afternoon, and the future of the fly-over got a bit more exciting to think about.







TRÄUME DEINE BRÜCKE

Ein gemeinsames Nachdenken über unsere Ebene 2.

Sonntag
02.07.2023
12-14 Uhr

Direkt neben der Bushaltestelle unter der Ebene 2

Eine Masterarbeit von
Laura Sophie Weber
laura.weber@rwth-aachen.de

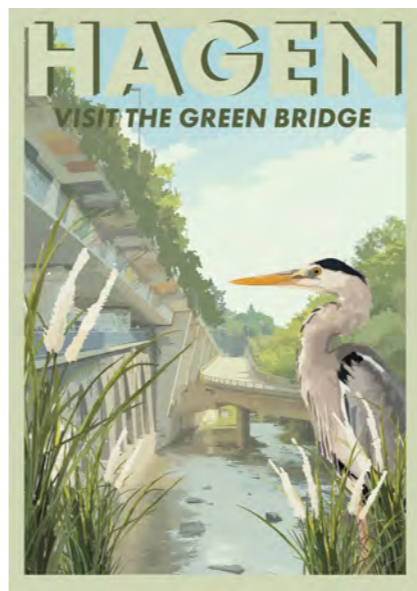
RWTH AACHEN UNIVERSITY
ETH zürich

(TINY) INTERVEN- TION: ADVERTI- SING FOR EBENE 2

Taking into account the findings of the workshop, I designed posters, promoting events, activities and spaces around the fly-over. They each provoke an idea, but what exactly you imagine is open. It is supposed to make you dream some possibilities. I wanted help the bridge promote itself. I designed advertisements that announced the potential and upcoming scenarios happening in five, ten, twenty years of time. These advertisements each depict different places and forms of a possible transformation. There is the poster for a “green bridge”, showing the river and the bridge as one unit and referencing the idea of the initiative. Another one announces the event “Brückenfest 2028” happening in five years of time as an initial celebration for when the cars are gone. The third poster informs about a “Ebene 2 Boule Club” where people come together in the weather-proof space underneath the bridge to play boule. These interactions with the bridge are possible be-

thought of individually or together.

„Advertising for Architecture“ is a series by architect and theorist Bernard Tschumi.⁴⁵ Basing his work on a main theory that there is no fixed relationship between architectural form and the events that take place within, Tschumi created a series, Advertisements for Architecture made between 1976-1977. These advertisements were printed on post card size pages intended for reproduction, as opposed to the single architectural piece. In creating these, Tschumi wanted to trigger a desire in the viewer for something beyond the actual post card, and to explore what commodification of architecture as products would do in the interest in promoting the production of architecture. Each was a manifesto of sorts, confronting the dissociation between the immediacy of spatial experience and the analytical definition of theoretical concepts.



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Event Cities, MIT Press, Boston 1994





INVITATION: BRÜCKEN- VIERTEL

As a last tiny intervention and of this thesis I wrote an invitation . This informal invitation is addressed to everybody who might be identified with a future place around the fly-over. Inviting people to transform a space into a place involves engaging them in a participatory and collaborative process that encourages a sense of ownership, connection, and active involvement.

The key is to make the process enjoyable, inclusive, and reflective of the community's values and aspirations. When people have fun while contributing to the transformation, they are more likely to feel connected to the space and invested in its long-term success. Each input and each passion is valued. The invitation is supposed to encourage the individual to take actions and use the space of the fly-over as a place where their dreams become reality. Taking into account the findings of the workshop next to the fly-over in June, there

is no lack of imagination. It is the lack of encouragement that paralyses a society. Because there is no fruitful ground to begin with. The invitation is there to acknowledge the power of the individual and encourage.

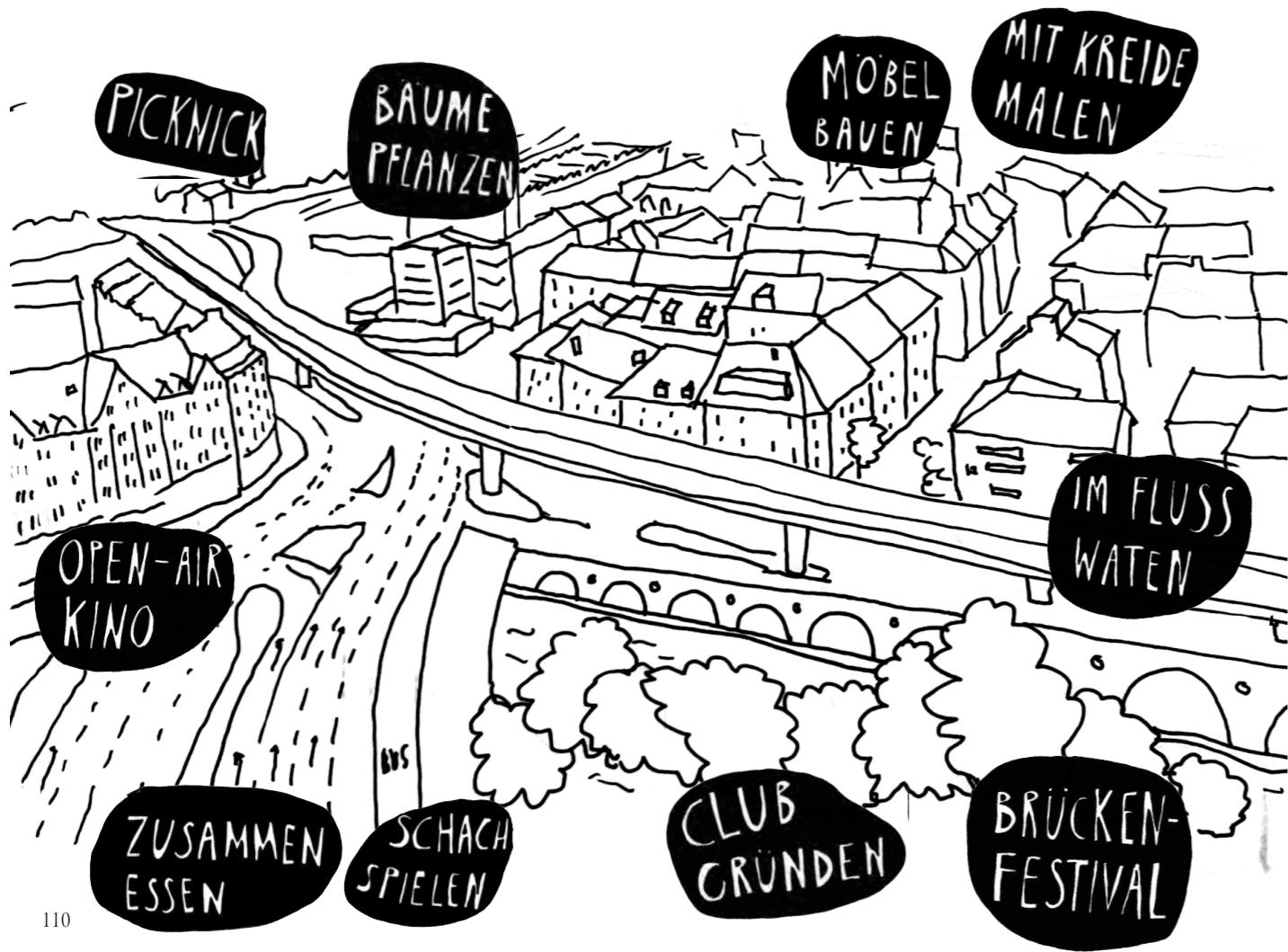
The framework of Ebene 2 has the potential to become a connector, a joint effort. A space to appropriate together. The context and the bridge, they both influence each other. The neighbourhood would not be the same with the fly-over. The fly-over would not be that loaded with opinion without its context. This has been the case ever since its construction. And it will continue to be. They have shaped each other, and now they have the potential to grow together. This approach is very soft. But it can grow into something powerful. With the power of each person, the place can transform into something unprecedented.

EINLADUNG BRÜCKENVIERTEL

Ihr seid eingeladen das Brückenviertel rund um die „Ebene 2“ neu zu gestalten!

Die Hochstrasse „Ebene 2“ ist zu marode und kann bald nicht mehr für den Autoverkehr genutzt werden. Wir könnten die Brücke abreißen - oder wir schauen vorher mal ob wir nicht diese einmalige Chance nutzen und mit etwas Kreativität und Tatendrang die Brücke und das Viertel zu einem Ort verändern, an dem wir uns gerne zusammen aufhalten.

Das Tolle: Jeder kann mitmachen und wir können sofort anfangen!



HOW TO TRANSFORM THE FLY-OVER: A GUIDE FOR EVERYONE

1. Show up

It might be uncomfortable, but just showing up makes a big difference. Simply being in the space you want to transform, to observe and be present.

2. Start a conversation

You are here. Talk to somebody. Or even better, create opportunities for dialogue. Play chess together, play boule and talk about visions you share.

4. Just do it

Doing something is always better than doing nothing. But you might be surprised how much power each individual has.

5. Ask for help

Do something but do not do it alone. Ask others around you for help and do it together. Form supports function.

6. Experiment and learn

Do not expect to get everything right the first time, and that is something great because you will learn.

6. Remember that nothing is fixed and that everything is in a constant state of transformation

FANTASTIC- VISIONS: MODEL FRAGMENTS

Another tool are the large-scale models. I decided to build them because they are only fragments. It might be overwhelming to picture the transformation of the bridge in its entity. It is also not realistic at first. The fragments break down the overwhelming size of the structure, but also take away the pressure of aiming to find an immediate solution for the whole. They are a metaphor of the process, which also happens in steps. The transformation process might seem abstract when explaining it, but these models help me to produce visions in a scale that seems tangible. The model is a tool; therefore, the bridge is a tool. What I am testing and showcasing in these large-scale model fragments of the bridge is supposed to encourage to be tested in the real scale.

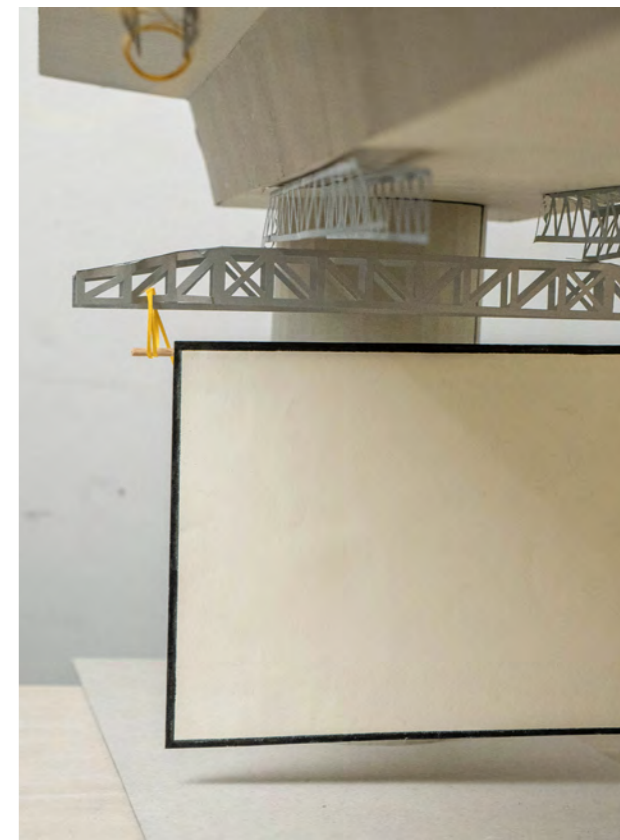
When looking at interventions, their essence is to be quick, light and cheap. They are tiny but still have a big impact. However, they will

not stay tiny. Tiny interventions work best if they function as a spark, with a vision that is bigger than you dare to dream as a backbone. How do small elements evolve with time, if you let them grow? A single beech tree becomes a forest. The forest is vital, people meet here, they sit in the greenery, overlooking the city. People start to grow their own food. A poster becomes a panel. The panel advertises the upcoming events. Upcoming events are promoted by the panel, reaching more people. The events grow. Hundreds of people gather. The basketball needs a net. The net is maintained by Hagen's outstanding basketball team. The annual bridge competition becomes a regional institution, further strengthening the basketball scene of Hagen.

The models are supposed to be a tool for imagination. They encourage to dream. To play and to communicate.



*A new gate for the city, greeting visitors.
The tinker crane can be used for various occasions.*



*The tinker crane can hold different things
such as a screen for open-air cinema nights.*



A productive green space to be used by residents to come together, grow food, share.



A green space can also shade houses and windows in a vulnerable distance from noise and views.



A lively space above and underneath the fly-over to give a sense of place.



Ready-mades are placed and get absorbed and then further adapted.



The space underneath offers opportunities for weather-protected activities.



Ready-mades can be used as complimentary structural elements to be added quickly to the structure.



The space underneath the fly-over compliments the stores and gastronomy of the neighbourhood.



Ready-mades can be used as complimentary structural elements to be added quickly to the structure.

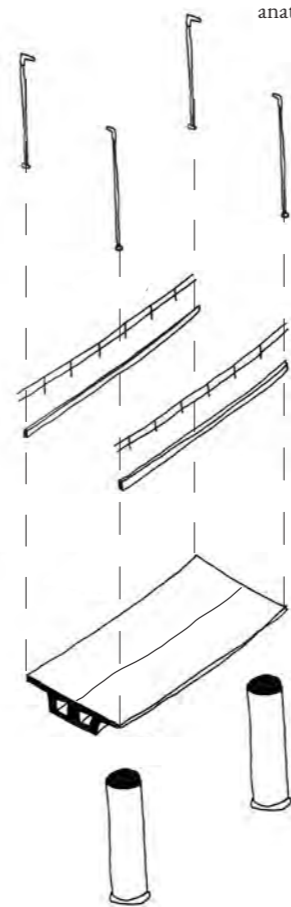
FRAME- WORK

When analyzing the structure of fly-over Ebene 2 there are elements to be found that are already working on its own. The fly-over can be read as a framework. It is a space for flexible use already, a truly neutral frame. It is independent from a specific program. If you take away the traffic, people could ride their bike their. A different activity in the same space. It is a design of conditions and not of program. If Ebene 2 is the interface, how much does it actually take to create an inviting atmosphere for a use while retaining the mutability of the structure? It is a minimal shell that can be further specified by compliances such as furniture and other elements. Furthermore, soft factors such as people, events and activities will fill the space and generate a public environment.

Ebene 2 and its surrounding buildings are the basic infrastructure of the public space.

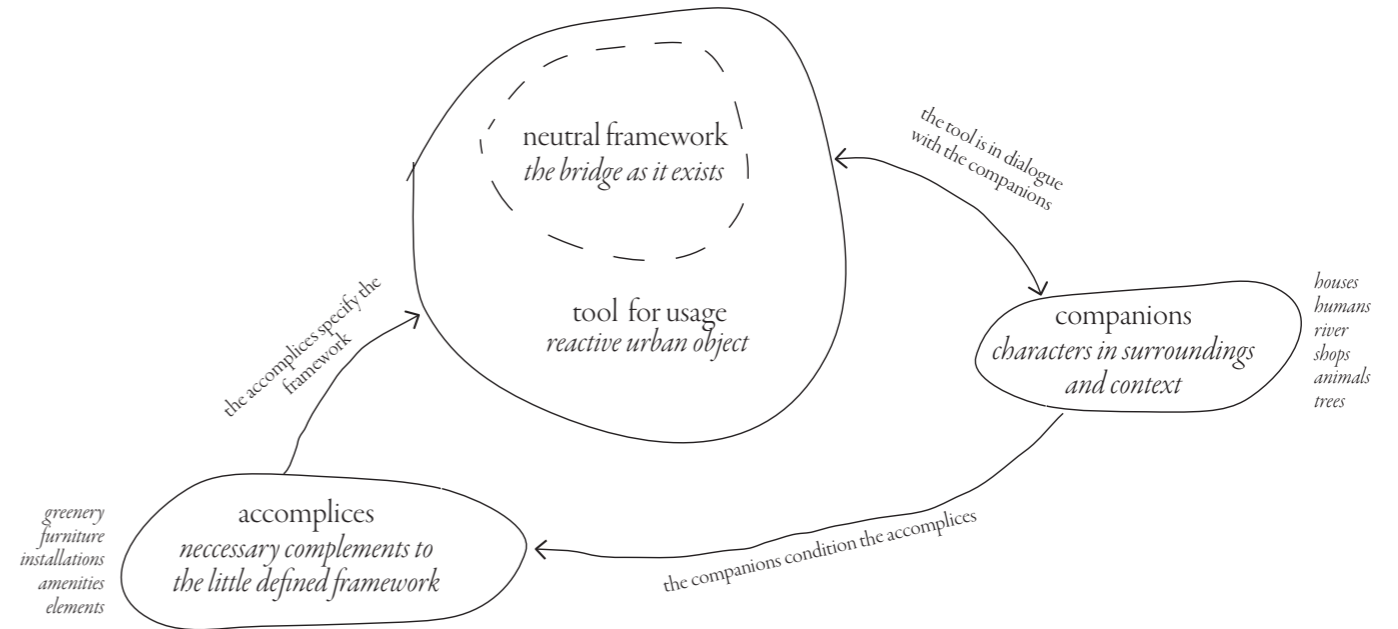
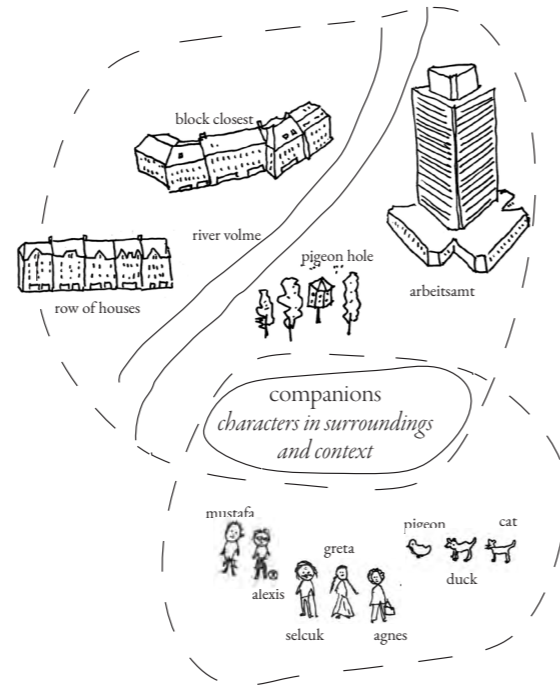
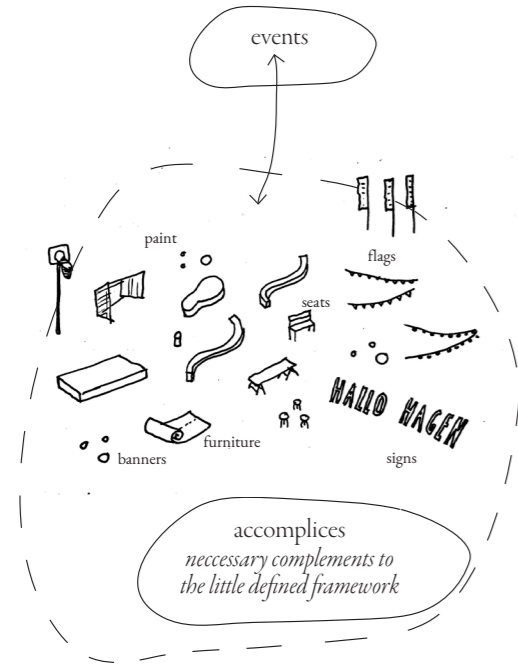
The elements that are added that will make it work (e.g., vendors, cafes, flowers and seating) will not be expensive and ever changing. In addition, if the community and other partners are involved in programming and other activities, more uses will be generated.

Activities, events and complimentary structures will be the content that turns the fly-over from a space into a place.



anatomy of the fly-over and the elements it is made of, the potential of these elements and a new reading of them

street lights	<i>illuminate</i>	pole -flags -net -banners -screen	<i>show contain advertise shout</i>		
balustrade	<i>contain</i>	planters bar banners pennant board	<i>leaning harvesting sitting</i>		
brim	<i>contain</i>	planters scat pedestal	<i>leaning harvesting sitting</i>		
surface	<i>move</i>	field terrace promenade	<i>meeting playing running walking biking</i>		
pillars	<i>elevate</i>	climbing wall projection posters pole screen	<i>climbing watching sitting meeting</i>		



REFLECTIVE LEARNING

YOU CANNOT LEARN ABOUT PARTICIPATION THROUGH TEXTBOOKS. YOU CANNOT LEARN HOW TO HANDLE CONFLICT THROUGH TEXTBOOKS.

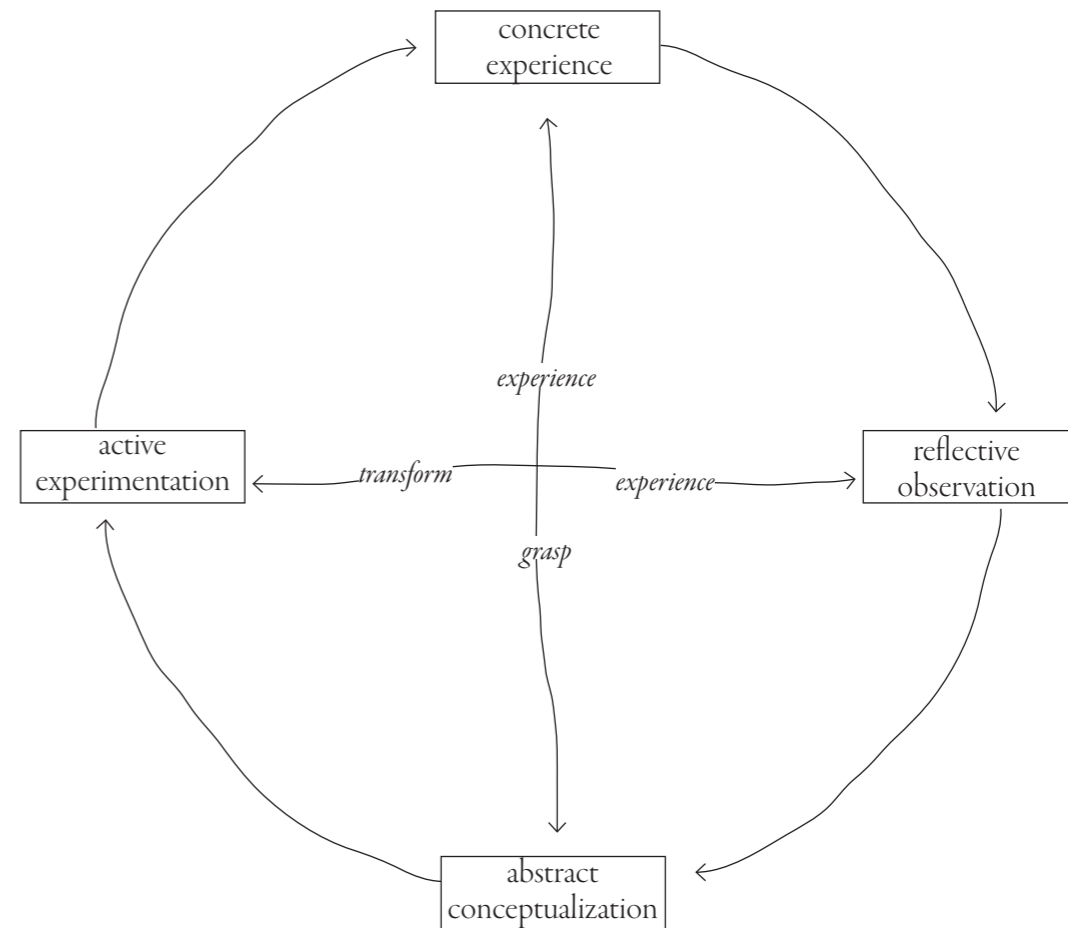
An important basis for this statement is David Kolb's work on experiential learning. In his textbook, he describes how a learning process should best go through the following four steps: [1] a concrete experiment, [2] observing possible changes, [3] trying to arrive at abstract concepts from this observation, and [4] setting up an action programme for new experiments. Each of these steps reinforces the experience and is itself the subject of reflection. Within each of the steps, different learning styles are used (e.g. practical or abstract reasoning). It is important to consider the difference in these learning styles within a participation process. Not everyone learns in the same way.

¹ Bron: Kolb, D. (1984). *Experiential Learning as the Science of Learning and Development*. Englewood Cliffs, NJ: Prentice Hall.

In his publication, David Kolb discusses the way learning is perceived.

According to him, in contradiction to other idealistic approaches learning is best conceived as a process, not in terms of outcomes. Experiential learning theory assumes that ideas are not fixed immutable elements of thought but are formed and re-formed through experience. Learning is described as a process whereby concepts are derived from and continuously modified by experience. No two thoughts are ever the same, since experience always intervenes.

He states that knowing is a process, not a product. Knowledge is continuously derived from and tested out in the experiences of the learner. Further, the process of learning and knowledge requires the resolution of conflicts between of opposed parties and of adaptation to the world. This is accomplished through dialogue.



AGILE MANAGEMENT

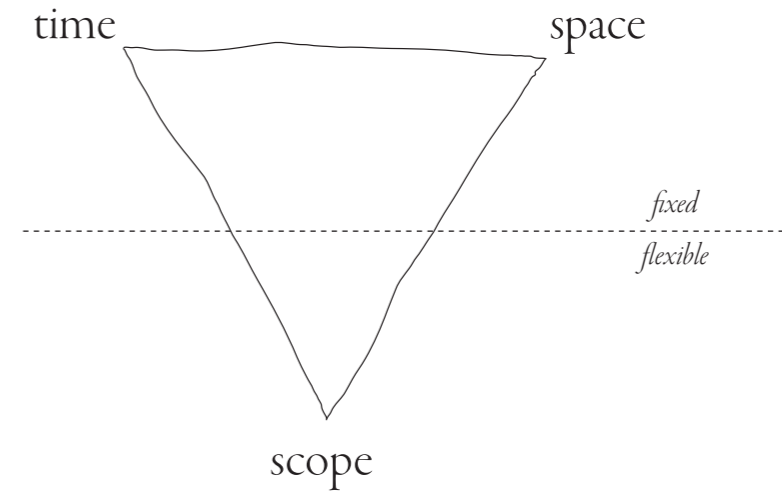
Agile project management is a flexible and iterative approach to project management that focuses on collaboration, adaptability, and delivering value in increments. It is often used in software development but can be applied to various projects and industries. It is about embracing change and being open to adjusting the project scope, requirements, and plans based on new information or changing priorities. Applying insights from retrospectives makes it possible to refine and enhance the project management process with each new iteration.

In the situation of transforming fly-over Ebene 2, the approach of agile management can aid to look at the flexible scope. Time and space being fixed factors, the scope is able to stay flexible and adaptable. This takes the pressure away of looking at a final image.

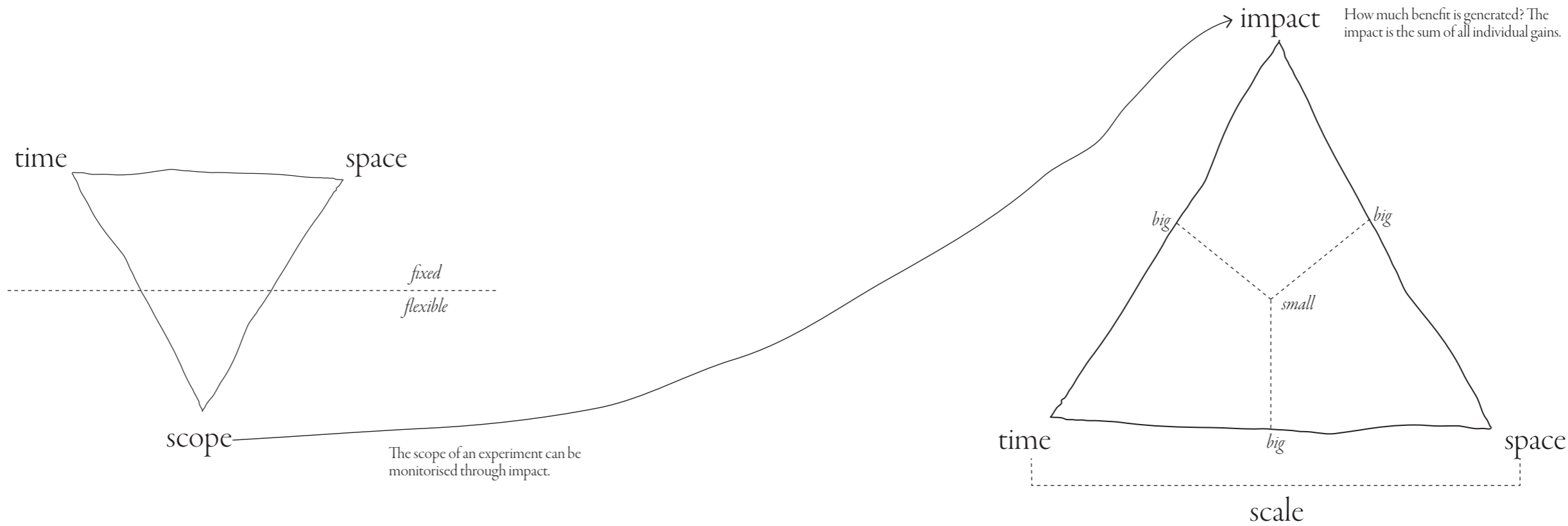
Implementing agile management in urban

transformation involves adapting the principles of agile project management to the complex and dynamic context of urban development. Urban transformation projects, which involve revitalizing neighborhoods, improving infrastructure, and enhancing the urban environment, can benefit from agile approaches to foster collaboration, responsiveness, and value delivery.

Involving various stakeholders, including residents, local businesses, community organizations, and government officials, from the outset to encourage open communication and collaboration. Implementing agile management in urban transformation fosters community engagement, empowers local stakeholders, and increases the adaptability of projects to dynamic urban environments. It emphasizes delivering value to residents and creating more livable and sustainable urban spaces.



INITIAL PROJECTS: MEASURE- MENT



1 SURFACE FOR CELE- BRATION

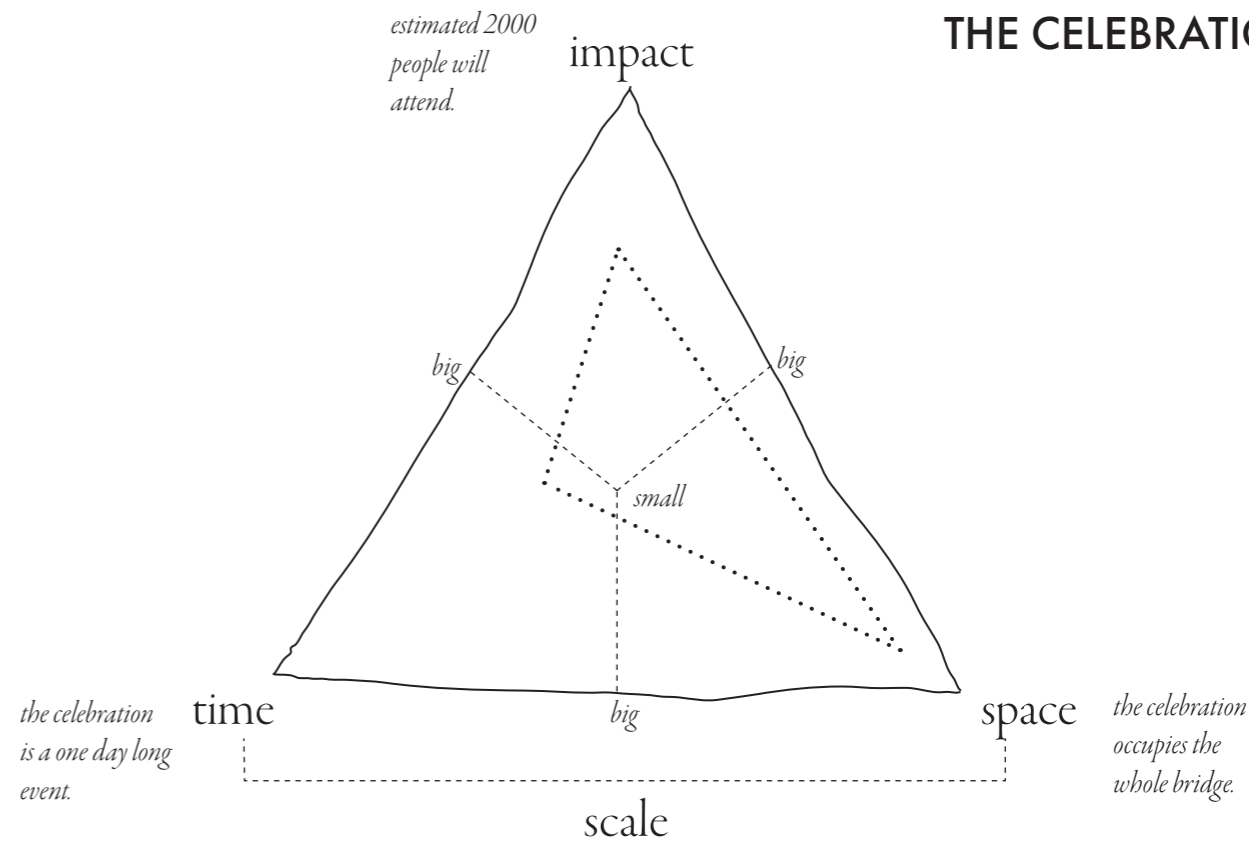
THE POTENTIAL OF COMMUNITY. FILLED WITH PEOPLE.

The context and the bridge, they both influence each other. The neighbourhood would not be the same with the fly-over. The fly-over would not be that loaded with opinion without its context. This has been the case ever since its construction. And it will continue to be. They have shaped each other, and now they have the potential to grow together.

What I am suggesting is the following: Once the bridge is freed of its rigid function, there should be a celebration. All the people of the city should come together and welcome this new space.

We can start to plan the party already today. And once the days of celebration are over and the city is gifted with this framework to work with, the first interventions are implemented, and the laboratory of the future begins.

EVENT: THE CELEBRATION



2 PRODUCTIVE JUNGLE

THE POTENTIAL OF GREEN SHARED SPACE. FILLED WITH GREEN.

Ebene 2 has the potential to become an important link in the ecological network of the city of Hagen. Existing biological qualities could be strengthened. Hagen, being in the top ten of the greenest cities in Germany due to its location in the valley of river Volme, does not lack the possibility of connection to nature.⁵⁰

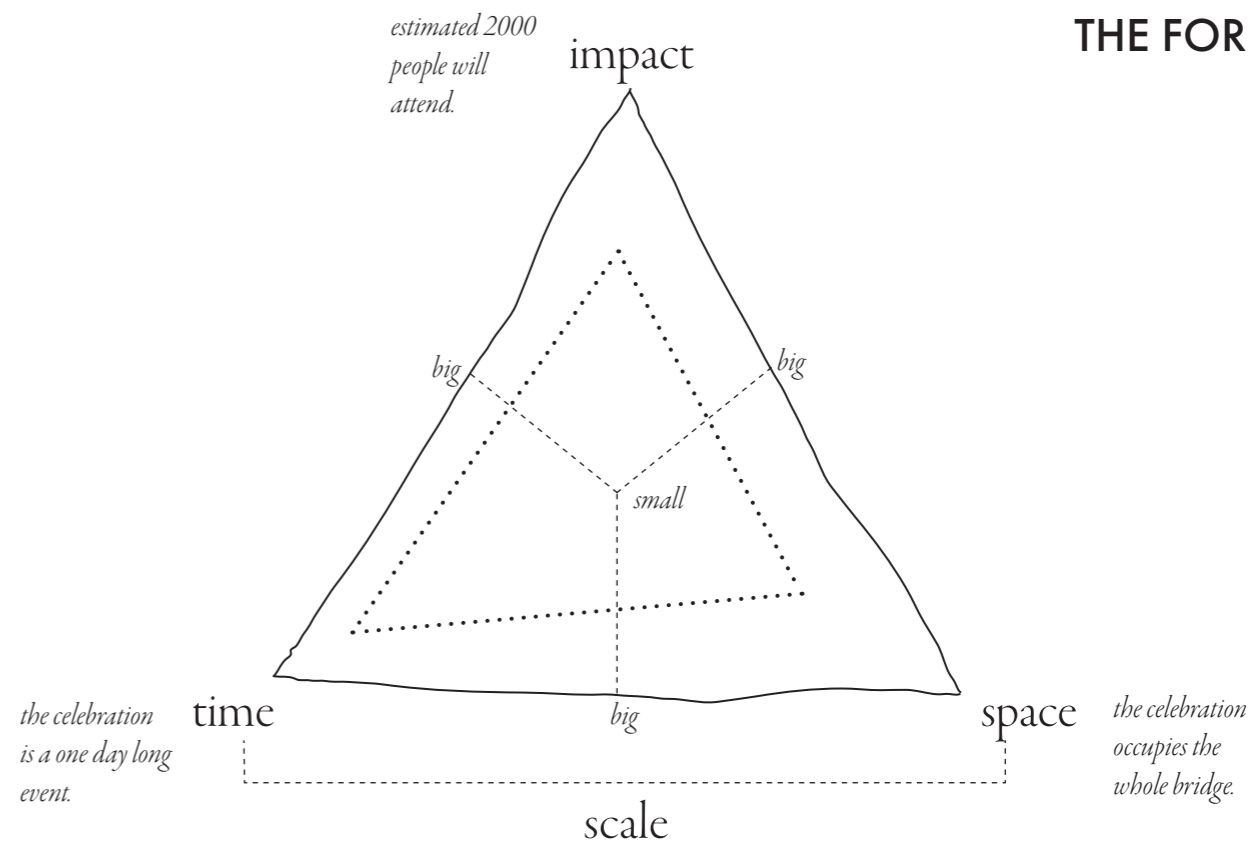
However, the city lacks qualitative green space. Qualitative urban green spaces acknowledge the importance of the social components in its design. It becomes a place in the city for recreation and connection. Well designed green spaces are accessible, safe, clean, and well-maintained environments with enough shade, breeze, and adequate facilities for physical activities as well as enough

50 vgl. Sciencedirect (2022)

amenities for convenience. Studies show the importance of these urban nature spaces for the mental and physical health of residents. Since its inauguration Ebene 2 has been a health risk factor for residents living in the immediate surrounding. According to residents, traffic on the bridge has contributed to health problems. Noise disturbance and pollution from exhaust fumes have been shown to reduce the life expectancy of those exposed to it. However, when car traffic on the bridge is stopped, the structure has the potential to heal the damage of the past.

The social component of urban green space can invite new concepts to the discussion: Urban agriculture, edible forests, exercising and playing in nature. Developing a concept for urban green spaces should involve residents and strengthen social cohesion. Urban nature is a space made for and by residents. This creates a robust network, combining people-oriented and ecological spaces.

SPACE: THE FOREST



3 FUN STRUCTURE

THE POTENTIAL OF PLAY. FILLED WITH PLAYFUL OBJECTS.

Considering playfulness a design tool, which allows itself to be indispensable for a new kind of experimental architecture, helps to engage the citizen in the open design process. Design that is playful and fun eases the threshold of informing citizen to find individual fulfilment in a common space.

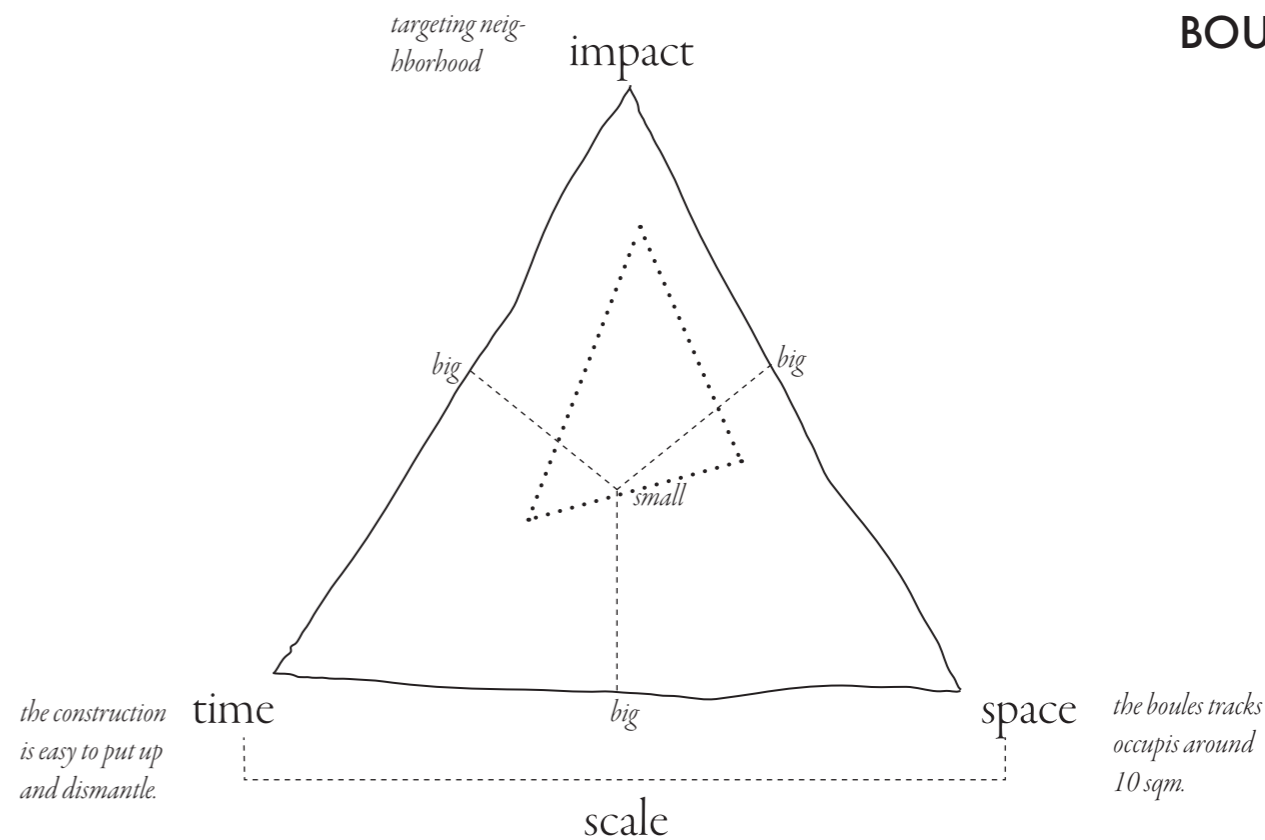
As an example, the fun palace (1959-61), a work of Cedric Price, is a reflection of a design which was supposedly be a mix of being didactic and playful. It was Joan Littlewood, the theatre director's intention of having a new kind of interactive theatre which further conceived as a visionary design to appeal to the mass culture as a performative universal space, as a playground composed of artistic events. This concept of a theatre is said to act as a means of social communication which

could address the socio-economic issues of the time.

The fun palace required a form of architecture that stood democratic as a place which will combine learning and leisure mix of spaces; eventually an industrial set up plugged by supportive machinery, cranes and gantries.

Among the existing political scenario of the 60's, this programmatic framework is inferred to be a social vision or imagination that is integrated into or within a design process. A design that would work with or negotiate to constantly changing condition, gets improvised as per the user's need, something that is not a conventional building but otherwise a built fragment of agit-prop defying conformity. Price devised and refined this concept of „assemblage“ where the prefabricated modules of leisure and pedagogical environments are housed within steel and glass that can be shifted constantly or rearranged just as tinkertoys using supportive cranes.

ACTIVITY: BOULE



CONTINUING

This work describes the bridge through human features. Looking at this monofunctional infrastructure through an emotional lense is supposed to help to sensitize the conversation about the fly-over. A new reading will help the transformation process. In the debate of fly-over Ebene 2 there are two polarizing sides: Demolishion or a Highline. In reality, the debate is way more nuanced. When it comes to solutions, there is no single truth, only an array of possibilities, as moments in an ongoing process of transformation. The bridge will always have an open-ended character.



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Parts of this thesis were corrected with AI tools such as ChatGpt (Version GPT-3.5) and DeepL Write.

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| S.22-24 | Historische Foto; Quelle: www.bagen.de/web/de/fachbereiche/fb_stadtarchiv/fb_stadtarchiv_02/fb_stadtarchiv_0203/bildarchiv |
| S.14-15 | Own image; Kartengrundlage Google Maps 2022 |
| Other images | Own graphics and own images |