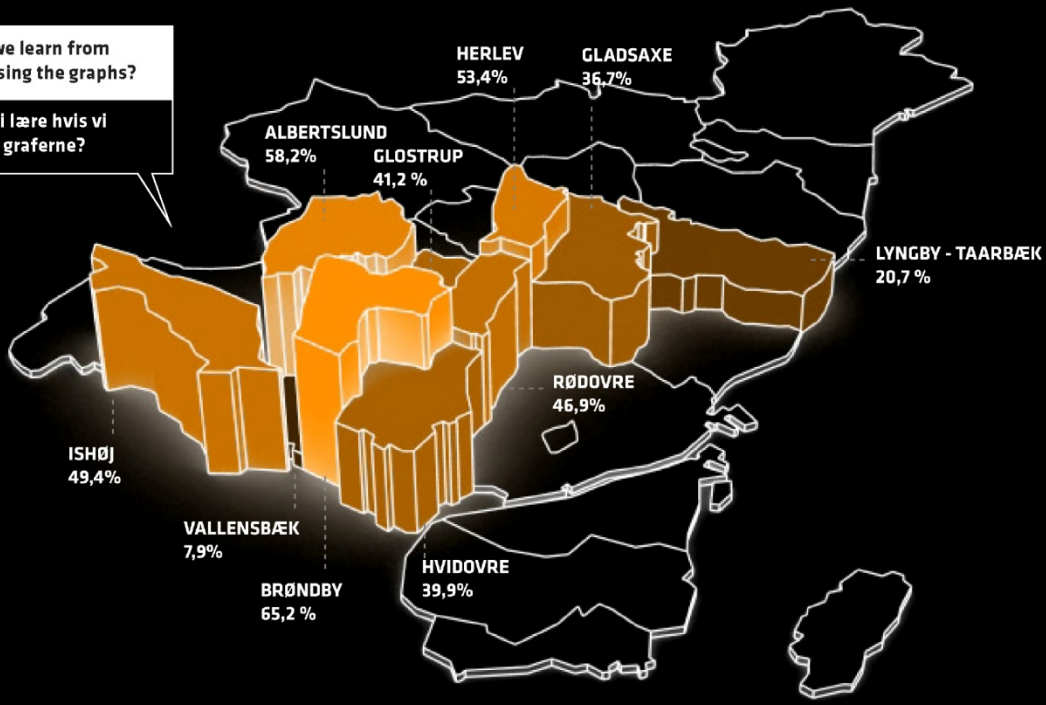
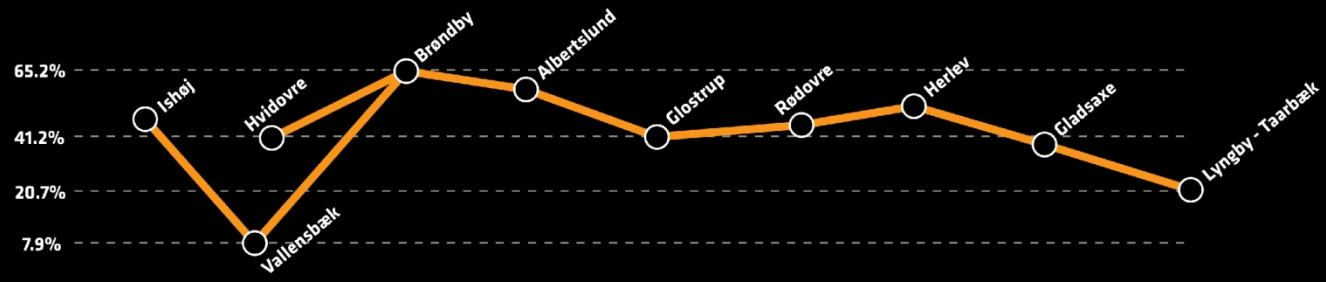
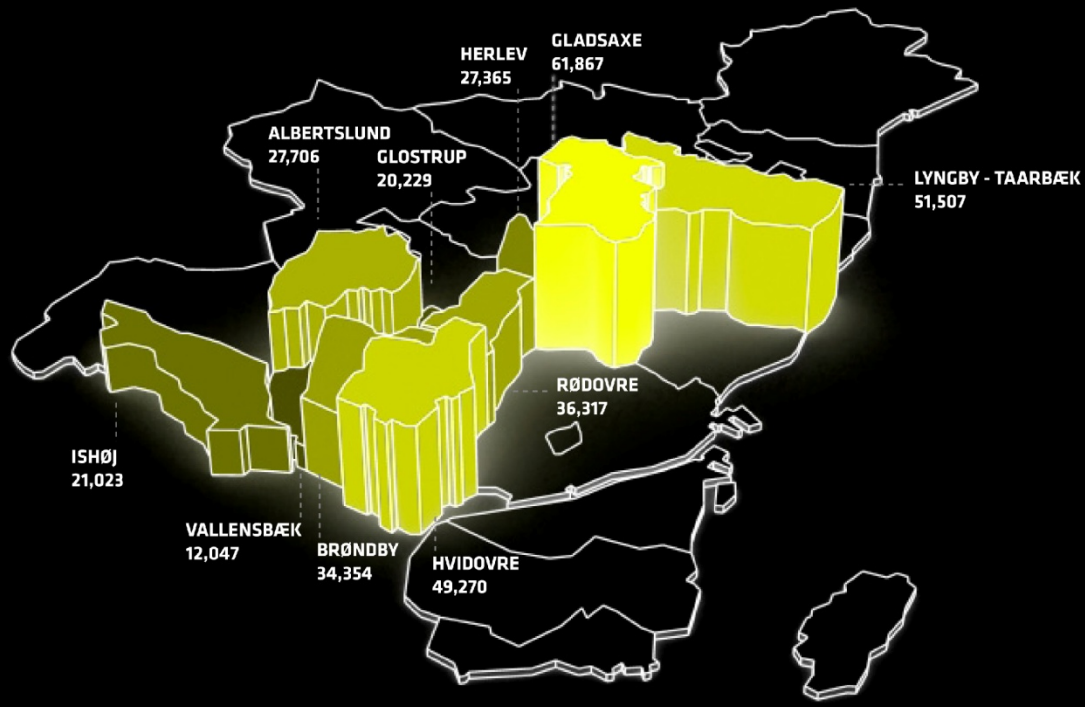
What can we learn from superimposing the graphs?

Hvad kan vi lære hvis vi krydslæser graferne?

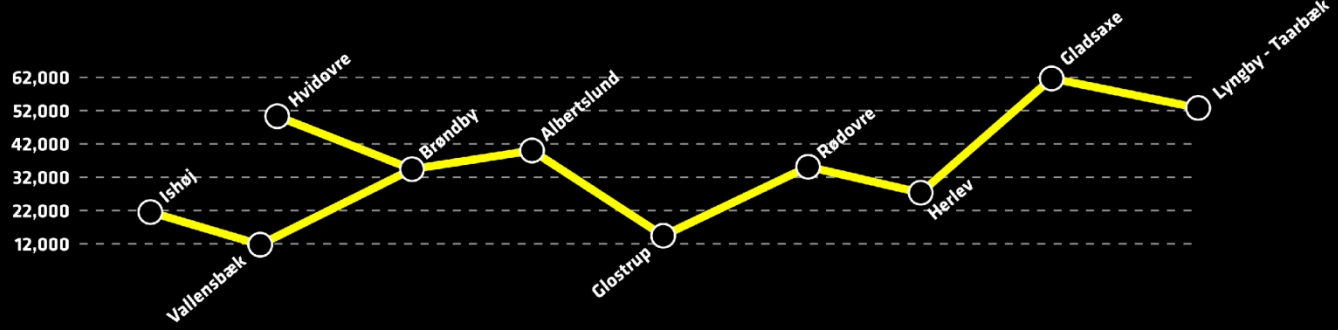


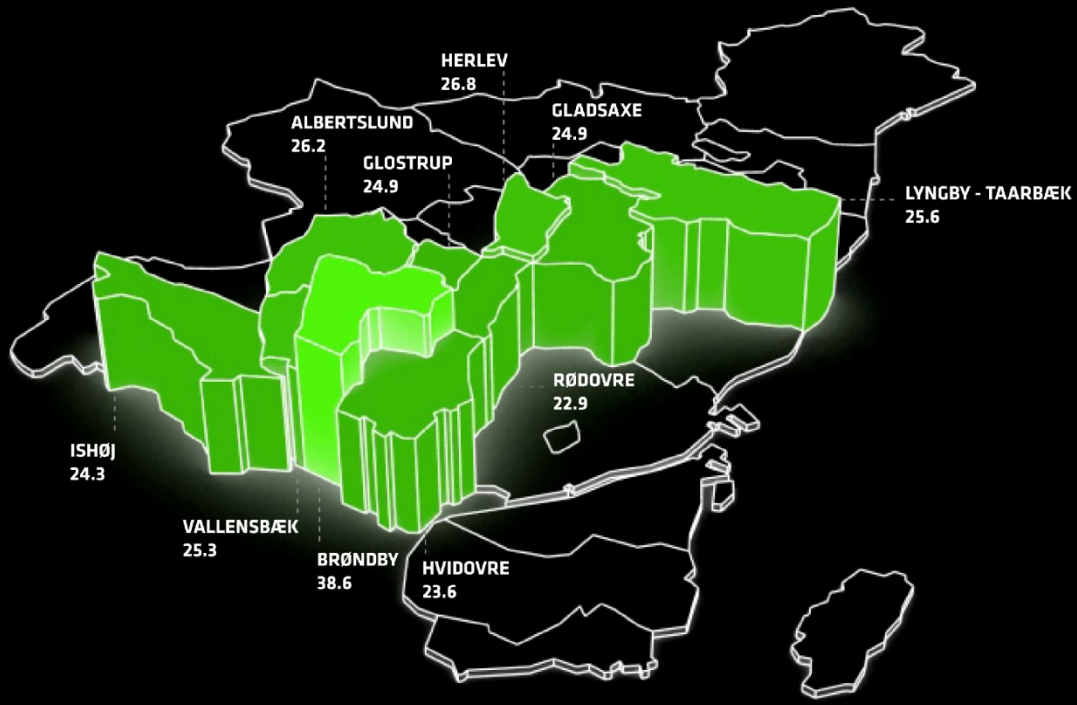
PUBLIC HOUSING



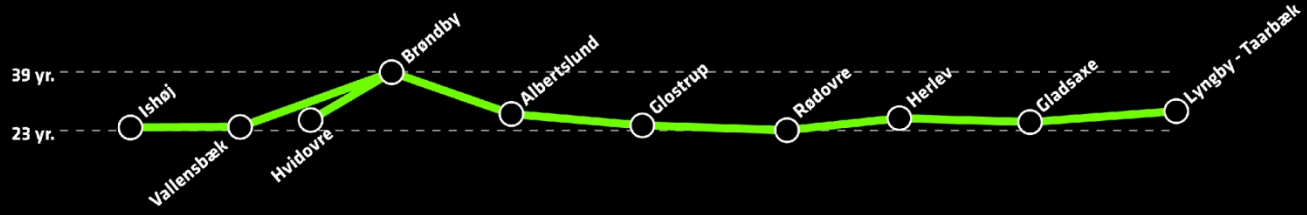

HERLEV
27,365
GLADSAXE
61,867
ALBERTSLUND
27,706
GLOSTRUP
20,229
LYNGBY - TAARBÆK
51,507
RØDOVRE
36,317
ISHØJ
21,023
VALLENSBÆK
12,047
BRØNDBY
34,354
HVIDOVRE
49,270

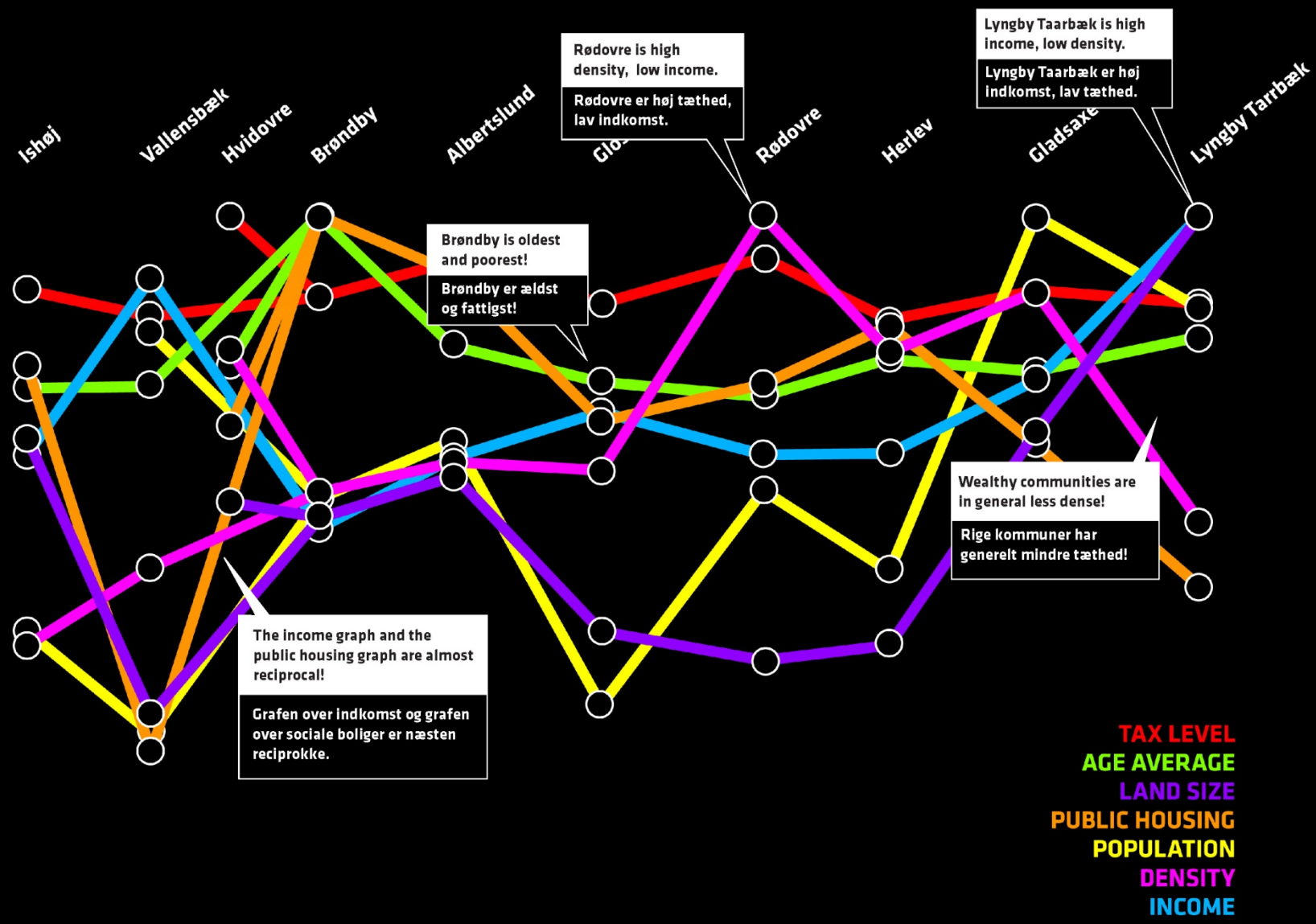
POPULATION


62,000
52,000
42,000
32,000
22,000
12,000
Ishøj
Hvidovre
Vallensbæk
Brøndby
Albertslund
Glostrup
Rødovre
Herlev
Gladsaxe
Lyngby - Taarbæk


HERLEV
26.8
ALBERTSLUND
26.2
GLADSAXE
24.9
GLOSTRUP
24.9
LYNGBY - TAARBÆK
25.6
RØDOVRE
22.9
ISHØJ
24.3
VALLENSBÆK
25.3
BRØNDBY
38.6
HVIDOVRE
23.6

AGE AVERAGE


39 yr.
23 yr.
Ishøj
Vallensbæk
Hvidovre
Brøndby
Albertslund
Glostrup
Rødovre
Herlev
Gladsaxe
Lyngby - Taarbæk


Ishøj
Vallensbæk
Hvidovre
Brøndby
Albertslund
Rødovre
Herlev
Gladsaxe
Lyngby Tarrbæk
Rødovre is high density, low income.
Rødovre er høj tæthed, lav indkomst.
Lyngby Taarbæk is high income, low density.
Lyngby Taarbæk er høj indkomst, lav tæthed.
Brøndby is oldest and poorest!
Brøndby er ældst og fattigst!
Wealthy communities are in general less dense!
Rige kommuner har generelt mindre tæthed!
The income graph and the public housing graph are almost reciprocal!
Grafen over indkomst og grafen over sociale boliger er næsten reciprokke.
TAX LEVEL
AGE AVERAGE
LAND SIZE
PUBLIC HOUSING
POPULATION
DENSITY
INCOME

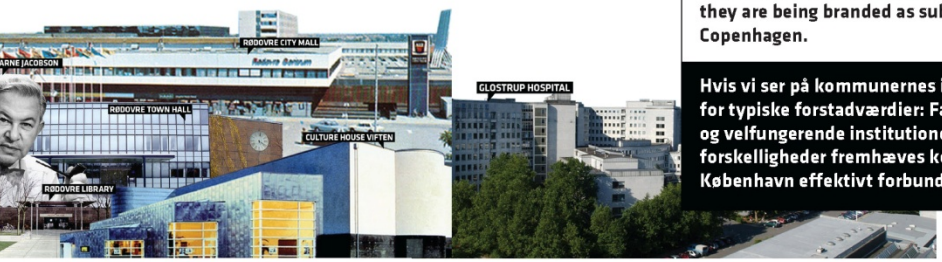
LYNGBY-TAARBÆK

GLADSAXE

HERLEV

If we look at the identities of the municipalities, most of them are known for their suburban qualities: Family housing, green areas and convenience of everyday life. Rather than individual centres, they are being branded as sub-cities with great connectivity to inner Copenhagen.

Hvis vi ser på kommunernes identiteter, er de fleste kendt for typiske forstadværdier: Familieboliger, grønne områder og velfungerende institutioner. Snarere end individuelle forskelligheder fremhæves kommunerne som under-byer til København effektivt forbundet til indre by.



RØDOVRE

GLOSTRUP

BRØNDBY

VALLENSBÆK

HVIDOVRE

ALBERTSLUND

ISHØJ

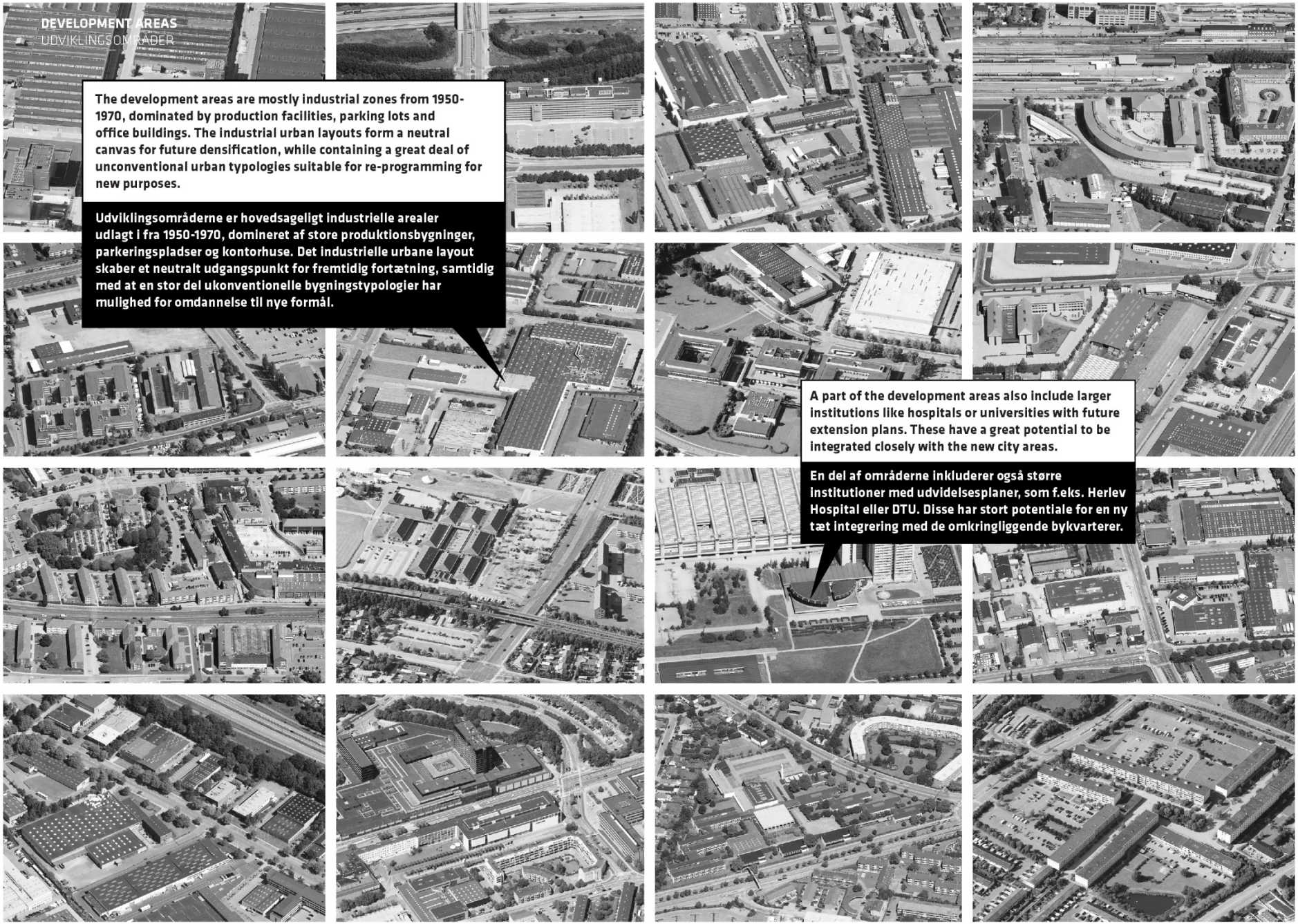
DEVELOPMENT AREAS
UDVIKLINGSOMRÅDER

The development areas are mostly industrial zones from 1950-1970, dominated by production facilities, parking lots and office buildings. The industrial urban layouts form a neutral canvas for future densification, while containing a great deal of unconventional urban typologies suitable for re-programming for new purposes.

Udviklingsområderne er hovedsageligt industrielle arealer udlagt i fra 1950-1970, domineret af store produktionsbygninger, parkeringspladser og kontorhuse. Det industrielle urbane layout skaber et neutralt udgangspunkt for fremtidig fortætning, samtidig med at en stor del ukonventionelle bygningstypologier har mulighed for omdannelse til nye formål.

A part of the development areas also include larger institutions like hospitals or universities with future extension plans. These have a great potential to be integrated closely with the new city areas.

En del af områderne inkluderer også større institutioner med udvidelsesplaner, som f.eks. Herlev Hospital eller DTU. Disse har stort potentiale for en ny tæt integrering med de omkringliggende bykvarterer.




How much new city could the new areas contain?
Hvor meget areal er der tale om i de nye områder?

If we look at the developments as one atomized urban mass...

Hvis vi ser på områderne som ét samlet bymæssigt kvarter...

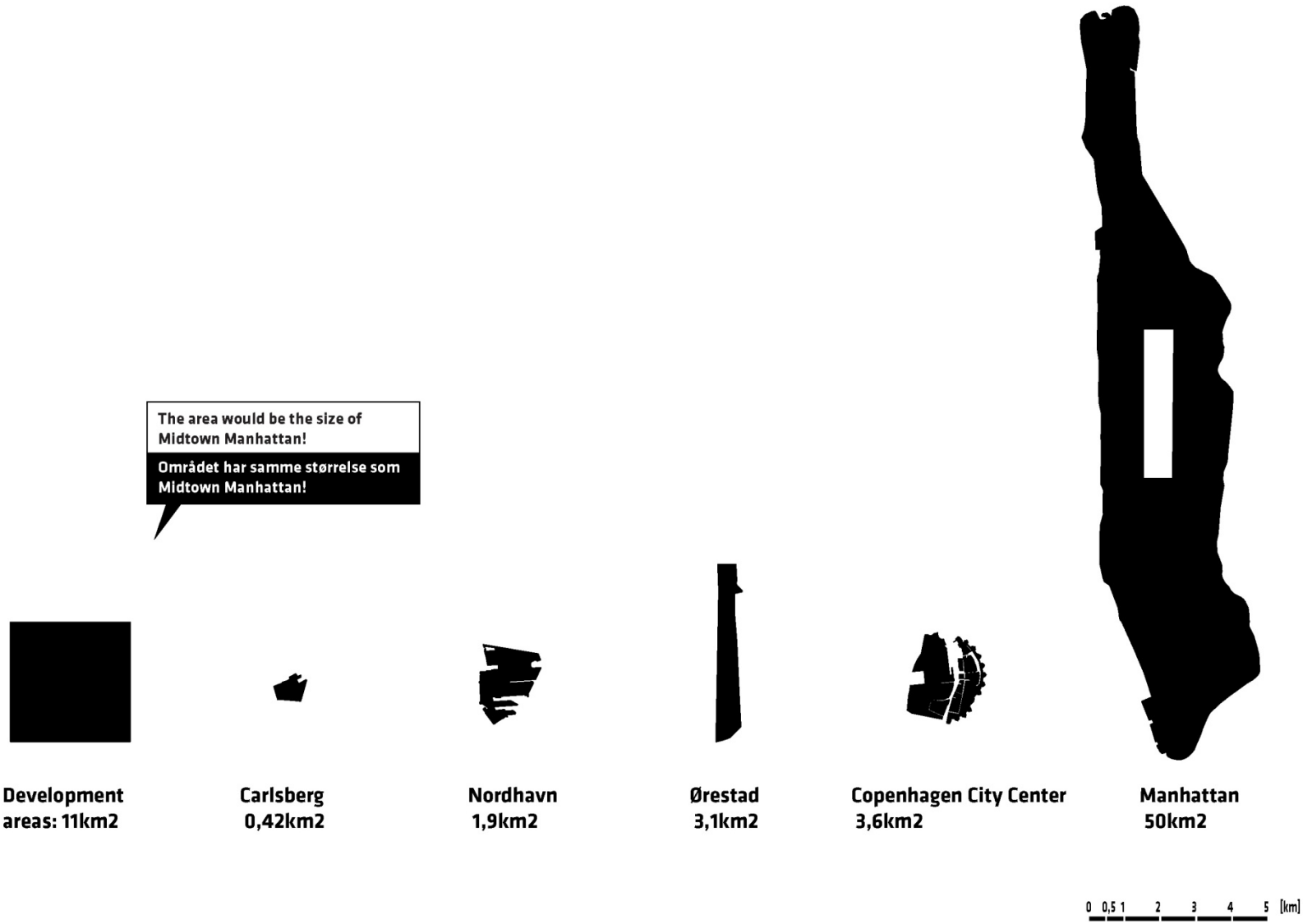
...equal to entire central Copenhagen!

...samme størrelse som hele indre københavn!

11 KM2

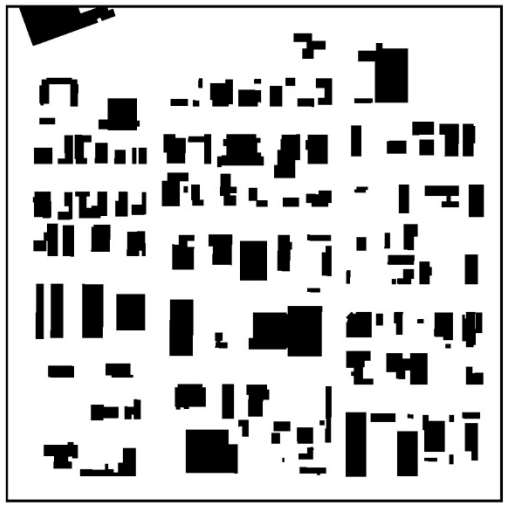
...it would constitute 11 KM2 of new city!

...ville det fylde 11 KM2!


The area would be the size of Midtown Manhattan!
Området har samme størrelse som Midtown Manhattan!
Development areas: 11km2
Carlsberg 0,42km2
Nordhavn 1,9km2
Ørestad 3,1km2
Copenhagen City Center 3,6km2
Manhattan 50km2
0 0,5 1 2 3 4 5 [km]

But the development areas and their surroundings have a low urban density around 25% (Floor Area Ratio 0.25).

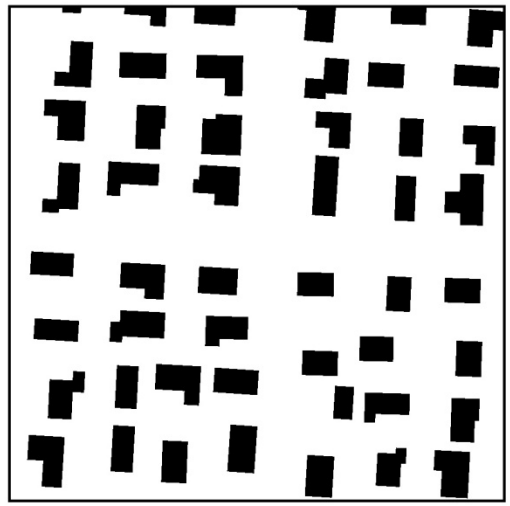
Men udviklingsområderne og deres omgivelser har en meget lav bebyggelsestæthed omkring 25%.



100m

INDUSTRY PARK, HVIDOVRE

DENSITY 25%



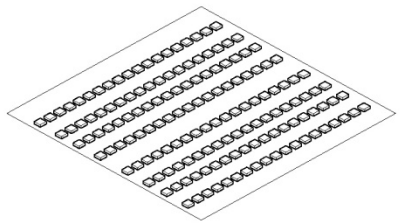
100m

ONE FAMILY HOUSING, BRØNDBY

DENSITY 25%

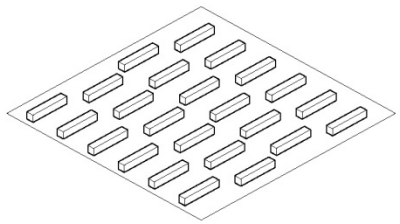
Even the highrise areas are low density. There seems to be no lack of public space... But what about public life?

Selv områder med høje bebyggelser har lav tæthed. Der er ikke mangel på offentligt rum....Men hvad med offentligt liv?



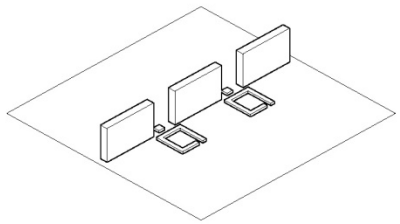
SKOVLUNDE

25%



BRØNDBYØSTER

25%

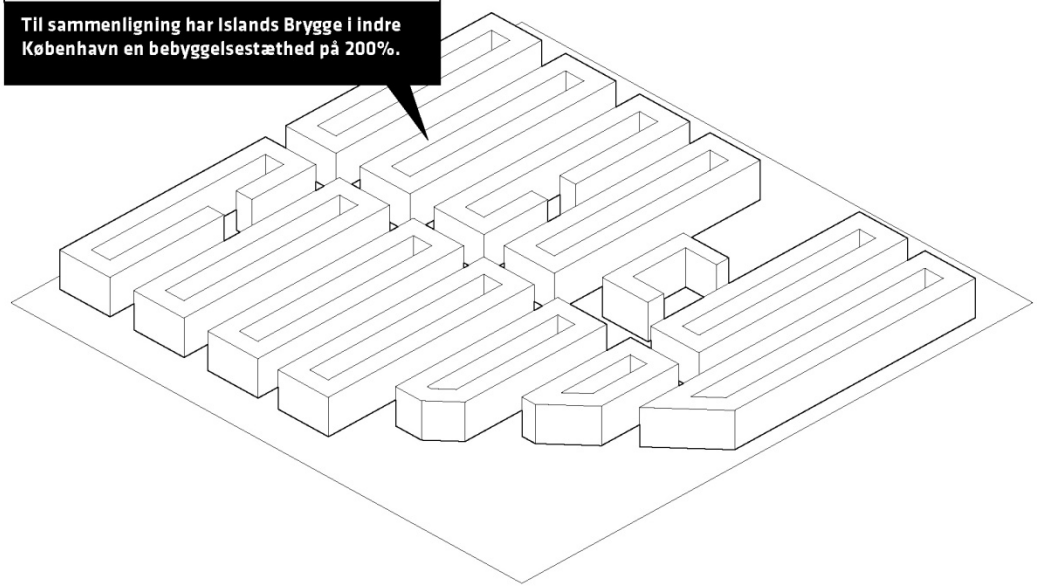


HØJE GLADSAXE

25%

By comparison, Islands Brygge in central Copenhagen has a density of 200% (FAR =2.0).

Til sammenligning har Islands Brygge i indre København en bebyggelsestæthed på 200%.



ISLAND BRYGGE

200%


A large part of the areas surrounding the new light rail track is green areas. These green corridors have a transformation potential as important as the urban zones!
En stor del af de områder der omkranser den nye Letbane er grønne områder. De grønne kiler udgør et stort potentiale i forbindelse med den nye bydannelse!
URBAN FOCUS AREA
GREEN FOCUS AREA
URBAN FOCUS AREA

EXISTING CITY PARKS

They are comparable in size to the large public parks of New York, San Fransisco or Paris!

Deres størrelse er sammenlignelig med de store parker i New York, San Fransisco og Paris!

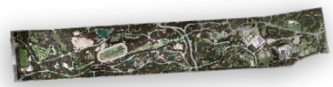
CENTRAL PARK
NEW YORK

HYDE PARK
LONDON

BOISE DE BOLOGNE
PARIS

FLUSHING MEADOWS
NEW YORK

TIERGARTEN
BERLIN



GOLDEN GATE PARK
SAN FRANCISCO

DYREHAVEN
COPENHAGEN

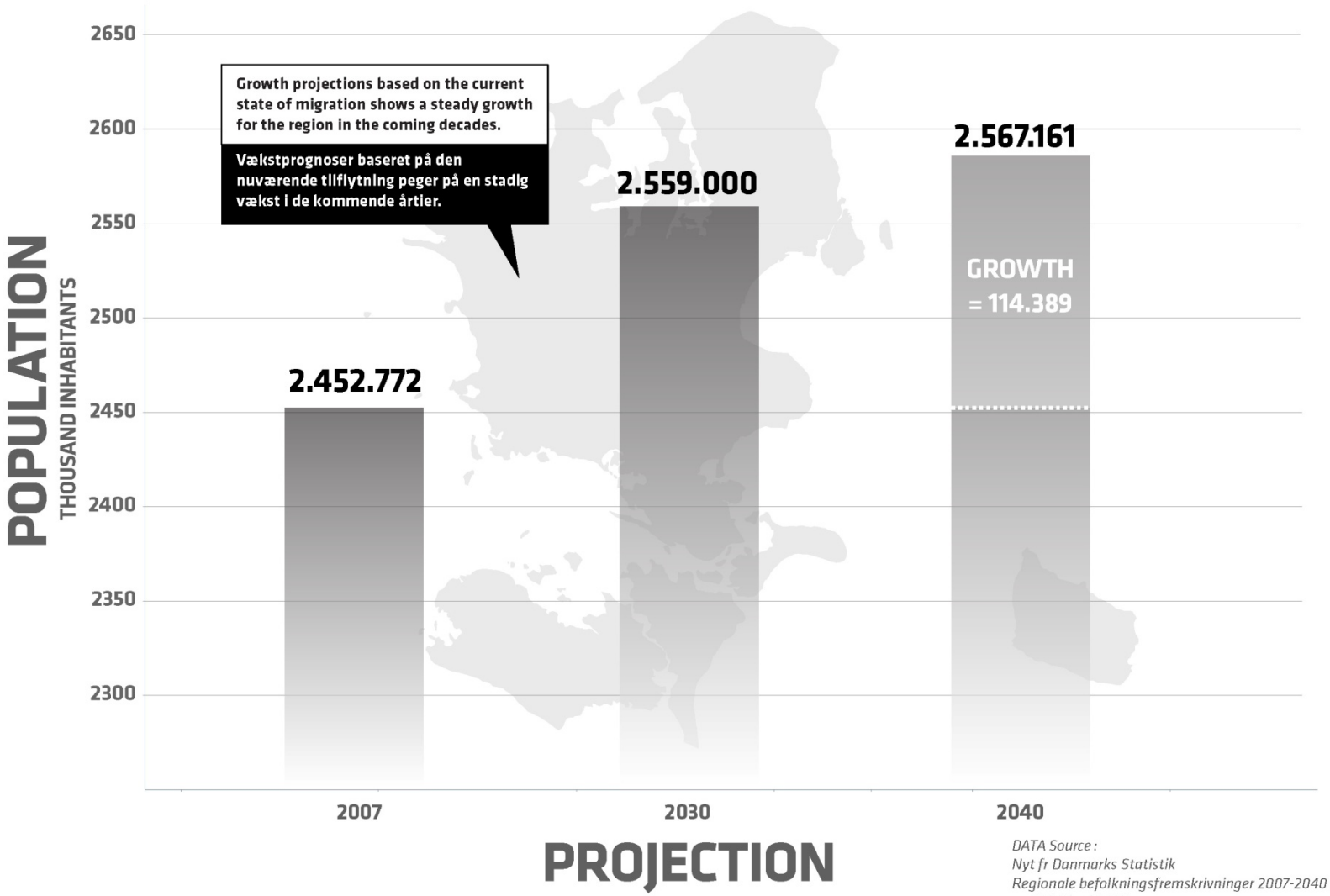
LOOP CITY GREEN FINGERS

VESTSKOV KILEN

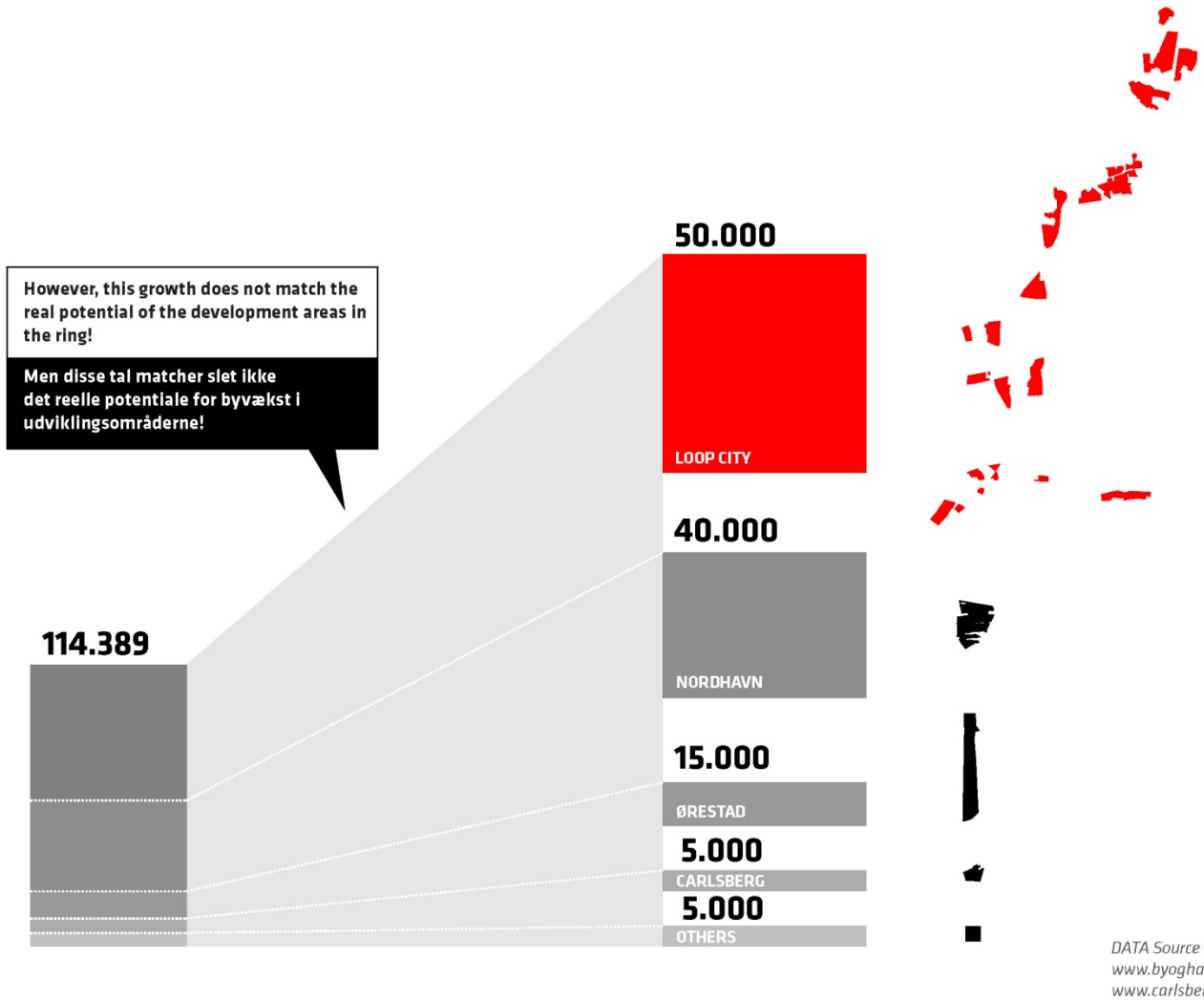
DEN GRØNNE KILE

STAVNSHOLT KILEN

0 1500 3000



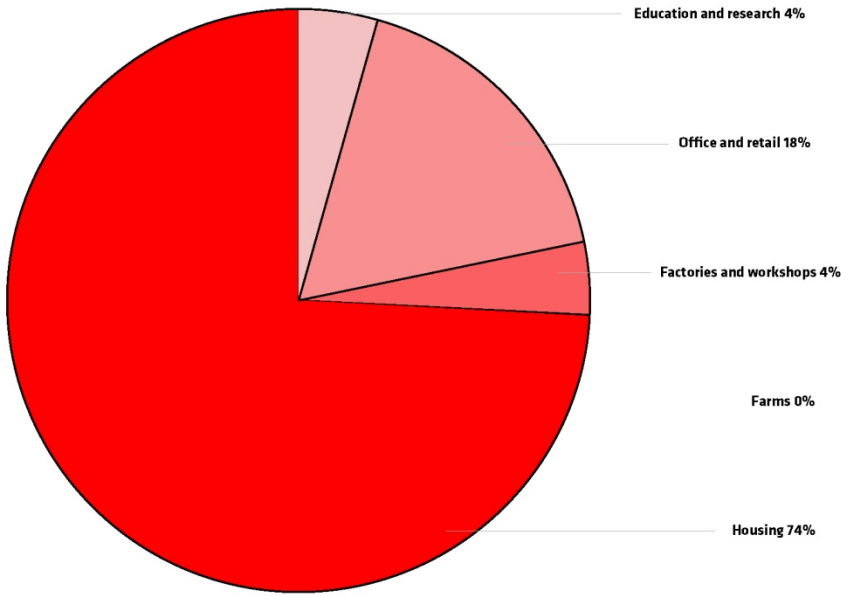
DATA Source :
Nyt fr Danmarks Statistik
Regionale befolkningsfremskrivninger 2007-2040
nr..245 7.juni 2007



DATA Source :
www.byoghavn.dk
www.carlsbergbyen.dk

If we would fill the new city with the typical programmatic contents of central Copenhagen...

Hvis vi fyldte områderne med en programmatisk blanding svarende til indre København....

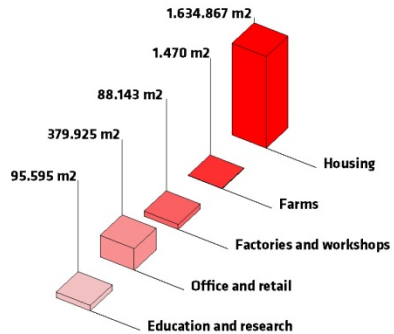


Typical programmatic distribution of Copenhagen

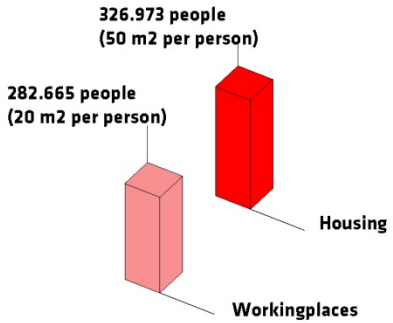
A mix of housing, offices, shops and institutions...

Et mix af boliger, kontorer, butikker og institutioner...

F.A.R. 200% = 2.200.000 m2



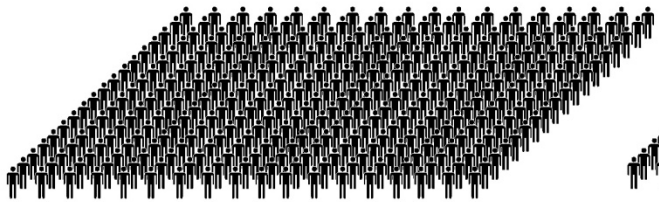
Potential programmatic distribution in m2



=

...it could become a city with more than 325.000 Inhabitants!

...kunne det blive en by med 325.000 indbyggere!



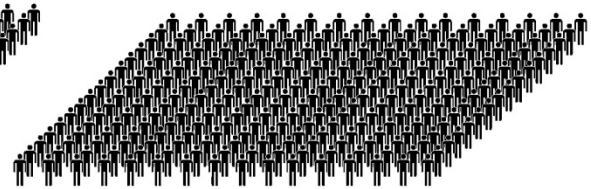
Inhabitants

325.000
INHABITANTS

+

And 280.000 working places!

Og 280.000 arbejdspladser!



Workers

= 1000 people

280.000
WORKING PLACES

TEN NEW CHALLENGES
TI NYE UDFORDRINGER

What is the status of the 10 original challenges from 1947? What are the new challenges facing the city today?

Hvad er status på de 10 oprindelige udfordringer fra 1947? Hvilke nye udfordringer står byen over for idag?


1. MOBILITY


2. ENERGY


3. WASTE


4. WATER


5. GLOBAL WARMING


6. BIODIVERSITY


7. INDUSTRIALIZATION


8. HEALTH


9. FOOD

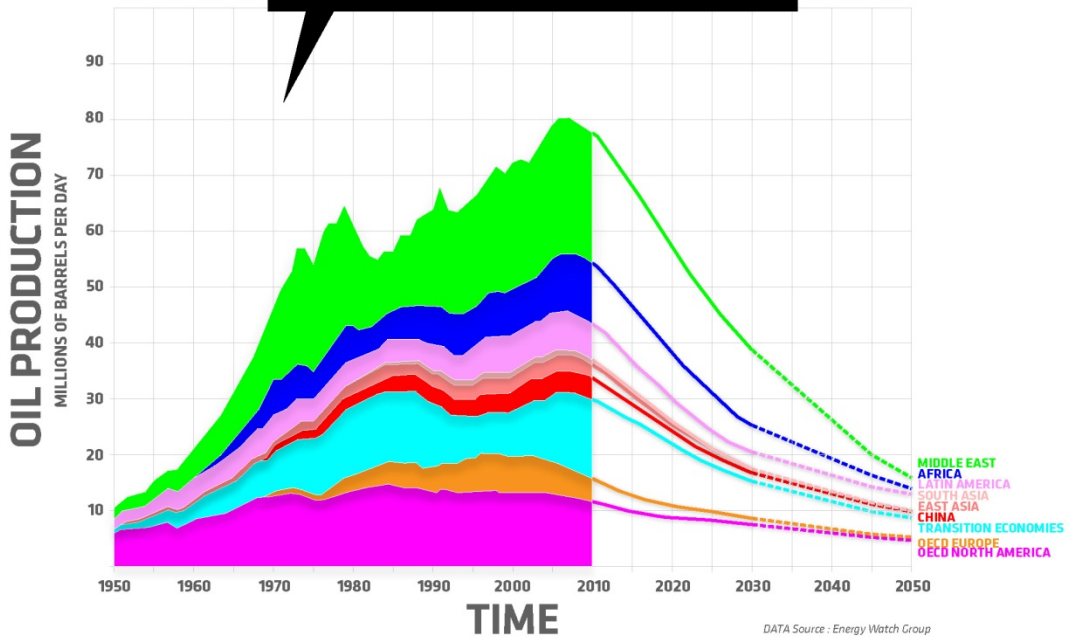

10. MIGRATION

THE END OF OIL!
IKKE MERE OLIE!

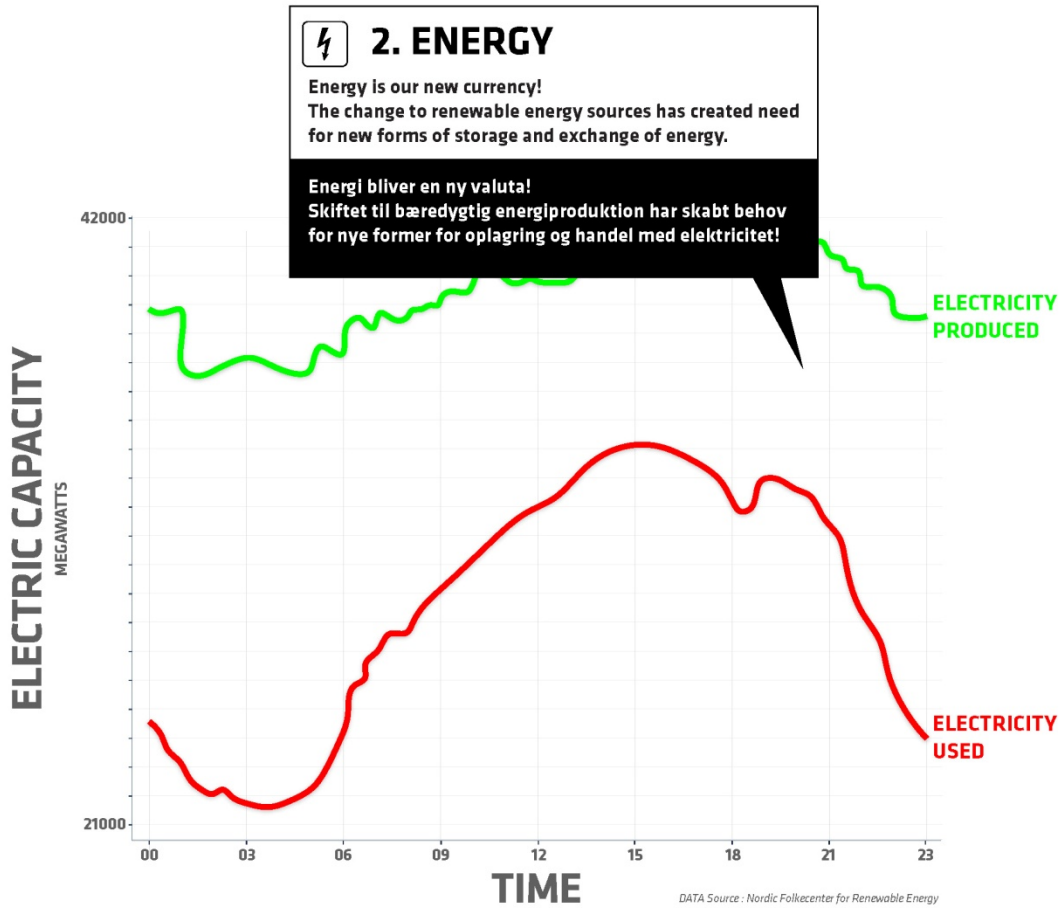
1. MOBILITY

Global oil production will fade out, and can not keep up with demand from exploding number of vehicles. Cars need to go electric!

Den global olieproduktion vil falde drastisk. Samtidig vil nye markeder skabe øget efterspørgsel for transport. Vi får brug for elektriske biler!



THE NEED FOR A SMART GRID!
BEHOVET FOR ET INTELLIGENT ELNET!

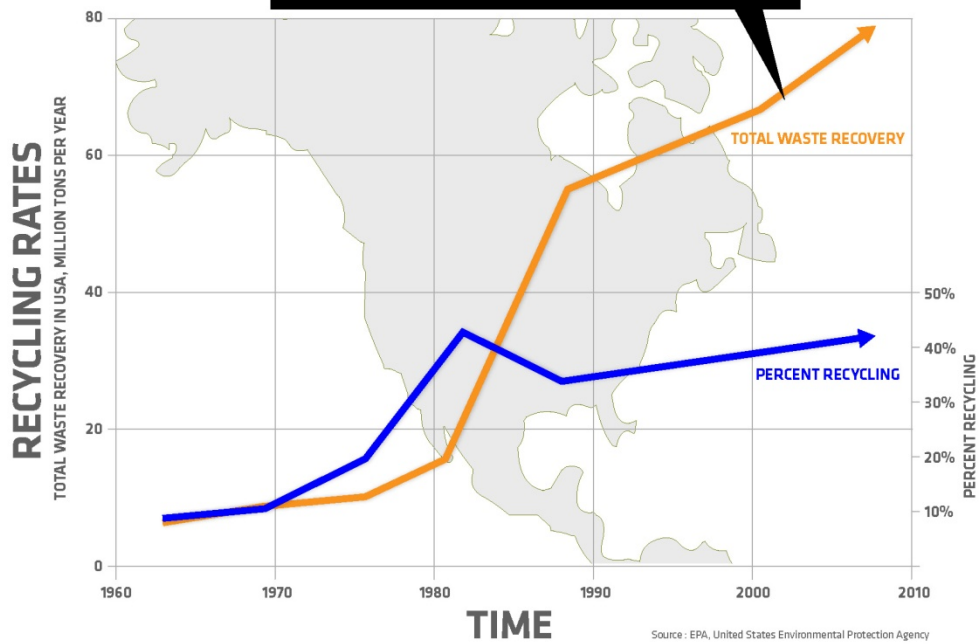


THE NEW URBAN ECOSYSTEM!
ET NYT URBANT ØKOSYSTEM!

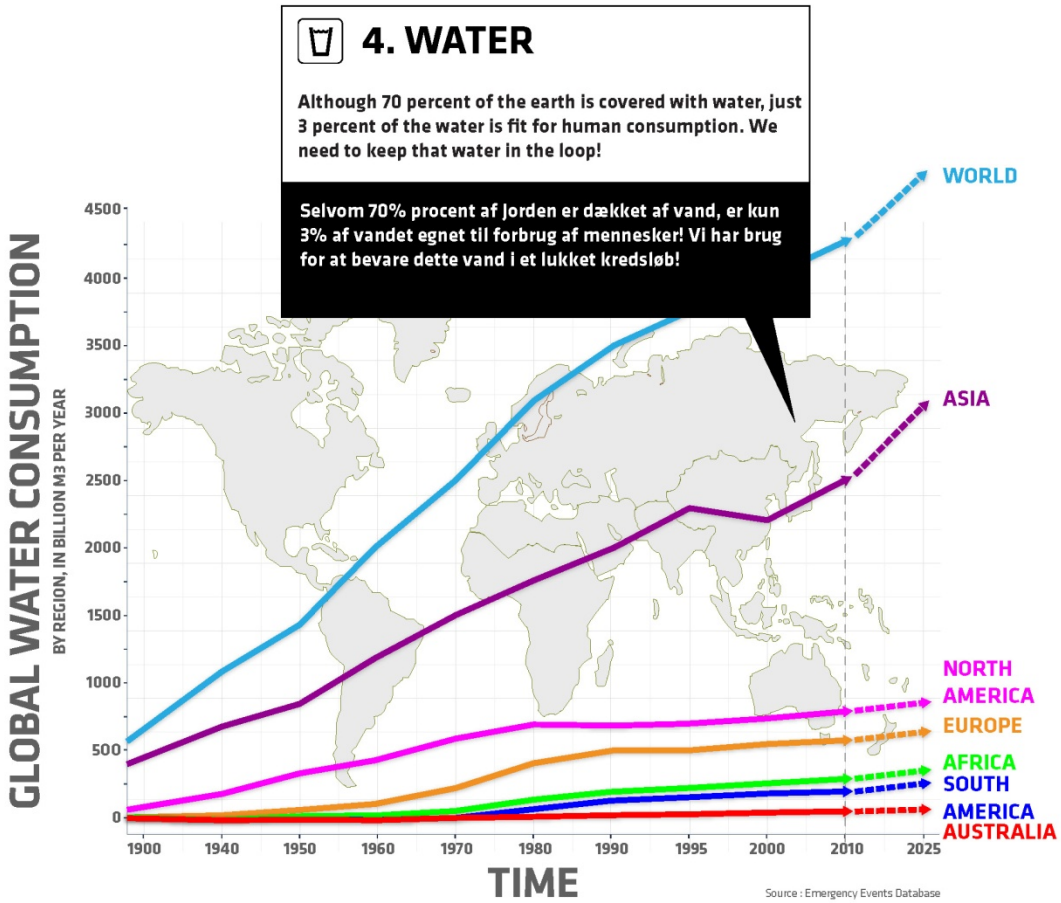
2. WASTE

Turn sources into resources!
The amount of waste per capita is exploding. We need to feed the waste back into the loop!

Affald = brændstof
Mængden af affald eksploderer! Vi har brug for mere effektive måder at sortere og genanvende affald.

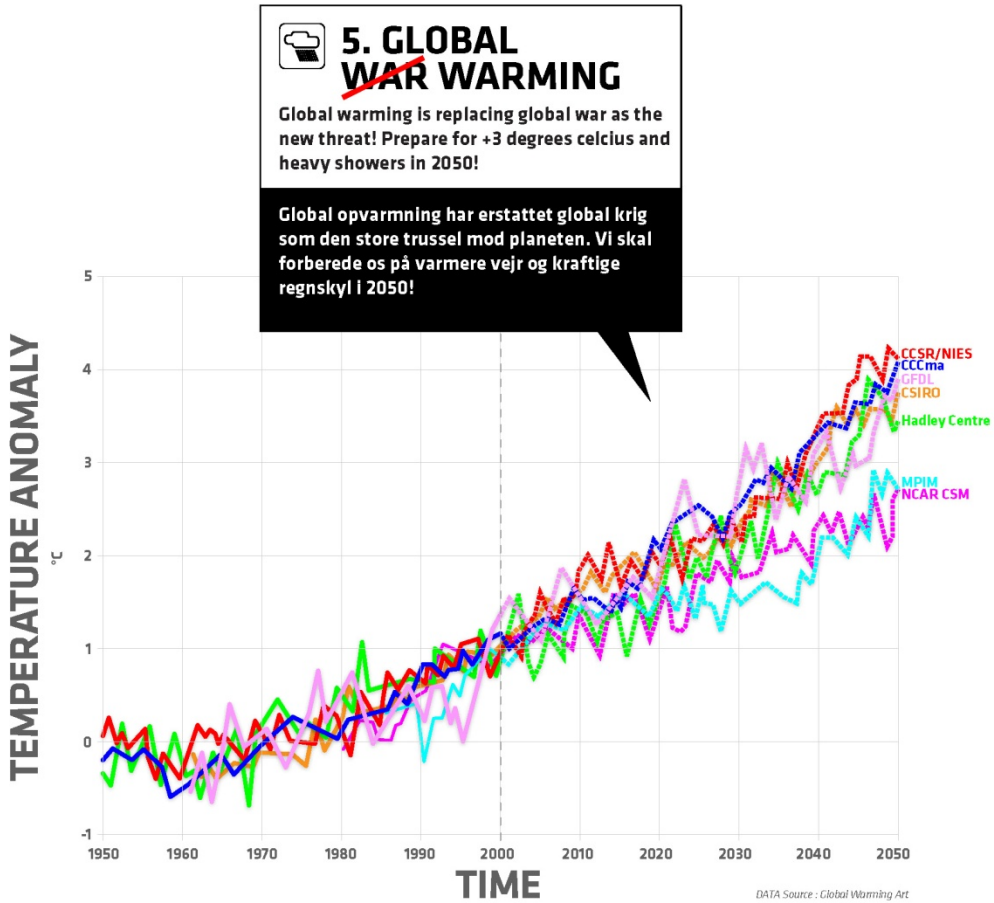


WE ARE RUNNING OUT OF WATER!
VI LØBER TØR FOR DRIKKEVAND!

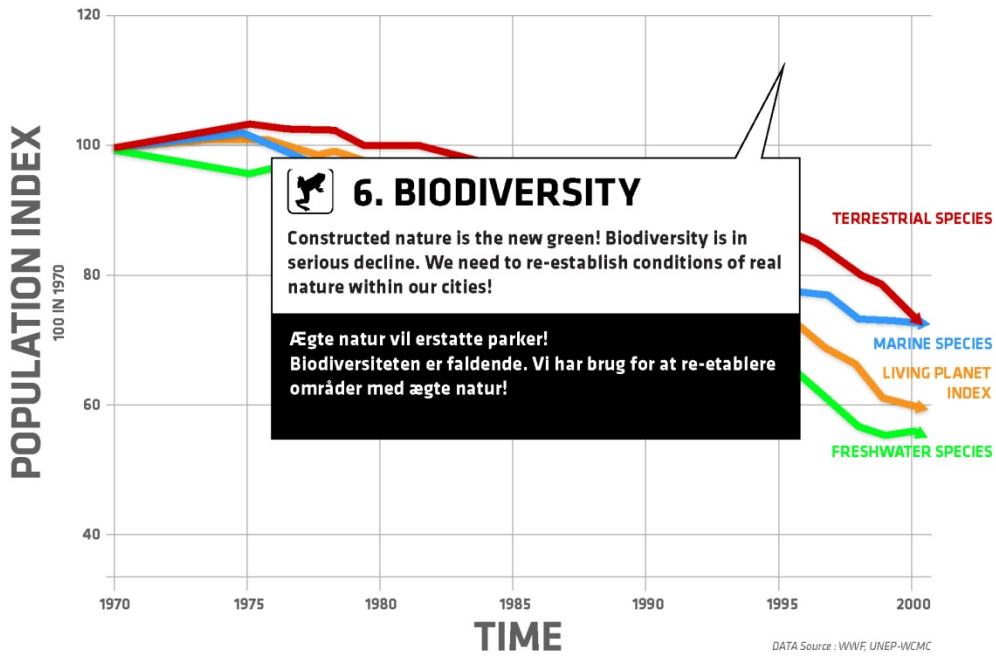


PREPARE FOR HEAVY SHOWERS!

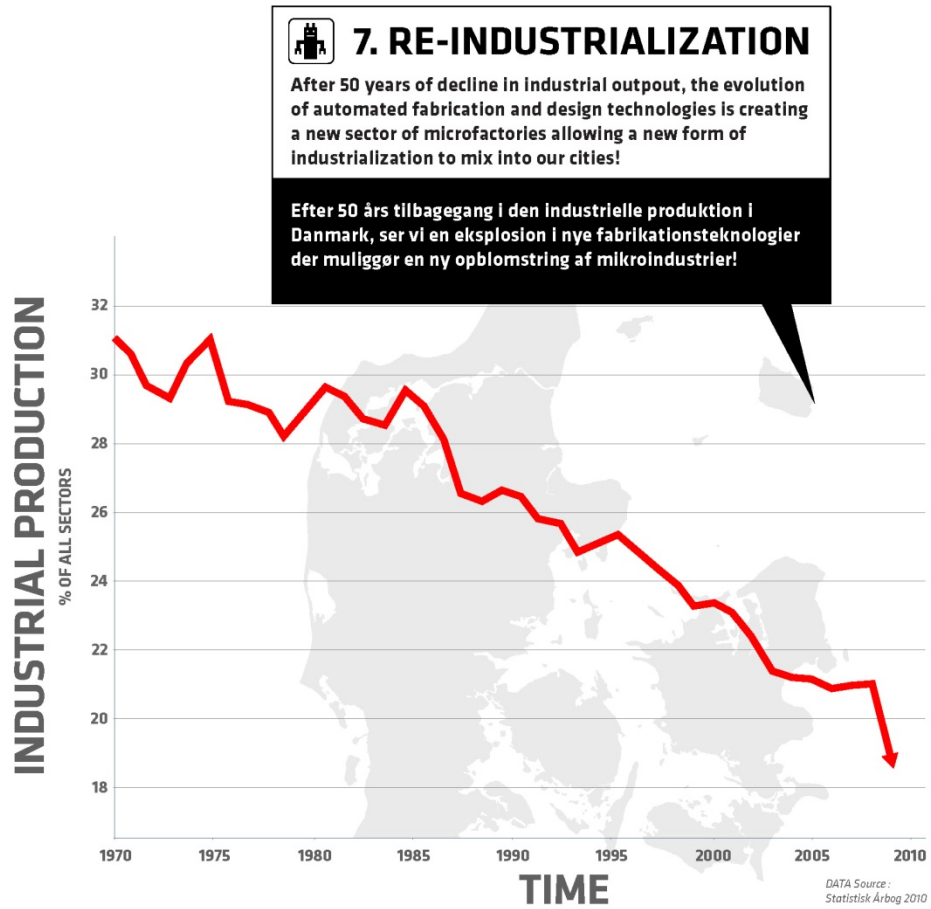
VEJRUDSIGT: KRAFTIG REGN!



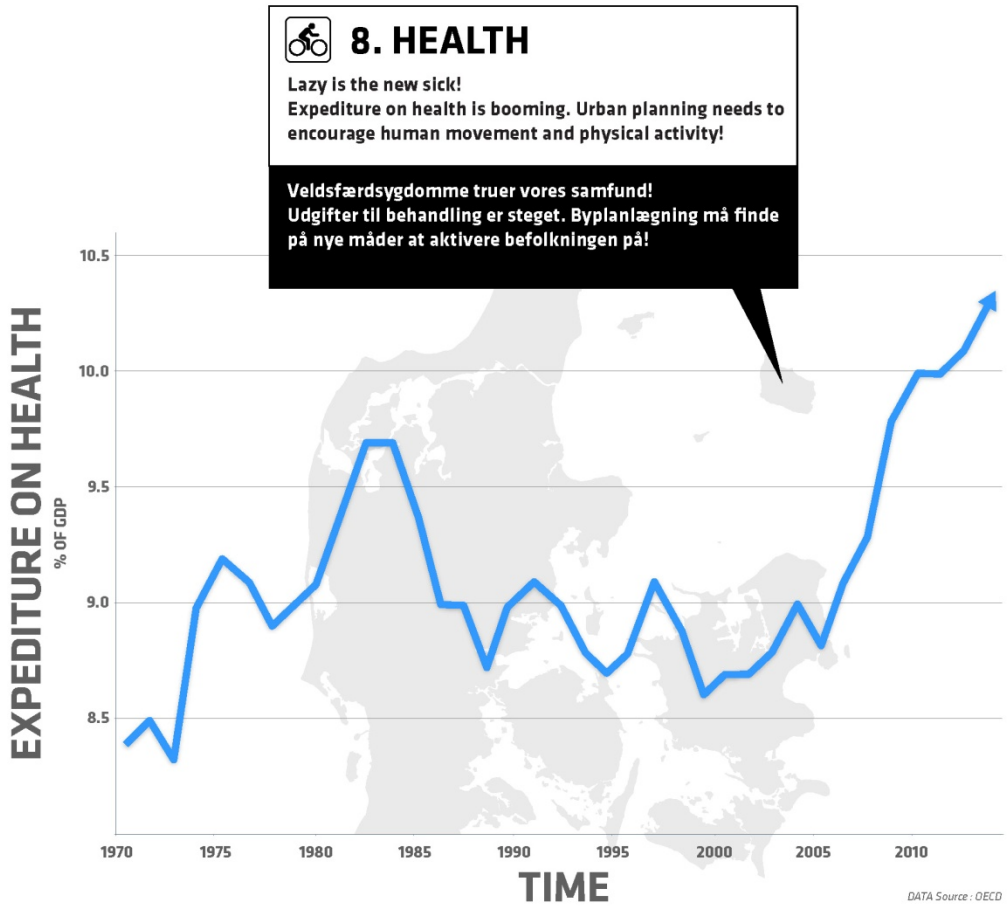
BIODIVERSITY IS DECLINING!
BIODIVERSITETEN FALDER!



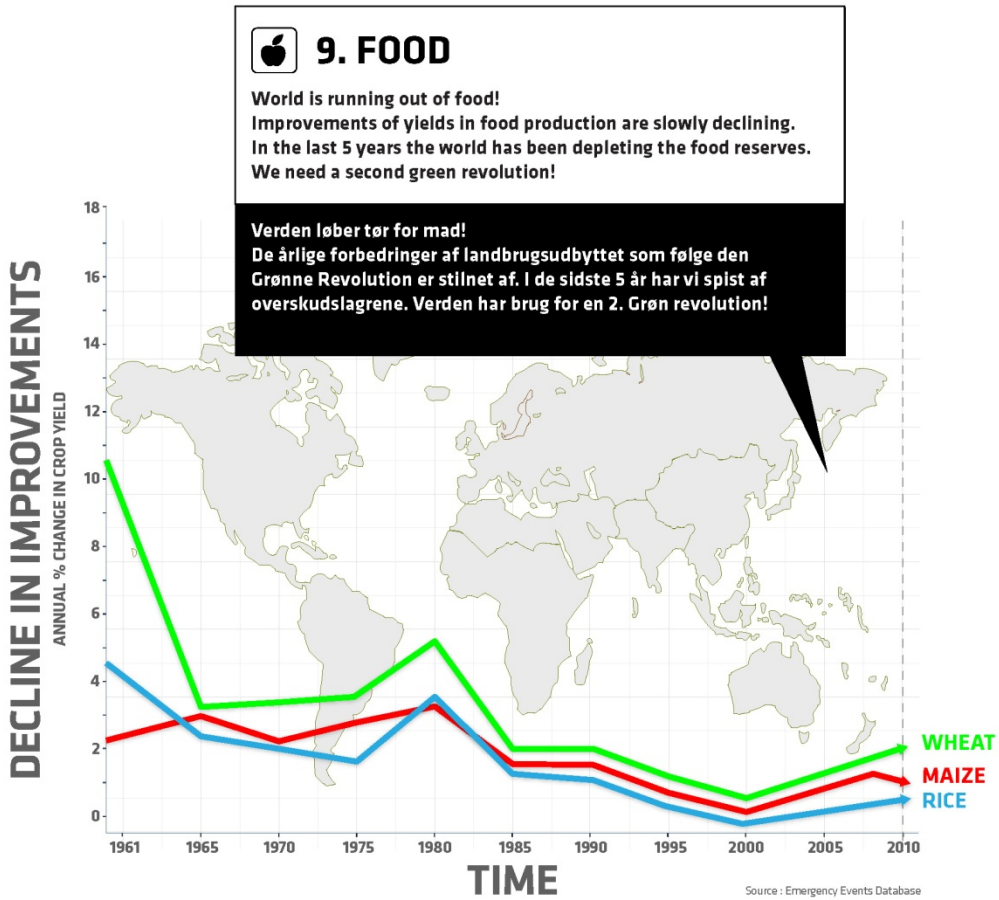
RE-INDUSTRIALIZATION!
GENINDUSTRIALISERING!



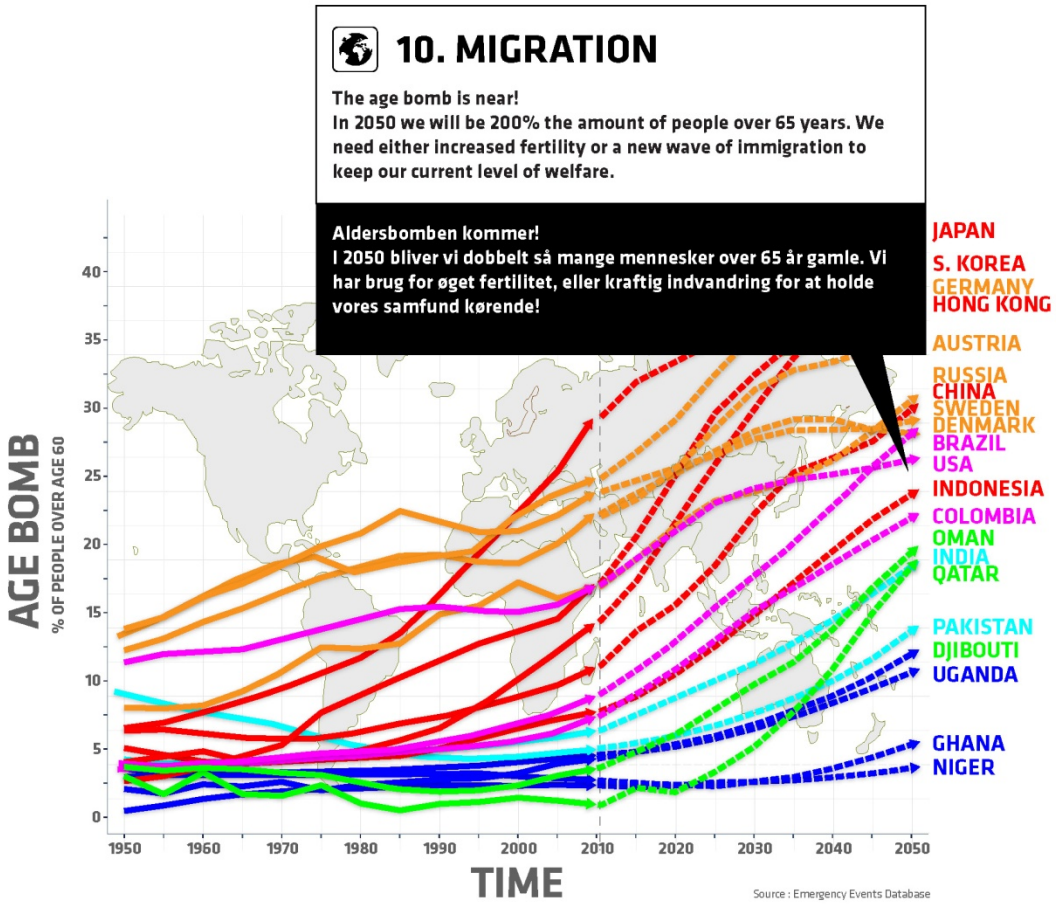
WELFARE HEALTH!
SUNDHED MED VELFÆRD!

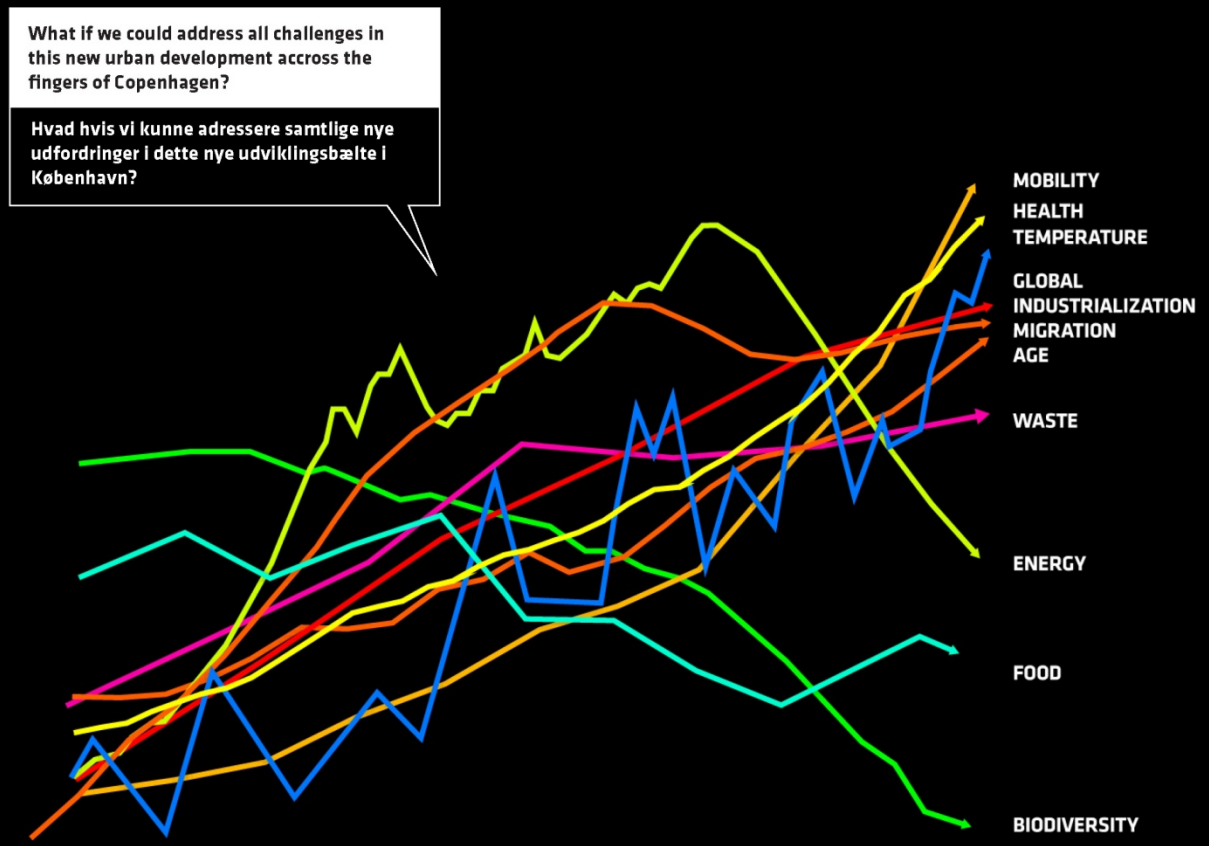


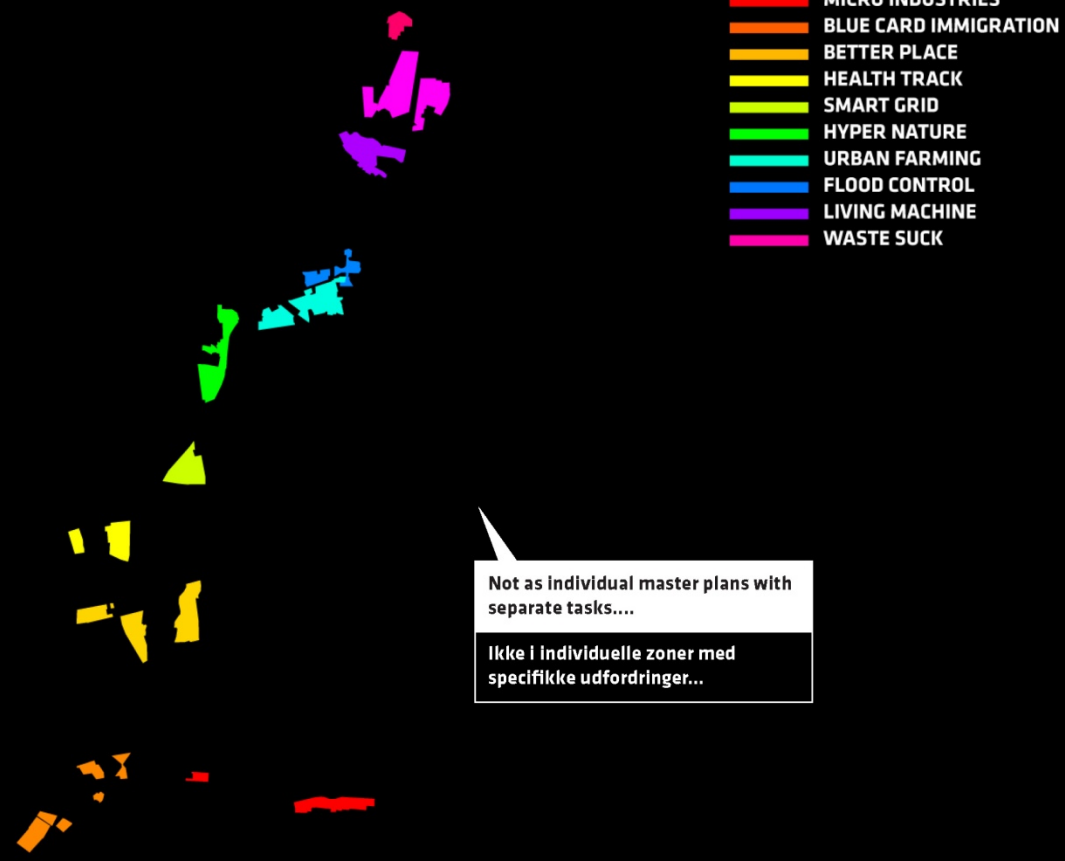
WE NEED A SECOND GREEN REVOLUTION!
VI HAR BRUG FOR EN 2. GRØN REVOLUTION!



THE AGE BOMB!
ALDERSBOMBEN!

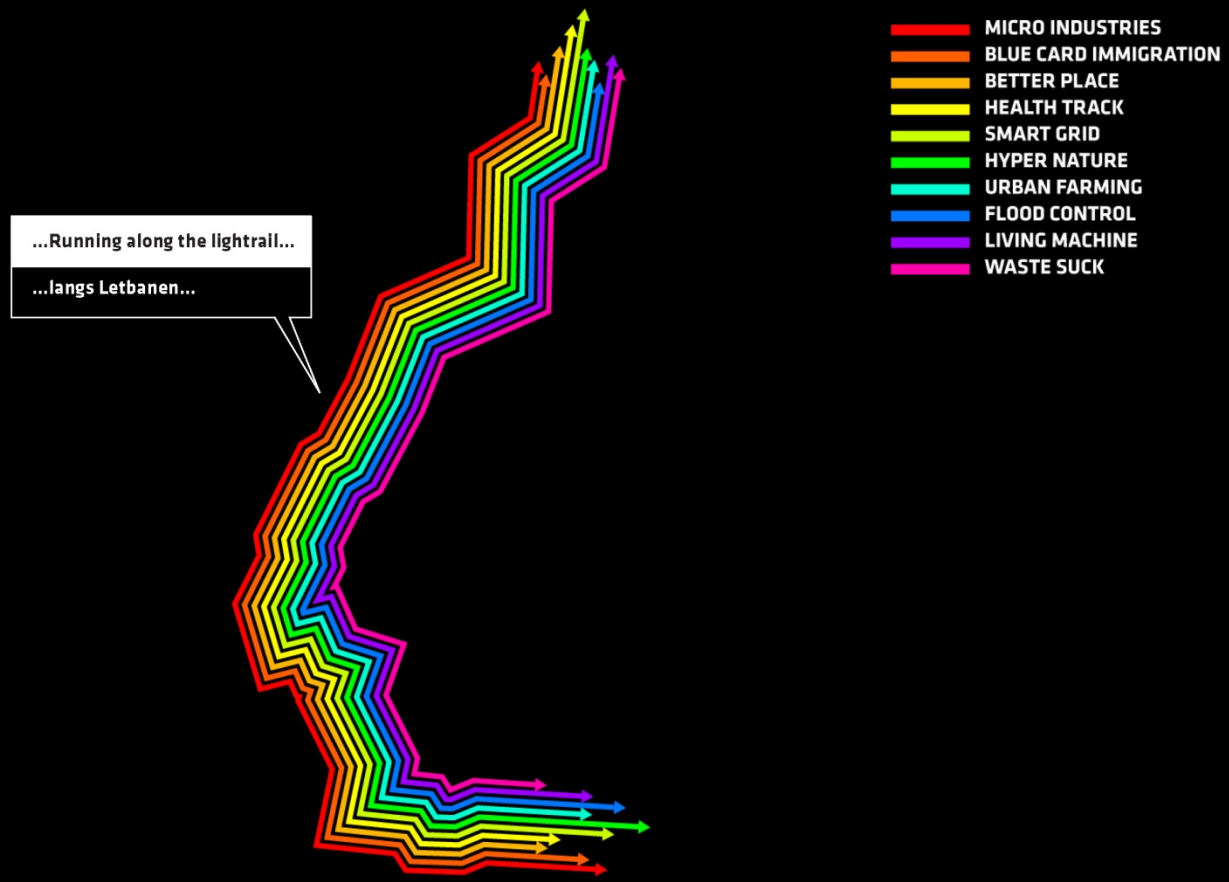


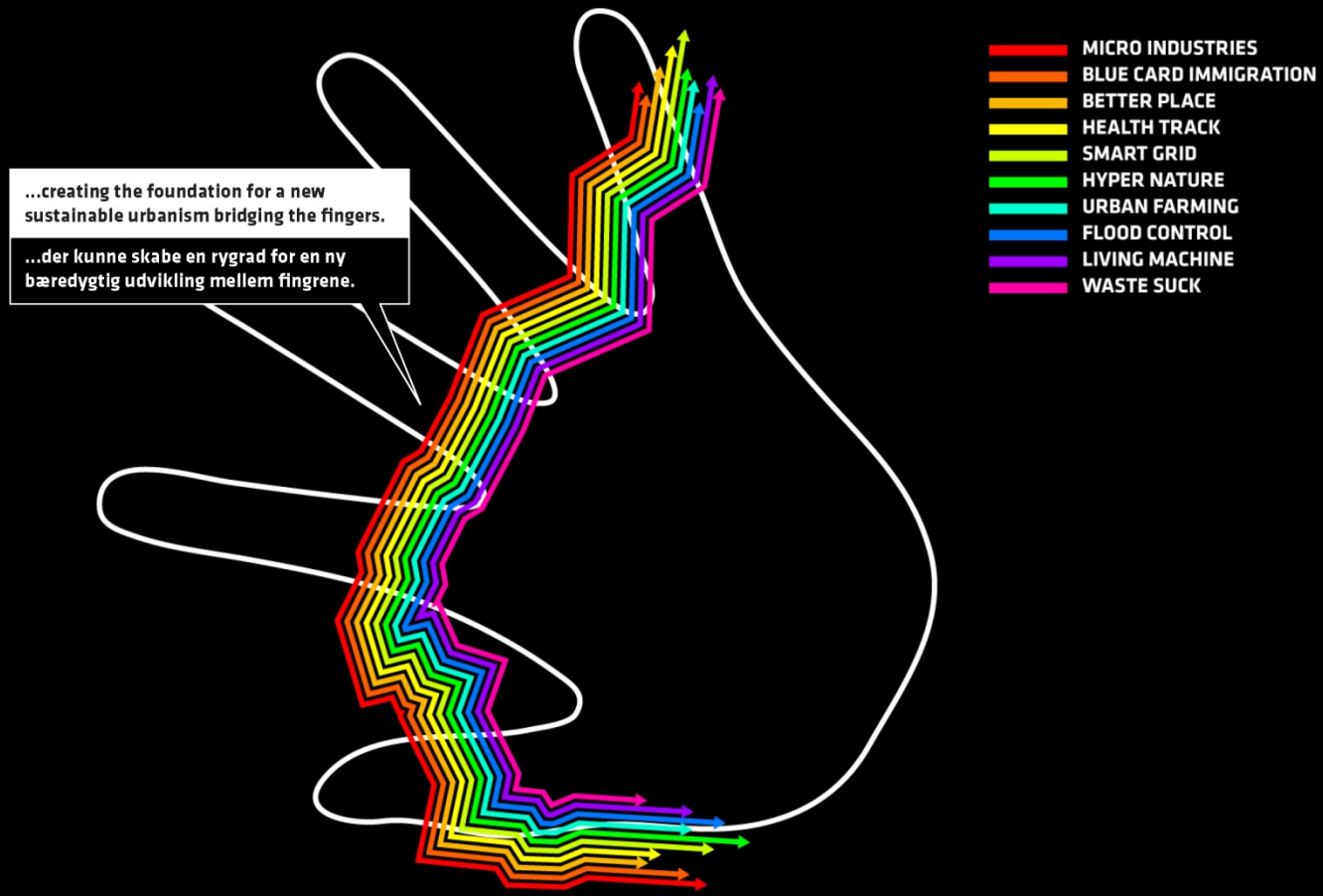

What if we could address all challenges in this new urban development accross the fingers of Copenhagen?
Hvad hvis vi kunne adressere samtlige nye udfordringer i dette nye udviklingsbælte i København?
MOBILITY
HEALTH
TEMPERATURE
GLOBAL
INDUSTRIALIZATION
MIGRATION
AGE
WASTE
ENERGY
FOOD
BIODIVERSITY


MICRO INDUSTRIES
BLUE CARD IMMIGRATION
BETTER PLACE
HEALTH TRACK
SMART GRID
HYPER NATURE
URBAN FARMING
FLOOD CONTROL
LIVING MACHINE
WASTE SUCK
Not as individual master plans with separate tasks....
Ikke i individuelle zoner med specifikke udfordringer...

But as a series of parallel strategies...

Men som en serie af parallelle strategier...


...Running along the lightrail...
...langs Letbanen...
MICRO INDUSTRIES
BLUE CARD IMMIGRATION
BETTER PLACE
HEALTH TRACK
SMART GRID
HYPER NATURE
URBAN FARMING
FLOOD CONTROL
LIVING MACHINE
WASTE SUCK


...creating the foundation for a new sustainable urbanism bridging the fingers.
...der kunne skabe en rygrad for en ny bæredygtig udvikling mellem fingrene.
MICRO INDUSTRIES
BLUE CARD IMMIGRATION
BETTER PLACE
HEALTH TRACK
SMART GRID
HYPER NATURE
URBAN FARMING
FLOOD CONTROL
LIVING MACHINE
WASTE SUCK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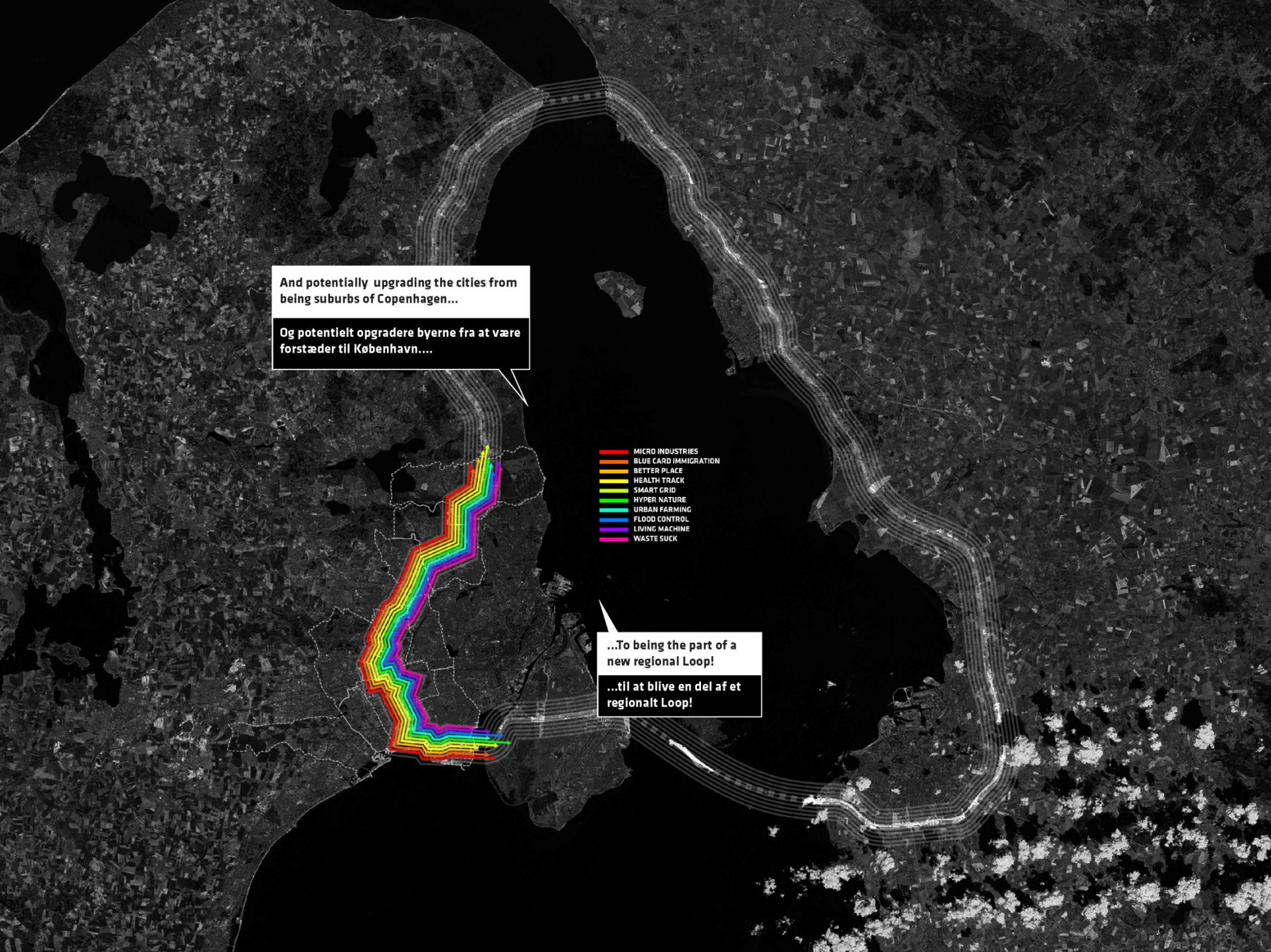
The ring city could unify the 10 municipalities, benefitting from their differences...
Ringen af strategier kunne forene de 10 kommuner og udnytte deres forskelligheder...


And potentially upgrading the cities from being suburbs of Copenhagen...
Og potentielt opgradere byerne fra at være forstæder til København....
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WASTE SUCK
...To being the part of a new regional Loop!
...til at blive en del af et regionalt Loop!

1. UPGRADE THE INFRASTRUCTURE
Combine the light rail with 10 new infrastructures addressing the new challenges.

2. RE-INVENT DEVELOPMENT ZONES
Strengthen the identities of the municipalities in the context of the new connection.

3. COMPLETE THE LOOP
Connect the light rail around Øresund to form a metropolitan Loop. A sustainable infrastructure becoming a new spine of the region.

1. OPGRADÉR INFRASTRUKTUREN
Kombinér Letbanen med strategier der adresserer de 10 nye udfordringer.

2. REDEFINÉR UDVIKLINGSOMRÅDERNE
Forstærk identiteterne i forstadskommunerne i sammenhæng med den nye ring.

3. FULDEND RINGEN
Forbind letbanen til banen omkring Øresund i en bæredygtig metropolitan infrastruktur der kunne blive en vækstmodel for hele Øresundsregionen!

UPGRADING THE INFRASTRUCTURE
OPGRADÉRING AF INFRASTRUKTUREN

We propose to combine the planned light rail with a series of strategies addressing the new challenges of the city. We have looked into technologies and design principles that currently seem inevitable for future cities, but that have not been implemented in larger scale yet. The Loop could become the framework for applying the ideas in a larger context. Some strategies are techonologies within the lightrail itself, others will be strategic scenarios related to the immediate surroundings and the development zones.

Vi foreslår at kombinere den planlagte Letbane med en serie af strategier der kan adressere de nye udfordringer for byen. Vi har set på teknologier og design principper der efter alt at dømme vil blive en uundgåelig del af fremtidens byer, men som ikke endnu har været implementeret i større omfang. Loop'et kunne blive en slags infrastrukturel rygrad for implementering af strategierne i et større perspektiv. Nogle af strategierne er teknologier kombineret med selve Letbanen, andre er strategiske scenarier der relaterer til de nære omgivelser og udviklingszonerne.

10 TECHNOLOGY BETS
10 TEKNOLOGI BETS

1. MOBILITY

ELECTRIC CAR INFRASTRUCTURE
Better Place aims to reduce global dependency on petroleum through the creation of a market-based transportation infrastructure supporting electric vehicles. Better Place is building its first electric vehicle network in Israel, and among its partners has selected Denmark and Hawaii as the other two test markets due to their small size. The electricity needed will be generated by renewable energy from solar arrays and wind farms.

INFRASTRUKTUR TIL ELEKTRISKE BILER

Better Place sigter mod at reducere global afhængighed af olie ved at skabe en markedsstyret infrastruktur af opladningsstationer for elektriske biler. Better Place er igang med at bygge det første netværk i Isreal og har udvalgt Danmark og Hawaii som de to næste test-markeder. Elektriciteten til bilerne vil være genanvendelig energi genereret fra vindmøller, solceller og biogas.

5. GLOBAL WARMING

CONSTRUCTED LAKES

During 5 hours of heavy rainfall in the development areas of the ring, it rains enough to fill a lake of 25 HA, or 250.000 M2 in 1.5 meters depth. Combined with constructed wetlands, a strategy of artificial lakes could greatly improve the quality of recreational space in the green areas, while absorbing the increasingly frequent heavy showers. At the same time the new lakes could reduce stress on the run-down sewage system of the city.

CONSTRUCTED LAKES

Iløbet af 5 timers kraftigt regnskyl over udviklingsområderne falder der nok vand til at fylde en sø på 25 Hektar eller 250.000 M2 på 1.5 meters dybde. En strategi for nye kunstige søer ville både kunne absorbere fremtidige regnskyl og booste de rekreative kvaliteter i de grønne områder. Samtidig kan søerne reducere belastningen og dermed energiforbruget på kloaknettet.

2. ENERGY

THE SMART GRID
The Smart Grid delivers electricity from suppliers to consumers using two-way digital technology to control appliances at consumers' homes to save energy, reduce cost and increase reliability. In a future energy system based on renewable sources the Smart Grid helps reducing the gap between produced and consumed energy.

DET INTELLIGENTE NETVÆRK
Et intelligent el-net leverer elektricitet fra udbydere til forbrugere via en 2-vejs digital teknologi, med det formål at kunne styre apparater hos forbrugerne for at spare energi, reducere forbrug og øge pålideligheden i systemet. Det intelligente net vil kunne udglatte forbrugsmønstre gennem døgnet og dermed reducere den store forskel mellem forbrug og produktion af elektricitet.

10. MIGRATION

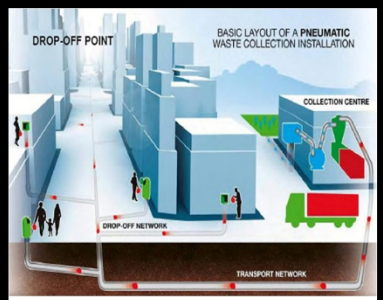
THE BLUE CARD
The European Unionfacing a ticking age bomb, and says it will need 20 mio skilled workers during the next 20 years. The European version of the American Green Card, The blue Card, could be one of many strategies to attract a skilled young work force. Others include improved regional infrastructure.

THE BLUE CARD
EU står over for en tikkende aldersbombe og vil få brug for 20 mio nye arbejdsdygtige indvandrere i løbet af 20 år. Den europæiske pendant til det amerikanske Green Card, The Blue Card vil være ét af mange tiltag for at tiltrække ung arbejdskraft. Andre muligheder er forbedret regional infrastruktur.

8. HEALTH

THE BICYCLE
Denmark and Holland are the countries in EU with the highest use of bicycles as transport form. In dense, flat urban areas the bicycle not only provides fast, reliable and sustainable transport, but also improves public health. We propose to upgrade bicycle infrastructure with smart systems for traffic light control, close integration with the light rail (bycycle paths leading to the platforms) and service stations at strategic points. All combined in a new Health Track running the full lenght of the Loop.

THE BICYCLE
Danmark og Holland er de lande i EU med det hyppigste brug af cyklen som transport form. I tætbebyggede flade områder er cyklen optimal som hurtig, sikker og bekvem transportform. Samtidig forbedrer cykling befolkningens helbred. Vi foreslår en opgraderet cykelinfrastruktur, med intelligente systemer til kontrol af trafiklys, strategisk placerede service startioner og tæt integrering med Letbanen (cykelstier direkte til perronen). Alt sammen kombineret i The Heatlh Track langs hele banens strækning.



3. WASTE

THE BIG SUCK
The Pneumatic Refuse Conveying System is a type of waste disposal system that uses air to move refuse through pipes to collection points. Refuse is conveyed through steel pipes by a 20–25 meter per second air current. The Automated Vacuum Collection (AVAC) system, transports waste at high speeds through underground tunnels to a building where it is compacted, sealed in containers and then carted away.

DET STORE SUG
Det Automatiske Affaldssug er en type affaldshåndtering som bruger luft til at lede affald gennem rør til centrale opsamlingssteder. Affaldet flyttes med 20-25 meter per sekund gennem underjordiske rør, og kan opsamle fra både offentlige rum, boliger og kontorer. Systemet muliggør en øget grad af affaldssortering og dermed større effektivitet i udnyttelsen af affald til genbrug og energi formål.

4. WATER

LIVING MACHINES
Living Machine is a brand name for a form of biological wastewater treatment designed to mimic the cleansing functions of wetlands. They are intensive bioremediation systems that can also produce beneficial by-products such as edible and ornamental plants, and fish. In temperate climates, the system of tanks, pipes and filters is housed in a greenhouse to raise the temperature, and thus the rate of biological activity.

RODZONEANLÆG
Living Machines er et trademark for et firma specialiseret i at bygge anlæg til biologisk spildevandsrensning. Anlæggene er designet så de genskaber de naturlige processer der forgår i vådområder. Systemet kan rense både sort og grå spildevand og biprodukterne inkluderer planter, muld og fisk! I temperede klimaer foregår processen i drivhuse for at øge effektiviteten af den biologiske aktivitet.

7. RE-INDUSTRIALIZATION

MICRO-FACTORIES
"The tools of factory production, from electronics assembly to 3-D printing, are now available to individuals, in batches as small as a single unit. They can become a virtual micro-factory, able to design and sell goods without any infrastructure or even inventory..."
(Chris Andersson, Atom are the new bits)

MICRO-FACTORIES
"Maskineriet til industriel produktion, fra elektronisk montage til 3d-print, er nu tilgængelig for alle, i mængder så små som én ekenlt unit. Folk kan skabe virtuelle microfabrikker, og designe og sælge produkter fuldstændig uden infrastruktur eller lager"
(Chris Andersson, Atom are the new bits)
Kan den danske tradition for industriel småproduktion genskabes i en ny form for microindustrier?

6. BIODIVERSITY

ENGINEERED WETLANDS
Engineered wetlands are artificial wetlands, marsh or swamps created as new or restored habitat for native and migratory wildlife. Additionally they are suitable for anthropogenic discharge such as wastewater, stormwater runoff, or sewage treatment: Natural wetlands act as a biofilter, removing sediments and pollutants such as heavy metals from the water, and constructed wetlands can be designed to emulate these features.

KONSTRUEREDE VÅDOMRÅDER
Konstruerede vådområder er kunstige vådområder, sump eller mose, skabt dels for naturlig vandrensningsformål, dels for at genskabe et naturområde og øge biodiversiteten. Områderne tiltrækker frøer og andre krybdyr og er populære ynglesteder for fugle. De er ligeledes anvendelige til at absorbere overfladevand fra kraftige regnskyl. Vådområderne fungerer som et naturligt bio-filter der kan rense både forurenet jord og fjerne tungmetaller fra spildevand.

9. FOOD

URBAN FARMING
A second green revolution could not only solve the world's food shortage, but also reduce the dependency of polluting fertilizer and large scale farming, leading to a new explosion of diverse small scale productions. This could potentially change the production landscape around Copenhagen from the current mega farms, to a new kind of bio-tech micro productions integrated close to the urban fabric, and allowing for new nature areas in close relation to the city.

URBAN FARMING
En 2. grøn revolution ville ikke bare løse den globale mangel på mad, men også reducere afhængigheden af forurenende kunstgødning og intensivt drevne mega landbrug. Dette kunne potentielt forandre produktionslandskaberne omkring Fingerplanen: De nuværende store landbrug vil blive erstattet af en ny form for bio-tech microproduktioner integreret tættere på byen.

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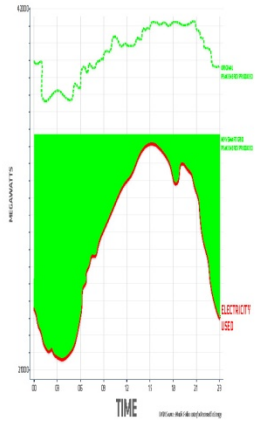

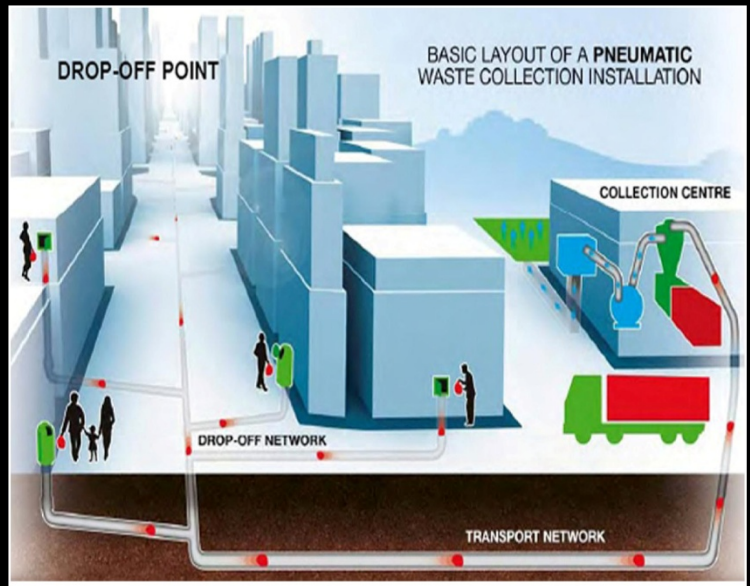

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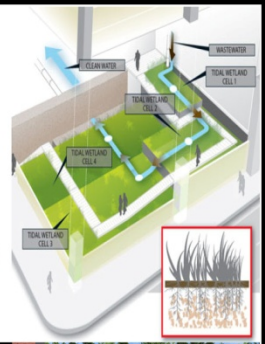

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