DENSIFICATION OF AMSTERDAM
How to improve quality of life and competitiveness

June 28th, 2016
Master Thesis Presentation
Onno de Vries (4016211)
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PART TWO
THEORETICAL FRAMEWORK

PART THREE
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PART FOUR
DEVELOPMENT OF AMSTERDAM

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CONCLUSIONS
PART ONE

PROJECT INTRODUCTION

Problem field

Population development of Amsterdam (OIS Amsterdam)

Population development by year and cause (OIS Amsterdam)
PART ONE
PROJECT INTRODUCTION

Problem field

Housing production and shortage in Amsterdam (Koers 2025)

Development of Amsterdam’s density (Berghauser & Haupt)
PART ONE

PROJECT INTRODUCTION

Problem field

Zef Hemel

Maak Amsterdam twee keer zo groot

Ewald Engelen

Zo bouwen we een eerlijker stad

Friso de Zeeuw

'Maak van Mokum geen megastad'

Structure vision Amsterdam 2040

Economisch sterk en duurzaam
# Research questions

## Main research question

**HOW CAN DENSIFICATION ADD QUALITY OF LIFE TO AMSTERDAM AND CONTRIBUTE TO ITS COMPETITIVENESS?**

## Sub research questions

<table>
<thead>
<tr>
<th>#1</th>
<th>What is quality of life, and how can it be improved by densification in cities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>#2</td>
<td>What is competitiveness, and how can it be improved by densification in cities?</td>
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<tr>
<td>#3</td>
<td>What is the relationship between quality of life and competitiveness in the context of Amsterdam?</td>
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<tr>
<td>#4</td>
<td>How and where can Amsterdam be densified?</td>
</tr>
</tbody>
</table>
Research approach

Project Introduction

PART ONE

Discussion on Amsterdam
Structure vision Amsterdam 2040
Densification of Amsterdam

Quality of life
Competitiveness
Quality of life & Competitiveness

1. Literature study
   What is quality of life?
   Accomodate growth

2. Literature study
   What is competitiveness?
   +500,000 dwellings
   2 million scenario

3. Literature study
   What is the relation between quality of life and competitiveness?
   +70,000 dwellings within current borders

Literature input

Aim

M1
Implementation contributing to quality of life

M
If Amsterdam grows more...

M
Development of Amsterdam

Densification study

Design part

M

Maximum densification within current borders
**THEORETICAL FRAMEWORK**

**Densification**

<table>
<thead>
<tr>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Densification is about efficiency, about making better use of the available space</td>
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<table>
<thead>
<tr>
<th>BENEFITS</th>
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<tbody>
<tr>
<td>Preservation of the countryside</td>
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<tr>
<td>More amenities</td>
</tr>
<tr>
<td>Vibrant neighbourhoods</td>
</tr>
<tr>
<td>More social security</td>
</tr>
<tr>
<td>Less traffic, less pollution</td>
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<tr>
<td>Better affordable housing</td>
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<tr>
<td>Upgrades for existing neighbourhoods</td>
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<table>
<thead>
<tr>
<th>THREATS</th>
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<tbody>
<tr>
<td>Paradox of the compact city</td>
</tr>
<tr>
<td>Crowdedness and crampedness leading to nuisance</td>
</tr>
<tr>
<td>Congestion and pollution</td>
</tr>
<tr>
<td>Reduction of green and recreational space</td>
</tr>
<tr>
<td>Impact on individual living values</td>
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</tbody>
</table>
DEFINITION

“The vagueness of a concept open to multiple interpretations has led to confusion in the policy debate. [...] At one level, it is equated, usually loosely, with the ‘performance’ of an economy, an absolute measure. At another, because it relates to competition, it implies a comparative element” (Begg, 1999, p. 796)

The ability of a city to attract companies and employees, in comparison to other cities.

(SPATIAL) COMPONENTS

- Unique characteristics
- Size / density of a city
- Quality of life
- Networks / connections
- Knowledge institutions

RELATION WITH DENSITY

Big and dense cities have better conditions for competitiveness

> They can offer the vibrant lively neighbourhoods that attracts talented workers

> They offer benefits of proximity for companies
"Quality of life is the appreciation, or the lack of appreciation, of an individual for his or her living environment."
(Van Dorst, 2005, p. 77)

"The presumed quality of life is the level in which the environment meets the presumed conditions for apparent quality of life. Central are here the indicators that describe quality of life."
(Van Dorst, 2005, p. 78)

**DEFINITION**

**(SPATIAL) COMPONENTS**

- Green and recreational areas
- Parking facilities
- Vandalism
- Public transport
- Spaciousness and well maintained
- Shops and amenities
- Affordability
- Air quality
- Segregation

**RELATION WITH DENSITY**

- Crampededness and crowdedness
- Congestion
- More pollution (locally)
- Reduction of green
- Vibrant lively neighbourhoods
- More amenities
- Upgrades for existing neighbourhoods
“In contemporary cities growth seems to be driving the tendency toward greater inequality. Nevertheless, it does not demonstrate that appropriate policy cannot produce both economic development and greater social welfare.”
(Fainstein, 2001, p. 885)

LESSONS

Too much focus on competitiveness can harm the quality of life

Whose quality of life is addressed? Aim at everyone’s quality of life

Invest public money fair over the city, as well as the benefits of competitiveness
Densification strategies

CREATE
NEW HOUSING IN THE ABUNDANT OPEN SPACES OF THE CITY

FILL
THE GAPS AND UNUSED SPACE IN OR AROUND HOUSING BLOCKS

TOP-UP
ON FLAT ROOFS OF EXISTING BUILDINGS

RE-USE
VACANT OFFICES, DWELLINGS OR BUILDINGS FOR HOUSING

RE-STRUCTURE
ABUNDANT INDUSTRY AND OFFICE AREAS INTO MIXED NEIGHBOURHOODS
## Typologies of the built environment

<table>
<thead>
<tr>
<th>Typology</th>
<th>Image</th>
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</thead>
<tbody>
<tr>
<td>THE OLD INNER CITY</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>THE CITY BLOCK</td>
<td><img src="image2.jpg" alt="Image" /></td>
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<tr>
<td>THE OPEN BLOCK</td>
<td><img src="image3.jpg" alt="Image" /></td>
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<tr>
<td>THE FAMILY NEIGHBOURHOOD</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td>THE BIG BUILDING</td>
<td><img src="image5.jpg" alt="Image" /></td>
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<tr>
<td>THE WORK ENVIRONMENT</td>
<td><img src="image6.jpg" alt="Image" /></td>
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<tr>
<td>THE LOW DENSITY AREA</td>
<td><img src="image7.jpg" alt="Image" /></td>
</tr>
<tr>
<td>CITY CORE</td>
<td><img src="image8.jpg" alt="Image" /></td>
</tr>
<tr>
<td>5/6 STOREY BLOCK</td>
<td><img src="image9.jpg" alt="Image" /></td>
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<tr>
<td>MULTI STOREY HOUSING</td>
<td><img src="image10.jpg" alt="Image" /></td>
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<tr>
<td>VINEY</td>
<td><img src="image11.jpg" alt="Image" /></td>
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<tr>
<td>THE SUPER BLOCK</td>
<td><img src="image12.jpg" alt="Image" /></td>
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<tr>
<td>INDUSTRIAL SITE</td>
<td><img src="image13.jpg" alt="Image" /></td>
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<tr>
<td>SINGLE DETACHED HOUSING</td>
<td><img src="image14.jpg" alt="Image" /></td>
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<tr>
<td>CANAL DISTRICT</td>
<td><img src="image15.jpg" alt="Image" /></td>
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<tr>
<td>WORKING CLASS NEIGHBOURHOOD</td>
<td><img src="image16.jpg" alt="Image" /></td>
</tr>
<tr>
<td>SINGLE FAMILY HOUSING</td>
<td><img src="image17.jpg" alt="Image" /></td>
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<tr>
<td>80-90s HOUSING</td>
<td><img src="image18.jpg" alt="Image" /></td>
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<tr>
<td>THE MODERNIST FLAT</td>
<td><img src="image19.jpg" alt="Image" /></td>
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<tr>
<td>OFFICE AREA</td>
<td><img src="image20.jpg" alt="Image" /></td>
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<tr>
<td>RURAL</td>
<td><img src="image21.jpg" alt="Image" /></td>
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<tr>
<td>DE JORDAAN</td>
<td><img src="image22.jpg" alt="Image" /></td>
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<tr>
<td>PRE-WAR NEIGHBOURHOOD</td>
<td><img src="image23.jpg" alt="Image" /></td>
</tr>
<tr>
<td>LOGISTIC AREA</td>
<td><img src="image24.jpg" alt="Image" /></td>
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</tbody>
</table>
Typologies of the built environment

The inner city
- 47,000 dwellings (9% of total dwellings)

The city block
- 195,000 dwellings (38% of total dwellings)

The block
- 195,000 dwellings (38% of total dwellings)

The big building
- 25,000 dwellings (5% of total dwellings)

The open block
- 152,000 dwellings (30% of total dwellings)

The work environment
- 2,316 hectares

The low density area
- 5,000 dwellings (1% of total dwellings)

The family neighbourhood
- 84,000 dwellings (17% of total dwellings)

The old inner city
- 47,000 dwellings (9% of total dwellings)
Typologies of the open space

- Empty Space
- Infra Zone
- Parking Space
- Flat Roofs
- Water
- Extensively Used Green Space
- Functional Green Space
- Green Space in Blocks
- Parking Space
- Infra Space
- Vacant Plots
- Parking Lots
- Flat Roofs
- Open Water
- Neighbourhood Borders
- Agricultural Land
- Gap in Building Block
- Squares
- Vacant Plots
- Waterway Bank
- Green Pockets
- Allotment Gardens
- Public Courtyard
- Private Courtyard
- Sports Fields
- Cemeteries
- Expected Level of Acceptance

PART THREE
DENSIFICATION STUDY

16/34
PART THREE

DENSIFICATION STUDY

Create strategy

+26.500 DWELLINGS
+3.500 on agricultural land
+5.500 on empty space
+2.500 on parking space
+13.500 along infrastructure
+1.500 on water

Costs
Acceptance
Complexity

Agricultural land in the city
Sport fields
Allotment gardens
Potential for dwellings on water
Permanent empty plots
Temporary empty plots
Wide infra zone
Neighbourhood borders

Neighbourhood borders
+ North 2 km
Fill strategy

+17,000 Dwellings

Open block typology
Top-up strategy

**DENSIFICATION STUDY**

- +27,000 dwellings
- +1,100 in Zaandam
- +2,200 in Noord
- +2,600 in West
- +2,500 in Centrum
- +5,300 in Nieuw-West
- +2,300 in Amstelveen
- +2,500 in Zuid
- +4,400 in Oost
- +3,200 in Zuidoost
- +700 in Diemen
- +200 in Duivendrecht
- +200 in Diemen

**Costs**
- **Acceptance**: * * *
- **Complexity**: * * *
Re-use strategy

DENSIFICATION STUDY

PART THREE

20/34

+18,000 DWELLINGS

+1,600 at Sloterdijk

+3,400 in the centre

+1,000 on the Zuidas

+2,200 on Amstel III

> 25,000 m² vacancy

20,000-25,000 m² vacancy

15,000-20,000 m² vacancy

10,000-15,000 m² vacancy

5,000-10,000 m² vacancy

< 5,000 m² vacancy

Costs

Acceptance

Complexity

< 5,000 m² vacancy

5,000-10,000 m² vacancy

10,000-15,000 m² vacancy

15,000-20,000 m² vacancy

20,000-25,000 m² vacancy

> 25,000 m² vacancy

NORTH 2 KM
PART THREE

DENSIFICATION STUDY

Re-structure strategy

+ 7,000 along de zaan

+ 20,000 along 't IJ

+ 27,000 DWELLINGS

Harbour transformation areas currently studied

Harbour transformation areas future potential

Costs

Acceptance

Complexity
PART THREE
DENSIFICATION STUDY

Final potential map

+124,000 dwellings
24.4% extra

RE-STRUCTURE STRATEGY
+27,000 extra dwellings

CREATE STRATEGY
+26,500 extra dwellings

RE-USE STRATEGY
+18,000 extra dwellings

TOP-UP STRATEGY
+27,000 extra dwellings

FILL STRATEGY
+17,000 extra dwellings

Potential create strategy
Potential re-use strategy
Potential fill and top-up strategy
Potential re-structure strategy

↑ NORTH 2 KM
Housing plans municipalities

- Amsterdam: +74,000 extra dwellings
- Zaanstad: +4,000 extra dwellings
- Diemen: +6,000 extra dwellings
- Amstelveen: +3,000 extra dwellings
- Duytrrecht: +4,000 extra dwellings

Strategic space for new plans:
- 2015-2019
- 2020-2024
- 2025-2029
- 2030-2034
- 2035-2040
Total new housing capacity

+180,000 DWELLINGS

35.4% EXTRA
## Scale effects

<table>
<thead>
<tr>
<th>Scale</th>
<th>Local</th>
<th>Neighbourhood</th>
<th>City</th>
<th>Region</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Potential Benefits</strong></td>
<td>Upgrade public space and housing</td>
<td>More amenities (e.g. shops, public transport, recreation, schools)</td>
<td>Healthier housing market</td>
<td>Less traffic and pollution</td>
<td>Less traffic and pollution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Preservation of the natural landscape</td>
<td>Preservation of the natural landscape</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Surroundings benefit from growing centre</td>
<td></td>
</tr>
<tr>
<td><strong>Potential Threats</strong></td>
<td>Decline individual quality of life (e.g. privacy, views, parking space)</td>
<td>Crowdedness</td>
<td>Congested</td>
<td>Surrounding towns lose functions</td>
<td>Widening gap between demographically and economically growing and shrinking areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More pollution</td>
<td>Higher pressure on public space</td>
<td>Higher pressure on (recreational) facilities</td>
<td></td>
</tr>
<tr>
<td><strong>Measures Needed</strong></td>
<td>Guidelines for implementation</td>
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<td>Additional long term development vision based on extra densification</td>
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<td>Nationwide compact city policy with an universal approach</td>
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<td></td>
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<td></td>
<td>National spatial concept for urban development (e.g. polycentric vs. monocentric)</td>
</tr>
<tr>
<td><strong>Should be Addressed In</strong></td>
<td>Urban/Architectural design</td>
<td>Masterplan neighbourhood</td>
<td>Structure vision Amsterdam 2040</td>
<td>Development vision Metropolitan Region Amsterdam</td>
<td>National environmental planning strategy</td>
</tr>
</tbody>
</table>
DEVELOPMENT OF AMSTERDAM

Development vision

LOCKED CITY CENTRE
NEW URBAN CENTRES
CONNECTION TO ZAANDAM
REDEVELOPMENT OF THE WATERFRONT
PUBLIC TRANSPORT EXPANSION TO NORTH
THE COUNTRYSIDE AS BACKYARD
NEW CITY PARKS
CONNECTION TO SCHIPHOL
Development vision

- Major train stations
- Ring road
- Suburbs area with relative high potential
- Tram line
- Locked city centre
- Metro line
- Industrial area
- Train tracks
- Development area to connect Zaandam
- Defence line of Amsterdam
- Riverfront potential
- New city parks
- Potential new highly urban centres
- Suburbs area with reactive high potential
- Development area to connect Zaandam
- Industrial area
- Locked city centre
- Ring road
- Public transport improvement
- Train tracks
- Metro line
- Tram line
- Major train stations
- Important recreational train stations
- Fortification
- Defence line of Amsterdam
- NORTH 2 KM
Implementation of densification

1. DON'T USE OPEN SPACE WITH A FUNCTION

2. CREATE INTERVENTIONS IN THE SAME SCALE RANGE THAN ITS DIRECT ENVIRONMENT

3. USE ROOFS AND WALLS OF NEW BUILDINGS AS NEW GREEN SPACES

4. INTEGRATE PARKING SPACE IN THE NEW BUILDINGS

5. PAY ATTENTION TO SHADE AND SUN HOURS OF EXISTING DWELLINGS AND GARDENS

6. DON’T BLOCK VIEWS OF EXISTING DWELLINGS OVER ADJACENT BIG OPEN SPACES

7. DON’T VIOLATE THE PRIVACY OF EXISTING DWELLINGS
Implementation of densification

A. Upgrade neighbourhoods with the earning of densification

B. The extra residents can bring more amenities to a city or neighbourhood

C. New affordable housing can be added to create a healthier housing market

D. The big open country side can be preserved for recreation
Implementation of densification

4. New buildings in same scale range as direct environment
3. Use roofs and walls to add extra green
2. Invest earnings in upgrade public space
1. Open space has high value for residents

Unused space along infrastructure
More storeys will block view from adjacent buildings
Blocks the view and is recreational space
Integrate parking in new building
Use parking lots
Municipal densification project
Municipal
North
NORTH
Implementation of densification

1. Create huge public square without a function
2. Invest in earnings to upgrade public square
3. Create more support for amenities
4. Integrate parking in new building
5. Blocks the sun
6. No flat roof
7. Roof with top-up potential, not harming any guideline
8. Compensate and add extra green
9. Make use of parking lots
10. Open space has a recreational function
If Amsterdam grows more...

- New densification study
- Less quality of life
- Demolishing and replacing parts of the city
- Smaller dwellings
- Expansion
If Amsterdam grows more…

HAARLEM

ALmere

EXTENDED FINGERS

SCHIPHOL
## Recommendations

| # 1 | MAKE USE OF THE GREAT POTENTIAL FOR DENSIFICATION |
| # 2 | EXPAND THE CENTRE |
| # 3 | INTEGRATE THE NORTHERN PART OF THE CITY BETTER |
| # 4 | UPGRADES IN THE INFRASTRUCTURE AND PUBLIC TRANSPORT NETWORK ARE NEEDED |
| # 5 | STRENGTHEN AMSTERDAM’S UNIQUE CHARACTER |
| # 6 | INVEST THE EARNINGS OF DENSIFICATION PROJECTS BACK INTO THE NEIGHBOURHOOD. |
| # 7 | CREATE MORE RECREATIONAL SPACE |
| # 8 | ADDAFFORDABLEHOUSING |
| # 9 | DON’T USE SPACE THAT HAS A FUNCTION OR A VALUE |
| #10 | KEEP INTERVENTIONS IN THE SAME SCALE RANGE AS THE DIRECT ENVIRONMENT |
| #11 | COMPENSATE THE AMOUNT OF GREEN AND PARKING SPOTS THAT IS SACRIFICED |
| #12 | PAY ATTENTION TO INDIVIDUAL VALUES |
| #13 | SPREAD BENEFITS OF ECONOMIC DEVELOPMENT FAIRLY |