BRAINPORT’S LIFE CYCLE
spatial strategy to strengthen the position of the
Brainport Eindhoven in the knowledge economy

Dion van Dijk
4023382

P5 presentation
January 25, 2013

1st mentor   Drs. H.J. Rosenboom
Spatial Planning and Strategy

2nd mentor   Ir. J.A. Westrik
Urban Compositions

External examiner   Ir. A.C. de Ridder

Faculty of Architecture
Department of Urbanism
Urban Regeneration
Graduation framework | Introduction
Graduation framework | Introduction
Graduation framework | Introduction
Graduation framework | The knowledge region

9th → 1-3th
top technology centre in 2020

13th → 1-10th
top technology centre in 2020

source: Brainport Development, 2011
Innovation lies at the heart of economic development and creativity lies at the heart of innovation. Therefore innovative and creative industries through research and development are the main driving forces of the knowledge society.

source: Saris and Modder, 2005
need for supportive urban environment

development of innovative and creative industries

source: Saris and Modder, 2005
Brainport Innovation Campus
129.1 ha

Park Forum
80.3 ha

Esp Noord
34.3 ha

Graduation framework | Problem statement
planned demand until 2030
planned 235 ha
300 - 350 ha
Graduation framework | Aim

shortage

65 - 115 ha

300 - 350 ha

demand until 2030
Project aim

spatial strategy to facilitate the life cycle of innovative industries in the Brainport Eindhoven region
Main research question

What spatial strategy can facilitate the life cycle of development for innovative industries to strengthen the position of the Brainport Eindhoven region in the knowledge economy?

Welke ruimtelijke strategie faciliteert de ontwikkelingscyclus van innovatieve bedrijven zodat het de positie van de Brainport Eindhoven regio in de kennis-economie versterkt?
Southeast Brabant the R&D powerhouse of the Netherlands

source: Pieken in de Delta, 2004
Research | Diversity

Dominance of high tech sector

- Automotive: 11%
- Lifetec: 6%
- Food: 11%
- Design: 13%
- High tech system & materials: 59%

source: Brainport Monitor, 2012
Research | Diversity

Expenditures in R&D activities

source: Technisch Weekblad, Top 30 bedrijfs-R&D in Nederland, 2010
Establishment of starting companies

Source: LISA, 2009
Research | Diversity

Graduate students from science studies

source: Brainport 2020, 2011
Graduate students from science studies

‘Tekort technici Brabantse hightechbedrijven’

EINDHOVEN - Brabantse high-techbedrijven dreigen voor nieuwe opdrachten naar het buitenland te gaan, omdat het tekort aan technici in Nederland te groot is.

Dat schrijft het Financieele Dagblad dinsdag, die John Blankendaal op van Brainport Industries opvoert. Hij stelt dat vijf grotere bedrijven van plan zijn over de grens te gaan uitbreiden. Het gaat volgens de krant onder meer om machinefabrikant Frencken, die in de Verenigde Staten de mogelijkheden bekijkt.

Volgens minister Henk Kamp (Economische Zaken) illustreert dit de noodzaak om te zorgen voor meer technisch geschoolden. Daar wordt al aan gewerkt. Over 3 jaar heeft de Nederlandse industrie een tekort van ruim 150.000 ingenieurs en andere technici, bleek uit eerder onderzoek.

source: Brainport 2020, 2011
Research | Compact model

Source: WoON 2009
Research | Industrial sites
Research | Theory elements

“Starting companies have the need for environments with lots of interaction between (potential) customers and clients.”
Black, 2004

“Proximity matters for the exchange of knowledge, access to ideas and generation of innovation.”
Maldonado, 2010
“Especially starting companies have limited financial resources and do not have high demands to their accommodation.”
*De Stad, 2005*

“The more market oriented companies become, the higher the requirements to its surrounding.”
*Saris and Modder, 2005*
“Cities with a large proportion of historical buildings are in a better position to attract human capital and innovative companies.”
van Winden et al., 2007

“Young urban people feel more attracted to historical buildings because they feel a certain identity with it.”
Heebels and van Aalst, 2010
“Important is the accessibility, which makes a place good reachable not only for themselves, but also for their (potential) customers and clients.”

Smit, 2008
“More people do not work on fixed schedules or in relative isolation. Third places function as well as a place to work for companies with a limited amount of employees.”

Florida, 2002

“Third places cause a spontaneous, unplanned coming together of people, which results in the exchange of knowledge, generation of ideas and innovation.”

Heebels and van Aalst, 2010
Research | Industrial sites to develop
Strategy | Urban knowledge network

Starter environments
Strategy | Urban knowledge network

Employment per sector
Strategy | Urban knowledge network

Places of production
Strategy | Urban knowledge network

Knowledge sources
Design | Project area

High tech starter environment
1960 - crossing railway track with Hoogstraat
source: eindhoveninbeeld.com
1963 - crossing Hoogstraat and Gestelsestraat

source: eindhoveninbeeld.com
Design | Conceptual schemes
Connection with its surrounding
Design | Conceptual schemes
Different atmospheres
Design | Conceptual schemes
Emphasis on important axes
Design | Conceptual schemes
Slow traffic and public transport

- City centre
- Central station
- BRT
- High Tech Campus
- De Run
Design | Sections

Hoogstraat

SECTION | VILLAGE

sidewalk
4 m.

bicycle
1 m.

2 x car
4 m.

bicycle
1 m.

parking
2 m.

sidewalk
2 m.
Design | Sections
Hoogstraat at level of creative environments

sidewalk 5,25 m., bicycle 1 m., car 3,5 m., bicycle 1 m., sidewalk 5,25 m.
Design | Creative environments

Creative workshop

Incubator / breeding place

Transactional environment

Place of production

Extrovert

Introvert

Experiment

Market
Design | Breeding place
Design | Breeding place

internal meeting place

= transformed building

= internal meeting place
Design | Breeding place

- **Working units**: 2x 50 m² ground surface
- **Addition**: 15 parking places
- **Working unit**: 70 m² ground surface
- **Working units**: 2x 25 m² ground surface
- **Shared facilities / workspace**: 695 m² ground surface
- **Removing**: 60 parking places
- **Working units**: 2x 25 m² ground surface
- **Shared facilities / workspace**: 805 m² ground surface
- **Central building**: 2x 108 m² ground surface
- **Addition of 10 parking places**
- **Housing**: 2x 76 m² ground surface
- **Addition of 15 parking places**
- **Shared facilities / workspace**: 1935 m² ground surface
- **Addition of 15 parking places**
- **Housing**: 2x 55 m² ground surface
- **Housing**: 2x 75 m² ground surface
- **Addition of 16 parking places**
- **Removing of 60 parking places**
public programme at crossing of important axes
Hallenweg as attractive promenade

public meeting place as the crossing of the Hoogstraat and Hagenkampweg Zuid

internal meeting place

Design | Creative workshop

= transformed building
= internal meeting place
= public meeting place
= upgrading sidewalk
Design | Creative workshop

- Mixed living and working units with flexible interior
- Public functions (canteen, horeca facilities) 225 m² ground surface
- Shared facilities (rental meeting and presentation rooms) 365 m² ground surface
- Working units 6x 96 m² ground surface
- Public building for exhibitings, presentations, selling and horeca facilities 255 m² ground surface
- Shared facilities 645 m² ground surface
- Working units 1x 135 m² ground surface, 2x 136 m² ground surface, 1x 55 m² ground surface
- Working units 2x 200 m² ground surface, 1x 135 m² ground surface, 2x 136 m² ground surface, 1x 55 m² ground surface
- Mixed living and working units 4x 125 m² ground surface
- Removing of 7 parking places
- Adding of parking box with 30 parking places
- Removing of 3 parking places
- Removing of 12 parking places
- Removing of 12 parking places
- Removing of 20 parking places
- Removing of 20 parking places
Design | Transactional environment
Design | Transactional environment

- place for events / exhibitions
- transformed building
- upgrading sidewalk
- meeting place
Design | Transactional environment

- Large exhibition space: 705 m² ground surface
- Working units: 3x 245 m² ground surface
- Public function: 280 m² ground surface
- Working units: 3x 75 m² ground surface
- Adding two new volumes with 90 parking places
- Removing 35 parking places
- Removing 16 parking places
- Large exhibition space: 430 m² ground surface
- Horeca function: 630 m² ground surface
- Working units: 4x 75 m² ground surface
- Working units: 1x 360 m² ground surface, 1x 335 m² ground surface, 1x 295 m² ground surface
- Working units: 2x 210 m² ground surface
- Working units: 2x 95 m² ground surface
- Public building for exhibiting, presentations, selling and horeca facilities: 420 m² ground surface
- Working units: 2x 210 m² ground surface
- Working units: 4x 75 m² ground surface
Design | Transactional environment
Design | Map of area
Concluding
Concluding

What spatial strategy can facilitate the life cycle of development for innovative industries to strengthen the position of the Brainport Eindhoven region in the knowledge economy?
What spatial strategy can facilitate the life cycle of development for innovative industries to strengthen the position of the Brainport Eindhoven region in the knowledge economy?

- Increasement of Brainport’s innovative capacity through life cycle of development
- Re-use of existing real estate and preserving of surrounding landscape
- Synergy between companies and surrounding neighborhoods
- International oriented Brainport connected with local identity of Eindhoven
- Strategy can be applied to other cities, although the local context is unique
Thank you

Dion van Dijk
4023382

P5 presentation
January 25, 2013

1st mentor
Drs. H.J. Rosenboom
Spatial Planning and Strategy

2nd mentor
Ir. J.A. Westrik
Urban Compositions

External examiner
Ir. A.C. de Ridder

Faculty of Architecture
Department of Urbanism
Urban Regeneration