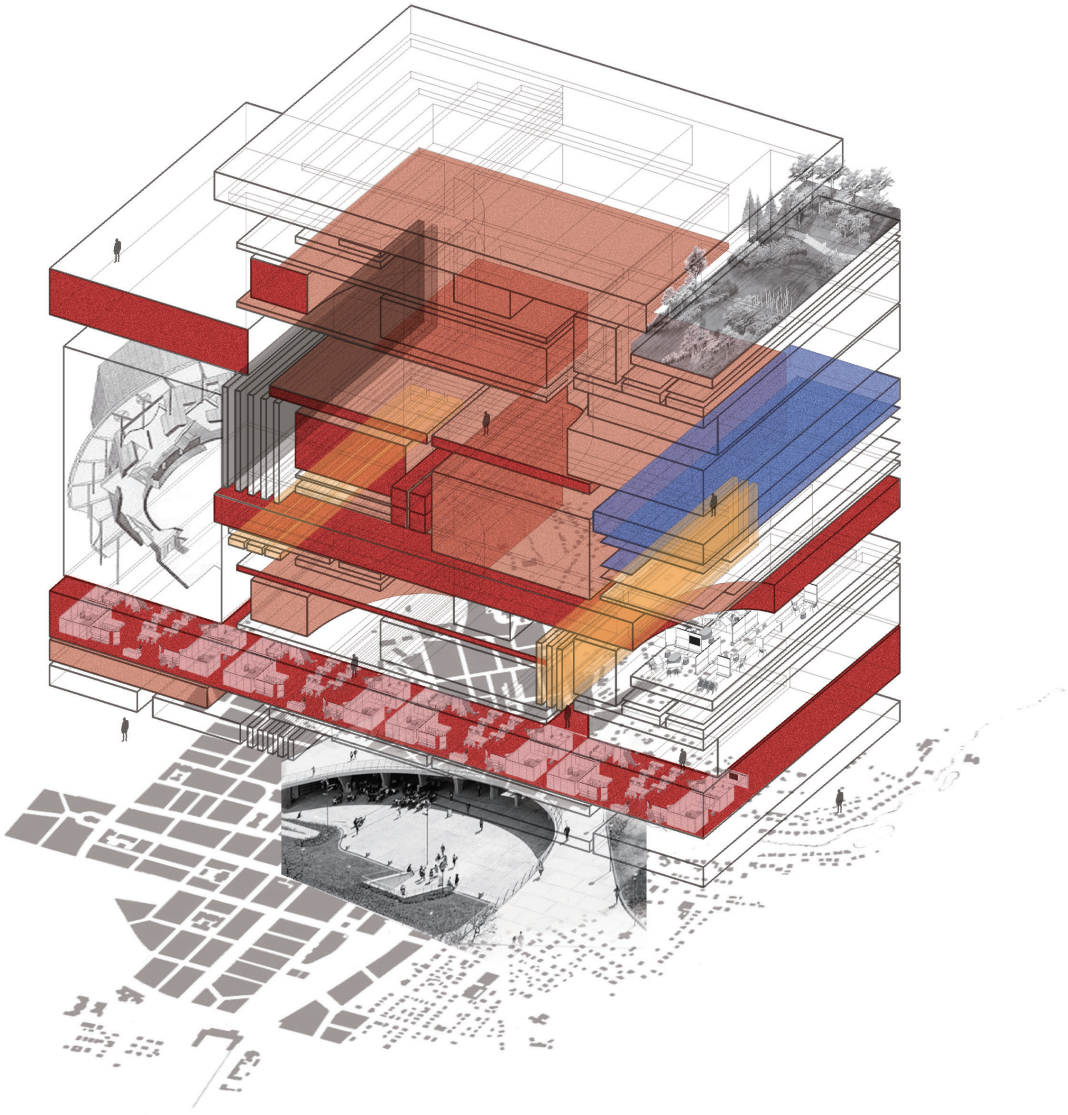

COMPLEX PROJECTS

“UNIVER-CITY”

University Bocconi - Grafton Building

Zhengyu Wu 吴政谕
November/08/2024

TU Delft

2024

COMPLEX PROJECTS
Bodies and Building Milan
AR3CP100

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Bodies and Building Milan
group 3


Univer-city

INDEX

Research Question:

How to facilitate the integration of University and City through the control of boundary in favour of knowledge exchange?

INTRODUCTION

01

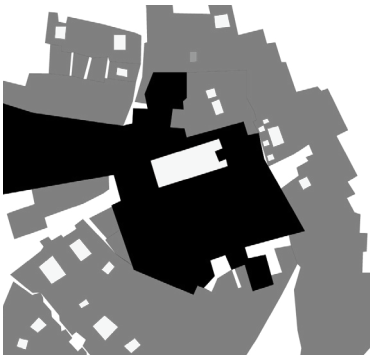
Abstract

The relationship between the university campus and the city it is in is constantly changing. The change of the boundaries shows this change. When a city has a crisis, the boundary becomes clear, and Universities tend to be isolated, while when a city prospers, universities blur their boundaries with the city and actively merge into the city to enjoy the convenience and benefits. However, the city and the university cannot be entirely separate. In multiple regions, universities are requested by authorities to renovate and adapt to new challenges.

1.1 Introduction

From their historic origin, universities in antiquity ages and the early Renaissance connected deeply to the urban environments. Take Al-Karaouine (or al-Qarawiyyin), the oldest university in the world (Bouchrika, 2024), and the University of Bologna, which is believed to be the original sample of modern universities, as examples. Both universities share space, resources and personnel with the birth city. Although intentionally created walls and small gates as boundaries, these universities connected tightly to the city. However, this close relationship between universities and cities did not last long, and universities retreated from the chaotic cities and became "suburb" campuses, a mostly seen university form nowadays, with the boundaries clearly shown by distance, fences of multiple types and outer city elements as highways or green belts. As vividly concluded by Bender (1988, p.4), the relationship between city and campus had been kept shifting between "coherence" and "fragility".

The university has constantly changed its boundaries with the city to control possible risks and cooperation since its birth. This process of constant balancing continues today. In particular, suburban university campuses have dominated due to the post-war crisis of universities moving out to the suburbs in search of larger land and away from the city (PCA-stream, 2024). However, urbanization pushed the city fabrics to occupy growing amounts of land, invading the boundaries of the universities. During this process, conflicts and collisions co-exist, and the university's development meets new challenges and opportunities. It, therefore, becomes a question of how the university should position itself in relation to the city and the role it should play in urban functioning. This paper will explore this issue from the **spatial, social, and cognitive boundaries between the university and the city.**



Al Qarawiyyin University
859 AD

University of Cambridge
1209

Illinois Institute of Technology
1938

1.2 Problem Statement

Today's universities are often struggling when faced with urbanisation. Universities, on the one hand, have to manage the potential conflicts that the city may bring. Still, at the same time, it does not want to remain isolated because they also need to "import" their own necessary physical, social and capital resources from the city.

One of the struggles is the increasing demand for land from both the city and the university. Take New York University as an example; being a university located in a high-density urban context, NYU has been seeking land expansion since 2010 (Quirk, 2012). They promoted a 2.5 million square foot development for 2031, planning to occupy much land from surrounding residential and public areas. Unsurprisingly, local citizens greatly opposed this project, arguing that the university's future high-rising buildings would reduce the sunlight, greeneries, and public space and destroy the local identity (Quirk, 2012). The school and the residents should carefully discuss their respective boundaries to minimise damage to each other's interests and promote understanding and cooperation.

Another struggle might be the demand for life-long learning (EUA, 2021, p.5) and the diversification of scholars' structure (University Trends, p.10). A growing number of non-traditional scholars are entering the campus and proposing new demands for university buildings. These scholars could be employees from companies or young students with part-time jobs. They need more than just education but also well-connected, sociable environments rich in amenities and technology (University Trends, p.10). In this case, traditional universities with clear boundaries with cities can no longer provide enough connectivity in both spatial and social aspects.

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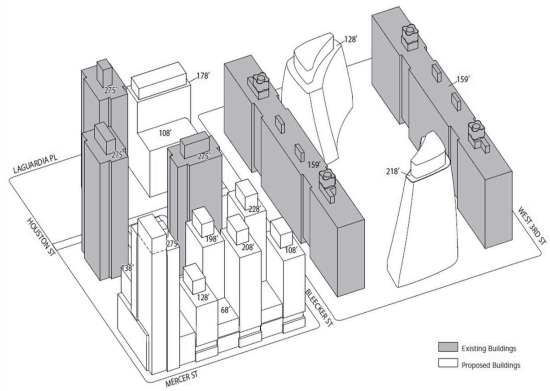
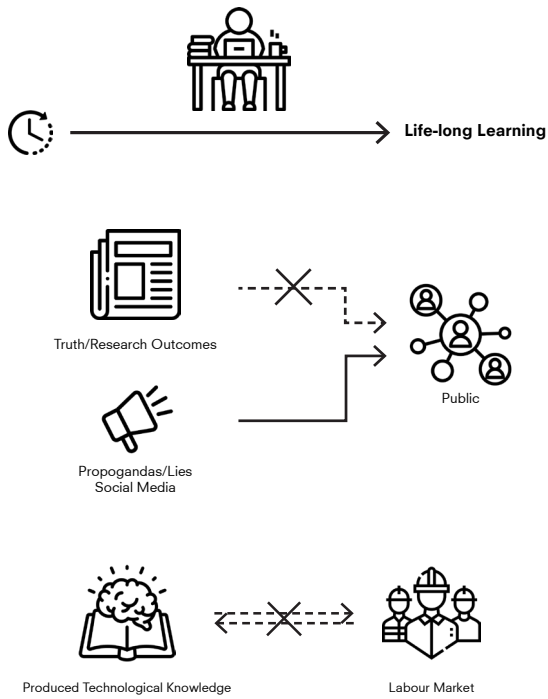
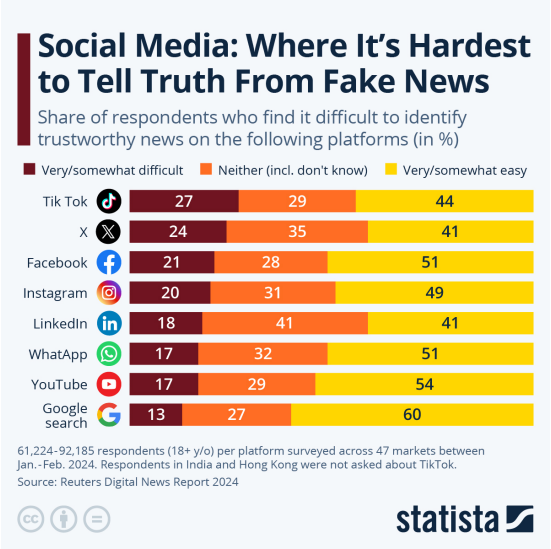


Illustrative Axonometric of Proposed Development Area (Quirk, 2012)



Last but not least, as mentioned in the EUA's (2021, p.4) report, the limited knowledge exchange and the widespread misinformation are major problems facing our societies today. The boundaries of knowledge are largely limited to university campuses and institutes. A Harvard University survey shows that 80% of university teaching staff believe that their students have acquired enough skills to fit for jobs, yet from the business side, only 62% of employers would agree (Walecki, 2022). This survey shows that businesses' needs are not effectively communicated to higher education. EUA (2021, p.4) reported that the latest technologies generated in the institutions also find it hard to be accepted by the industry. At the same time, we have seen the huge role that social media has played in making misinformation popular, with a huge amount of unproven or unscientific information in discussion and easily gaining trust. From this perspective, blurred boundaries are not only a requirement to for the physical boundaries of the university but also the exchange of knowledge between the university and the society. As producers of knowledge, universities **have a duty and responsibility to encourage the exchange of knowledge** to fill the gap between institution and industry and counter the negative effect of misinformation.



Social Media: Where It's Hardest to Tell Truth From Fake News. (Fleck, 2024)

1.3 Research Question

Exploring the relationship between the university and the city from the perspective of boundaries gives architectural design a foothold. A university building may be able to control the relationship between its different functional areas and the urban space by controlling the space at its boundaries, and perhaps also change the frequency of communication between the city's inhabitants and the student body. This research aims at exploring a methodology to promote the integration of the university and the city by controlling the boundaries between space (physical), the boundaries between different social groups (social), and the boundaries between perception and reality (cognitive).

To conclude, the research question will be: How to facilitate the integration of University and City through the control of boundary in favour of knowledge exchange?

To further clarify the definition and establish the research framework, the sub-questions can be:

1.How to define and classify boundaries? / How to define physical, social and cognitive boundaries?

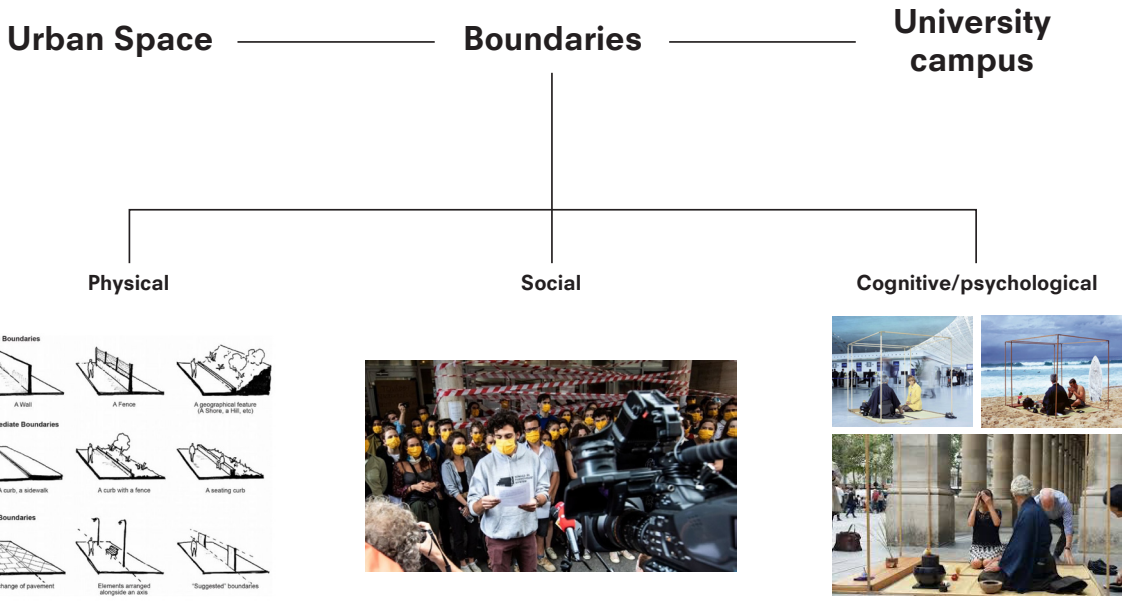
This question aims at establishing a theoretical base for the understanding and discussion of the terms. Examples are likely to be given to vividly show the difference among these 3 types of boundaries.

2.What can boundaries do in terms of creating space to share knowledge?

This sub-question aims to provide the boundary research a clear goal and transform the ambiguous boundary theories to solid architectural functions.

3.Why we need to integrate University and City?

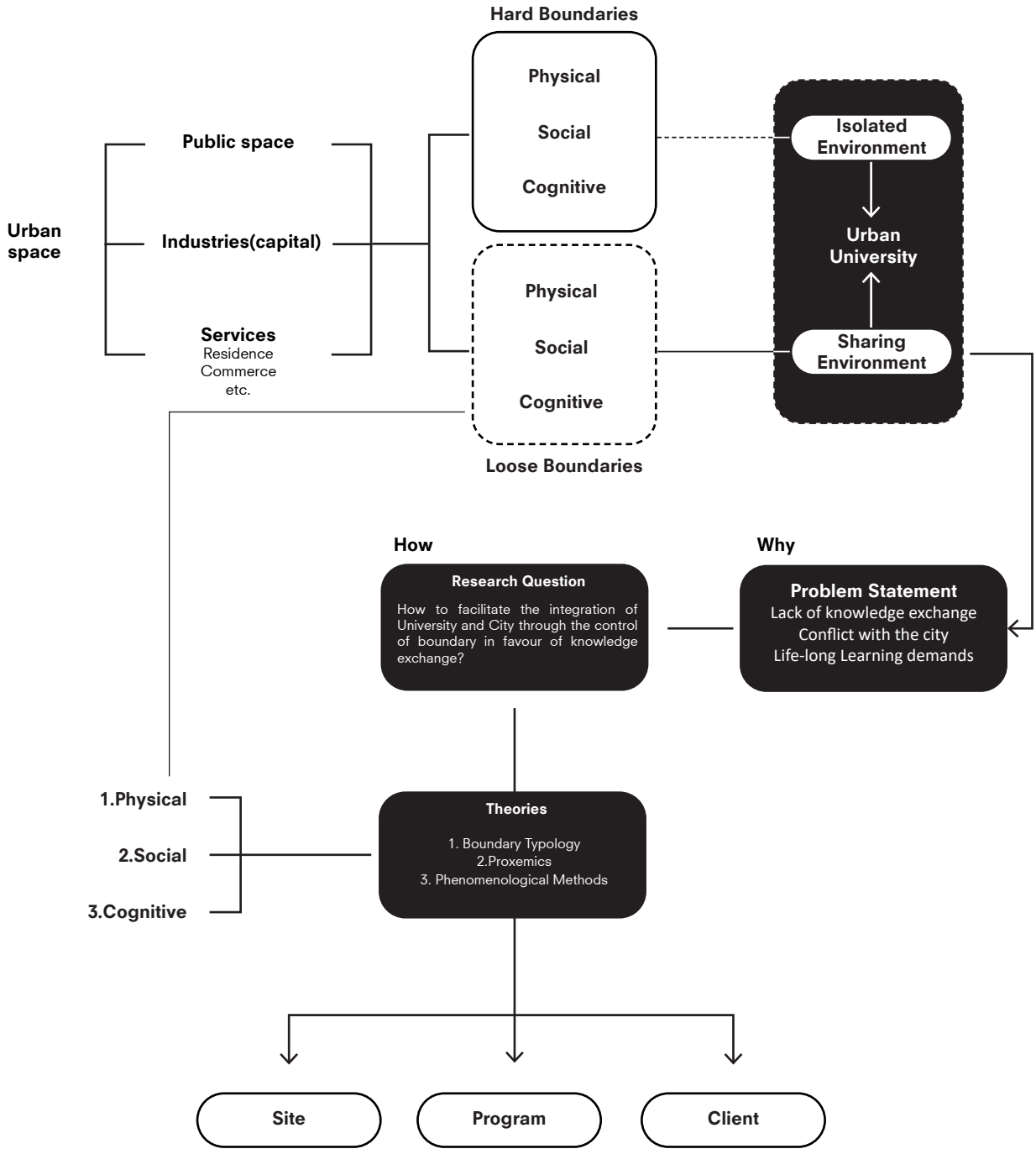
This question helps readers to understand the reason of the research and stress the problems that our society is facing in relation to education and urbanization.



RESEARCH FRAMEWORK

02

2.1 Theoretical Framework

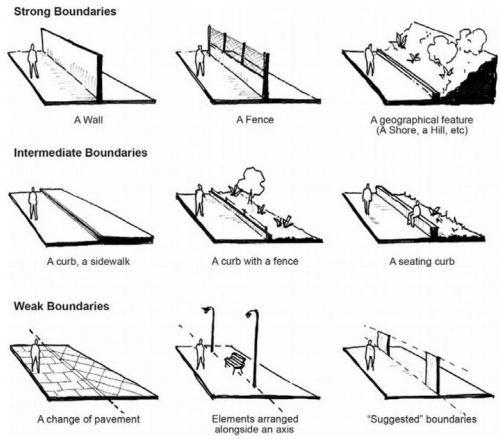


To understand how can architectural boundaries encourage a human behavior, it is reasonable to first understand the types of boundaries and the different ways they affect human behaviours. Generally speaking, boundaries are categorized as physical, cognitive and social, affecting how people interact with the space around them.

Physical boundaries are the most straightforward. From an architectural point of view, physical boundaries often refer to objects that enclose a space. Starting from Lynch's 'image of the city', Glen wash proposed a typological classification of physical boundaries in 2013 (p.4), where he classified physical boundaries into three categories: strong, intermediate and weak. Strong boundaries are like unclimbable cliffs and walls that are higher than the top of the head; intermediate boundaries are like the curbstones of a road and a low fence, which people can cross but at a certain cost; and weak boundaries are like a line on a road with no thickness, which human beings can easily cross, but they can still be aware of the two zones separated by this line.

Social boundaries, such as the gap between the student and the citizens, are often difficult to be shown spatially. However, the concept of proxemics and the architectural ethnography created by Momoyo Kashima can provide a good theoretical basis and case studies. Jane Jacobs (1961, p.153-155) described the great influence of urban space in dividing the city into groups: Take Wall Street as an example, this high-density financial city has constantly pushed out those processing factories and introduced only expensive high-end restaurants, in effect dividing Manhattan into the upper city centre and the polluted, declining and deserted low towns.

Academics at Cardiff University recognized the richness of cognitive boundaries and the complexity of the discussion. So, they introduced phenomenological methods to discuss people's 'experience of limits' (Bauza, 2018, p.3-4). A very vivid example of this is when a person comes to a huge staircase in



Categories of boundaries; a few examples (Wash, 2013, p.4, figure 2).

front of a public building, does he think he has arrived at the public building, maybe not, and when he comes to the junction of the staircase and the porch, does he now think he has arrived at the public building, maybe, maybe not. He may think he has arrived at this building when he pushes open the door and enters the interior space. But what really defines the boundary between this public building and the urban space is perhaps the area from the staircase, to the entrance door. By understanding and documenting people's perceptions of spatial boundaries, architects may be able to better establish spatial or visual guidance for the user, so that the nature of the space changes on a cognitive level.

2.2 Relevance

The research cope with the theme of Complex Project studio *(bodies-physical & cognitive engagement, building-architecture)*and already aimed to narrow down to architectural level.

Due to the complexity of the boundary types around the site, it is of great importance to figure out a solution for dealing with the relationship between university campus and urban environment. Especially when the university is located within a high density urban context and even needs to share buildings with the city. The result will be helpful in defining forms and social responsibility of urban universities in the future.

RESEARCH METHODS

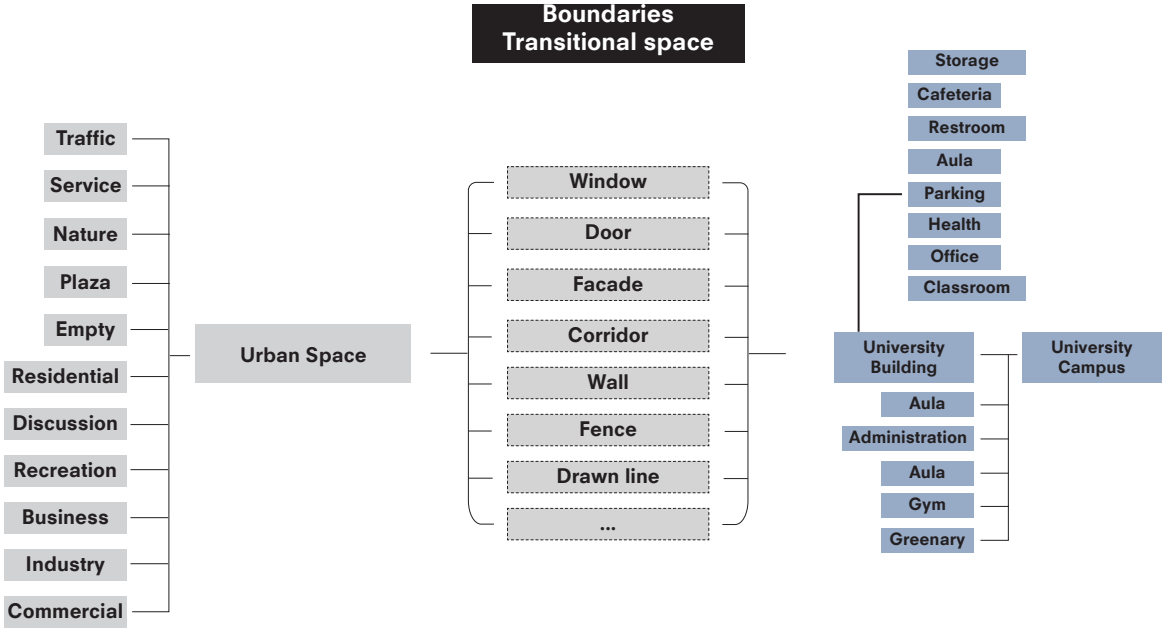
03

3.1 Research Methods

The research starts with **physical boundaries**. By using comparative approaches, presented in architectural isometric diagrams, this chapter will focus on typologies of physical boundaries. Ideal outcomes will be comparisons of series of different boundaries and their respective spatial functionalities in order to select proper models that can be useful for creating a space of sharing.

The second focus will be **social boundaries**. In this chapter, quantitative research will be carried out to compare the opinion shared on news, social media, blogs, etc. between citizens and universities to see the similarities and differences. Desk research will also be done to provide a more solid discussion on what university can do to create a shared education resource. However, the discussion should finally lies on what architectural design could take effects.

The last part will be research on **cognitive boundaries**. A quick poll will be handed out during site visit and also online. The possible question in the poll can be:
When do you think you are within the campus?
a. at the entrance
b. by the tram stop
c. in the building
d. saw the icon of the school
The desk research will also be used in this chapter to introduce the phenomenological methods and how it summarizes people's perception of space.



3.2 Programs

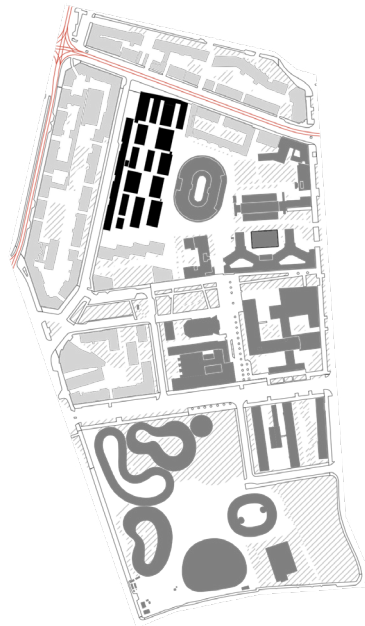
First I will look into several case studies, in order to define the necessary programs for the universities. However, since my research is about boundaries, I also need to take into account of this spatial media. Therefore, I would like to propose a 3 step analysis benchmark, from A. a function in university building to B. one or multiple architectual components to C. one or multiple urban function/space. For example, if a classroom is connected to the park through windows, the benchmark will be: A. classroom, B.windows, C. garden. In this case it will be clear that what spatial element can be changed in the future intervention (you may find more example in the design brief part and also see the potential of this method).

3.3 Client

The client in general are university stuff and citizens. However, multiple stakeholders might be involved and they could also be involved in different times in a year.

3.4 Site

The site locates at southern part of milan city center, near the spanish wall, in a crowded urban area. The grafton building marked in black is placed at the busiest corner and connected with surrounding non-campus buildings. The boundaries here is very important in shaping functions, accessibilities and activities.



DESIGN BRIEF

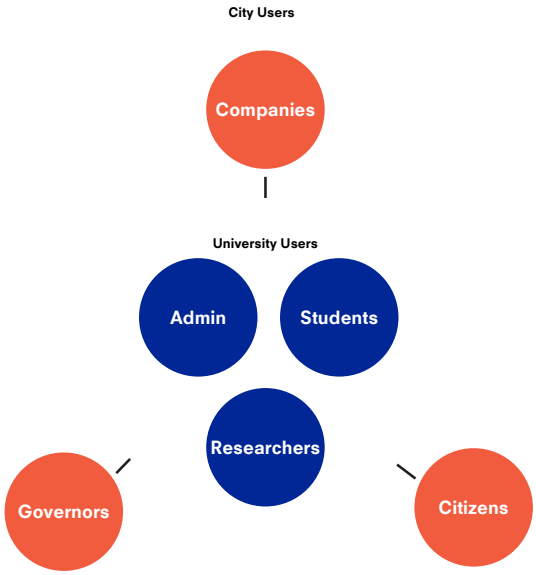
04

4.1 Client

Since the relationship between the university and the city is being discussed, all users of the entire building are divided into two groups: users within the university and users in the city. The users within the university are mainly students, administrators and researchers. The users in the city are mainly citizens, employees of companies cooperating with the university, and governors of the local government. Here are listed the spaces that each type of user is likely to use frequently. For example, students need classrooms, study rooms, and dining halls, while citizens need businesses, community services, etc.

By analyzing the respective needs of the university and the city, it can be found that there is an overlap between the needs of the two groups, and **this overlapping part will become the main function of the building.** This kind of collaborative space can promote communication between scholars and city residents, and it will also become a gathering node and public space in the region.

The overlapping areas are: public space, meeting space, dining space, sports and nature space. Public space can create more opportunities for communication, meeting space can provide a place for discussion of deeper and more complex issues, dining space can serve all customers, and sports and nature space can provide a healthier living environment in the high density districts of Milan.



Main users of the New Building

Typical Space according to users

University

Istituto Javotte Bocconi

Università Bocconi MILANO

SDA Bocconi SCHOOL OF MANAGEMENT

Government/Municipality

MUR Ministero dell'Università e della Ricerca

Comune di Milano

Companies/University Partners

Commerce

citi

J.P.Morgan

P&G

Deloitte.

Law

KPMG

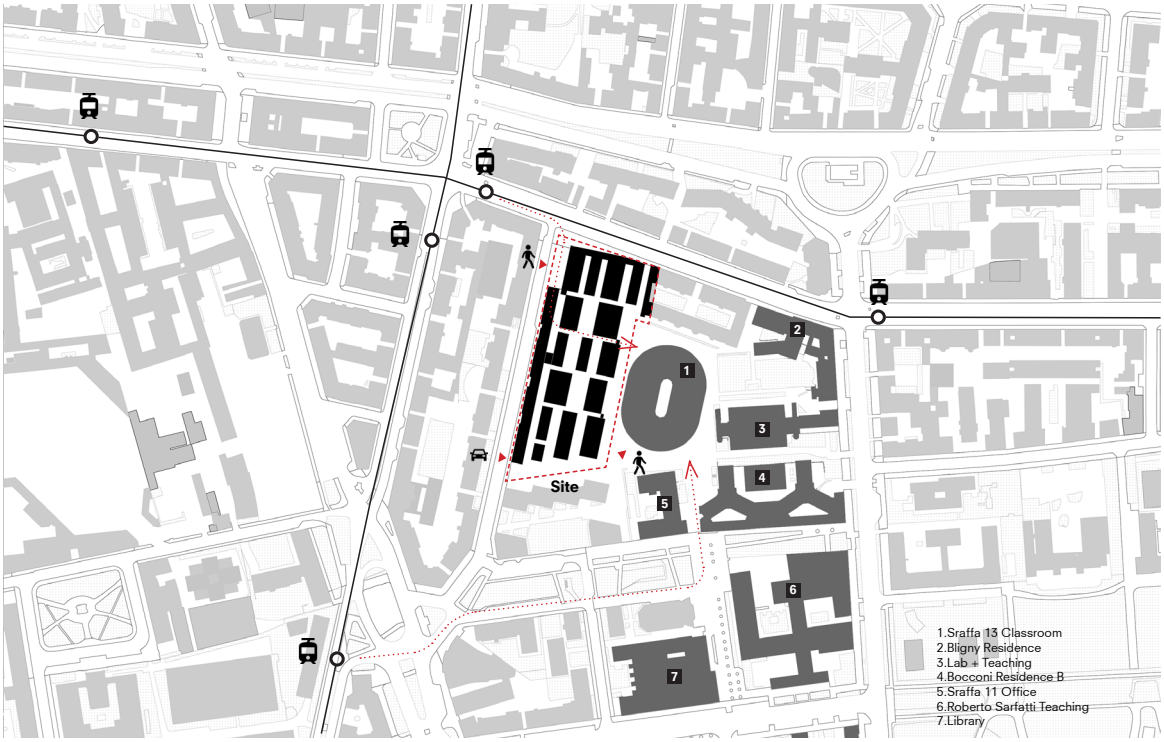
Hogan Lovells

DLA PIPER

There are multiple clients leading the project. As a private university, Bocconi University will be the main client, combined with SDA Bocconi and the Bocconi management team Istituto Javotte Bocconi. At the same time, there are also some expectations from the Milan municipality and the Italian Ministry of Education, University and Research.

Bocconi's management team is tightly bound by the government and large finance and law companies. Every year, graduated students will have access to these places, and in this aspect, Bocconi is likely to have investment from companies and partners.

4.2 Site

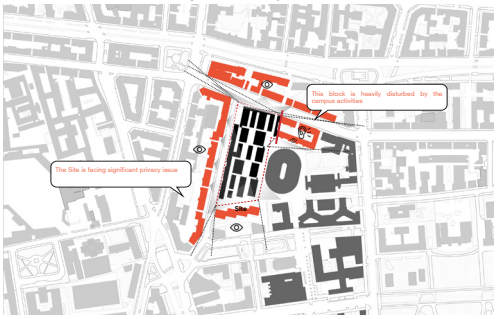


The multi-scale site analysis provides a reference for determining the building form and functional distribution. The site is located in a neighbourhood on the southern edge of Milan's city centre, which belongs to the fifth district under municipal administration. This area is dominated by agriculture and natural protected landscapes. This neighbourhood is one of the busier ones, and the site is subject to many constraints due to the city's complex conditions. For example, the issue of privacy. Due to the interlacing of the teaching buildings of Bocconi University and residential buildings, the facades of the original buildings have all been treated to prevent prying eyes, making the building look very heavy.

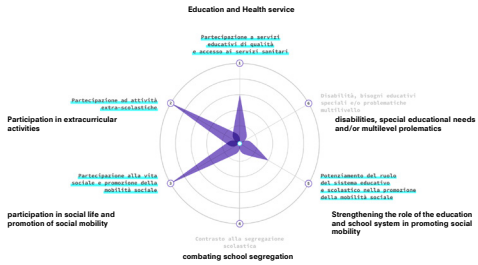
There is an abundance of public transportation around the site, with two tram lines and multiple bus lines. In our survey, students also mainly took the tram to school. In contrast, the site is not suitable for private cars, compared to the large parking lot of the original building. Due to traffic restrictions and narrow roads, private cars can only enter the site from the busy intersection on the north side of the site and enter the site in a single direction southbound. This may be revised in the future.

Multi-scale site analysis

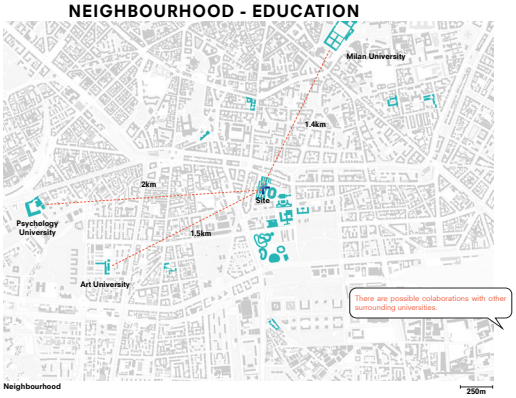
SITE-PRIVACY



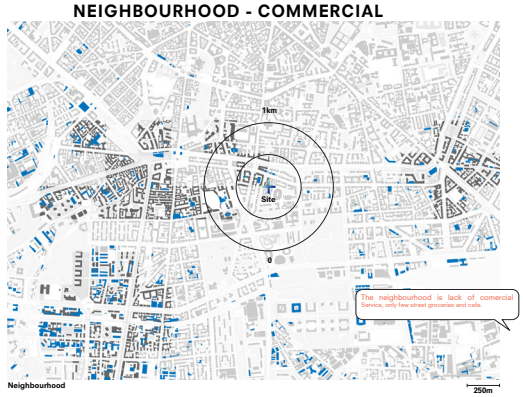
ZONE 5 - TEENCITY



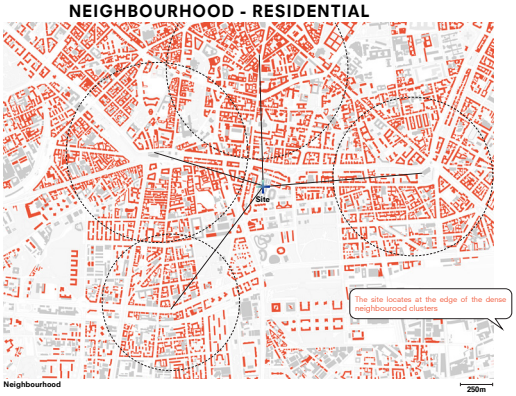
NEIGHBOURHOOD - EDUCATION



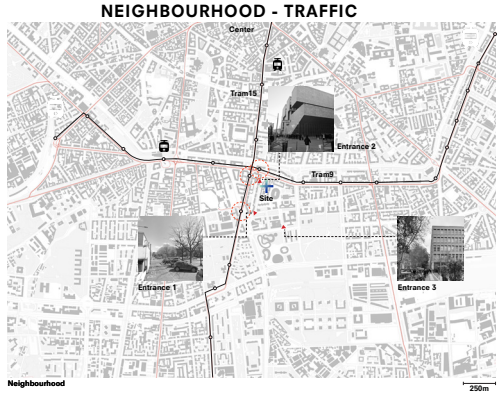
NEIGHBOURHOOD - COMMERCIAL



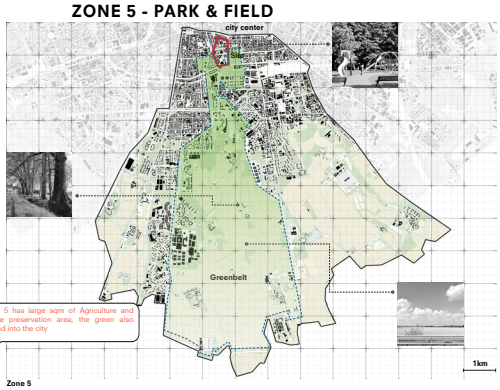
NEIGHBOURHOOD - RESIDENTIAL



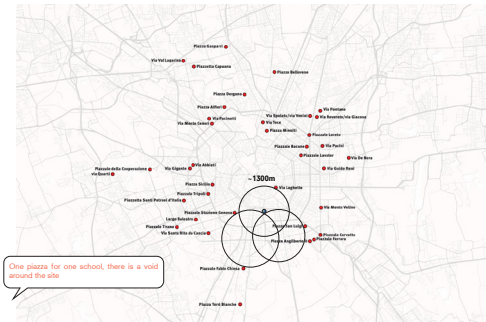
NEIGHBOURHOOD - TRAFFIC

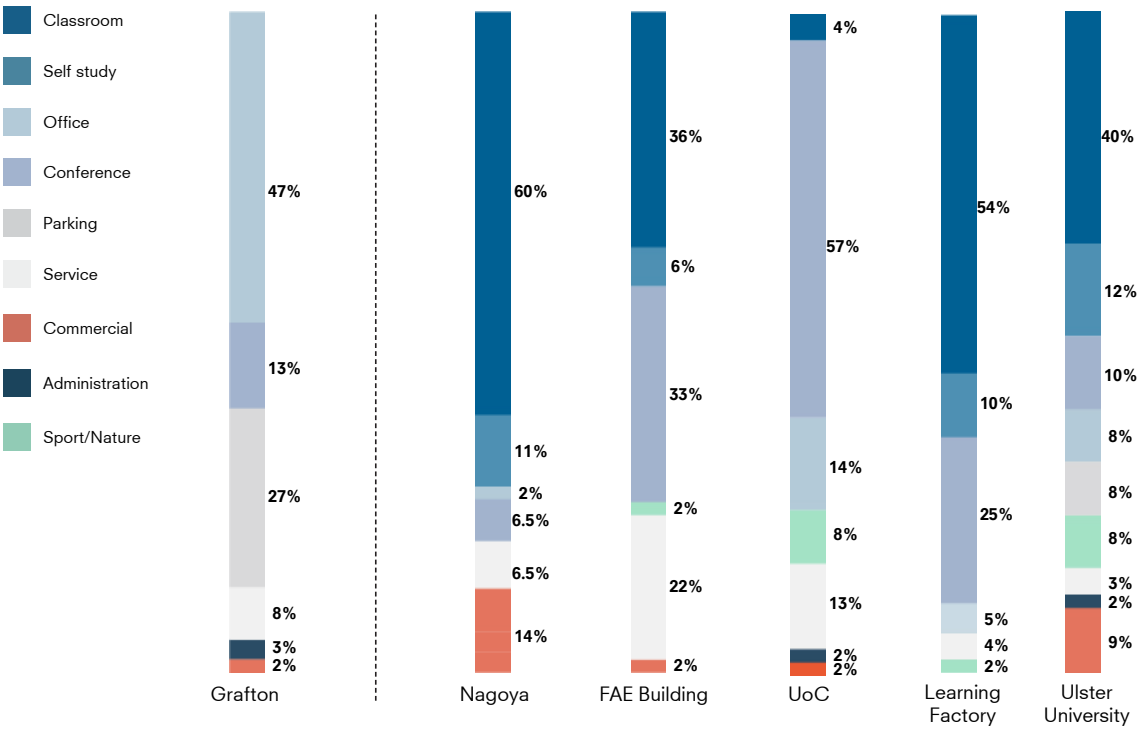


ZONE 5 - PARK & FIELD



CITY-PUBLIC



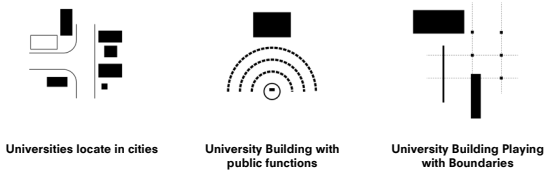


4.2 Program

As mentioned above, the functions of the entire new building are mainly divided into three categories: university functions, city functions and shared functions. The analysis of programs begins with the program analysis of the original Grafton building on the site. The original buildings mainly consist of faculty offices and conference halls, with very few other functions, making the original buildings very closed and uninviting. If we want the new building to become rich in functions and integrate with students and citizens, functional changes must be made.

To this end, I referenced five university case studies from around the world and analyzed the proportion of their different functions. These learning facilities are all located in the urban environment, have a certain public space and social attributes, and have made interesting attempts at flexible boundaries.

Combining these analyses, I have come to five conclusions:



1.Educational Functions take up more than 60% of the area

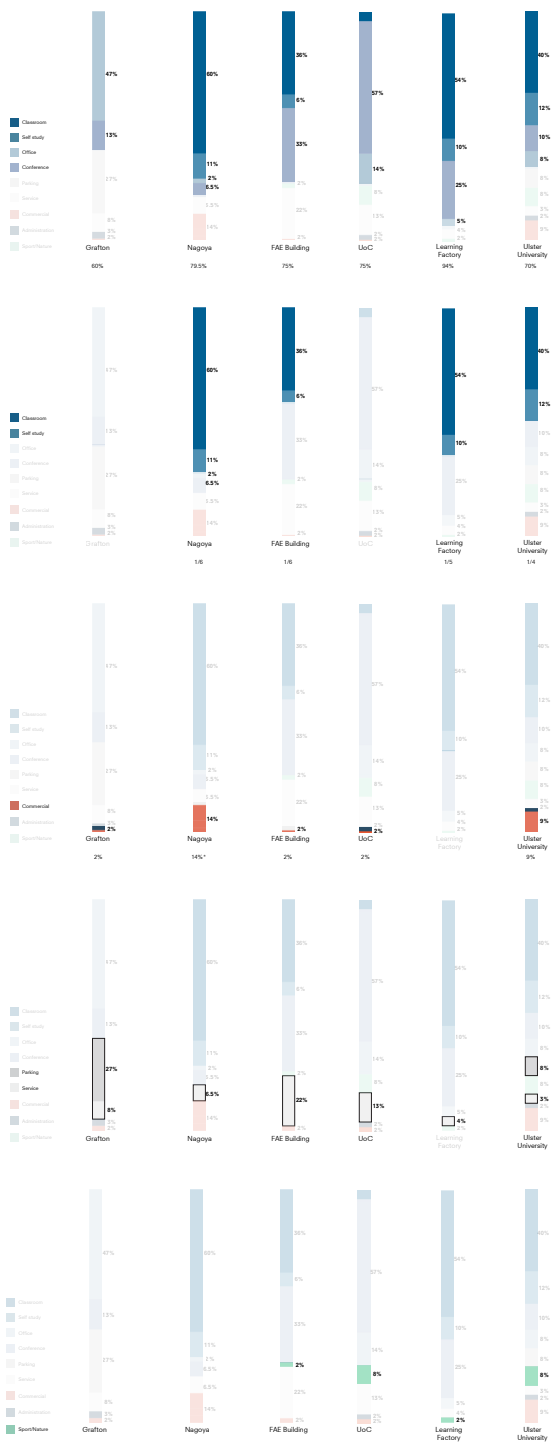
2.Self study's area is of 1/4 to 1/6 of teaching area

3.Commercial area normally do not exceed 10%

4.Being a single building in University, Grafton building has a huge parking space.

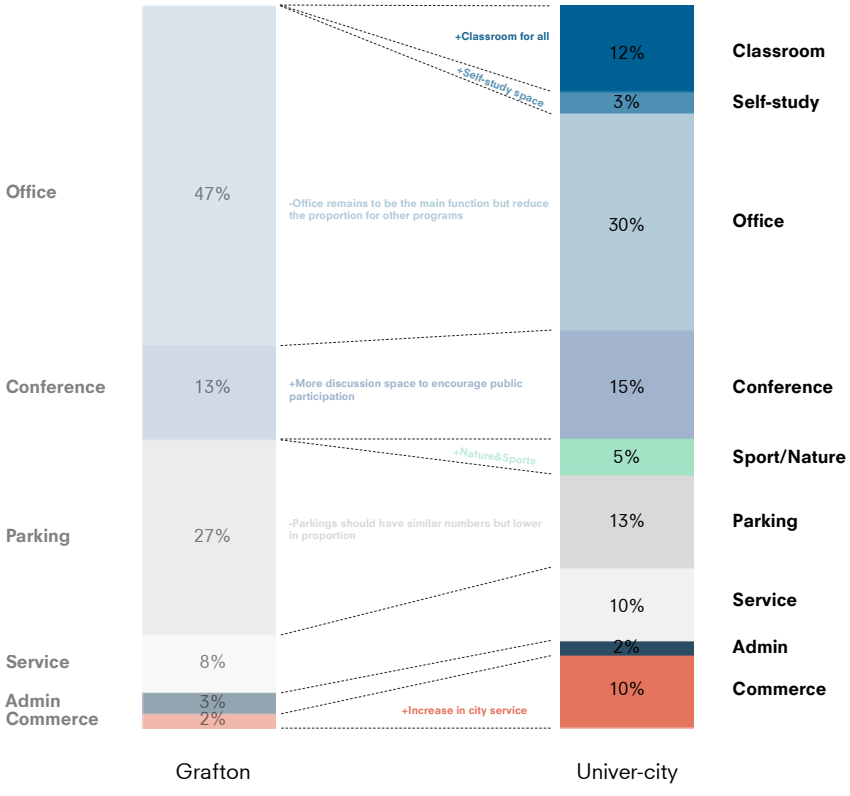
5.Sport area does not exceeding 10%, and often combined with nature

The functions of the new building respond to the needs of users and the site by adding and reducing different programs. The new building adds educational functions, adding classrooms and study spaces for students, which is also the issue that students have responded most. The office retains the same area as before, but the proportion has been reduced. The meeting and discussion spaces have become larger and are not only open to the university, but also become part of the public space. The addition of new nature and sports zone is hoped to provide a healthier living environment for this high-density neighborhood to some extent. Another significant increase in commercial and community service areas is intended to provide residents and students with more dining options and convenient service facilities, such as small clinics, banks, supermarkets, etc.

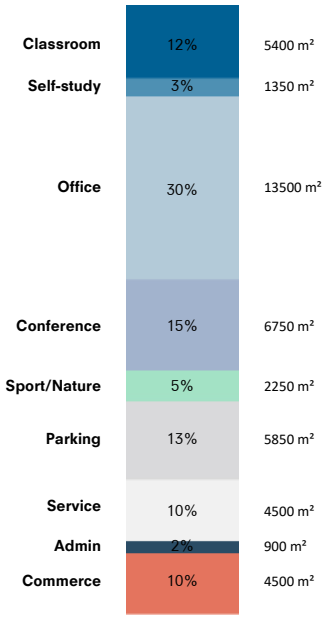


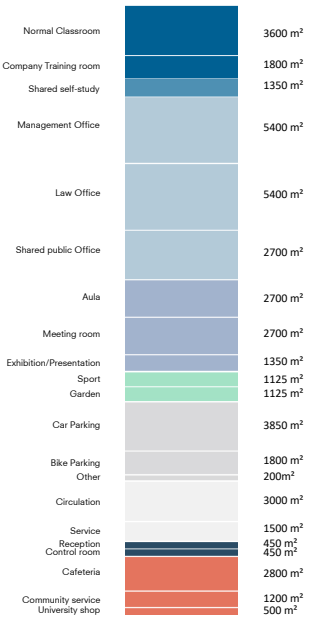

Zone 5 has large sqm of Agriculture and nature preservation area, the green also extend into the city
One piazza for one school, there is a void around the site
The Site is facing significant privacy issue
The site locates at the edge of the dense neighbourood clusters
This block is heavily disturbed by the campus activities
The neighbourhood is lack of comercial Service, only few street groceries and cafe.
There can be events with other surrounding universities.

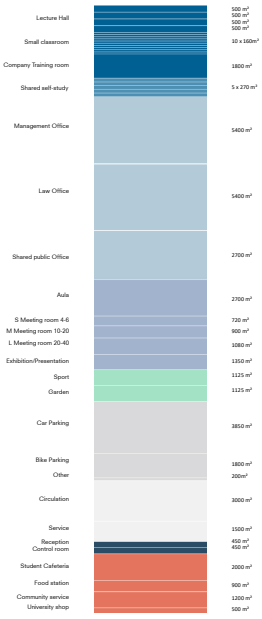

Students
Researchers
Citizens
Companies
Site
Conclusion
Classroom
Self study
Office
Conference
Parking
Service
Commercial
Administration
Sport/Nature


Office
47%
Conference
13%
Parking
27%
Service
8%
Admin
3%
Commerce
2%
+Classroom for all
+Self-study space
-Office remains to be the main function but reduce the proportion for other programs
+More discussion space to encourage public participation
+Nature&Sports
-Parkings should have similar numbers but lower in proportion
+Increase in city service
12%
3%
30%
15%
5%
13%
10%
2%
10%
Classroom
Self-study
Office
Conference
Sport/Nature
Parking
Service
Admin
Commerce
Grafton
Univer-city

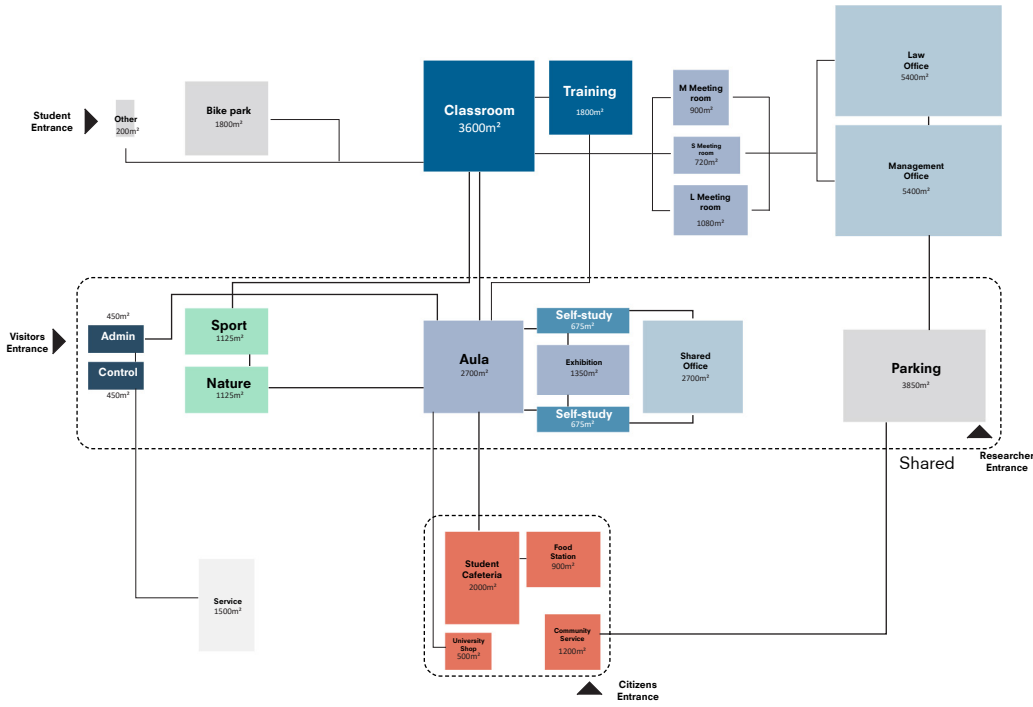
Program Size





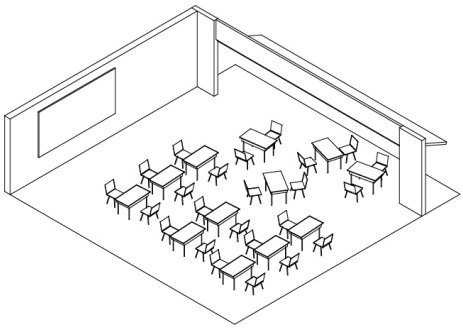


Program Relation



Key space Reference

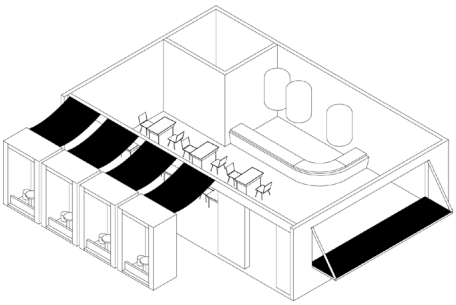
Student - Classroom



Suggested Typology
Opened Classroom, be able to adjust form/program according to different needs and schedule

Suggested Reference
MRN Kindergarten and Nursery
By Youji no shiro日比野设计

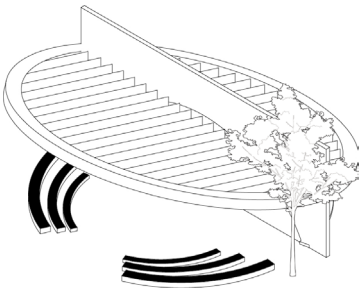
Citizen - Commercial



Suggested Typology
Commercial services are suggested to make usage of the exterior space and create public space for people to meet

Suggested Reference
Somthin'else 另有奇物 Shanghai
By Daylab

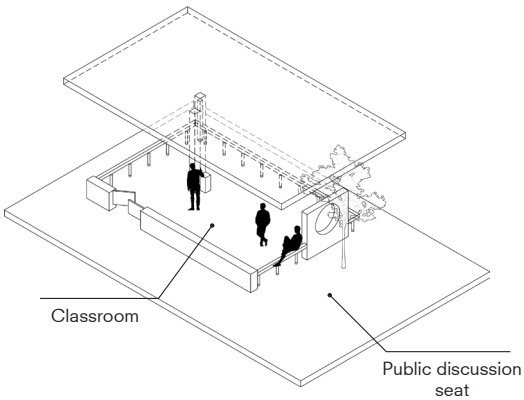
Public - Aula



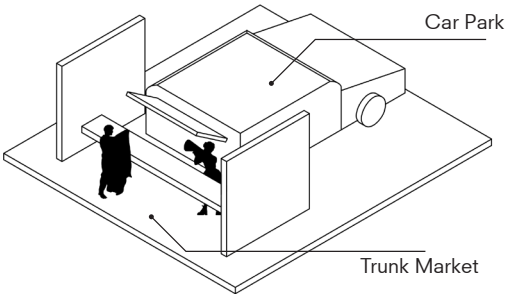
Suggested Typology
Aula that can not only be used by researchers, but also a place for citizens and companies to participate.

Suggested Reference
Brain Embassy, Warsaw
By Mode:lina

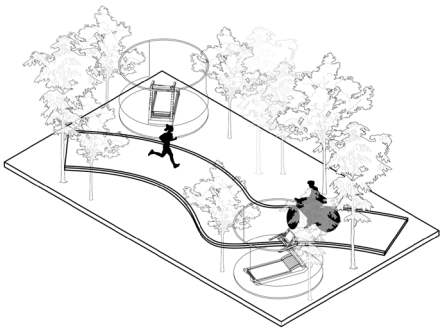
From casestudy to Toolbox



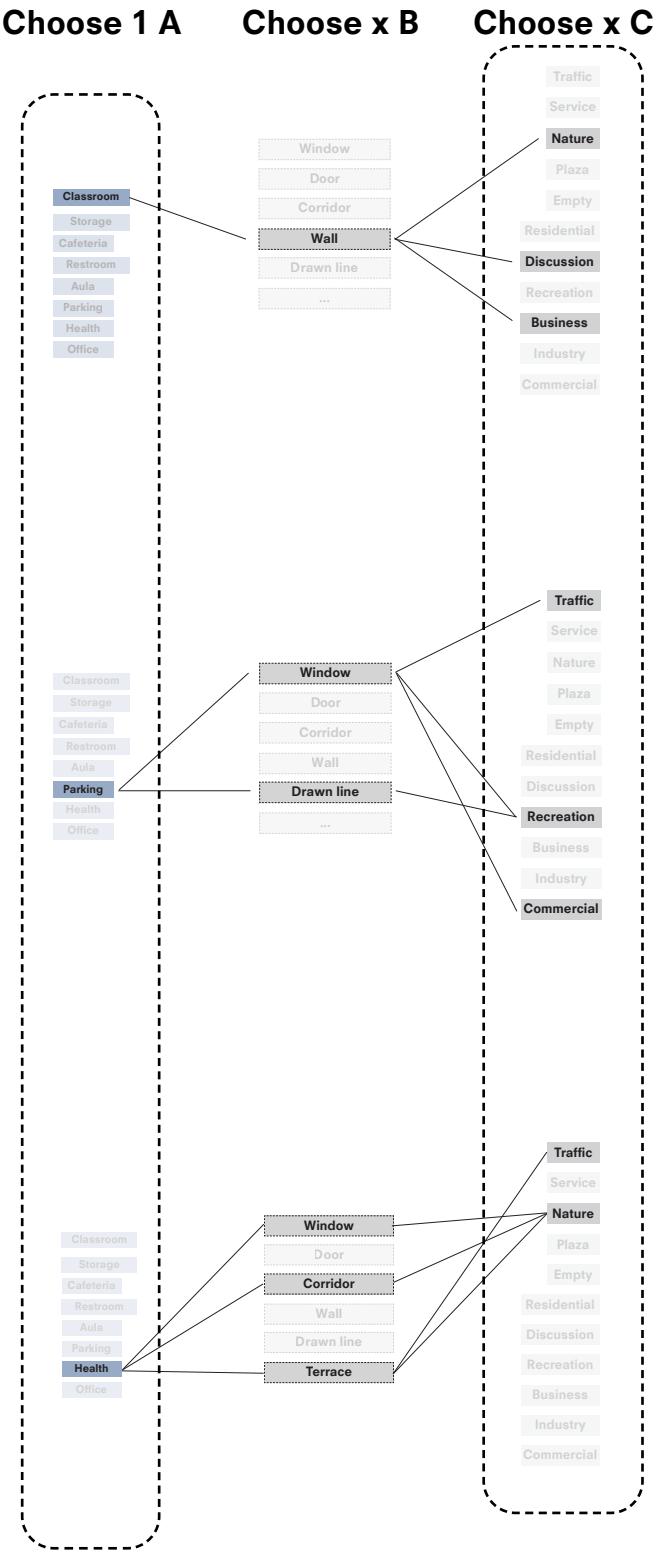
Open Classroom



Parking Market
Car trunk Market

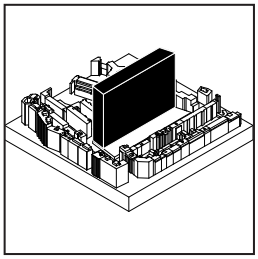


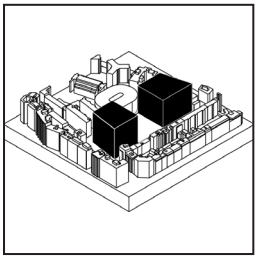
Fitness Garden

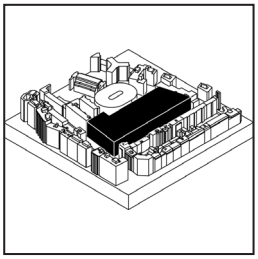


Massing Study

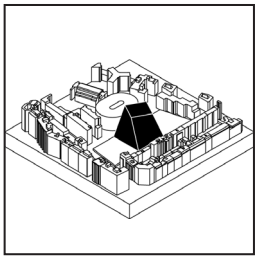
Max GFA
FAR 5.0-6.0

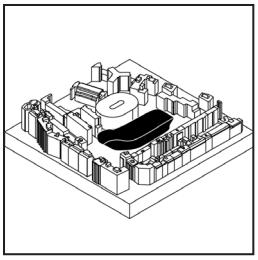


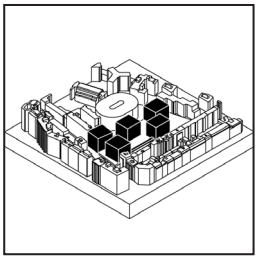




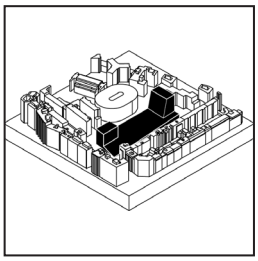
Mid GFA
FAR 3.0-4.0

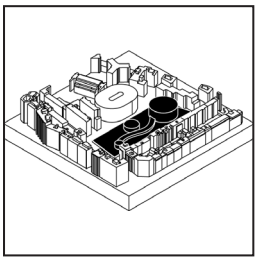


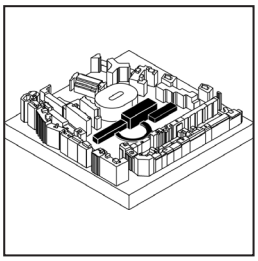


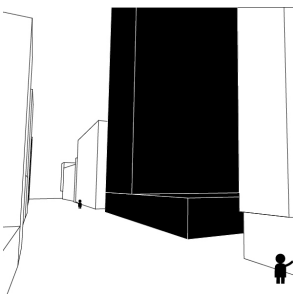


Min GFA
FAR 1.0-2.0

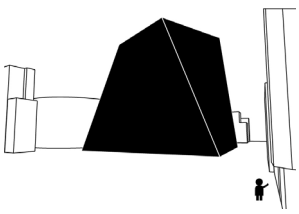




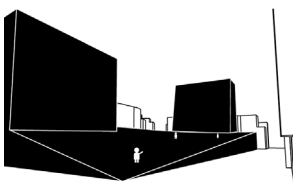




Max GFA
FAR 5.0-6.0



Mid GFA
FAR 3.0-4.0

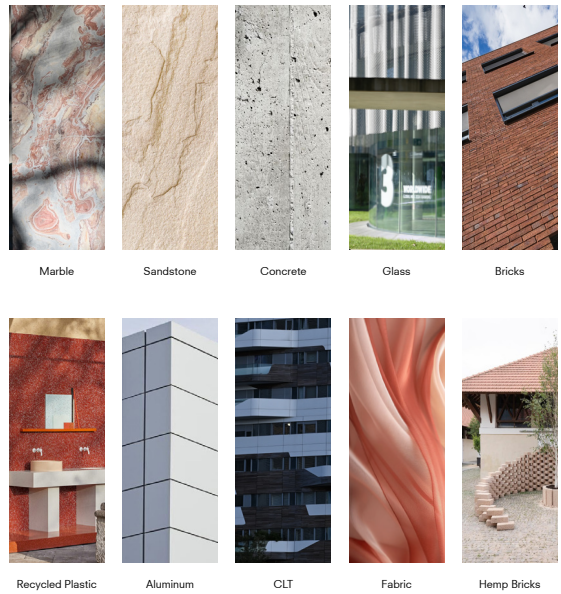


Min GFA
FAR 1.0-2.0

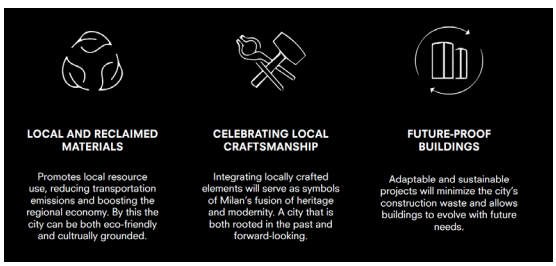
Material Lens

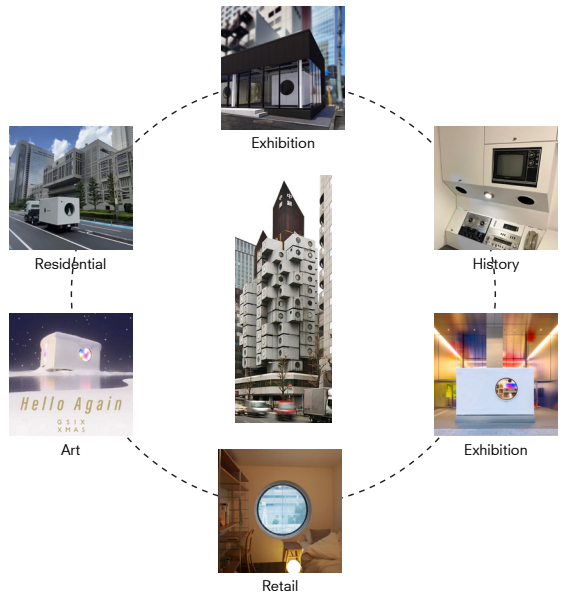
The group lens focuses on the materials excavation of Milan. In the past, natural materials were excavated from mountains, rivers, and the earth. These activities lead to a increase on CO2 emissions and heavily influence natural environment.

In the future, the group propose the "excavation" from the city. Not only should recyclable materials and new bio-based materials be used, but the design should also be designed for disassembly. Meaning the old building can be removed easily, and its part can be used for future construction.



Group Strategy 1: Use sustainable approach/materials to replace the traditional materials/techniques while keeping the original identity





Group Strategy 2: Design for Disassembly

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05

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Visual source

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