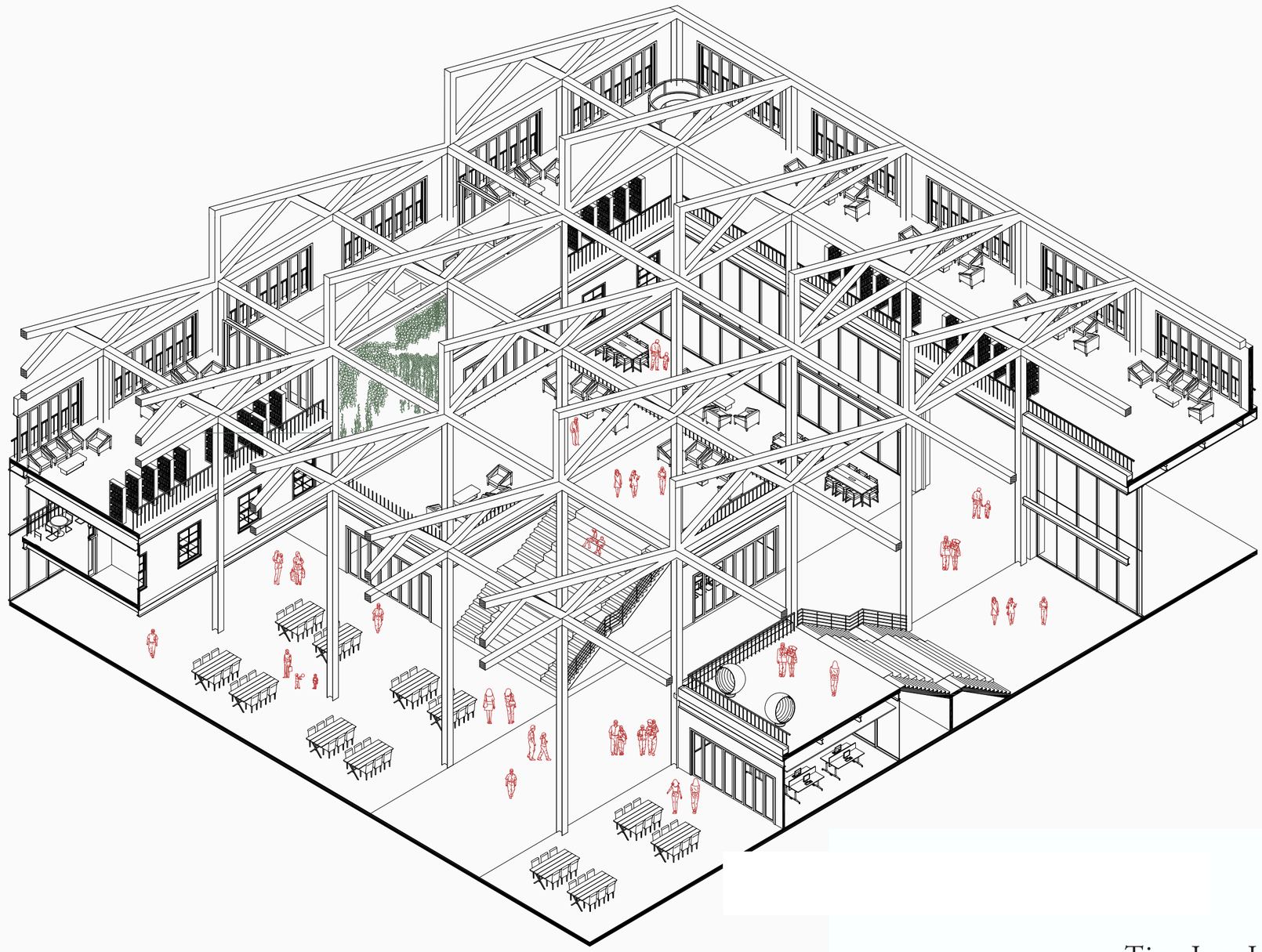
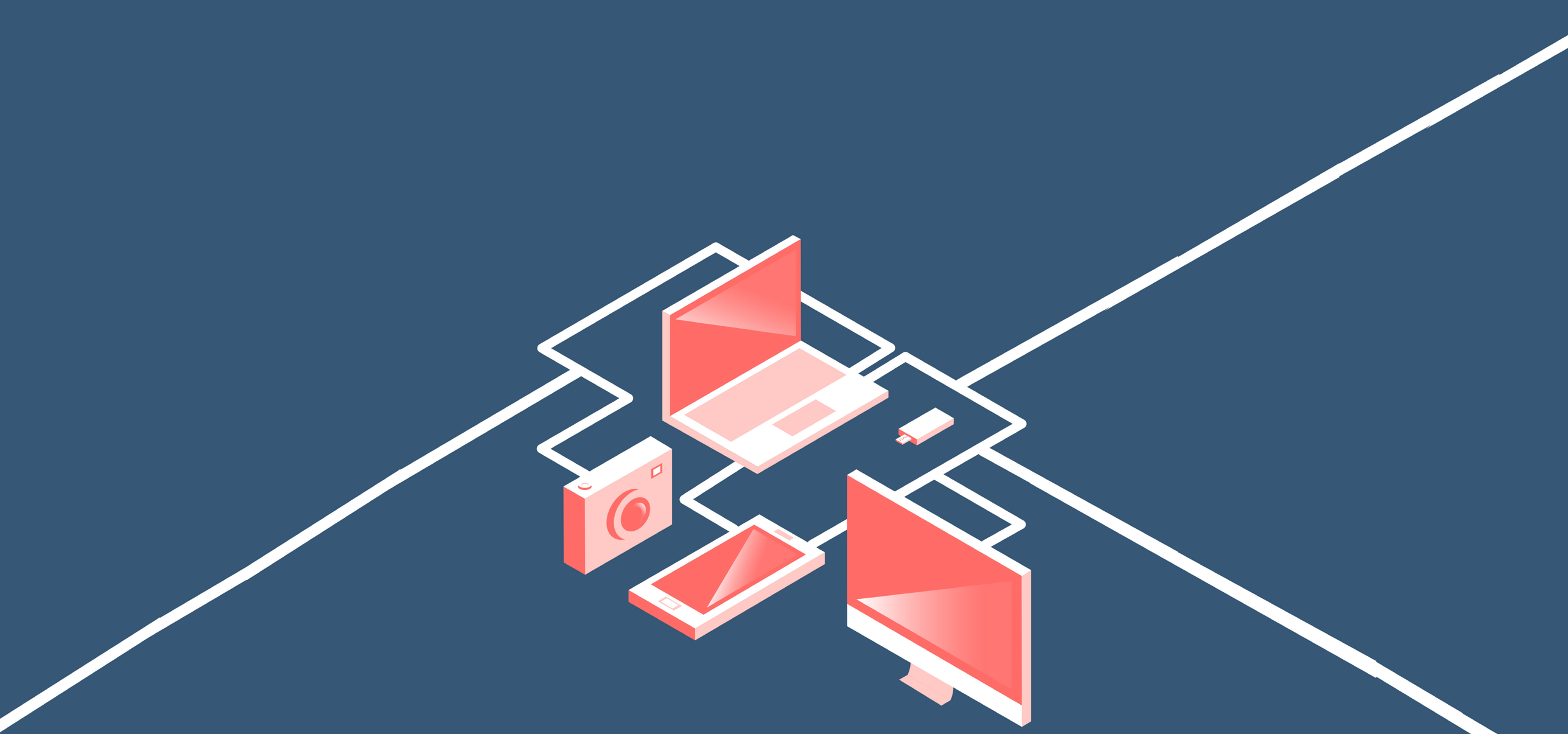
The Maker's Paradigm



Tim Jun Li

What is *innovation*?



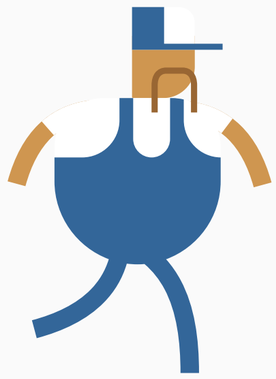
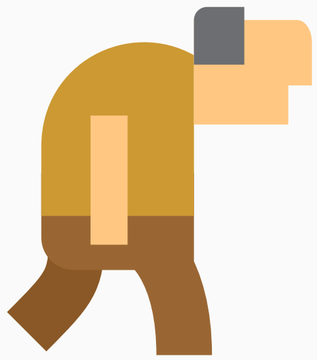
“a new *idea* or *method*.”

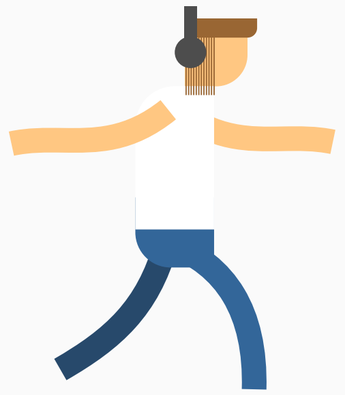
Cambridge dictionary, (2019)

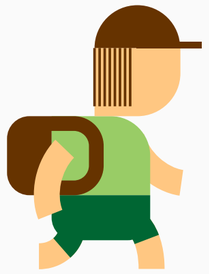
"*understanding* the rules behind objects and processes [...]
that *challenge* the established order and *explore* improvements."

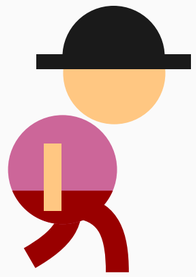
Lessig, 2018

Who are the *innovators*?







"*understanding* the rules behind objects and processes [...]
that *challenge* the established order and *explore* improvements."

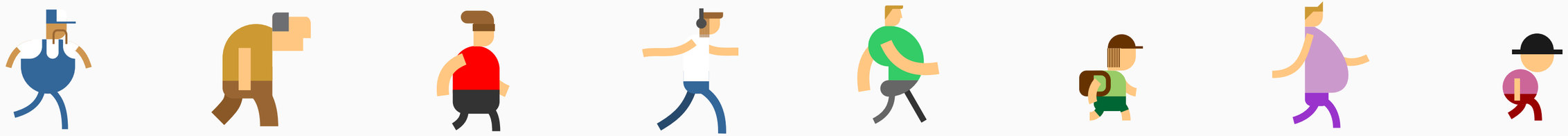
Lessig, 2018

How can we see innovation in the built environment?

physical product of innovation

Where can we see innovation in the built environment?

innovation process ⟷ *built environment*

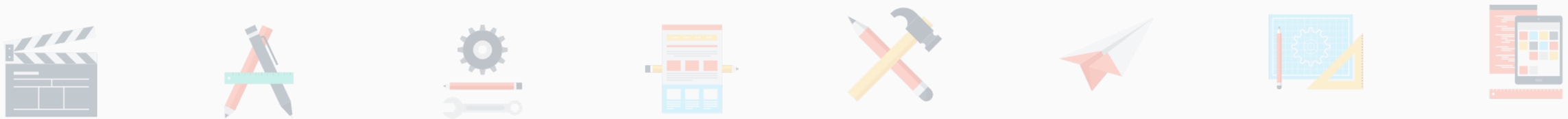


cultural product of innovation

innovation culture.

"a community that encourages cooperation, rewards creativity, and fosters a positive working style that creates more opportunities for every individual."

What is Innovation Culture (n.d.)



transformation of the built environment: innovation space.

"physical environments that promote community, learning and making."

TechnologySalon (n.d.)

flex spaces + incubators

user scale

private commercial sector

flex spaces + incubators

the maker's library

user scale

private commercial sector

architecture scale

governmental planning

flex spaces + incubators

user scale

private commercial sector

the maker's library

architecture scale

governmental planning

Urban Innovation Districts

urban scale

governmental planning

Urban Innovation District

"Planned geographic areas to facilitate innovation."

Position: ***City of the Future***

"architects can be the ***catalyst for innovation***, through cultivating an environment that empowers the public to become more active social and economic players."

How can we transform the built environment to optimize innovation in Urban Innovation Districts?

Introduction

Theoretical framework

Applied research + design

Design proposal

Reflection

global innovation index.

a measure of innovation performance of 126 countries, accounting for 90.8% of the population.

Cornell University, INSEAD, World Intellectual Property Organization

assessment criteria of global innovation index.

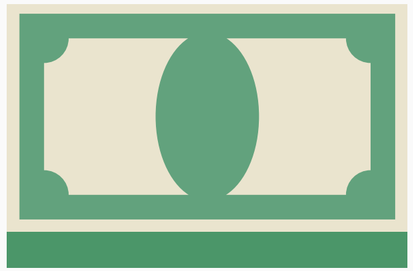
- Institution
- Human capital and research
- Infrastructure
- Market infrastructure
- Market sophistication
- Business sophistication
- Knowledge and technological outputs
- creative outputs

assessment criteria of global innovation index.

=

reflect the ideals of a future oriented society.

***innovation** has a direct and indirect impact on:*



economic
sustainability

environmental
sustainability

social
sustainability

Compact City research project

early 21st century

single function industrial estates

↓

Urban Innovation Districts

impact in the Netherlands.

285 green startups: 2017-2018

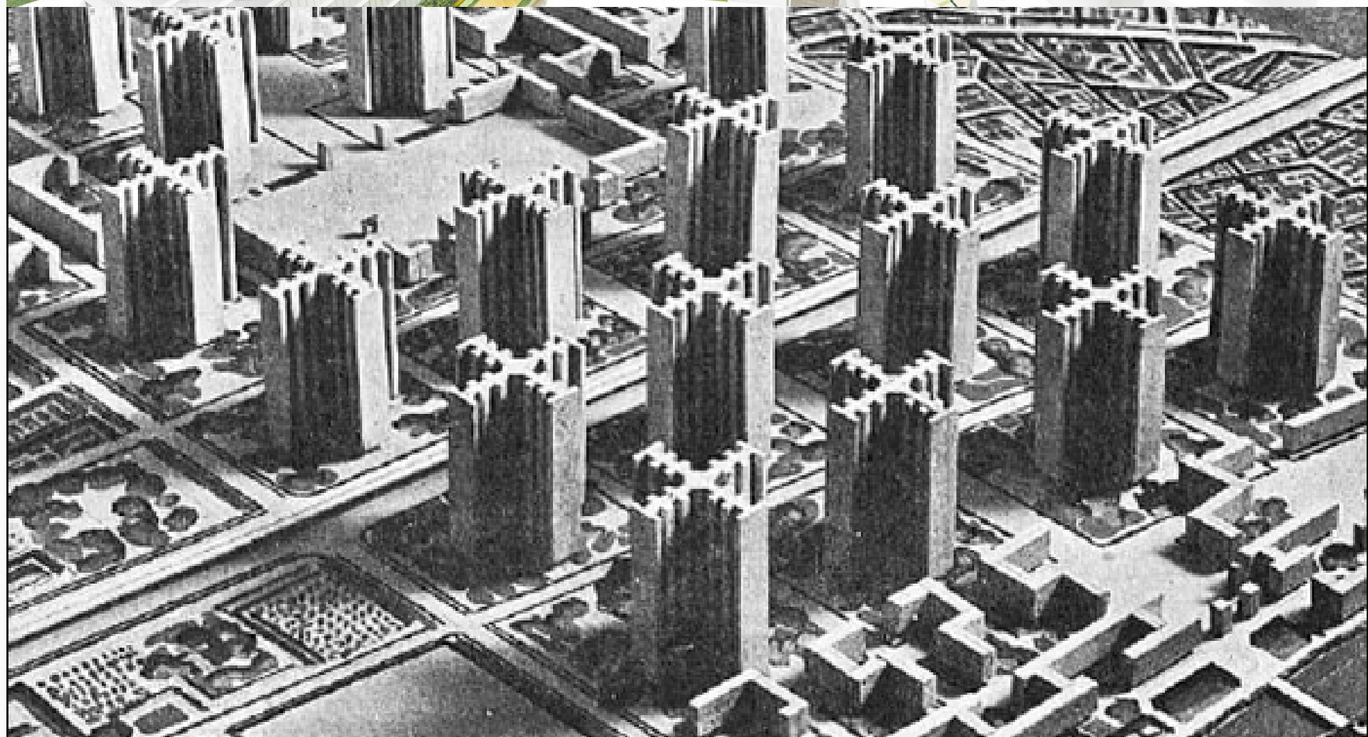
Medium

problem 1

The current research led by the BNA lacks an understanding on the end-groups of UIDs.

"Although success stories of UID's are well documented, there is an absence of research on the mechanisms behind their success."

Windel et al., (2013)



problem 2

there lacks a holistic framework to inform the design UIDs

Wagner, J., & Watch, D. (2017). ***Innovation spaces: The new design of work.*** Washington, D.C.: The Anne T. and Robert M. Bass Initiative on Innovation and Placemaking at Brookings. → Innovative Workplace

Bouma, J., Poulman, W.A., & Voorbij, A.I. (2015). ***Supporting social contact design principles in common areas of cohousing communities.*** Rotterdam University of Applied Sciences. → Cohousing Communities

Rivera H. (2011). ***Social Sustainability in Urban Areas: Communities Connectivity and the Urban Fabric.*** Housing Studies, 26(3), doi:10.180/02673037.201. → Urban Planning

Emenike, A.I. (2016). ***Developing sustainable and livable neigbourhoods: The role of public open spaces.*** The Sustainable City XXI. doi:10.2495/sc160221. → Outdoor Spaces

Van Winden, W., Carvalho, L., van Tuijl, E., van Haaren, J., & Van den Berg, L. (2013). ***Creating knowledge locations in cities: Innovation and integration challenges*** (Vol. 54). Routledge. → Theory

anthropological study on innovation culture

profiling end user groups of innovation spaces

framework for design of UIDs

the ***origins*** of innovation culture.

information & technology (ICT)

the general public, ***regardless of their formal education***
have been provided the ability to communicate, network, invent,
create, make, arrange, manage, enterprise and capitalize.

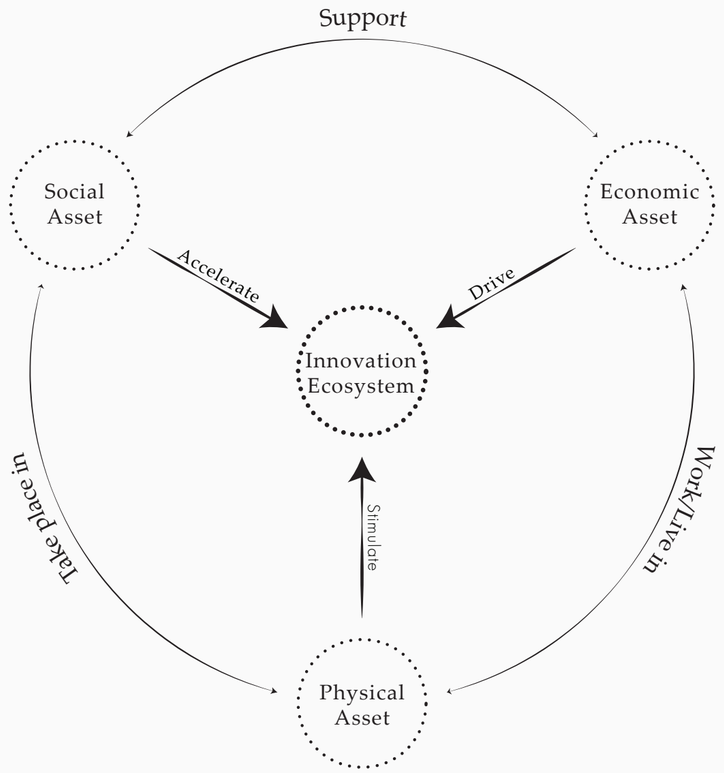
emergence of ***innovators***-prosumers--makers

people who both consume and produce knowledge

emergence of innovation spaces.

spaces that facilitate innovation culture
(sociality, co-creation, and collaborative learning)

innovation ecosystem.



Katz & Wagner (2017)

the conditions in the built environment that facilitates innovation culture.

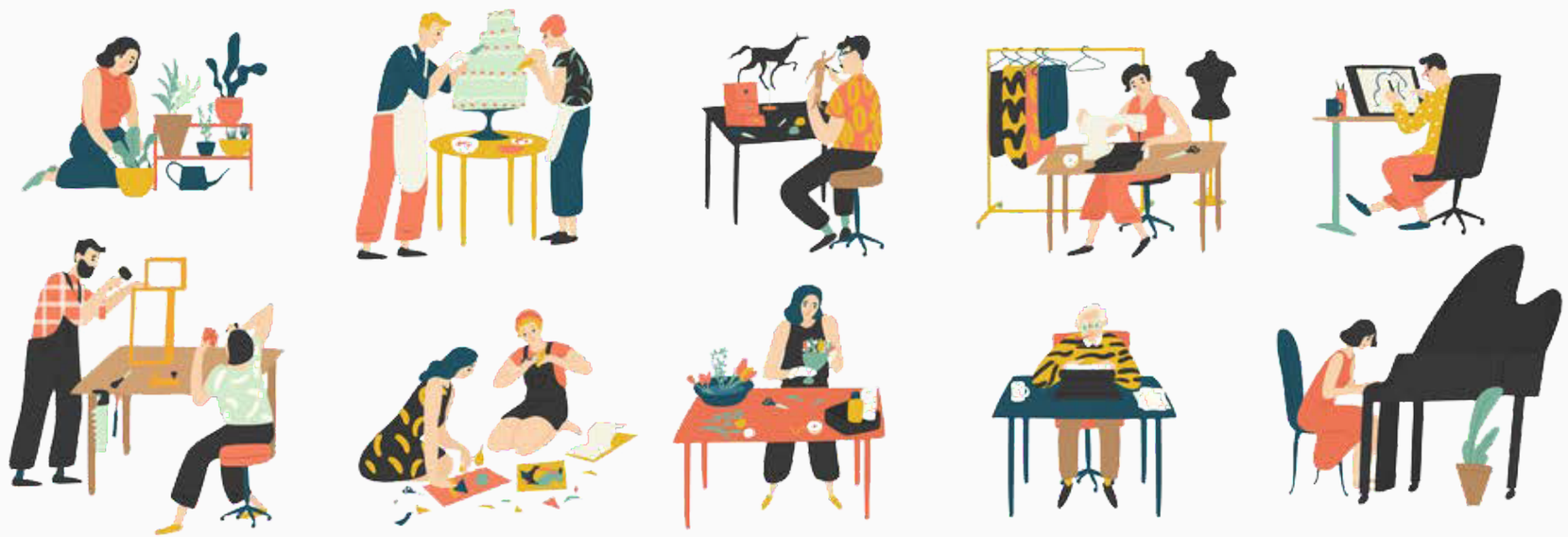
condition 1: physical asset

Katz & Wagner (2017)

"is there a place where I can work and develop my idea without judge and prejudice?"

condition 2. social asset

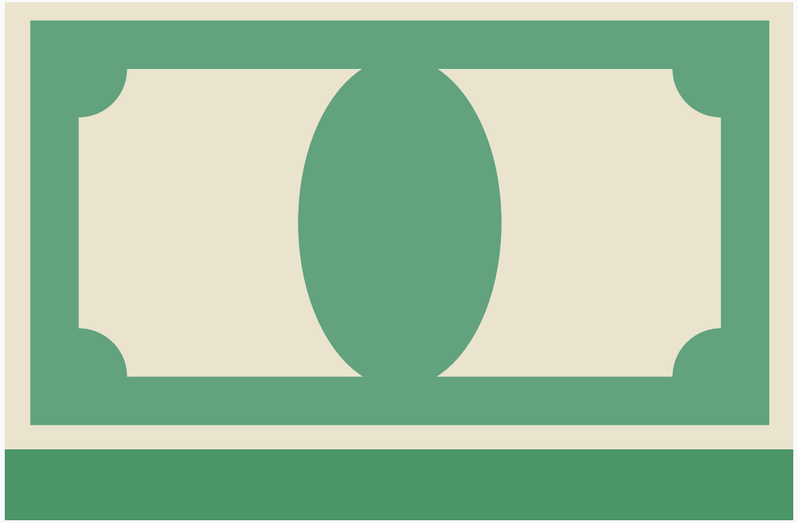
Katz & Wagner (2017)



"is there a place where I would like to hang out, and meet new people?"

condition 3. economic asset

Katz & Wagner (2017)



"will I be able to afford living there, and will help me start my venture?"

How can we transform the built environment to optimize innovation in Urban Innovation Districts?

the built environment as a socio-economic platform

1. A physical space for people to turn their ideas into reality

the built environment as a socio-economic platform

1. A physical space for people to turn their ideas into reality

2. A social space where people are able to reaffirm their identity with the innovation community.

the built environment as a socio-economic platform

1. A physical space for people to turn their ideas into reality

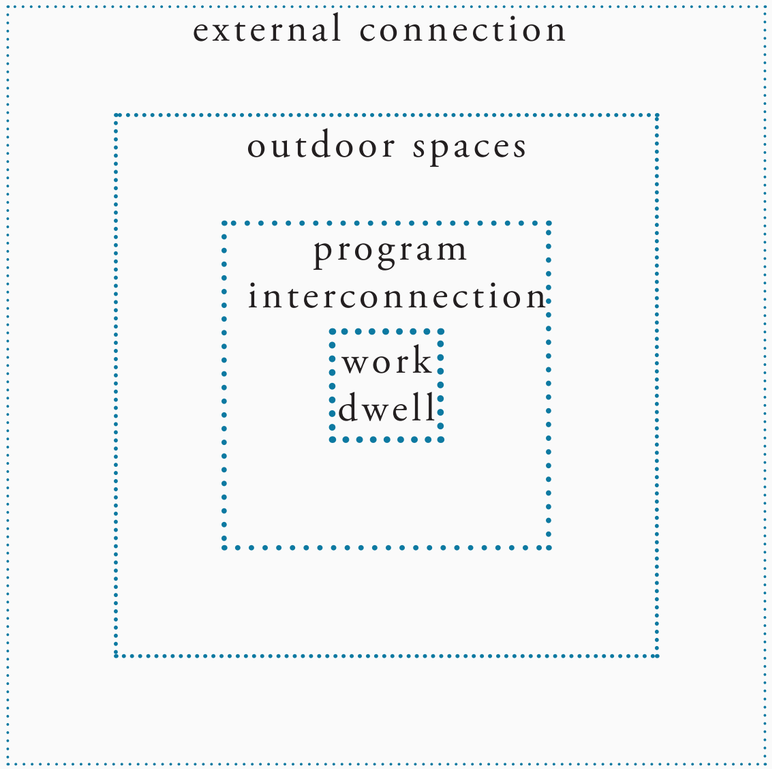
2. A social space where people are able to reaffirm their identity with the innovation community.

3. An economic space, where people will be supported with technology, which they otherwise cannot access.

How can we transform the built environment to optimize innovation in ***Urban Innovation Districts***?

there are 4 layers of socio-economic platforms in the built environment

Pluijmen (2017)



Dempsey et al., (2009)
Rivera, (2011)
Bouma et al., (2015)
Emenike et al., (2012)
Leuderitz et al., (2015)
Wagner & Watch, (2017)
Pluijmen, (2017)

External Connection

accessibility

physical and economic asset:

access system i.e.

* road infrastructure
* public transport infrastructure

Pluijmen (2017), Zandt (2018)

Outdoor Spaces

quality of outdoor environment

social asset:

* walk-ability and bike-ability
* diversity of open spaces to accommodate for different social activities.

Pluijmen (2017), Zandt (2018)

Program Interconnection

amenities that support living

economic asset:

* functional amenity i.e. supermarket

social asset:

* cultural amenity i.e. museum
* recreational amenity i.e. cafe, bar

Pluijmen (2017), Zandt (2018)

Work/Dwell

living and working patterns

economic asset:

* mixed income housing.
* flexible and adaptable working spaces.

social asset:

* shared social spaces in co-living and co-working spaces.

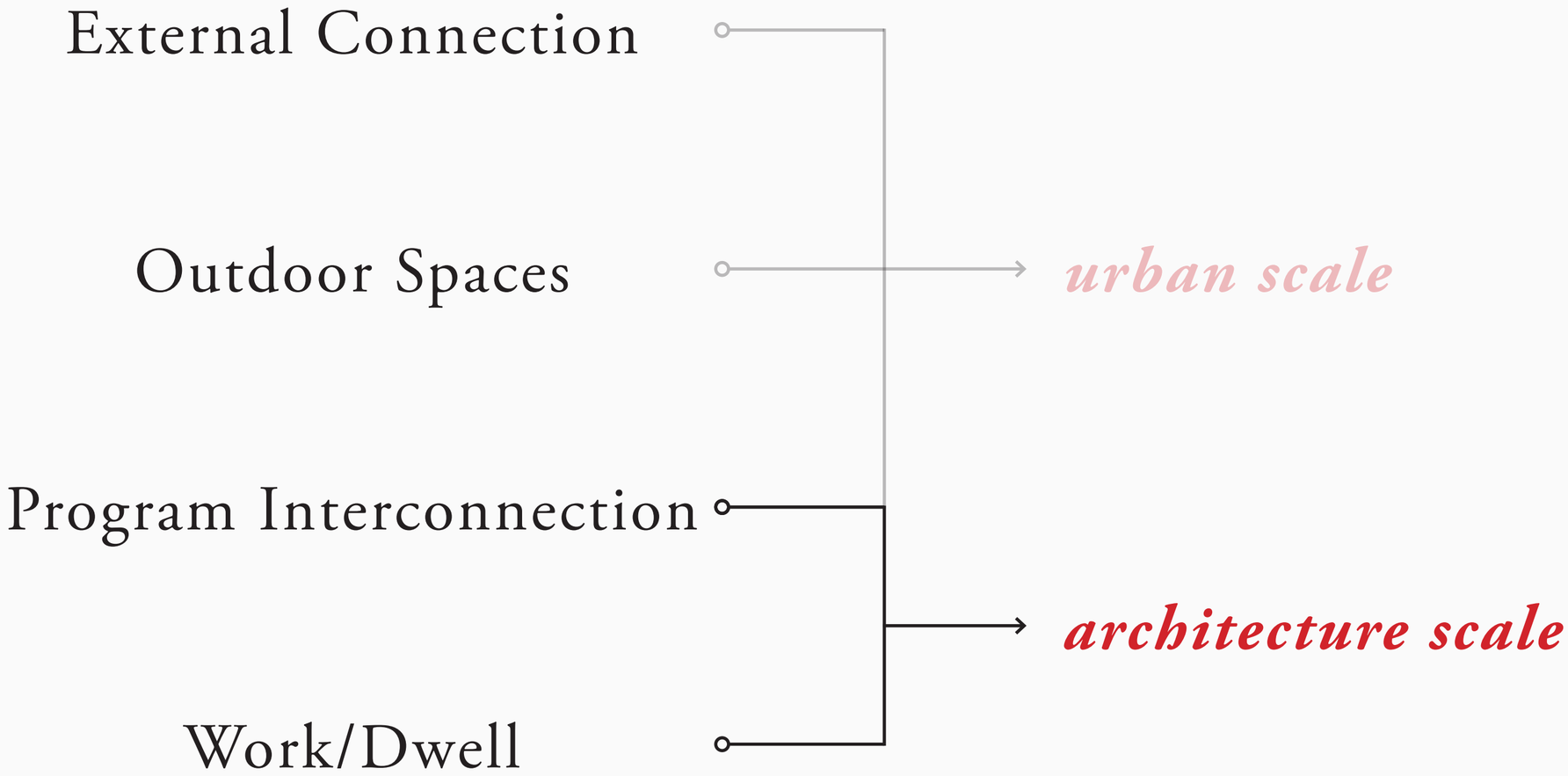
External Connection

Outdoor Spaces

Program Interconnection

urban scale

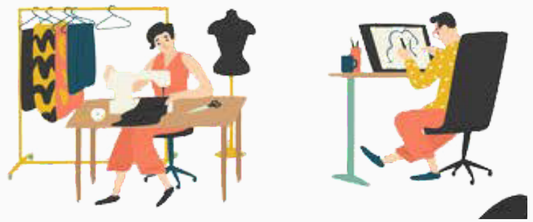
Work/Dwell


External Connection
Outdoor Spaces
Program Interconnection
Work/Dwell
urban scale
architecture scale

the end user groups of UIDs - Zandt (2018)

Companies

the end user groups of UIDs - Zandt (2018)

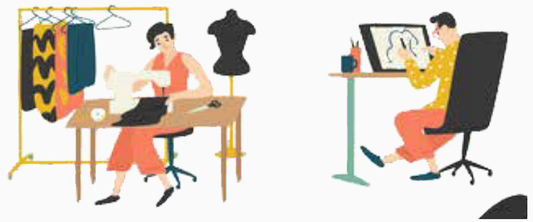


Companies Workers

economic asset

Early Development Late Development

the end user groups of UIDs - Zandt (2018)



Companies

Workers

Residents

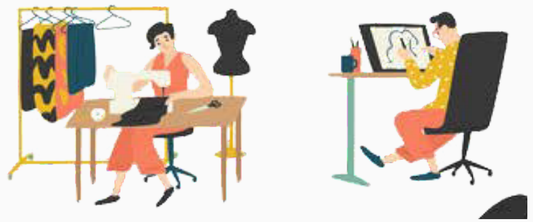
economic asset

social asset

Early Development

Late Development

the end user groups of UIDs - Zandt (2018)



Companies Workers Residents Visitors

physical asset

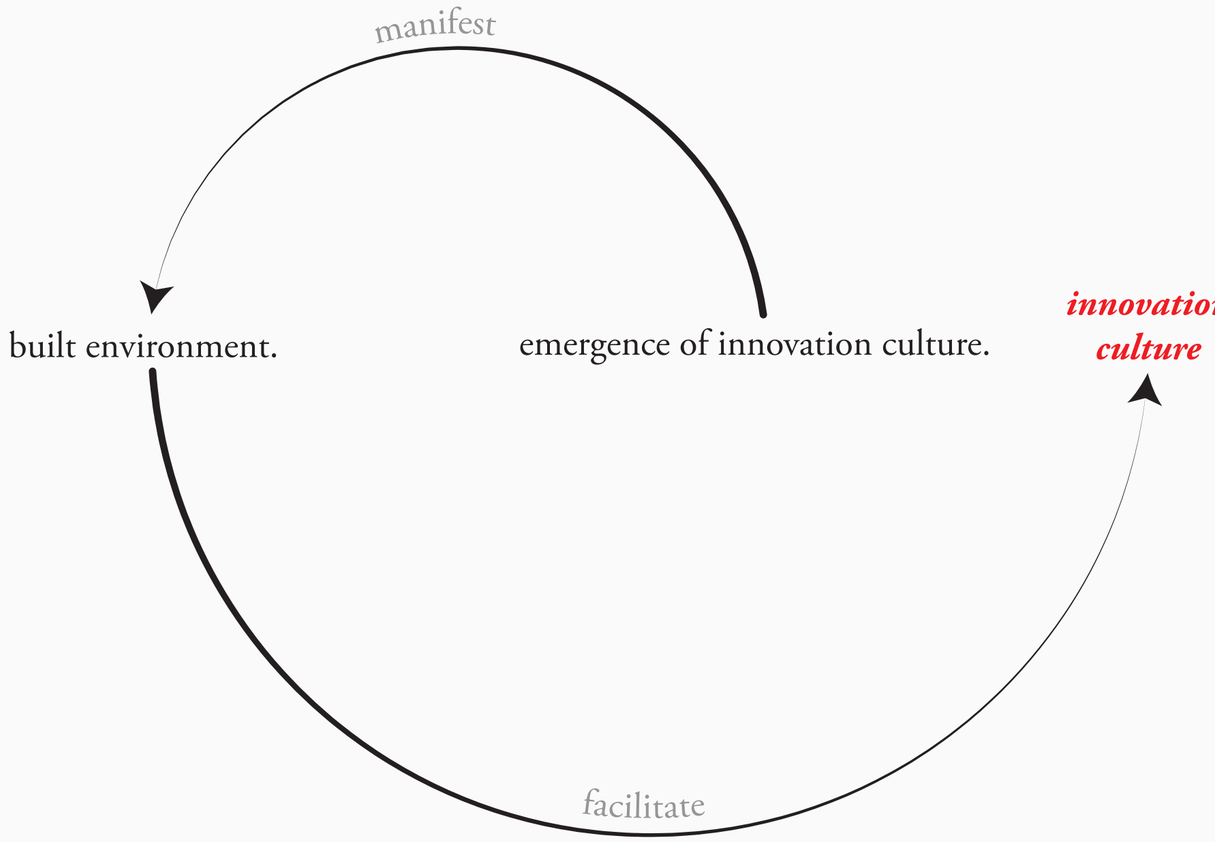
Early Development → Late Development

How can we transform the built environment to optimize innovation in ***Urban Innovation Districts***?

built environment.

emergence of innovation culture.

How can we transform the built environment to optimize innovation in ***Urban Innovation Districts***?



Introduction

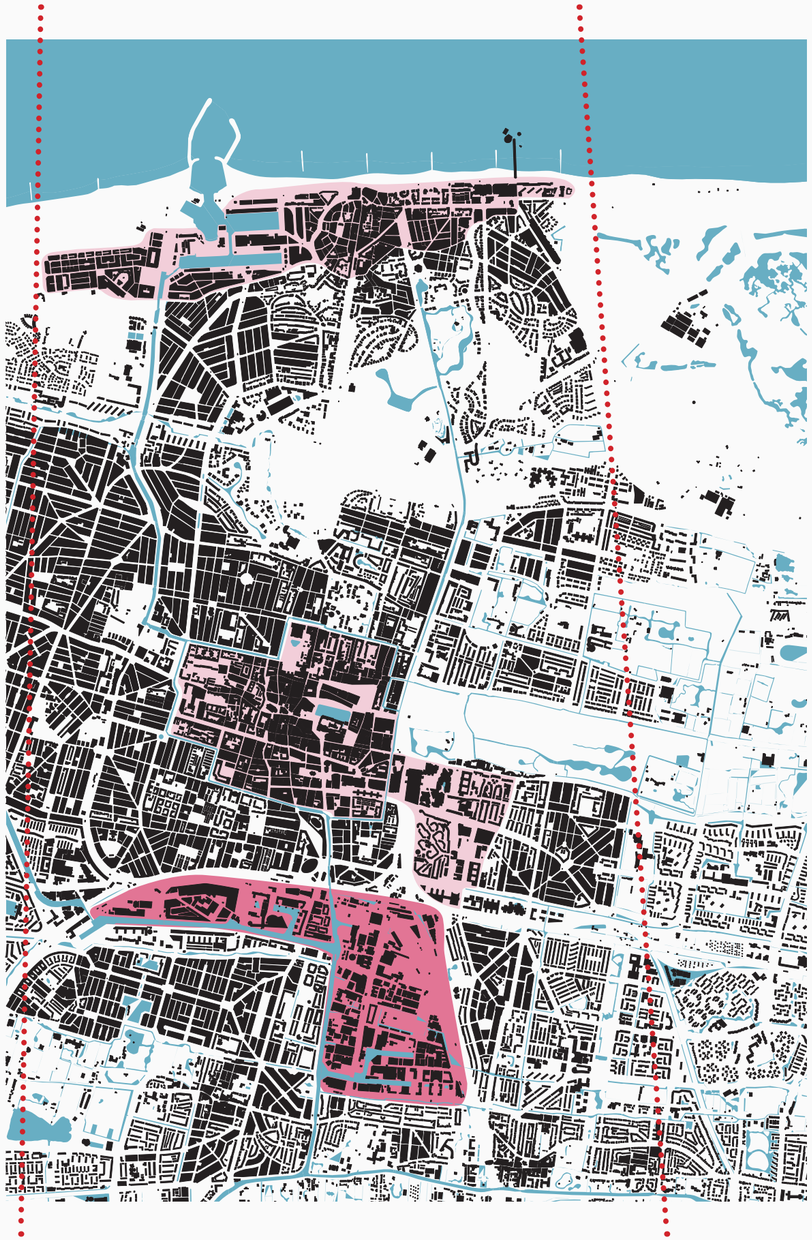
Theoretical framework

Applied research + design

Design proposal

Reflection

Applied research in design.



Centraal Zone

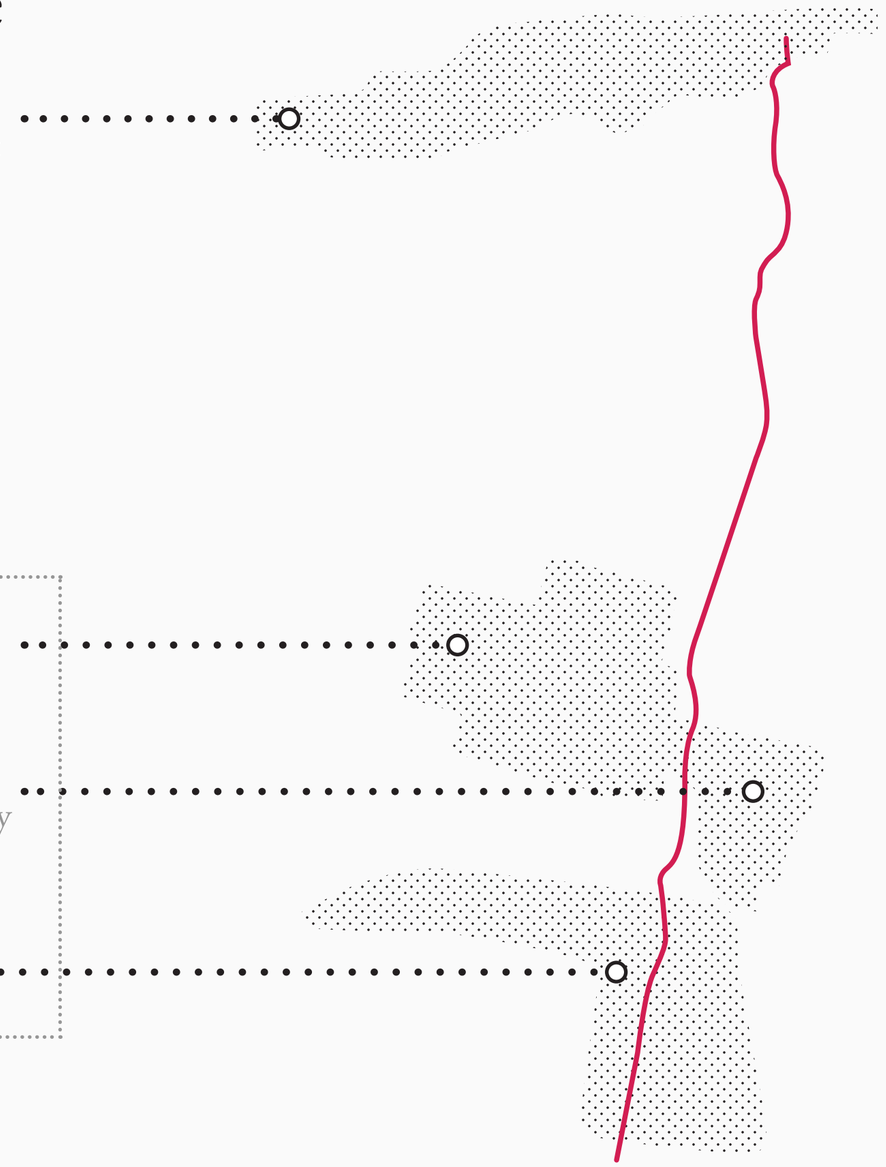
Scheveningen
Recreational/Tourist district

The New Economy
Den Haag 2040

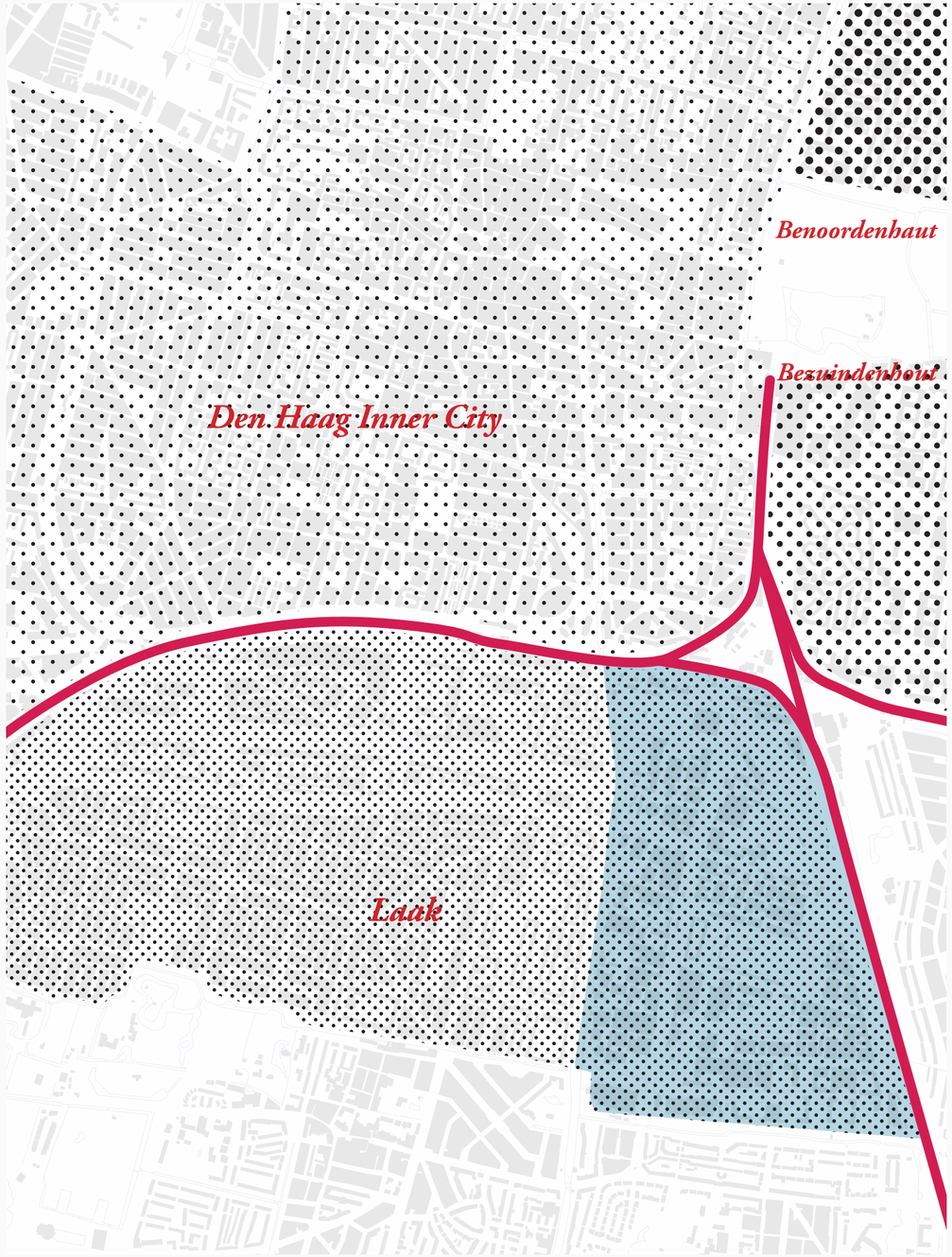
Historic inner city
Experienced economy

Beatrixkwartier
Business and service economy

Binckhorst
Creative economy



Fokkerhaven



Den Haag average annual net income:

€ 18,100

net annual income of districts:

€ 16,400

€ 31,300

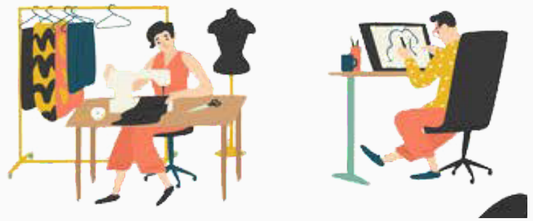
€ 24,400

€ 47,000

How can we spatialize innovation culture in Urban Innovation Districts?

How should Binckhorst develop to optimize innovation in an inclusive way?

Binckhorst development stage

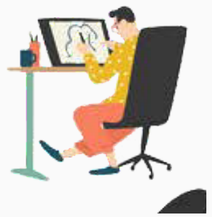


Companies → Workers

economic asset

Early Development → Late Development

A place based ethnographic approach



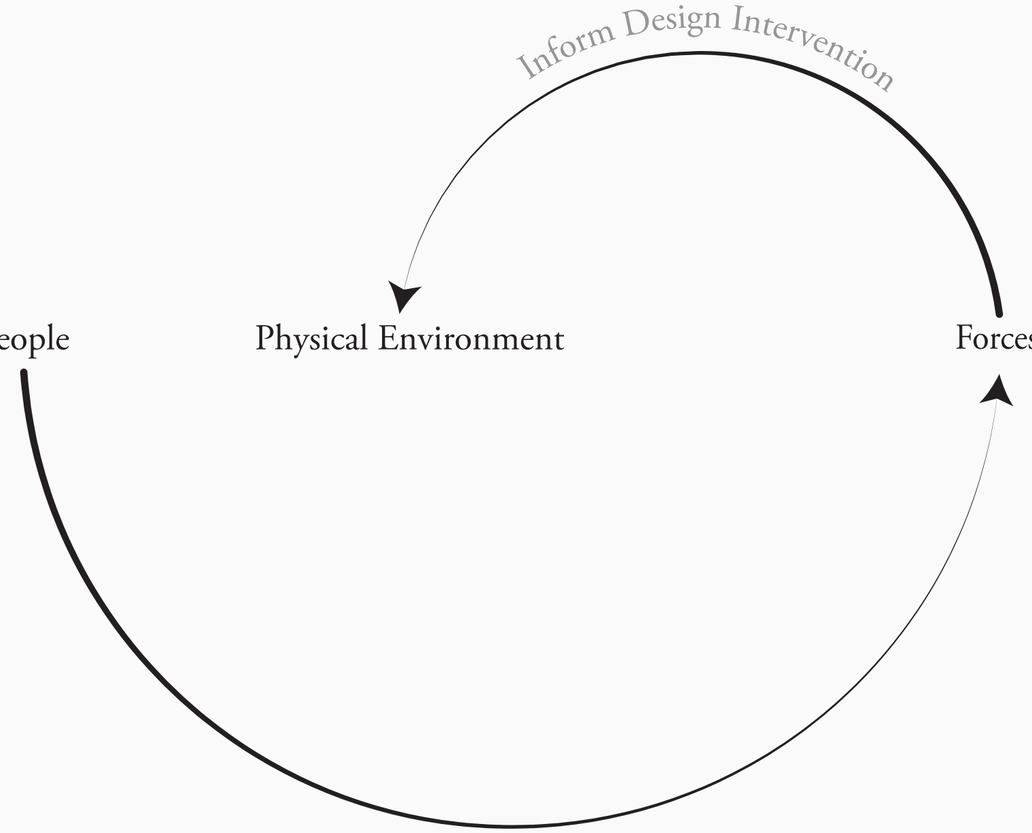
Workers

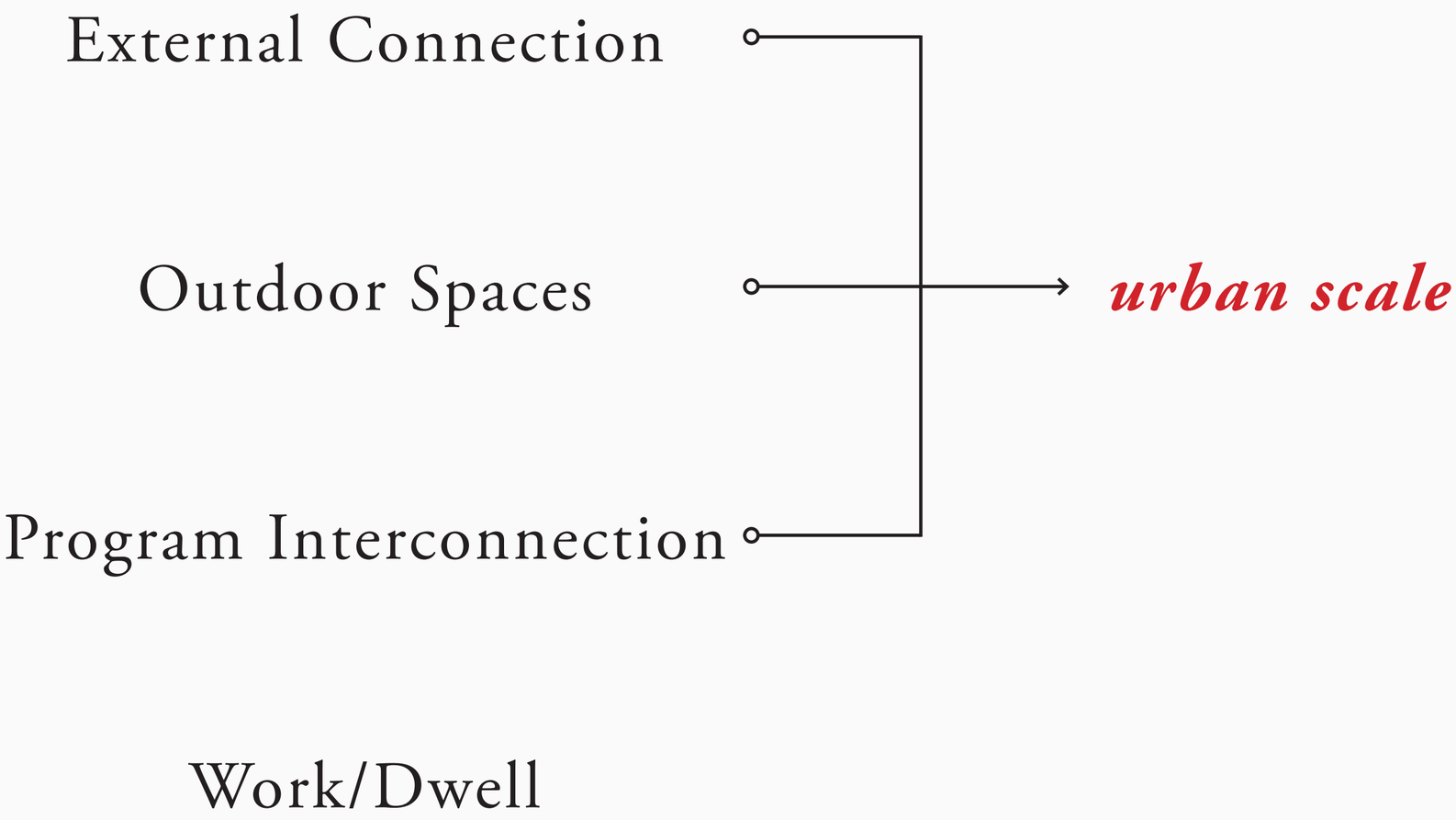
27 respondents

Residents

20 respondents

People




External Connection
Outdoor Spaces
Program Interconnection
Work/Dwell
urban scale

External Connection

accessibility

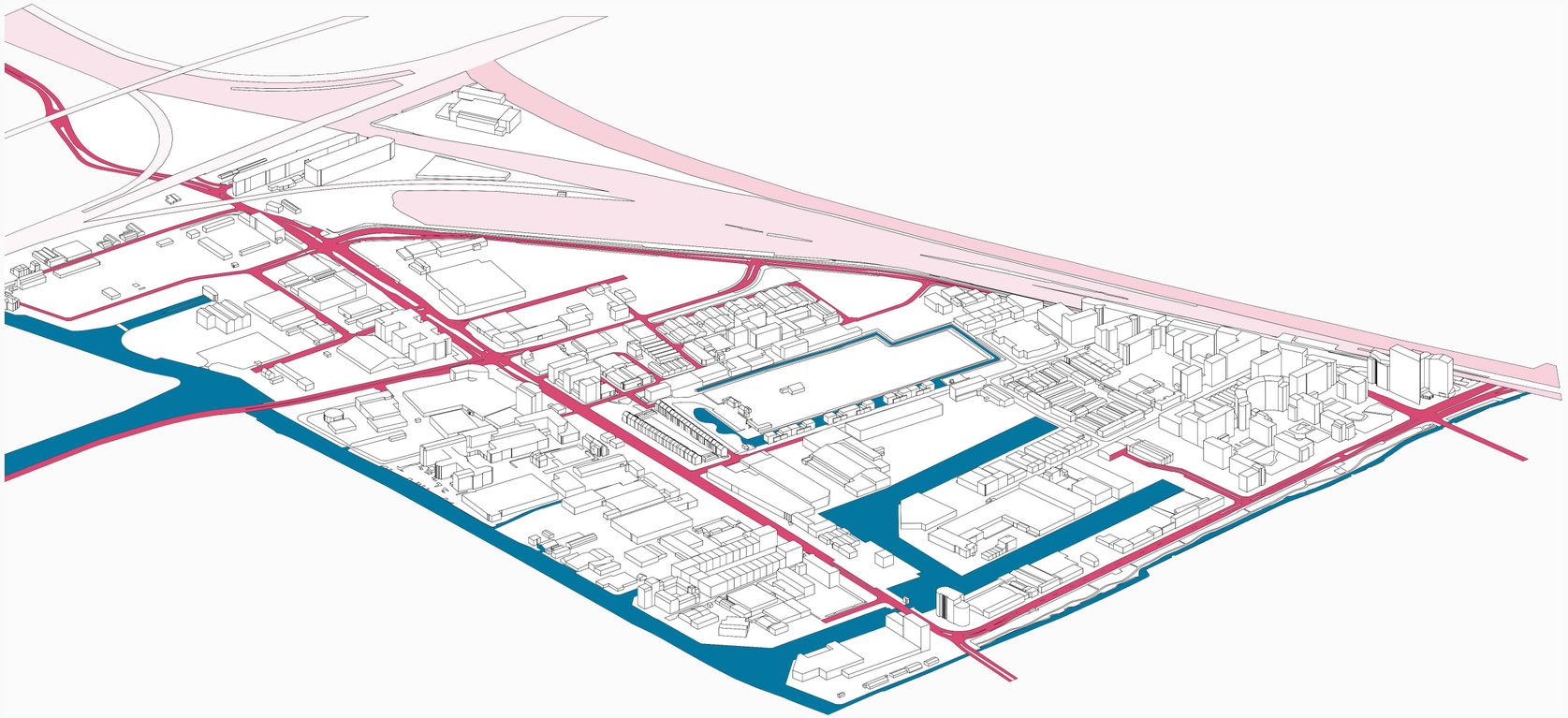
physical and economic asset:

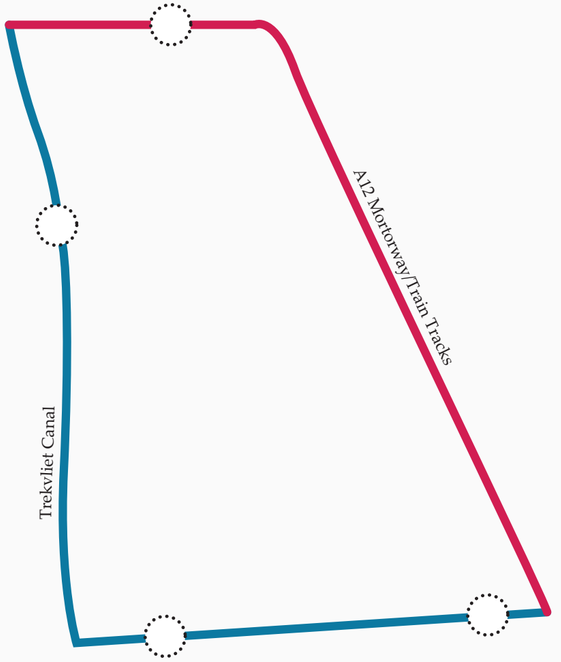
access system i.e.

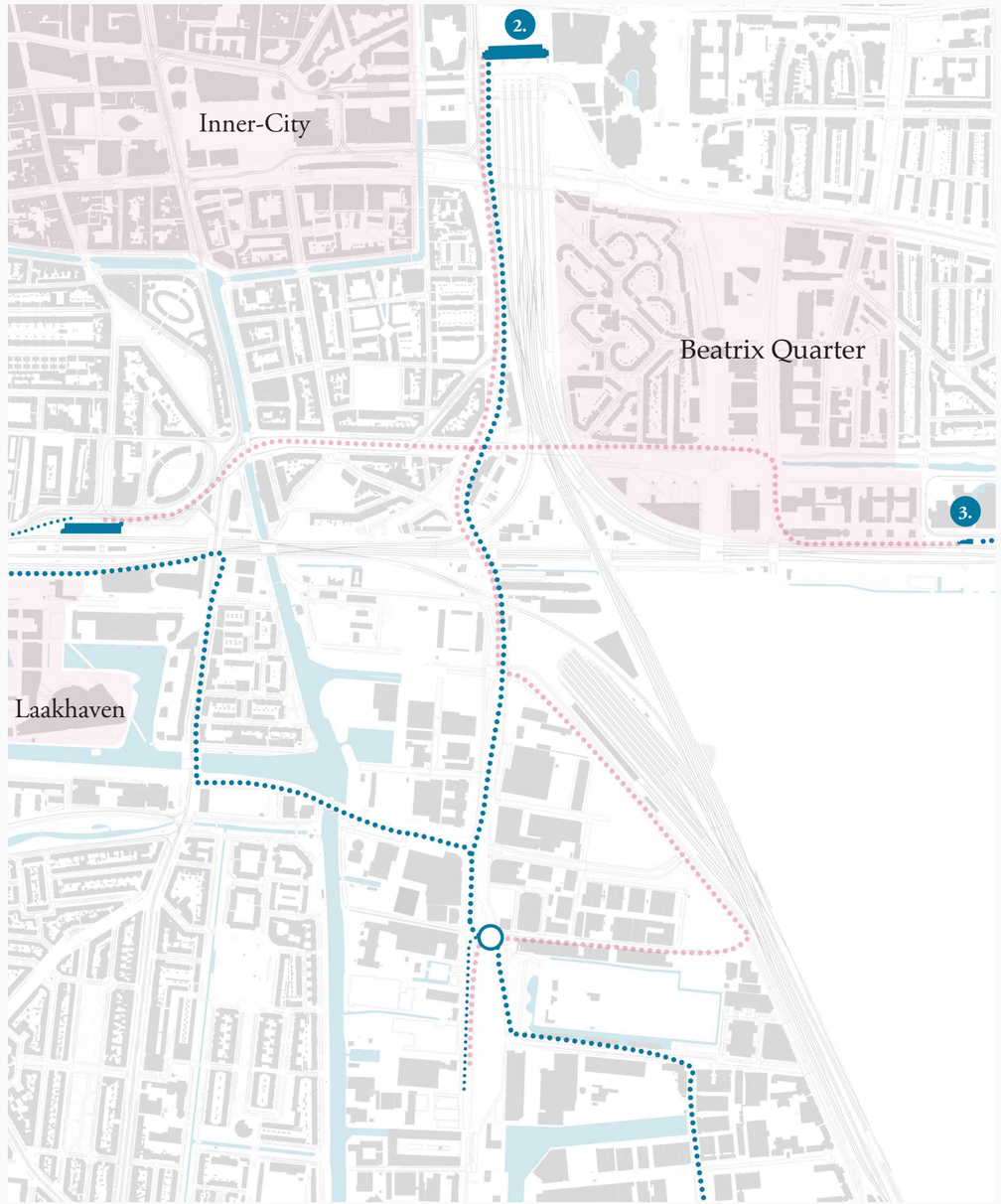
* road infrastructure
* public transport infrastructure

Pluijmen (2017), Zandt (2018)

binckhorst as an island.





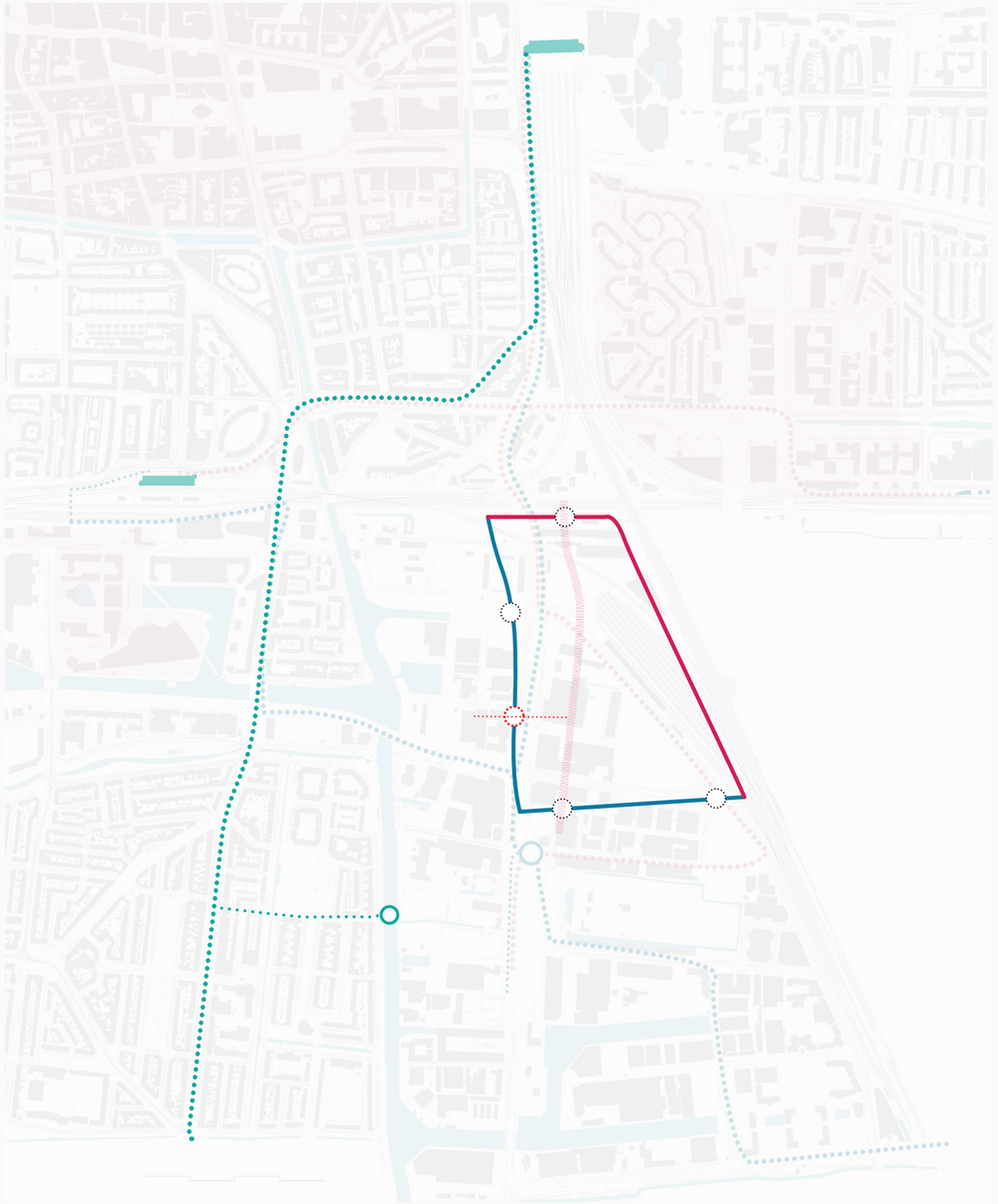


weakness:

- lack of diversity in public transport infrastructure.

Bus driving time to Binckhorst

1. Den Haag HS	Bus 26	Every 15 mins	11 mins
2. Den Haag Centraal	Bus 43	Every 10 mins	14 mins
3. Den Haag Laan Van Noi	Bus 23	Every 15 mins	28 mins



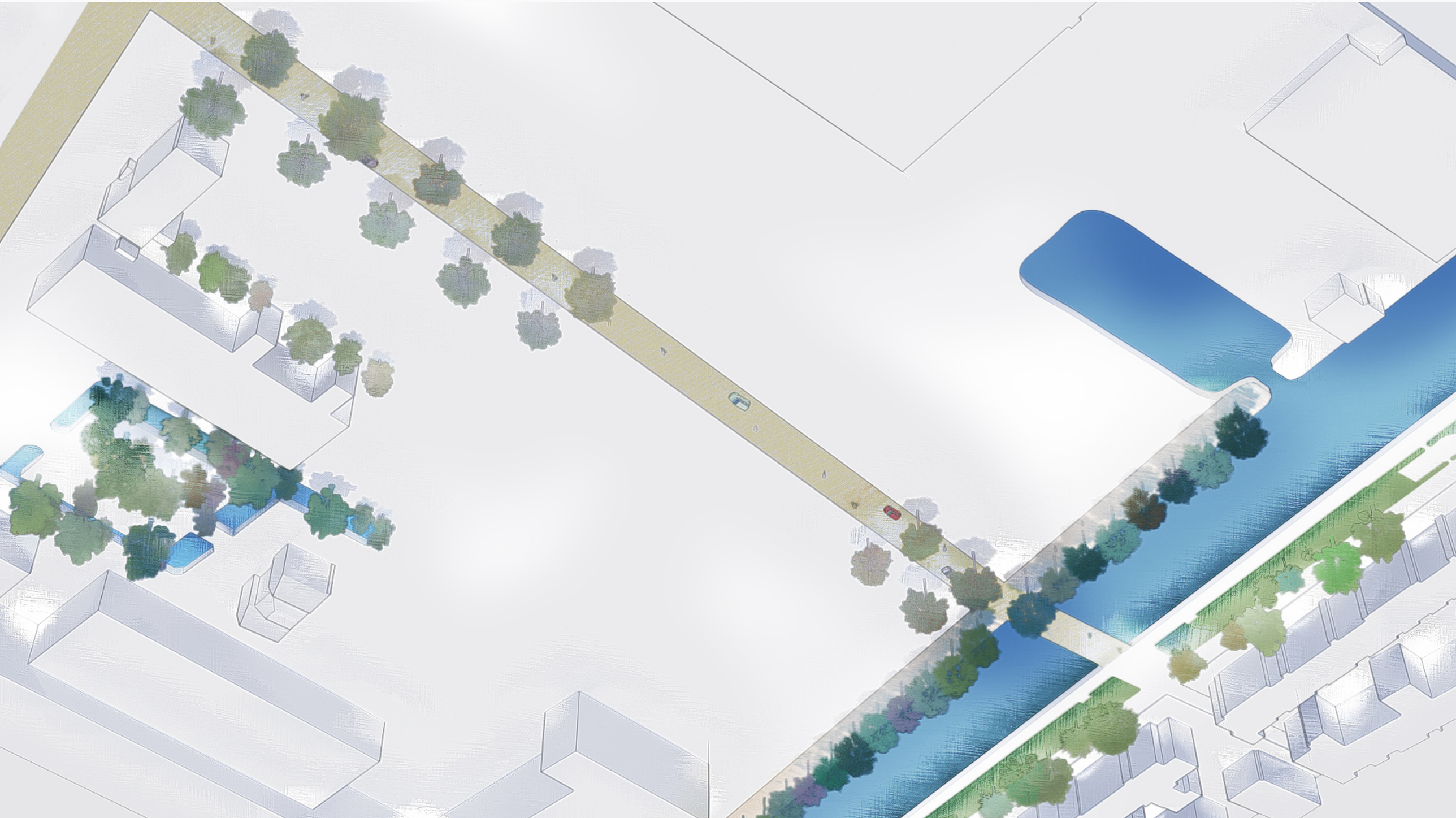
opportunity:

- diversification of public transport infrastructure.
- tram line to city center and holland spoor

Elementary schools/kindergarten

Restaurant/cafe/bar/supermarket/bakery

Non-essentials (electronic store/cigar shop)



promenade development

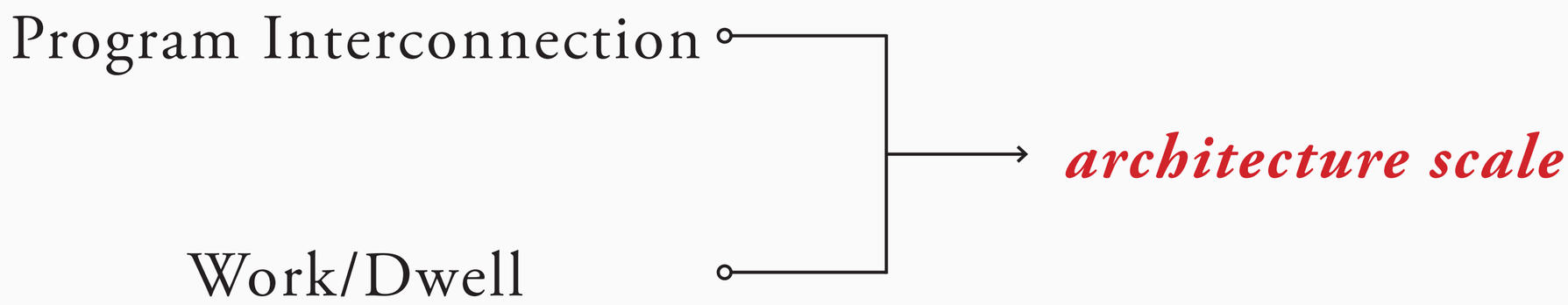
accessibility

cultivating social asset for the public:

1. Create social awareness
2. Social platform: recreational amenity

External Connection

Outdoor Spaces



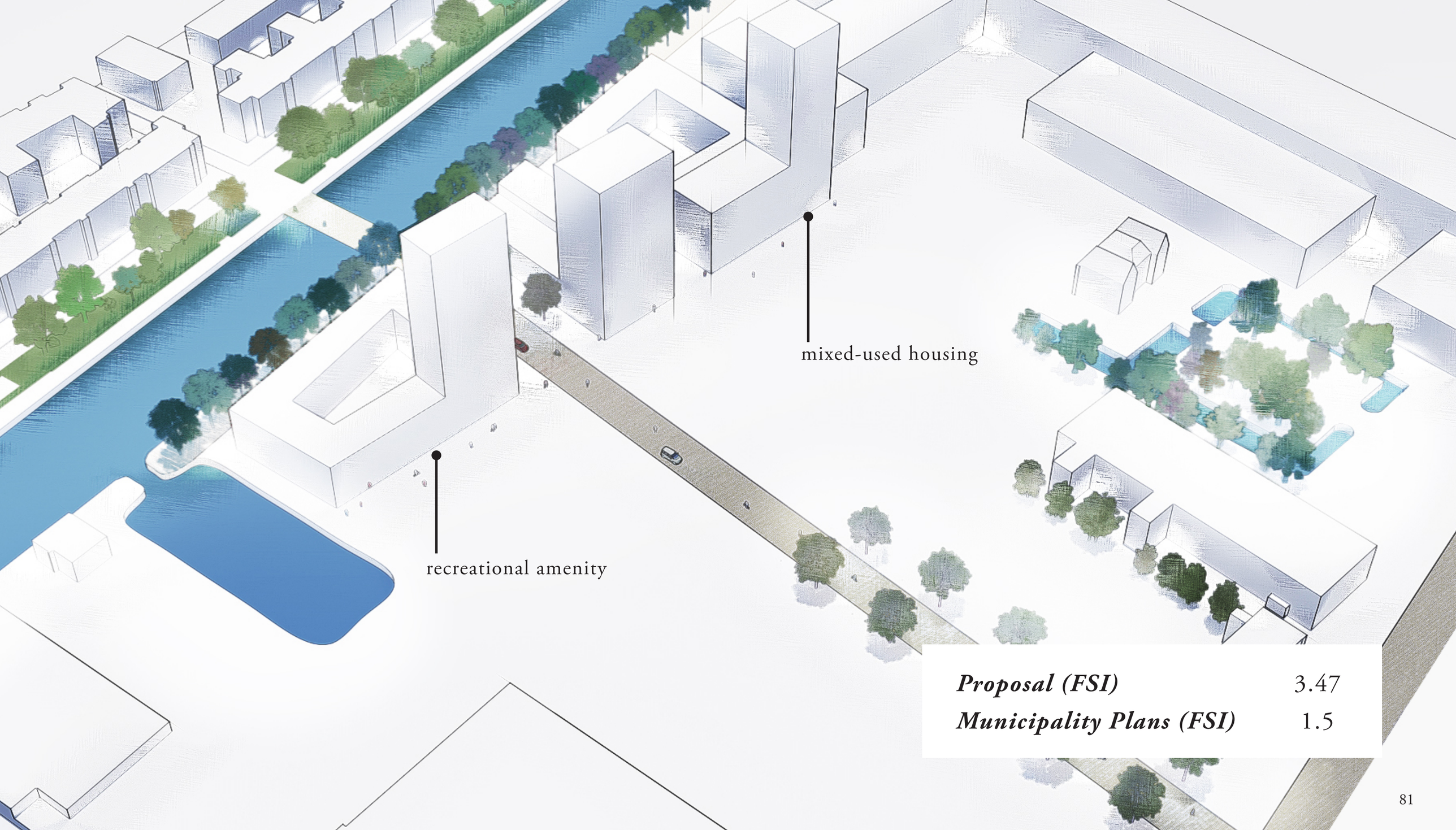

EIGEN
TERREIN
Opslag-haaglanden.nl
VUURROOD
VEILIGHEID

How important do you find functional amenity?
5 most important, 1 least important

Elementary schools/kindergarten

Restaurant/cafe/bar/supermarket/bakery

Non-essentials (electronic store/cigar shop)



Proposal (FSI)	3.47
Municipality Plans (FSI)	1.5

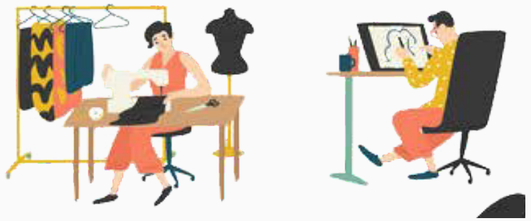
activating promenade

amenity + housing

mixed-used development to activate promenade:

1. g/f: functional + recreational amenity. (social asset)
2. upper floors: different housing typologies to accomodate for mixed-income group residents. (economic asset)

the end user groups of UIDs - Zandt (2018)



Companies

Workers

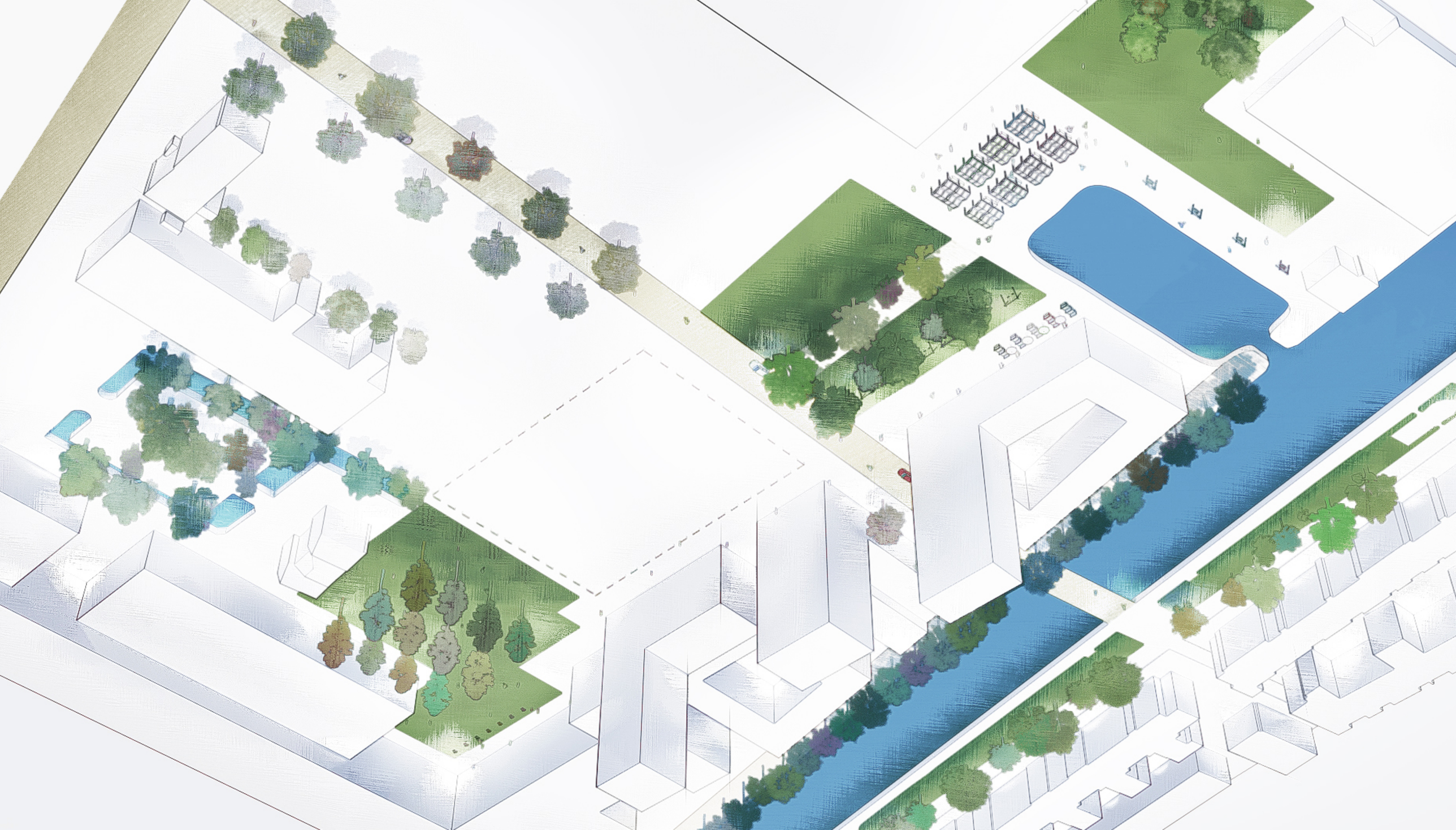
Residents

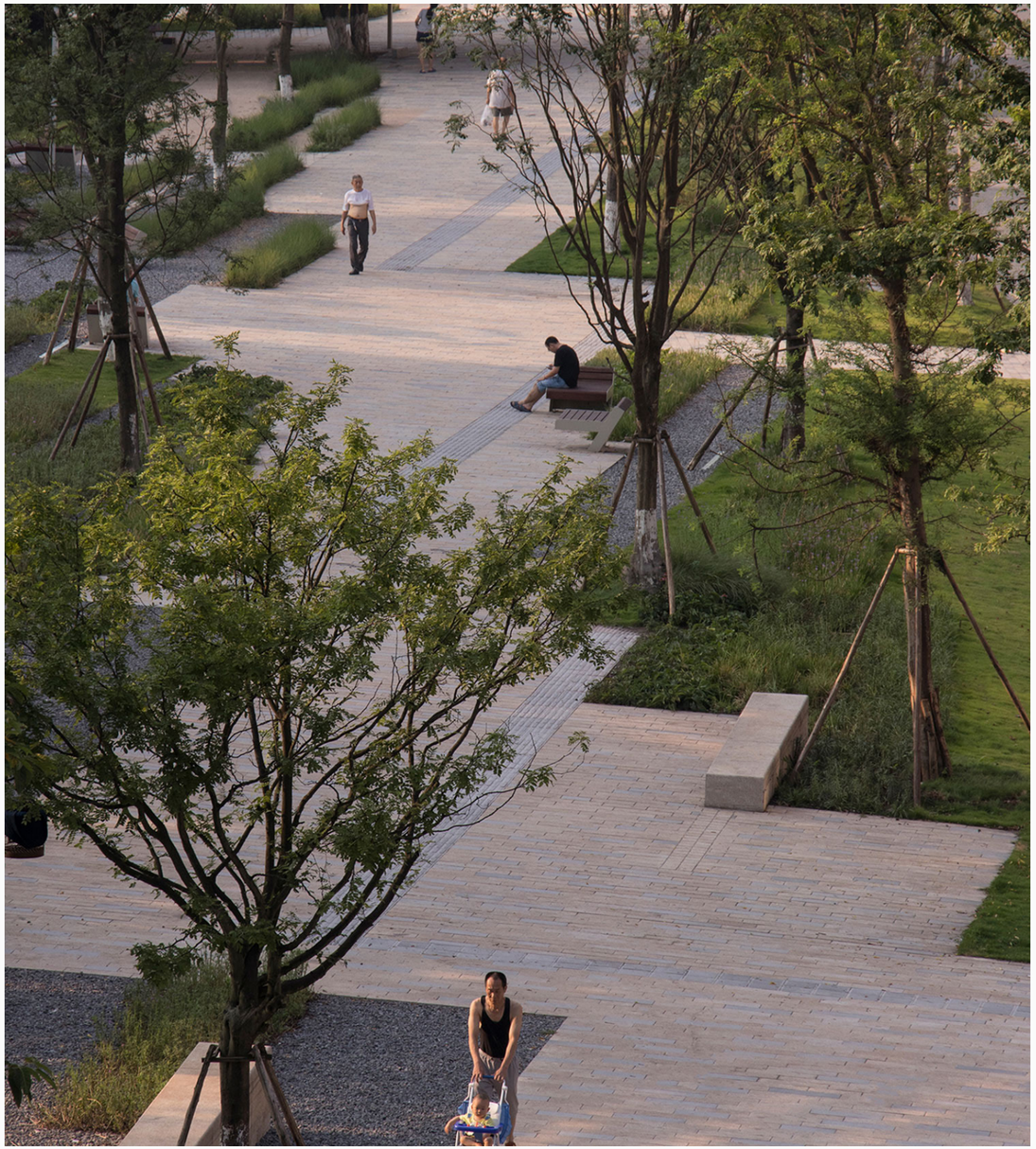
economic asset

social asset

Early Development

Late Development





Outdoor Spaces

quality of outdoor environment

social asset:

* walk-ability and bike-ability
* diversity of open spaces to accommodate for different social activities.

Pluijmen (2017), Zandt (2018)

GREY BRICK

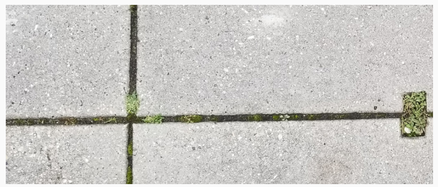
ASHPHALT

ASHPHALT TILE

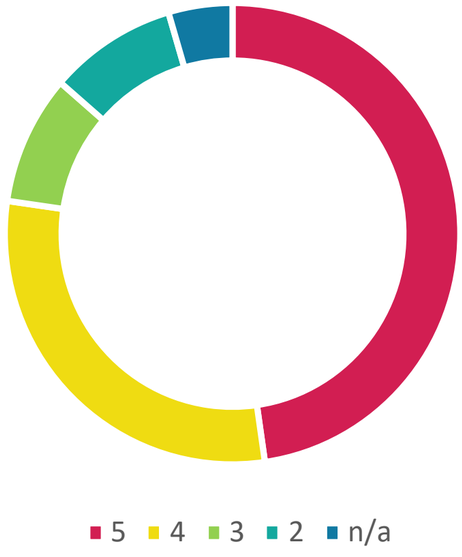
RED BRICK

STONE

CONCRETE



How important do you find natural amenity (i.e. greenery)?
5 most important, 1 least important




MOOF


FOKKER TERMINAL
FOKKER TERMINAL


M0OF

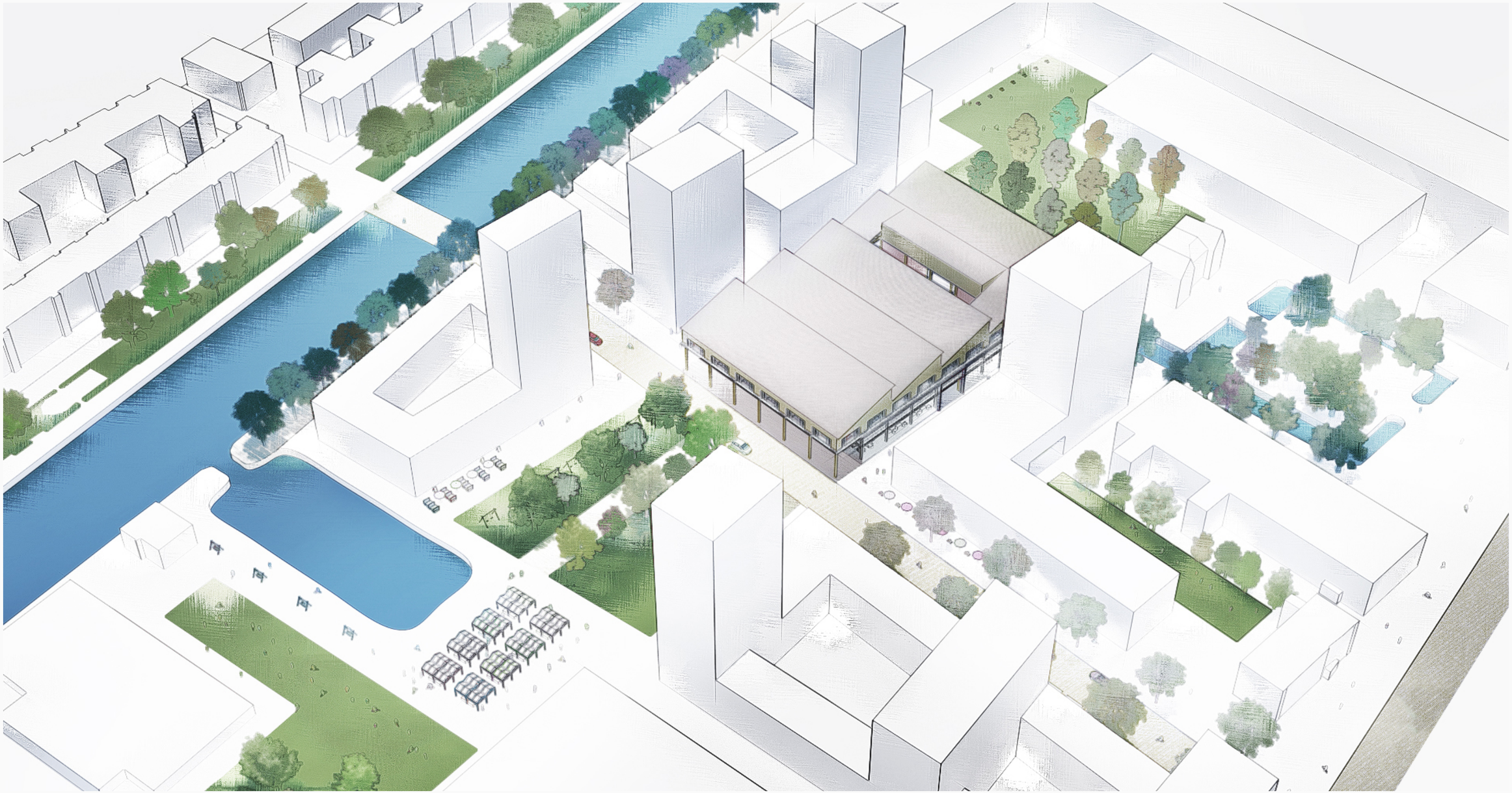

FOKKER TERMINAL

the end user groups of UIDs - Zandt (2018)

Companies Workers Residents Visitors

physical asset

Early Development → Late Development



innovation factory

"a place that embodies the necessary conditions to nurture innovation culture to produce knowledge"

innovation factory

1. A physical space for people to turn their ideas into reality

innovation factory

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1. A physical space for people to turn their ideas into reality

2. A social space where people are able to reaffirm their identity with the innovation community.

3. An economic space, where people will be supported with technology, which they otherwise cannot access.

scale

social asset:

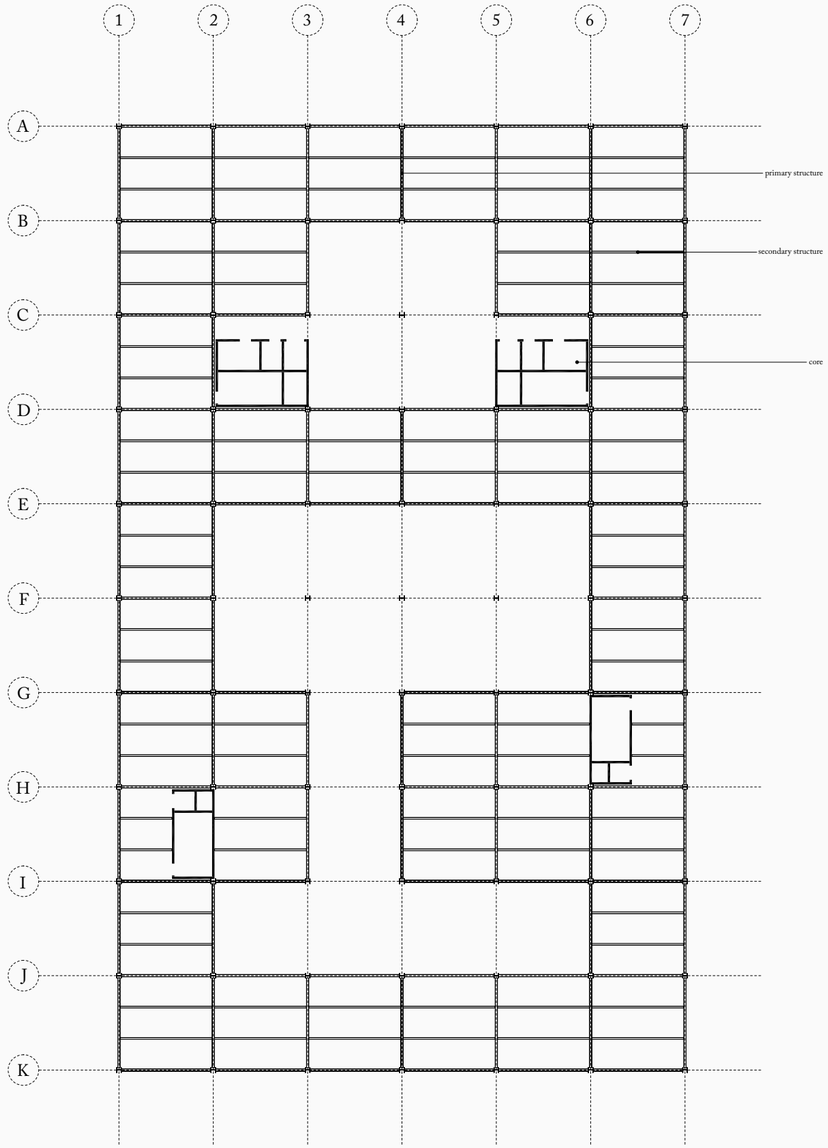
*in a high dense area, it is critical to retain the human scale. As it creates the intimacy required for casual interaction and visibility of a community.

the urban axis

all major central axis' leads to the entrance of the building.

maker's garden

The main passage of the building is an integral part of the park that connects the Northern and Southern part of the site. An unwitting jogger or an elderly can experience the building without feeling they have entered a different domain.



structural plan, g/f.
1:200

structural system

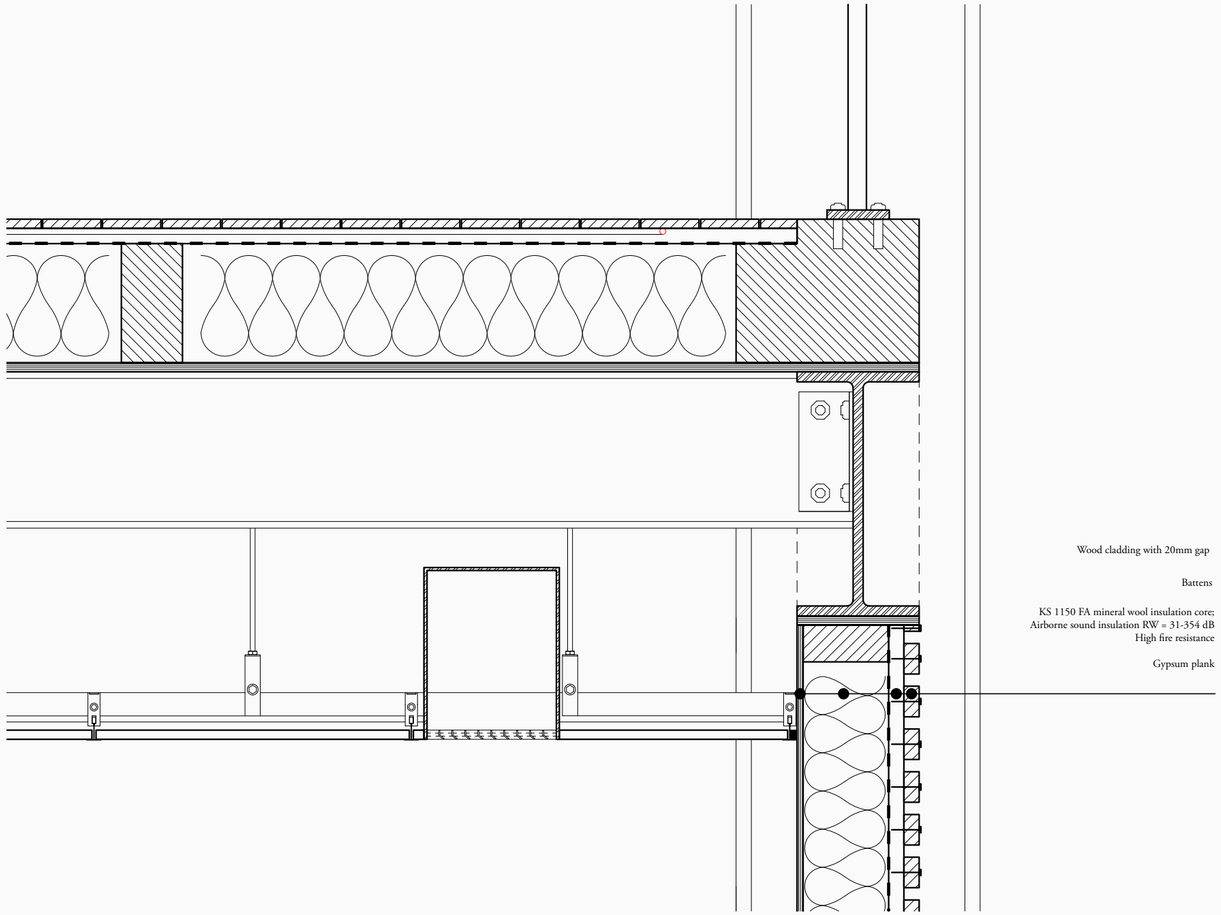
blurring the lines between park and building:

* verticality expressed with exposed I steel beams.
* Wooden roof truss system to imitate the crown of a tree.

materiality

steel and wood construction

* steel: historic identity of Binckhorst
* wood: new identity of Binckhorst

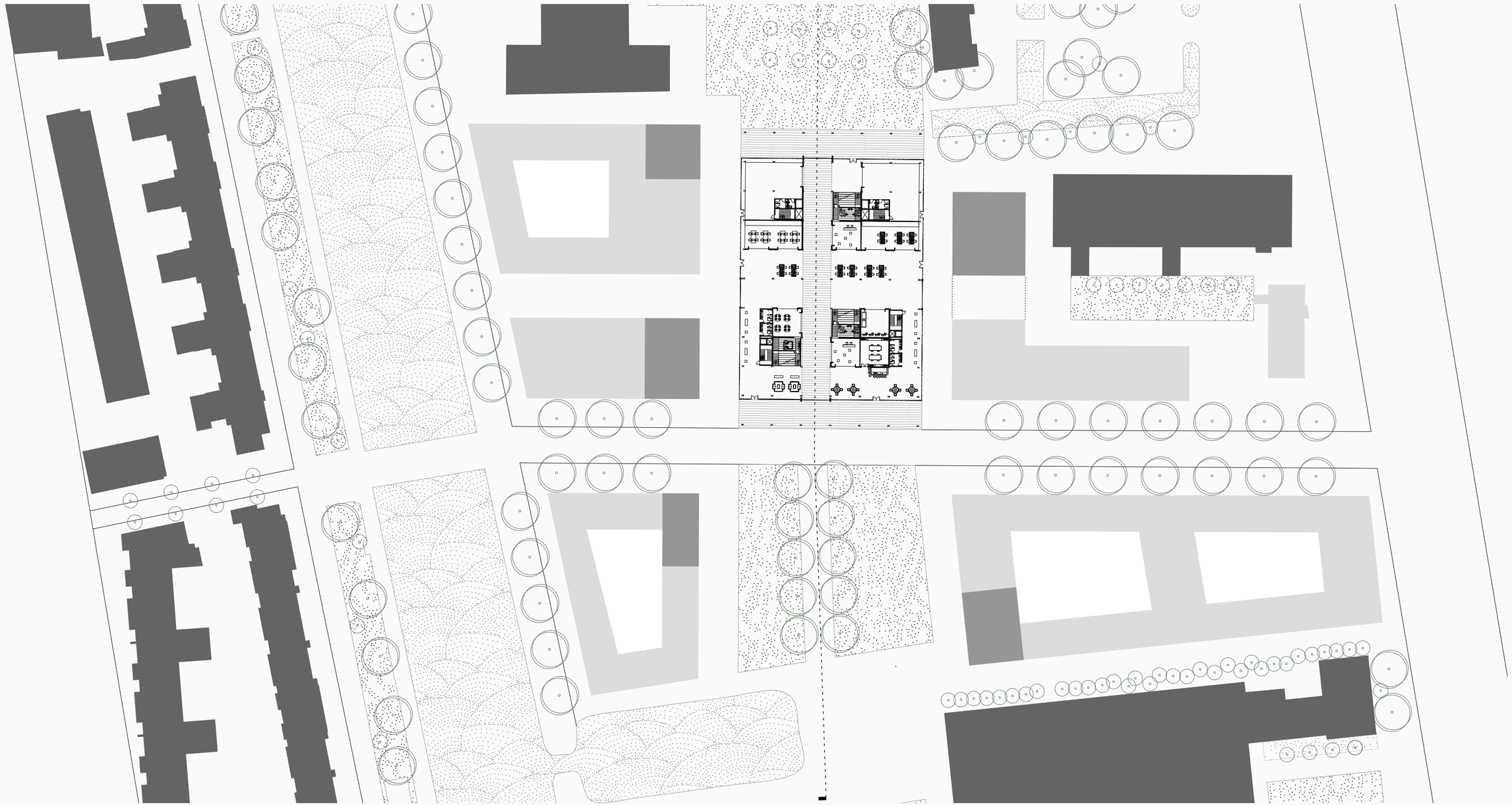


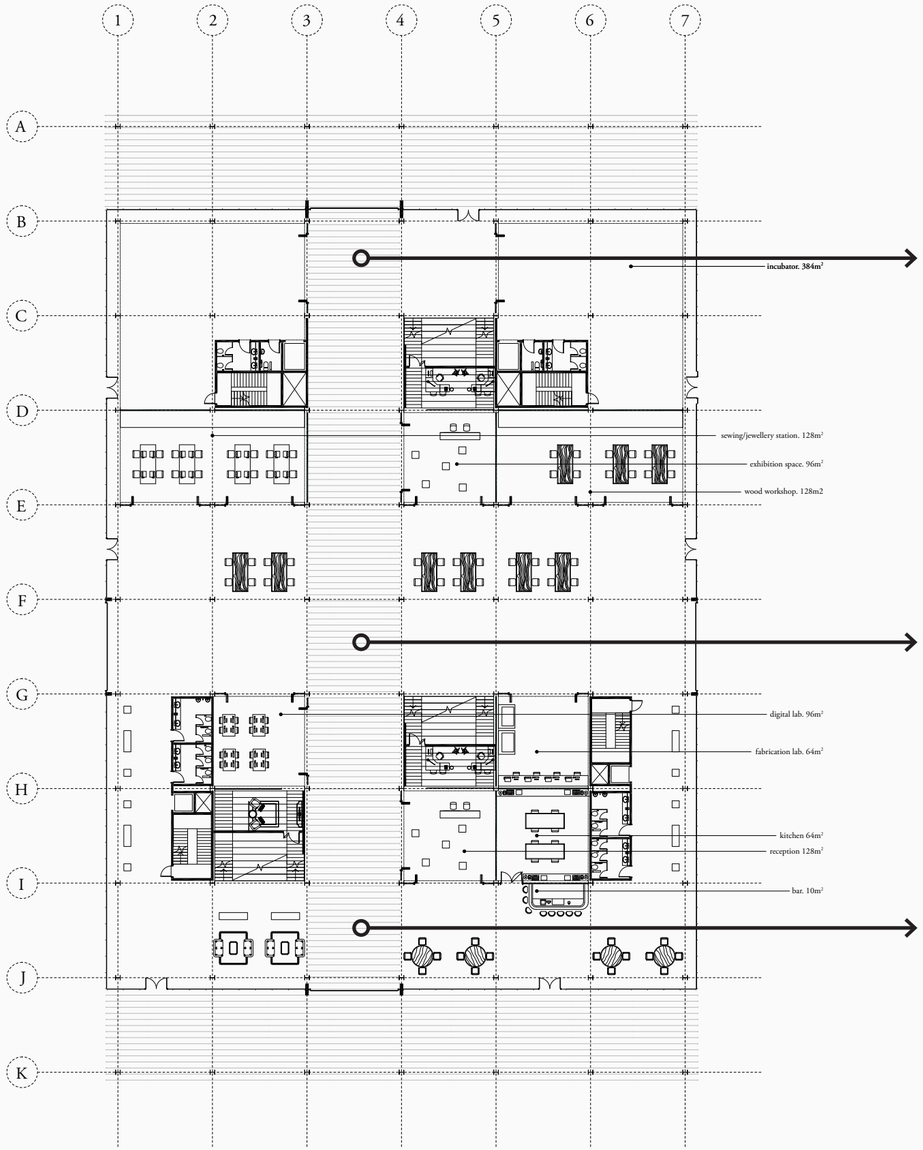
detailing

a humble design to encourage diversity

* how can we make an inclusive space so even a garbage man will feel socially accepted in the innovation community?

the extended park.
section 1, 1:500





creation. ground floor.
1:200

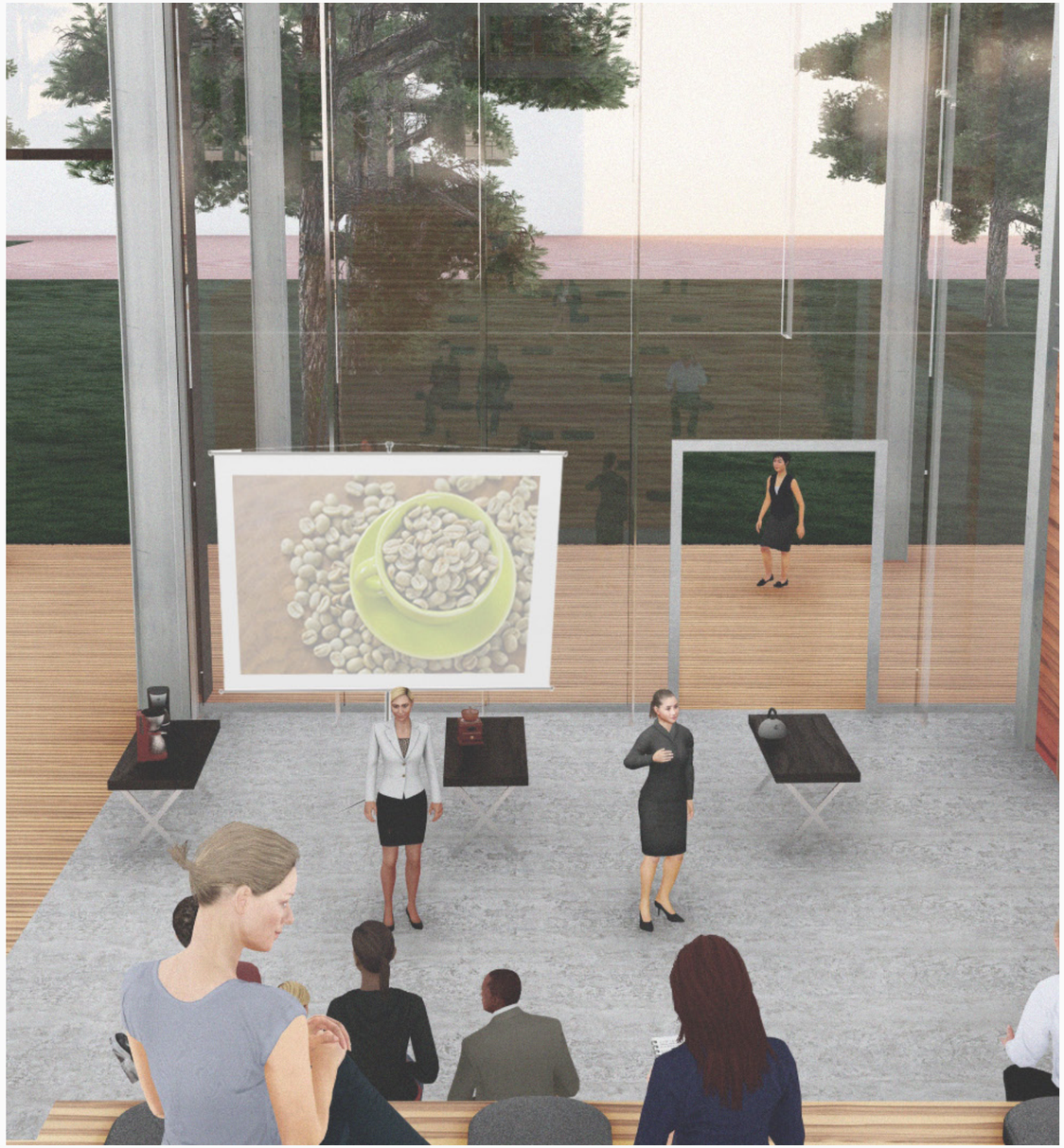
the voids.

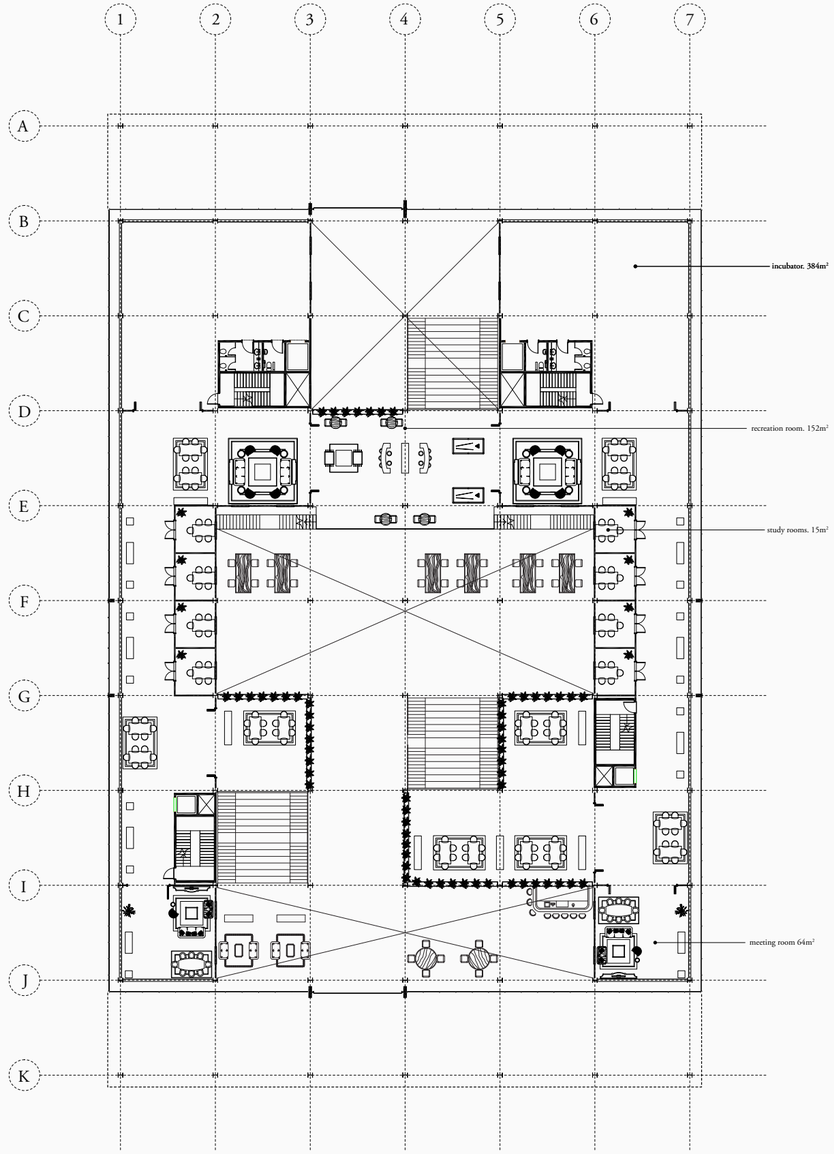
social asset

* making the community visible.

economic + social asset

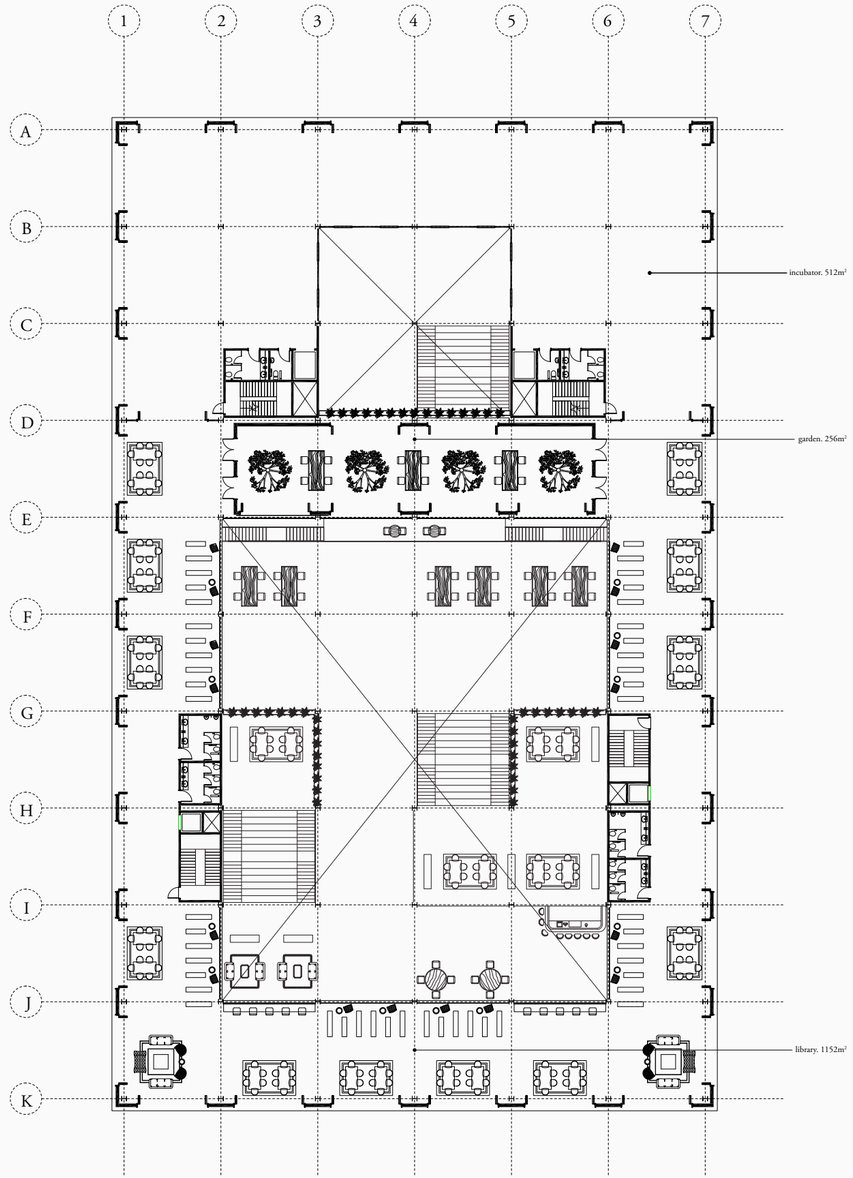
* workshops activate ground floor.
* provide mentor and technology to the public.





collaboration. first floor.
1:200

Controlled floor (physical + economic asset)

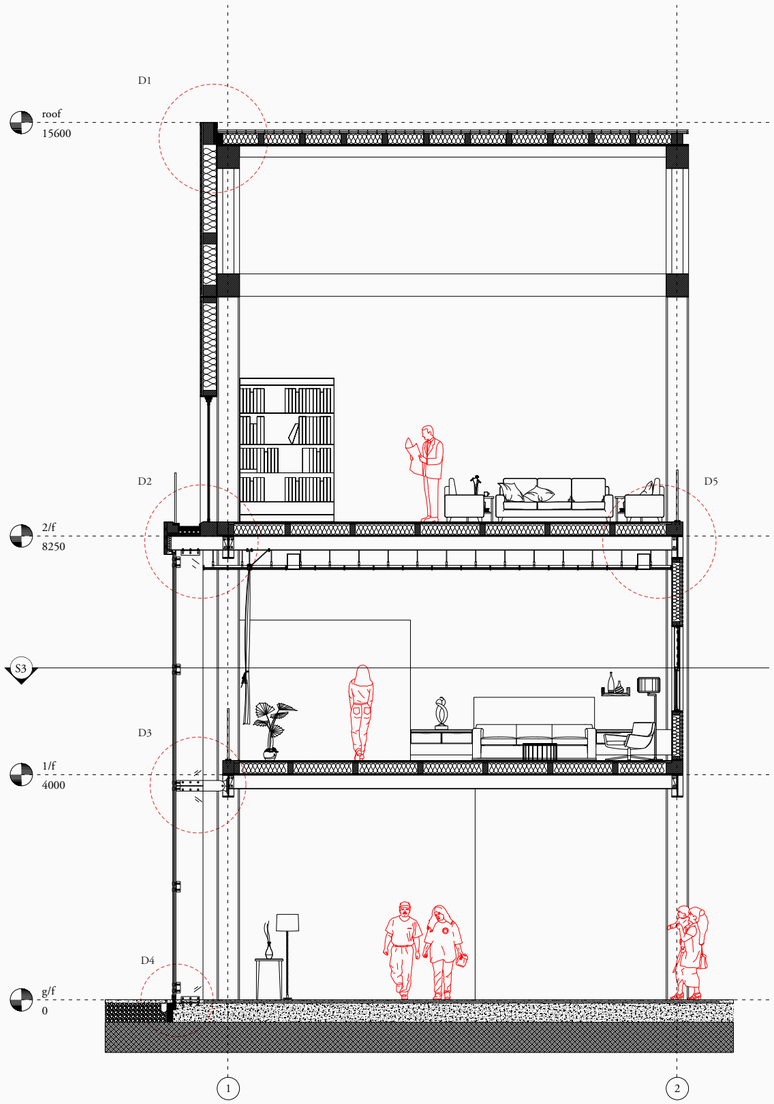


Independent learning floor (physical + economic asset)

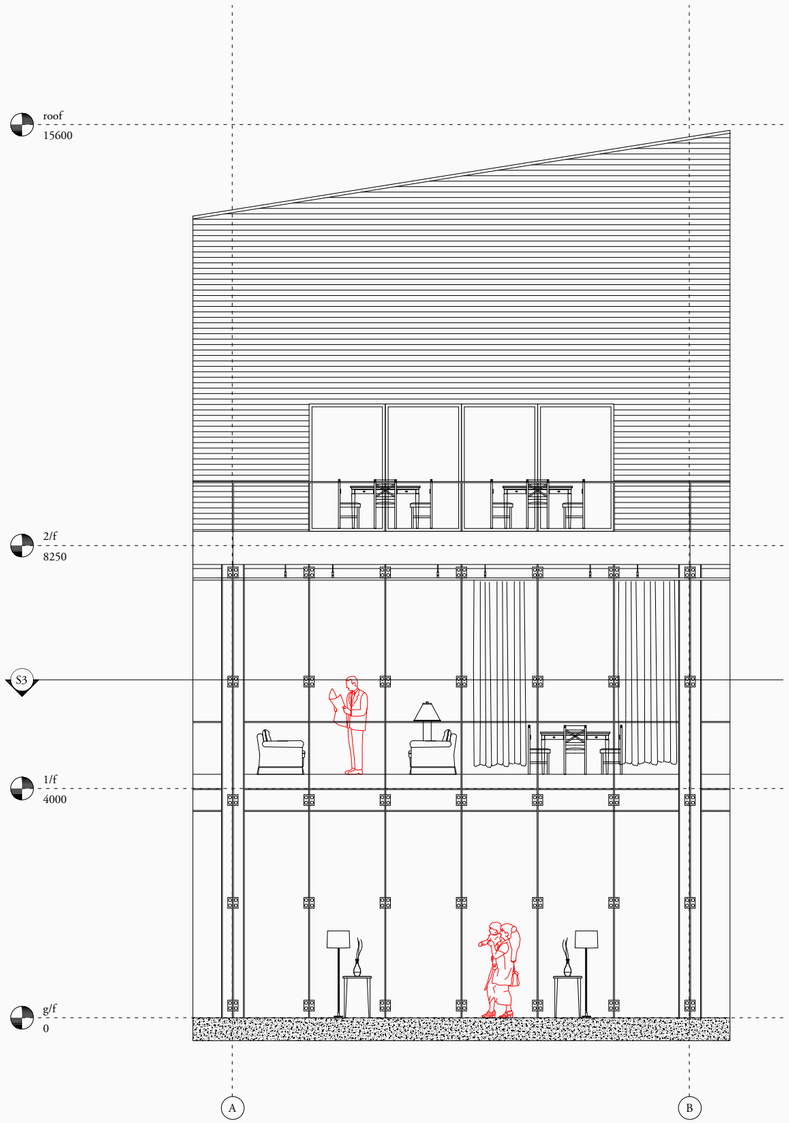
consumption. second floor.

maker’s living room

During the winter, the passage can close. Because of the transparency of the building, the whole building becomes a glowing box that could be perceived as a haven for innovators.



section.
1:50

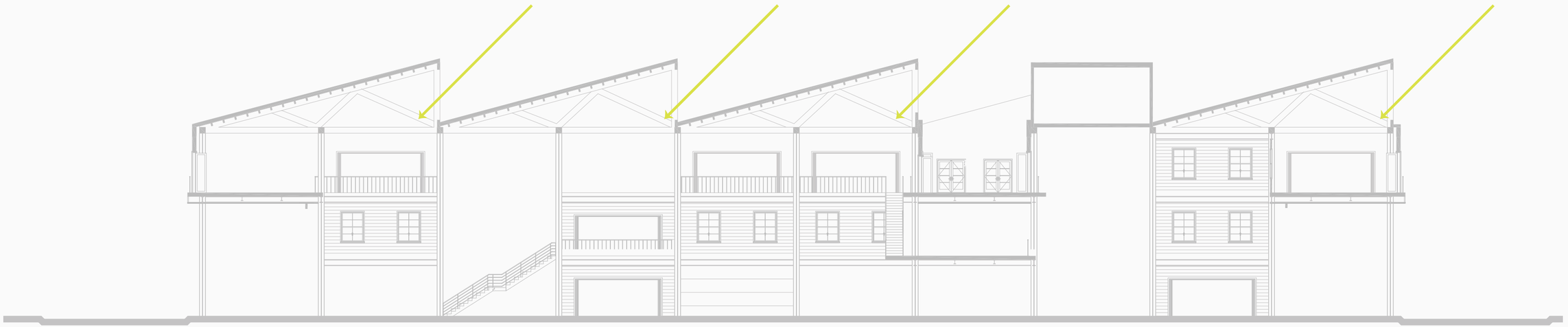


elevation.
1:50

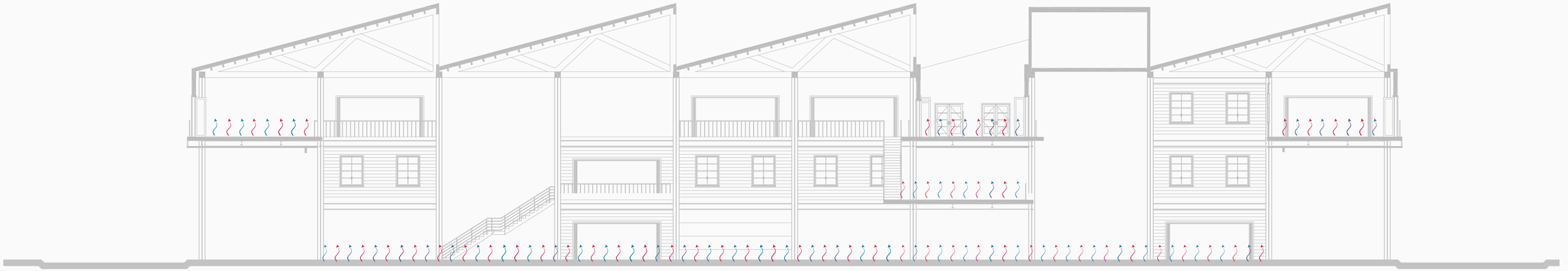
climatic strategy

integrated passive and mechanical heating, cooling and ventilation system.

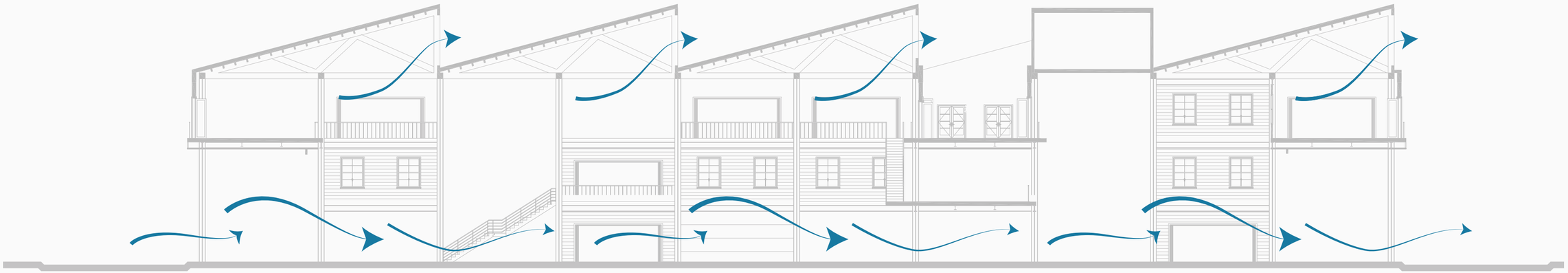
solar energy harvesting.



natural sunlight. summer/winter



floor heating. winter. | floor cooling. summer.



natural ventilation + mechanical ventilation. summer.

mechanical ventilation. winter.

Introduction

Theoretical framework

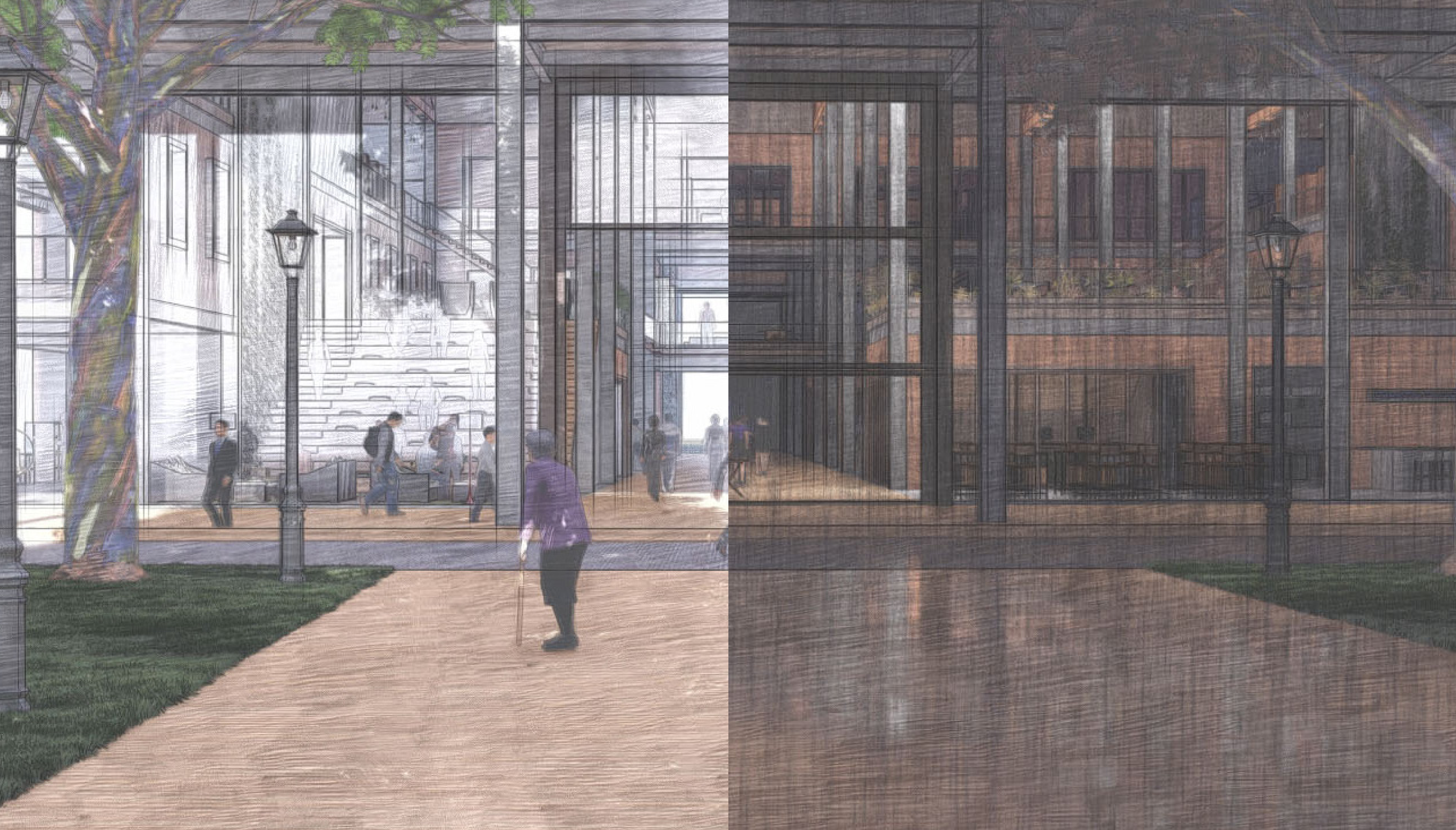
Applied research + design

Video

Reflection

How can we *measure* the success of the building?

How can we *see* innovation in the building?



Where can we see innovation?

the true measure of a success in an innovation space is not the space itself, but in ***the culture*** that it is able to both sustain and nurture.

... and thus the ***innovation of the people*** is the true measure of innovation.

and in this way... the building
becomes ***ephemeral***,

because even in its ending...

it lives through the heart of
the culture it nurtured.

and that is what I find ***beautiful*** in architecture.