The Maker’s Paradigm
Introduction

Theoretical Framework

Applied research in design

Video

Reflection
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

user scale
private commercial sector

architecture scale
governmental planning

the maker’s library
flex spaces + incubators

user scale
private commercial sector

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

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Applied research + design

Design proposal

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


anthropological study on innovation culture
profiling end user groups of innovation spaces

framework for design of UIDs
the *origins* of innovation culture.

service industry \[\rightarrow\] knowledge industry

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.

the conditions in the built environment that facilitates innovation culture.

Katz & Wagner (2017)
“is there a place where I can work and develop my idea without judge and prejudice?”
“is there a place where I would like to hang out, and meet new people?”
“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

Outdoor Spaces

quality of outdoor environment

social asset:

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

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

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.
the end user groups of UIDs - Zandt (2018)

Companies

Early Development  Late Development
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*?
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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
Den Haag average annual net income: € 18,100

Net annual income of districts:

- € 16,400
- € 24,400
- € 31,300
- € 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
Urban scale

External Connection

Outdoor Spaces

Program Interconnection

Work/Dwell
External Connection

*Accessibility*

**Physical and economic asset:**
access system i.e.
* road infrastructure
* public transport infrastructure

binckhorst as an island.
weakness:

- lack of diversity in public transport infrastructure.

Bus driving time to Binckhorst

<table>
<thead>
<tr>
<th>Destination</th>
<th>Bus</th>
<th>Frequency</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Den Haag HS</td>
<td>26</td>
<td>Every 15 mins</td>
<td>11 mins</td>
</tr>
<tr>
<td>2. Den Haag Centraal</td>
<td>43</td>
<td>Every 10 mins</td>
<td>14 mins</td>
</tr>
<tr>
<td>3. Den Haag Laan Van Noi</td>
<td>23</td>
<td>Every 15 mins</td>
<td>28 mins</td>
</tr>
</tbody>
</table>
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

Program Interconnection

Work/Dwell

architecture scale
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

recreational amenity
mixed-used housing
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 accommodate 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.

How important do you find natural amenity (i.e. greenery)?
5 most important, 1 least important
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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2. A social space where people are able to reaffirm their identity with the innovation community.
innovation factory

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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.
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 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
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.

incubator. 384m²
recreation room. 152m²
study rooms. 15m²
meeting room 64m²

Controlled floor (physical + economic asset)
Independent learning floor (physical + economic asset)

consumption second floor

1:200

incubator. 512m2
garden. 256m2
library. 1152m2
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.
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.
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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.