

The Battle for the Infrastructure of Everyday Life



Doen wat we
geloven.



Bedankt voor uw gift en gezegende kerstdagen.

Dan Hill.
Associate Director, Arup.
Visiting Professor, UCL Bartlett
Institute for Innovation and Public
Purpose.
Mayor of London Design Advocate.
[@cityofsound](#)

Network urbanism.

Autonomous shuttle service / Helsinki, 2017—

80% of private car use could be replaced by shared autonomous shuttle fleets (ETH Zürich, MIT)



**\$1.5bn sewer upgrade
—or—
1500 small plots achieves 88-96%
effect, for half the price (or less)
with multiple other benefits.
Enabled by distributed model +
participation.**

Sewerwater
Retention and
Filtering

Existing
Billboard

Shade Canopy

Drought-Tolerant
Planting

ATMOSPHERIC
CARBON
2 Tons/Yr Site
720 Tons/Yr System

Gen Y Incubator Project / Landcorp 2016–

Super-local microgrids, with renewable energy, battery storage and Blockchain.



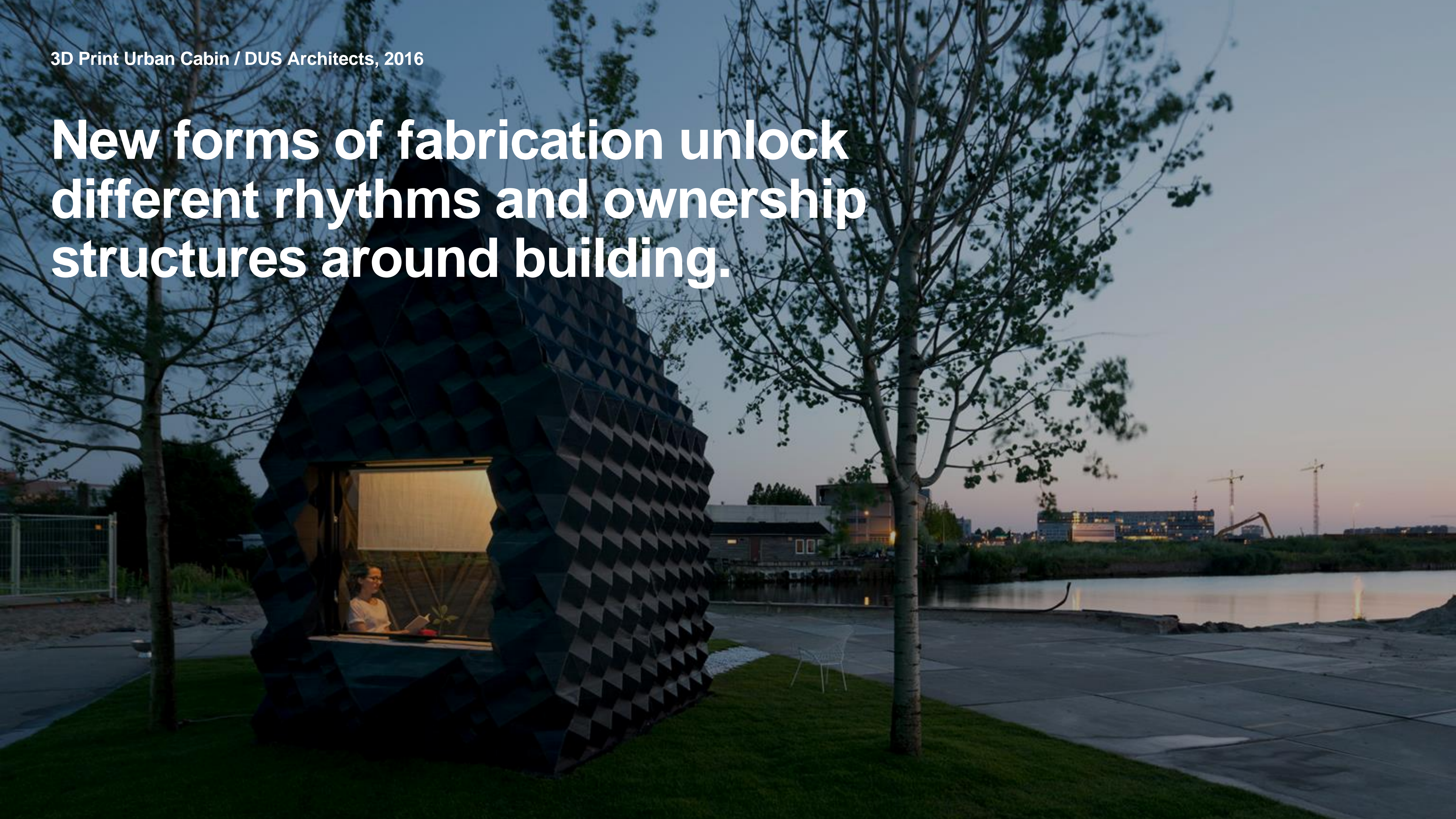
R50 Baugruppen, Berlin

Cooperative housing: 15% of Berlin housing stock per year (5000 units), ~30% of Zürich housing—more sustainable buildings, more social resilience, and more affordable.



3D Print Urban Cabin / DUS Architects, 2016

**New forms of fabrication unlock
different rhythms and ownership
structures around building.**



New forms of governance based on citizen-centred decision-making cultures.

Brickstarter is an open platform for community projects. You can use it to kickstart and coordinate your idea, get the community behind it, find professional help and advice, and gain financial backing from others.

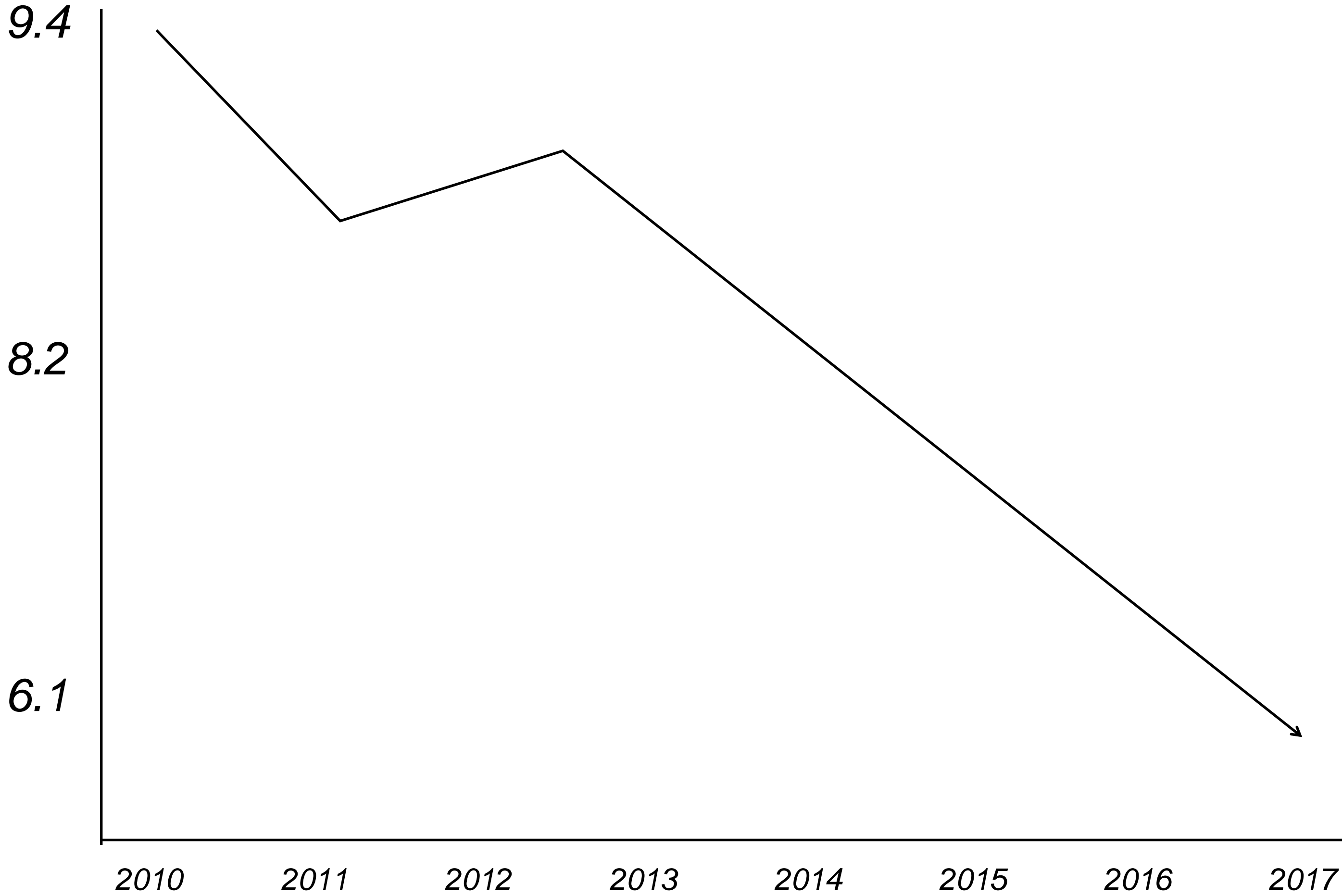
- The Stables**
32% funded | €27 438 raised | 3 days left
« A co-working space, cafe, shop and community garden on what is currently a parking garage »
- Cloud City**
NEW PROJECT | 60 days left
« A sustainable block and public space built on top of Mestikartelli »
- Jätkäsaari windmill**
89% funded | €117 318 raised | 73 days left
« A community-owned wind turbine on the tip of Jätkäsaari »

- SAARINEN** (NEW PROJECT)
- SAARINEN** (NEW PROJECT)
- SAARINEN** (NEW PROJECT)

Network urbanism /

New buildings, new energy, new mobility, new public realm, new governance, and new economy.

Effect of Uber, Lyft et al on average speed in Manhattan



Great user experience design.

Terrible urban design.



MoveByBike
Malmö, Stockholm, Göteborg

Small scale, in the gaps



'Deliverette', Commonwealth Aircraft Corporation, Melbourne (1947)




Melbourne Museum
Adult \$8.00
Concession Free
Child 3-16 years Free
MV Member Free


Melbourne Museum and IMAX
Adult \$22.50
Concession \$14.00
Child 3-16 years \$12.50
Family \$60.00

Surcharge applies for future length films.
Full adults and two children.
MV Members and save

WILD
Now showing
Science and Life Gallery



LOTJPA: SPEAKING TO
20 November 2009 - 21 February 2010
Bunplaka

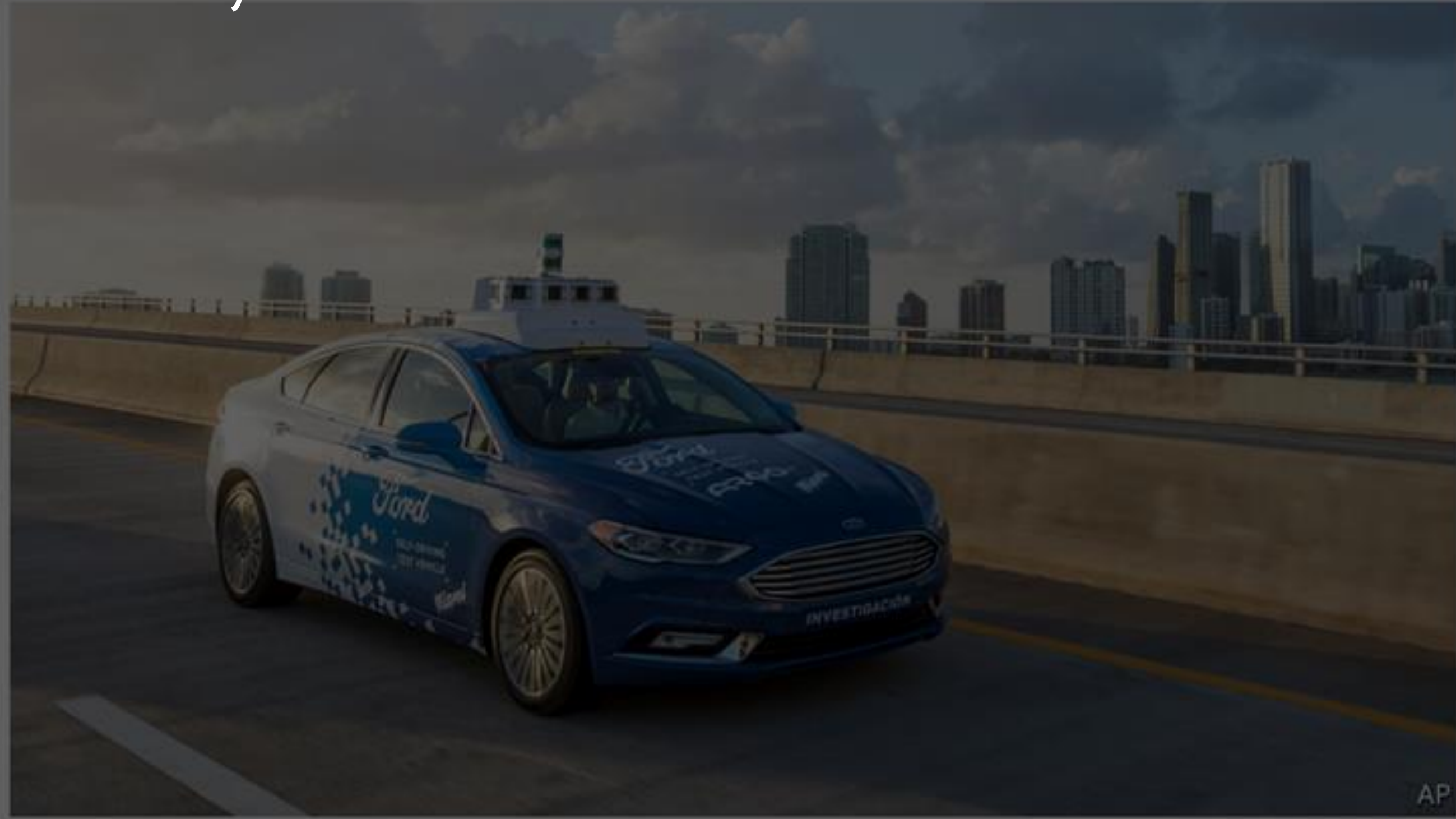


Informational text on a display panel, including a small image of a person.

UBS predicts that by 2035, 80% of people will use robotaxis in cities where they are available, and that urban car ownership will fall by 70%.

The Economist, March 2018

The Economist explains
why driverless cars will mostly be shared, not owned
The total number of vehicles on the roads could have halved by 2050



Advertisement:

Hewlett Packard Enterprise

A Hybrid IT infrastructure frees up capital from your data center.

YES

Transform with Hybrid IT

You have to anticipate the situation created by AVs in the cities in 2030 and design the rules of the game between now and 2020, in order to explain to the car builders and the service providers the rules of the game. We should announce, before 2020, that in Paris, no private owned AV will be allowed; it will be only mobility as a service; not mobility as ownership. Otherwise, you have the strategy of the car manufacturer.

Jean-Louis Missika, Deputy Mayor of Paris,
June 2017



A rendering of how the Rue de Rivoli might look after its bike lanes have been installed. //

Paris Pushes Its Car-Free Streets Plan Even Further

FEARGUS O'SULLIVAN JAN 9, 2017

Despite a backlash, the city will extend the areas that are off limits to private cars, making way for more bike lanes and public transit.

[f SHARE](#) [TWEET](#) [...](#) 

When Paris Mayor Anne Hidalgo banned cars from a large section of the River Seine's quayside last autumn, she met a fierce backlash from

Oslo just decided to get rid of its parking spaces

SHARE



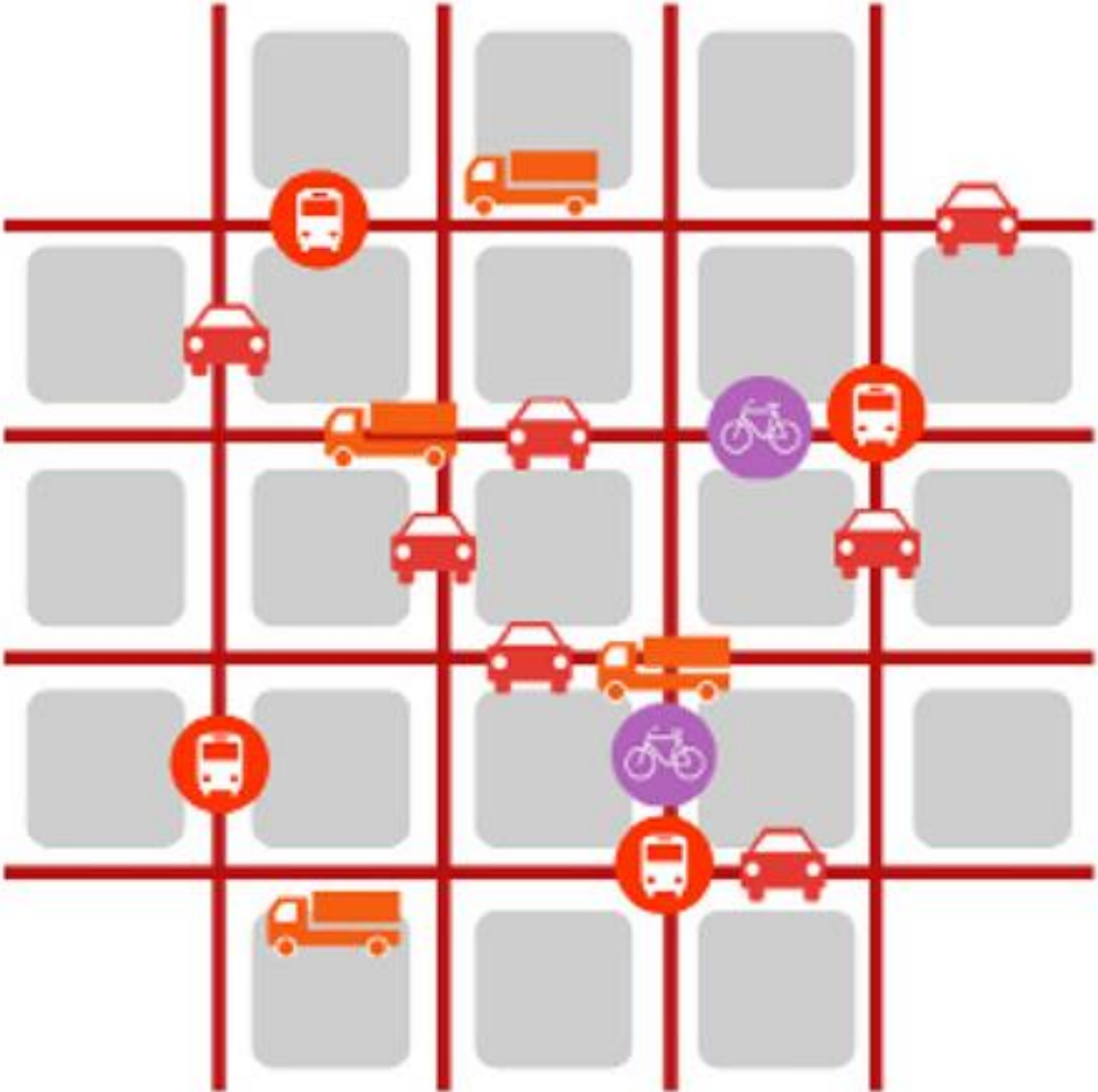
14



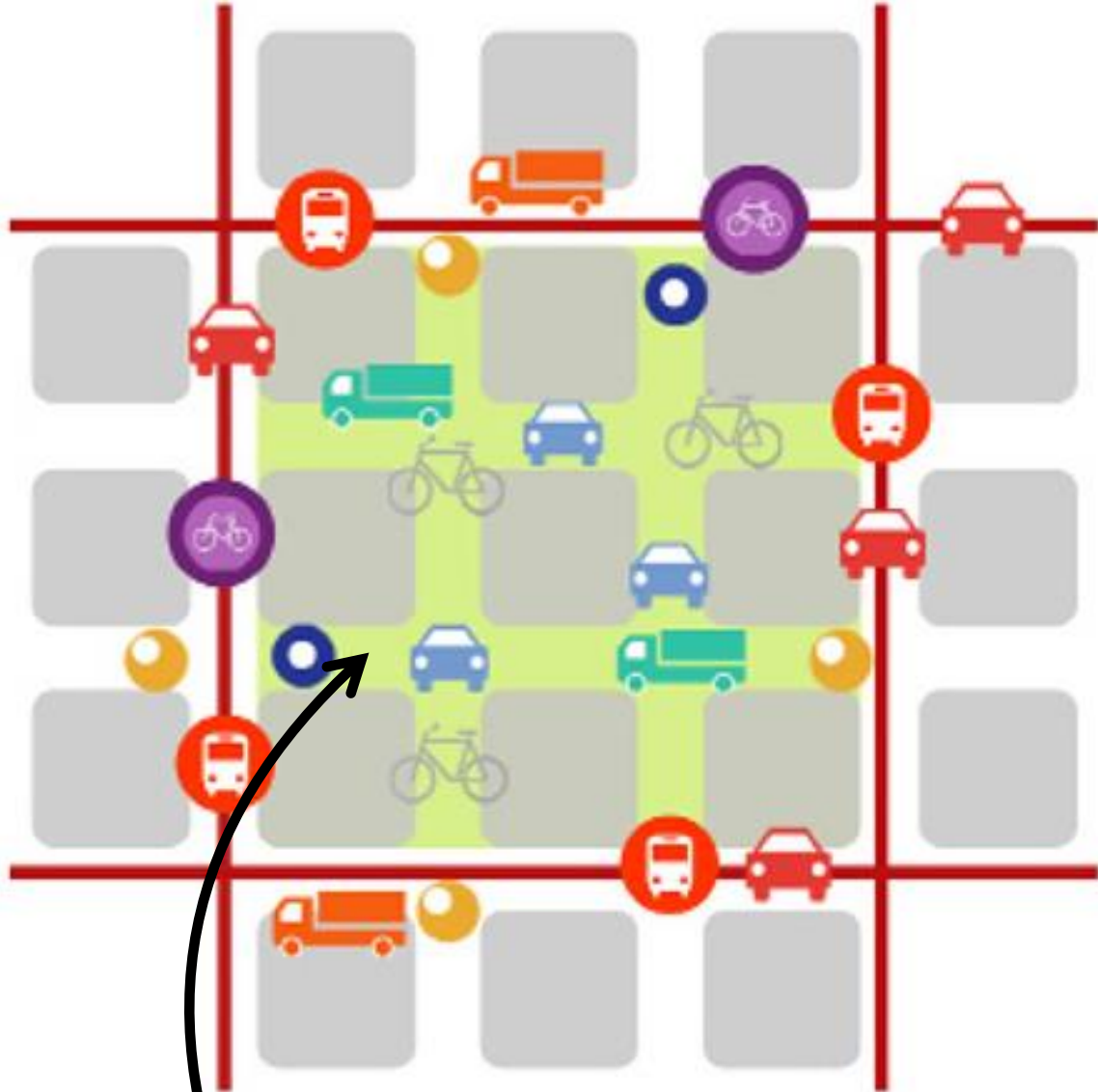
Oslo hopes to extend pedestrian networks as it eases cars out of the city centre. Image: REUTERS/Ints Kalnins

Superblocks / Barcelona

Current Model



Superblocks Model



~10km/h



Cars become like horses again.



Note to Silicon Valley: it's a social hyper-local multi-passenger pooled vehicle

Top highlight

SHARE



162



Our geo-matching technology routes the multi-seated vehicles to specially calculated lat long locations, which optimise the boarding of multiple homosapiens with varied demographics, while minimising waiting times, leading to efficient overall ETAs.

Note to rest of the world: it's a bus

A proper bus, since this is a busy route. We will use bus stops just like any other bus. We will operate hop on hop off just like any other bus. The buses will be green though of course.



**The city is
the frontline.**

BIGyard, Berlin / Zanderroth Architekten

Baugruppen



More Than Housing, Zürich

Cooperative housing district



More Than Housing, Zürich

Cooperative housing district

**50 cooperatives.
13 buildings.
400 units.
35 retail + community units.
No public subsidy.
Rent 20-30% below market levels.
Nearly car-free.
Shared daily infrastructure.
2000 Watt society.
45% energy generated on-site.
4 hectares held back for future.**

Auss-er
raum
Worksh
14h
HIER

Tesla Powerwall (2015)

T E S L A



Tesla Solar Roof (2016--)



Solar community, Freiburg



Oslo Bysykkel
2015—



Oslo Byskkel
2015—

Characterful

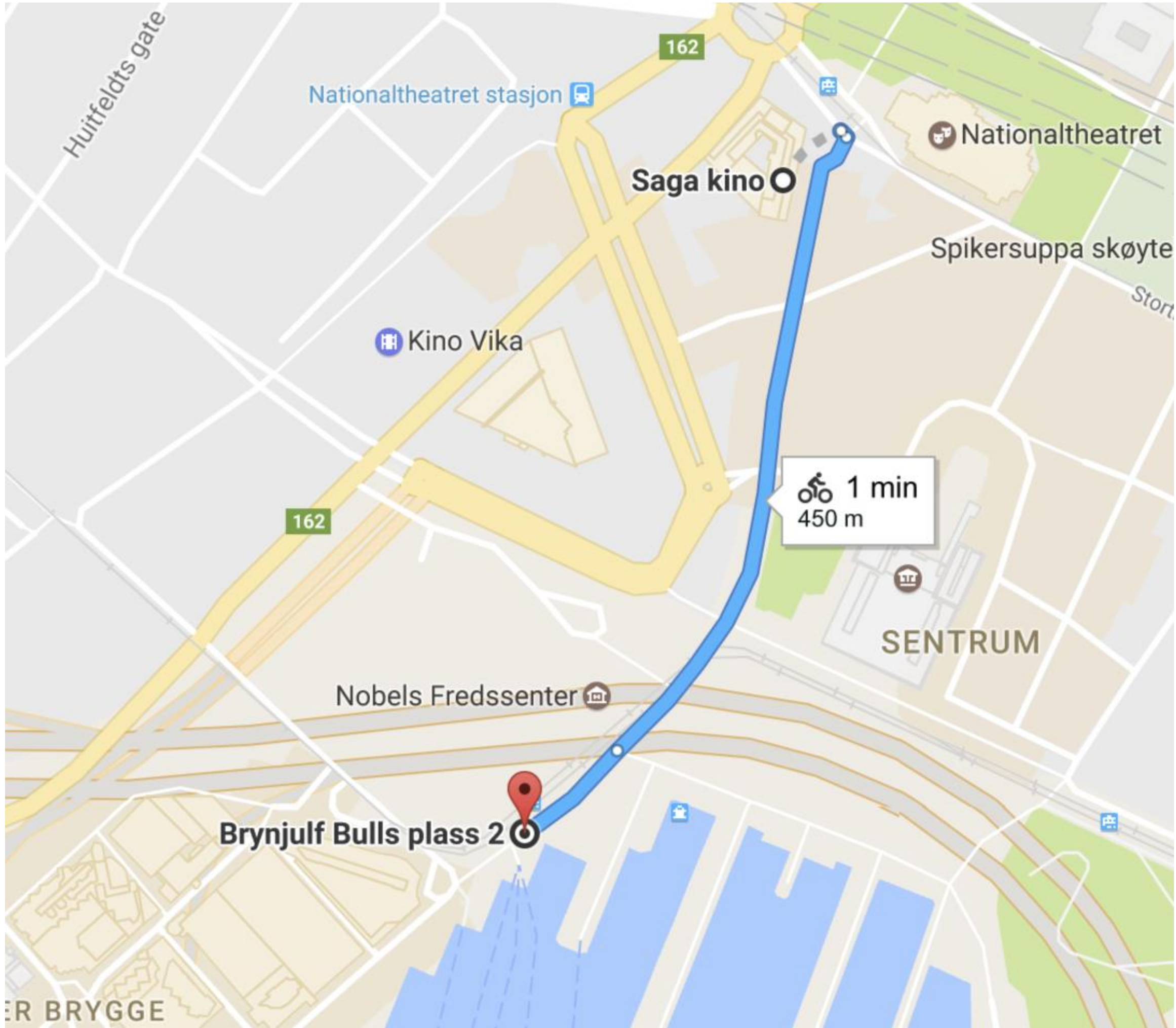




Oslo Bysykkel
2015—



Oslo Bysykkel
2015—



Oslo Bysykkel
2015—



marit_elisabeth_j • [Follow](#)

Oslo, Norway

marit_elisabeth_j Min egen bysykkel!
[#oslobysykkel](#) [#bysykkel](#) [#norway](#) [#sykkel](#)



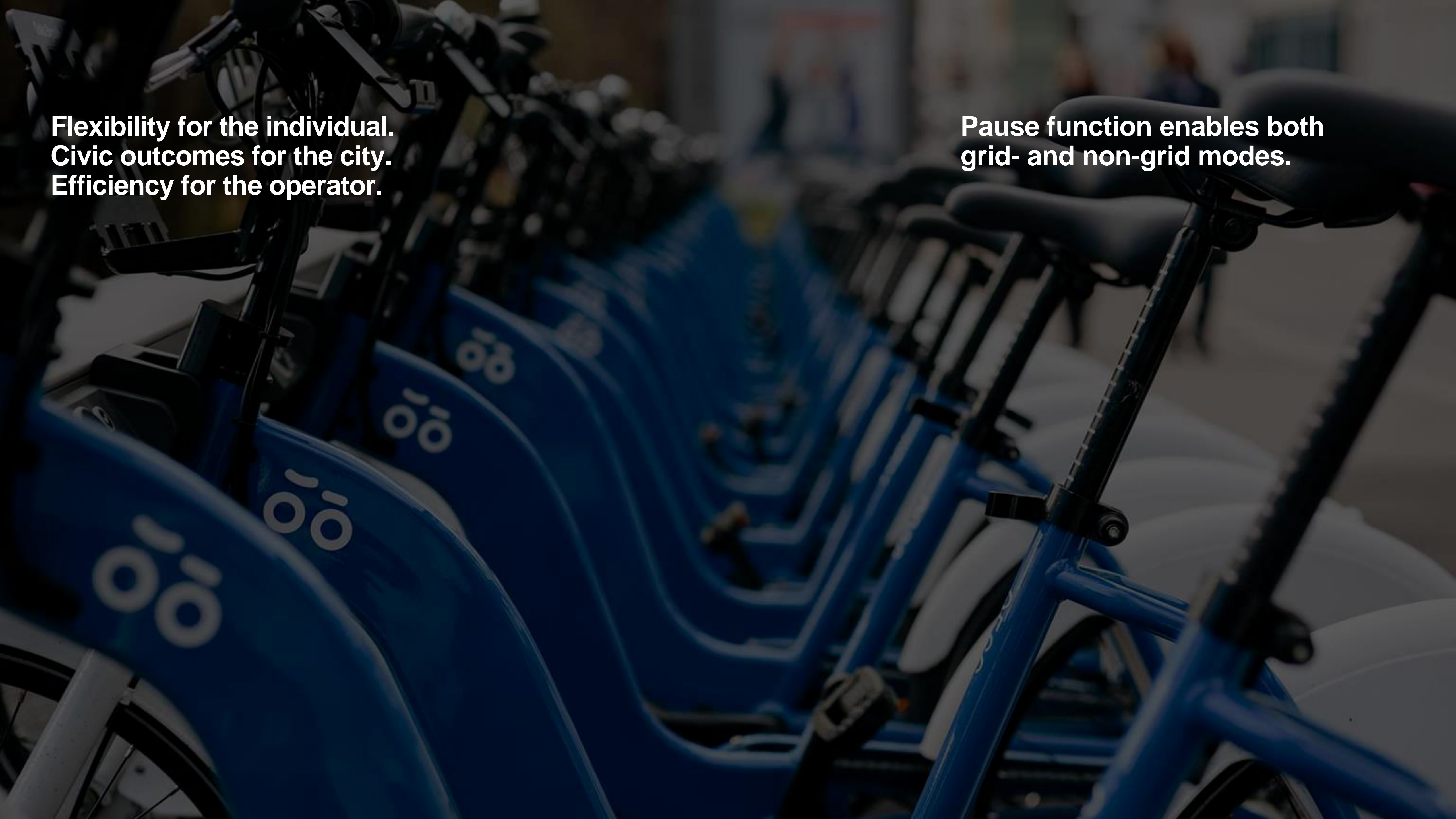
40 likes

MAY 21

Add a comment...





A row of blue bicycles parked in a station, with a dark overlay and white text. The bicycles are arranged in a line, receding into the distance. The frame of the bicycle in the foreground is clearly visible, showing the handlebars, seat, and frame. The text is overlaid on the left side of the image.

**Flexibility for the individual.
Civic outcomes for the city.
Efficiency for the operator.**

**Pause function enables both
grid- and non-grid modes.**

Phone

Snapchat, LinkedIn etc.

App Store

Contacts app

UI guidelines, data

Contacts data

iOS

iPhone hardware

Model

Third party apps

Store interface

Core apps

Guidelines

Data

Operating system

Hardware

City

City

party apps

Bikeshare

interface

Datastore, totems

apps

Stockholm mobility services

guidelines

Smart Enabling Principles

ating system

LIDAR model, mobility data

ware

Stockholm OS

Roads, sensors, 5G, AVs etc.

User experience

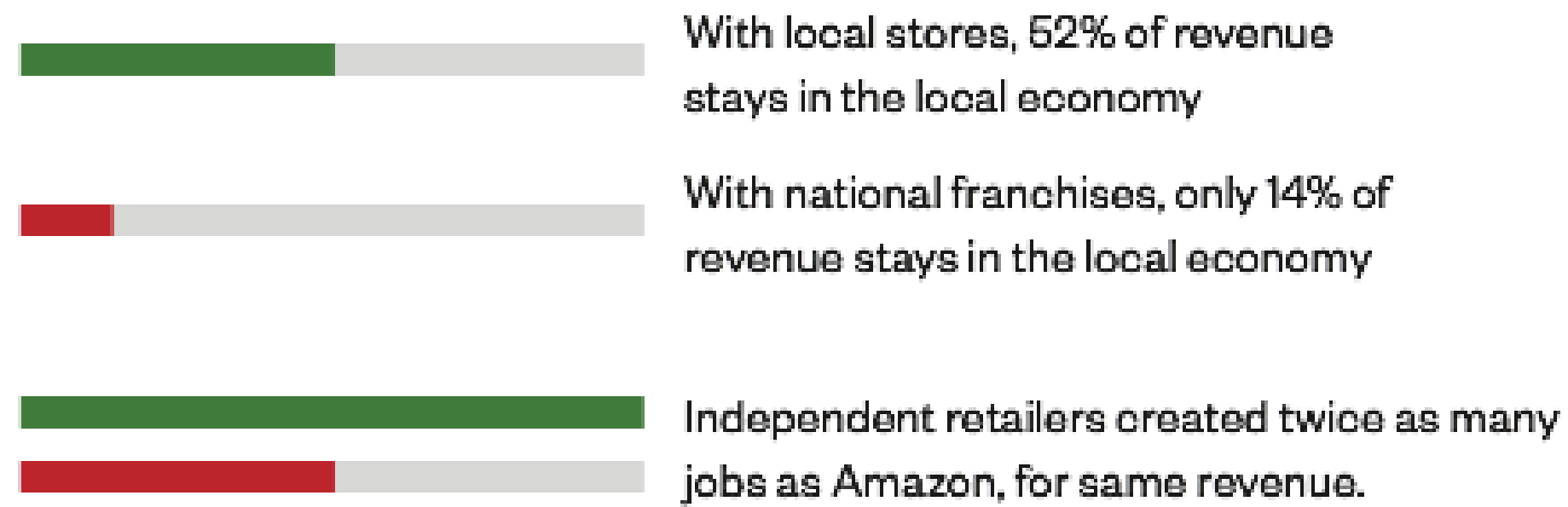


Arup, 2017—

Sheffield New City Centre



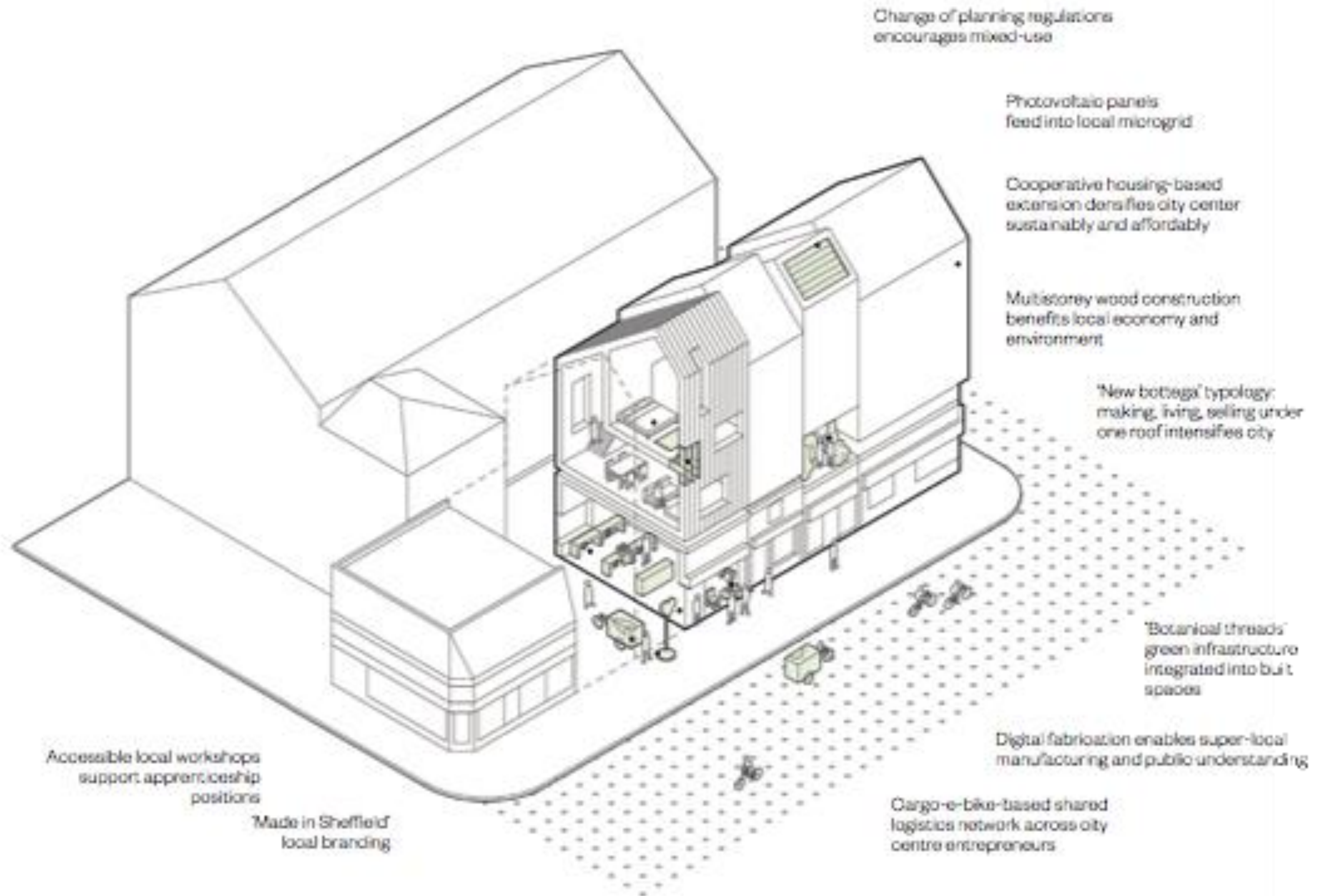
The value of local craft and code



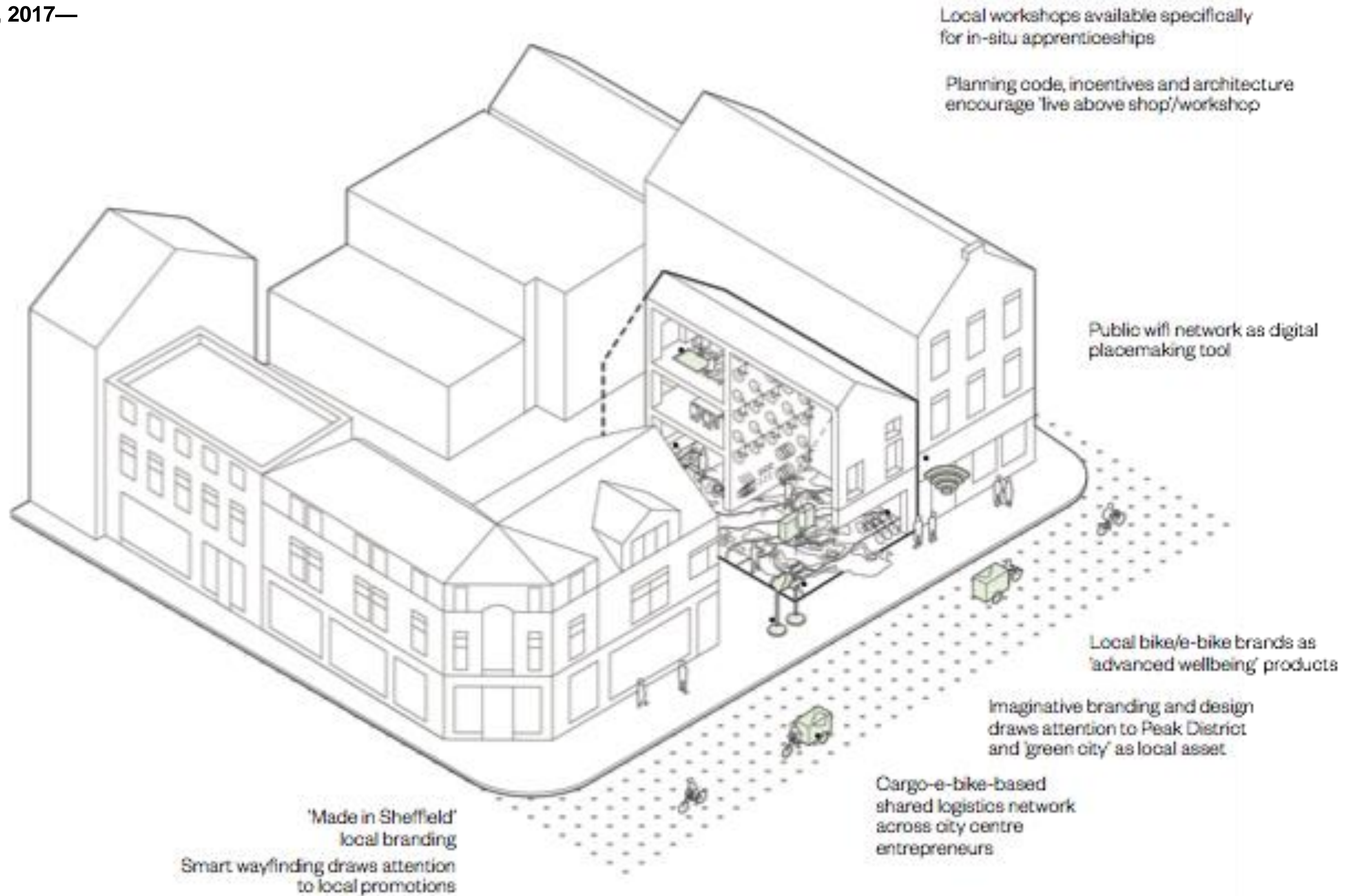
Public



Sheffield Baugruppen



Sheffield Bottega



Oslo just decided to get rid of its parking spaces



Oslo hopes to extend pedestrian networks as it eases cars out of the city centre. Image: REUTERS/Ints Kalnins

Josephine Moulds, Freelance business journalist

Oslo had hoped to be the first major European city to ban cars but a furious backlash forced the council to think again.

In October 2015, a progressive political alliance gained control of Oslo's city council and announced its aim to make it a greener capital. The Guardian

Barcelona's Car-Taming 'Superblocks' Meet Resistance

The plan to ban through traffic from much of the city could still be a game changing model.

FEARGUS O'SULLIVAN | [@FeargusOSull](#) | Jan 20, 2017 | 9 Comments

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A rendering of how the Rue de Rivoli might look

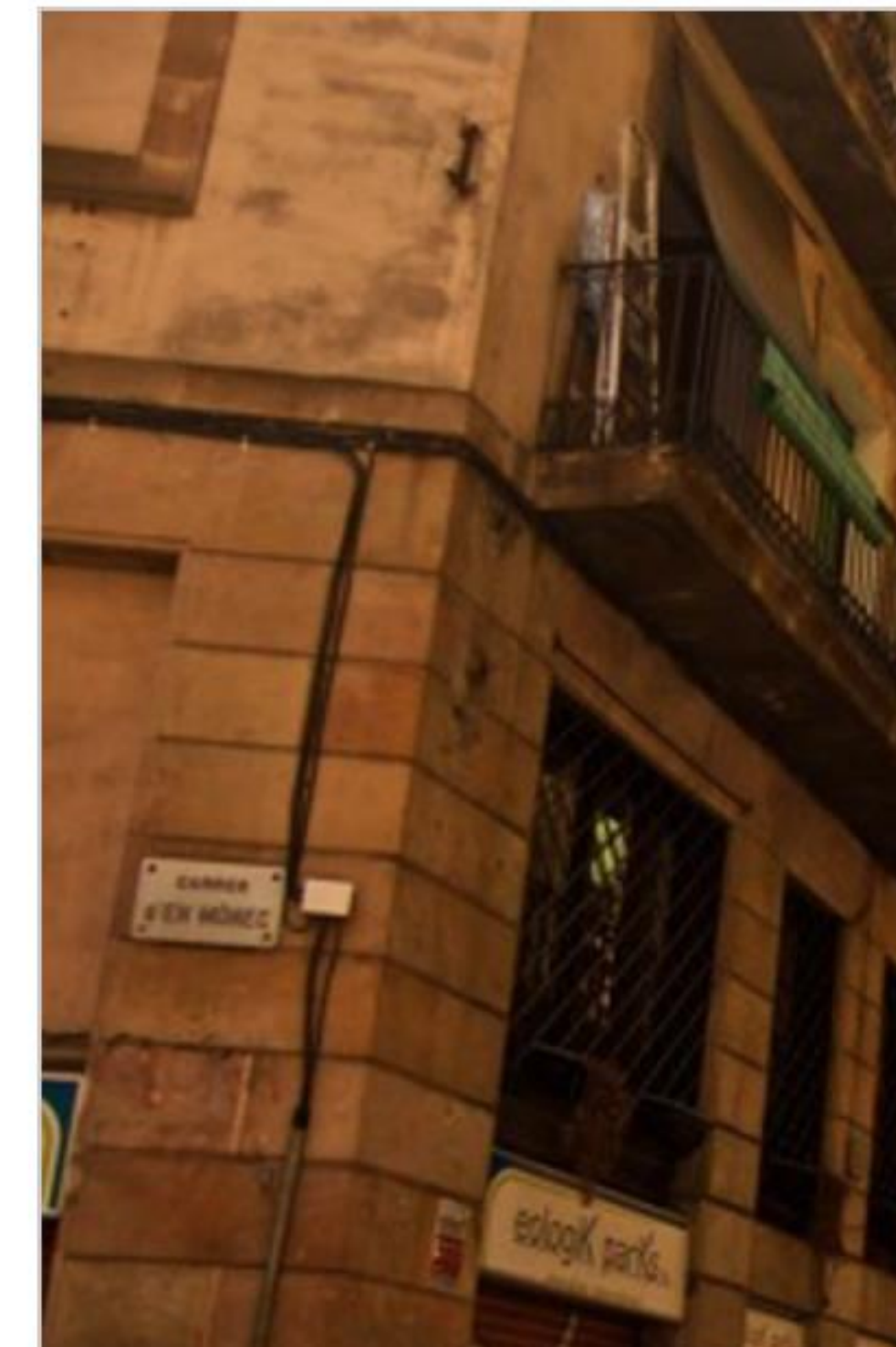
Paris Pushes Its Car-Free Streets Plan Further

FEARGUS O'SULLIVAN JAN 9, 2017

Despite a backlash, the city will extend the areas that are off limits to private cars, making way for more bike lanes and public transit.

SHARE | TWEET | ...

When Paris Mayor Anne Hidalgo banned cars from a large section of the River Seine's quayside last autumn, she met a fierce backlash from pro-car advocates and some suburban mayors. As part of her annual New Year address on Friday, she outlined her response to this vocal resistance.



Noticing Planning Notices

Cultures of decision-making

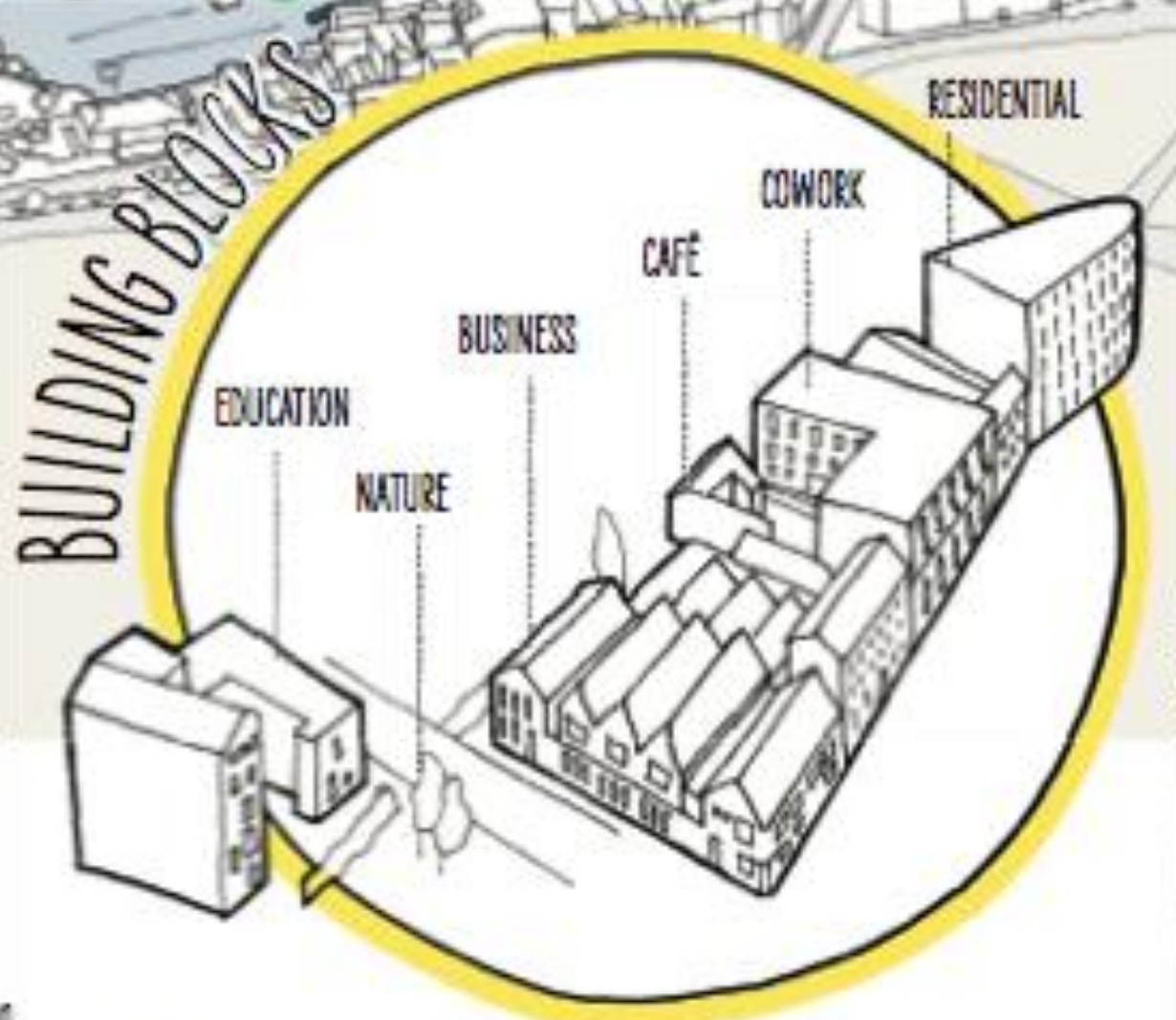




a diversity of space and ten kinds of high tech and creative Transformation will be kick-started by rediscovering the remains of the castle and hidden River by extending the Great Flowering water meet the river

successful central business and cultural gardens. Now a similar approach is being taken around Cambridge St and Pinstone, creating leisure and homes, often in the existing historic streets, spaces and independent businesses.

The western half of the CIQ is becoming home to multi-functional mixed-use blocks combining distinctive workplaces, training centres, flats of various sizes with cafés and shops, all with access to the Porter Brook.



HS2 and HS3 offer opportunities to connect us nationally, as well as to futureproof the station and its surrounds.

Like most great cities, Sheffield developed around rivers—yet we neglected them for decades. Now we are uncovering and increasing access to the Don, the Sneyd and the Porter Brook, to enable smarter floodwater handling as well as better fishing!

We are fortunate to have our university so close to the centre of the city. It provides energy and invention and creates new spaces. The Hallam University Masterplan proposes more construction in its central campus, around the city to the Cultural Industries Quarter and Station, enabling that area to be further transformed into safe, pedestrian- and cycle-friendly

- RETAIL**
- 1. Restaurants & retail plan
- 2. Heart of the City 2: living, working, playing, shopping
- 3. Moor/Furnival Gate retail and leisure
- 10. Moorfoot connection to London/Fitzles Rd
- 11. Independent shopping streets

- LIVEABLE CITY**
- 14. Day Wood family housing
- 15. Park Hill: flats, offices, studios, schools, galleries
- CULTURE & LEISURE**
- 16. Site Gallery expansion
- 17. Central Library/Graves Art Gallery relocation/restoration
- GREEN CITY**
- 18. New green spaces at Derholme/Woods de Stanley Fields
- 19. Porter Brook restoration and development sites

- CASTLESATE**
- 20. Restaurant on Old Town Hall
- 21. Castle House: reuse of listed building

DETAILS OF ALL THESE INITIATIVES ARE AVAILABLE IN THE FULL PLAN. FIND WAYS TO ENGAGE OVERLEAF.



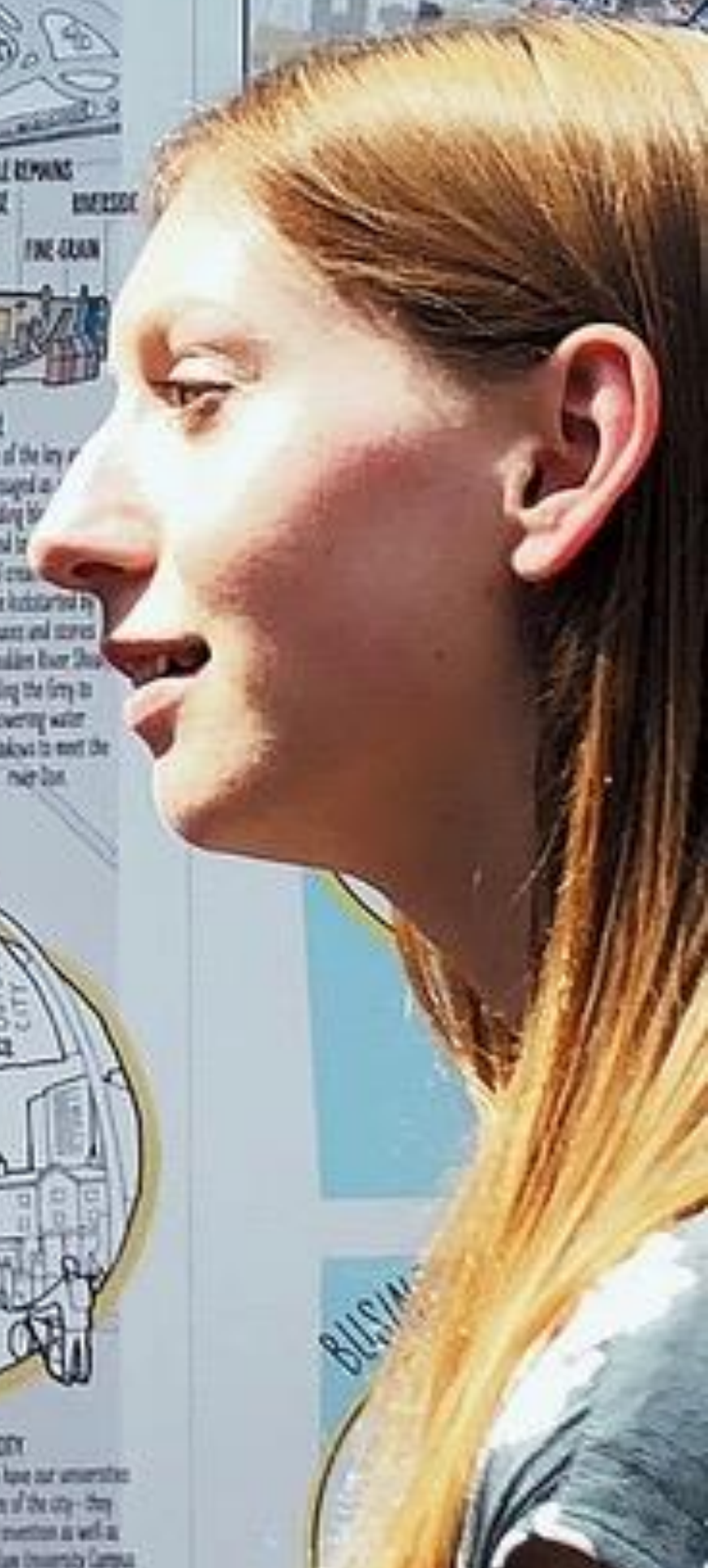
SMALL BUSINESS CULTURE

RESTAURANT DIVERSE RESIDENTIAL ONE

NEW CENTRES OF GRAVITY
New developments down towards the river help create different centres of gravity within the city centre. These will be high quality buildings with high quality public realm, including the City to Green networks and creating the public space alongside residential and commercial opportunities, such as larger floor offices, hotels and apartments.



Retail consolidated bu
Space for Work for all r
A New Castlegate unit
Growing the Campuses
More diverse resident p
Even better Cultural an



Castlegate



CASTLE REMAINS
MIXED-USE
INCUBATORS
FINE GRAIN

Incubators like Castle House allow start-ups to flourish.
A new Central Library would become the city's study room, a place to discuss and discover.

BACK TO THE FUTURE
Castlegate will be one of the key areas for development, envisaged as mixed use as it 'builds for a diversity of space and is a mix of high tech and creative. Transformation will be facilitated by preserving the remains and stories of the castle and hidden floor show, and by extending the City to Green, lowering water embankments to meet the river level.

H52 and H53 offer opportunities to connect us much better internationally, nationally and regionally, as well as to futurproof the station and its surrounds.



PUBLIC REALM
MIXED USE
EDUCATION
CULTURE
LEARNING IN THE CITY
We are fortunate to have our universities so close to the centre of the city - they provide energy and invention as well as new spaces. The Hallam University Campus



Planning Notice

Arup x Ericsson

- System
- Lightning
- Models
- Console

Server Address

http://192.168.0.59:65520/

Refresh

GroupBiyana.obj

Load

No current download



**The new
European
municipality.**

Future-proofing ArenAPoort / Arup x Gemeente
Amsterdam, 2017-18

ArenAPoort workshop



ArenAPoort workshop



School

Sports

E-Bike Network

Battery Storage

Local Energy Generation

Cargo Bikes

Ground Drones

Food/Café

Co-working Space

Incubator

Public Dashboard

Dynamic wayfinding

Adaptable parking

Kindergarten

Green Pathways

Mobile spaces

Garden Network

Gardening

Superflex Space

Mens in contact

Lucht met water/wind

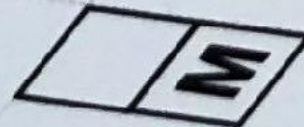
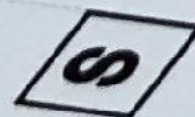
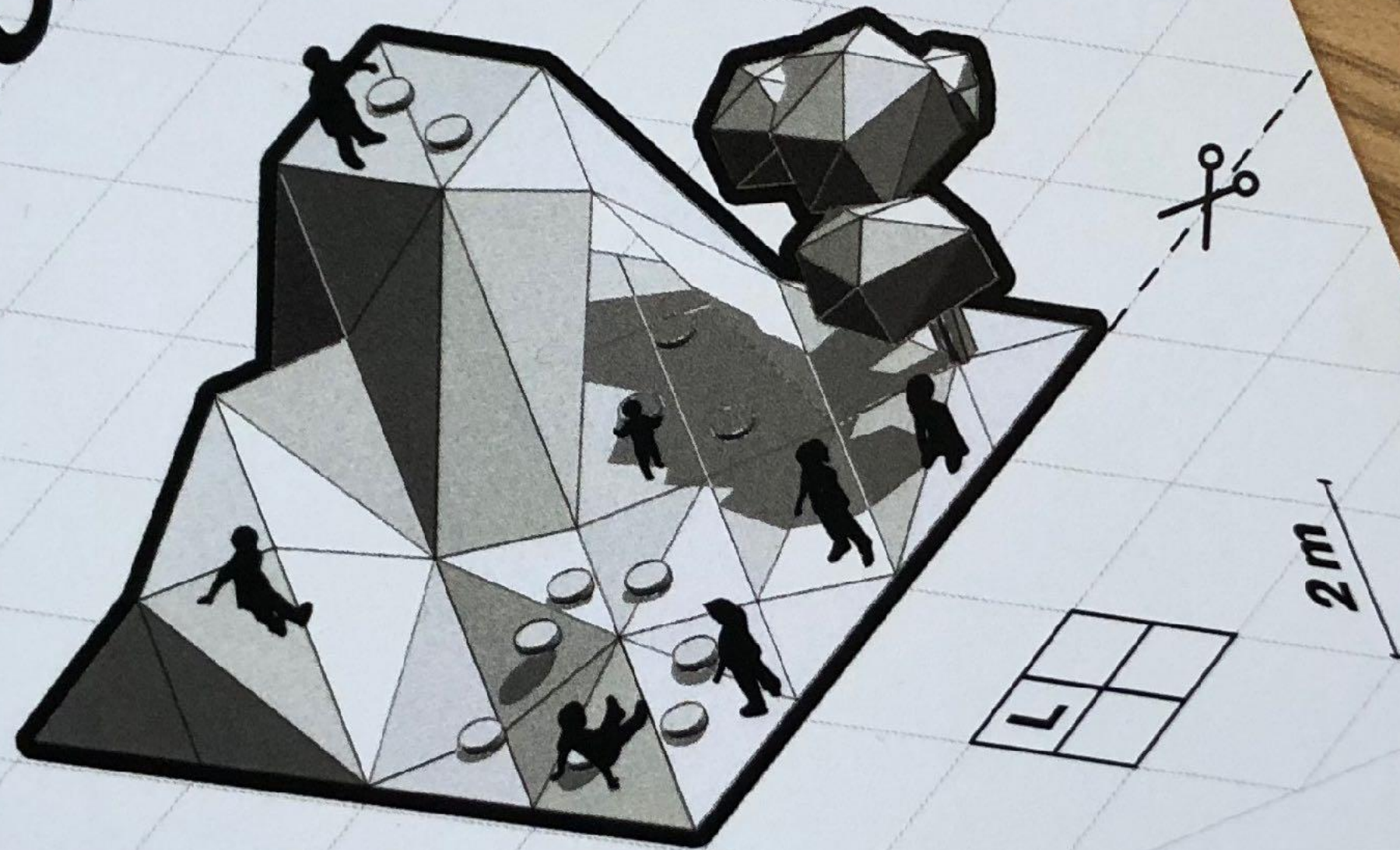
Arup x Sheffield City Council

Sheffield central library workshop



50 SQM PLAY SPACE

Soft play!



S

Small Children's Playspace
Medium Play & Activity Area
Inclusive Landscape

- 1 x 50 m²
- 2 x 50 m²
- 4 x 50 m²

Arup x Stockholms stad, 2018

Royal Seaports workshop



21st century city-making team

21st century city-making team?

Urban planner

Landscape systems

Architect

User experience designer

Digital systems specialist

Historian

Youth worker

Project management

Community liaison

Sociologist

Healthworker

Policy liaison

Business liaison

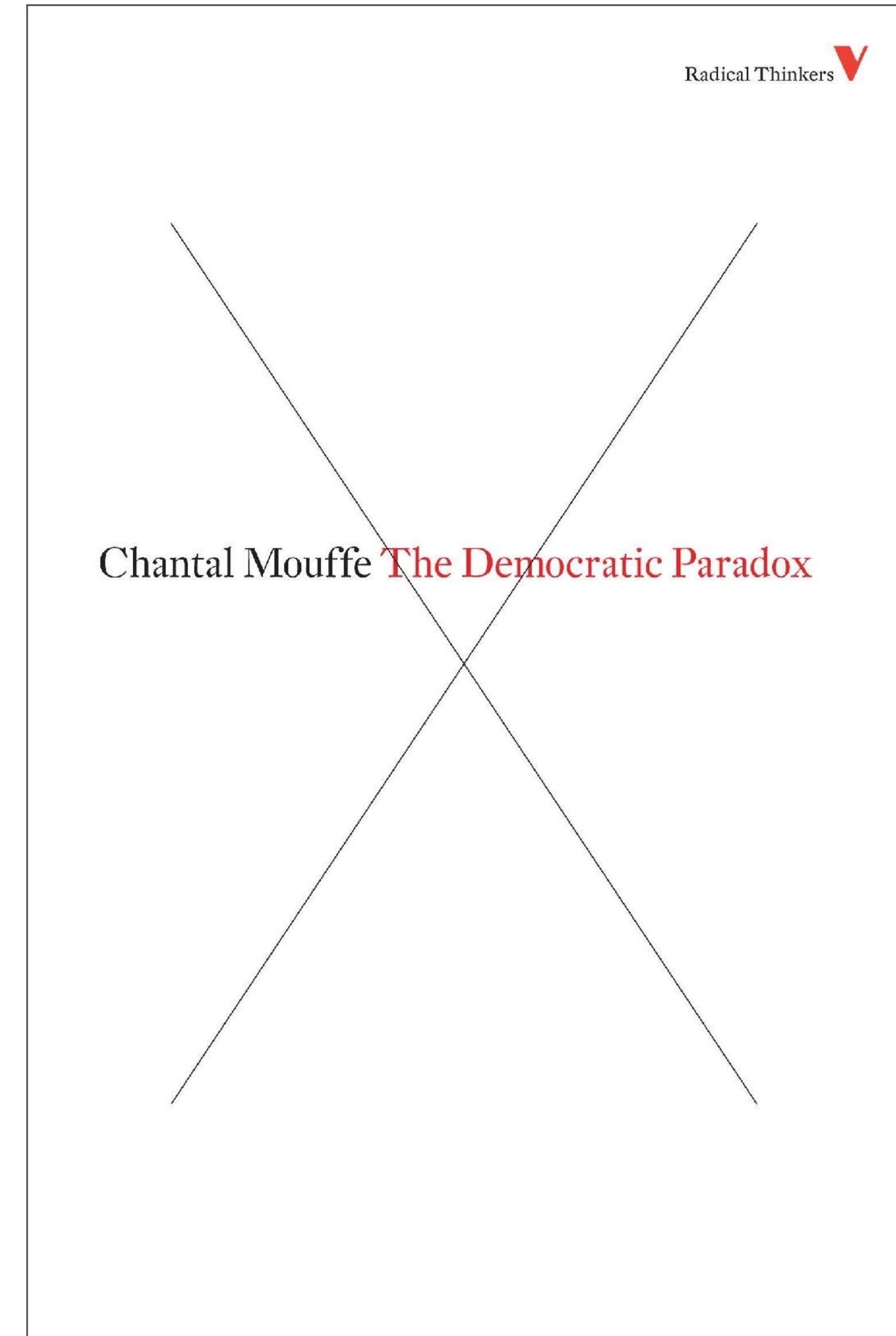
Property liaison

Artist

Handwritten notes on a sticky note:

- local cultural & historical knowledge
- interviewing architects
- socialist
- the usual crowd!
- Urban planner
- youth
- ethnographer
- it-architect
- Val. US Youth
- Est. '00
- bit
- Historian
- Artist

But there is a growing realisation in architecture and design (if not in politics), that you can not remove conflict from the public realm, nor should you want to. The contemporary political philosopher Chantal Mouffe poses the question of how we can make public places and institutions where conflict plays out peacefully, where different groups in society can meet, disagree, not kill each other, and live in a spirit of tolerance and grumbling neighbourliness. The most democratic places are those in which, says Mouffe, "the opponent is not considered an enemy to be destroyed but an adversary whose existence is legitimate". Great cities, towns and villages are much more complicated than our polarised political discourse can admit, and that is why we love them.



Policy

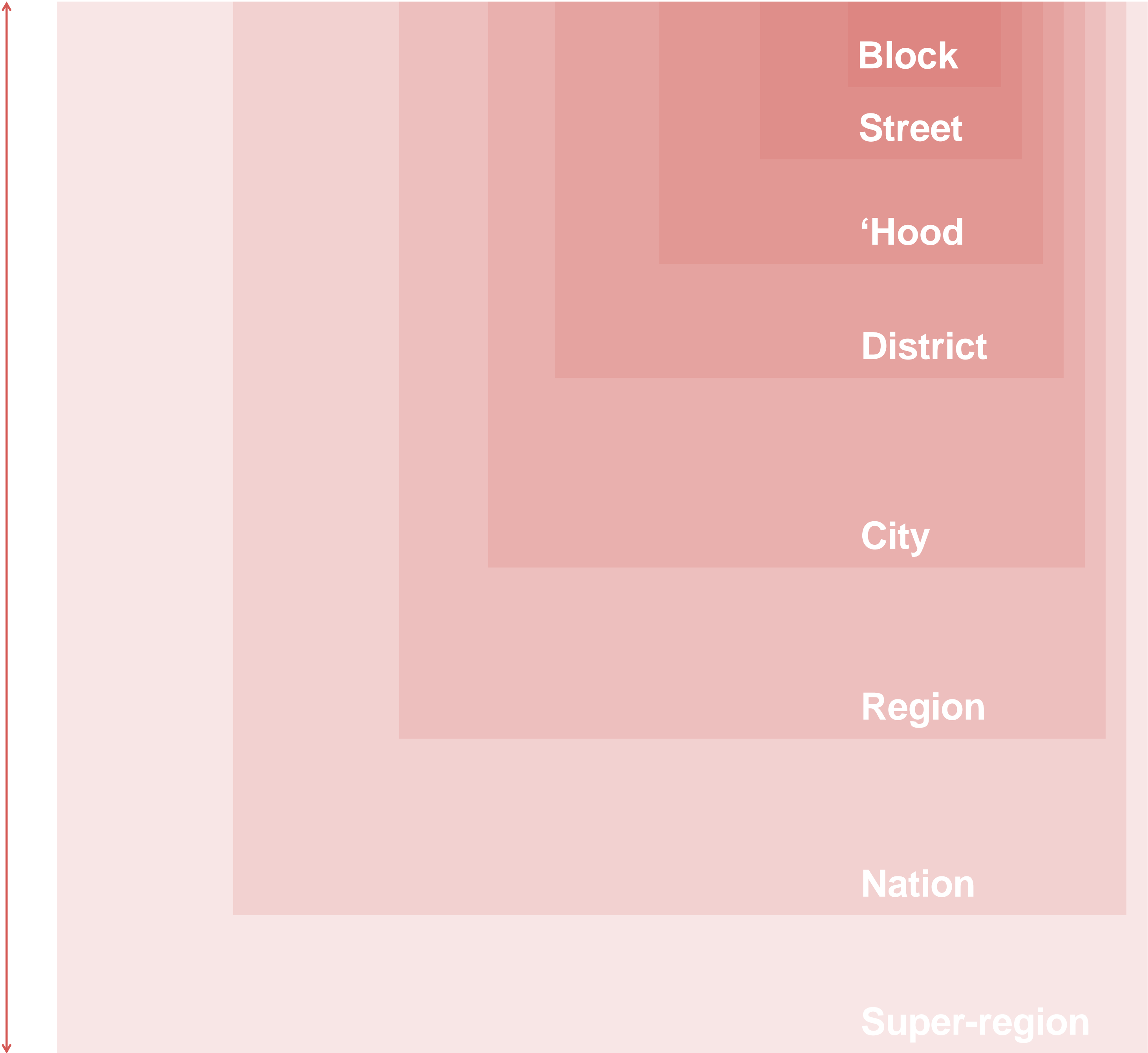


We are taking 21st century challenges, evaluating them with 20th century ideas, and responding with 19th century tools.

Madeleine Albright
Former US Secretary of State
2013

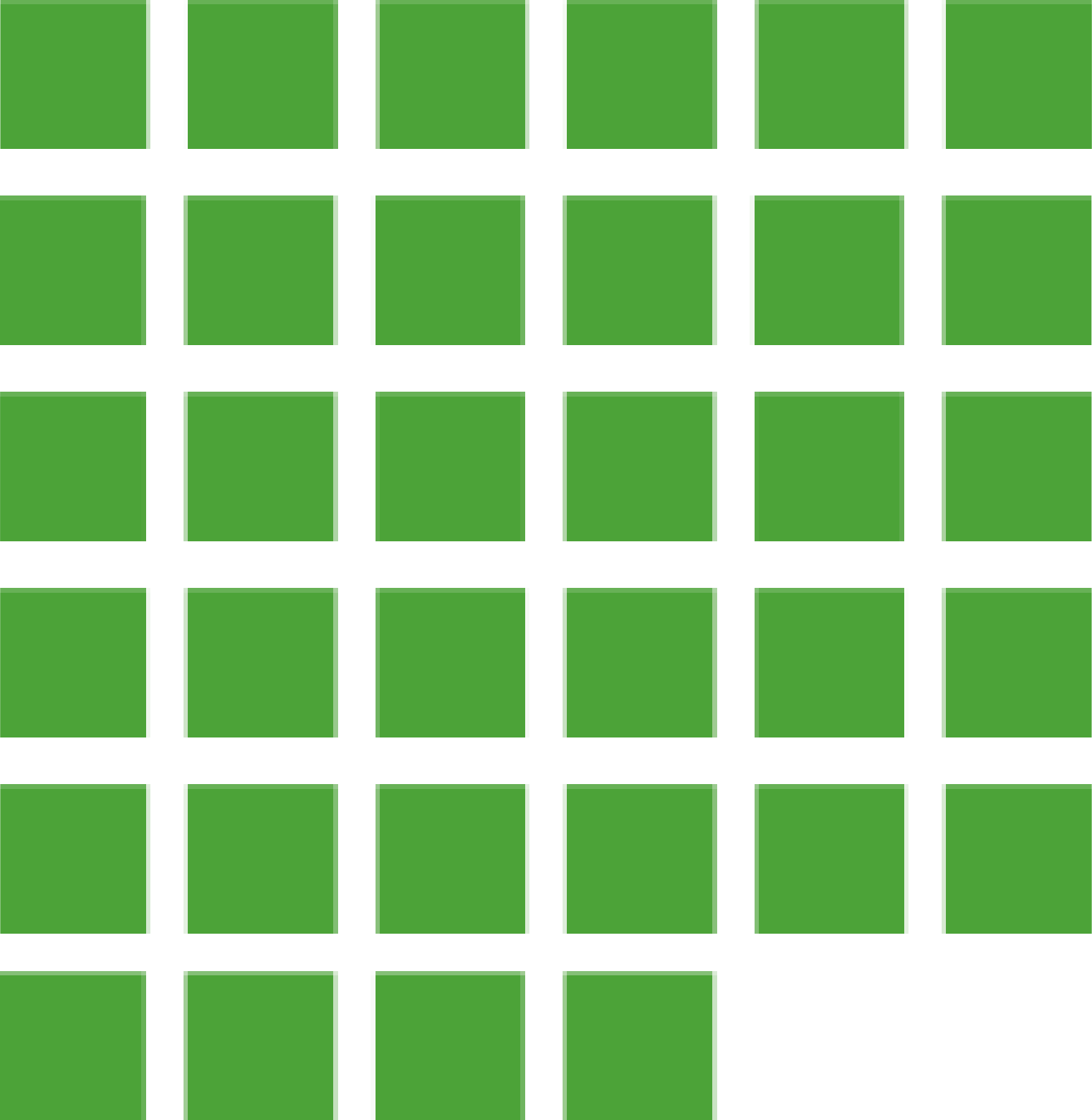


Scale of decision-making



Organisation of decision-making and delivery

Previously



2017—



We only have a few years.

Co-opt tech, invent here.

Fast and slow layers.

Don't plan; design for adaptation.

Focus on shared, equitable ownership.

People, then buildings. But do buildings well.

Adaptable, malleable infrastructure.

Services which actively build social fabric and trust.

Multiple tangible, colourful and diverse narratives.

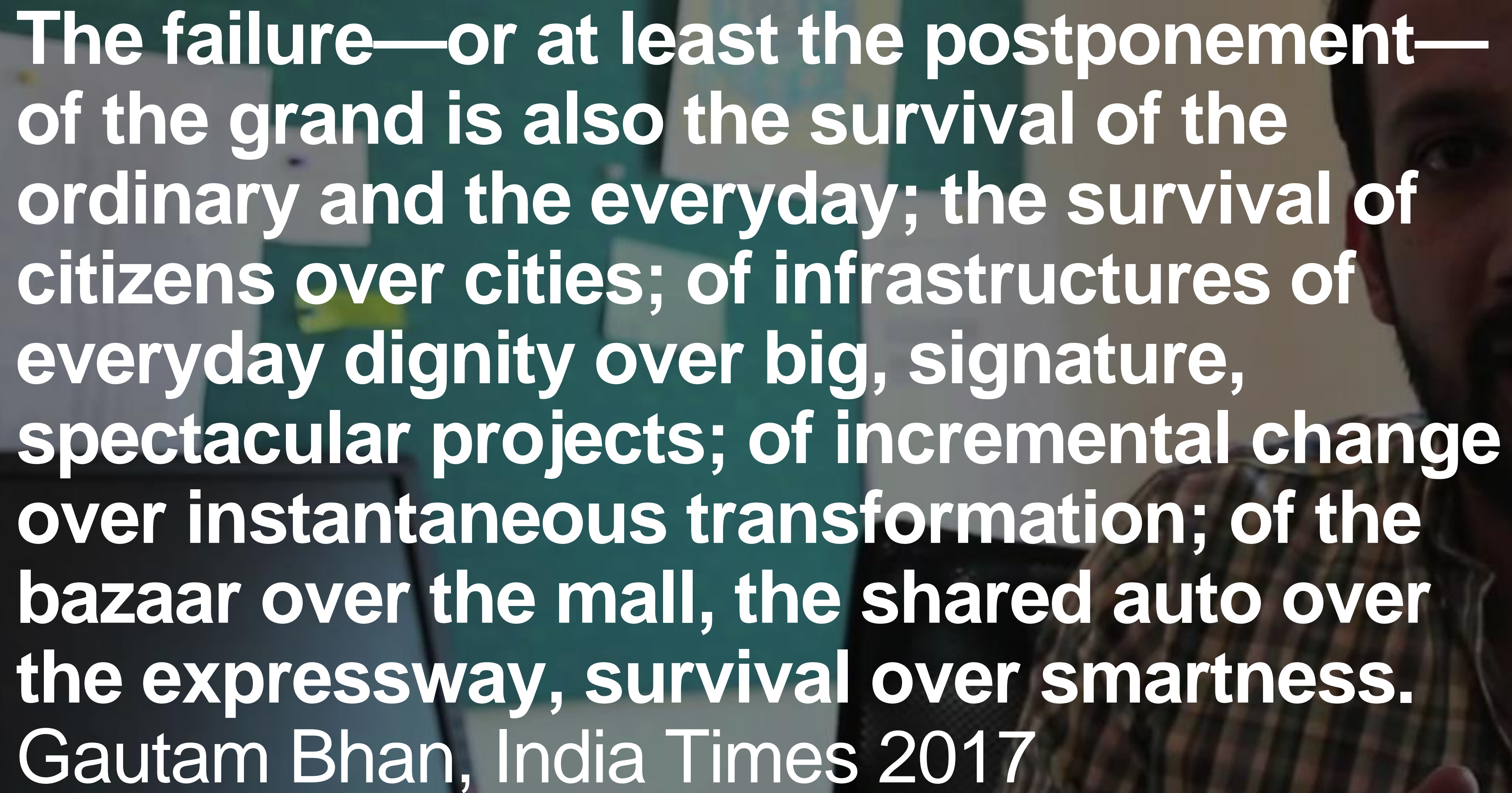
Genuine participation approach, human-centred design.

Systemic change via dark matter of rules, relationships, teams.

Cross-silo, total value outcomes.

Active citizens, active governance.

Policy and delivery combined via active strategic designers.

A man with a beard and mustache, wearing a plaid shirt, is speaking in an office environment. He is gesturing with his hands as he talks. The background shows a desk with a laptop and some papers, and a wall with sticky notes.

**The failure—or at least the postponement—
of the grand is also the survival of the
ordinary and the everyday; the survival of
citizens over cities; of infrastructures of
everyday dignity over big, signature,
spectacular projects; of incremental change
over instantaneous transformation; of the
bazaar over the mall, the shared auto over
the expressway, survival over smartness.
Gautam Bhan, India Times 2017**

Thank you.

Doen wat we
geloven.



Bedankt voor uw gift en gezegende kerstdagen.

Dan Hill.
Associate Director, Arup.
UCL Institute for Innovation and
Public Policy
Mayor of London Design Advocate
[@cityofsound](#)

ARUP