



# HYBRID COMMUNICATOR

A district parliament proposal with the interaction of physical and digital communication

-Design brief-

**2023-2024**

**COMPLEX PROJECTS**  
**Bodies & Building Berlin Studio**  
**AR3CP100**

**students**

SitChiManSimon

**chair**

Kees Kaan

**CP coordinator**

Manuela Triggianese

**lab coordinator**

Hrvoje Smidihen

**group tutors**

Olindo Caso

Martin Grech

**email**

infocpstudios@gmail.com

**Instagram**

[https://www.instagram.com/](https://www.instagram.com/cp.complexprojects/)

[cp.complexprojects/](https://www.instagram.com/cp.complexprojects/)

**website**

[https://www.tudelft.nl/bk/over-faculteit/](https://www.tudelft.nl/bk/over-faculteit/afdelingen/architecture/organisatie/disciplines/complex-projects/)

[afdelingen/architecture/organisatie/disciplines/](https://www.tudelft.nl/bk/over-faculteit/afdelingen/architecture/organisatie/disciplines/complex-projects/)

[complex-projects/](https://www.tudelft.nl/bk/over-faculteit/afdelingen/architecture/organisatie/disciplines/complex-projects/)

**facebook**

[https://www.facebook.com/CP\\_Complex-](https://www.facebook.com/CP_Complex-Projects-422914291241447)

[Projects-422914291241447](https://www.facebook.com/CP_Complex-Projects-422914291241447)

**Bodies & Building Berlin**  
Digitalisation

# INDEX

Research question: How hybrid communication can generate a more inclusive discussion environment in a district parliaments?

<b>01 INTRODUCTION</b>	<b>06</b>
1.1 Background	
1.2 Problem Statement	
1.3 Research Question and Framework	
1.4 Theoretical framework	
<b>02 RESERACH METHODS</b>	<b>18</b>
2.1 Research methods - client, program, site	
<b>03 CLIENT</b>	<b>24</b>
3.1 Clients' ambitions in relation to hybrid communication	
<b>04 PROGRAM</b>	<b>30</b>
4.1 Parliament type proposal	
4.2 Program - Parliament program	
4.3 Program - Digital gallery	
4.4 Program - Data hall	
4.5 Program bar proposal	
<b>05 SITE</b>	<b>52</b>
4.1 Site selection	
4.2 Site - District analysis	
4.3 Site - Urban analysis	
4.4 Site - Park analysis	
4.5 Site-massing relationships test	
<b>06 BIBLIOGRAPHY</b>	<b>70</b>
5.1 Bibliographical References	
5.2 Figures	

# INTRODUCTION

01



### 1.1 Background

After reunification of Germany and Berlin in 1990, democratic development has become one of the key visions for Berlin in which the development of parliamentarism, which is the main democratically legitimized constitutional body for the public, has to respond accordingly. There are three levels of parliament located in Berlin: while the Bundestag and the House of Representatives are responsible for making big decisions in different aspects for Germany and Berlin respectively, district council halls in 12 districts of Berlin take care of daily life matters such as urban planning, cultural and educational infrastructure and social welfare. (Fig. 1) Meanwhile, the ongoing challenges of Berlin, incorporating influx of migrants and housing demands, raises political tension and stresses the importance of democratic engagement. With the governmental visions of "citizens' participation in democratic decisions in every day", the operation of district council halls, which have rarely been renovated after their construction mainly in early-to-mid 1900s, should be also reconsidered to meet the modern requirement of democracy. At the same time, the emergence of digital technology brings new opportunities for citizens' political engagement. The European e-parliament report indicates that digital technology encourages citizens' political involvement, while the Chief Digital Officer (CDO) of Berlin also initiated the strategy, Gemeinsam Digital: Berlin (GD:B), to promote equal opportunities for citizens' political participation through digital transformation. Therefore, with the governmental visions of promoting democracy with digitalisation, this project focuses on how to re-define functions of district parliament(district council hall) with digital technology.

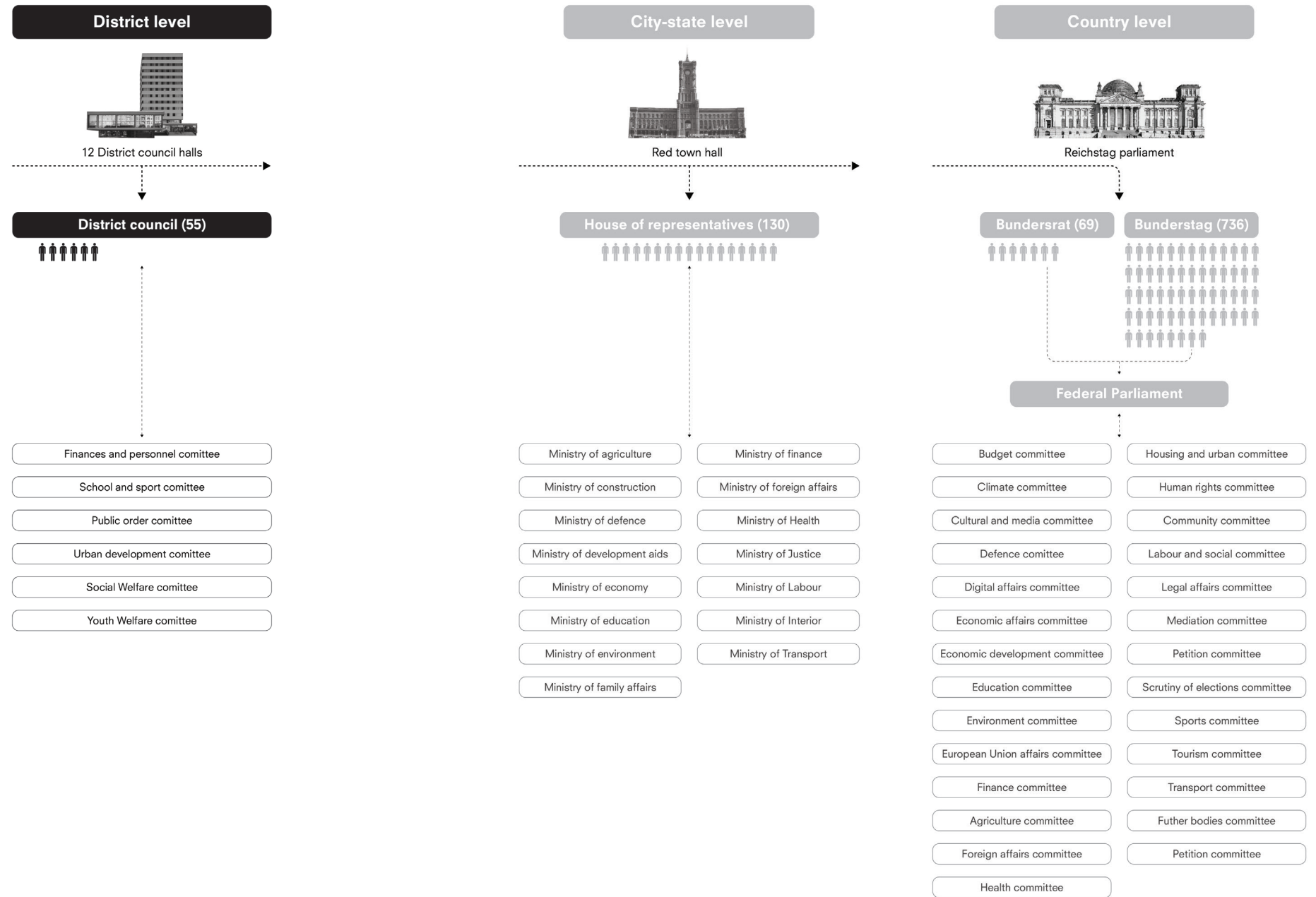


Fig. 1 Overview of three levels of parliament system in Berlin, with their respective fields of work

## 1.2 Problem statement

Two problems are mainly addressed in this project: the low publicness of architecture of district parliament, and the ongoing distrust between citizens and representatives in Berlin.

Firstly, the existing district parliaments (city halls) in Berlin are outdated for today's democratic vision. Instead of those in Mitte, Friedrichshain-Kreuzberg and Marzahn-Hellersdorf, these district parliaments were built in the early 1900s in Renaissance and Gothic style to serve their respective independent district before the Greater Berlin Act in 1920. The fact that the early district parliaments were built at a time before democratic movement flourished, and that the modern counterparts were not being considered as priority projects, results in their relatively low publicity in comparison to city/country scale parliament. (Fig. 2-4) In terms of location, as the previously 23 districts were integrated into 12 districts after reunification of Berlin, the district parliaments are no longer located in the center of the combined districts, and are no longer perceived as the symbolic civic center of a district. In terms of programs, these parliaments are dominated by private office spaces and remain as rather exclusive buildings that lack public spaces for public activities, while capacity for public attention in the public gallery in plenary halls is highly limited. These architectural conditions of parliaments constrain the opportunities for citizens' political engagement.

Secondly, while acknowledging that there is hardly any perfect political and legislative system, citizens' distrust is growing in the representative democracy in Berlin, which is due to several reasons. On the citizen aspect, except from the topic proposal stage, in which citizens can engage through means of direct democracy (citizens' requests, petitions and referendums) proposed by Berlin, citizens generally lack opportunities to engage in further stages in the parliamentary process, such as research, making proposals, and actively participating in plenary debate. (Fig. 11) On the other hand, district councilors

and committee officers have limited abilities to cope with the massive and unorganized opinions from the citizens, while the majority of citizens also lack political knowledge and education that they proposed opinions based on emotion rather than rationality. (Noé, 2018). Additionally, district councilors in Berlin are volunteers with their own professional duties alongside, which also means that they only have limited time to communicate with the public. Therefore, even with the rights of direct democracy through, the citizens' requests are often unhandled or filtered by district councils. For example, only 12 of the 46 petitions led to a district referendum in 2021 in Berlin. (Binder, 2022) In short, the existing representative democratic system lacks an efficient platform for communication between citizens and representatives.

Meanwhile, although digital communication methods provide new opportunities for the existing political system by mobilizing citizens' expressions of opinions, it constitutes new threats to parliament architecture and the political system. Architecturally, as physical communications are being replaced by digital communications after the pandemic (IPU, 2022), this questions the significance of the role of physical parliament building nowadays, which should pursue a way to balance both modes of communication. Politically and socially, digital communication tools can also aid undesired social consequences, such as reinforcing inequalities between educated and uneducated citizens in the field of digitalisation. (Section 2) These threats have to be examined meticulously before applying digitalisation to parliament architecture.

## INTRODUCTION

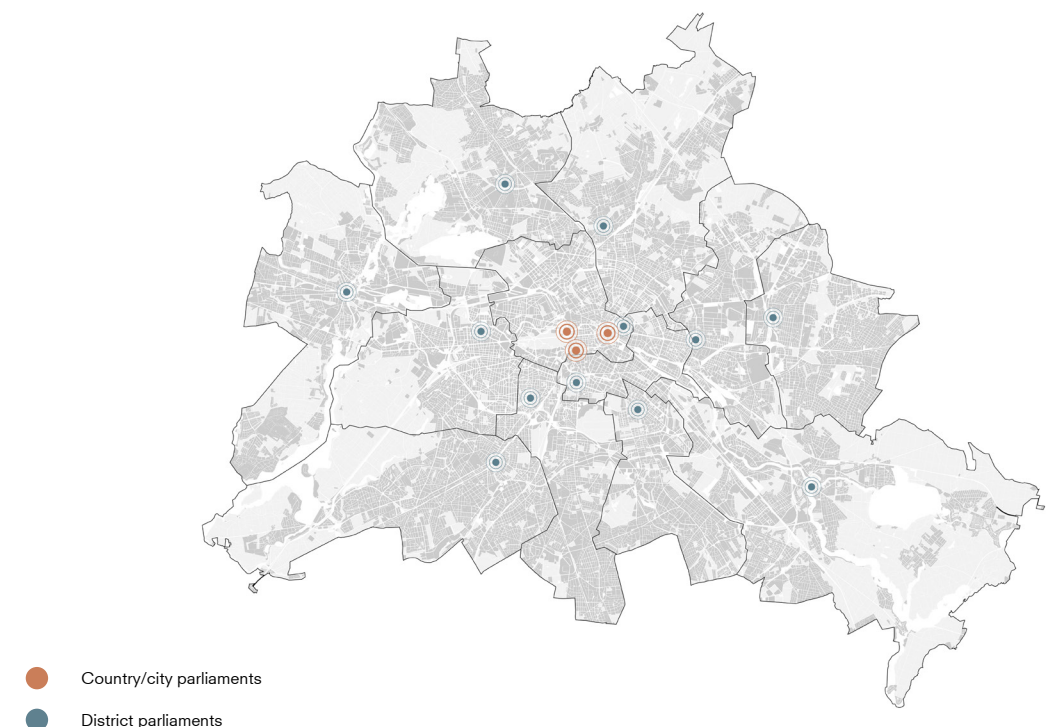
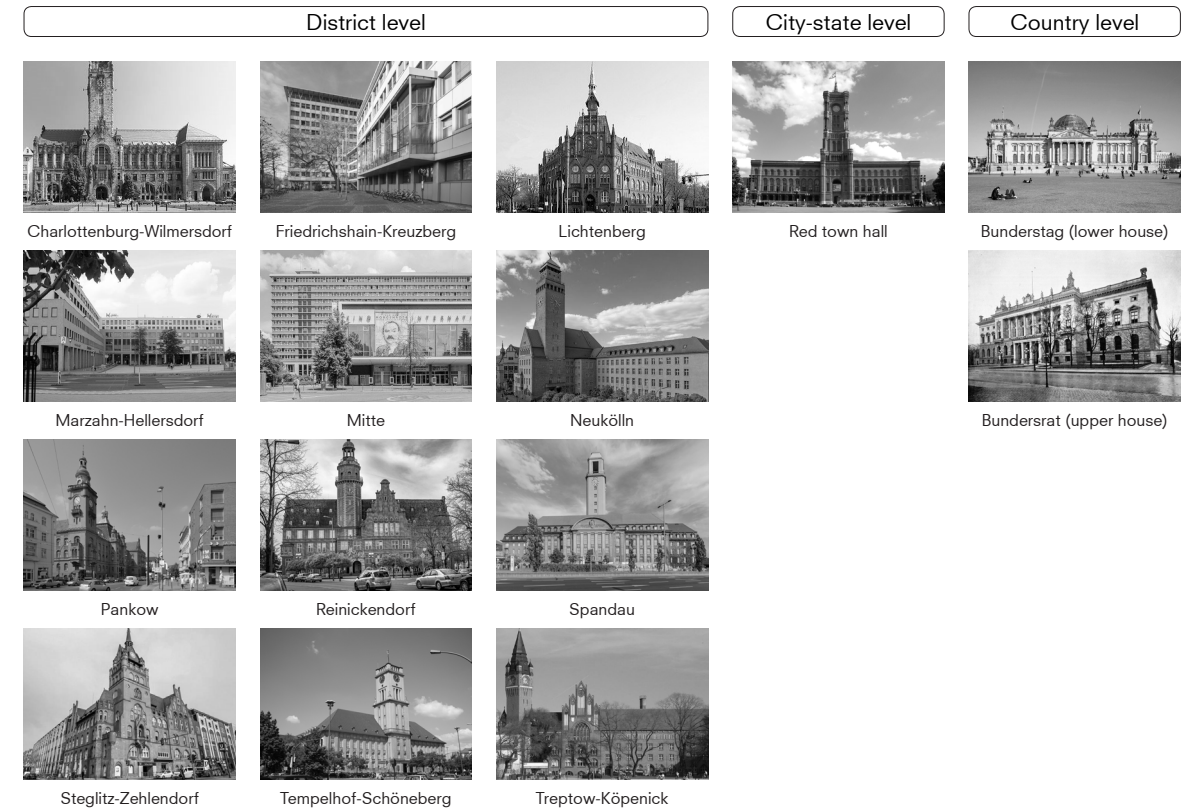


Fig. 2. Overview of architecture and location of parliaments of different levels



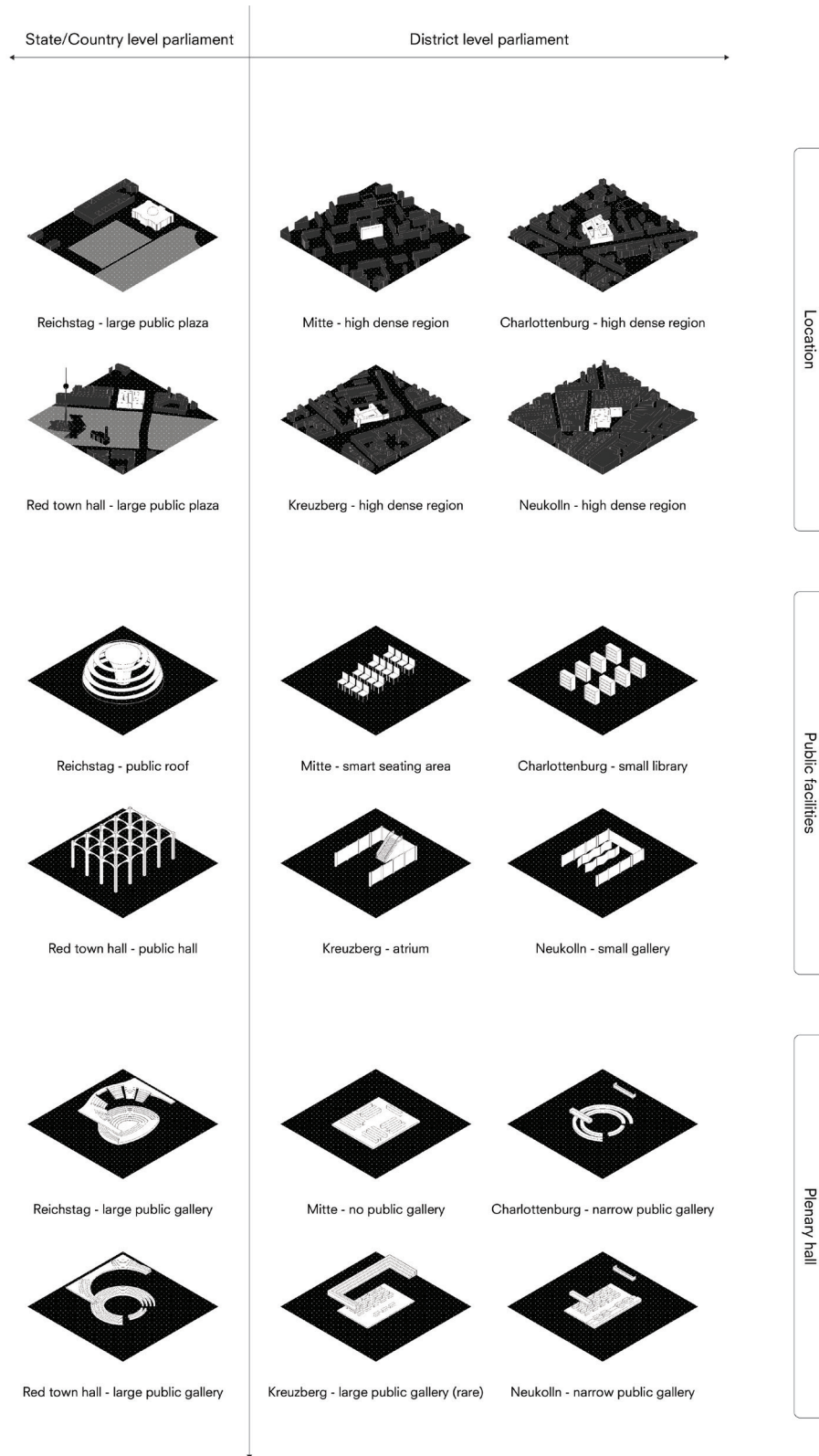


Fig. 3. Comparison of publicness of different parliaments in different aspects

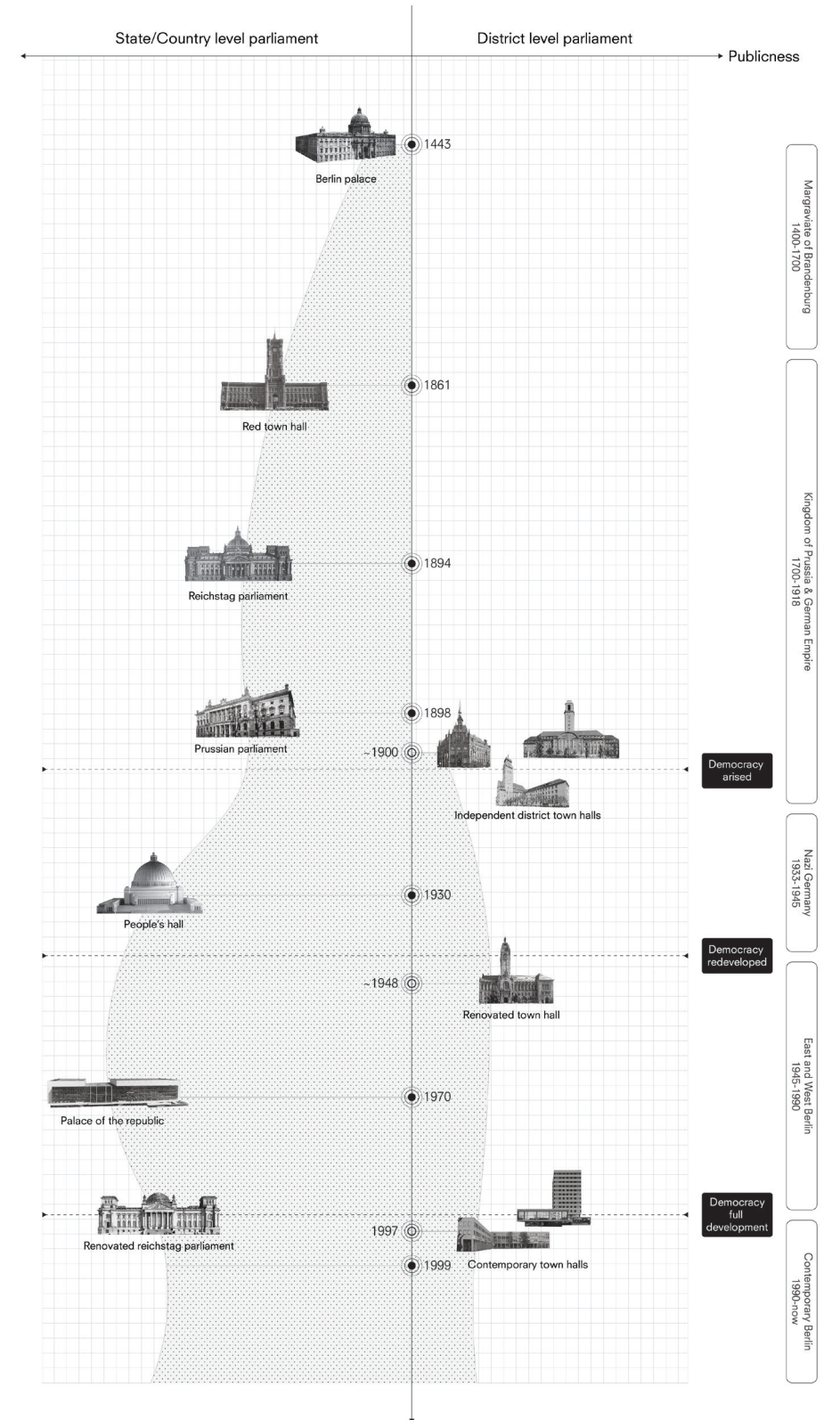


Fig. 4. Comparison of development of publicness of different parliaments in different periods

### 1.3 Research Question and Framework

To focus on district parliament, and tackle the challenges of representative democracy and digitalisation, the research question is defined as **“how hybrid communication can generate a more inclusive discussion environment in a district parliament”**, in which hybrid communication here is defined as the utilization and interaction of physical communication and digital communication. (Bojic, 2023) To answer this question, the roles of both digital and physical communication for representative democracy, and their possible applications on physical spaces in parliament, have to be firstly explained with the study of theories. (Section 2) Afterwards, the research will use the explained framework of hybrid communication as a lens for architectural analysis in aspects of client, program and site. (Section 3) Finally a design brief will be proposed to provide guidelines for further design. (Section 4)

By addressing this question, the design proposal aims to achieve the following future visions for district parliamentarism:

- To provide an inclusive and efficient platform that bridges the communication between the public, representatives and district committees
- To rebuild the mutual trust between the public and parliament representatives by changing their mode of communication
- To provide infrastructure for both political and digital education for citizens



### 1.4 Theoretical Framework

Two main literatures, Digitalization and Society edited by Bünyamin Ayhan (2017) , a professor at the Faculty of Communication at Selçuk University; and Collective action 2.0 : the impact of social media on collective action written by Shaked Spier (2017) , a Ph.D. candidate in Ethics and Technology at the Department of Philosophy in University of Twente, provide extensive theories of influences of digital communication tools in politics. This section references and elaborates these theories in the perspective of what can be the roles of digital and physical communication for a parliament architecture.

For digital communication, digital tools mobilize and strengthen public political engagement by rapidly disseminating political information, and by providing a remote and more accessible way to express opinions and organize political activities. (Ayhan, 2017) Instead of relying solely on physical meetings, representatives now can be informed effectively through digital communication tools including social media and websites, and this bridges the traditional gap between the public and representatives burdened by space-time constraints. Moreover, technologies such as algorithms coordinate and strengthen the unorganized mass public opinions, allowing these opinions to be more prominent and understandable. (Spier, 2017) Therefore, digital communication is crucial for the expression, educational and informative process for both the public and representatives, which stimulate further political actions.

Meanwhile, physical communication is still significant and irreplaceable due to deficiencies of digital communication. Firstly, according to the strong-weak ties theory, digital communication forms weak ties between people mainly for dissemination and exchange of information; while physical communication forms strong ties between people to motivate them to act and exert stronger influence on society. (Spier, 2017) Secondly, the personalization feature of

digital tools provides high freedom for users to access information, but at the same time enables politicians and citizens to escape from politics, or expose themselves only to their favored information, which can deepen gaps between opinions and reinforce existing social segregation. (Ayhan, 2017) A systematic physical communication, such as a plenary hall meeting, ensures information from all perspectives can be presented and received. Thirdly, physical communications avoided a pre-biased discussion environment, which is more common in digital communication. For example, information on websites are affected by pre-existing biased values of their curators; while algorithms are embedded with technical biased values, in which the coordinating methods depend on the purposes of the developers, e.g. profitable purposes. (Spier, 2017) Therefore, a structured physical communication, which only aims for improvements for a district, is crucial for an unbiased and equally represented discussion environment in parliaments, and should be maintained as the major democratic process for making decisions.

Therefore, to apply hybrid-communication in district parliament, digital communication strategies should be first physicalized, which is to introduce architectural spaces for the public and politicians to consume digital information and express opinions. This strengthens public voices and political awareness, and ensures both representatives, committees and the public are exposed to information from different perspectives through the transparent and extensive collection, coordination and display of data (which is no longer filtered by personal preferences). These digital communication spaces then can stimulate and intensify later physical communication to exert more political influence. Meanwhile, physical communication spaces, including public discussion halls, plenary halls and their public galleries, should be enhanced in a more accessible way for both the public and parliament members. (Fig. 5)

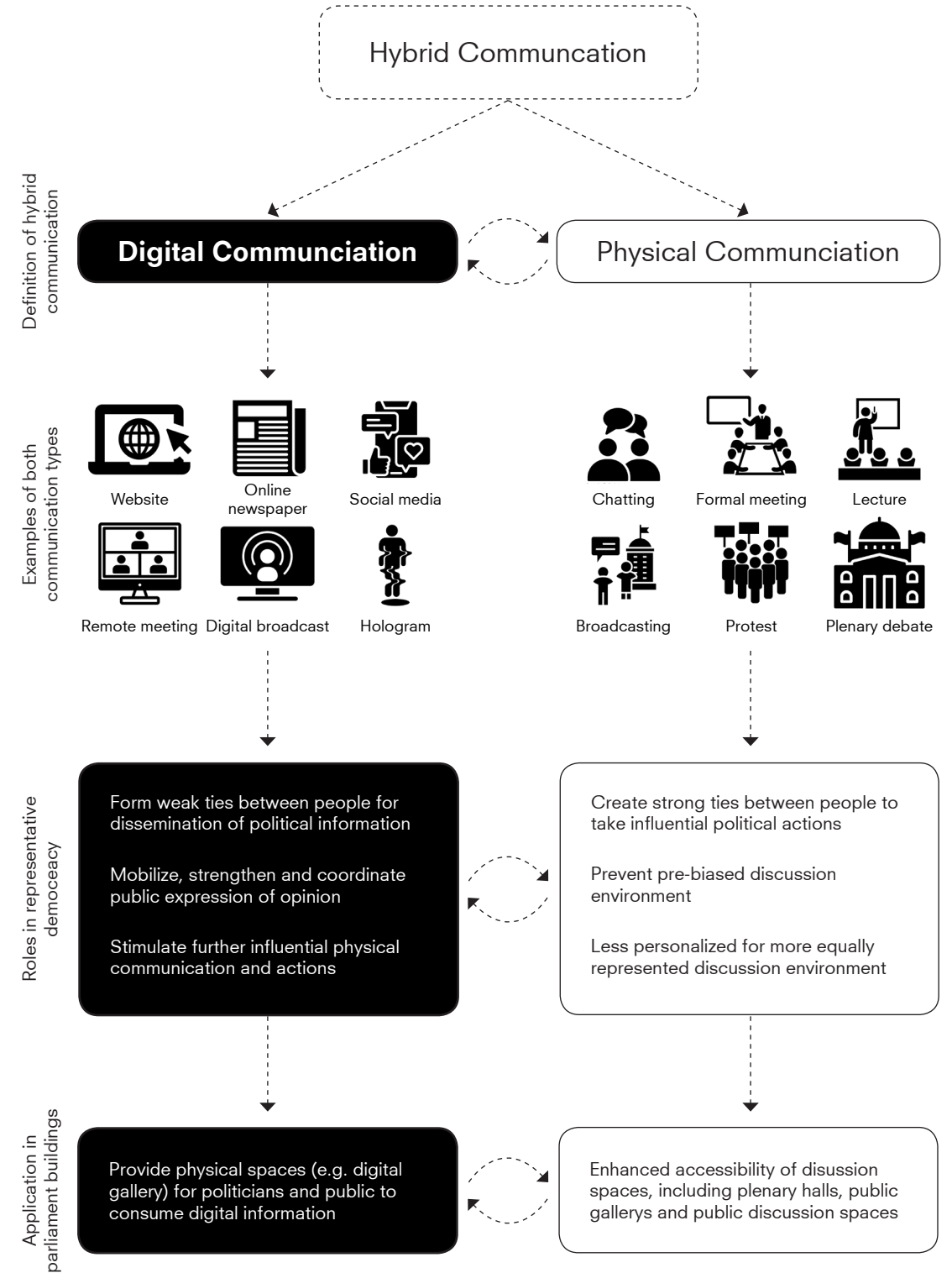


Fig. 5. Theoretical framework of architectural applications of hybrid communication

# RESEARCH METHODS

02

## 2.1 Research Methods - Client, Program, Site

With the theoretical framework explaining how hybrid communication facilitates representative democracy, this session sets the research framework in a perspective of how to apply hybrid-communication spatially in architectural design for an inclusive discussion environment in a district parliament, in categories of client, program and site. (Fig. 6)

**Client:** To propose a physical proposal for application of hybrid-communication in a district parliament, clients, users and partnerships in relation to the proposal, and their respective needs and requirements of hybrid communication, first have to be identified. For clients, two major documents, *Democracy in Berlin* (Binder, 2022), and *Gemeinsam Digital: Berlin* (CDO, 2022), should be studied to identify the clients with the visions of democratic development and digital transformation of political process, with their current implemented measure for these developments. To facilitate the digital transformation process, partnerships who are responsible for application of digital infrastructure should be also identified through internet research, in order to understand the spatial and operational requirements of digital infrastructures. Finally, the users and their daily activities in a district parliament should be studied through the district council website from Berlin state headquarters for political education (2022), programme analysis of district parliaments, and video documentary of parliament meetings, in order to understand their needs on democratic system and public functions in parliament. In the process, the requirements of clients, users and partnerships, should be responded with the theoretical application of hybrid communication, in order to provide guidelines for the spatial proposal of the project.

**Program:** A typology of parliament with the application of hybrid communication is proposed according to theories of hybrid communication and clients needs, which frame the research for the program into three main parts, including parliament programs, digital gallery and data hall. Parliaments should be analyzed with case studies, incorporating both country level and district level, and in both Berlin and other countries. This helps understand the basic functional requirement of district parliaments in Berlin, and to identify the spatial qualities that it can learn from other cases. For each case, the total floor area, area and proportion of different programs, and the interrelationships of each program, should be identified by drawing analysis for further comparisons. For the digital gallery, which caters for digital communication between citizens and politicians, gallery analysis of Berlin and case studies of digital galleries have to be implemented in order to understand the spatial requirements of a digital gallery, and the device that can be included within. The *Media Architecture Biennale* (2023) documented extensive digital design implemented in recent years. Thirdly, to raise data awareness and implement digital education (as strategies of the digitalisation group), a data hall is proposed as an additional programme within the design. Existing situation of data centers in Berlin, and different typologies of data centers, with different design and technical considerations, should be studied with case studies. With the analysis of the above three main programs, the final task of this session is to define a total area, a programme bar and programme relationship for the design proposal, in a way that integrates inclusive hybrid-communication spatial strategies into district parliament while maintaining its basic functional requirement.

**Site:** There are two main tasks to be articulated for site research. The first task is site selection. On one hand, the 12 districts in Berlin should be compared in living conditions such as social, infrastructural, economical, educational and digital development situations, in order to select one district with the needs in democratic development aided with hybrid communication. These conditions should be researched extensively through websites and Berlin documents such as *Kommunalatlas Berlin* (GEO Service, 2021) and *Gesundheits und Sozialstrukturatlas* (Zeiber et al., 2022). On the other hand, the urban program of Berlin should be analyzed with the land-use plan (*Environmental Atlas Berlin*, 2020) in order to select a suitable location for construction of the inclusive parliament. Several urban criteria on site selection, in response to both parliament requirements and the group vision of digitalisation, should be defined to narrow down the scope of this selection process.

Afterwards, the second task is to implement in-depth and holistic study of the selected site in perspectives including history, demographics, culture, urban programme, circulation, climate and future visions, in order to design the building that aligns with the daily needs of citizens, building users and the district. These site analysis can be done with documentary and website research, on-site study in field-trip in Berlin, drawing-mapping and 3D model analysis of the site. Moreover, extensive massing studies in relation to the site should be done to understand the opportunities and constraints of the selected site, in which the site plot and design rules will be defined for the design task.

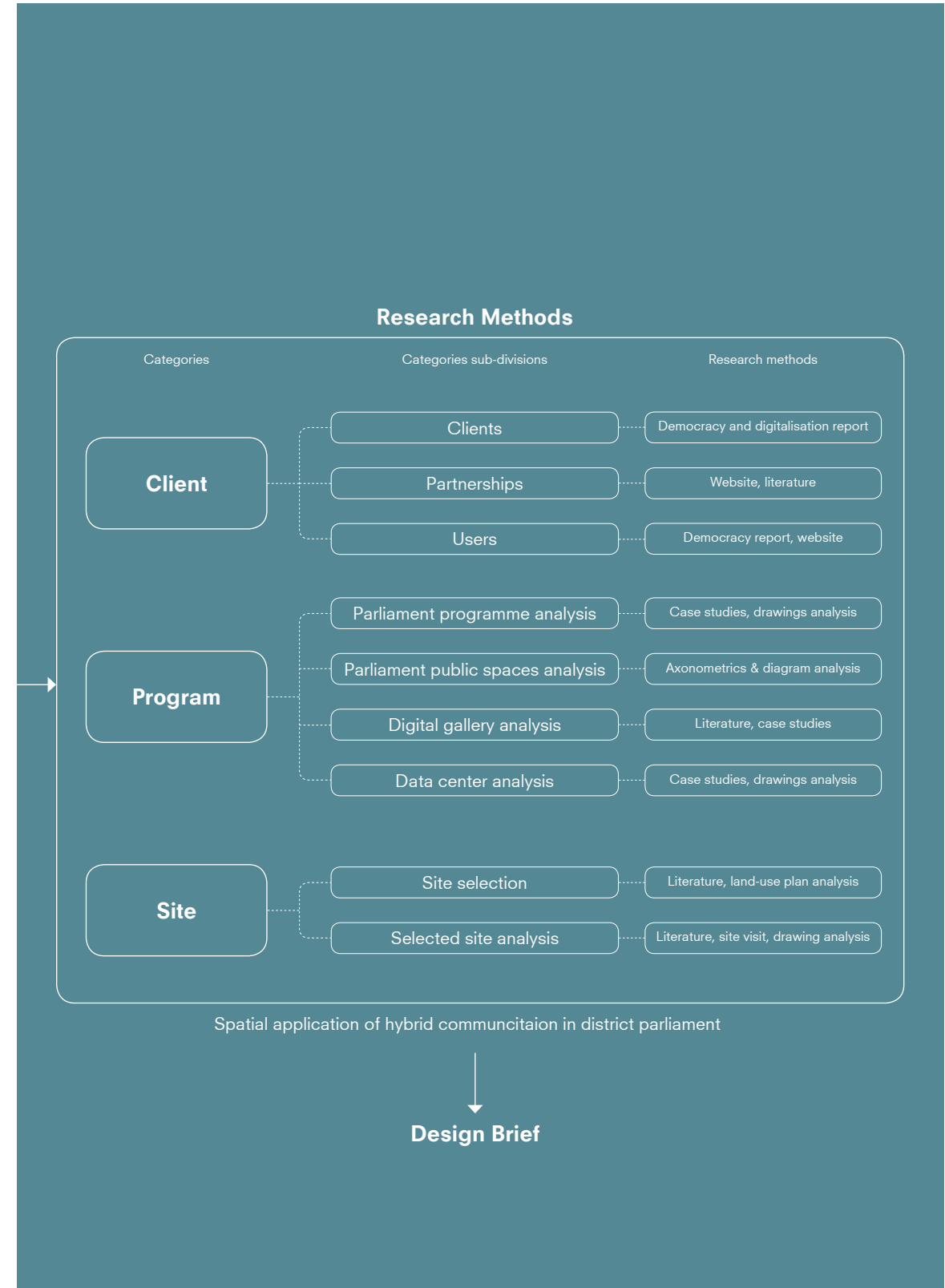
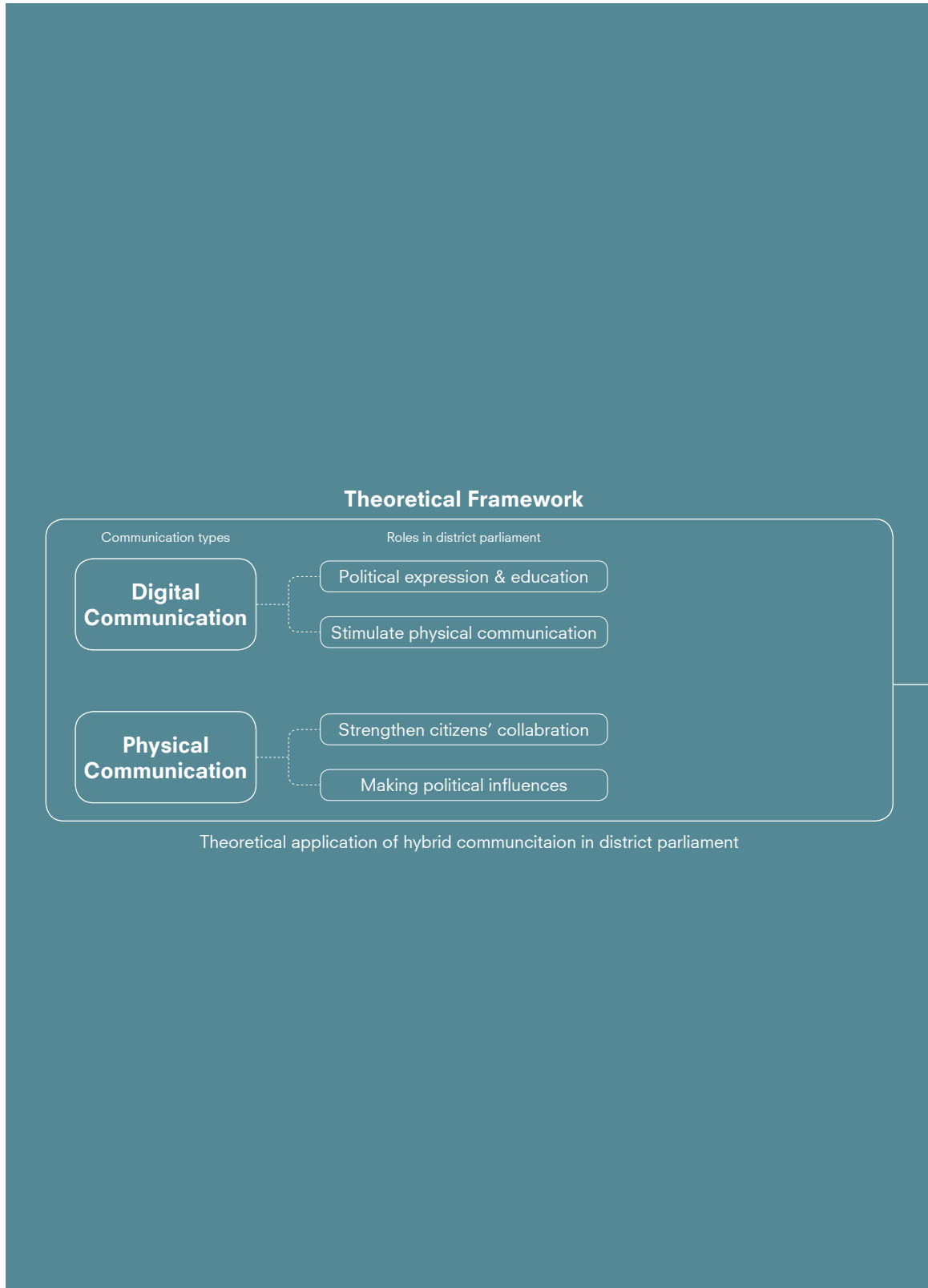


Fig. 6. Overview of research methods



**CLIENT**

**03**

### 3.1 Clients' ambitions in relation to hybrid communication

The ambitions and requirements of clients, users and partnerships are coinciding with the application of hybrid communication strategies, which provide a theoretical framework for the parliament typological proposal in the program section. (Fig. 7)

For clients, governmental organizations, including the Senate of Berlin, district council (Lichtenburg) and Chief Digital Officer(CDO) of Berlin are the three main clients for the project. The Senate of Berlin envisions a more democratic political environment by "citizens' participation in every day" (Binder, 2022); while the district council already started to implement participatory measures that allow citizens to influence the political decision. (District office Lichtenberg from Berlin, 2023) At the same time, CDO (2022) aims for a digital transformation of the political system for Smart Berlin. Therefore, the collective vision of these organizations is to enhance political participation by digitalisation, which can be facilitated by digital communication technologies that enhance expression and dissemination of political information.

For users, the main users of the parliament are the 55 representatives in the district council, 257 officers of different committees, and the public, including non-governmental organizations and residents, of the selected district. (Binder, 2022) In the political system aspect, the district council and committee officers envisions an efficient communication system, as the councilors are part-time workers and the officers handle massive

citizens' requests every day. On the contrary, citizens want to enhance their voices as they feel not represented by politicians. These contrasting needs on communication can be also responded with digital communication technologies, such as algorithms, which coordinate unorganized opinions into collective and strong opinions. In the architecture aspect, the daily routine and activities of different users are analyzed, in which the public lacks public activities among their activities, while the district committees spend a lot of time within the office. (Fig. 8) Therefore, the lack of public activities can be responded to with the introduction of public spaces, where hybrid communication takes place. Meanwhile, the quality of private spaces, including offices and route specific for politicians, should be also balanced with spatial design.

For partnerships, none of technological companies are specifically selected as digital partnerships, as they can be changed according to different scenarios. Meanwhile, digital infrastructure and appliances, such as data center, provided by digital lab (e.g. City Lab Berlin) (Binder, 2022) and supplier (e.g. Nippon Telegraph and Telephone Corporation) (NTT Data, 2023) provide guidelines for the spatial requirements for application of digital communication technologies. Additionally, the Committee on Digital Agenda of Berlin supervises the policies and applications of digital communication, which requires adaptability of the design towards different political situations.

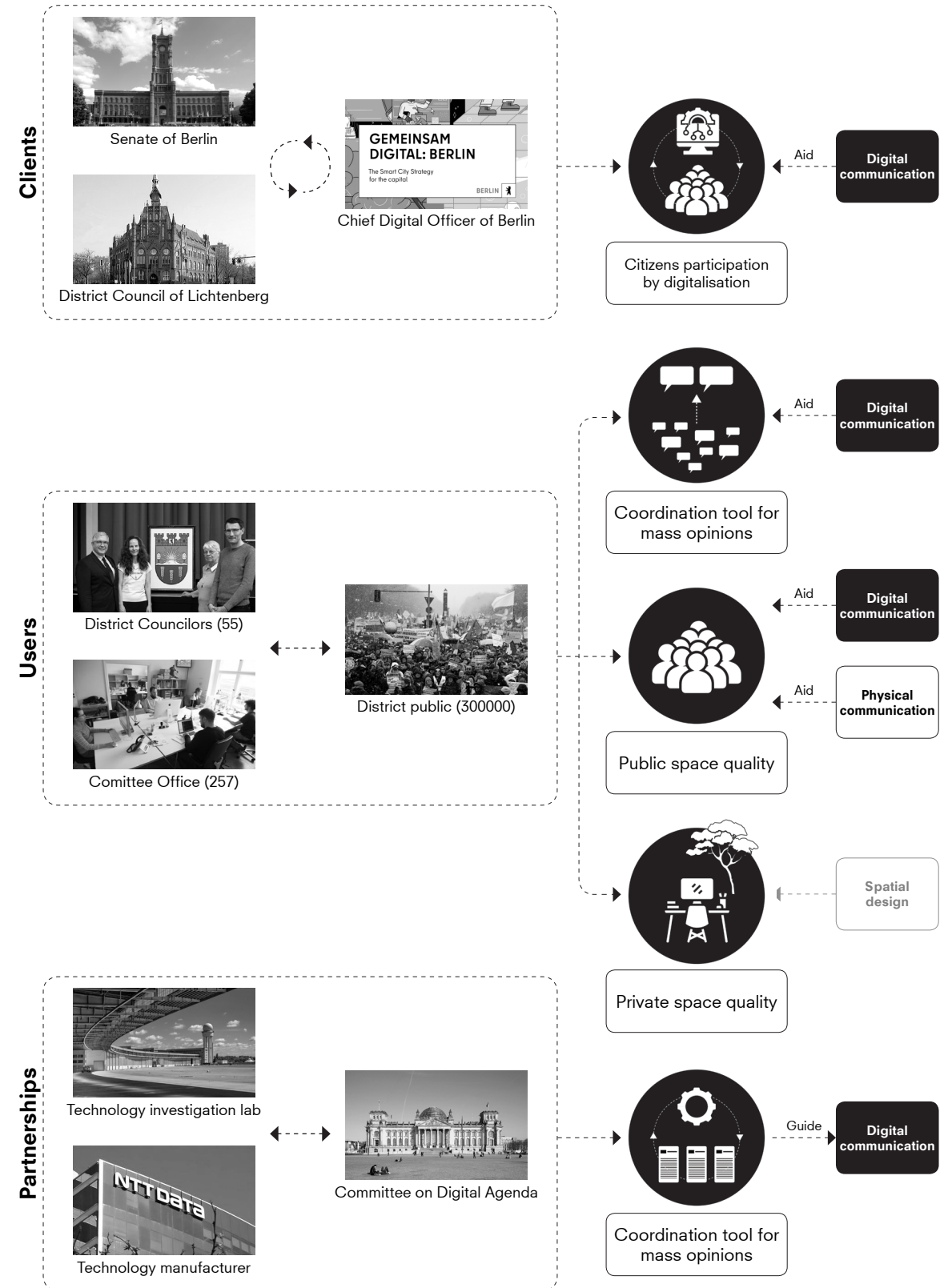


Fig. 7. Overview of visions of clients, partnerships and users in relation to hybrid communication

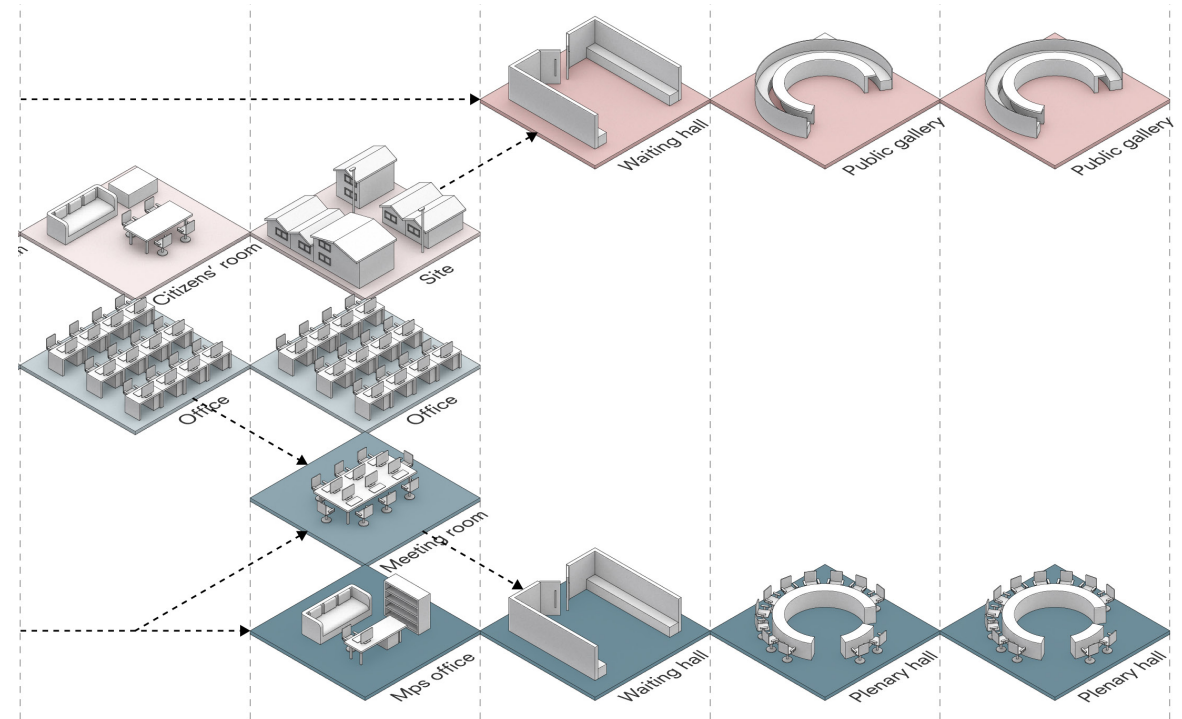
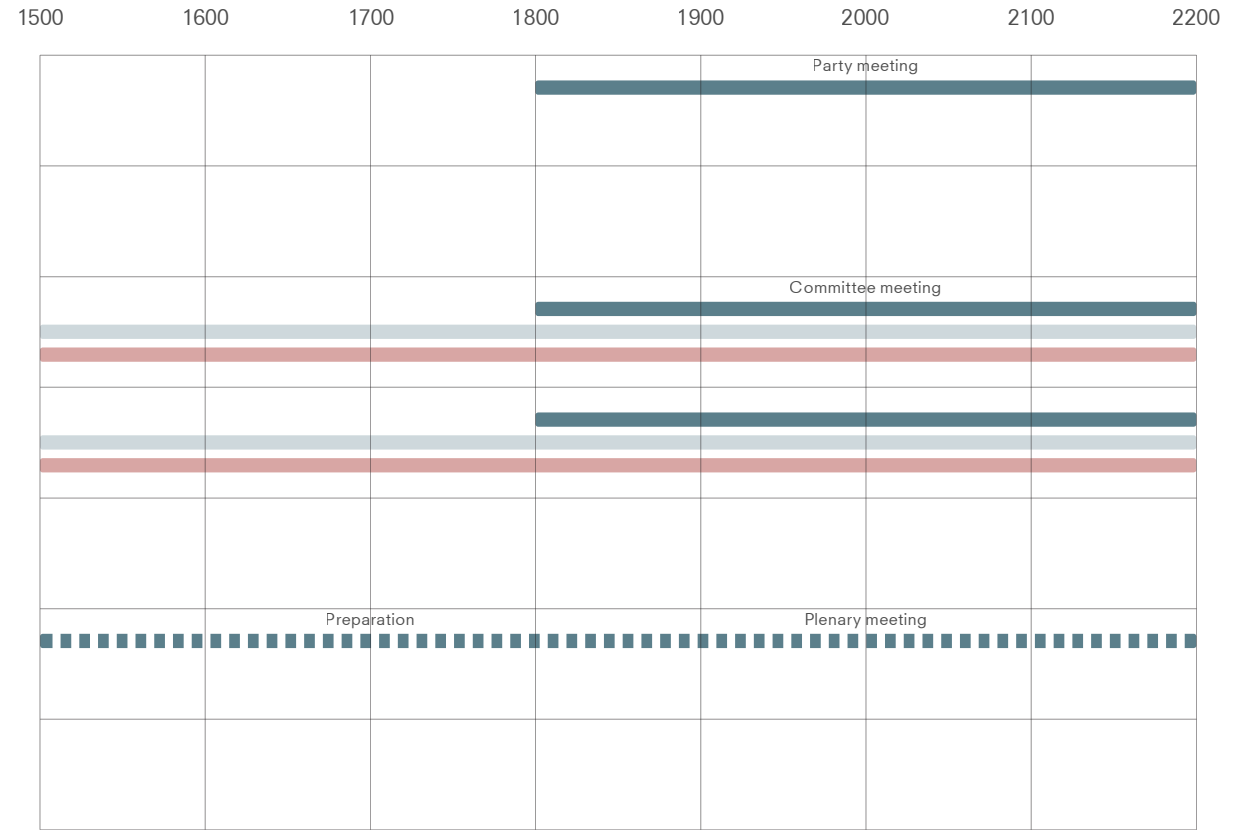
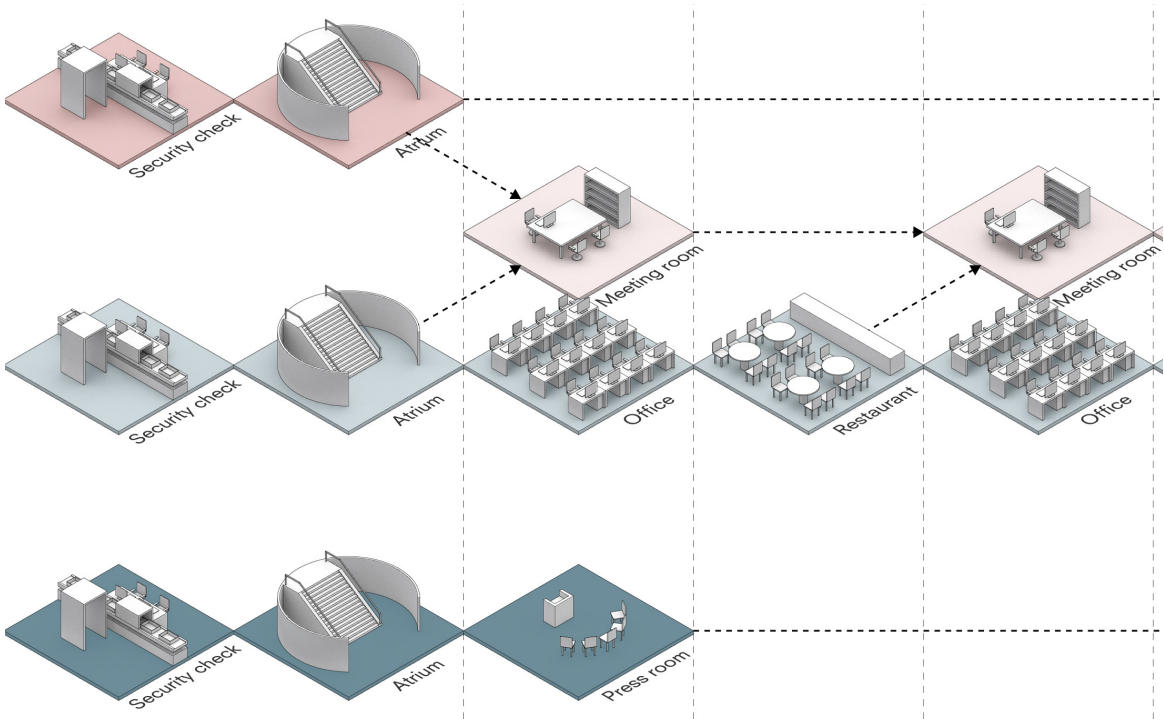
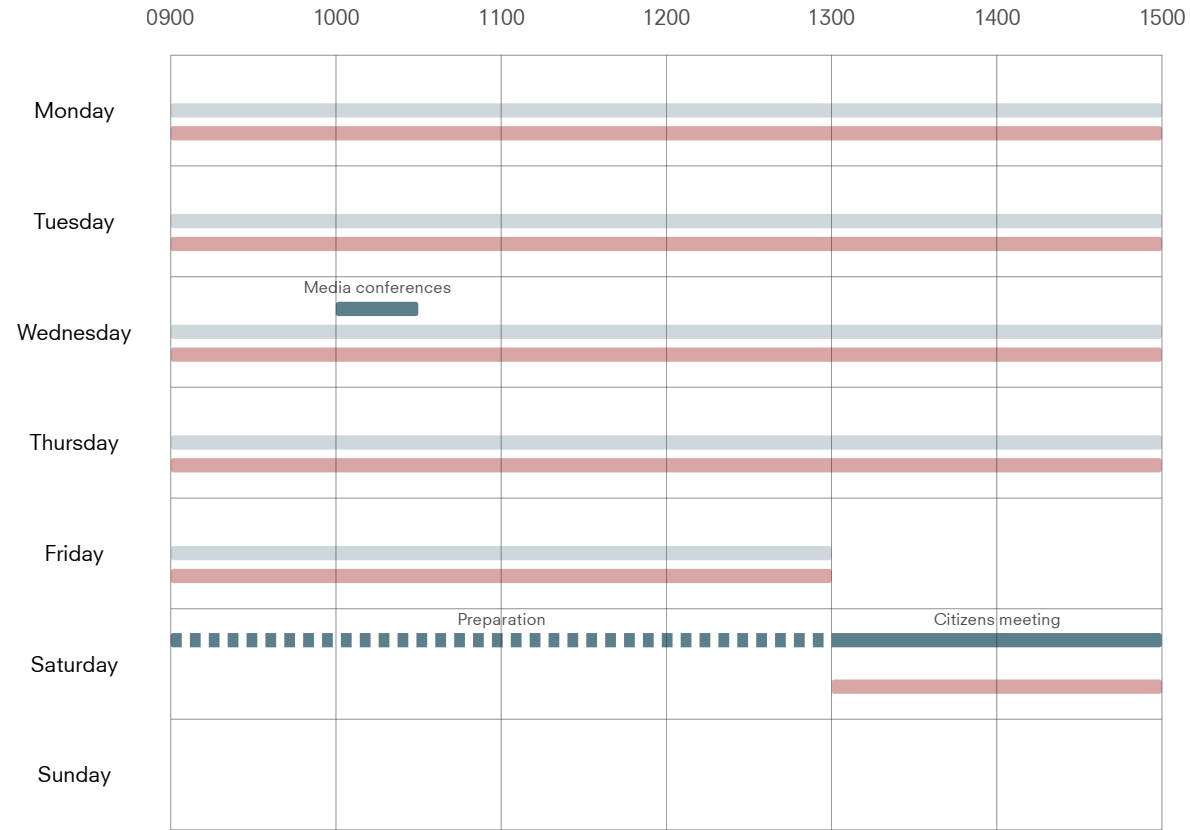


Fig. 8. Analysis of activities of district parliament users

**PROGRAM**

**04**



## 4.1 Parliament type proposal

With the theoretical framework of hybrid communication and clients' ambitions, a typology for district parliament, which includes the interaction of basic parliament programs, digital gallery, and data hall, is proposed. (Fig. 9,10) Apart from traditional parliamentary workflow, which includes stages of topic proposal, research, responses proposal and debate, more digital processes are proposed with the process. (Fig. 11,12) This process initiates with data conversion which takes place in the data hall, which processes massive public opinions into coordinated opinions. This addition of the data hall into the building is aligned with the digitalisation group vision, which aims to bring back digital infrastructure from invisible location to prominent location for data awareness and education. Afterwards, the digital process simplifies and orientates the research phases to the public needs, in which the link between public and politicians is further strengthened with the people's voices gallery (digital gallery), which includes spaces

for physical and digital communication. With the aid of digital algorithms, the digital zone broadcasts and disseminates collected public voices for different topics with relevant information, which strengthens the voices of the public, while informing and educating both politicians and the public. The digital zone is accompanied with spaces for physical communication, which facilitates the exchange between politicians and the public after they have been more politically educated, in order to exert more influence on political decisions. Finally, these hybrid communication processes consolidate the public opinions as the foundation for the responses proposal and debate stages, which aims to align the policies more closely with public needs. This proposal aligns with the clients' requirements of citizens' participation by digital transformation, while the aforementioned three main functions of the proposal will then structure the research for the following program analysis.

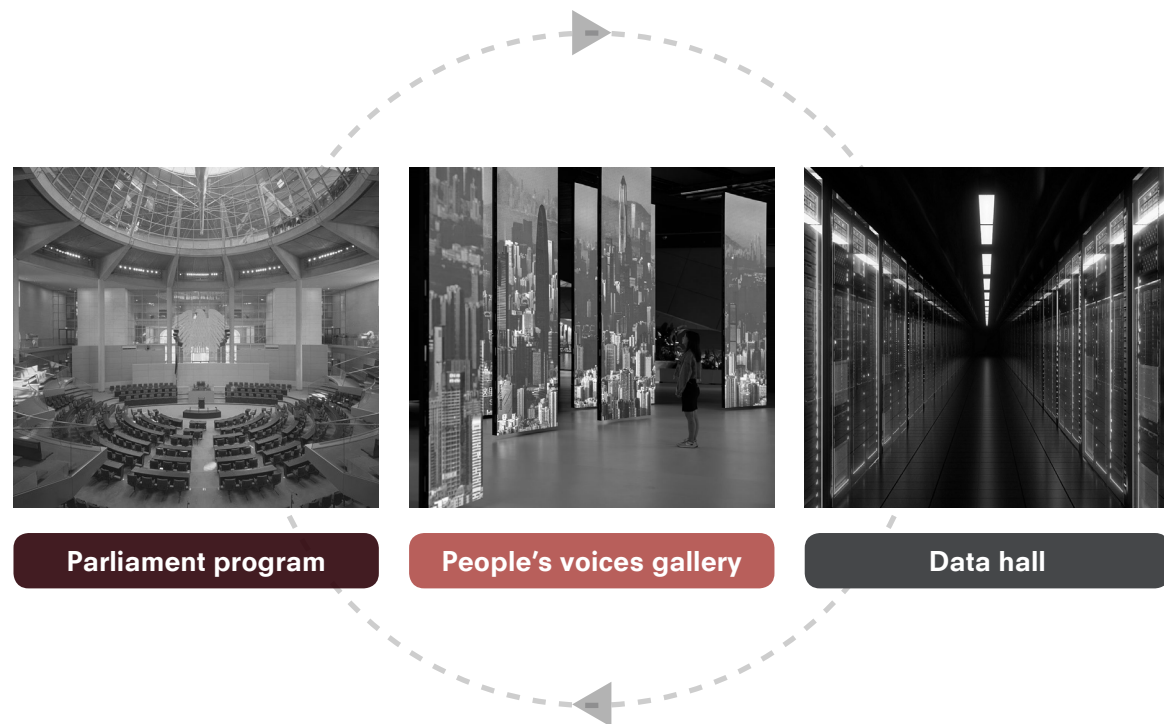


Fig. 9. 3 main architectural sections of the parliament proposal

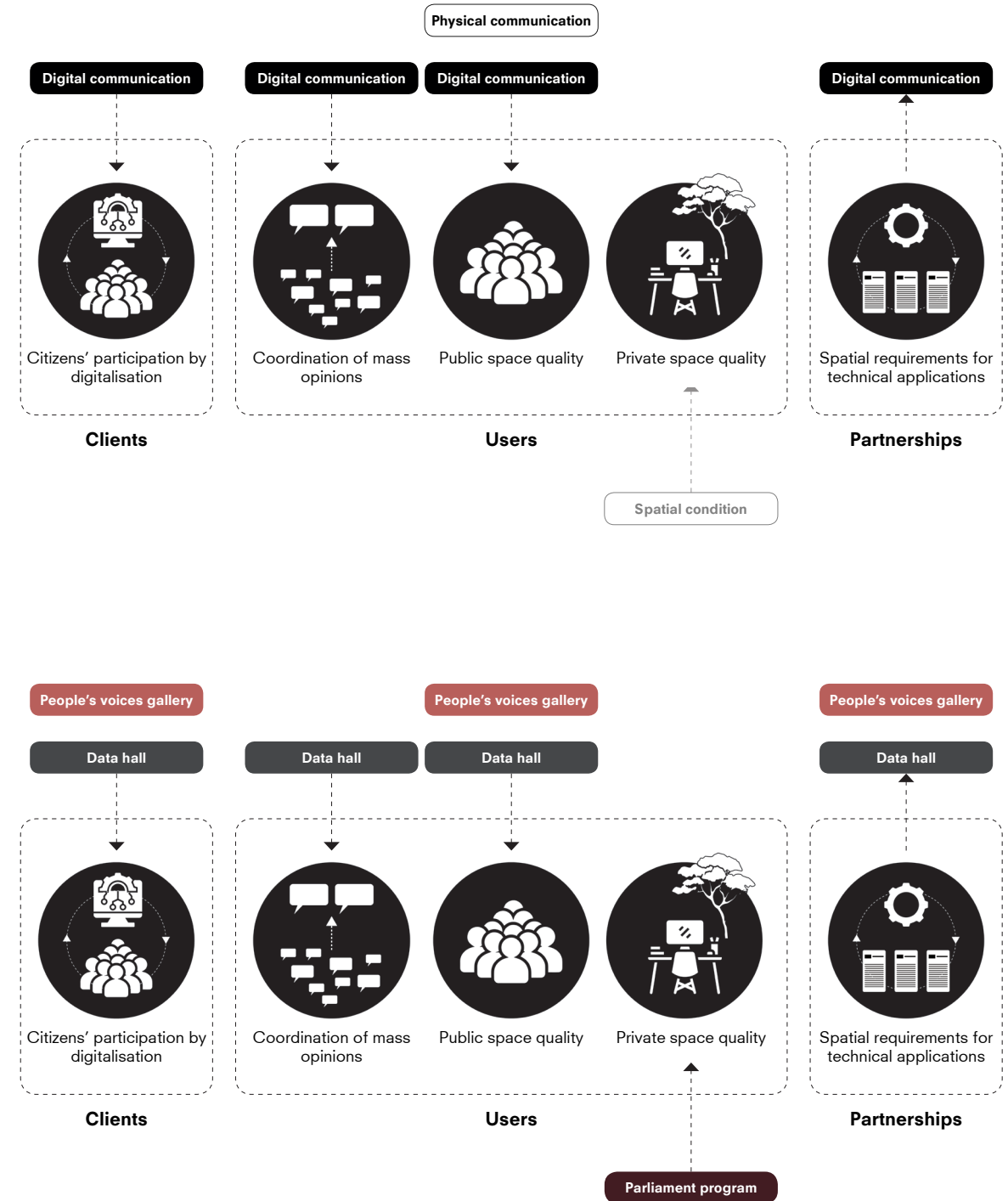


Fig. 10. From theoretical to spatial responses to clients' ambitions



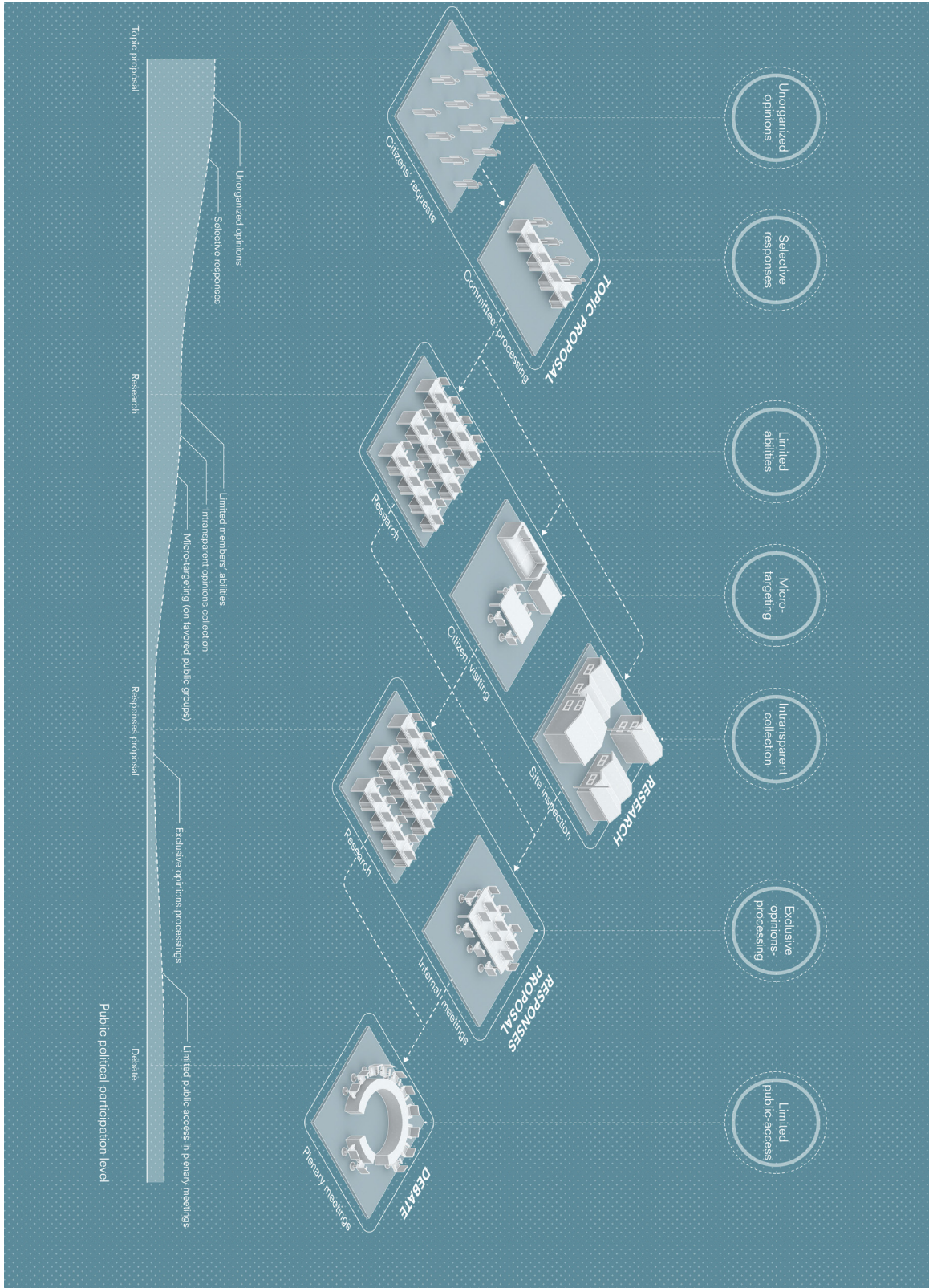


Fig. 11. Existing workflow of district parliaments

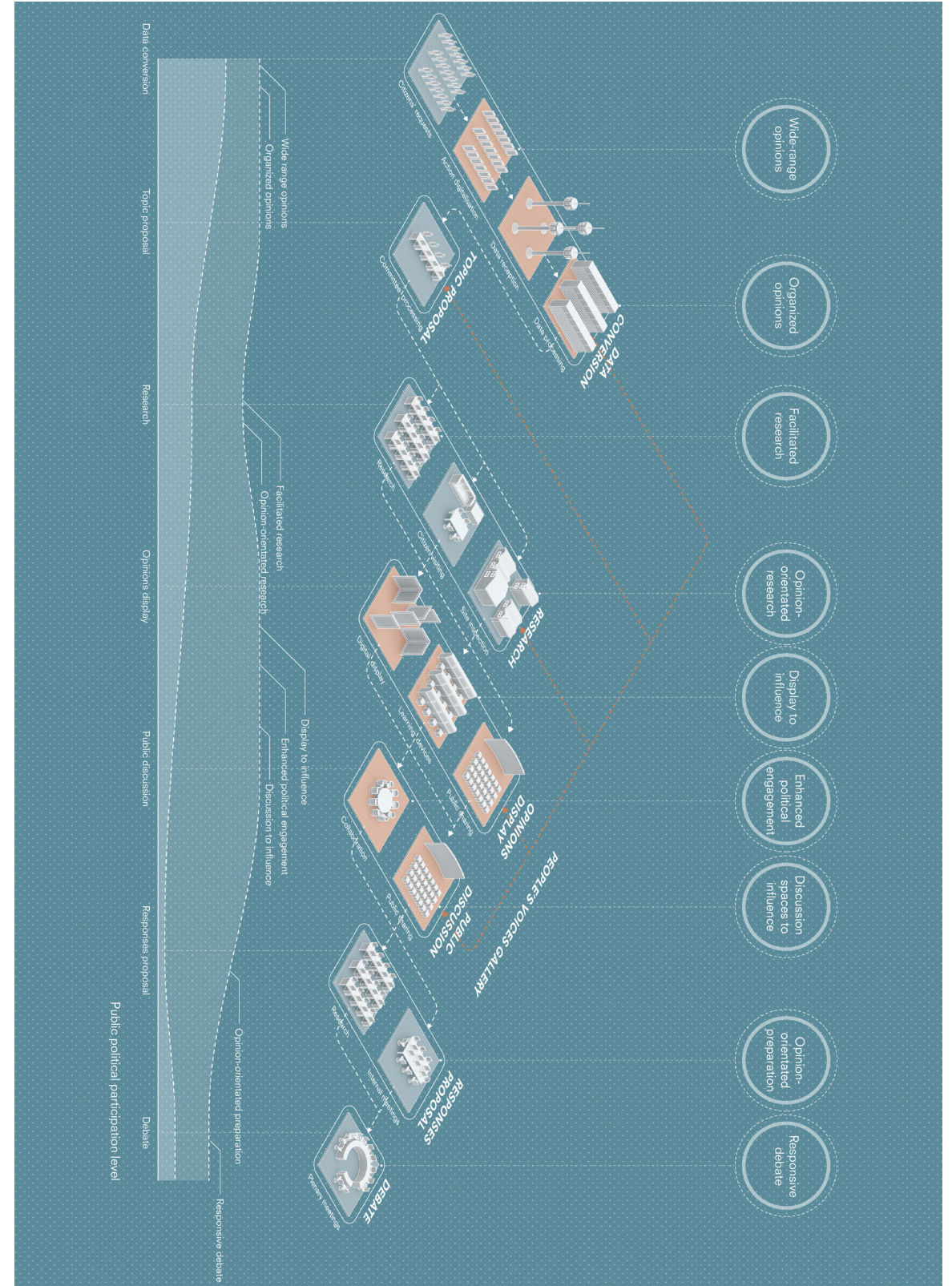


Fig. 12. Proposed new workflow of district parliaments with hybrid communication



## 4.2 Program - Parliament program

For analysis of parliament programs, 4 country-level parliaments and 5 municipal/district-level parliaments are included within the study, while both Berlin and international cases are studied for each category. (Fig. 13) Extensive program-mapping exercises have been done with the plans of each parliaments for comparisons. (Fig. 14) Firstly, the GFA of district level parliaments revolves around 20000-25000m<sup>2</sup>, which are still considerably large although smaller than country level parliaments in general. (Fig. 15) In terms of program proportion, open spaces and public programs are significantly smaller within district parliaments especially in Berlin, which only occupies for around 10% of total building area. In contrast, the office functions, which occupy for around 12000m<sup>2</sup>, is proportionally higher within district parliaments, as all administrative and committee offices of a district are incorporated within the building. It is also notable that office and circulation sizes of different district parliaments vary according to the typological design of offices, such as

open office and divided individual office. (Fig. 16) Secondly, the parliaments are compared in aspects of public spaces configurations. (Fig. 17) "Top" and "Scattered" positions of public spaces are more often identified in country parliaments, which symbolize democratic engagement and status of the public. "Bottom" position is commonly found in district parliaments, in which they provide an accessible public platform, while separating it from the above private offices. Thirdly, the designs of plenary halls in each parliament are studied in axonometric. (Fig. 18) Public/private relationships of plenary halls in country parliaments are much more articulated, in which several public/private galleries are positioned above the circularly shaped debate hall for representatives. Meanwhile, seating arrangements in plenary halls of district parliaments are limited by their pre-defined spatial condition, while spaces of public galleries for public attendance are very limited.

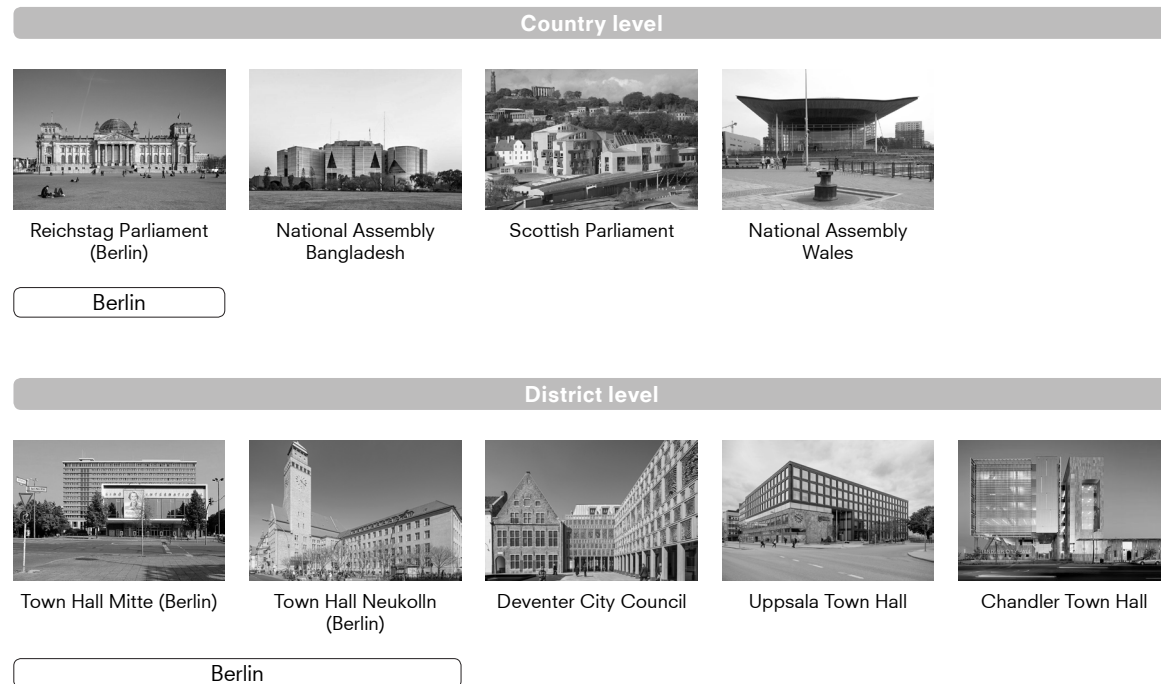


Fig. 13. Selected parliament cases for parliament program analysis

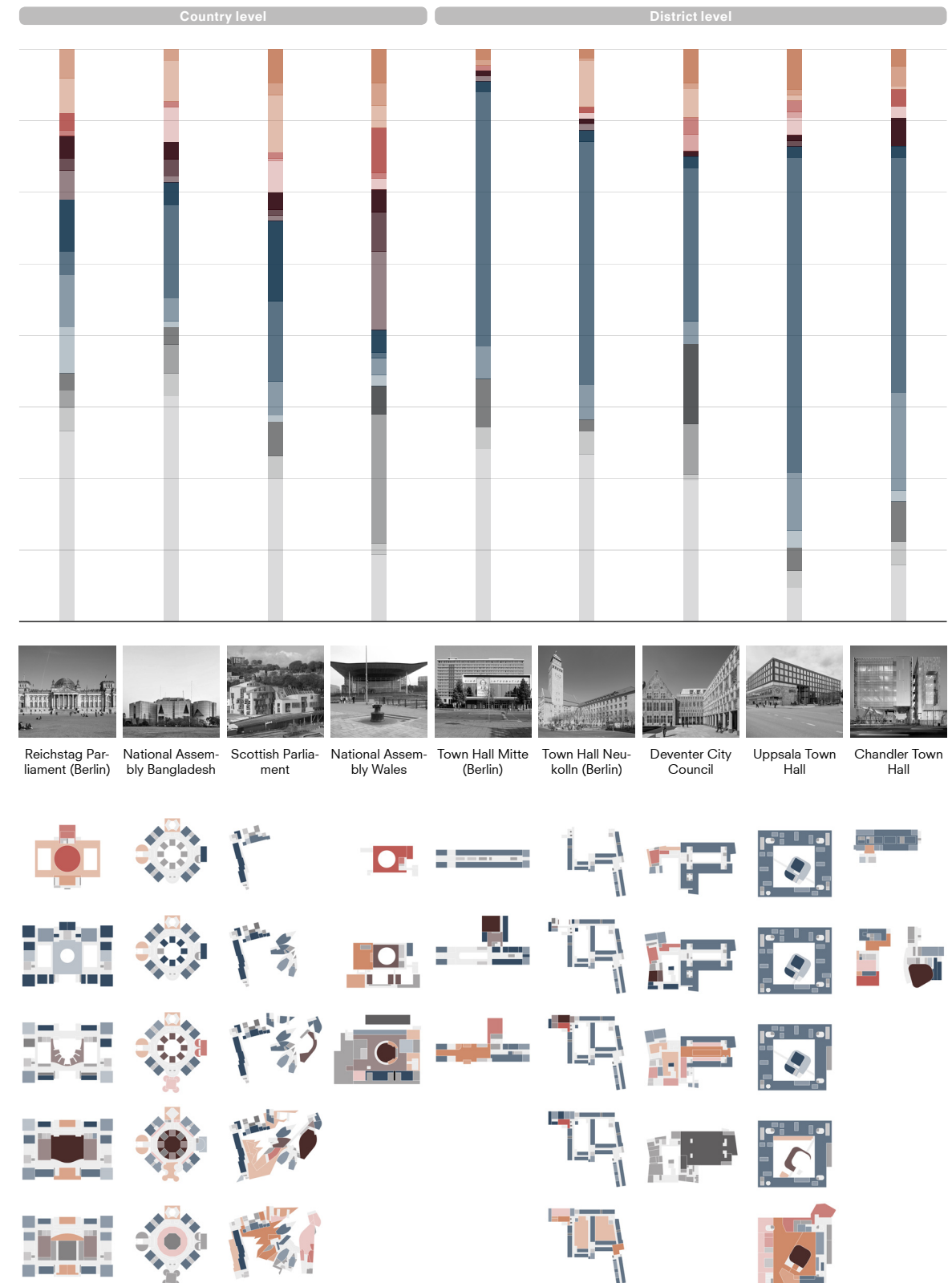


Fig. 14. Overview of parliament program analysis

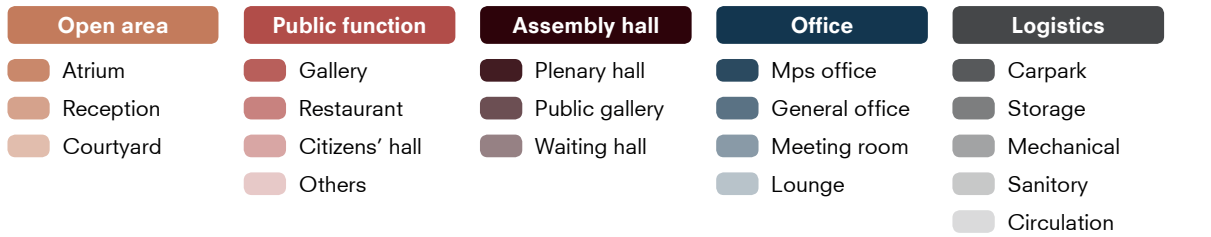
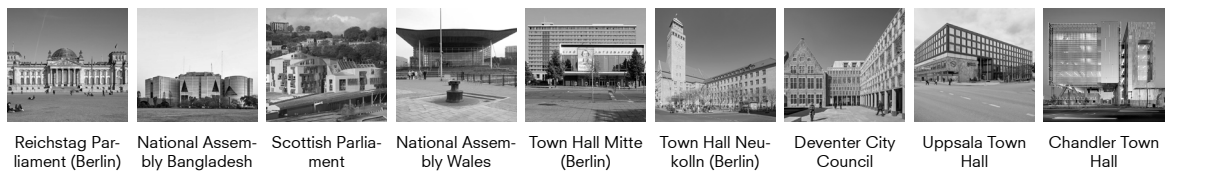
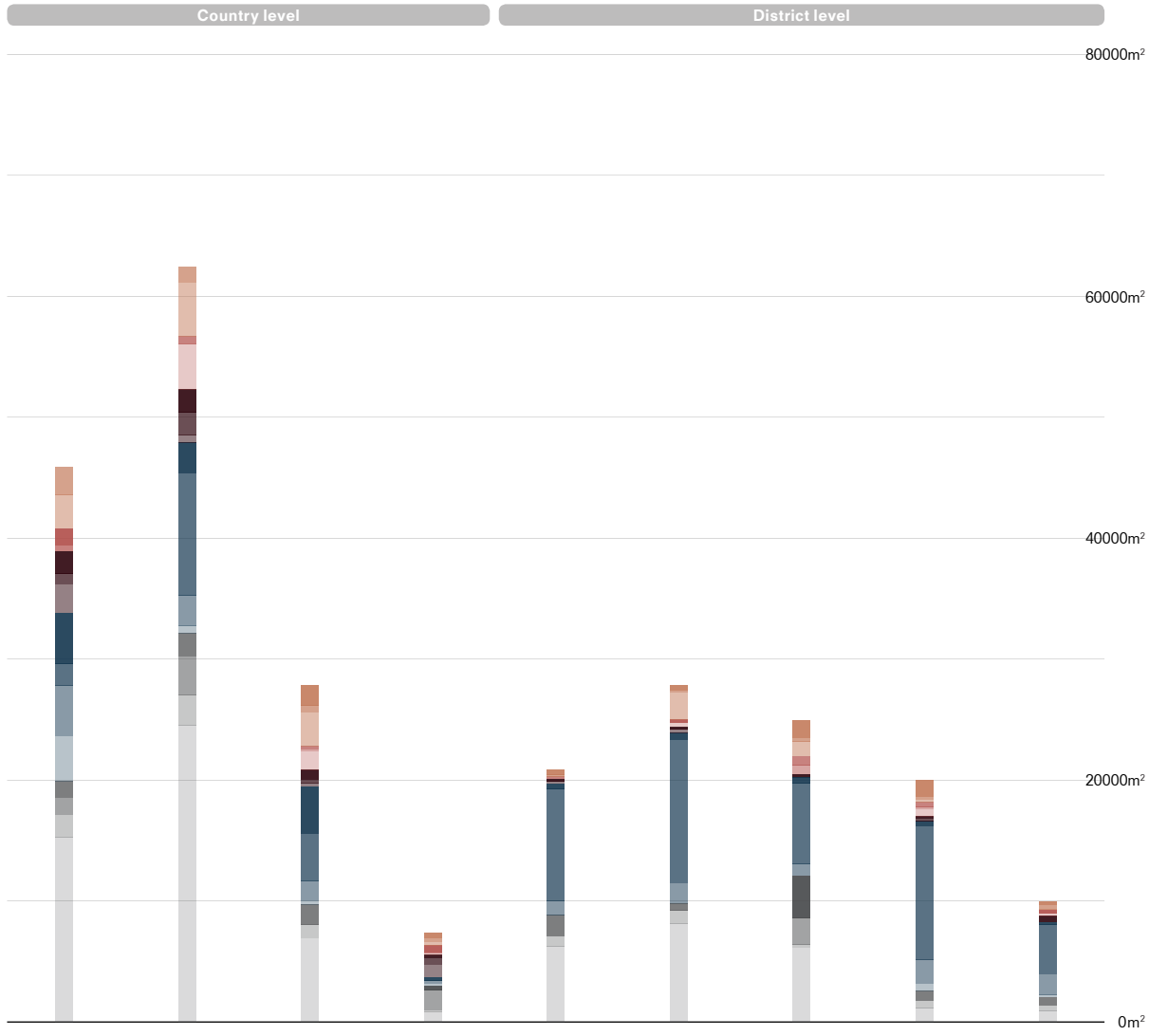


Fig. 15. Comparisons of areas of different parliaments

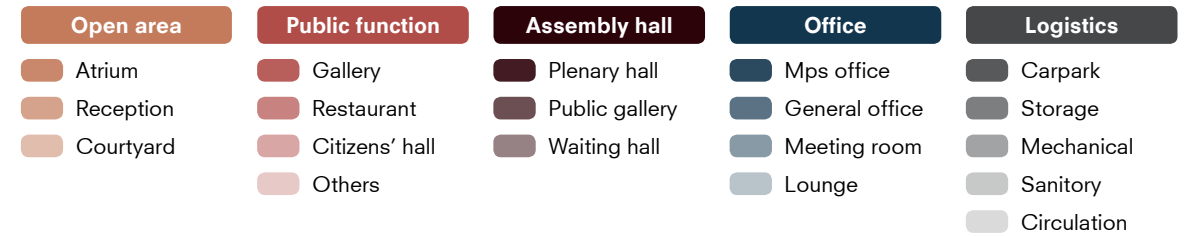
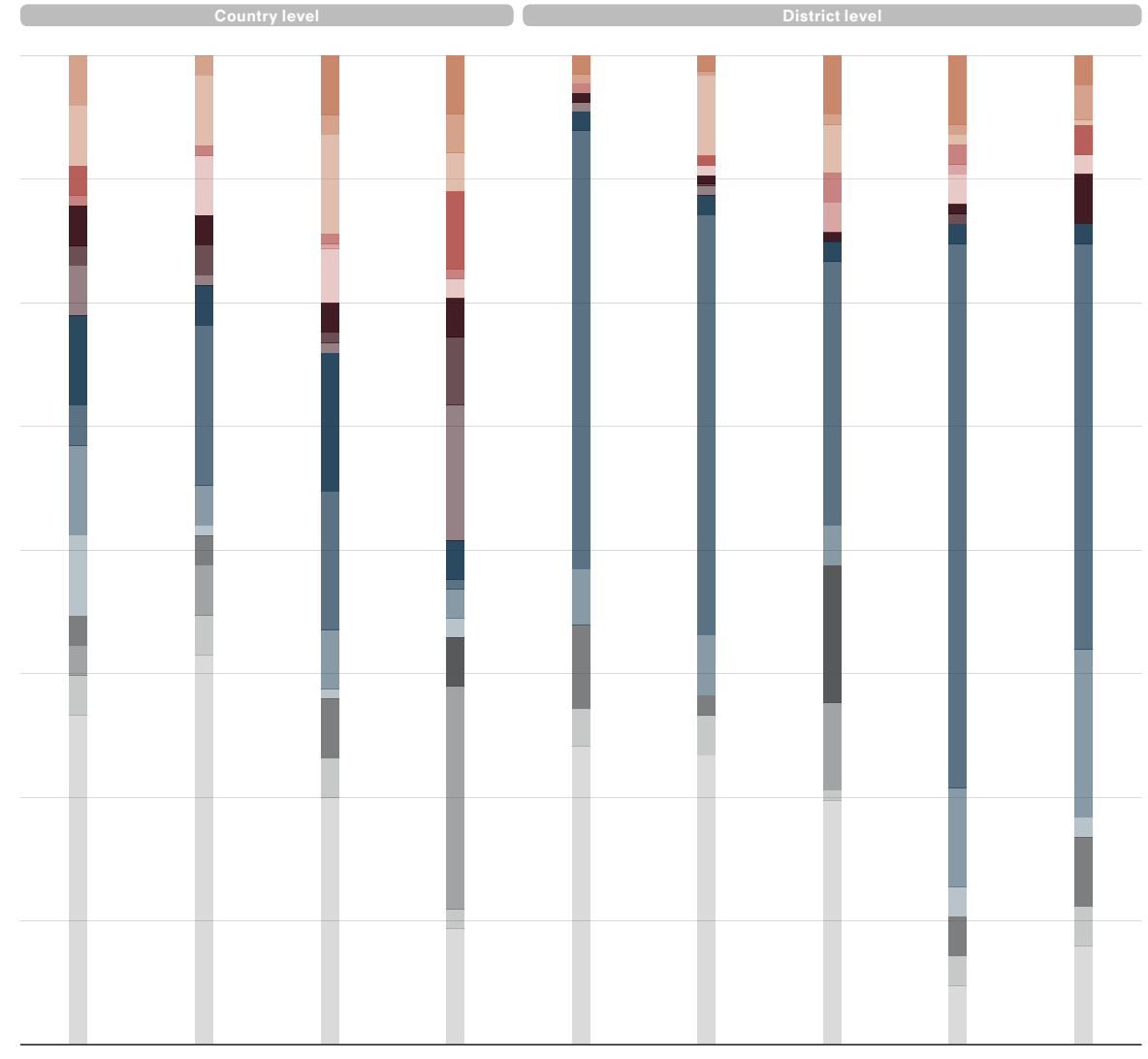
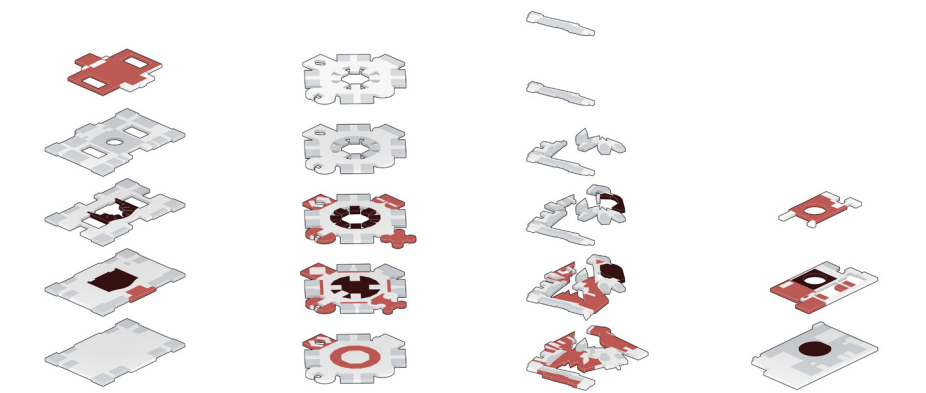


Fig. 16. Comparisons of program proportions of different parliaments



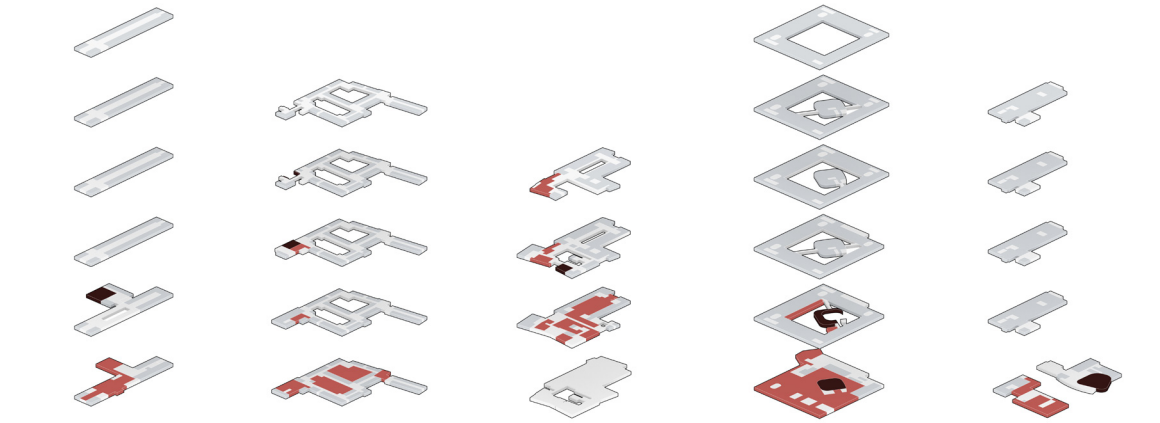
Country level



Top Scattered Scattered Top



District level



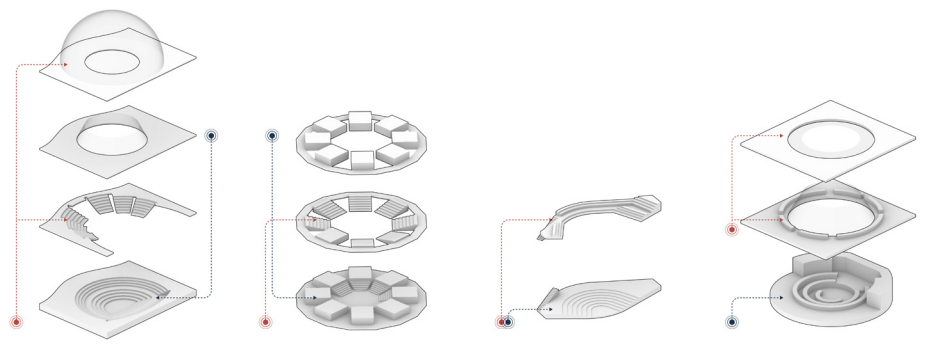
Bottom Bottom Vertical Bottom Bottom



Public function Private office Assembly hall

Fig. 17. Comparisons of public spaces of different parliaments

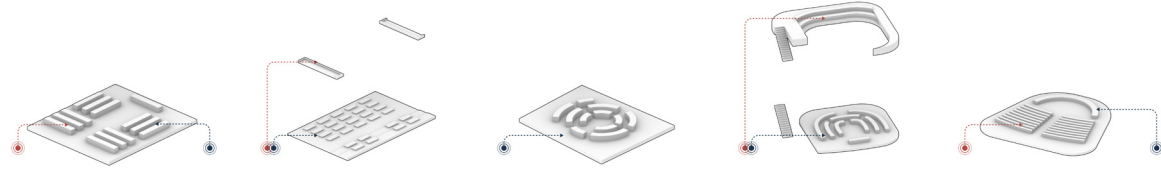
Country level



4 layers, seperated 3 layers, coincided 2 layers, coincided 3 layers, seperated



District level



1 layers, coincided 2 layers, coincided 1 layer, coincided 2 layers, coincided 1 layer, coincided



Public route Politians route

Fig. 18. Comparisons of plenary hall designs of different parliaments



### 4.3 Program - Digital gallery

For the digital gallery, site visit and case study of the Netherlands institute for sound and vision, which is relevant to both digital gallery and politics, are done. It first informs that the size of a digital gallery is around 2500m<sup>2</sup> for a municipality. Afterwards, a communication tool box is proposed by referencing the appliances for physical and digital communication within the Netherlands gallery, and other digital projects mentioned in Media Architecture Biennale (2023), such as mini-theatre in German film museum, interactive digital facade in "In The Air, Tonight", and political projections

applied in Urban Arte Conecta. (Fig. 19) This communication tool box indicates the dimension and spatial requirement of different communication facilities and appliances, for example, the minimum distance of a project is 0.4 times than the height of the target screen. At the same time, these tools are arranged according to communication strategies, from the most digital to the physical, which gives guidelines for the experience sequence of a user in the proposed gallery, that the user is first informed and hence educated by digital communication, and then physically communicate with others. (Fig. 20)

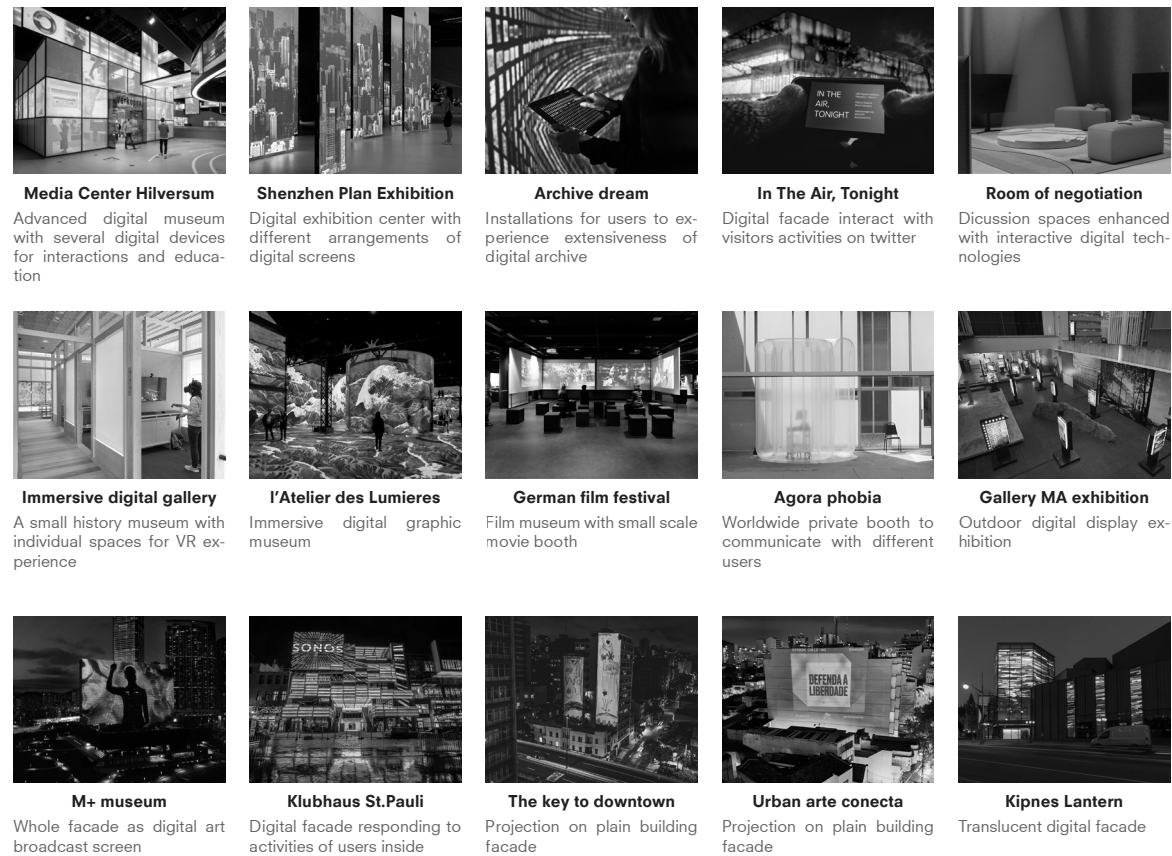


Fig. 19. Case studies of projects related to digital communication

### PROGRAM

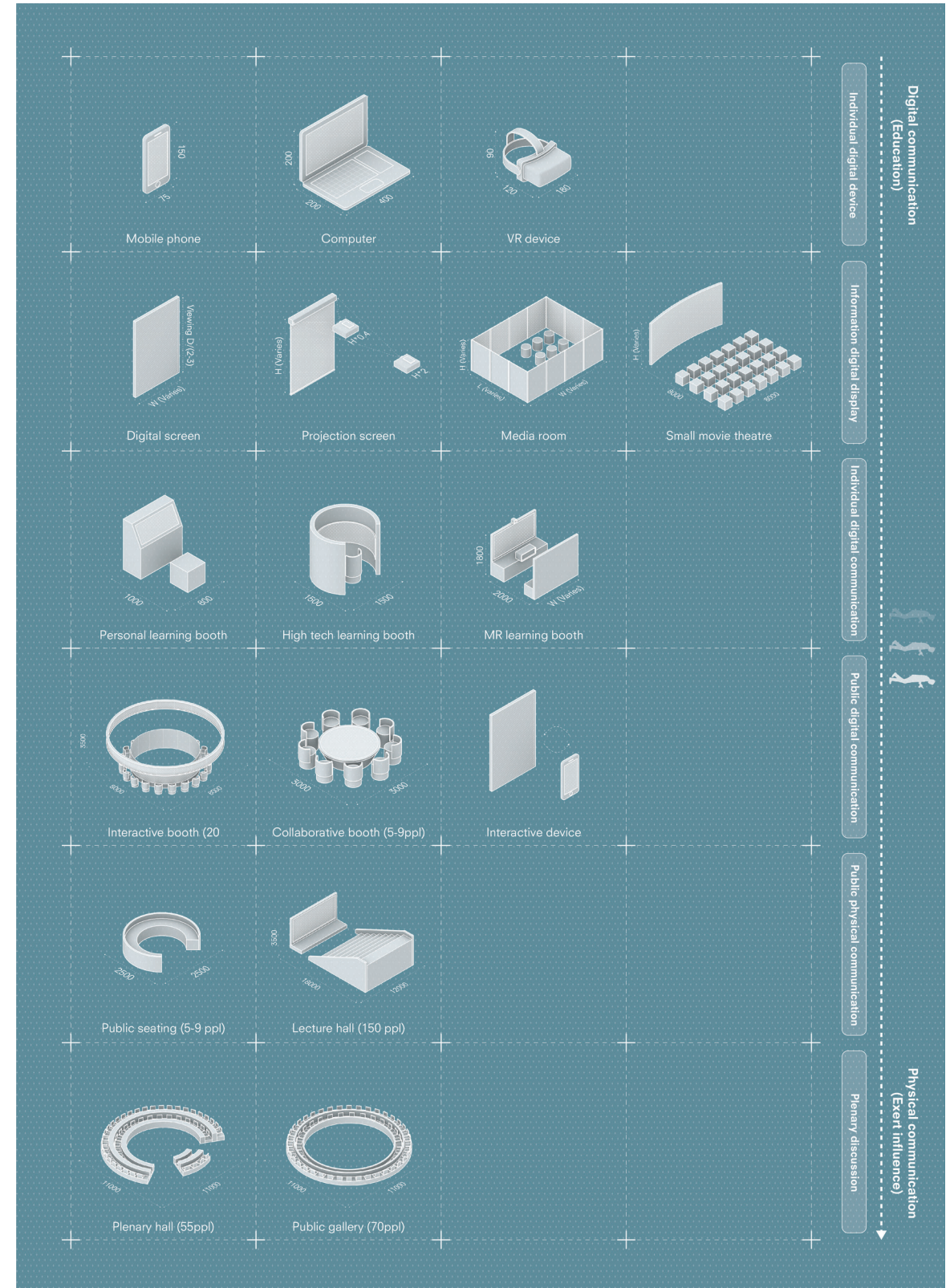


Fig. 20. Communication tool box, arranged from most digital to most physical



## 4.4 Program - Data hall

For the data hall, within the limited resources, case studies of Dogus Technology Center and Metro Edge IMD1 Data Center are done in order to understand different typologies of data infrastructure. (Fig.21) The former data center case works for an individual building, which occupies 450m<sup>2</sup> within a building of 15000m<sup>2</sup>. The latter one work for a technological region, in which 9760m<sup>2</sup> of data center work for a high-data-usage-region of 1.4\*1.4km. The vision of this project, and group of digitalisation, is to adapt a data hall in-between the two data center typologies, which is set as around 2500m<sup>2</sup>. This is further studied with the analysis of

sizes of data centers in Berlin and Singapore (the most digitally developed country in the world), which proves that 2500m<sup>2</sup> will be a compatible data hall size for Berlin. (Fig. 22,23) Afterwards, technical requirements for data centers are referenced, including the size and arrangement of data racks, and their spacing requirement for air circulation. (Fig. 24) Additionally, case studies of existing data centers, such as Qianhai data center and Digital Beijing, concludes that data center design revolves around facade design and visual connection, while automation and electricity regeneration are recent trends of development of data centers. (Fig. 25)



Dogus Technology Center



Metro Edge IMD1

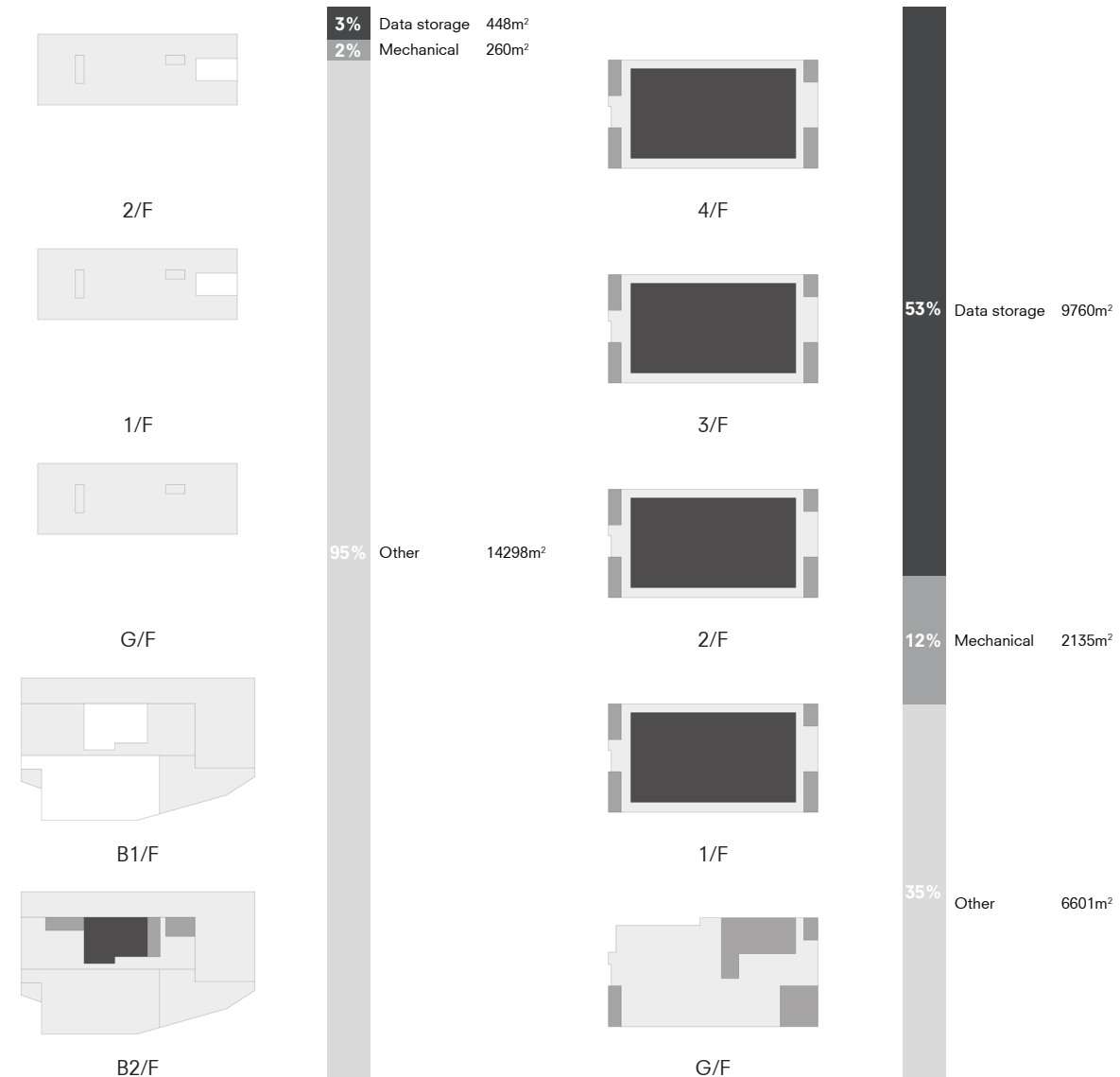


Fig. 21. Case studies of typologies of data center

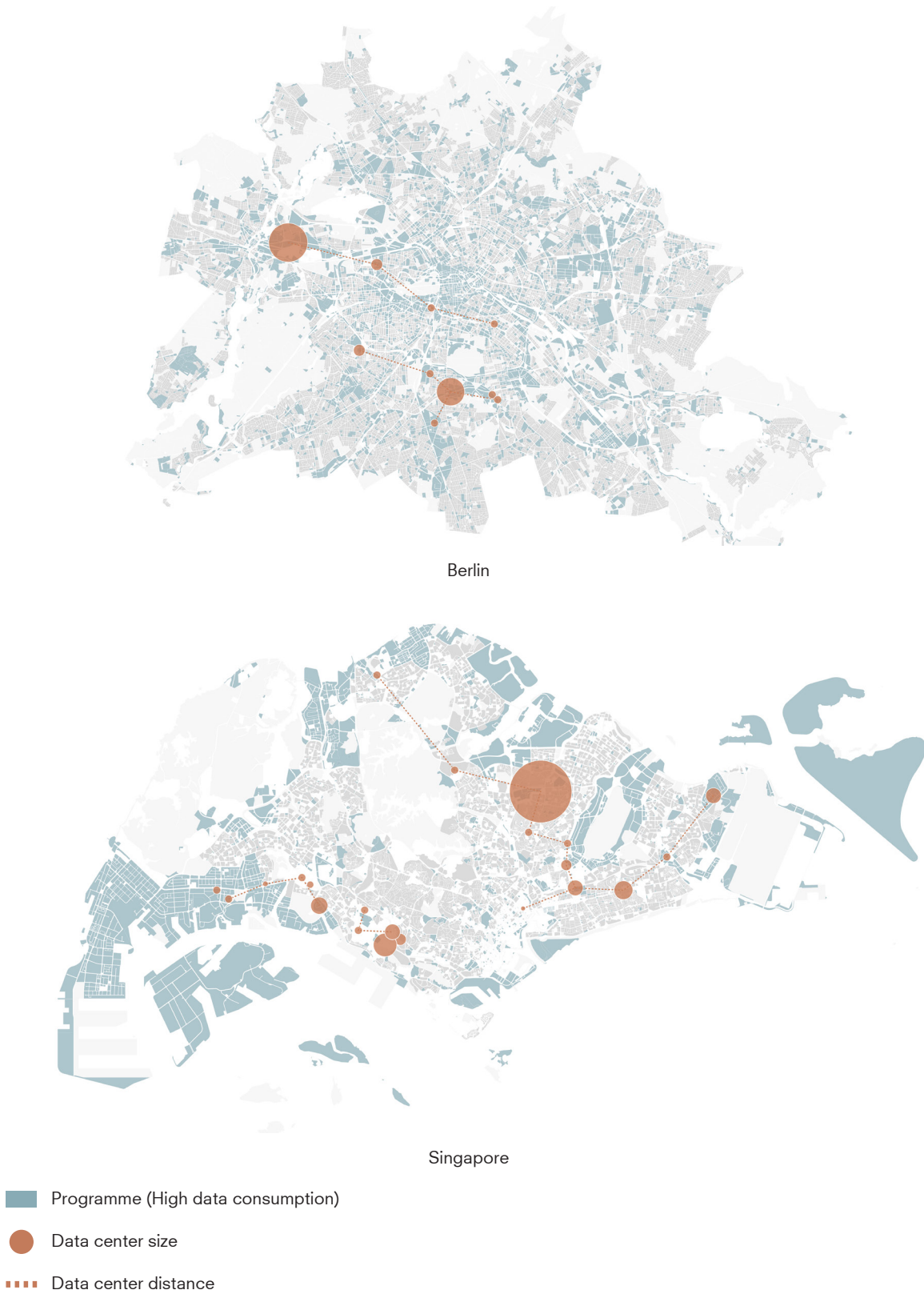


Fig. 22. Mapping of data centers in Berlin and Singapore

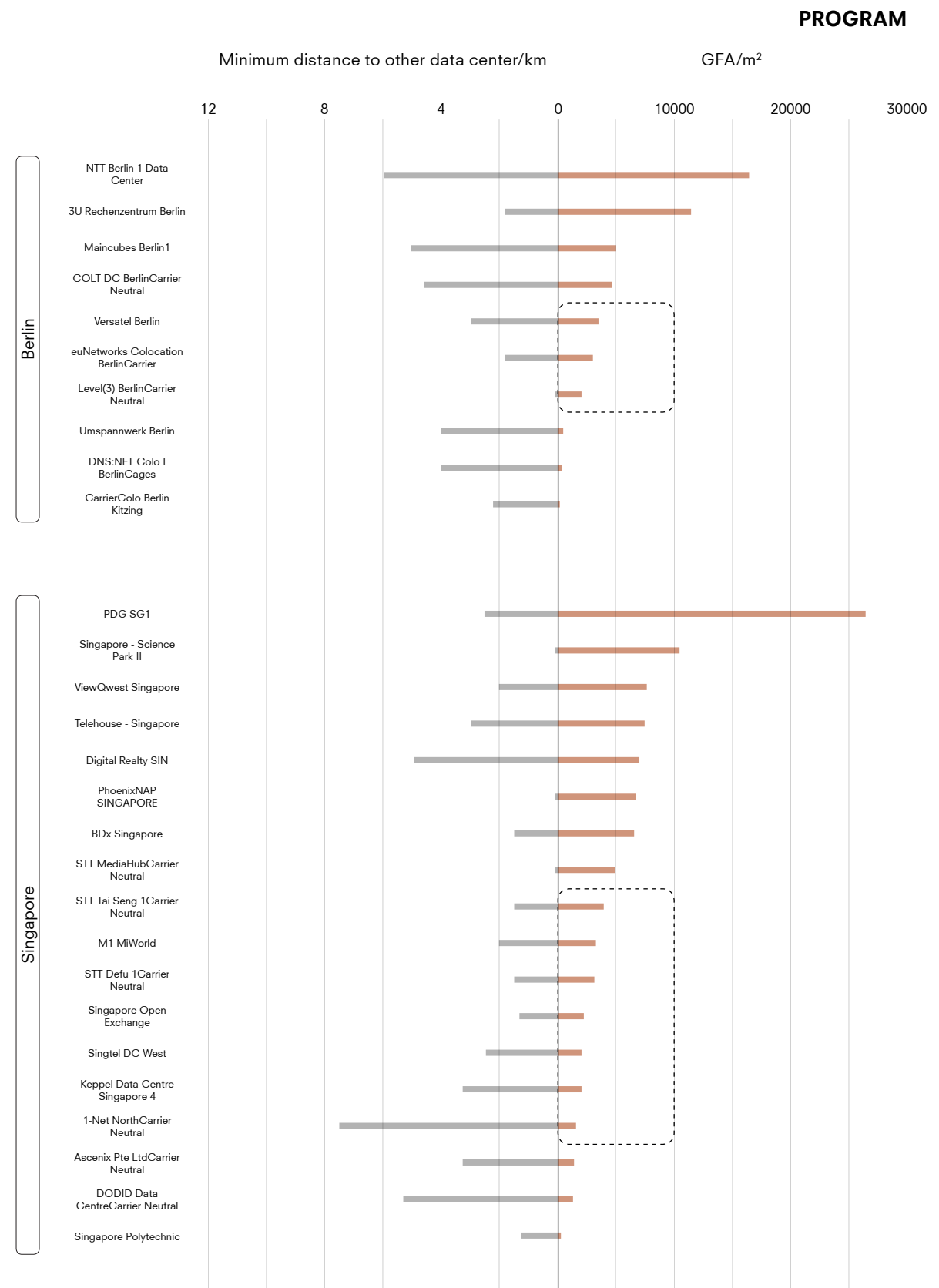
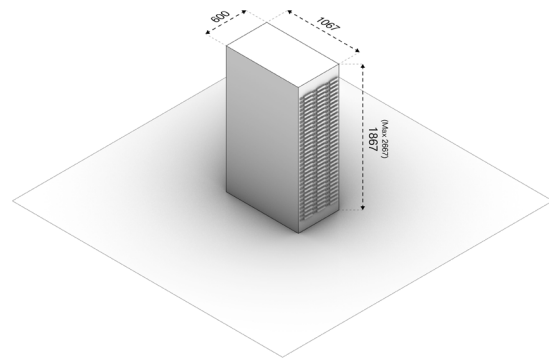
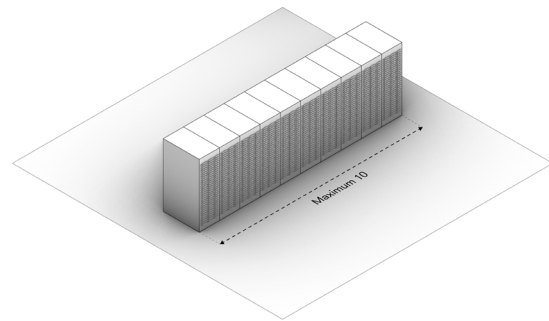


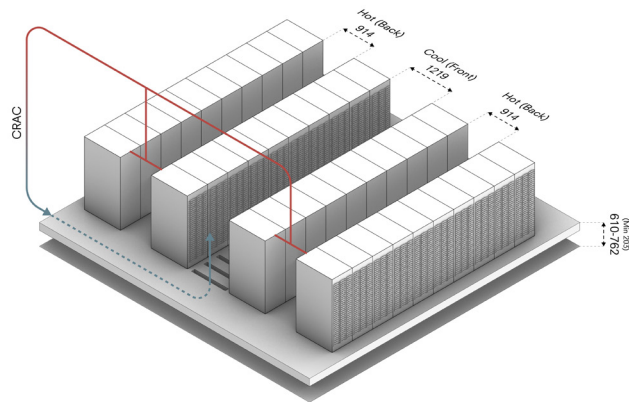
Fig. 23. Analysis of sizes of data centers in Berlin and Singapore



Data rack typical size



Maximum 10 racks in a row



Spacing and raised floor for heat cycling

Fig. 24. Technical and spatial requirements of data racks

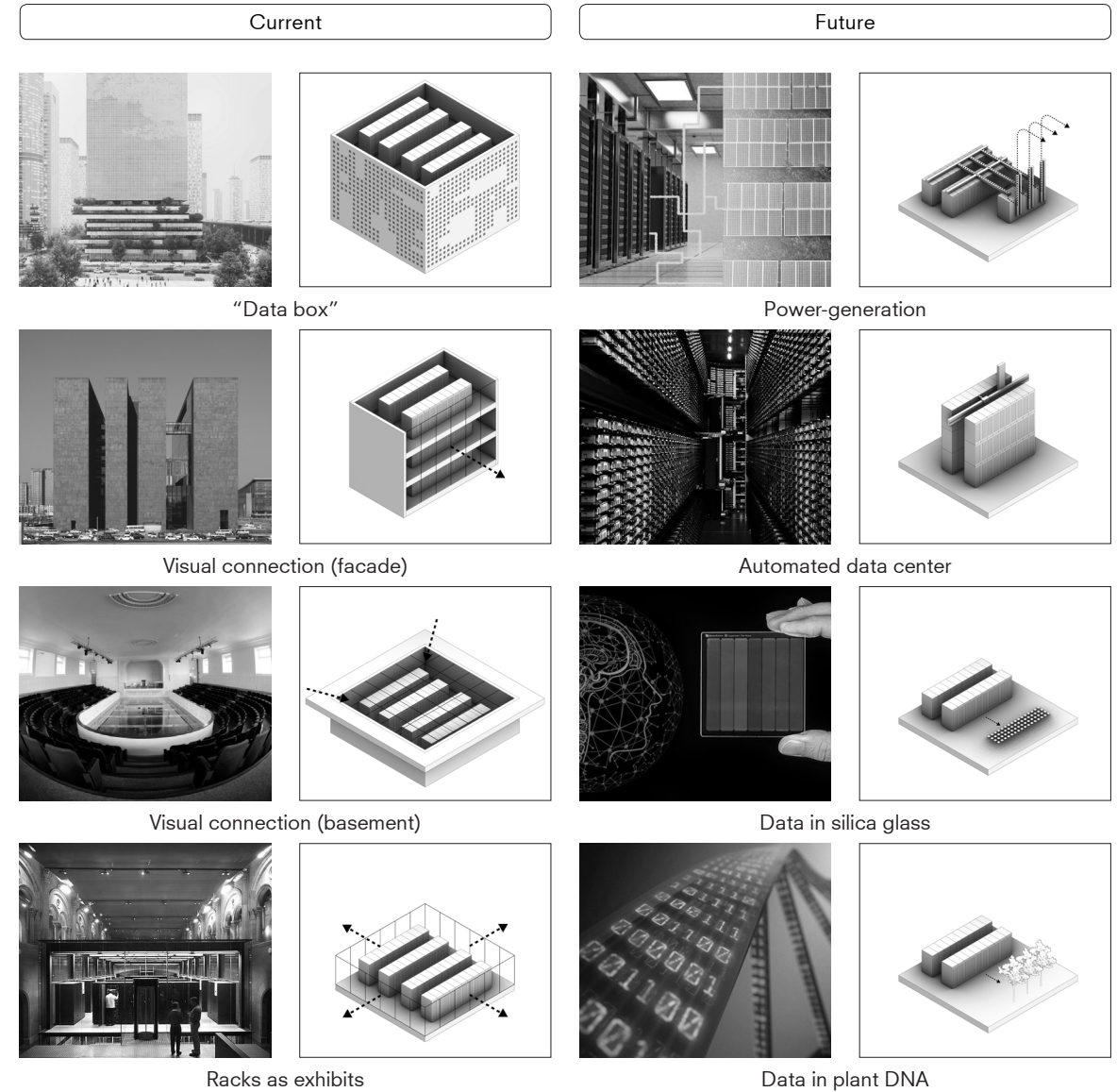


Fig. 25. Case studies of design considerations for data centers



### 4.5 Program bar proposal

Finally, a program bar is proposed for the district parliament project after analysis of the above three major spaces. (Fig. 26) The total GFA of the project is set as 27500m<sup>2</sup>, which is expanded from the original approximately 20000m<sup>2</sup> of district parliaments in Berlin. The total office area is maintained around 12000m<sup>2</sup> according to the existing needs, while the area of digital gallery and data hall are both set as 2500m<sup>2</sup>. For program relationships, different users first enter the atrium and reception, where security checks take place to avoid conflicts in a politically sensitive context. Separation of circulation of the office, digital gallery and plenary hall is followed afterwards. Meanwhile, these spaces are still interconnected, with the digital gallery and plenary hall defined as the central spaces, where political education, exchange and discussion take place. (Fig. 27)

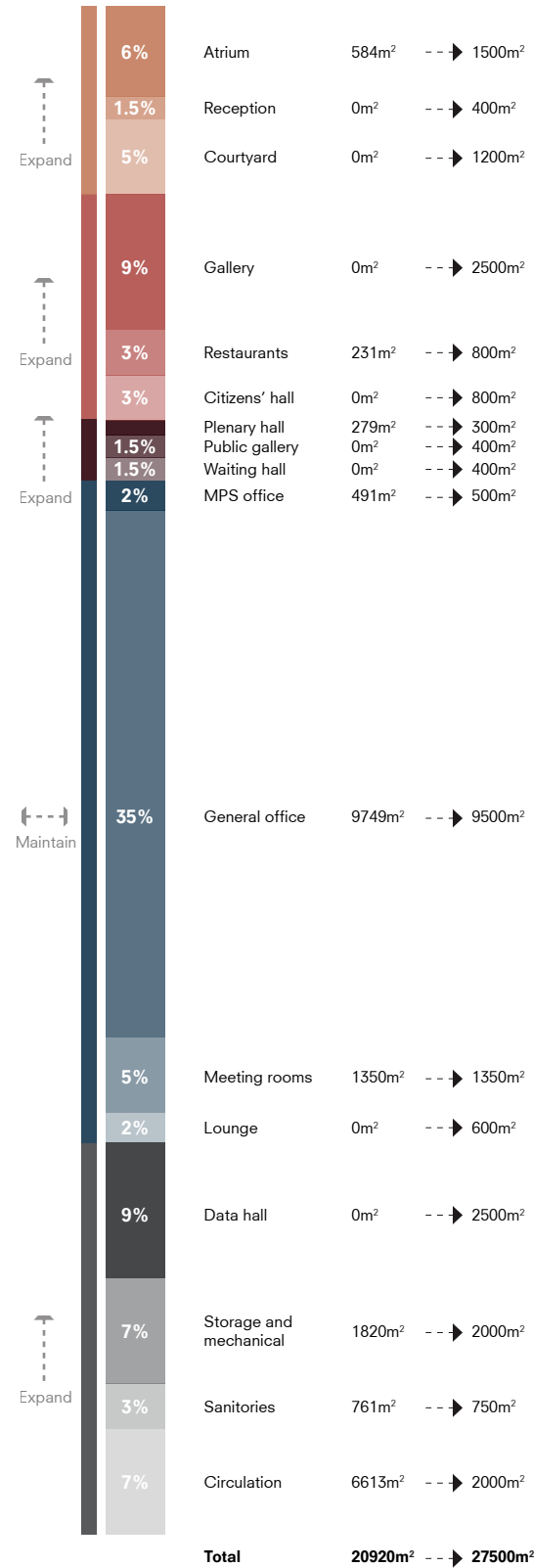


Fig. 26. Proposed program bar for the project

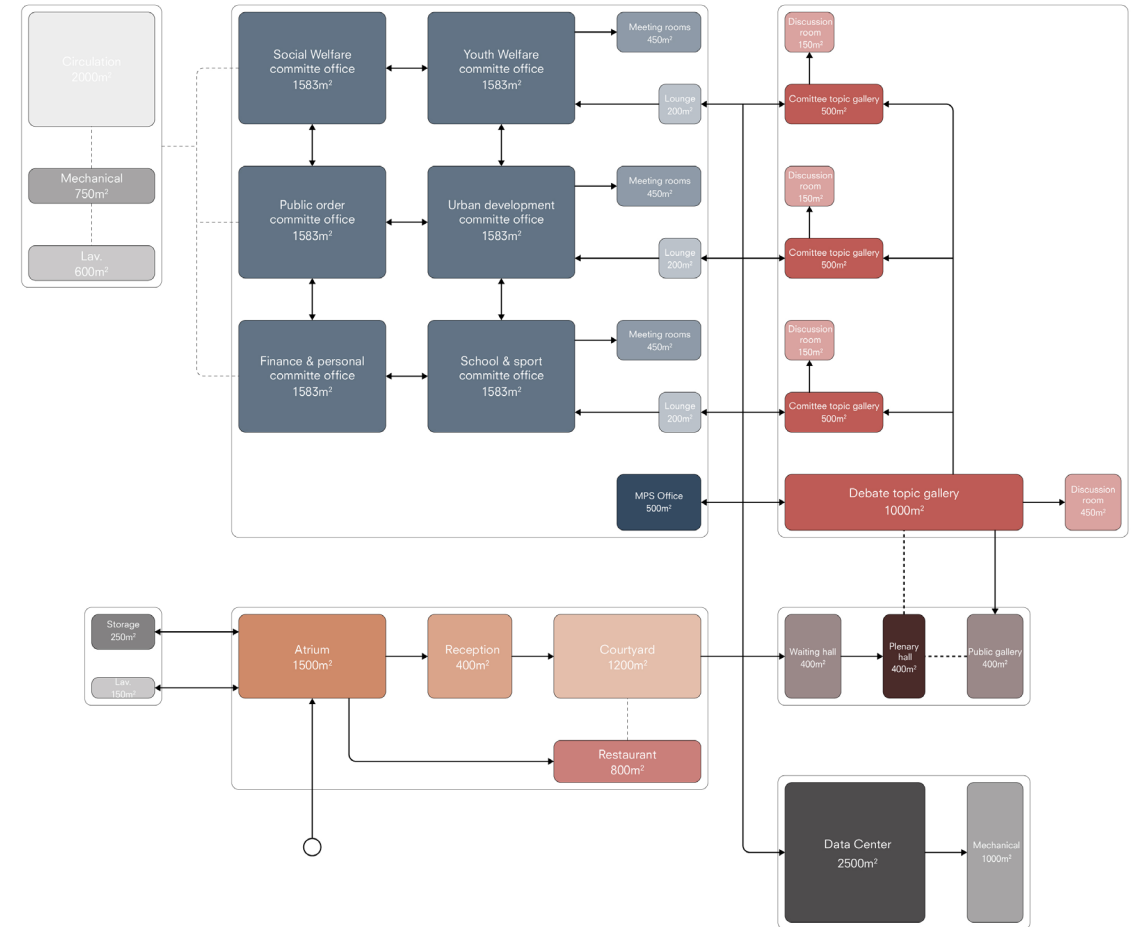


Fig. 27. Proposed program relationships for the project

**SITE**

**05**

## 4.1 Site selection

Firstly, for selection of a district, different challenges of each district are documented and combined for comparisons, in which the challenges are categorized into high, medium and low level. (Fig. 28) Only districts with medium to high challenge level will be chosen for the projects. On the other hands, 3 urban criteria are defined for both digitalisation group vision and parliament adaptation (Fig. 29), which are listed as below:

For digitalisation group vision (to raise data awareness) :

1. Decentralization - at least 1.5km apart from existing and future data centers.
2. Display - within 1km from any s-bahn train stations for high visibility and accessibility
3. Decarbonization, within an area near water or cold air flow, which passively reduce energy consumption and utilize waste energy

For parliament:

1. Prominence - with the central location of a district and next to main traffic axis for accessibility for citizens
2. Mixed-use neighborhood - in an area of diverse program function to encourage citizens of different background for political discussions
3. Adequate green space - site with at least 15000m2 of green area for officer's well-being, and as gathering spaces for public activities

Combing all the above district and urban criteria filters down the site plot options into 4, in Fennpfuhlpark (Lichtenburg), Lietzenseepark (Charlottenburg), Mariendorfer See (Tempelhof-Schöneberg) and Park am Buschkrug (Neukolln). Afterwards, Fennpfuhlpark in Lichtenburg is chosen as the final site option after further urban comparisons in aspects of prominence, accessibility, mixed-use condition, plot condition and suitability of digitalisation strategies. (Fig. 30) The selected site will be further analyzed in district, urban and park scale.

	Charlottenburg-Wilmersdorf	Friedrichshain-Kreuzberg	Lichtenberg	Marzahn-Hellersdorf	Mitte	Neukölln	Pankow	Reinickendorf	Spandau	Steglitz-Zehlendorf	Tempelhof-Schöneberg	Treptow-Köpenick
Non-German natives	High	High	Low	Low	High	High	Low	Low	Low	Low	Low	Low
Population density	Low	High	Low	Low	High	High	Low	Low	Low	Low	Low	Low
Gentrification trend	High	High	High	Low	High	High	Low	Low	Low	Low	High	Low
Population loss	Low	Low	Low	Low	High	Low	Low	Low	Low	Low	High	Low
Housing shortage	High	High	Low	Low	High	High	Low	Low	Low	High	Low	Low
Working-life cost	Low	Low	Low	High	High	High	Low	Low	High	Low	Low	Low
Income disparity	High	High	Low	Low	High	Low	Low	Low	Low	Low	Low	Low
Unemployment	Low	Low	Low	Low	Low	High	Low	Low	High	Low	Low	Low
Crime rate	Low	High	Low	Low	High	Low	Low	Low	Low	Low	Low	Low
Education demand	Low	Low	High	High	Low	High	Low	High	High	Low	Low	Low
Inefficient internet speed	Low	Low	High	High	Low	Low	High	Low	Low	Low	Low	High
Social index deterioration	High	Low	Low	Low	Low	High	Low	High	High	Low	Low	High

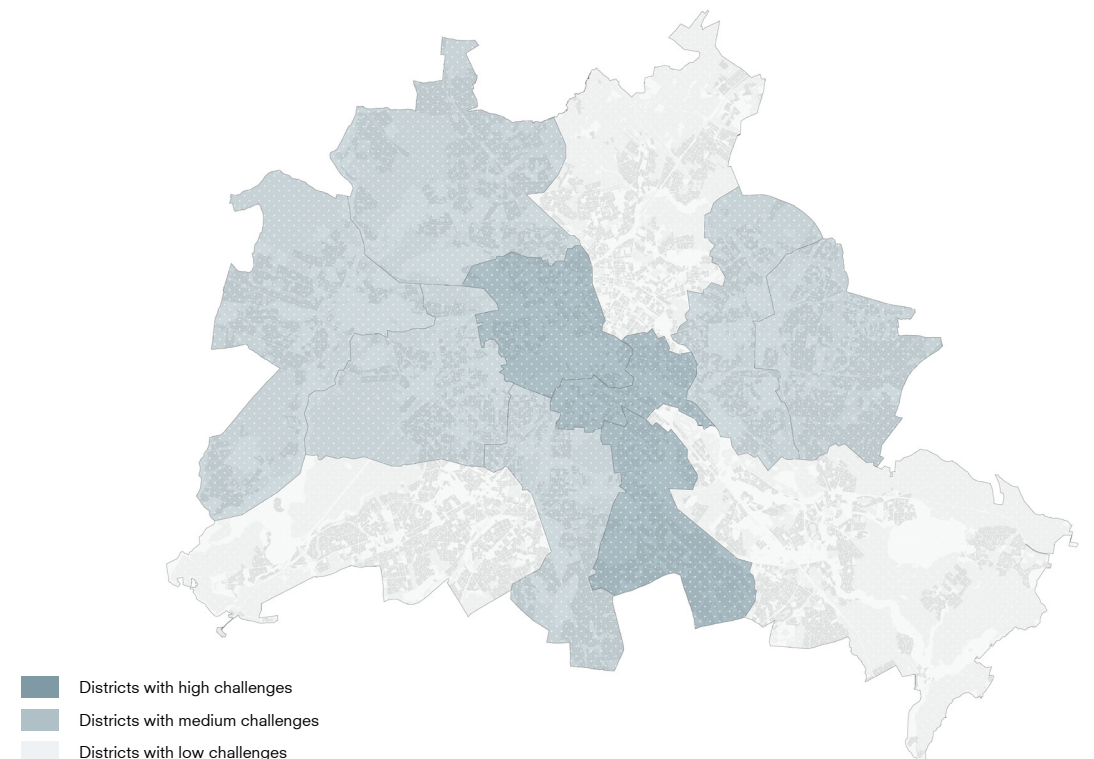


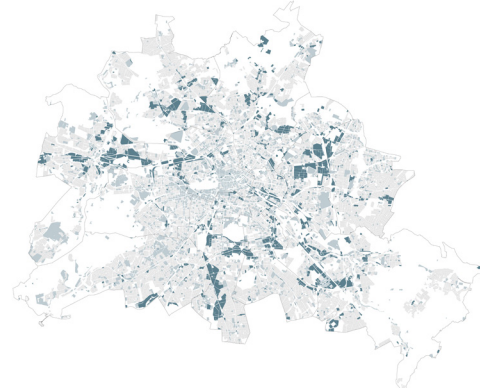
Fig. 28. Comparisons of challenges in 12 districts of Berlin

Current Future



**1. Decentralisation**  
1.5km apart from existing and future data storages

**1. Prominence**  
Central district location and next to main traffic axis for accessibility for citizens



**2. Display**  
1km from train station for high visibility and exposure

**2. Mixed-use neighborhood**  
In area of diverse function to encourage citizens of different background for political discussions



**3. Decarbonization**  
Within area near water or cold air flow. Passively reduce energy consumption and utilize waste energy

**3. Adequate green spaces**  
Site with at least 15000m<sup>2</sup> of green for officer's well-being, and as gathering spaces for public activities

Fig. 29. Site selection urban criteria

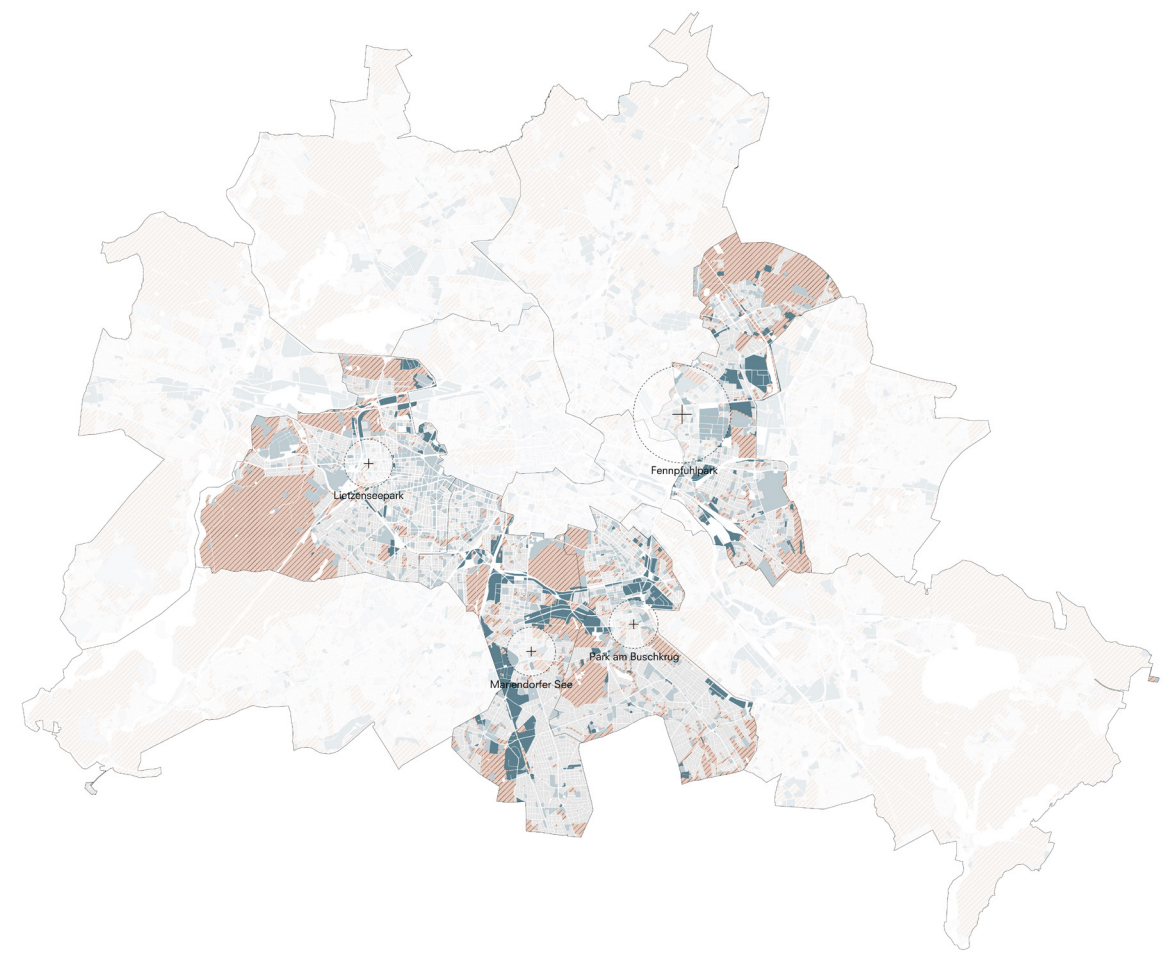


Fig. 30. Fennpfuhlpark in Lichtenburg as the chosen site with regards to site selection criteria



## 4.2 Site - District analysis

The district analysis of Lichtenburg focuses on general social challenges, history and demography of the site. The previous challenge documentation indicates that gentrification, educational demand and lack of data infrastructure are the main challenges of Lichtenburg, which are aligned with the vision of the project. For history, the region and hence the district center of Lichtenburg have kept changing from the early 1900s to now, and there is an opportunity to redefine the location of the civic center of Lichtenburg today. On the other hand, the majority of buildings in the district are concrete residential buildings built around 1970, during the soviet occupation. The district is now constructing more public facilities in between the residential buildings. (Fig. 31) This history results in the urban conditions nowadays, which is a highly residential region with scattered public facilities. It is also noted that there is an ongoing commercial development in the large plot next to the site, which could together define the new vibrant center of Lichtenburg with the project. (Fig. 32,33)

### 19th Century: Independent town

Early settlement of village houses

### 1920 - 1950: Greater Berlin Act

Construction of higher qualities residential buildings (e.g. Wilhelminian style) after unification with Berlin

### 1950 - 1970: GDR governance

Construction of Soviet style residential buildings under governance of GDR

### 1970: GDR governance

A large scale high-rise residential development

### 1989-now: District unification

Construction of public facilities and more residential buildings after Berlin reunification

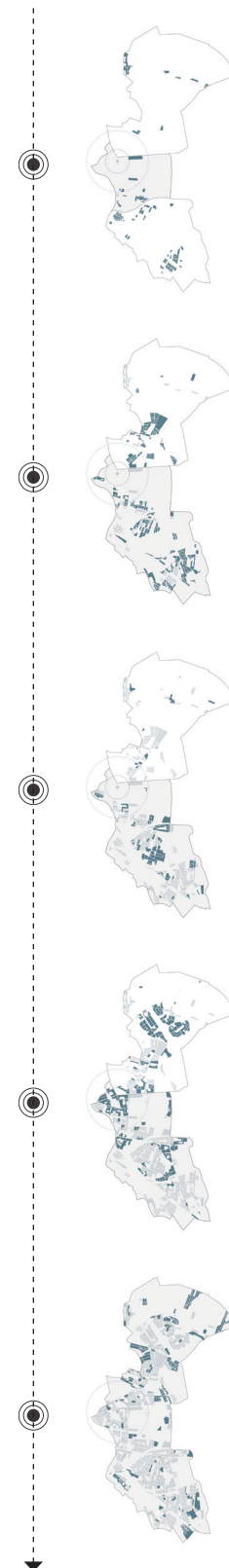


Fig. 31. Urban history of Lichtenburg

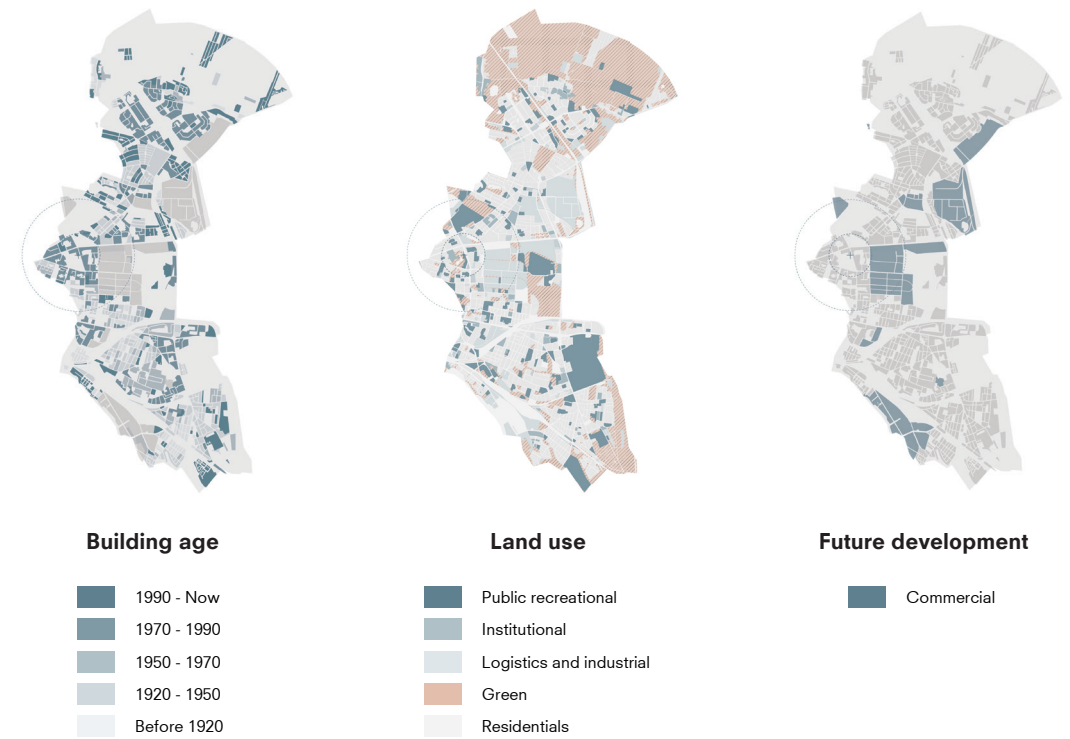


Fig. 32. Urban conditions of Lichtenburg

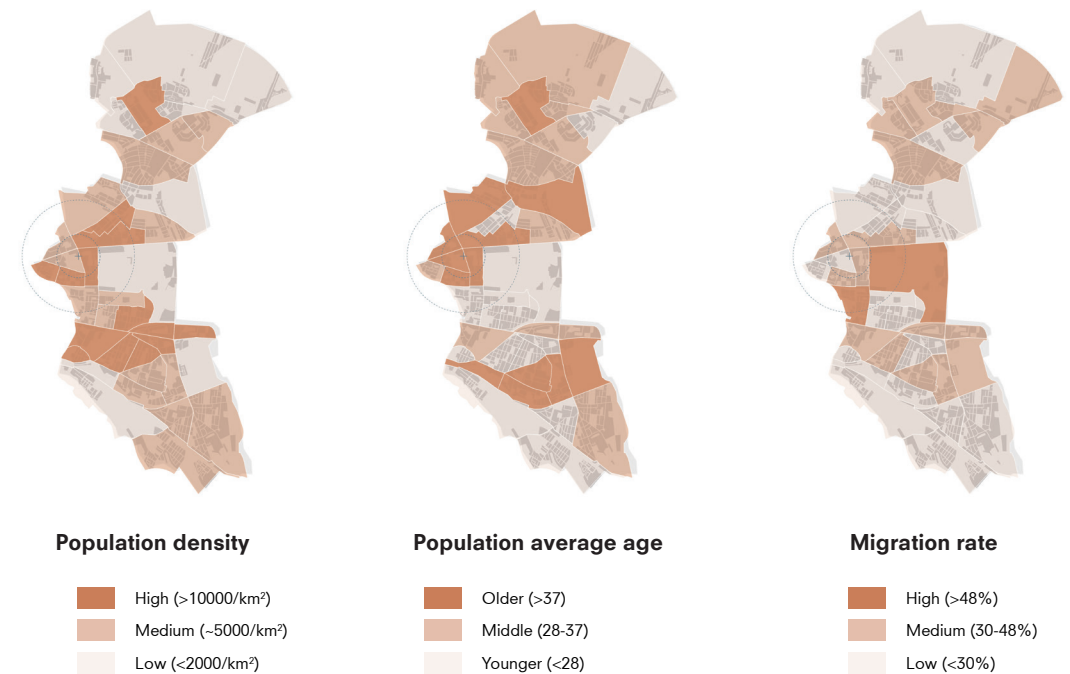


Fig. 33. Demographic conditions of Lichtenburg



### 4.3 Site - Urban analysis

The urban analysis focuses on the program and facilities around the site plot. (Fig. 34) Firstly, the site is located in the central point of a mixed-use region, surrounded by a diversity of programs such as residential, educational, industrial and sport zones, within walkable distances. This aids attracting people from different backgrounds for political discussions. Meanwhile, scattered conditions of public facilities can be also observed in the urban scale. Secondly, the park of the site is one of the main green spaces of the urban zone, only smaller than the national park next to it. Thirdly, 3 main public transport drop-offs are surrounding the site. Circulation routes are then classified into primary and secondary, together with the consideration of surrounding program zones.



Fig. 34. Analysis of urban conditions around the site

## 4.4 Site - Park analysis

Lastly, the analysis of the Fennlfuhlpark focuses on the history of the park, and more in-depth analysis of architectural conditions in different aspects. For history, the park developed from an ice-extraction region in the 18th century, to a recreational region in the early 19th century, and to a mixed-use residential region nowadays. Diverse programs, the use of the lake and rich communal life are significant features of the park. (Fig. 35) Meanwhile, several architectural conditions are analyzed around the site plot: (Fig. 36)

-The lake is mainly surrounded by scattered public facilities, which is linked by a pedestrian path.

-The north and west sides around the lake provide more facilities for communal activities, while the south side is mainly green areas where less activities take place.

-Vegetations in Fennlfuhlpark are up to 16m high, which are also arranged as barriers between different zones.

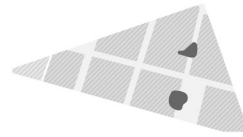
-Key circulation routes approaching the site plot (defined in the following plot study) are the traffic route (Weißensee Weg) and the western path along with the historical bridge and connected with other public zones of the park.

-The park is surrounded by high rise slab residential buildings, in which the park views from the residents should be taken into consideration.

-The orientation of the site plot is along the north-south axis, while wind rises from the west during both winter and summer.

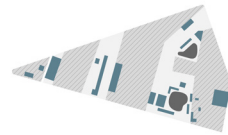
### 19th Century: Industrial site

As an ornamental garden for ice block extraction



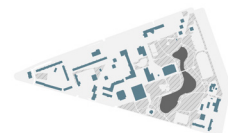
### 1905: Early settlement

Construction of some villa began, people started to visit the park for leisure activities



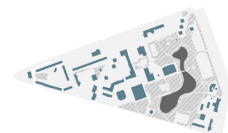
### 1950 - 1970: GDR governance

The park became one of the ice skating rink in Berlin



### 1970: GDR governance

Under planning visions of GDR, high-rise development began around the park



### 1989-now: Recreational site

The site becomes a memorial spot for cultural activities, including art, sport and music

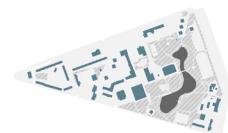
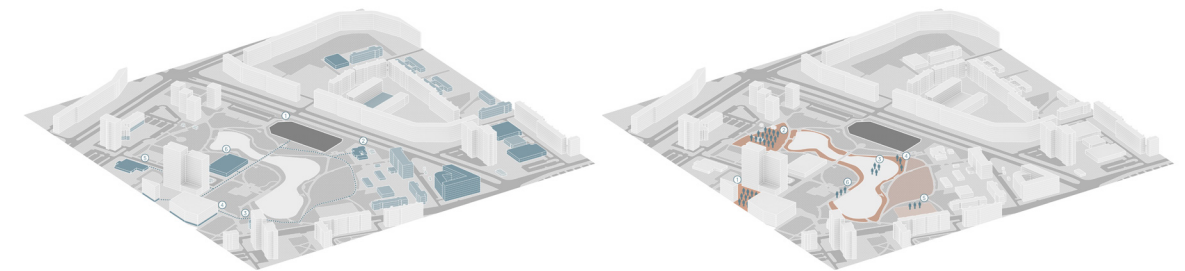


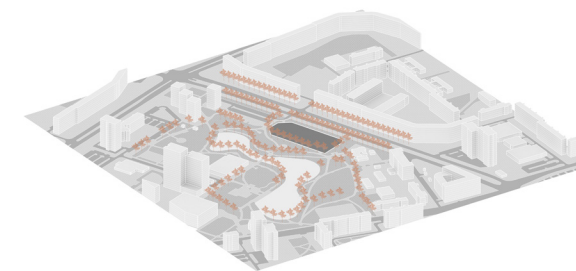
Fig. 35. History of Fennlfuhlpark



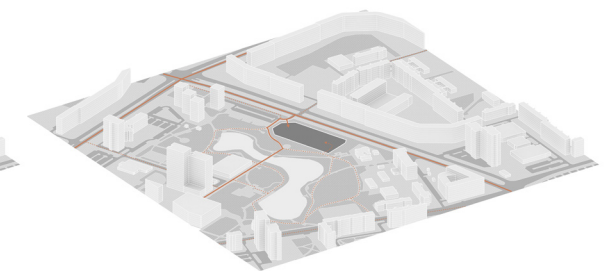
### Program

- Public facilities
- Private institutions
- Industry/logistics
- Residentials

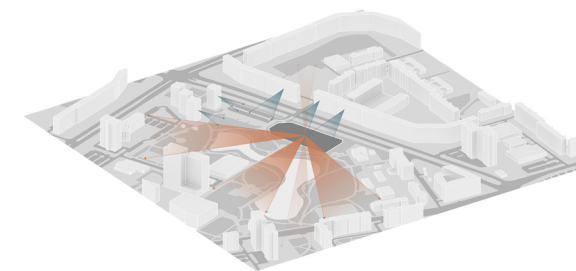
### Public activities



### Green as barrier

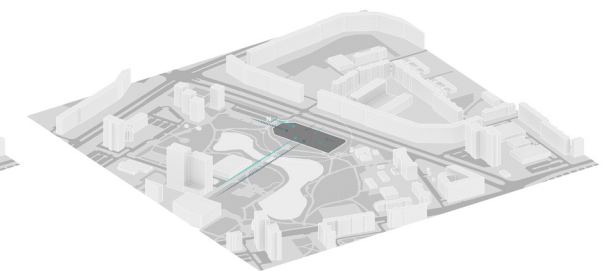


### Circulation



### Visibility

- Views from the site
- Views of surrounding residentials to the site



### Climate

- Summer wind
- Winter wind

Fig. 36. Analysis of Fennlfuhlpark



## 4.5 Site-massing relationships test

Afterwards, to define the exact site plot and requirements for the project, extensive massing explorations are done to understand the potential and constraints of the site. Massings are tested in 3 aspects, plot location, site coverage and massing form, and evaluated with 6 parameters, including compatibility with surrounding residentials, compatibility with park environment, public space qualities, accessibility, building views and prominence, and program suitability.

For plot location (Fig. 37), the plot next to the traffic routes functions well as it provides high accessibility to the buildings, while maintaining the privacy and public spaces of the surrounding residential buildings. The plot can be also extended towards the lake, which provides shelter and adds more public functions around the lake. On the contrary, public buildings within the northern part of the site deprive public spaces and privacy of surrounding buildings. This study defined a site plot for further study.

For site coverage (Fig. 38), as the existing undefined area, previously a volleyball court, occupies for 50% of area of the site plot, 50% of site coverage functions well by maintaining the green plot and buffering open public spaces surrounding the massing. In the case of a coverage of more than 50%, the building has to re-provide green zones, such as publicly accessible courtyards and roof green, to compensate for the green area.

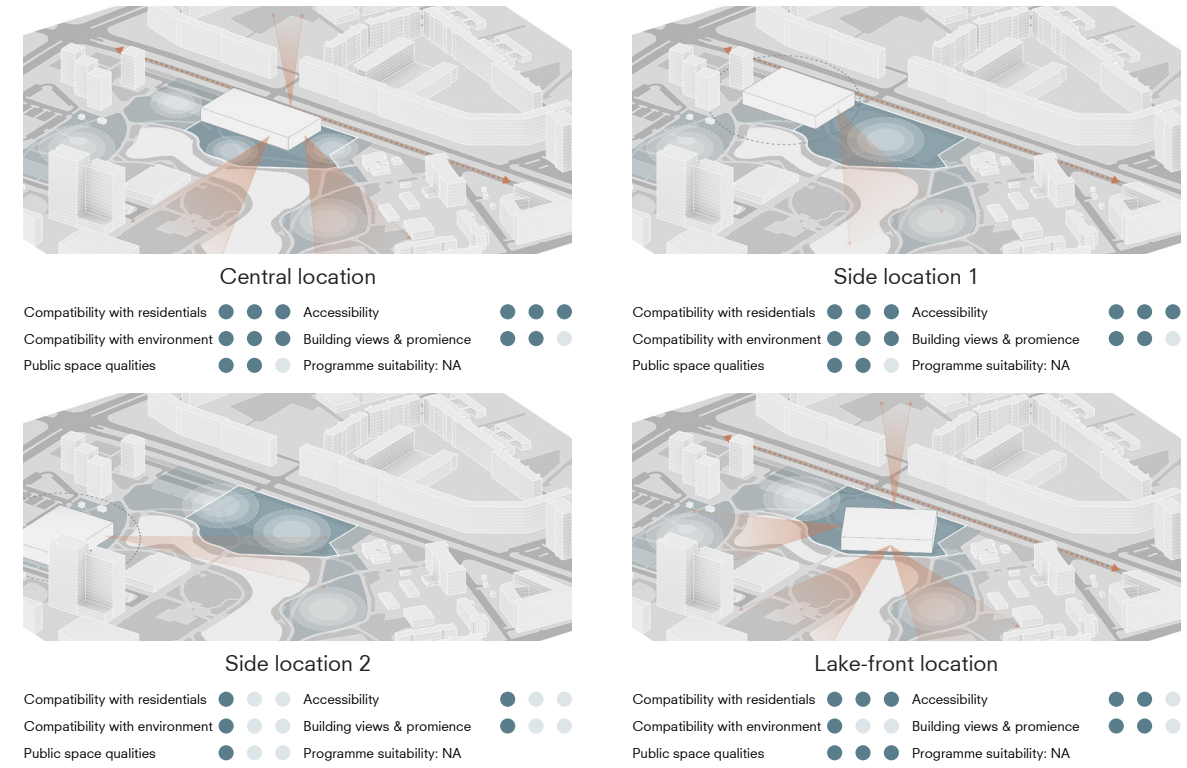


Fig. 37. Tests of positions of buildings within available plots

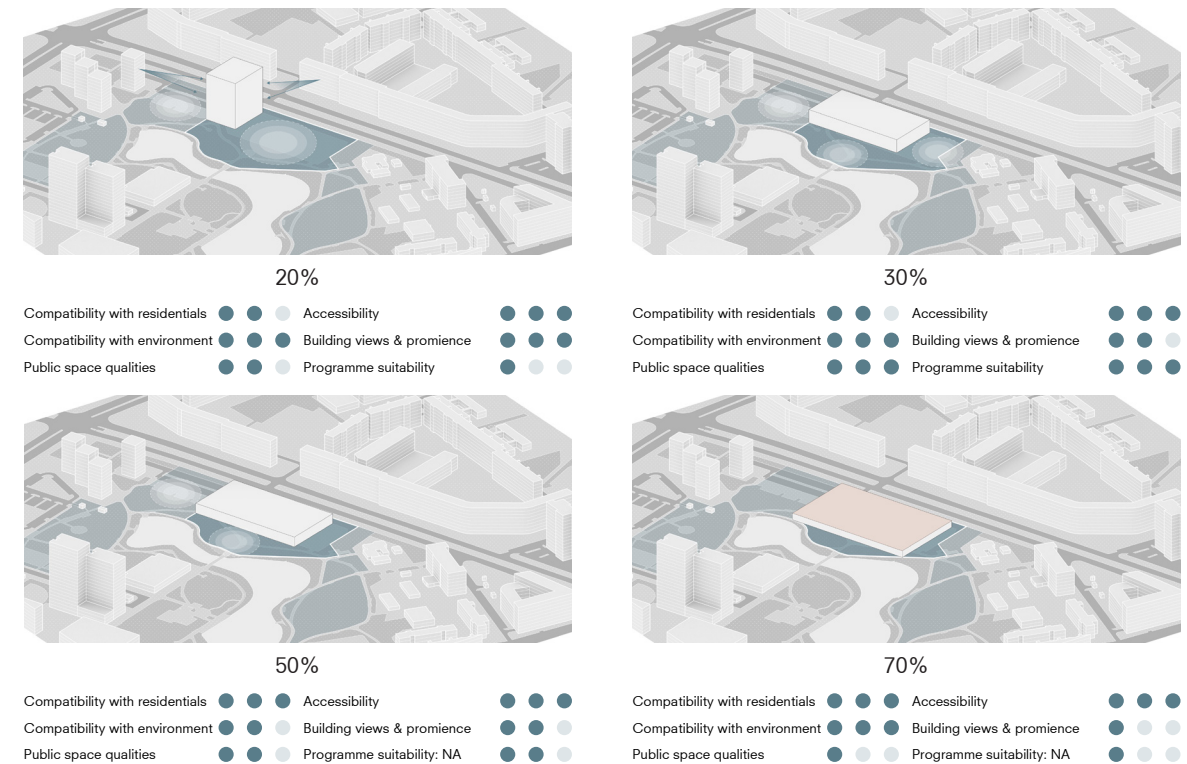


Fig. 38. Tests of site coverage and footprint of buildings

For massing forms explorations, several options are tested for their suitability to both the site and parliament programs. (Fig. 39,40) The first three tests are tower tests, which indicate that the tower can provide good views for the users, the position facing the gaps of residential buildings across the road minimize visual impact to the residents, which can be further minimized by a slab and circle form of tower. Secondly, the next medium-rise 4-storey-high massing vertically aligns with the height of trees and reduces visual impact to surrounding residents. This test also explains that orientation along the traffic road, instead of perpendicular to it, provides visual prominence of the building from both the traffic road and park, while also maintaining a public green space in front of the building for public function and symbolic meaning. Meanwhile this massing is still too high and hence less suitable to be located next to the, as it impacts the overall natural environment. Thirdly a low-rise massing (2-storey-high) provides opportunities to connect the surrounding green zones with the roof green, and is more compatible with the lakeside position. Lastly, the combined massing tests for different combined forms, in which strategies, such as separating the tower with the medium-rise to form a gateway to the site, and integrating the medium-rise with a low-rise along the rivers to utilize different parts of the plot, can be considered for the design tasks.

Consequently, 3 site rules are set for the site requirement:  
 1. The site plot is defined as the central zone of the available area, in between the traffic road and lake.  
 2. Maximum building coverage of the site is 50%, green zones have to be compensated if the project exceeds the coverage limit.  
 3. For the affected residential units, the building can cover maximum 20% of the residents' view.

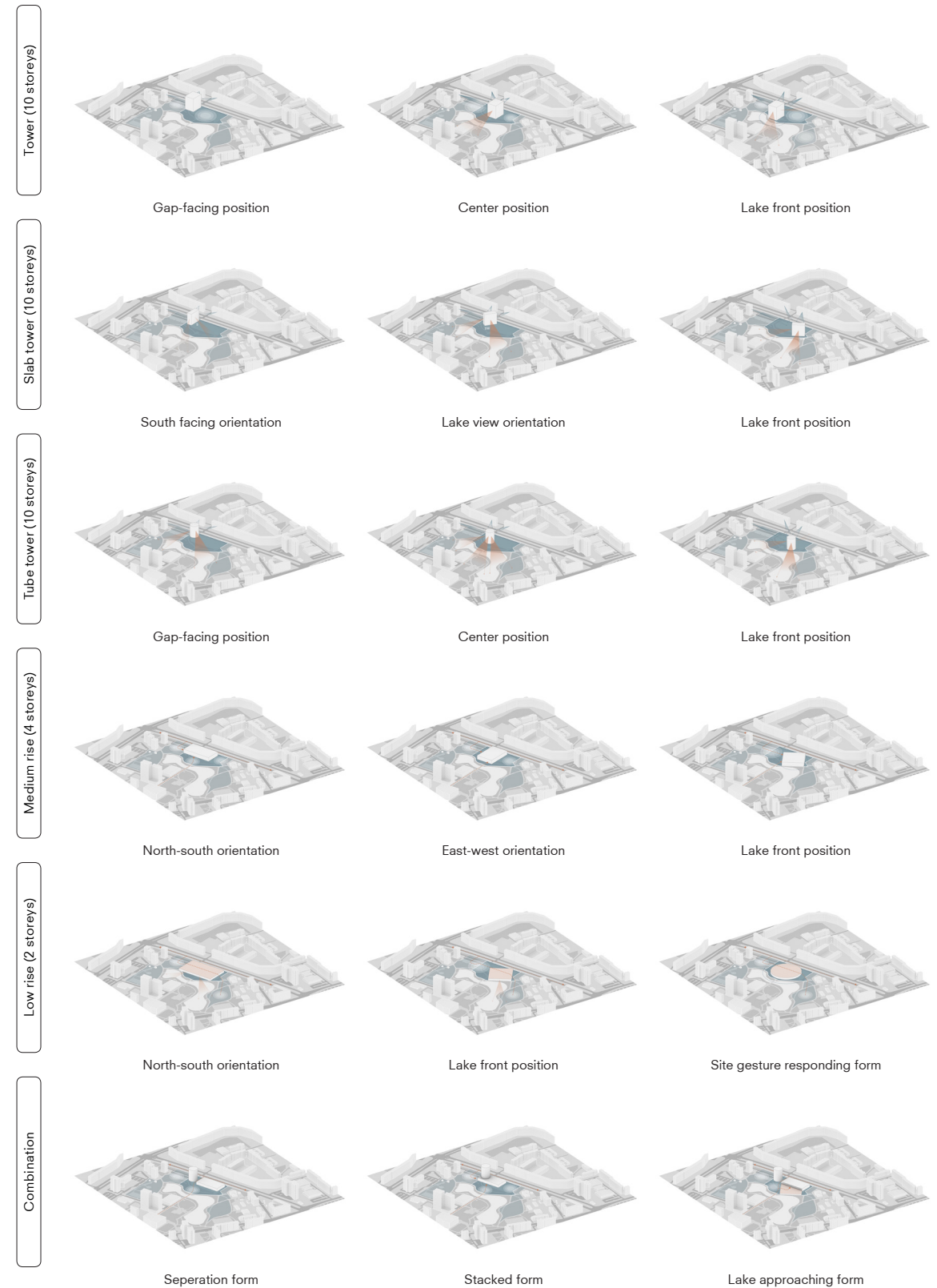


Fig. 39. Overview of massing forms tests



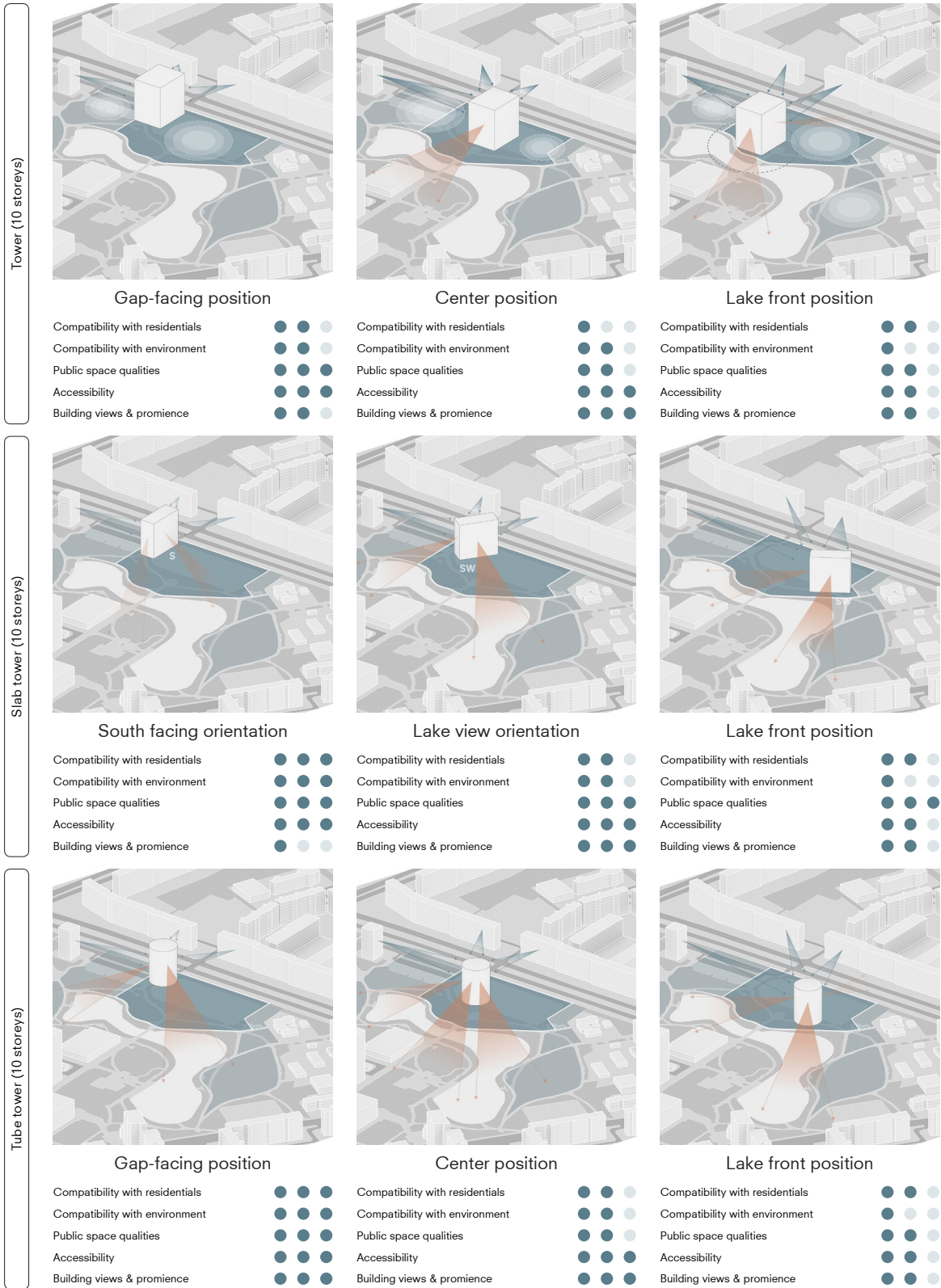


Fig. 40. Evaluation of massing forms with different parameters

# BIBLIOGRAPHY

06

## 5.1 Bibliographical References

- Archello. (2024). National Assembly for wales: Rogers Stirk Harbour + partners. <https://archello.com/project/national-assembly-for-wales>
- Ayhan, B. (2017). Digitalization and Society. PL Academic Research.
- Beeld & Geluid. (2024). Building: Sound & vision. The Netherlands Institute for Sound & Vision. <https://www.beeldengeluid.nl/en/visit/whats-on/gebouw>
- Berlin state headquarters for political education. (2022). District council meetings. <https://www.berlin.de/politische-bildung/politikportal/politik-in-berlin/hauptverwaltung-und-bezirksverwaltung/bezirksverordnetenversammlungen/>
- Binder, T. (2022). Democracy in Berlin join in and get involved!. Berlin State Agency for Civic Education.
- Bojic, A. (2023). Hybrid communication: Challenges, advantages, and strategies to know. Pumble Blog. <https://pumble.com/blog/hybrid-communication/#:~:text=Hybrid%20communication%20is%20the%20synchronous,definitions%20relevant%20for%20hybrid%20communication>
- Cardenas, D. (2016, April 27). Deventer City Hall / neuteings Riedijk Architecten. ArchDaily. <https://www.archdaily.com/786251/deventer-city-hall-neulings-riedijk-architecten#:~:text=The%20Deventer%20City%20Hall%20is,and%20multiple%20technical%20sustainable%20measures.>
- Chief Digital Officer (CDO) of the State of Berlin. (2022). GEMEINSAM DIGITAL: BERLIN. The Smart City Strategy&nbsp;for the capital.
- Cournet, P., Bensi, N. S., & Crawford, K. (2023). Datapolis: Exploring the footprint of data on our planet and beyond. Nai010 Publishers.
- Data Center Journal. (2023). Berlin data center facilities and providers. <https://www.datacenterjournal.com/data-centers/germany/berlin/>
- District office Lichtenberg from Berlin. (2023). Politics and administration. <https://www.berlin.de/ba-lichtenberg/politik-und-verwaltung/bezirksverordnetenversammlung/online/allris.net.asp>
- Douglass-Jaimes, D. (2018, October 25). Ad classics: New German parliament, Reichstag / Foster + Partners. ArchDaily. <https://www.archdaily.com/775601/ad-classics-new-german-parliament-reichstag-foster-plus-partners>
- Environmental Atlas Berlin. (2020). Actual use of built-up areas / inventory of Green and Open Spaces. Berlin.de Startseite. <https://www.berlin.de/umweltatlas/en/land-use/actual-land-use/>
- Frauns, E. (2015). Berlinstrategie Stadtentwicklungskonzept Berlin 2030. Senatsverwaltung für Stadtentwicklung und Umwelt.
- GEO Service. (2021). Kommunalatlas Berlin. <https://web.statistik-berlin-brandenburg.de/instantatlas/interaktivekarten/kommunalatlas2021/atlas.html>
- Inter-Parliamentary Union(IPU). (2022). World e-Parliament Report 2022 Parliaments after the pandemic.
- Langdon, D. (2011, February 14). Ad classics: Scottish parliament building / enric miralles. ArchDaily. <https://www.archdaily.com/111869/ad-classics-the-scottish-parliament-enric-miralles>
- Maak, D. N., of, D., Niklas Maak und Studierenden der Städelschule Frankfurt und der Harvard Graduate School, & Bria, F. (2022). Server manifesto data center architecture and the future of democracy. Hatje Cantz Verlag.
- Media Architecture Biennale (MAB). (2023). Media Architecture Biennale 2023. 2021\_Stamp-multi. <https://mab23.org/>
- Metro Edge. (2024, January 11). Chicago Data Center Real Estate Developer:
- Metro Edge. Metro Edge - Development Partners. <https://medp.io/projects/>
- Noé, M. (2018). Democracy and its discontents: Why representative democracy is in crisis today and how to respond. MaRBLLe, 3. <https://doi.org/10.26481/marble.2017.v3.533> \
- NTT Data. (2023). NTT DATA is your Trusted Global Innovator. <https://www.nttdata.com/global/en/>

## BIBLIOGRAPHY

- Parliament of Australia. (2013, February 18). Infosheet 15 - the work of a member of Parliament. THE WORK OF A MEMBER OF PARLIAMENT. [https://www.aph.gov.au/About\\_Parliament/House\\_of\\_Representatives/Powers\\_practice\\_and\\_procedure/00\\_-\\_Infosheets/Infosheet\\_15\\_-\\_The\\_work\\_of\\_a\\_Member\\_of\\_Parliament](https://www.aph.gov.au/About_Parliament/House_of_Representatives/Powers_practice_and_procedure/00_-_Infosheets/Infosheet_15_-_The_work_of_a_Member_of_Parliament)
- Pintos, P. (2022, October 27). Uppsala Town Hall / Henning Larsen. ArchDaily. <https://www.archdaily.com/991220/uppsala-town-hall-henning-larsen>
- Reiser, M., & Reiter, R. (2022). A (new) east-west-divide? representative democracy in Germany 30 years after unification. German Politics, 32(1), 1–19. <https://doi.org/10.1080/09644008.2022.2049598>
- Sagredo, R. (2018, April 5). Dogus Technology Center / ERA architects. ArchDaily. <https://www.archdaily.com/891613/dogus-technology-center-era-architects>
- Souza, E. (2010, October 20). Ad classics: National assembly building of bangladesh / Louis Kahn. ArchDaily. <https://www.archdaily.com/83071/ad-classics-national-assembly-building-of-bangladesh-louis-kahn>
- Spier, S. (2017). Collective action 2.0: The impact of social media on Collective Action.
- The American Institute of Architecture. (1970, October 1). Chandler City Hall. Chandler City Hall | AIA Top Ten. <https://www.aiatopen.org/node/93>
- Watson and Associates. (2023). Full-time or Part-Time Councillors?
- Wikipedia. (2022, January 26). Fennpfuhl. <https://en.wikipedia.org/wiki/Fennpfuhl>
- Wikipedia. (2023, December 7). Lichtenberg. <https://en.wikipedia.org/wiki/Lichtenberg>
- World Architects & Engineers. (2024). City Hall Design. <https://www.woldae.com/expertise/government-architecture-firms/city-hall-design>
- Zeiber, J., Häbeler, K., Finger, J., & Hermann, S. (2022). Gesundheits- und sozialstrukturatlas für die bundesrepublik deutschland 2022: Daten, Methoden, Ergebnisse auf Bundeslandebene zum Zusammenhang Zwischen Sozialer Lage und gesundheitszustand. Senatsverwaltung für Gesundheit und Soziales, Presse- und Öffentlichkeitsarbeit.



## 5.2 Figures

Fig.1. Edited by author      Fig.21. Edited by author  
Fig.2. Edited by author      Fig.22. Edited by author  
Fig.3. Edited by author      Fig.23. Edited by author  
Fig.4. Edited by author      Fig.24. Edited by author  
Fig.5. Edited by author      Fig.25. Edited by author  
Fig.6. Edited by author      Fig.26. Edited by author  
Fig.7. Edited by author      Fig.27. Edited by author  
Fig.8. Edited by author      Fig.28. Edited by author  
Fig.9. Edited by author      Fig.29. Edited by author  
Fig.10. Edited by author      Fig.30. Edited by author  
Fig.11. Edited by author      Fig.31. Edited by author  
Fig.12. Edited by author      Fig.32. Edited by author  
Fig.13. Edited by author      Fig.33. Edited by author  
Fig.14. Edited by author      Fig.34. Edited by author  
Fig.15. Edited by author      Fig.35. Edited by author  
Fig.16. Edited by author      Fig.36. Edited by author  
Fig.17. Edited by author      Fig.37. Edited by author  
Fig.18. Edited by author      Fig.38. Edited by author  
Fig.19. Edited by author      Fig.39. Edited by author  
Fig.20. Edited by author      Fig.40. Edited by author

