

AMSTERDAM

Beyond the classic mixed-use and its spatial conditions

29.4.2022

@ International Conference on SMEs and the Urban Fabric

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MULTIPLE PRESSURES ON LAND: DENSIFICATION

Shortage of (affordable) housing
in many European cities

Many industrial areas are defined as
transformation areas
Example Amsterdam

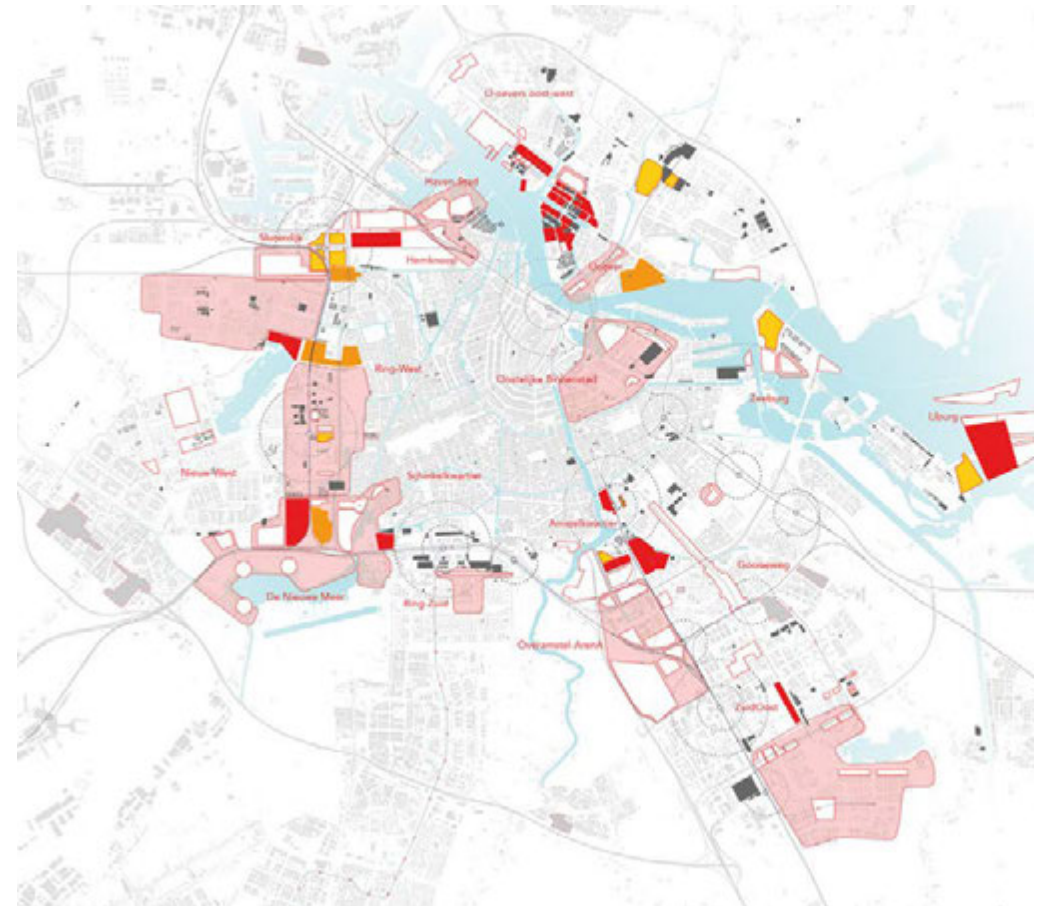
de Volkskrant

OPINIE

Opinie: Met meer bakstenen los je de woningcrisis niet op

Dat jongeren geen dak boven hun hoofd kunnen vinden, heeft minder te maken met een tekort aan woningen en meer met te veel goedkoop geld dat in omloop is en de prijs van huur- en koopwoningen opdrijft.

Rens van Tilburg en Peter Blom 9 september 2021, 17:00

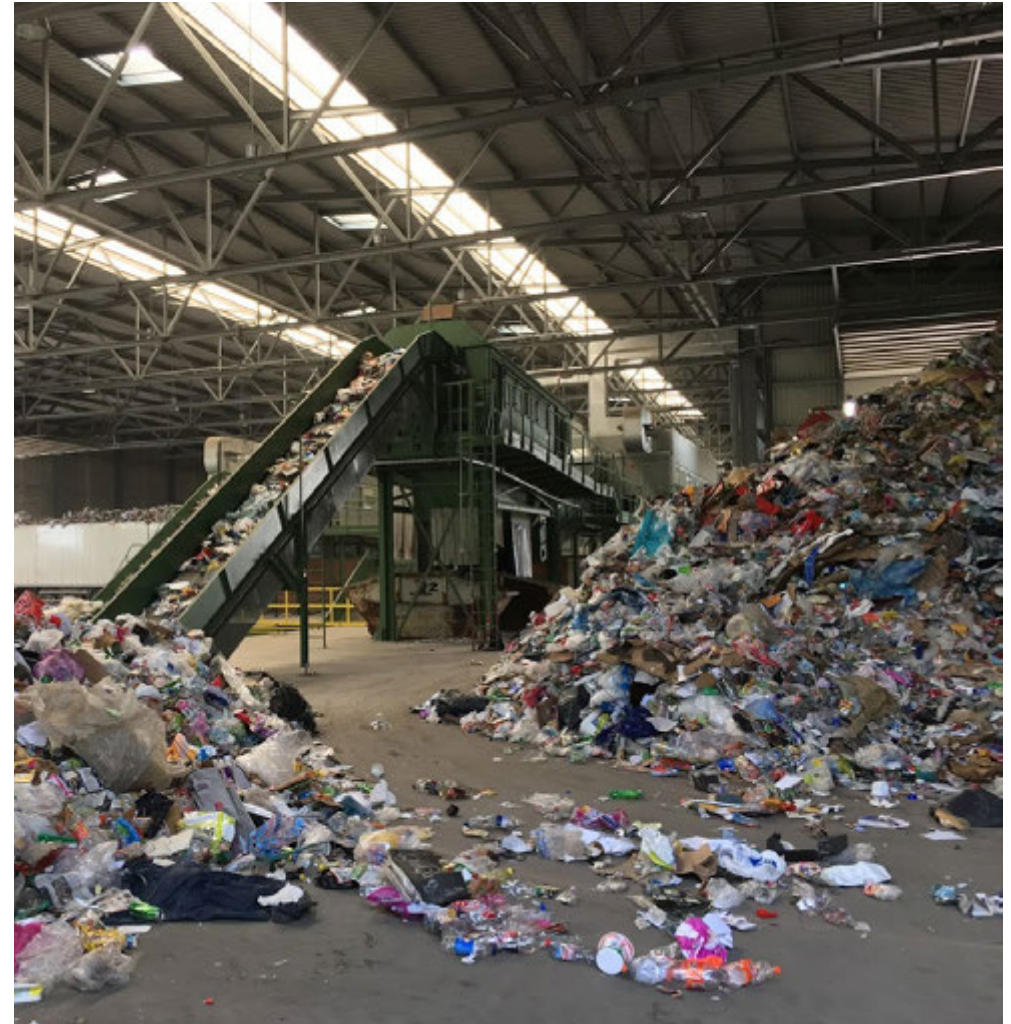


MULTIPLE PRESSURES ON LAND: ENVIRONMENTAL CHALLENGES - more local production

Climate crisis: many industrial areas are located along water fronts > these areas play now a crucial role for climate adaptive planning



Circularity ambitions: require space for storage - treatment, refurbishment ... to facilitate a regional material value chain - amplified by the pandemic



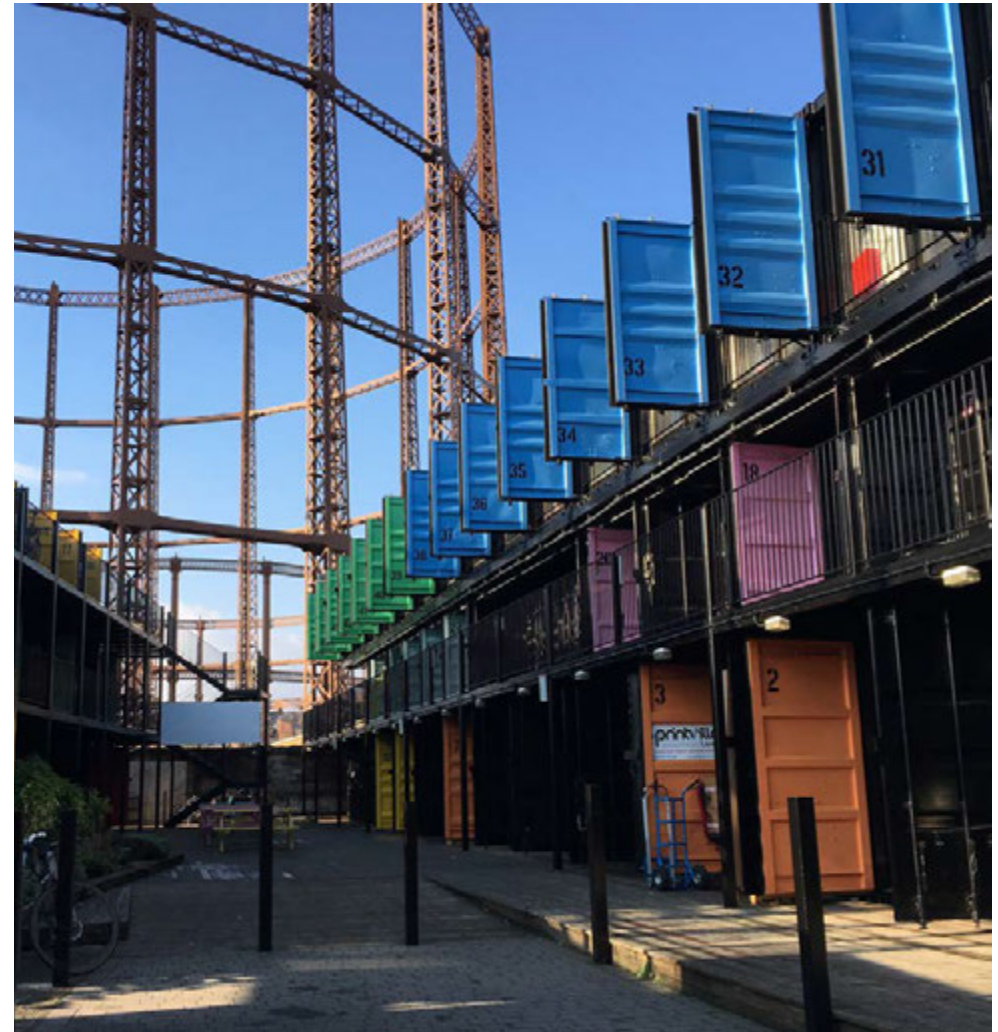
Source: (left) Room for the river project Nijmegen - image: [Blauwe Kamer](#)
(right) Waste processing facility, photo A. Wandl 2018

MULTIPLE PRESSURES ON LAND: LACK OF SECURITY OF PLACE

Fast pace of development: unsure future of industrial areas - negative impact on conditions for businesses and their ability for investment



Precarity of work-locations through temporary approach to work spaces



TECHNOLOGY TRANSITION > different kind of places

Automation: causes upscaling of processes and company spaces > often large footprints
> segregated areas; those also need attractive, active facades towards housing or mixed-use areas



3d printing: could enable decentralised production in smaller units > potential of mixing in cities > these businesses are often hybrids mixing production with education, r&d and selling



WORKING-LIVING SPACES TRANSITION - amplified by the health crisis: a new mix

Platform economy: goods and services are accessed via online platforms > new conflicts by locating distribution centres in inner city locations



Emptying shop units in high streets: open-up opportunities for small-scale manufacturing

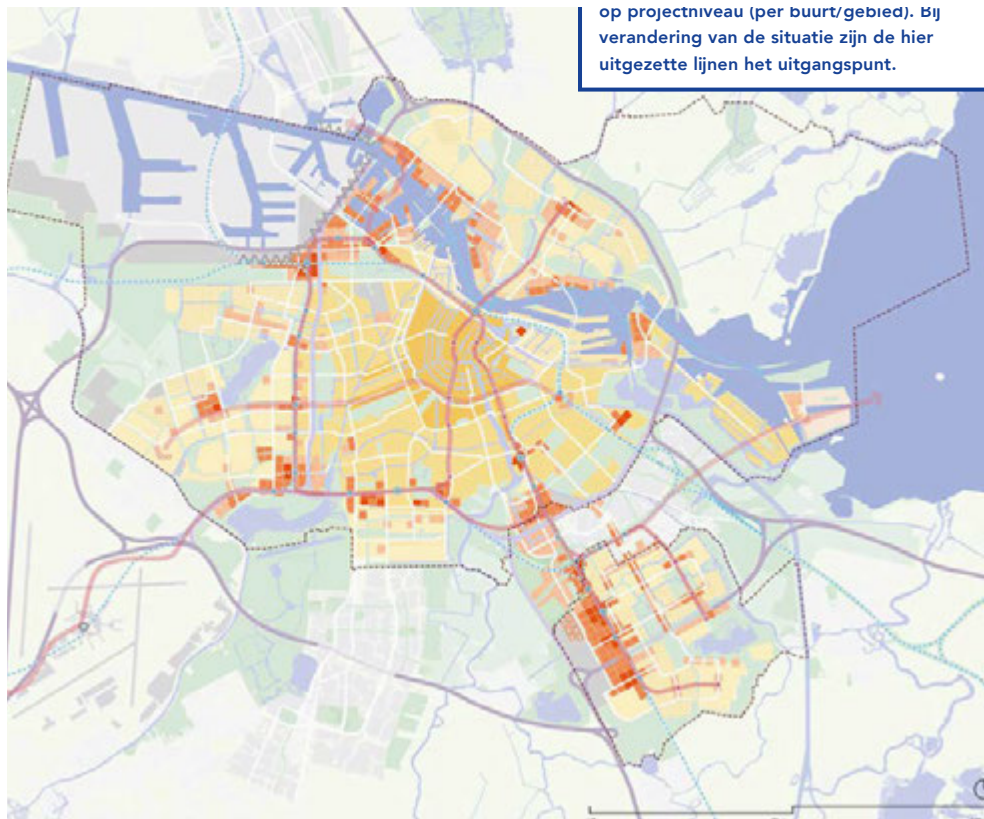


AMBITIONS FOR AN INCREASING A MIX OF FUNCTIONS

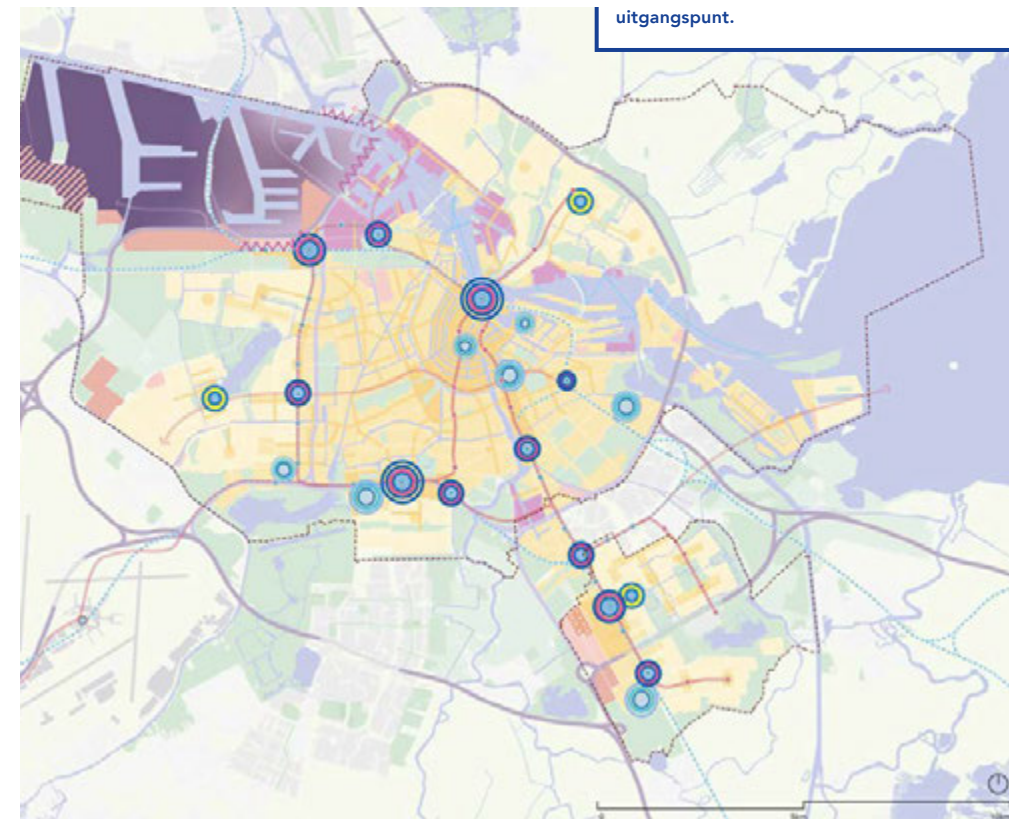
Example

Amsterdam Spatial Planning Strategy 2050 - introducing areas with increasing mix of uses

Urban development: Degree of mix



Urban development: Clustering



NOT EVERYTHING CAN BE
MIXED EVERYWHERE

RETHINKING URBAN DEVELOPMENT in an increasingly complex condition

Transformation of intensely used areas where diverse activities come in **higher proximity** to each other.

Hardly traditional **‘peripheries’** left in many metropolitan regions.

For integration in higher proximity relevant:

how to combine which activities, on what scale to **achieve** ‘good neighbours’?

The integration needs a **new guiding instrument** addressing knowledge gaps & multi-stakeholder settings

Long term visions - while keeping adaptivity



WHERE & WHAT

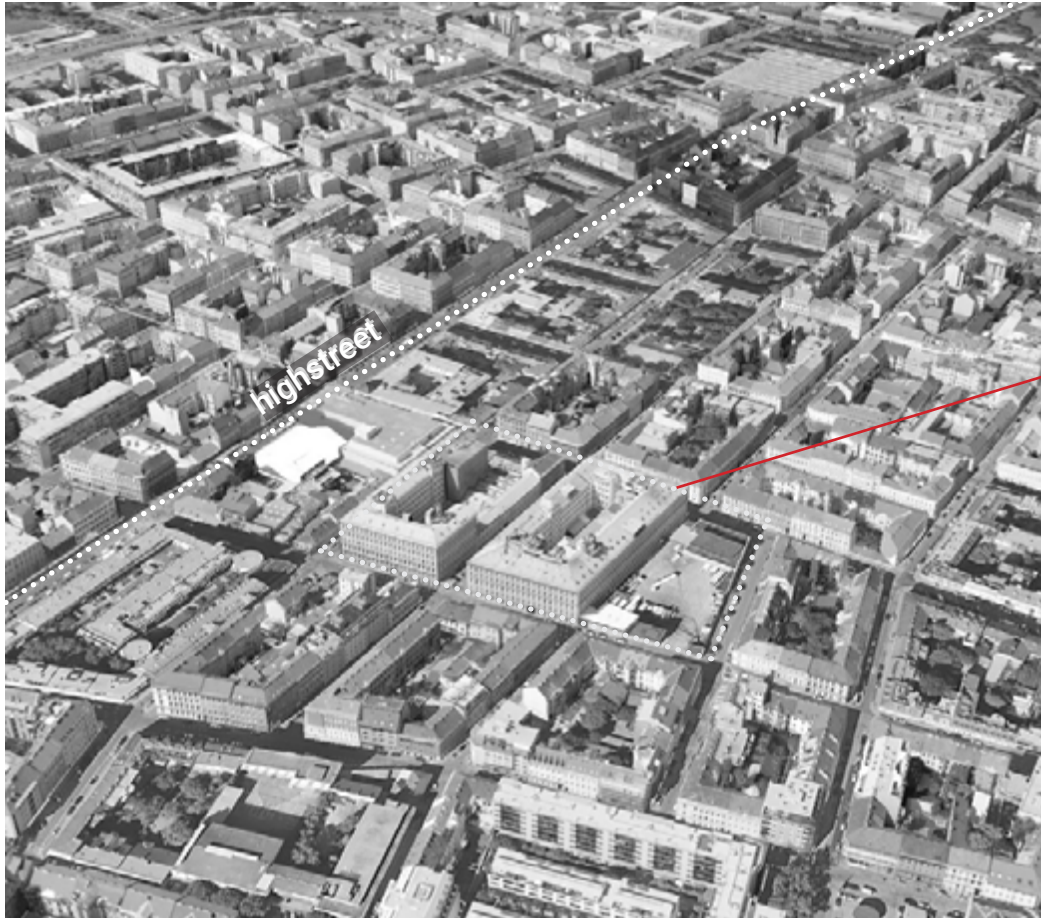
INNER CITIES
INDUSTRIAL AREAS
SUBURBAN AREAS
AND?

INNER CITY LOCATIONS - ALONG HIGH STREETS diversification of mix

modularity of unit - block / parcel - modularity along streets - similarity of building types along high street, special buildings in hinterland of high-street

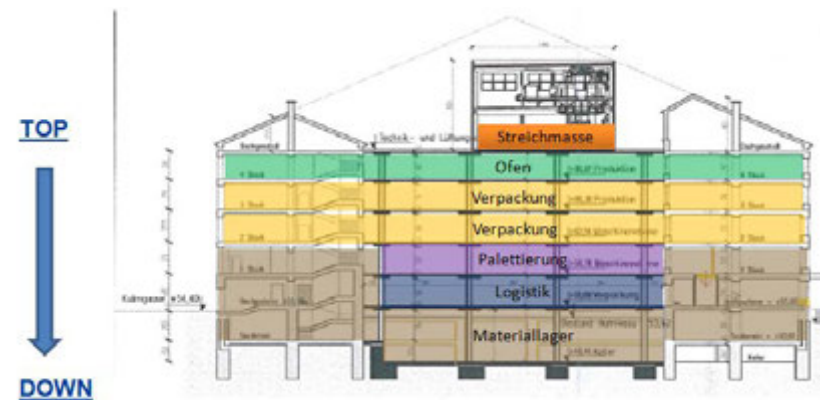
main street: shops and services, in sides streets also space for manufacturing - necessary: large enough parcels or buildings with larger ground floor spaces or courtyard buildings

proximity to clients / employees & contributes to circularity ambition



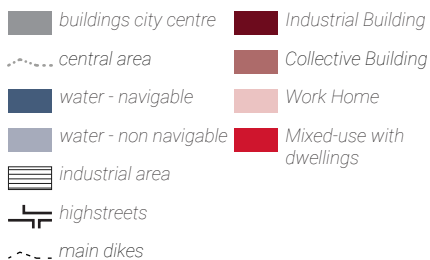
Manner Factory Vienna: vertical factory with 400 employees
delivers heat for 600 house holds in the neighbourhood

side street of main high street



INDUSTRIAL AREAS - EXAMPLE SPAANSE POLDER, ROTTERDAM, THE NETHERLANDS diversification of mix

diversity in unit sizes - provides variety of occupation strategies - modularity in parcels and flexibility in buildings
proximity to multiple transport networks - highway, train, waterways



pressure for transformation towards
other uses - at the same time an
opportunity

industrial businesses wish for
complementary and everyday functions



Source: left: Hausleitner, B., Muñoz Sanz, V., Meyer, H. (2021) Emerging urban spaces for manufacturing. Case metropolitan region Rotterdam-The Hague.; right top: Schmidt Zeevis processing, selling and restaurant photos [link Architectenweb.nl](https://www.architectenweb.nl) [link Schmidt Zeevis](https://www.schmidt-zeevis.nl);

SUBURBAN PLACES - OUD-ZAAN, KOOG AAN DE ZAAN, NORTH HOLLAND, THE NETHERLANDS diversification of mix

well connected by transport infrastructure, relatively lower land prices;
opportunities for companies requiring more space;



fragments of industrial land
sub-urban residential areas
pressure for housing development is high
> challenge in how to deal with already fragmented place?

A NEW TYPE OF LOCATION NEEDED - BETWEEN HIGH STREETS AND INDUSTRIAL AREAS

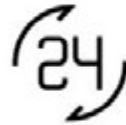
facilitating especially proto-typing and 3d printing
proximity to clients / employees & contributes to circularity ambition

require space to produce, but also aim for a
central representative place attractive for clients
and employees
shared services, mid-size space

example The New Raw - company producing
street furniture from recycled plastic



Gezamenlijke pantry
Op elke verdieping



24/7 toegang



**Schoonmaak algemene
ruimtes**



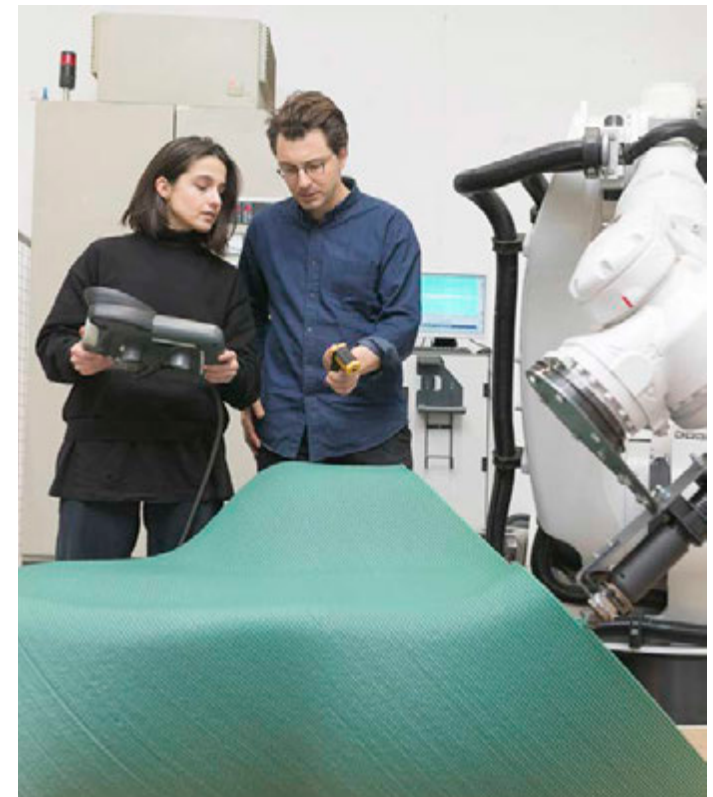
Razendsnel internet



Goed bereikbaar
Zelfs met de watertaxi!



Parkeren op eigen terrein
Optioneel

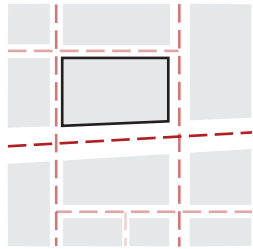


HOW TO SUPPORT NEW FORMS OF MIX?

- for all types of mix:
(spatial & functional) **transitions are beneficial**
- special attention necessary for
the design of streets -
they are the place where the local activities and users
passing through overlap;
- different functions and different forms of mix require
different spaces
building a multi-scalar multi-factor understanding for a
> differentiation of spaces relevant
expressed in a **typology**

UNDERSTANDING SPATIAL SYSTEMS VIA TYPOLOGIES

Addresses the complexity of a complete urban spatial system
reduced to the essential spatial characteristics



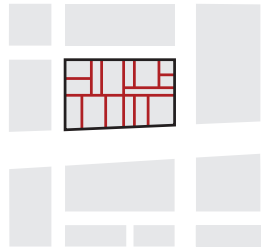
Betweenness centrality

The through-movement potential of the street network (AC 10k)



UNDERSTANDING SPATIAL SYSTEMS VIA TYPOLOGIES

Addresses the complexity of a complete urban spatial system
reduced to the essential spatial characteristics



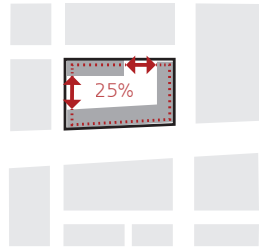
Parcellation

The grain of the urban territory is measured in (plots/ha)



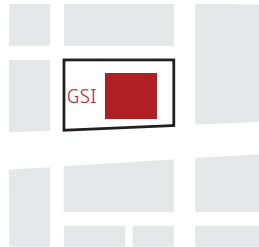
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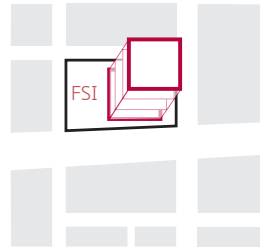
Openness

of the urban block's
perimeter (%) - the
relation of the
building with the
street



Compactness of built space

The Ground Space
Index (GSI)
= built area/plan area.



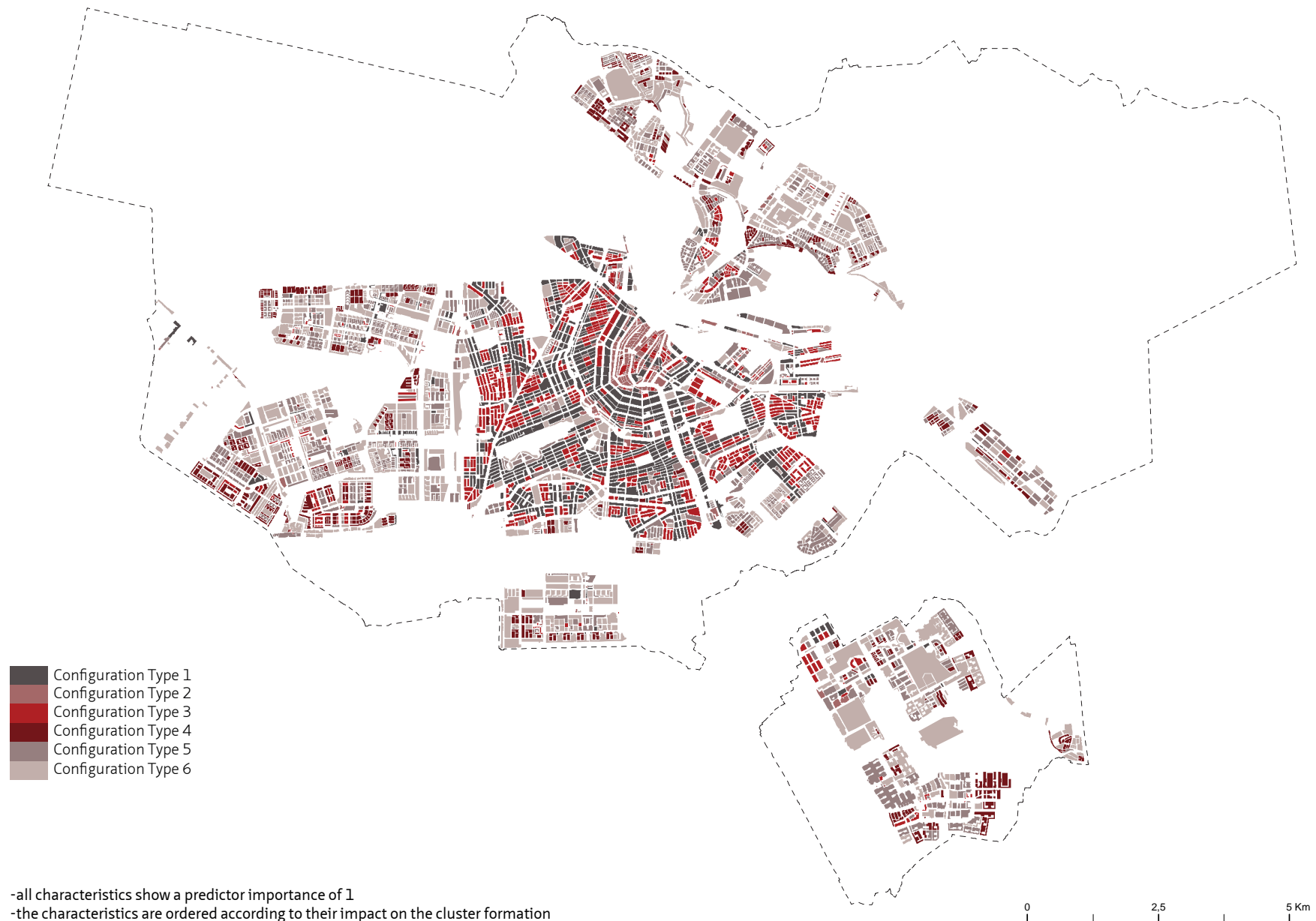
Intensity of built space

The Floor Space Index
(FSI) =
gross floor area/plan area



A TYPOLOGY DIFFERENTIATING THE MAIN SPATIAL CONDITIONS OF MICRO BUSINESSES

Six configurational types in Amsterdam

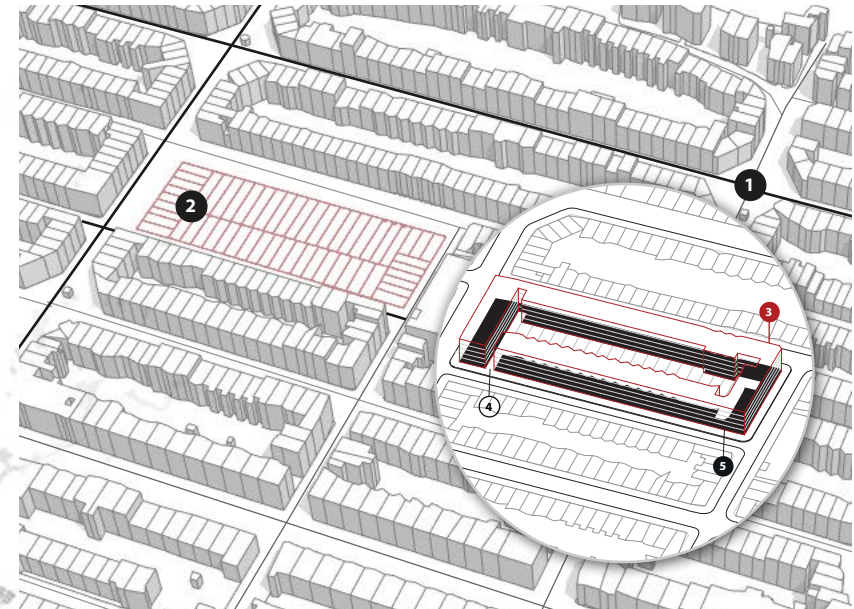


-all characteristics show a predictor importance of 1
-the characteristics are ordered according to their impact on the cluster formation

source: Hausleitner, Berghauser Pont (2017) Development of a Configurational Typology for Micro-Businesses Integrating Geometric and Configurational Variables

A TYPOLOGY DIFFERENTIATING THE MAIN SPATIAL CONDITIONS OF MICRO BUSINESSES

Configuration type with more micro business activities: TYPE A



Configuration Type A

describes urban blocks located along the highest integrated streets on the city scale and with fine-grained parcellation. These blocks are closed along their border, very compact with at least 70% of the block being covered with buildings and medium to high Floor Space Index.

A TYPOLOGY DIFFERENTIATING THE MAIN SPATIAL CONDITIONS OF MICRO BUSINESSES

Configuration type with less ground floor based business activities: TYPE F

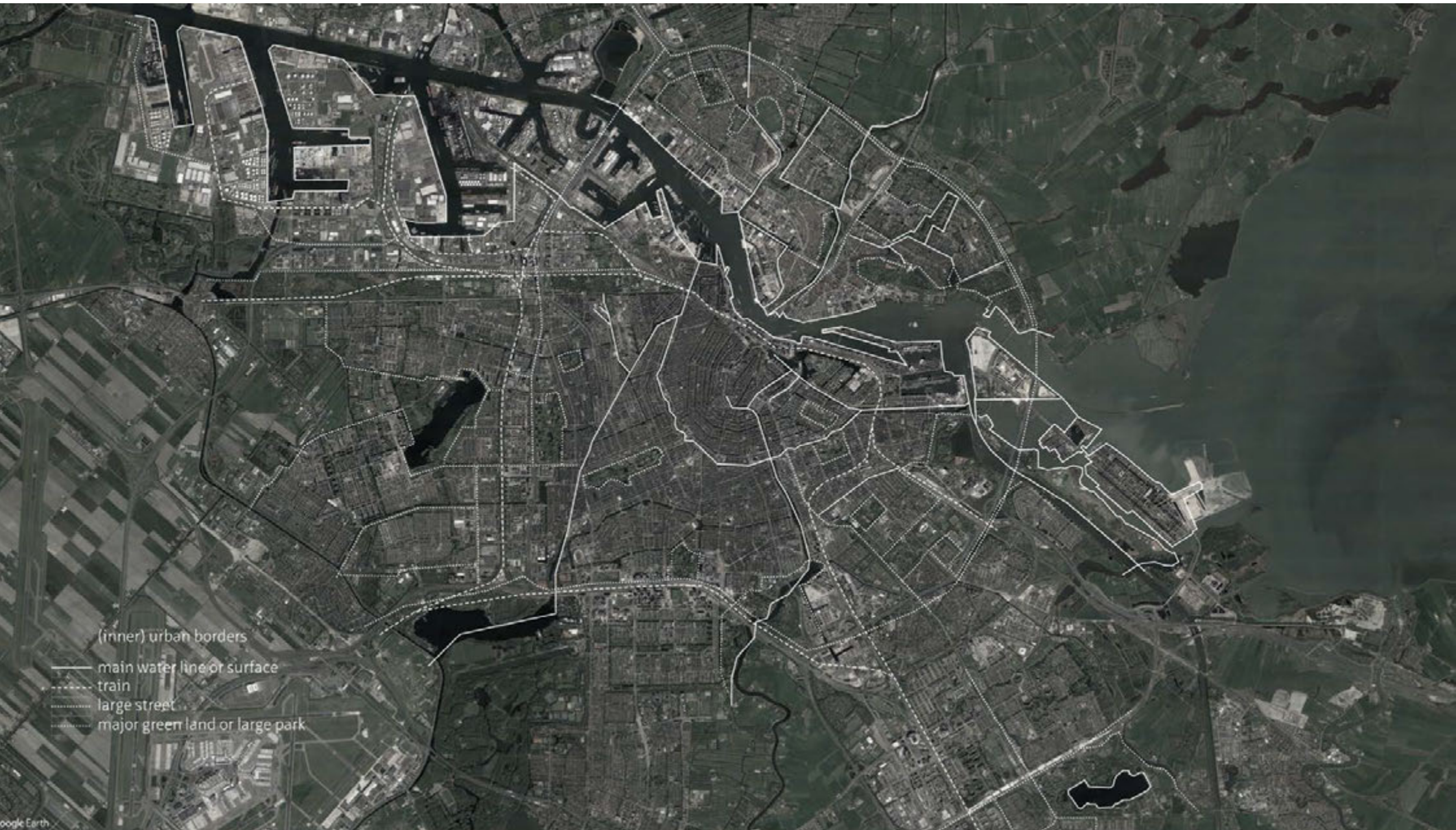


Configuration Type F

describes urban blocks located with medium distance to the most integrated streets on the city scale and with largest-grained parcellation. These urban blocks are semi to completely open, cover maximum one third of their surface with buildings and have a low Floor Space Index.

INNER URBAN BORDERS

waterbodies, large open spaces, mobility infrastructure

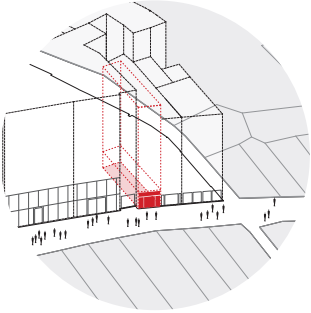


DIFFERENT TYPES FACILITATING DIFFERENT ACTIVITIES IN A SPECIFIC MANNER

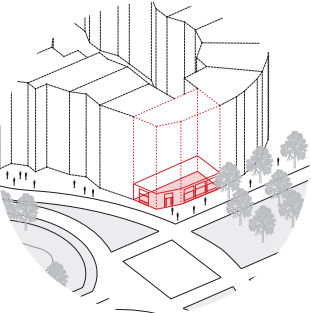
Micro business activities manifested differently in different configuration types

Interest in creating affordances of different urban configurations for specific types of micro business activities, instead of optimising form for a specific type

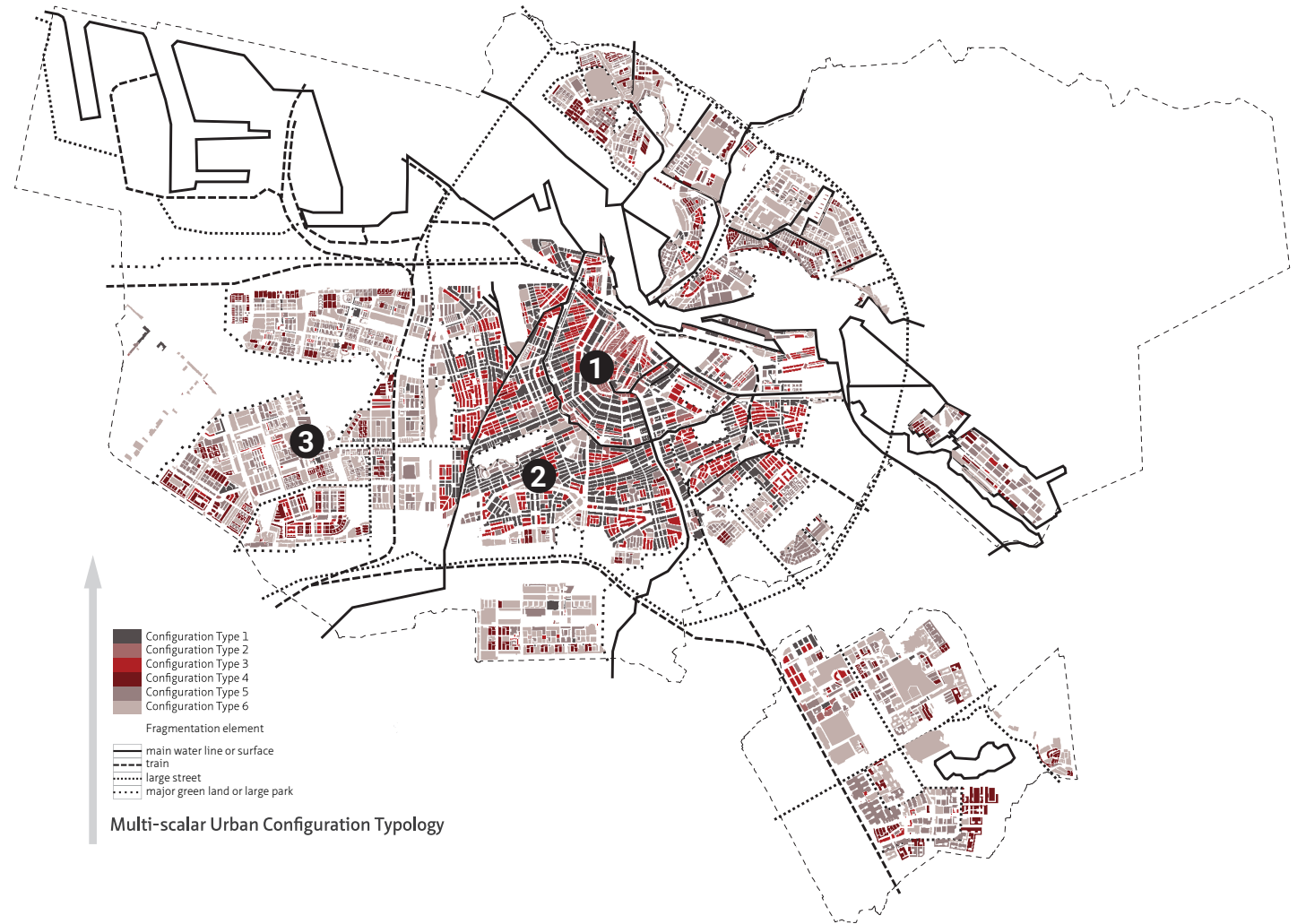
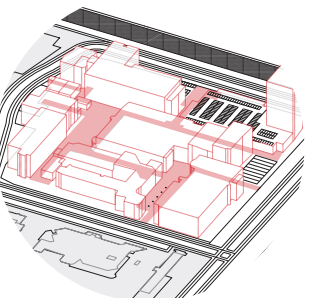
1 Retail in Configuration type 2



2 Retail in Configuration type 5



3 Retail in Configuration type 6



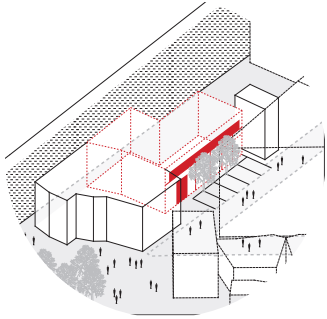
similar activity: different manifestation
examples for retail

DIFFERENT TYPES FACILITATING DIFFERENT ACTIVITIES IN A SPECIFIC MANNER

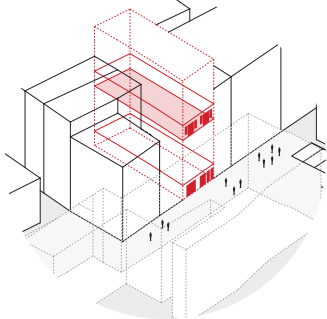
Micro business activities manifested differently in different configuration types - PROXIMITY TO BORDERS

Interest in creating affordances of different urban configurations for specific types of micro business activities, instead of optimising form for a specific type

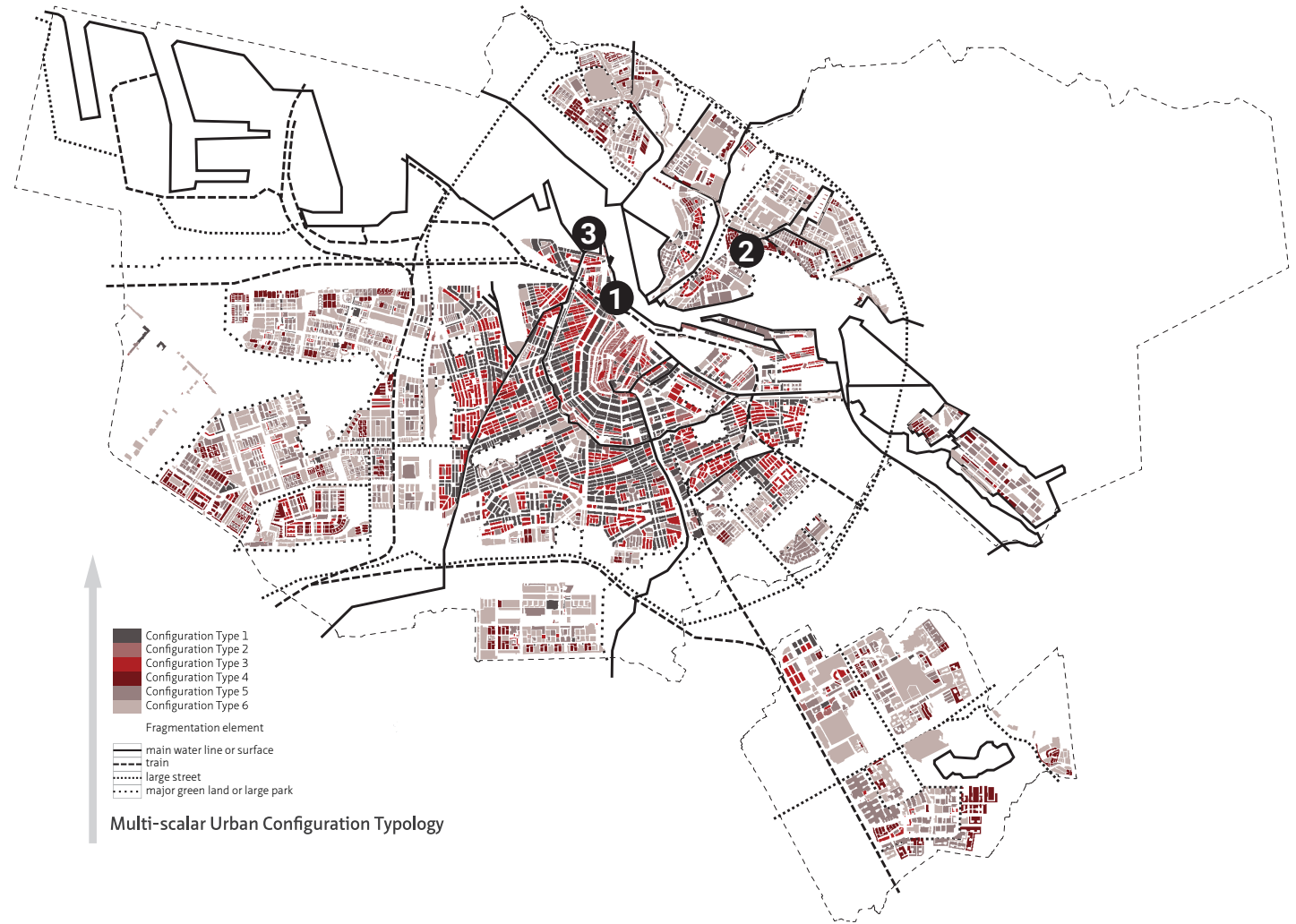
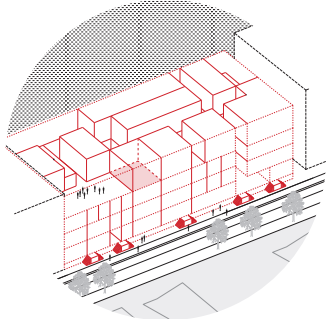
1 Manufacturing in Configuration type 3



2 Manufacturing in Configuration type 4



3 Manufacturing in Configuration type 5



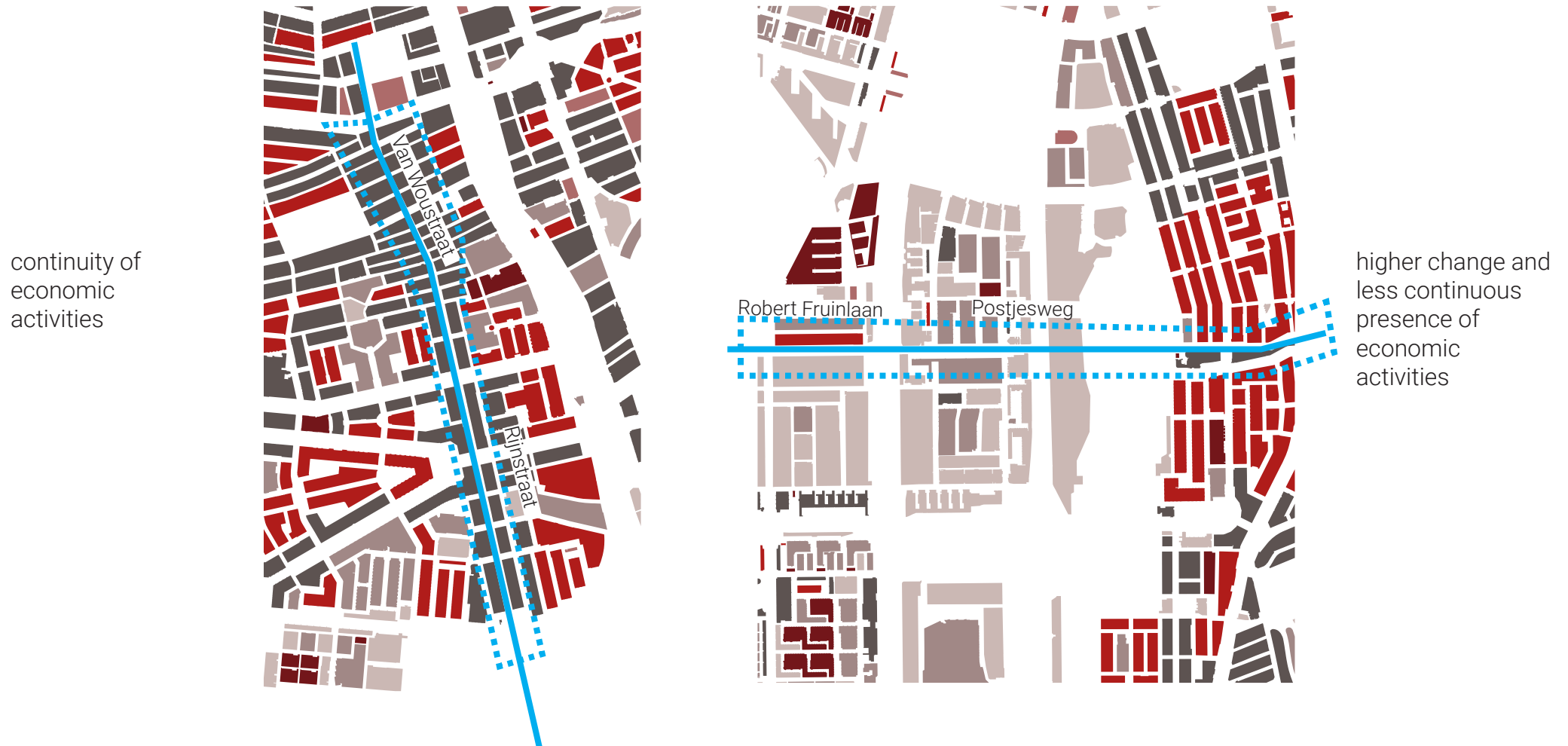
similar activity: different manifestation
examples for micro-scale manufacturing

COHERENT SPATIAL-STRUCTURAL CONDITIONS ALONG LINES

DIVERSE CONDITIONS ON THE CITY SCALE

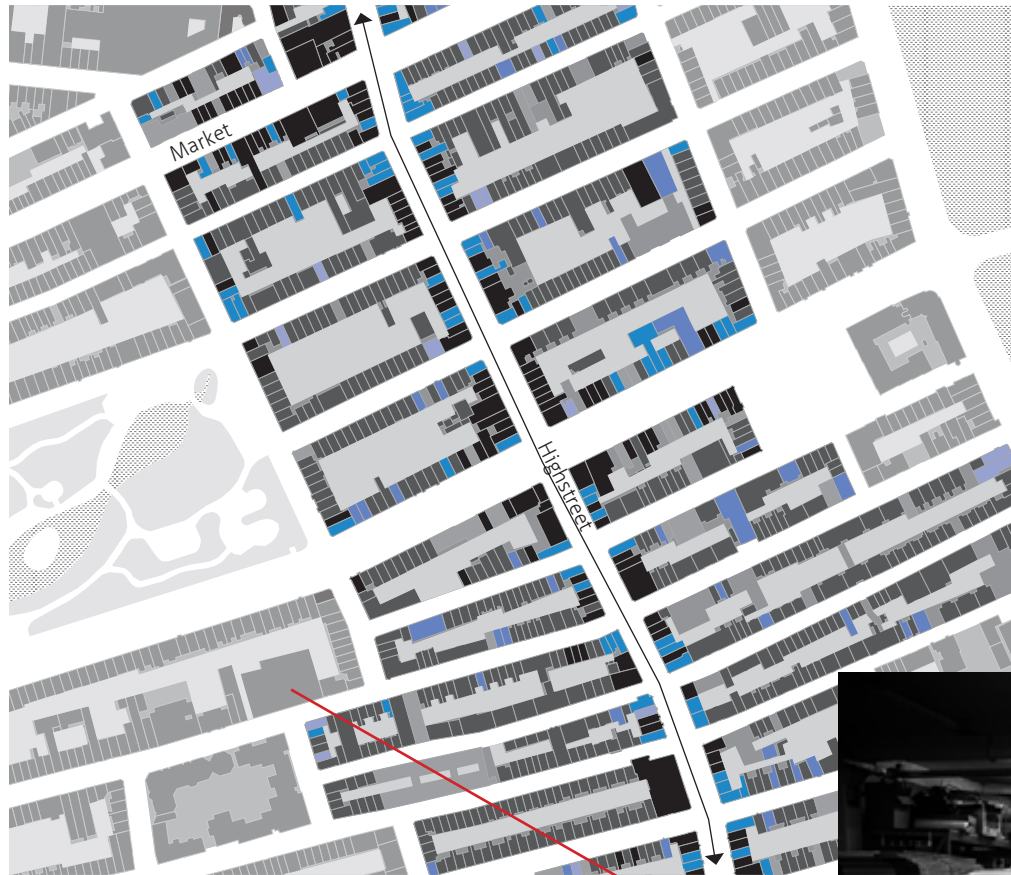
HIGH STREETS: linear centralities for commercial activities

Continuity or transition of configuration types: diachronic analyses - 1974-2018



SPATIAL FORM AND MIXED-USE ALONG HIGH STREETS

Variation of buildings in the street and its hinterland: Van Woustraat, Amsterdam



Mixed use afforded by structural coherence

- Retail, Services
- Restaurants, Cafes
- Manufacturing
- Offices
- Dwellings
- Other
- Water

printing house
Den Hartog



COHERENT SPATIAL-STRUCTURAL CONDITIONS ALONG LINES

DIVERSE CONDITIONS ON THE CITY SCALE

INNER URBAN FRINGES: linear centralities with potential for manufacturing activities



SPATIAL FORM AND MIXED-USE ALONG INNER URBAN FRINGES

Continuity or transition of configuration types



Cities of Making

Spaces for manufacturing and a multi-disciplinary co-creation instrument towards them.

COM
cities
of making

LATITUDE

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LIBRE
DE BRUXELLES

VUB VRIJE
UNIVERSITEIT
BRUSSEL

Beci
STADSELS ENTERPRISES
CONTRACTING AND INNOVATION

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This project has received funding from the European Union's
Horizon 2020 research and innovation programme under grant
agreement No. 726744

URBAN EUROPE

Beyond the classic mixed-use | Birgit Hausleitner
29.4.2022

TU Delft

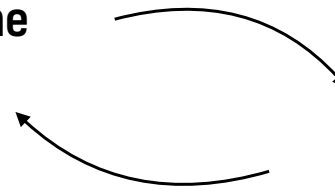
MANUFACTURING

The transformation of physical material
Through labour, tools and/or machines
Resulting in a product
Produced at scale

URBAN MANUFACTURING

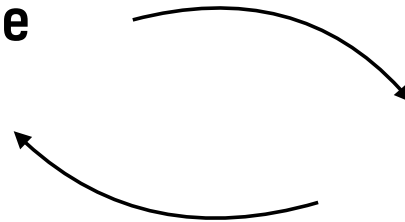
making that the
city needs

making that
needs the city



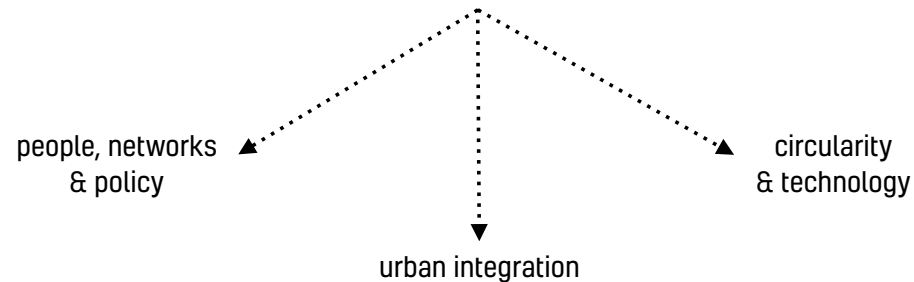
URBAN MANUFACTURING

**making that the
city needs**



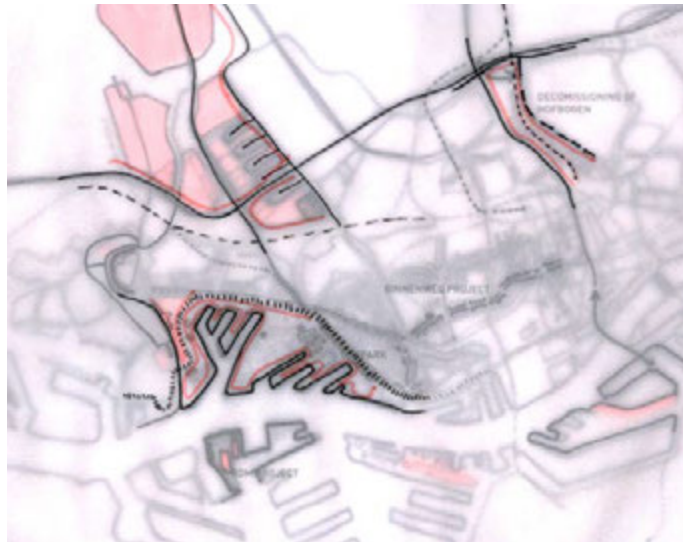
**making that
needs the city**

**compatible with
the urban context**



STRUCTURE TYPOLOGY CITY REGION ROTTERDAM

Diversity of spaces



Inner borders: larger-scale manufacturing & related industries
 high streets: mixed-use with retail, hybrid businesses and micro-scale manufacturing
 hinterland of high streets: medium-scale manufacturing



35. Exemplary zoom of the structure map.
 The images on the right side of this page visualise the differences, their area indicated in the map above.
 Source images: Google 2020



Exemplary visualisations of

- 1 Mathenesserweg and the blocks to both sides
- 2 Vroesenpark with the Gordelweg in the north

ORGANISING ENVIRONMENTAL CONDITIONS THROUGH SPATIAL STRUCTURAL PLANS



35. Exemplary zoom of the structure map.

The images on the right side of this page visualise the differences, their area indicated in the map above.
Source images: Google 2020



HIGH ACCESSIBLE - LOWER ACCESSIBLE

HIGHER BUILT DENSITY - LOWER BUILT DENSITY

SMALLER GRAIN - LARGER GRAIN

MORE QUIET - MORE NUISANCE



identifying the spatial organisation and defining the potentials to organise concrete design patterns

(inner)borders: manufacturing - main streets: mixed-use city

can build the analytic base for the 'transitions' pattern

Exemplary visualisations of

- 1 Mathenesserweg and the blocks to both sides
- 2 Vroesenpark with the Gordelweg in the north

LOGIC IN SPATIAL DESIGN - COHERENCE ACROSS THE SCALES

CITY - NEIGHBOURHOOD - BUILDING BLOCK - BUILDING

IDENTIFICATION OF
- CENTRAL STREETS
- INNER URBAN BORDERS
> BUILDING TRANSITIONS THROUGH THE SCALES

CYAN - MAKING
YELLOW - RESIDENTIAL
MAGENTA - MIXED-USE

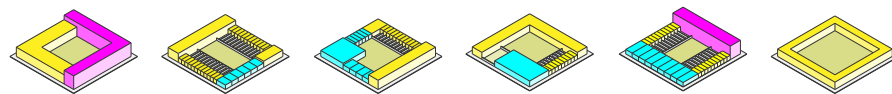
BUILDING SCALE

Hybrid Building Typologies
■ Mixed-Use
■ Housing
■ Parking



BLOCK SCALE

Hybrid Block Typologies
■ Mixed-Use
■ Housing
■ Parking

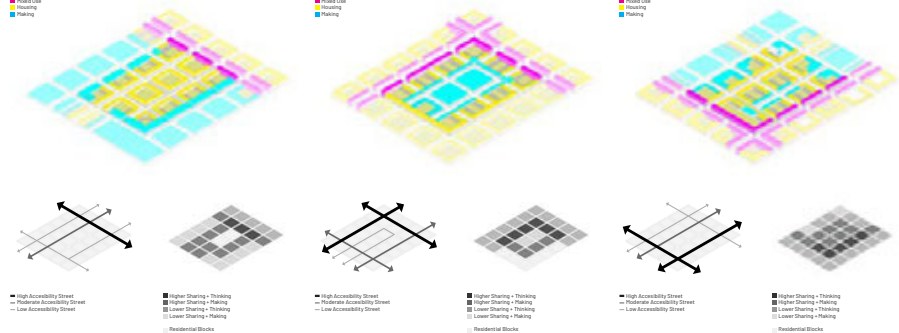


NEIGHBORHOOD SCALE

Periphery Areas Superblock
■ Mixed-Use
■ Housing
■ Parking

Inner City Areas Superblock
■ Mixed-Use
■ Housing
■ Parking

Transition Areas Superblock
■ Mixed-Use
■ Housing
■ Parking



CITY SCALE

Periphery Areas

Inner City Areas

Transition Areas



SET OF RULES FOR TRANSFORMATION

RULES AT THE BUILDING SCALE:

- Common spaces and courtyards should always be generated if possible, since they allow different forms of knowledge and technology sharing.
- It is important to promote a variety of spaces in terms of surface area and height, since different types of making have different needs.
- If an existing industrial building is to be demolished, but the integration of urban manufacturing is still desired, it is important to take into consideration a number of issues:
 - to guarantee the flexibility of the building in the long run.
 - It is important to calculate a structure that can support a large variety of uses (housing, offices, retail, but especially manufacturing).
 - The ground floor (but not only) should have a height of at least 4.5 meters.
 - Doors and elevators should be large enough to allow the logistics of an industrial use (large equipment, etc.).
 - Flat roofs are desirable, since they allow a large variety of productive uses over them (urban farming, energy production with solar panels, etc.).

RULES AT THE BLOCK SCALE:

- Low-Density housing typologies should be used to create a better transition between living and making.
- It is important to guarantee a variety of plot sizes to allow diversity and complexity, since not all types of manufacturing need the same amount of space.
- High-Tech manufacturing should always be located in proximity to residential buildings to create a better transition between living and traditional low-tech making.
- Green open spaces and trees should always be implemented in the inner spaces of the block, since they help buffer the noises that could be produced by makers.

RULES AT THE NEIGHBORHOOD SCALE:

- Mixed-use buildings should be located along high streets and primary roads with the highest accessibility.
- Residential buildings with medium densities should be located along secondary roads with high and moderate accessibility.
- Residential buildings should always face residences on the other side of the street.
- Manufacturing buildings and warehouses should always face making spaces on the other side of the street.
- Streets with lower accessibility are suitable for manufacturing, but also for low-rise housing typologies. Nevertheless, there should always be a larger presence of one over the other depending on the context.

RULES AT THE CITY SCALE:

- Adapted edges**, created by large infrastructural lines, tend to segregate large areas of the city from their surroundings. These areas are suitable to host the Periphery Superblock.
- High Streets** are lively and dynamic because they are accessible through roads at the city scale. Areas in proximity to them are ideal to host the Inner City Superblock.
- Areas in between the periphery and the core**, or those which have the presence of both edge situations and high streets, are ideal to host the potential of the Transition Superblock.

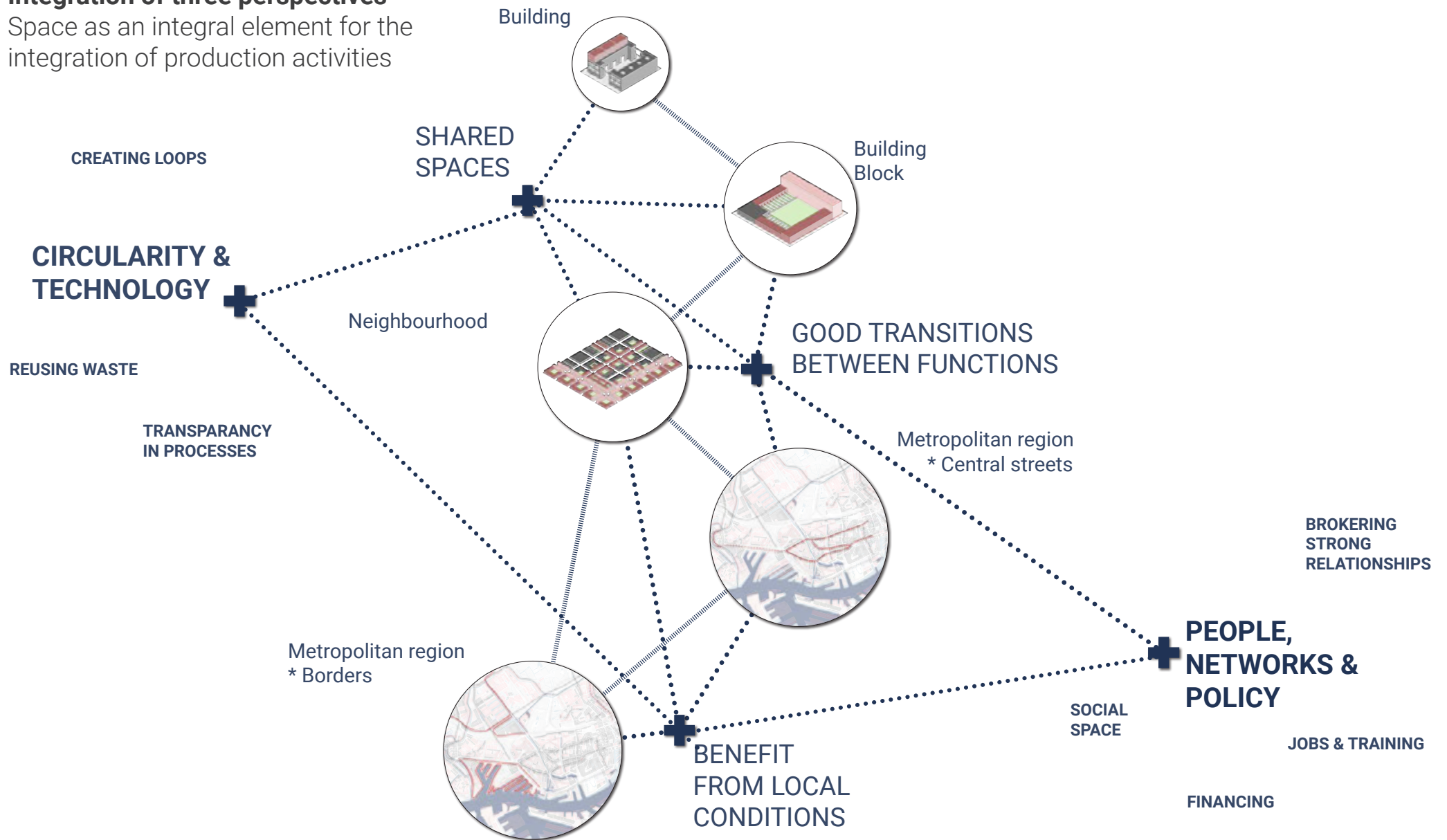
how to guide the
transformation?

CITIES OF MAKING FRAMEWORK

(1) URBAN INTEGRATION; (2) PEOPLE, NETWORKS, POLICY, (3) MATERIAL AND TECHNOLOGY

Integration of three perspectives

Space as an integral element for the integration of production activities



CITIES OF MAKING CO-CREATION INSTRUMENT



Cities of Making states:

The new urban question asks for a new development method acknowledging the complexity of the task including:

- co-creation, based on:
- multi-disciplinarity
- multiple-actors
- open, extendable instrument



Cities of Making pattern language

A CITIES OF MAKING PATTERN LANGUAGE: A system of solutions

Solutions from three perspectives: urban integration, people, networks and policy & circularity and technology

R



C



N



B

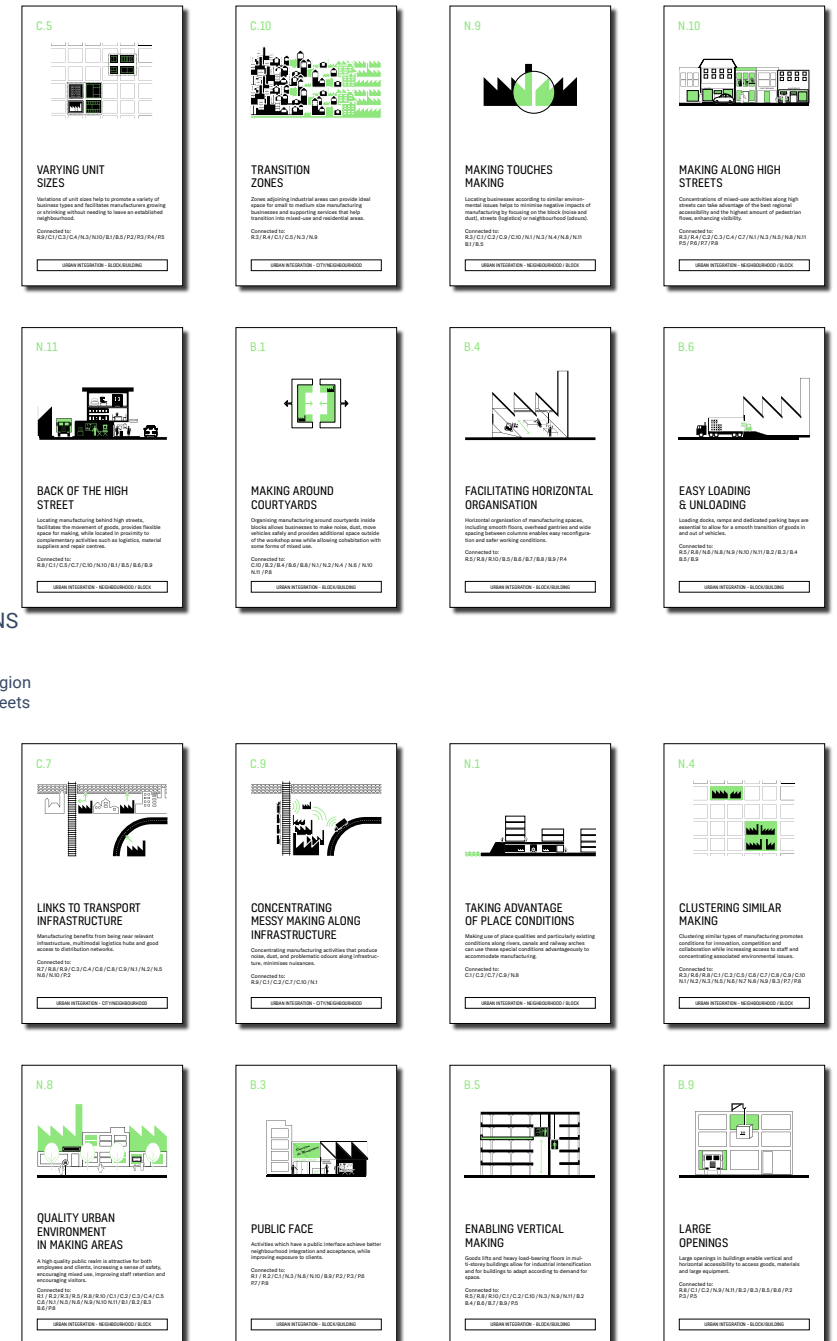
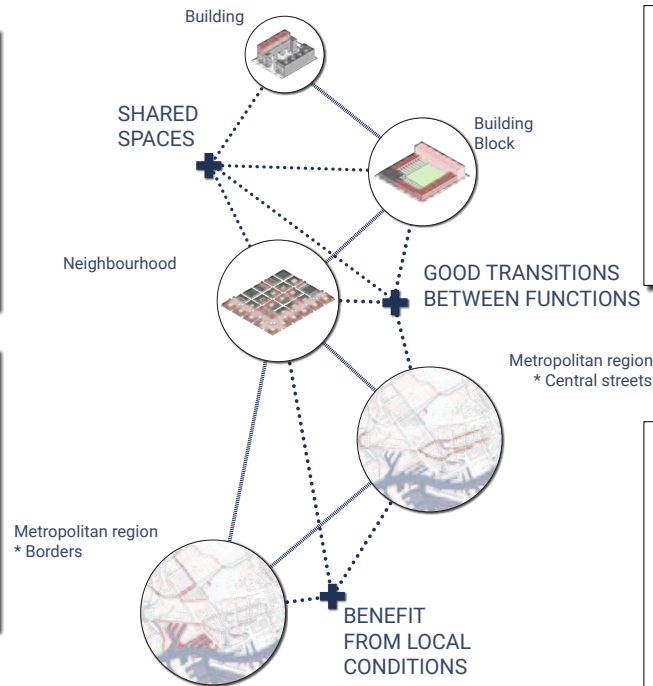
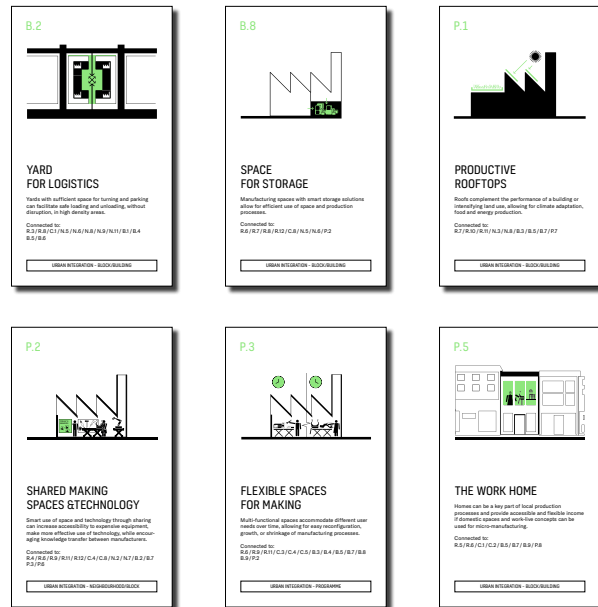


P



R transcalar
C city/neighbourhood
N neighbourhood/block
B block/building
P programme

CITIES OF MAKING - 22 patterns for urban integration



#1

PROTECTION

Establish a suite of approaches to protect manufacturing spaces, allowing a variety of sized spaces distributed across the city.

#2

FINANCING

Create investment packages to support manufacturers to be more competitive, more efficient, better integrated and more relevant to the city's needs.



#3

SPATIAL FRAMEWORK

Strengthen the structure or zoning plan of the urban region to regulate suitable spatial conditions for urban manufacturing.

#4

GOOD NEIGHBOURS

Design mixed use areas to avoid long-term conflicts and find complementarities between all occupants.

#5

ACCESS

Provide suitable low-carbon transport infrastructure for reliable flows of materials, personnel and goods.

#6

SUPPORT

Nurture the role of the curator to connect actors, improve the visibility of manufacturers, identify local needs, boost innovation and create business opportunities.

#7

EXCHANGE

Develop informal spaces for knowledge exchange and capacity building to drive mission based challenges.

#8

CIRCULARITY

Build resource efficient and circular manufacturing through public leadership, suitable available space, effective infrastructure, by promoting symbiotic relationships across businesses and between business and the city.

#9

SHARED FACILITIES


Provide access to technology, space for risk-taking, incubate start-ups and nurture foundational forms of manufacturing with shared facilities.

#10

SKILLS & KNOWLEDGE

Harness facilities for training and development of knowledge to address existing and future staffing needs.

FURTHER READINGS & THANK YOU FOR YOUR ATTENTION

 Proceedings of the 11th Space Syntax Symposium

#66

DEVELOPMENT OF A CONFIGURATIONAL TYPOLOGY
FOR MICRO-BUSINESSES INTEGRATING GEOMETRIC AND
CONFIGURATIONAL VARIABLES

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Article

Investigating functional mix in Europe's dispersed urban areas

Alexander Wandl  and Birgit Hausleitner 
Delft University of Technology, the Netherlands

Abstract

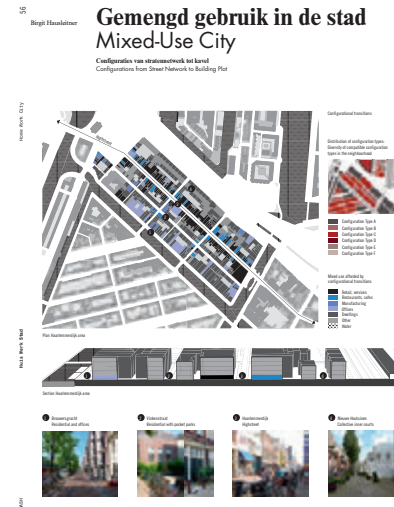
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