Henning Larsen

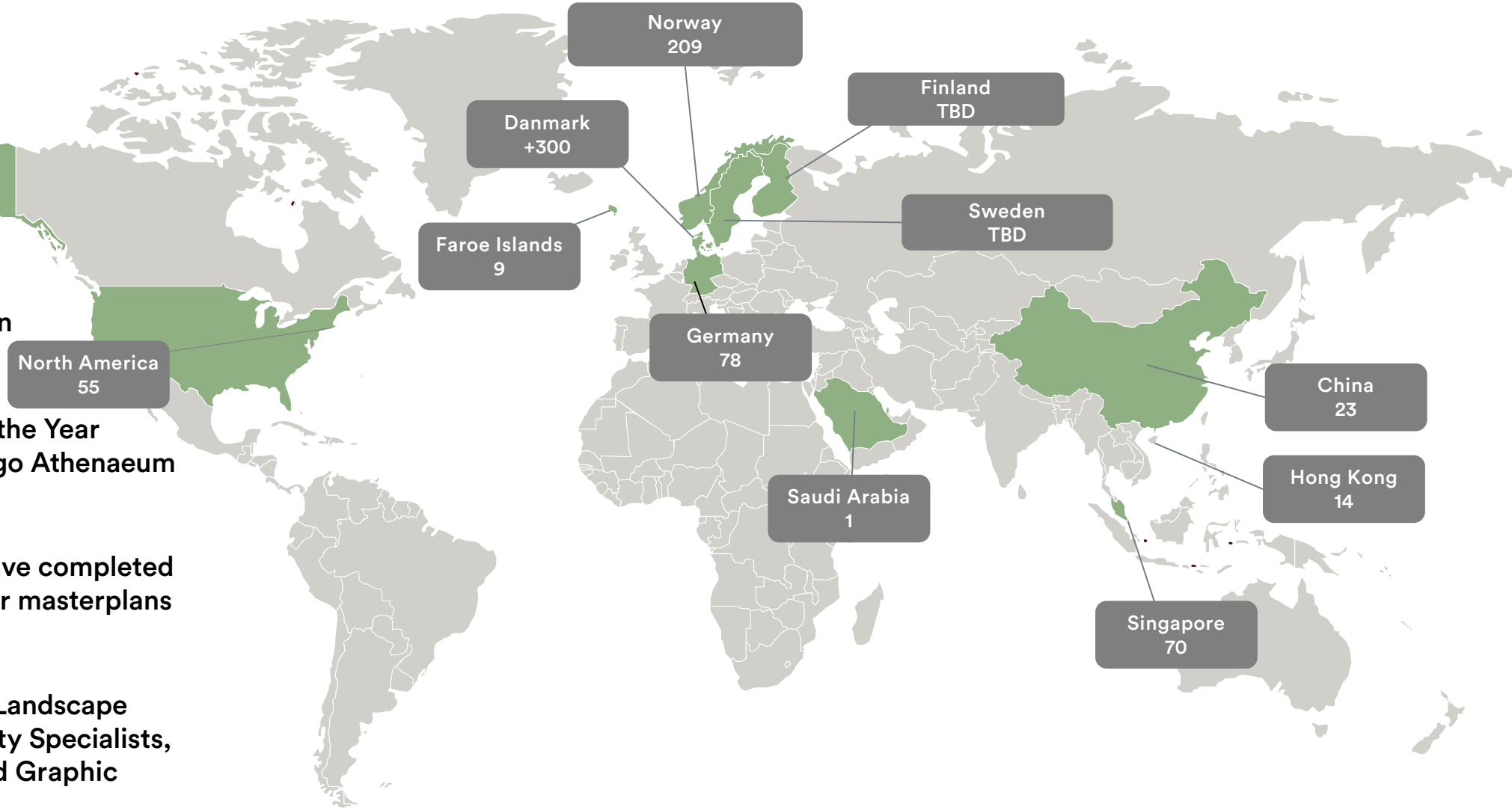
Building Network Construction Conference

# Next practice sustainable urbanism

Gustav Brade
Director, Strategic Urban Development

November 2022

# Henning Larsen Team




1959
Founded in Copenhagen

2019
European Architect of the Year awarded by The Chicago Athenaeum

30+
Countries where we have completed and ongoing projects or masterplans

750+
Architects, Urbanists, Landscape Designers, Sustainability Specialists, Lighting Designers, and Graphic Designers

~€45M
Yearly Revenue

# Our design expertise

Henning Larsen

Architecture

Urbanism

Landscape

# Lilac Tree

© Henning Larsen

# Oak Tree

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*“We cannot solve our problems with the same thinking we used when we created them.“*

- Albert Einstein


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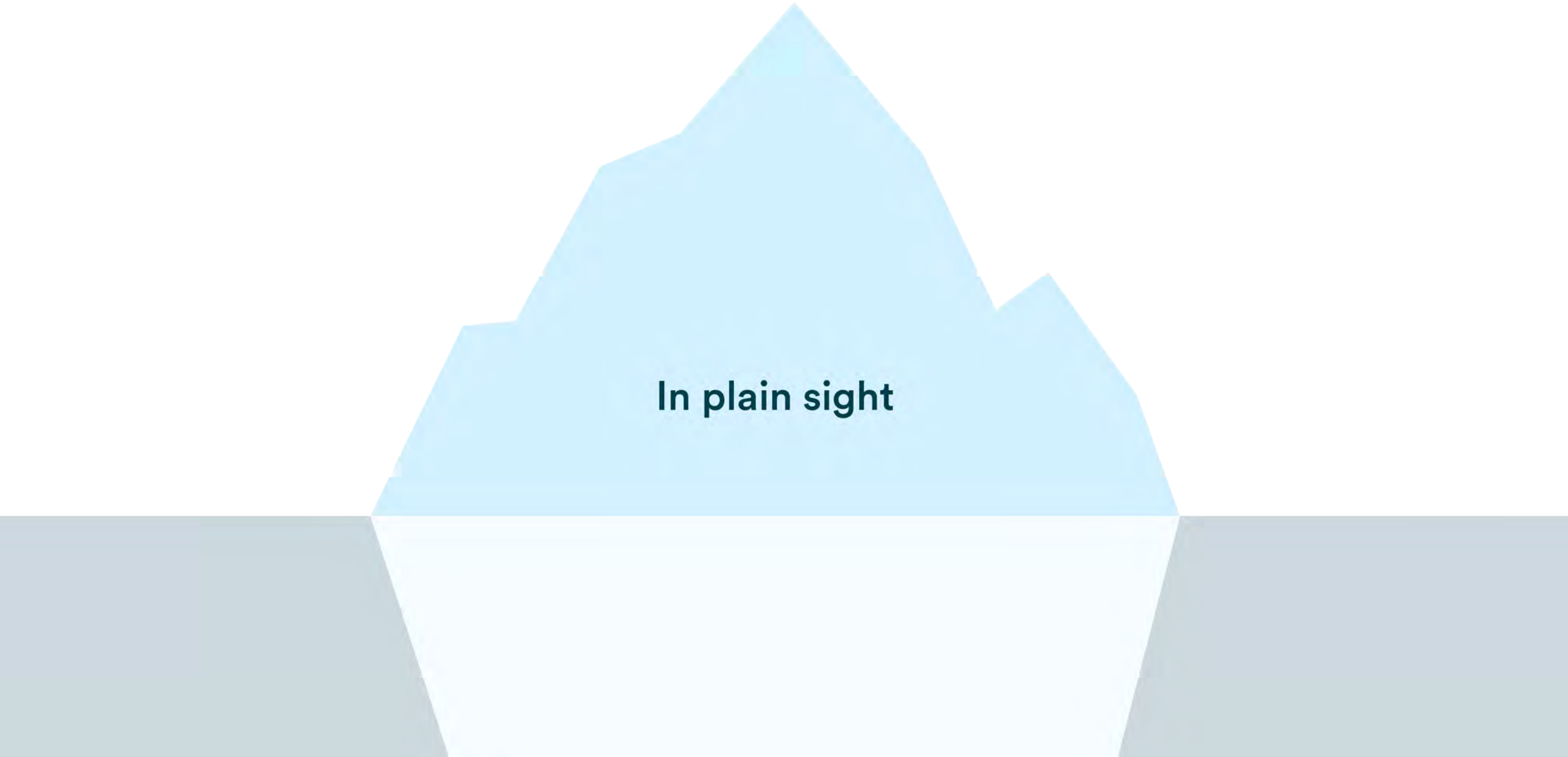
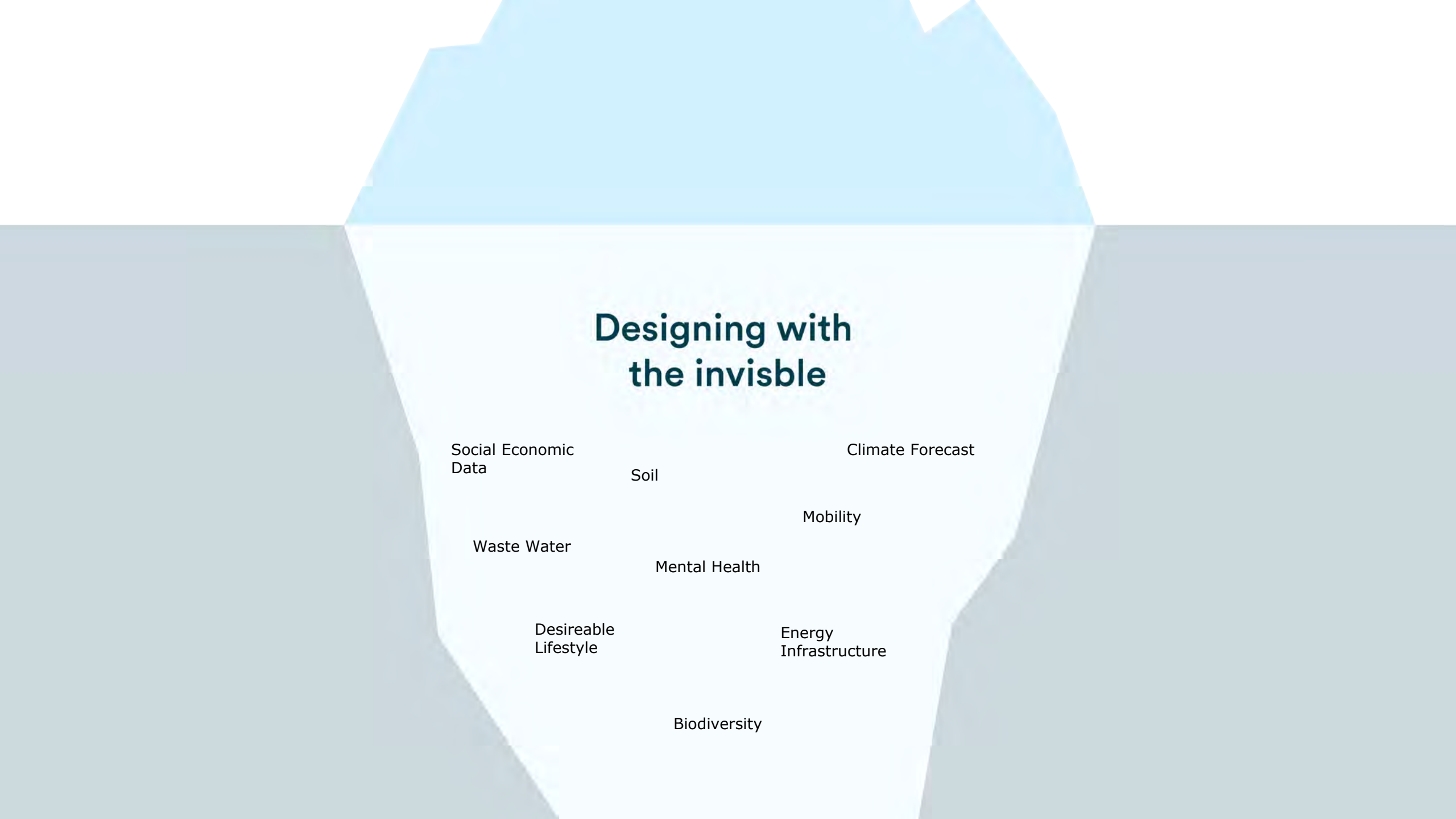
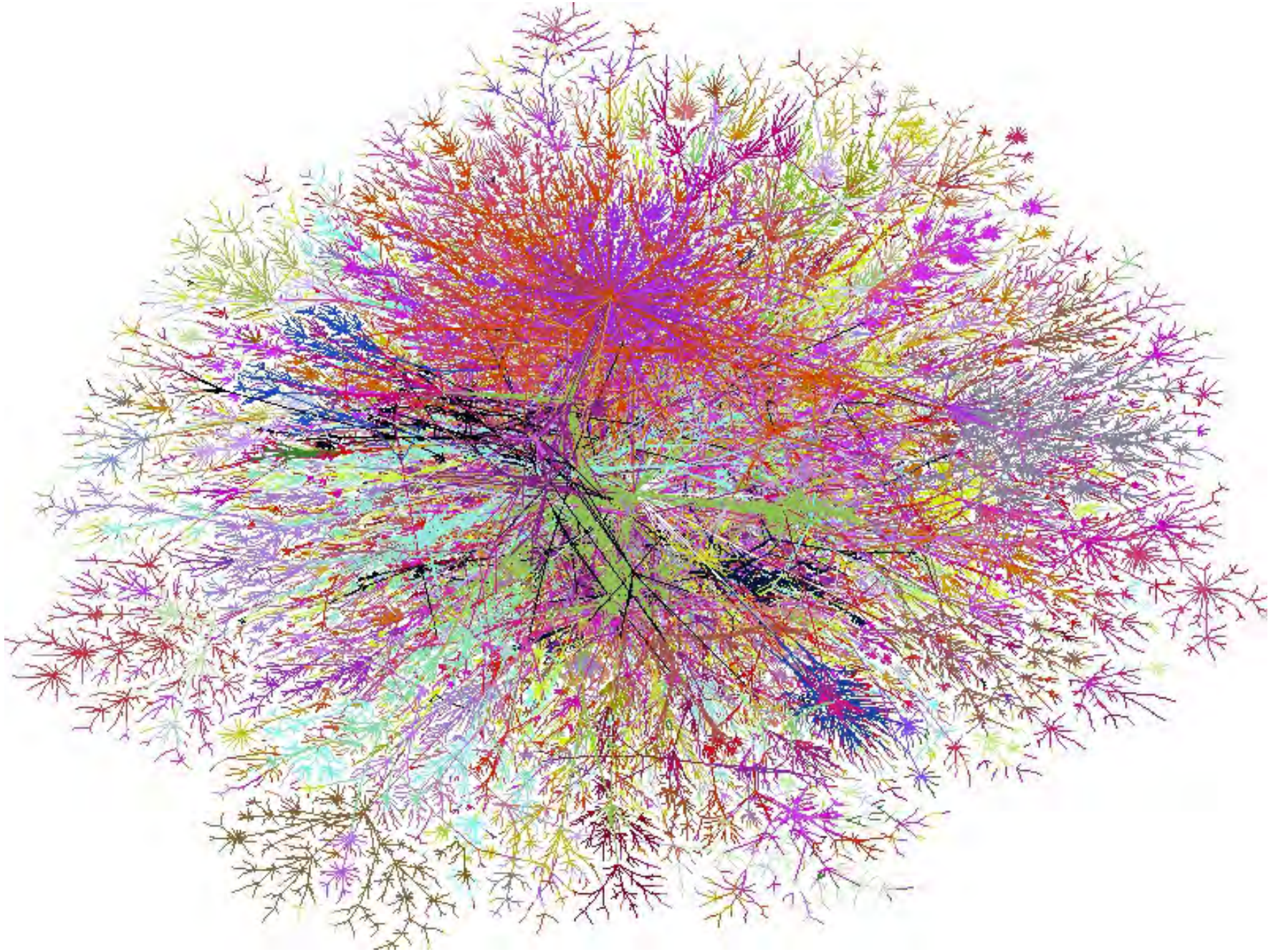

In plain sight


Designing with
the invisble
Social Economic
Data
Soil
Climate Forecast
Mobility
Waste Water
Mental Health
Desireable
Lifestyle
Energy
Infrastructure
Biodiversity




© Henning Larsen

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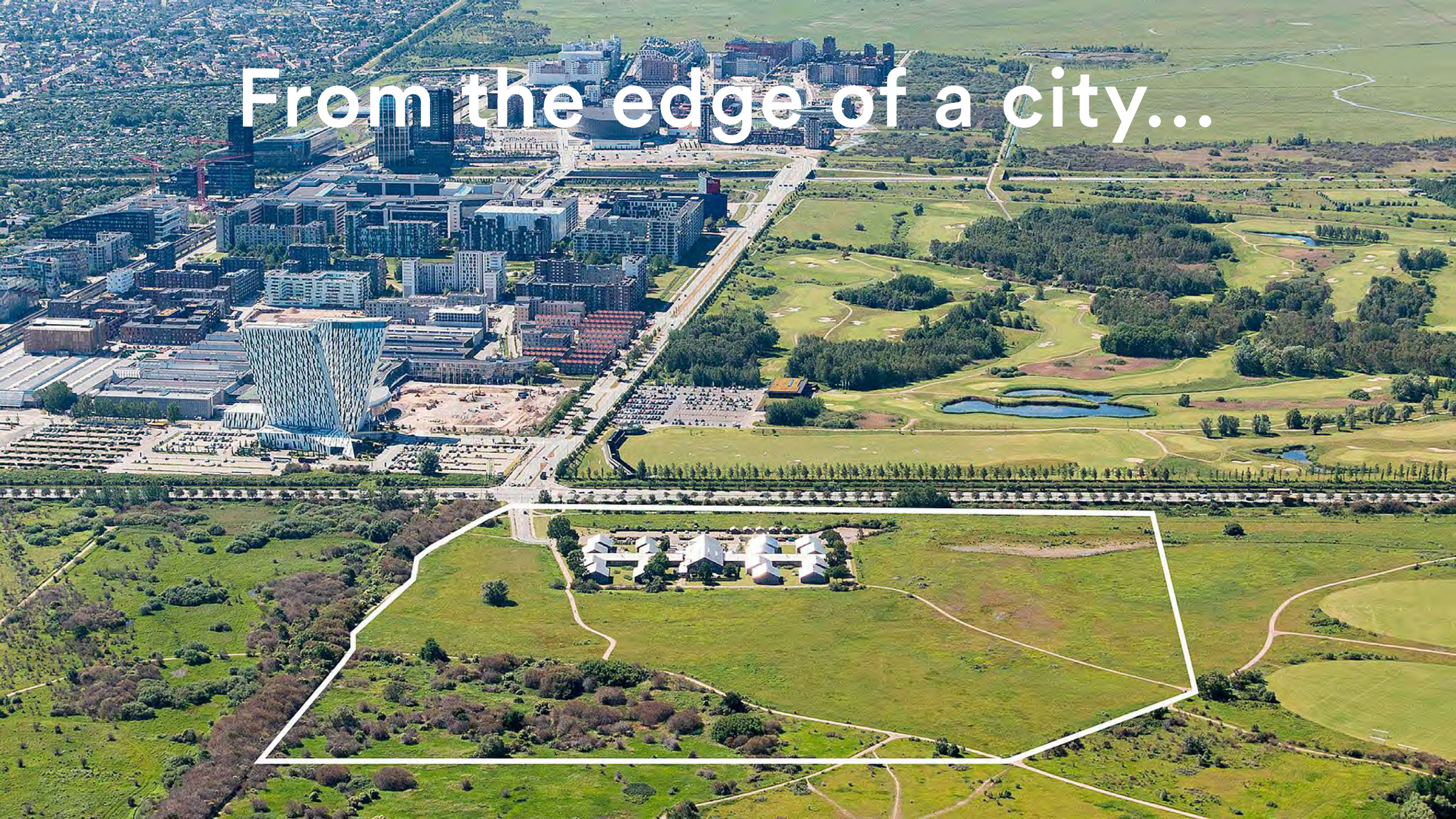
# Making nerdy stuff into urban design parameters


© Henning Larsen

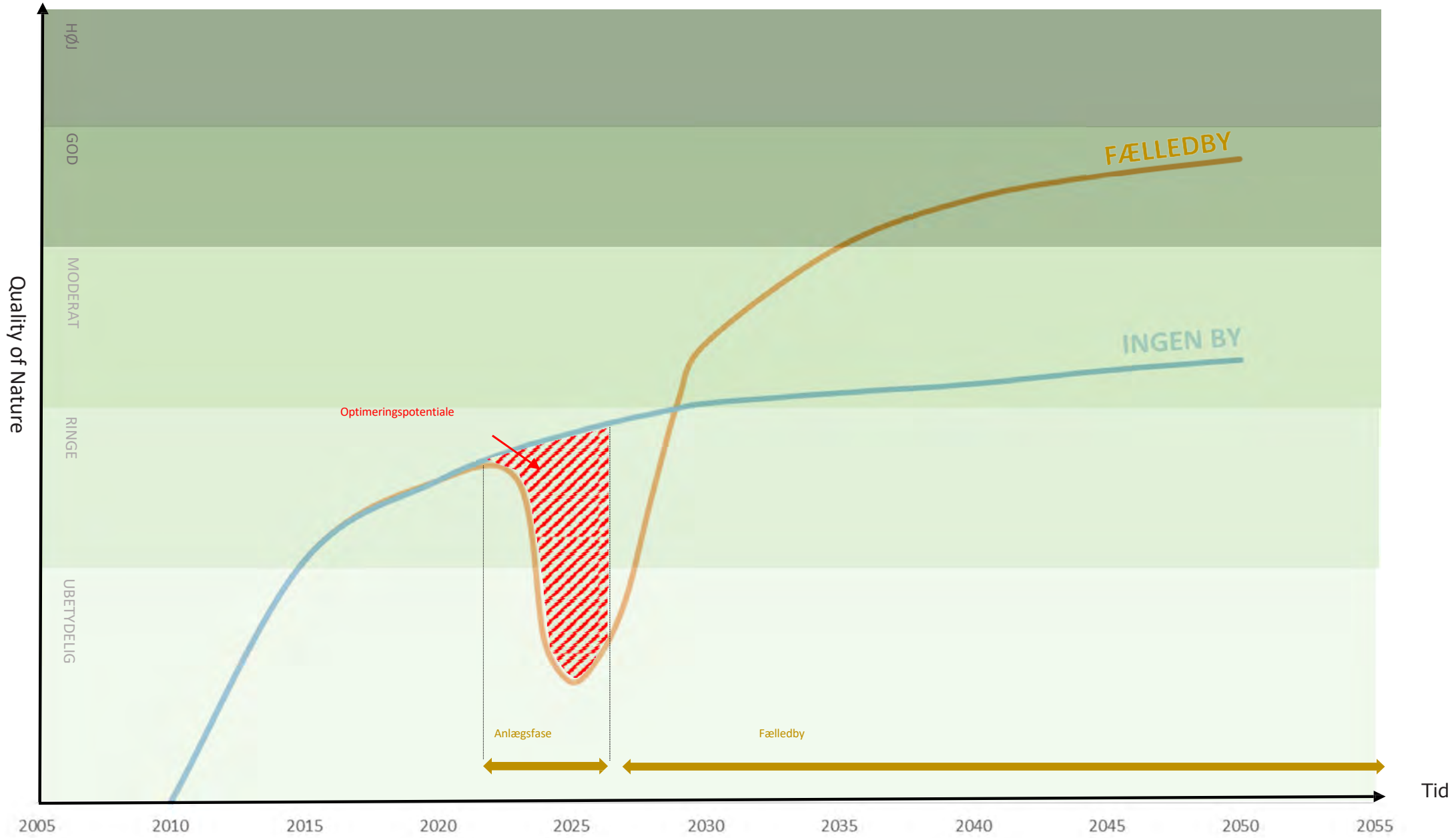

From the edge of a city...

# ...to a common neighborhood

# Can nature truly be part of the city?

© Henning Larsen

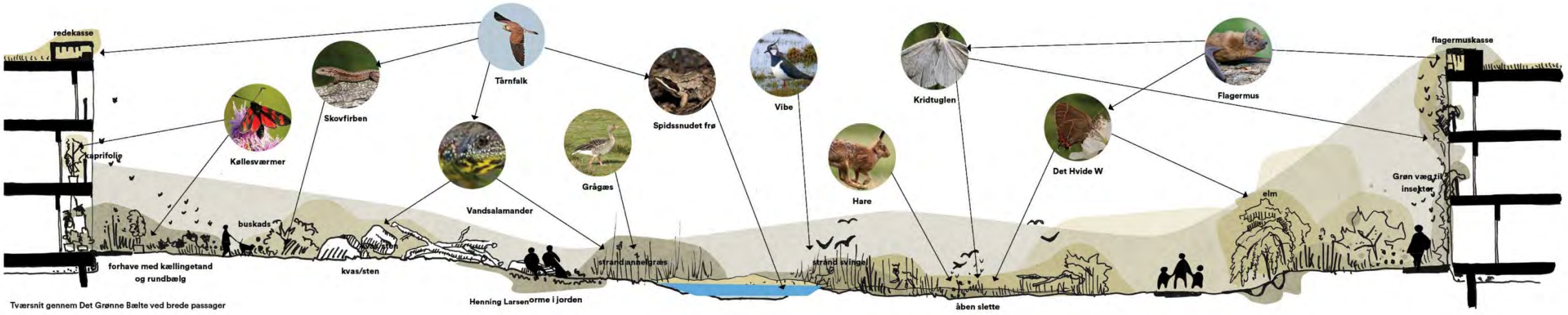
# Biofactor

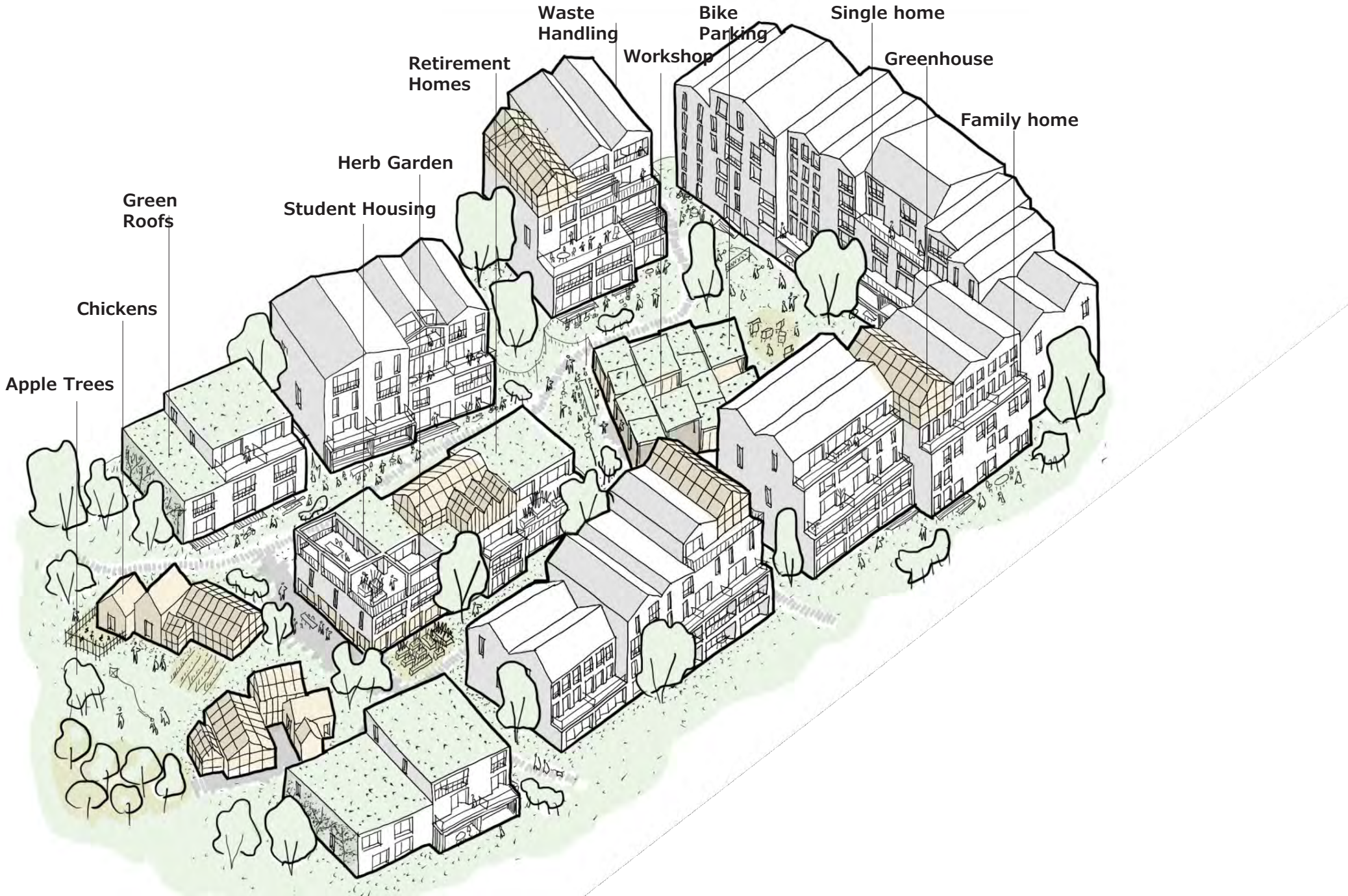

HØJ
GOD
MODERAT
RINGE
UBETYDELIG
Quality of Nature
FÆLLEDBY
INGEN BY
Optimeringspotentiale
Anlægsfase
Fælledby
Tid
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055

N

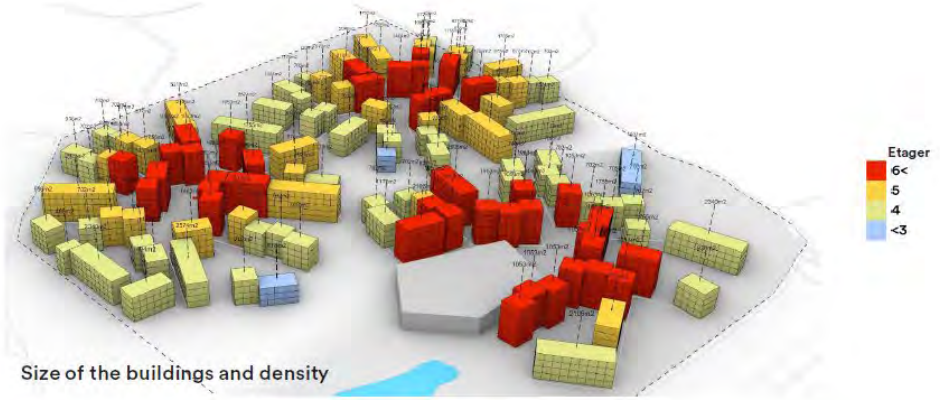
© Henning Larsen

# Live closer to and with nature



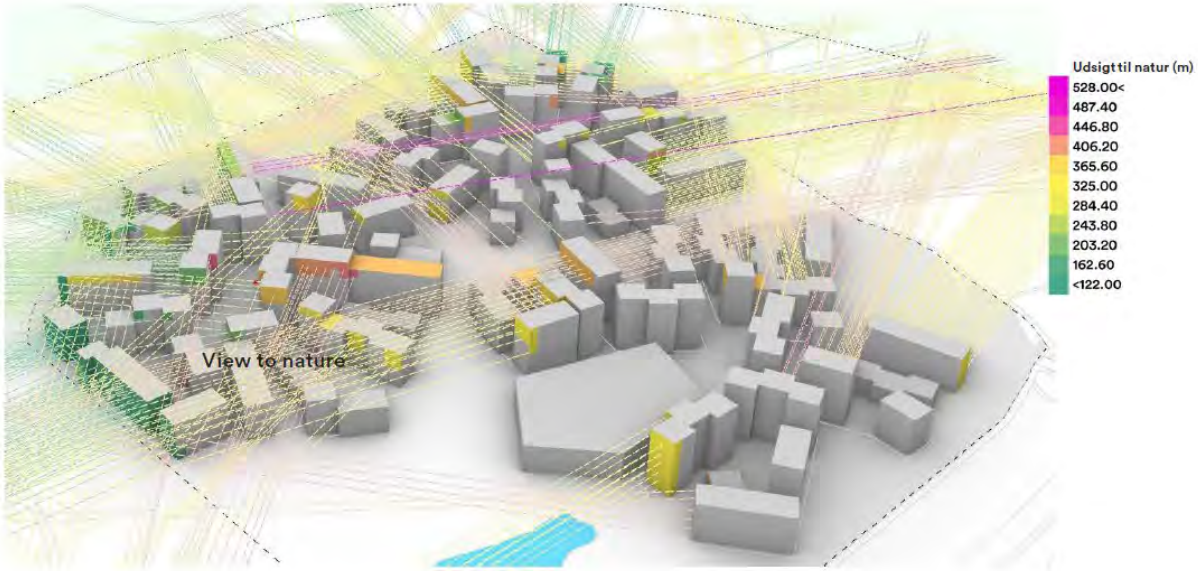

Waste Handling
Bike Parking
Single home
Workshop
Retirement Homes
Greenhouse
Family home
Herb Garden
Green Roofs
Student Housing
Chickens
Apple Trees

# Data Driven Design

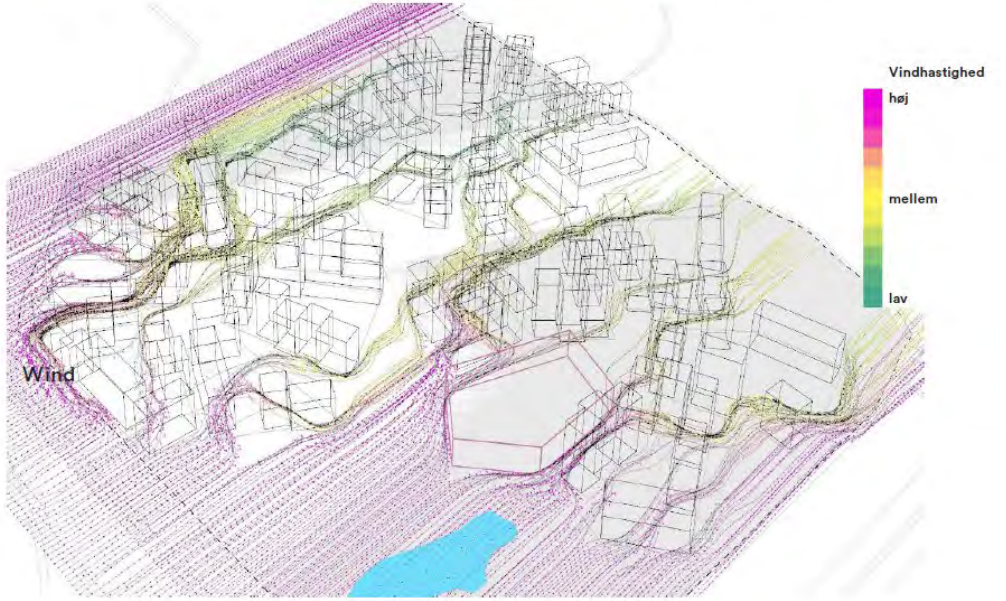



Size of the buildings and density

Day light




View to nature




Wind

© Henning Larsen

24 % has an access to green area

30 % has a view to the park

100 % has a view to the green area

100 % has a balcony or terrace

# Nature generated neighbourhood

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# How can we expand this approach to more areas?

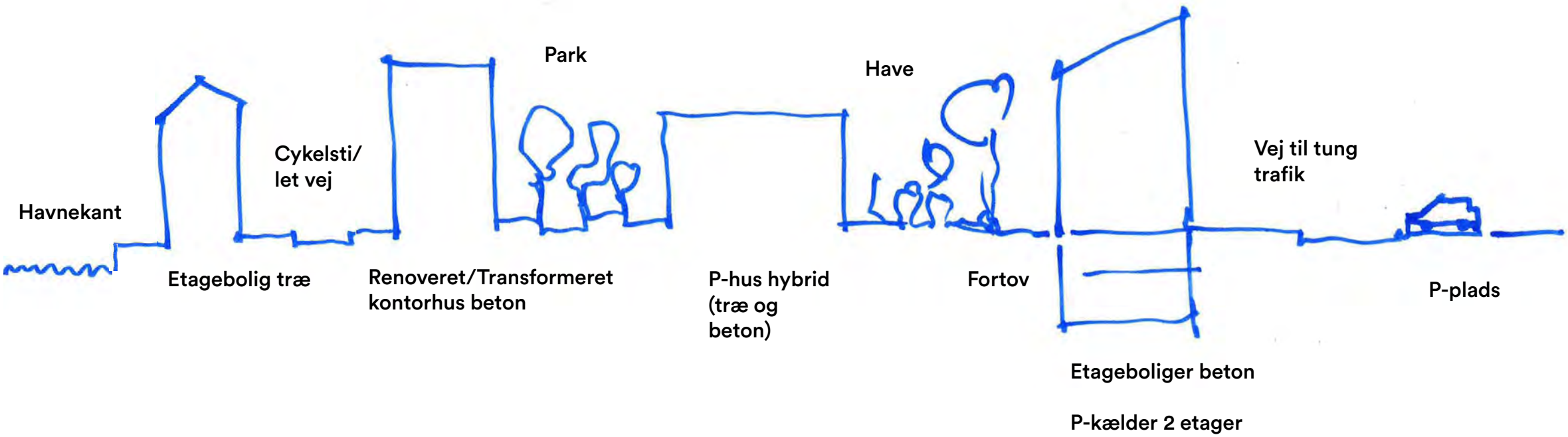
# And turn our challenges into opportunities?


© Henning Larsen

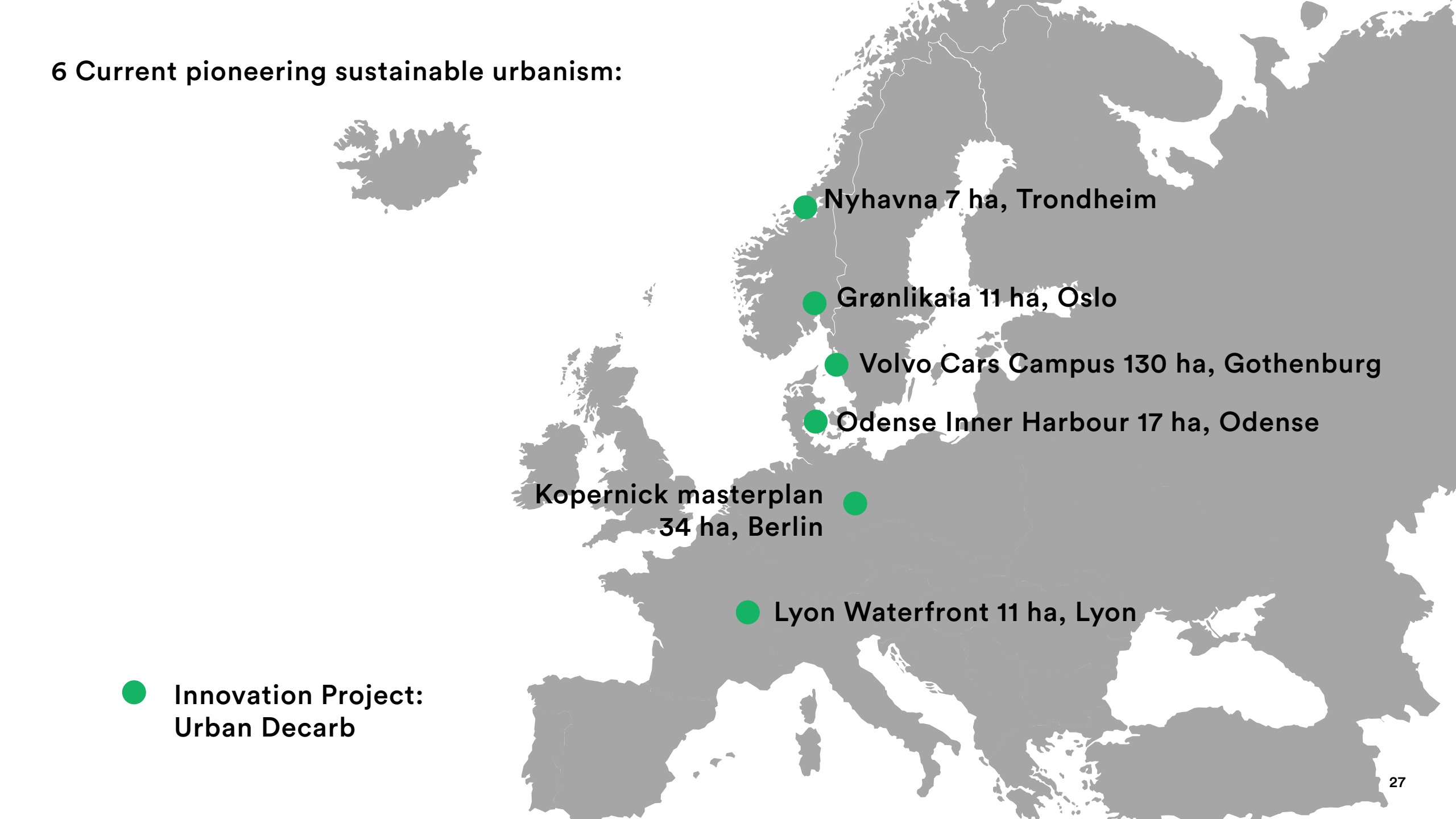
# Urban Decarb 1.0

© Henning Larsen

# Mapping carbon footprint of all elements of the city



## 6 Current pioneering sustainable urbanism:



# Materials

Unboxing
Carbon

# Bricks

*1 of 4 pages*

Used Bricks
Gamle Mursten
0.52 kg CO2e

Type: Used bricks (whole and half)
Thickness: 108 mm
Density: 1800 kg/m3
Lifetime: Not listed
EPD no: MD-16007-EN

**Red Brick, Egernsund**
**Wienerberger**
**10.7 kg CO2e**

Type: biogas without Mn-oxide
Thickness: 108 mm
Density: 1450 kg/m3
Lifetime: 150 years
EPD no: MD-22001-EN

**LESS Red Brick, Egernsund**
**Wienerberger**
**11.9 kg CO2e**

Type: biogas without Mn-oxide
Thickness: 108 mm
Density: 1438 kg/m3
Lifetime: 150 years
EPD no: MD-21027-EN

**Greener Red Brick**
**Randers Tegl**
**13.2 kg CO2e**

Type: biogas
Thickness: 108 mm
Density: 1620 kg/m3
Lifetime: 150 years
EPD no: MD-21001-EN

**LESS Red Brick , Egernsund**
**Wienerberger**
**18.3 kg CO2e**

Type: biogas
Thickness: 108 mm
Density: 1598 kg/m3
Lifetime: 150 years
EPD no: MD-21028-EN

**"Greener" Red Brick**
**Randers Tegl**
**18.8 kg CO2e**

Type: biogas with iron oxide
Thickness: 108 mm
Density: 1750 kg/m3
Lifetime: 150 years
EPD no: MD-21053-EN

Impacts from production only, A1 - A3
Transport after production and end of life not included
Data from 3. party verified EPDs valid on

*November, 2022*

Henning Larsen

Knabel
Vognmandsforretning
FM 500

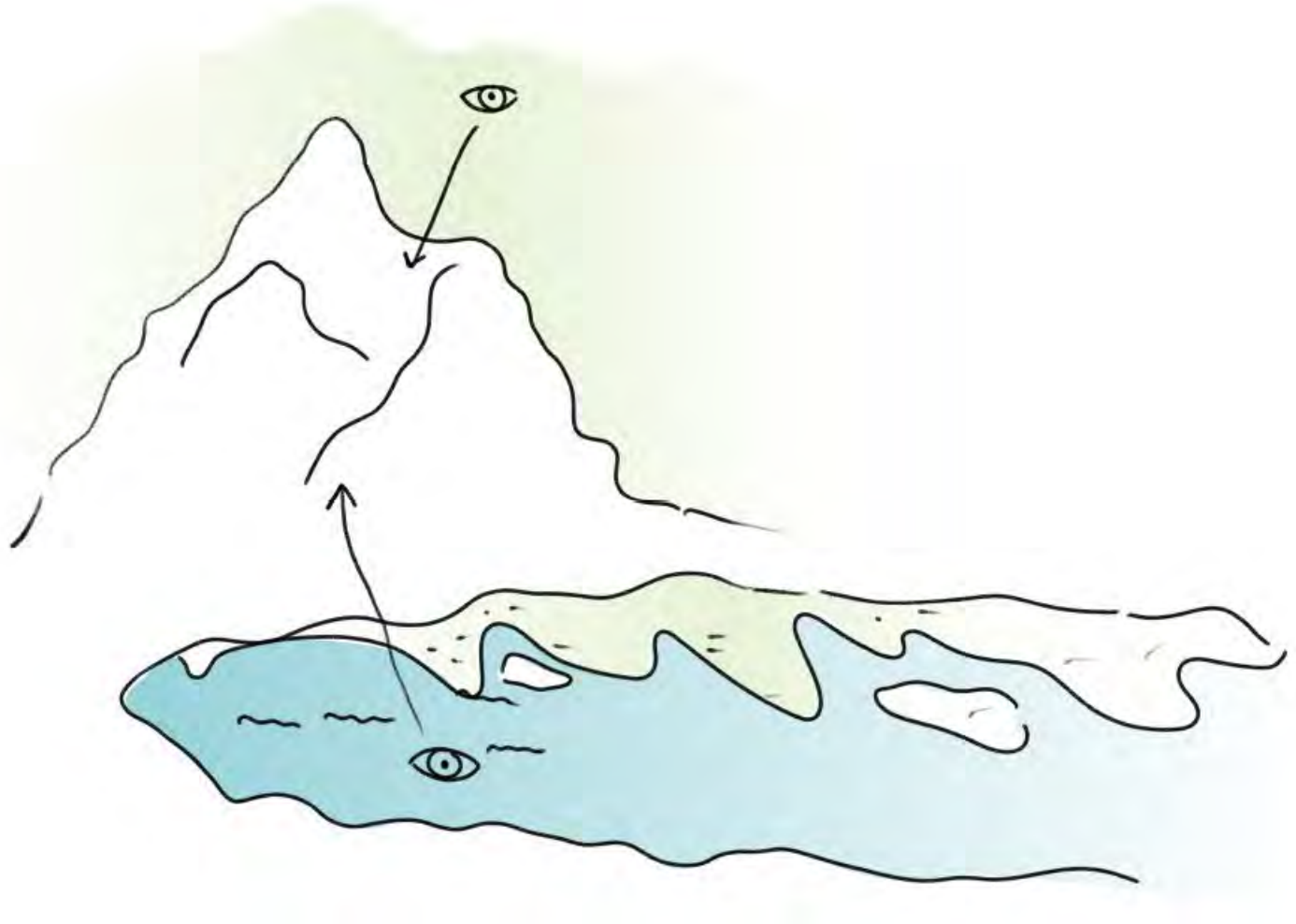
Henning Larsen

4-6 kg CO2 / SQM / Year

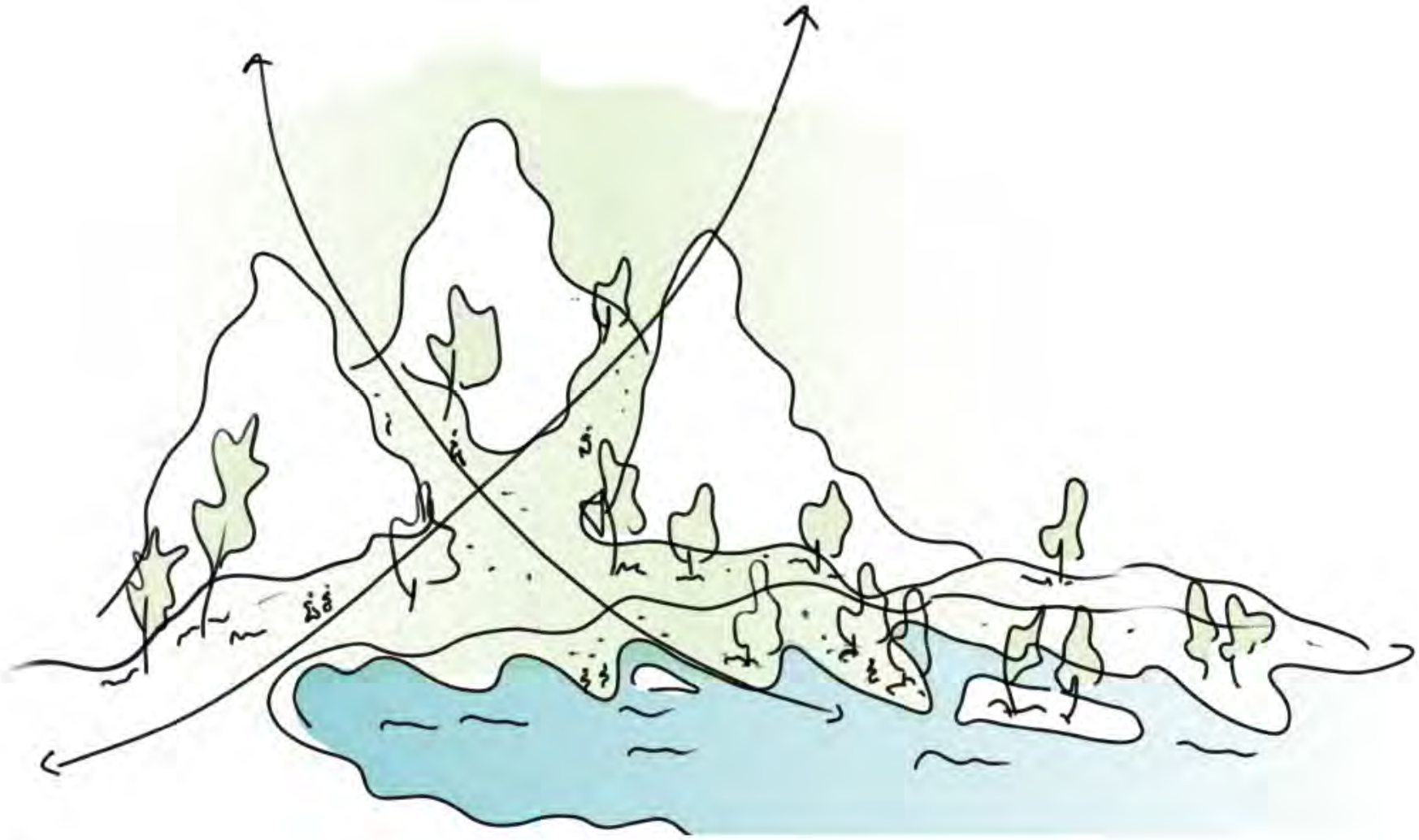
© Henning Larsen

Gamle Oslo
Skaperkraft, kreativitet og mangfoldighet
Oslo natur

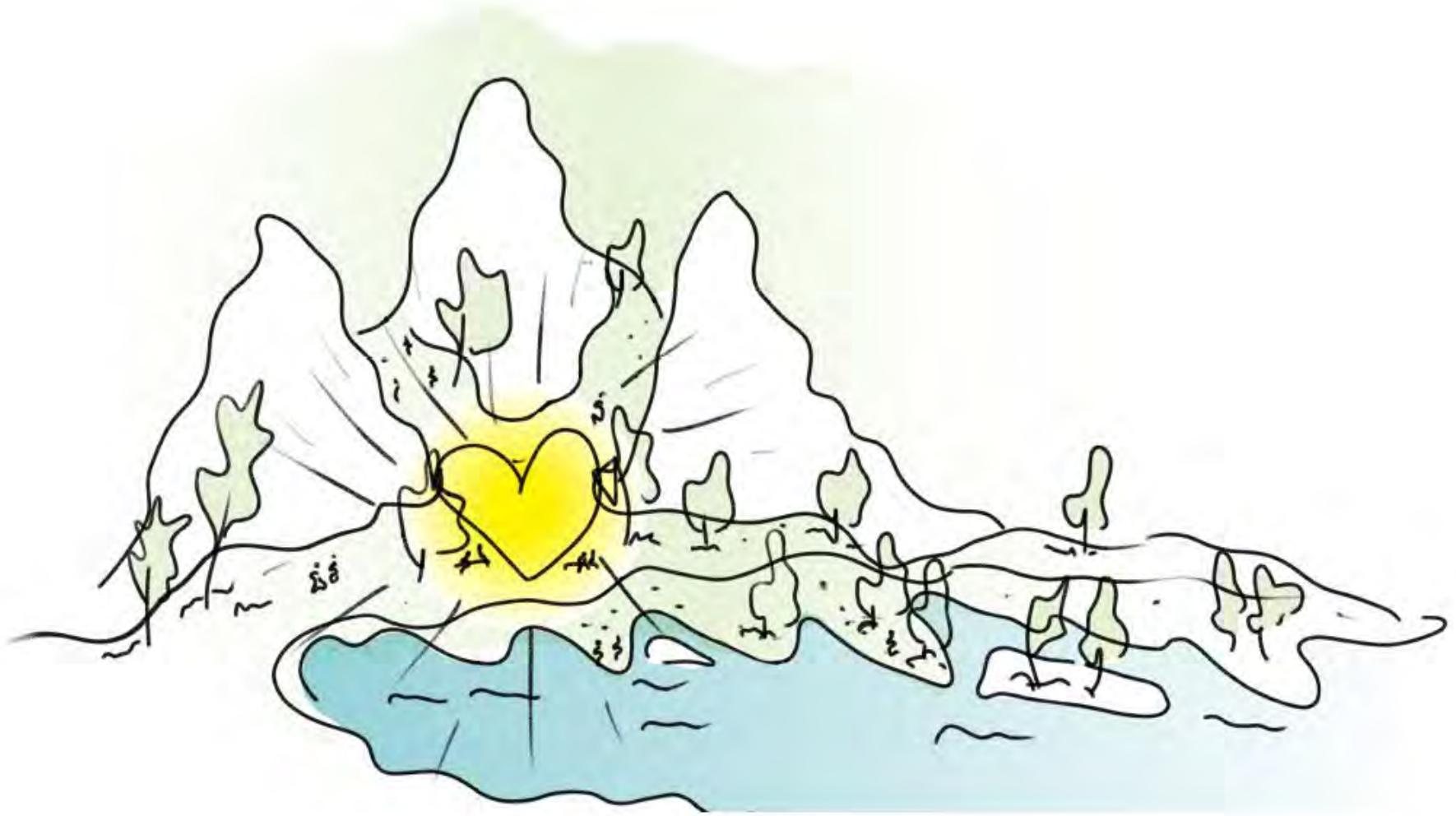
# Learning from nature



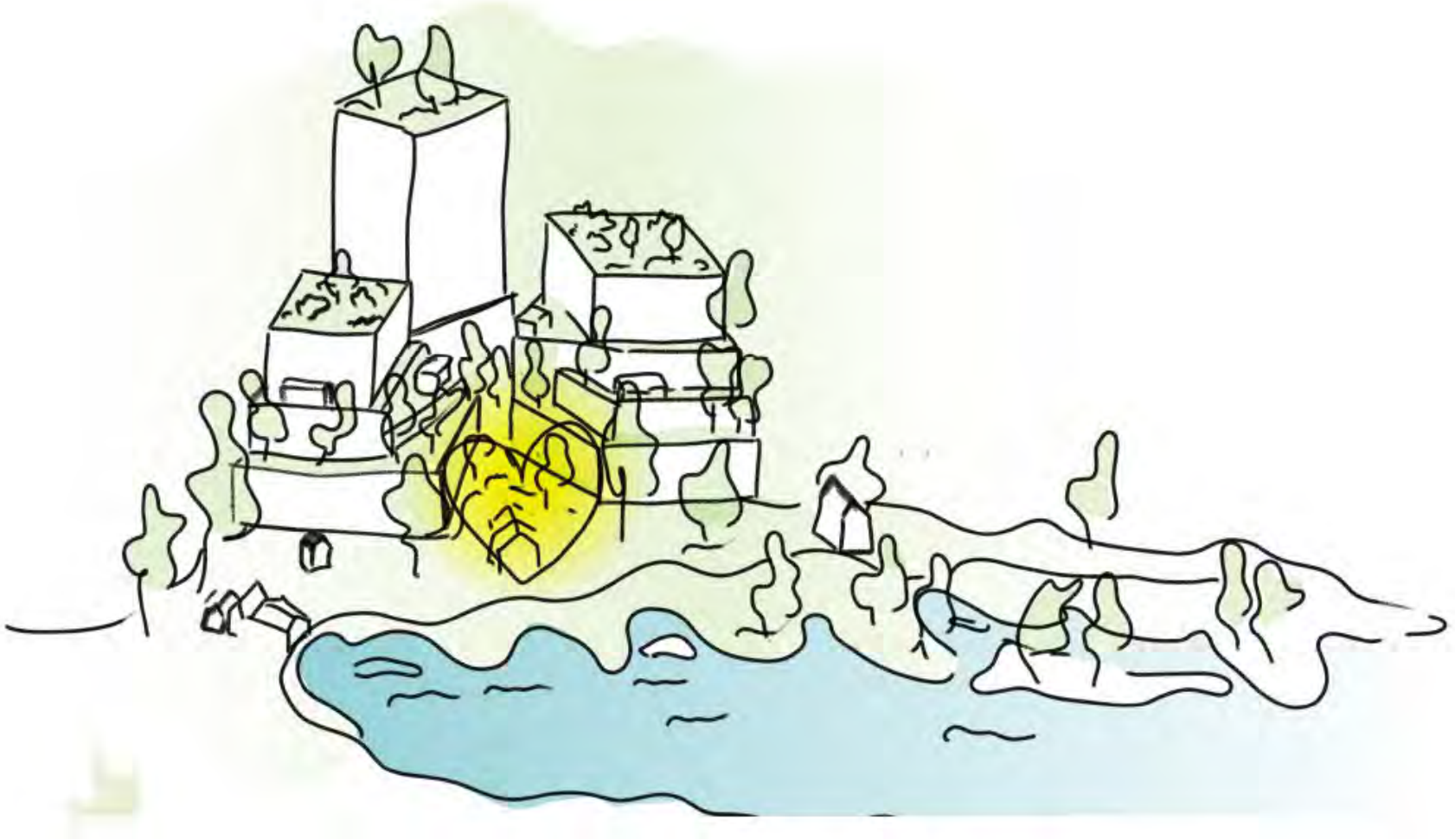
# Two valleys connect city and nature



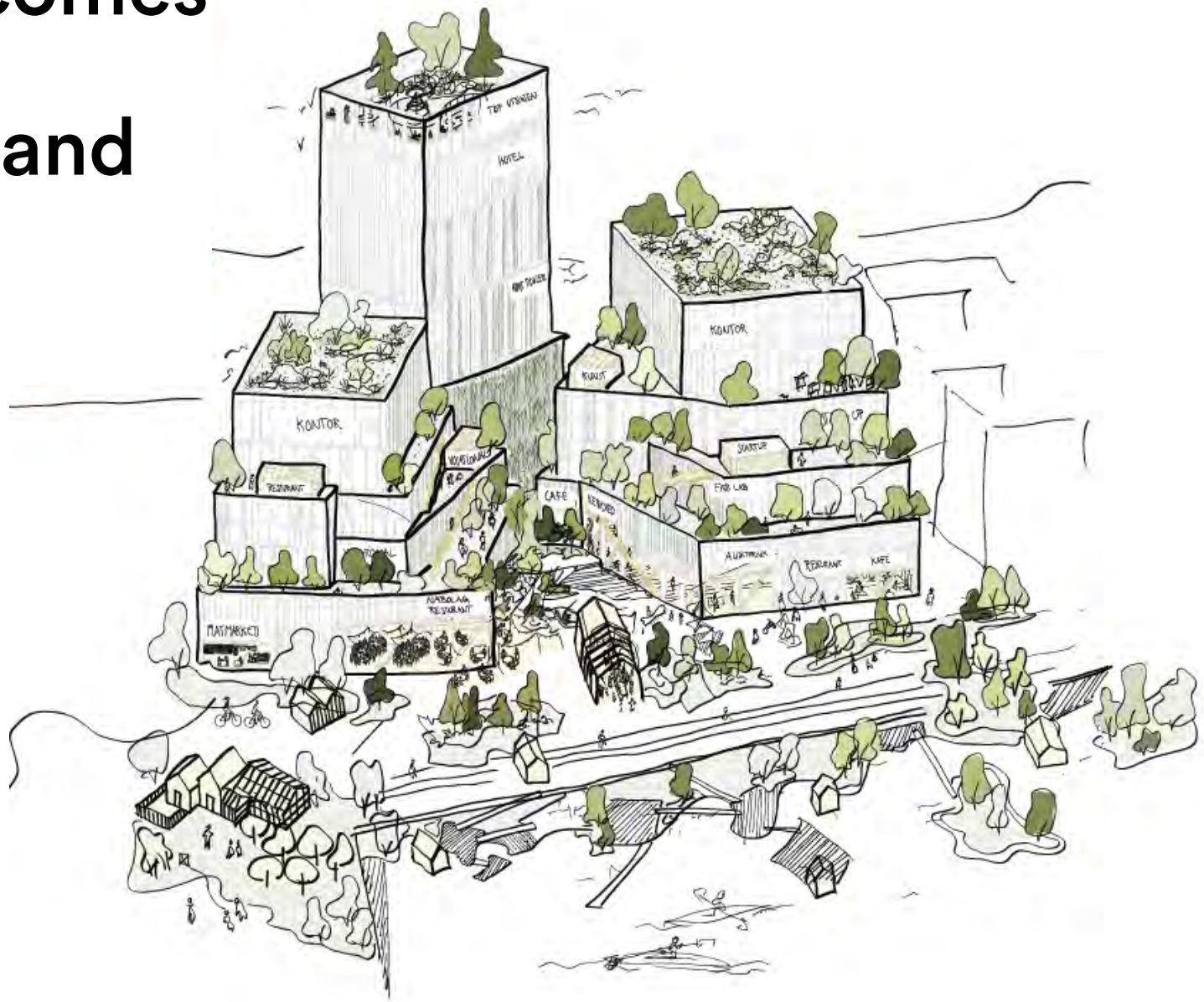
# Amplifying the social heart of the valley



# People and nature centric design



# The Green line becomes a vibrant, buzzing place, with nature and water as the centerpiece



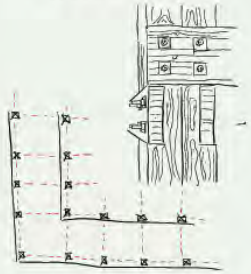
# Planetens premisser

## Verktøykasse for å oppnå karbonmål

### Materialer

Tre i fasader og konstruksjon

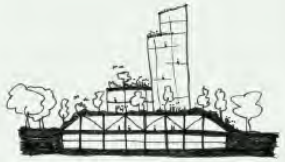
### Konstruksjon



Optimalisert konstruksjonsdesign for demontering med boltede forbindelser.

Fleksibel struktur for både program og konstruksjon.

### Fundament



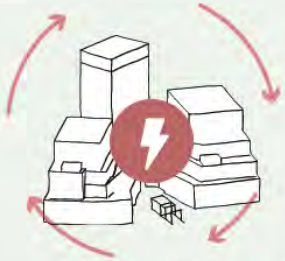
Unngå kjeller og utgraving under bakken

Lave bygg kan bygges med trepeler.

### Energi

Kompakt form som optimaliserer forbruk.

Klimaregulerende fasade



Byggene utformes for mindre energiforbruk og med smarte energiløsninger som kan gjenvinne varme, som ellers ville gått tapt.

Sjøvannsvarmepumpe til varme og kjøling ved byggene. Sjøvann kan dekke ca. 90% av varme- og kjølebehovet.

## Karbonavtrykk for materialer

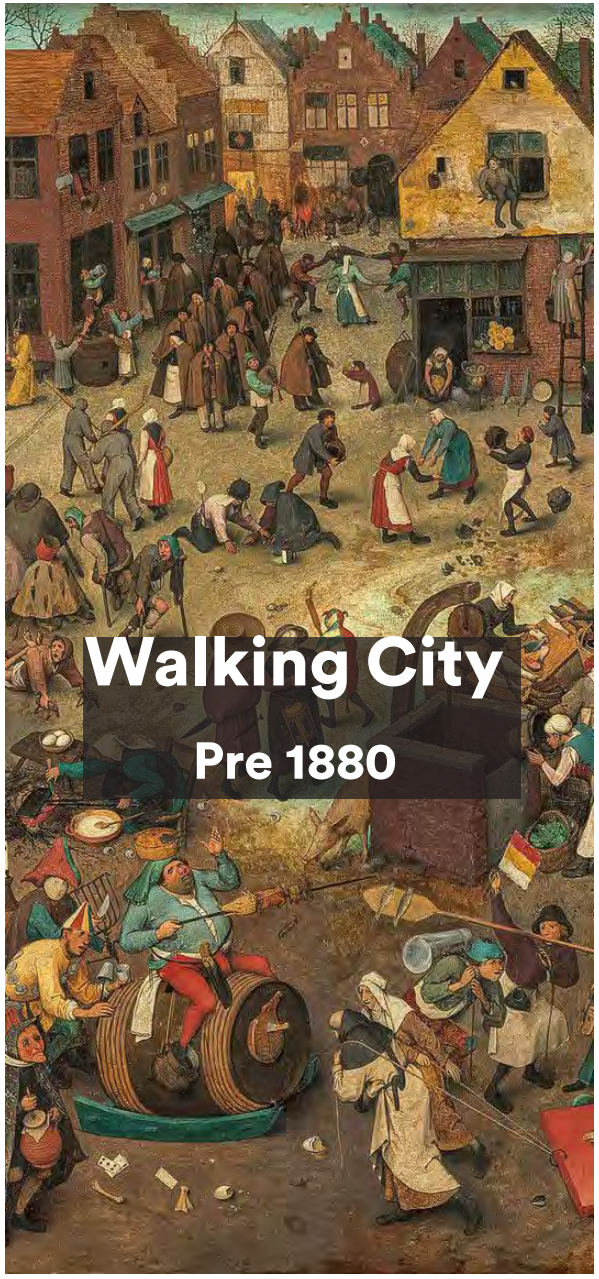
Standard betongbygg

Minimerer kjeller og fundament

Tre i fasader og konstruksjon

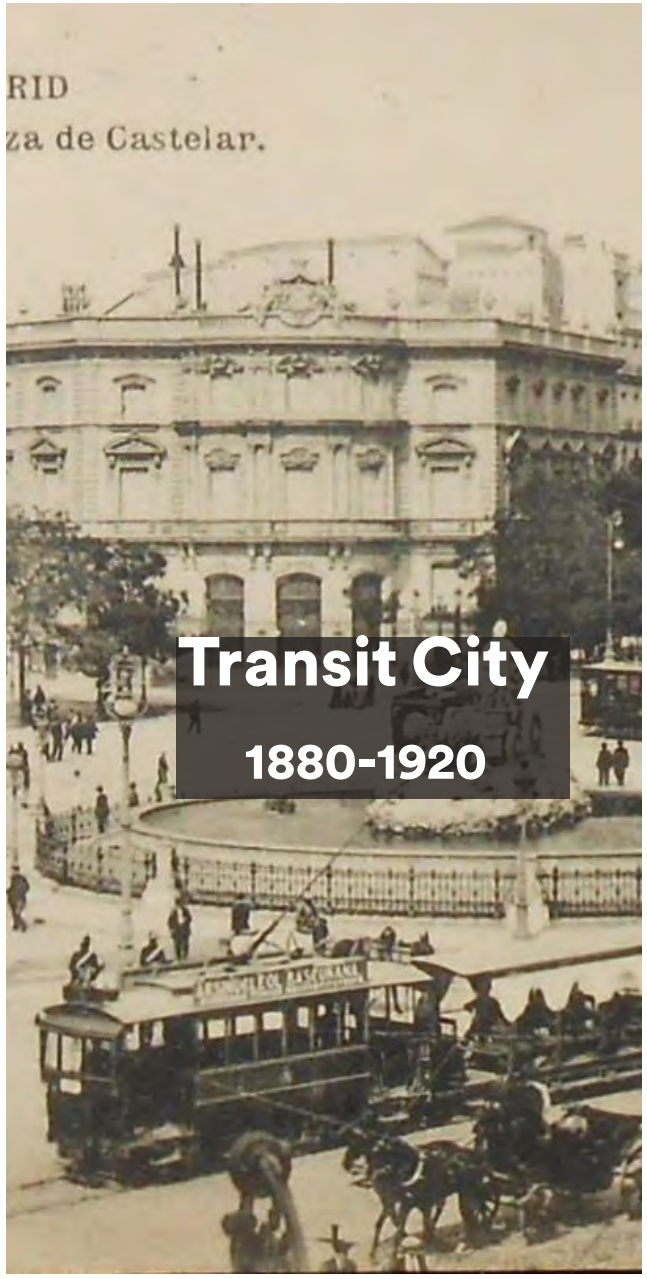
Tilføye grønne areal

sammenlignet med standard bygg



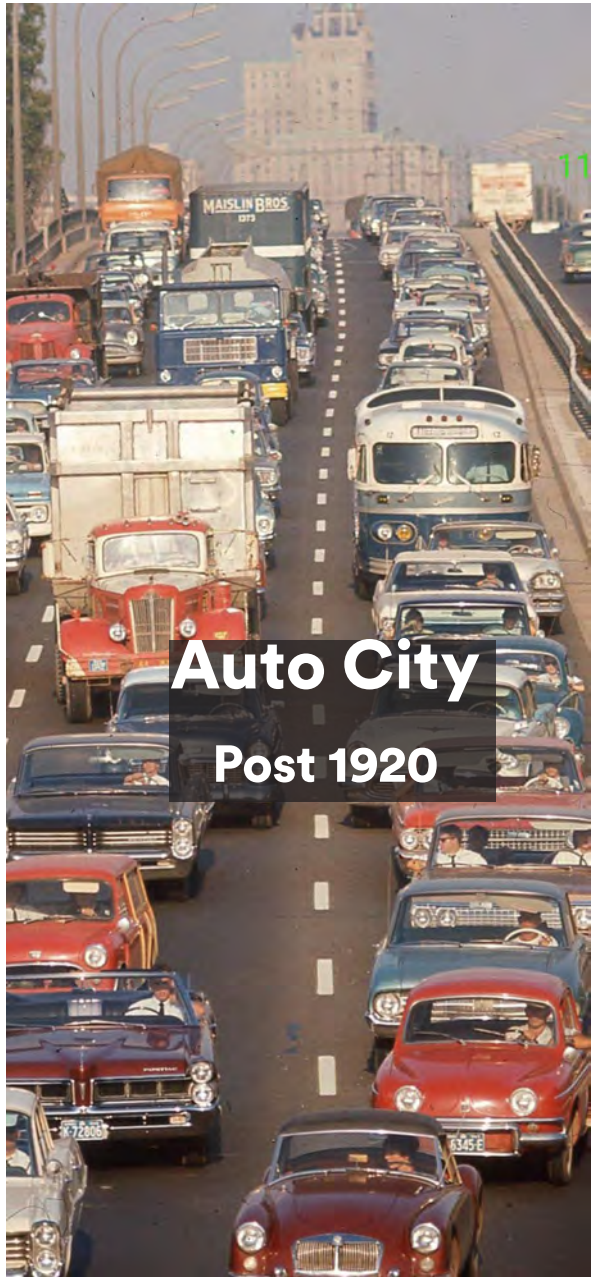
## Walking City

Pre 1880




## Transit City

1880-1920

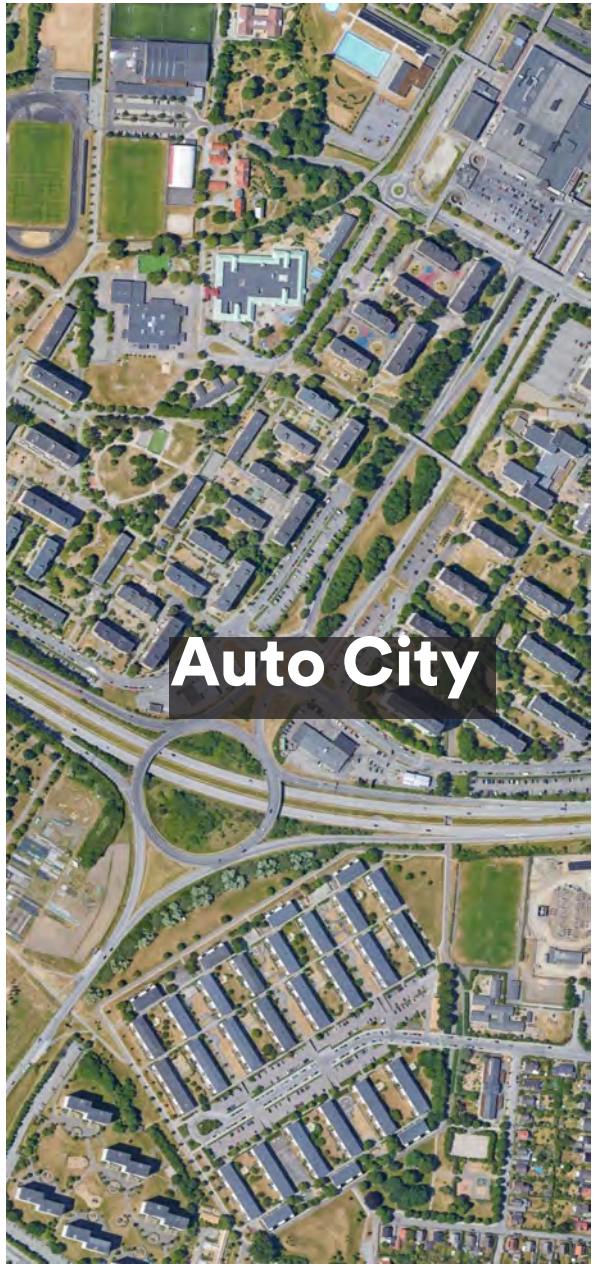


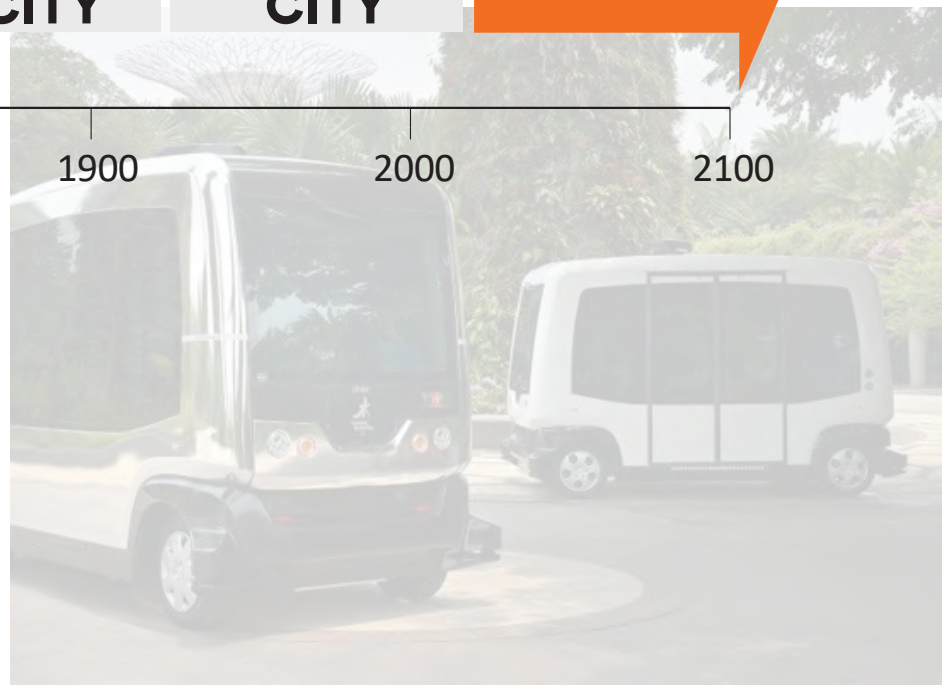

## Auto City

Post 1920

Walking City

Transit City


Auto City



**WALKING CITY**

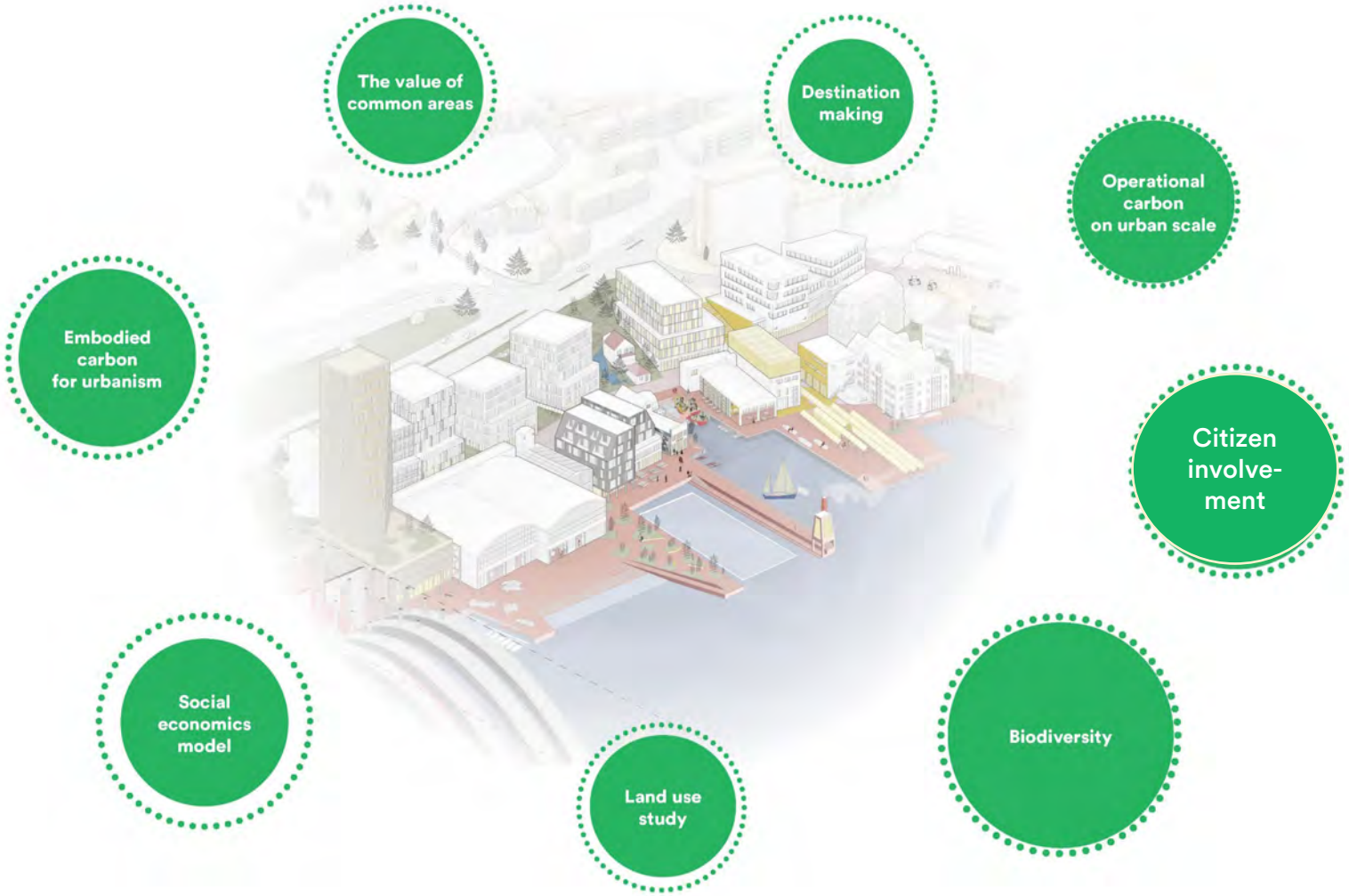
**TRANSIT CITY**

**AUTO CITY**

**?**

1600 1700 1800 1900 2000 2100

# .. What's next?


The value of common areas
Destination making
Operational carbon on urban scale
Embodied carbon for urbanism
Citizen involve-ment
Social economics model
Land use study
Biodiversity

# Thank you

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