

Media shapes behaviours – Behaviour shapes space

“It’s going to rain tonight.”

“It’s raining now,” I said.

“The radio said tonight.”

—Don DeLillo, *White Noise* (1984)

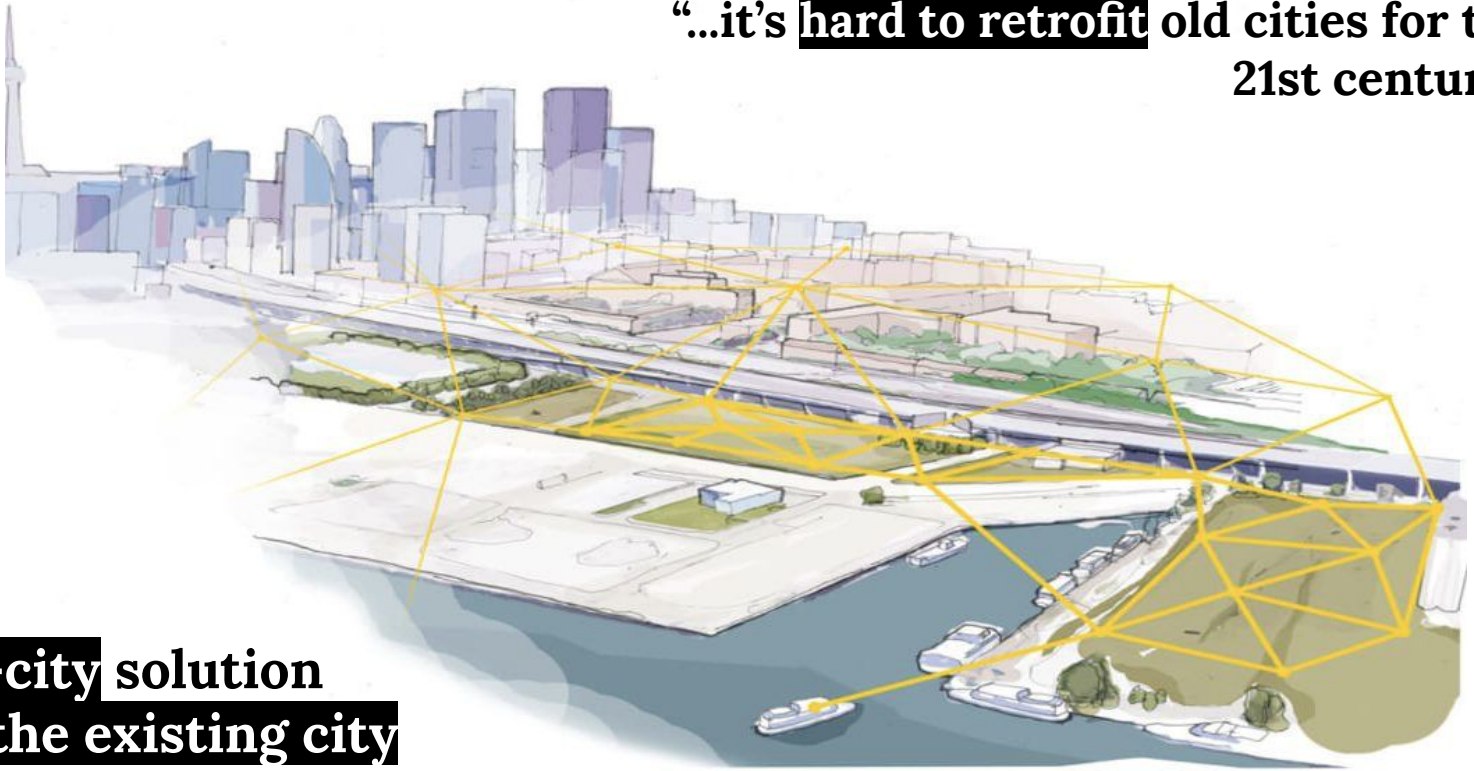
Why we need big data?

Why we need social media data?

Why we need behavioural data?

Why we need users' insights?

“...it’s hard to retrofit old cities for the 21st century.”



The smart-city solution is to leave the existing city

This is far from SDGs

Retrofitting contemporary cities

*Super***PHYSICAL**

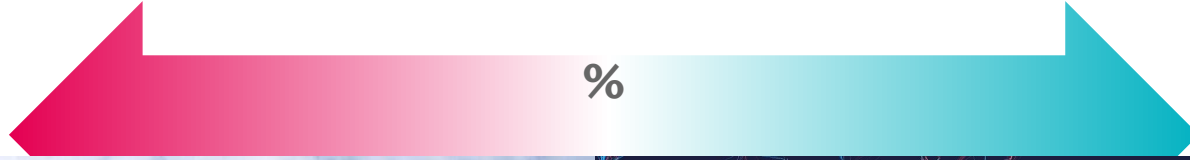
Difficult to achieve SDGs

Infrastructures bring people together with high costs for the environment

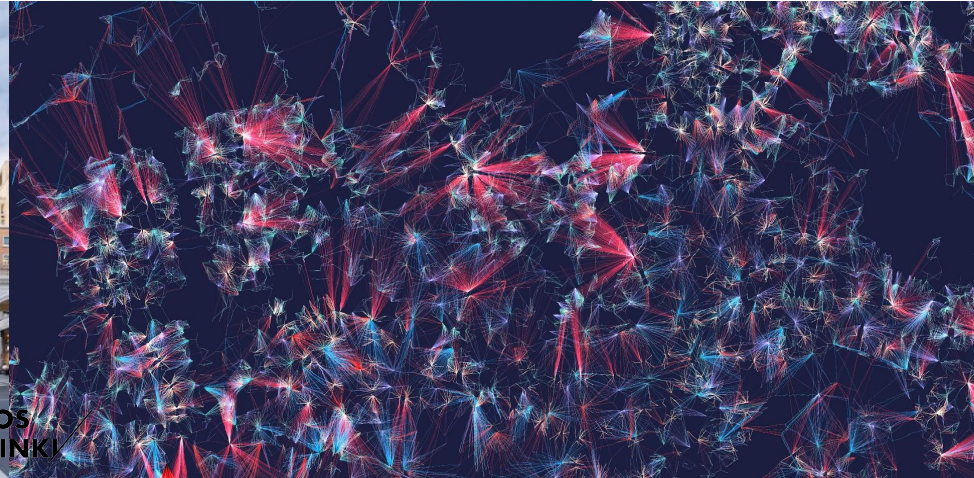
*Super***DIGITAL**

Difficult to develop human capital

Lack of interesting urban environment makes it difficult to attract skilled-visionary people



DEMOS
HELSINKI





Solving the fundamental problem not the most visible

A study from Duke University estimated that habits shape 45 percent of the daily choices we make.

70% of millennials favour experience over ownership

(Harris 2018)

Only 9% of 18 years old were getting a driver license

(In Stockholm, 2018)

We increasingly value
time spent using smart
phones and laptops

**People will prefer PT and
self-driving vehicles in
order to use their devices
while moving**

Daily travel time will
increase up to 90min
per day

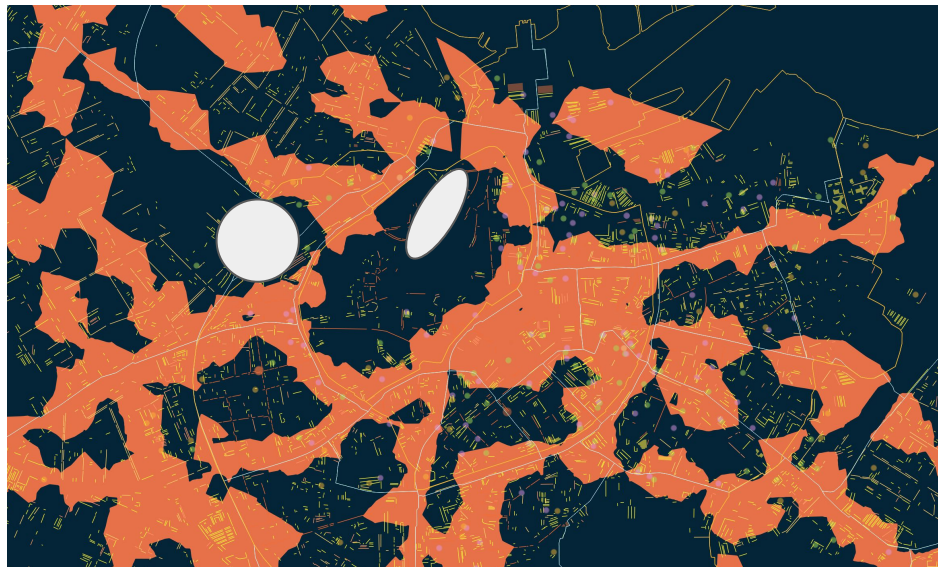
**Private vehicles
used less than 4% of
their life-time**



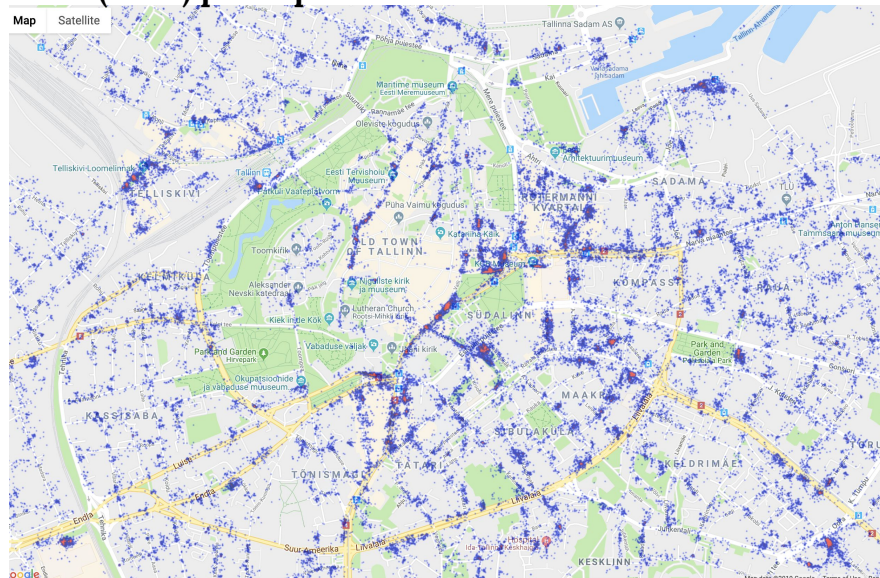
~~Location, Location, Location~~ Experience, Experience, Experience

*Supplying a service universally
does not longer equal to universal use*

5min walk from transport



Bolt (Uber) pick up locations



Experience first

Corporate learnt the lessons, city can take actions

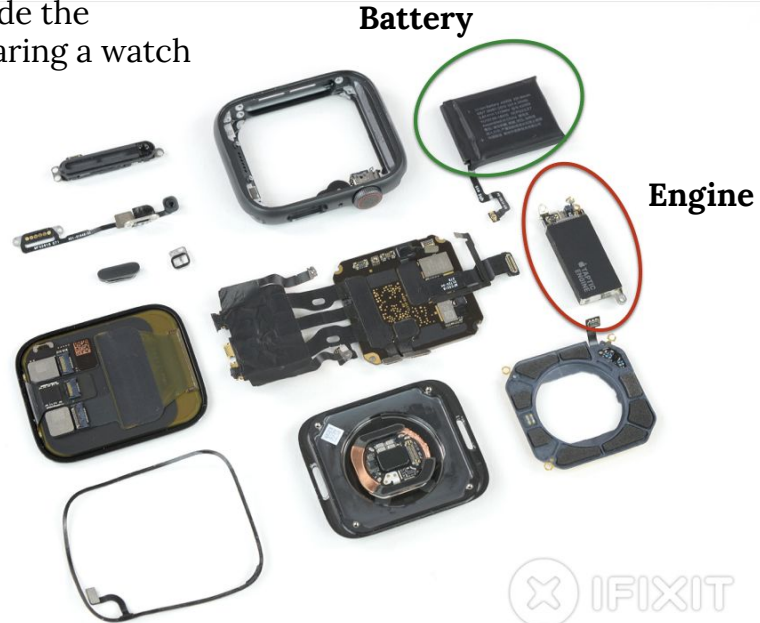


Apple taptic engine

Produces vibrations and feedback to provide the experience of wearing a watch



SPIN
UNIT



IFIXIT

Data collection process

Data mining



From **big-data** to **thick-data**

It doesn't matter
how much data you have

if it doesn't matter
to people

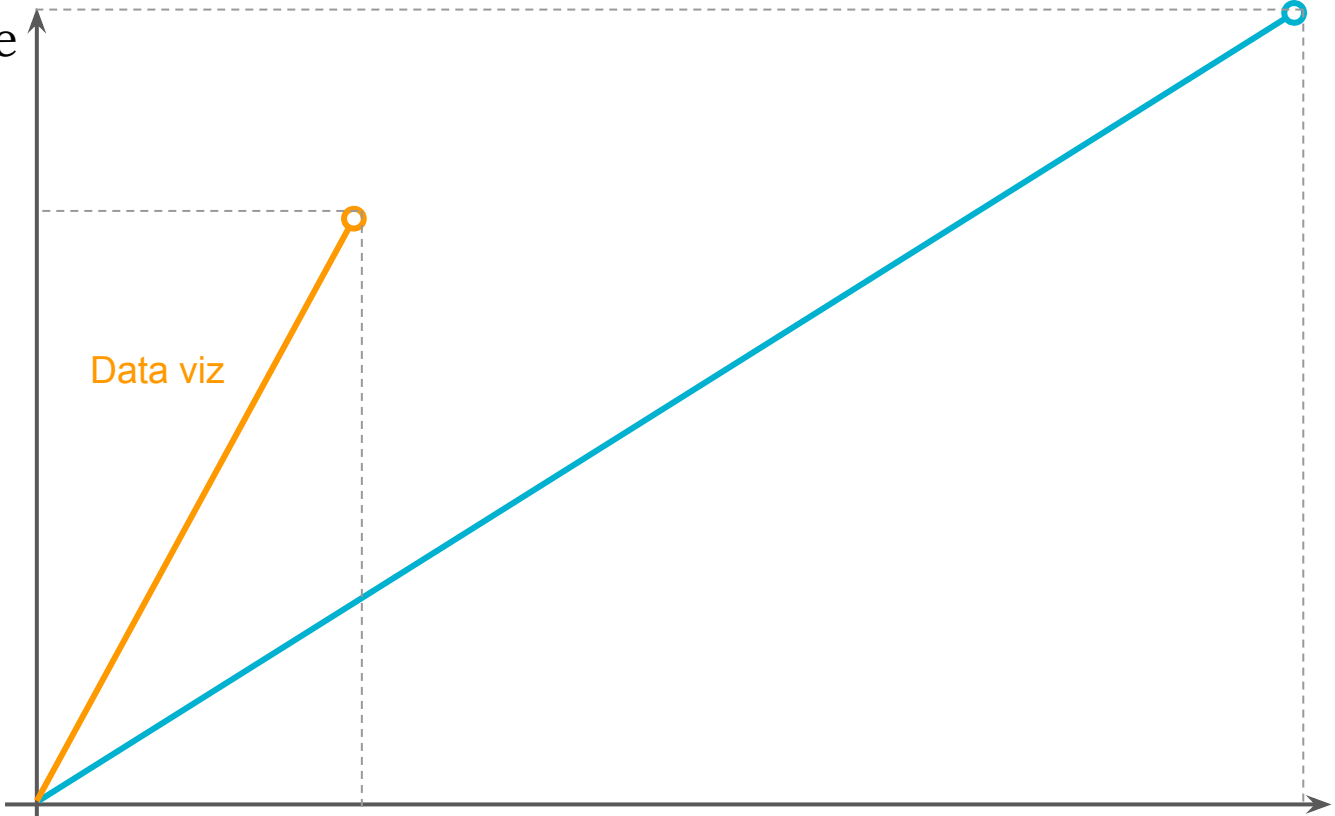
Context-rich data brought to light using qualitative, ethnographic research methods and analysis that uncover **people's emotions, desires, and mental models of their world.**

TO FORM A COMPLETE PICTURE, BOTH BIG AND THICK DATA ARE CRITICAL BECAUSE THEY PRODUCE DIFFERENT TYPES OF INSIGHTS AT VARYING SCALES AND DEPTHS



@TRICIAWANG

Output value



Data viz

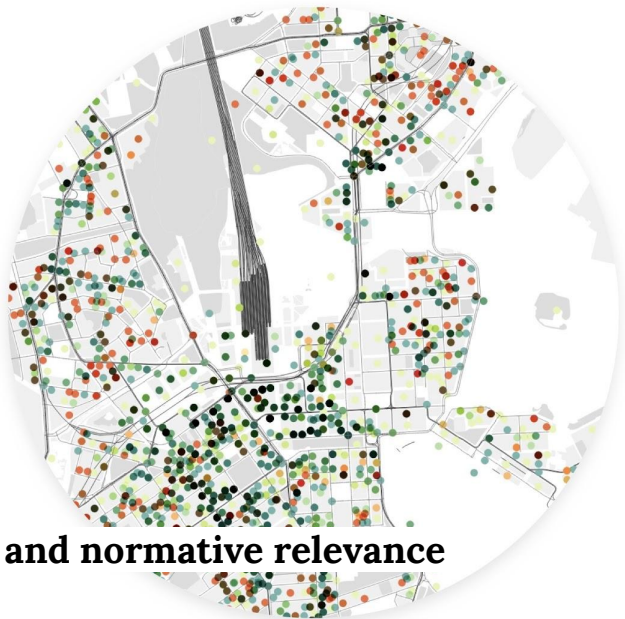
Data Analysis

Man hours

Bridging the Relevance Gap

How far we are from collecting data that is socially relevant

FORMAL DATA
WHAT PLANNERS SEE
NAT. DATABASE OF BUSINESSES



Technocratic and normative relevance

INFORMAL DATA
WHAT PEOPLE DO
FOURSQUARE VENUES



Social and cultural relevance

Qualitative
data can be big

Free forms
reveal true
insights

1/6 Which routes do you use when walking around the city?

Walking instead of taking some other form of transport
A route I use e.g. to school, work or when doing errands.

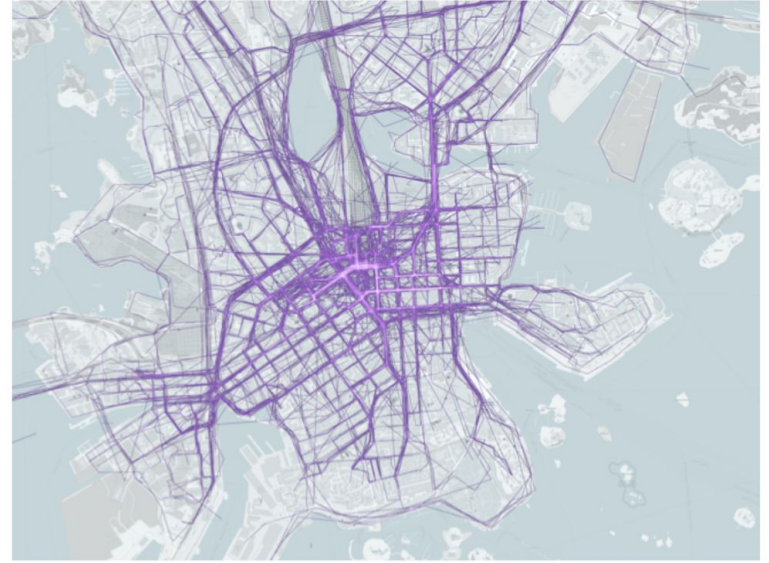
A recreational walk
A walk I take when going e.g. on a walk in the city centre, to spend time outside or just to spend some time.

Mark the routes you have drawn with places that you consider especially pleasant and those that make you stop. Mark also those places that you find unpleasant along or near the route.

Highlight of the route
Where are the highlights of your route?

A place that makes you stop
Is there a place along your route that makes you spend a little time there?

An unpleasant place along the route
Think of for example places that you want to avoid or go around along your route.



Pictures: 1) recreational walks 2) walking instead of taking some other form of transportation

Data must be relevant

Map the

Human Perspective

Valorise the

Human and cultural capital
and **find potentials**
for cultural programs

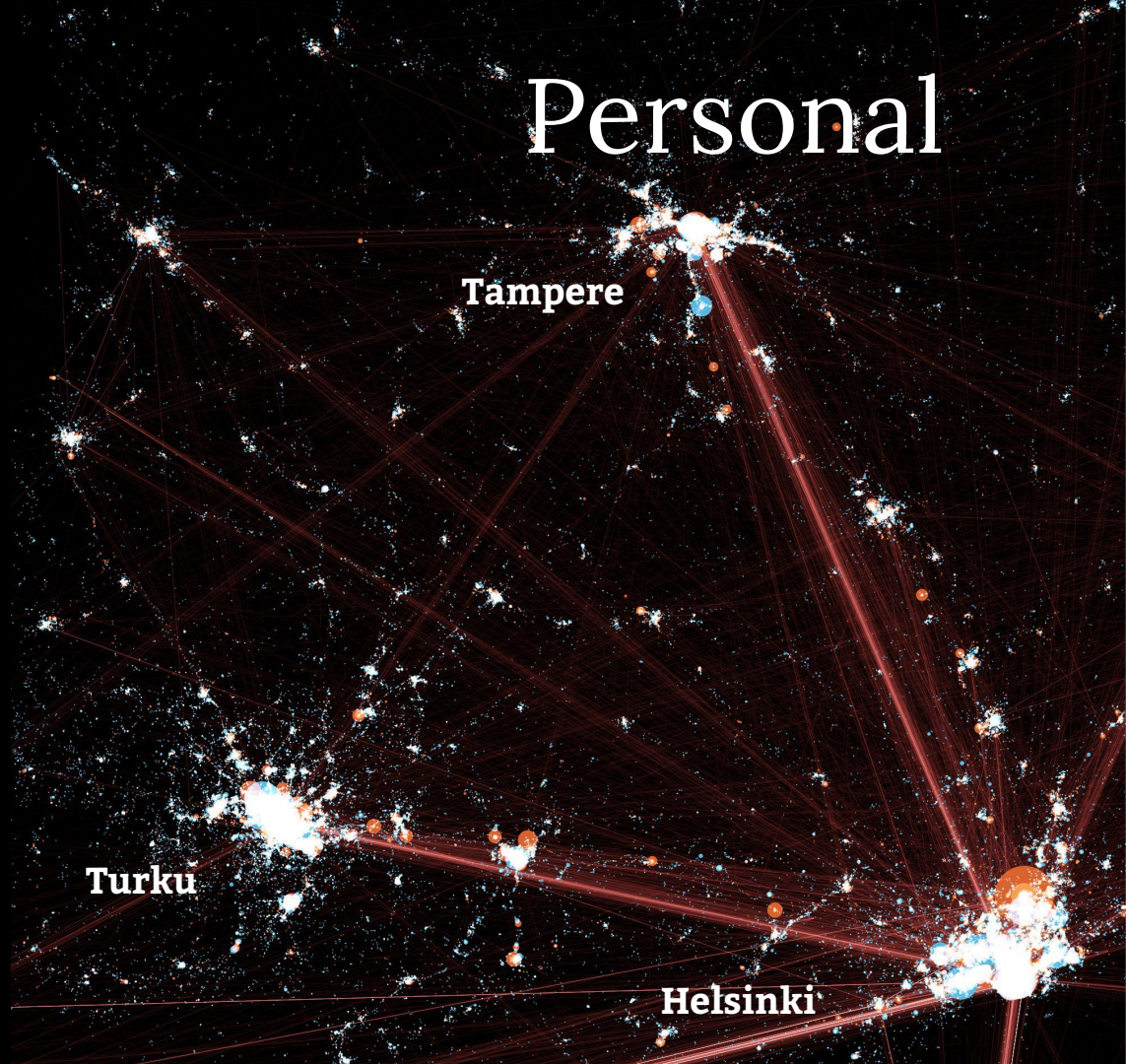
Develop the visual identity of the city!



Impersonal



Personal



Cities are craving for data

We still need data!

Municipalities are more trusted than the central government because they appear to have more data to inform local policy, which directly affects the lives of their citizens.

Gallup 2019

Ethics, regulations etc

Step 1 - Scientific method

integrity, meticulousness, and accuracy
in conducting research

recording, presenting, and evaluating
the research results.

Step 2 - Publish

Rule of thumb: if you can share it publicly you are good to go

The methods applied for data acquisition as well as for research and evaluation, conform to scientific criteria.

Publish research results, the results are communicated in a simple and clear fashion

SPIN presents projects at local conferences

Step 3 - Limit data collection

How many dataset you collected and didn't use?

Step 4 - Ethical commission

Write and publish your ethical protocol.

Form an internal commission that checks every project's data sources before starting to collect

Clear obligations, principles concerning authorship, and questions concerning archiving and accessing the data.

Step 5 - Financing

Rule of thumb: if you can publicly tell the financier you are good to go

Otherwise check for conflicts of interest or other commitments relevant to the conduct of research

The need for ethics is essential as bias can be found in the data collection phase of big data, analysis phase, and insight phase.

Releasing data gained through analytics, whether it is technically correct or not, **could result in a company's loss of their reputation**, create competitive weakness, or possibly result in legal sanctions [1]. Big data and analytics extend well beyond organizational benefits, Gartner [1] predicts that by 2019, big data analytics will cause half of all business violation ethics.

*Future of Information and Communications Conference (FICC) 2019
14-15 March 2019 | San Francisco*

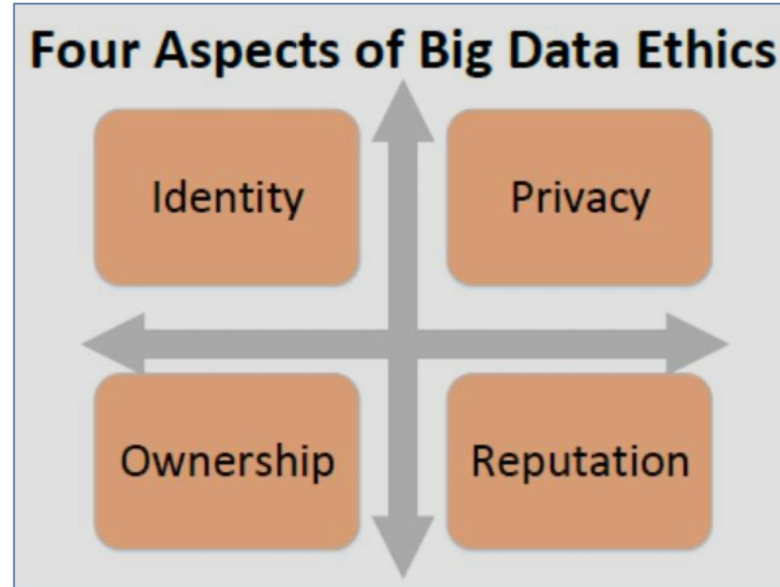


Figure 4, Balancing Ethics as presented by Davis [12]

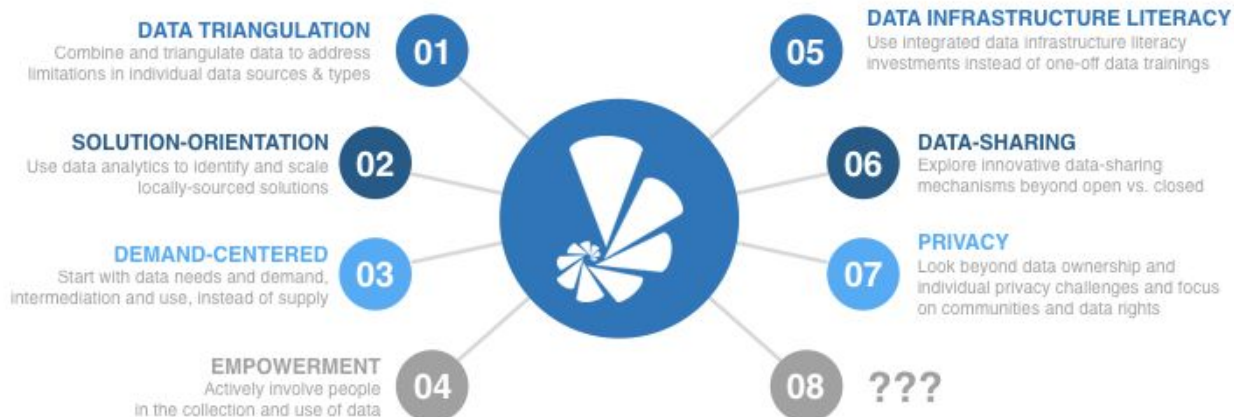


Empowered lives.
Resilient nations.



#NextGenUNDP empowered by data

Key lessons that could shape the way we approach data innovation at UNDP



Principles for data-driven development

1

DATA BELONGS TO CITIZENS

Citizen perspective should be in the center of the design of new initiatives and development.

2

ALWAYS TALK ABOUT DIGITAL INCLUSION

Digital cities should allow every citizen with different capabilities to participate. Nordic digital cities are shaped so that no one is discriminated.

3

DIGITAL CITIES ARE BUILT ON TRUST

Meaningful initiatives should respect and be built on the value of trust.

4

HUMAN EMPOWERMENT

New forms of participation, in tandem with traditional democratic processes, increase the willingness to participate and grow the legitimacy of the cities.

(EU) 2016/679 (GDPR)

our experience

- You must have given consent to the collection and processing of personal data;
- Fulfill the agreement with the data subject;
- Protect the interests of the data subject, use data for good;
- Data analysis for the public interest and social good;
- Always work according to the Charter of Fundamental Rights.

Many are starting to adopt it: Japan, Brazil, South Korea, Argentina

(EU) 2016/679 (GDPR)

our experience

Name a Data Protection Office

Somebody in your company who is acknowledged of the regulatory framework and gives advices at the beginning of each project to each team that is running it

Many are starting to adopt it: Japan, Brazil, South Korea, Argentina

Privacy shield... not really.

- If personal information is part of the game, keep users' contacts and set up a framework to promptly erase their data or provide a copy
 - Access
 - Erase
- If somebody in your team has acquired some data, it must be reported within 72 hours
- Protocol everything! Even when if you share data from one team to another and especially international consultants

Obtain a dataset that is already anonymised, don't do it yourself

Privacy shield... not really.

- Obtain agreement for processing and AI (some might be ok with data collection but not with automated decision making)
- Protocol each data processing activity (DP Paper)
 - Who, Why, What, When, How
 - Data Input
 - Data Output
 - Visual Output
- Use
- Statistical and scientific analysis are not covered by the regulation

Obtain a dataset that is already anonymised, don't do it yourself

Anonymous may not be enough

- More than one elements to profile user
 - Location
 - A series of geolocated traces
 - A picture of him/her
 - Purchasing behaviours

Data is the new oil

- Don't waste it or use more than you need
- Limit extraction and processing
- The more it's processed the less valuable is the result
- Storage is risky and expensive
- Defend it

Even though you have legal permission for data
retrieval and analysis
when it contains personal information it is still
relevant to raise the ethical issues of mining massive
amounts of data designed to be personally identifiable.

Community rules

Instagram, Facebook, Foursquare, VK etc.

The Moscow Times
INDEPENDENT NEWS FROM RUSSIA

≡ NEWS OPINION BUSINESS MEANWHILE ARTS AND LIFE PODCASTS VIDEOS IN-DEPTH MOSCOWLIVING

Russian Social Network Vkontakte Sues Data Mining Companies

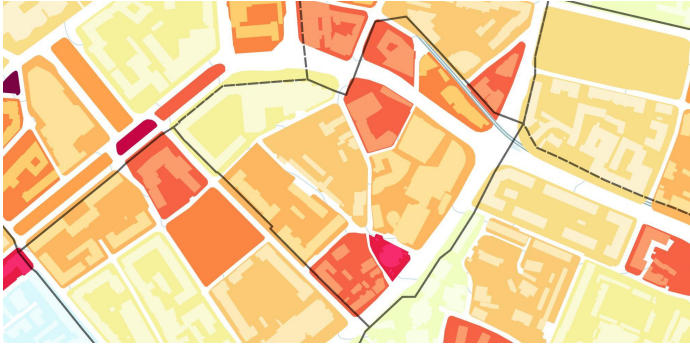
Double Data collects information on users' place of work, study, and friends from their social media page in a bid to compile a credit history, according to court documents. The company mines this publicly-available data without permission from Vkontakte or the users' themselves.

Vkontakte claims that Double Data's work slows the speed of their site, and is demanding symbolic compensation of one ruble (\$0.02).

Start from well established definitions,
theories or approaches that many
recognize



Small blocks



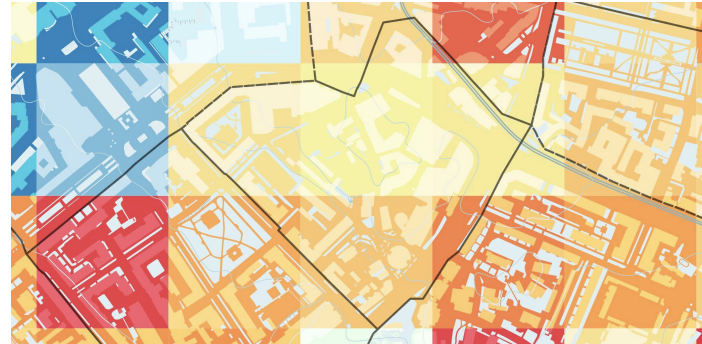
Mixed uses



Aged buildings

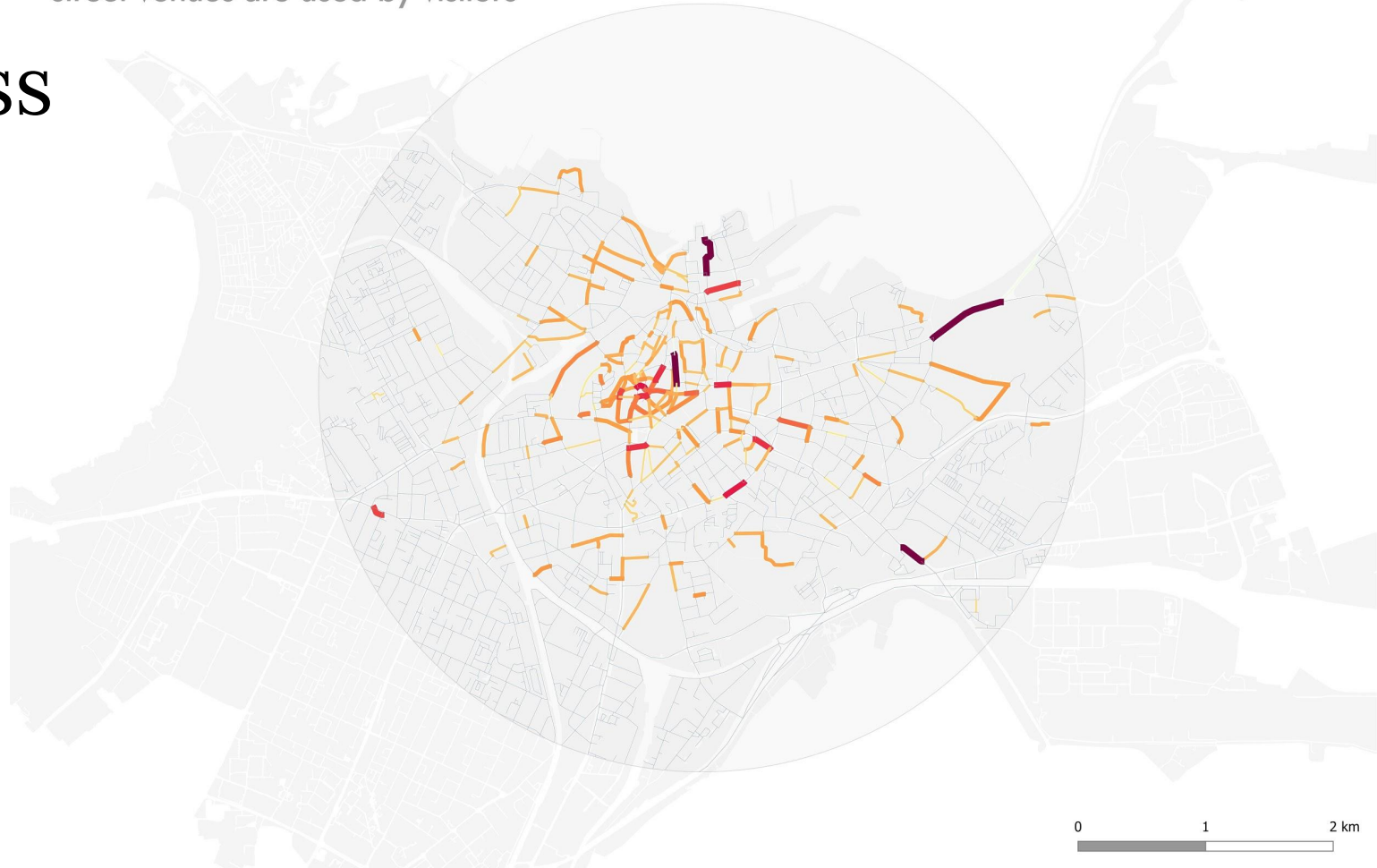


Concentration



Liveliness: Average time per week when
street venues are used by visitors

Liveliness



Geh1

Optional activities

Taking a walk by the river,
jogging in the park, sun
bathing, eating out



Necessary activities

Going to work, to school,
doing the groceries



Don't map people's activities but
the location for activities



Optional

Necessary

Leisure

Mobility

Income

Social

Consumption

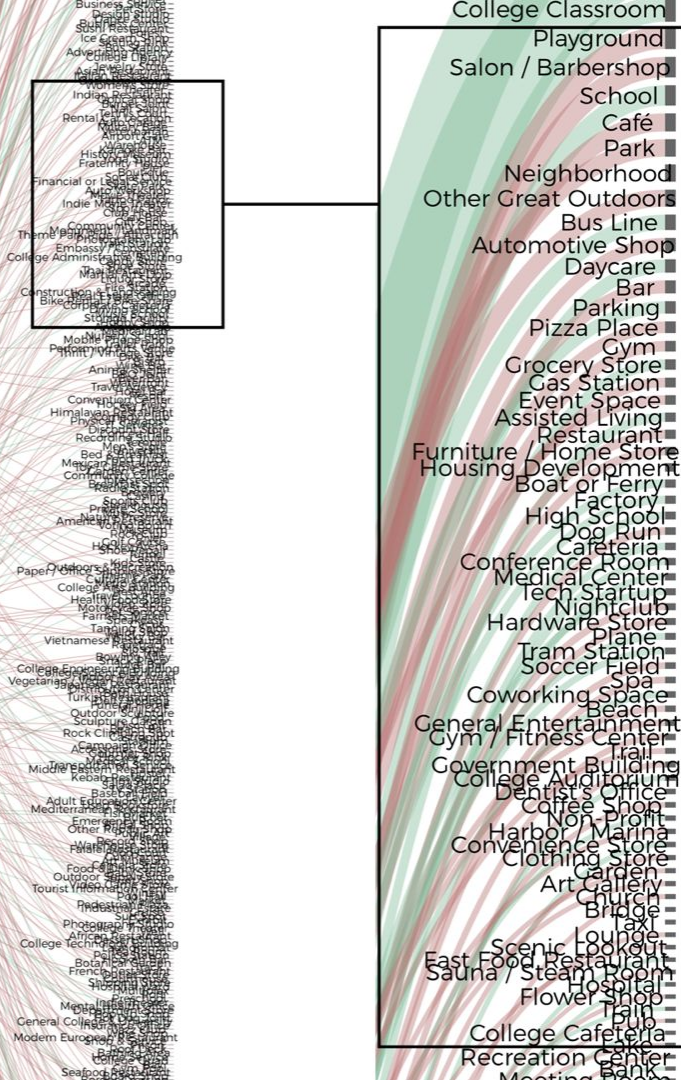
Personal Care

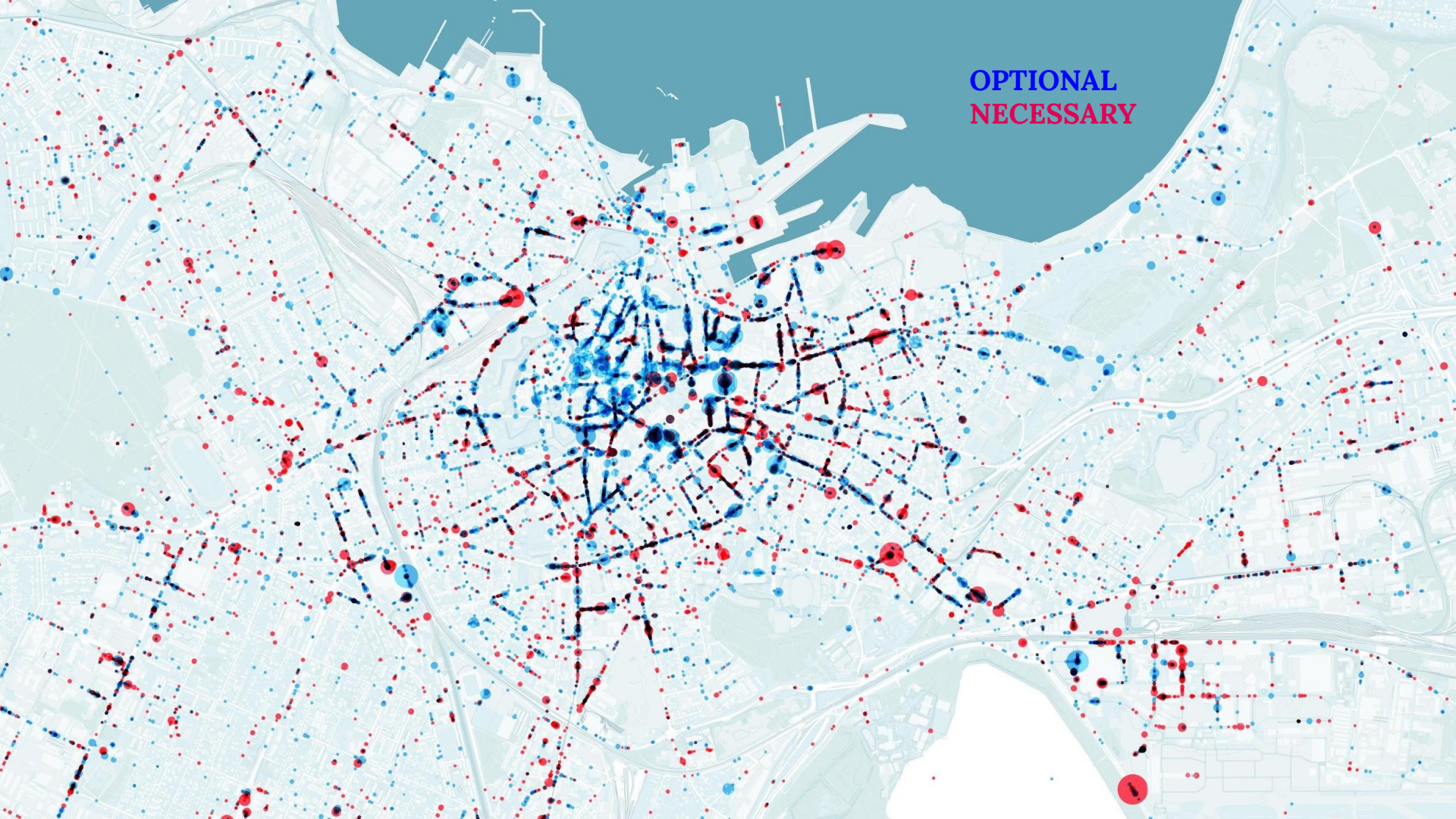
Education

Nutrition

Taking Care

Civic



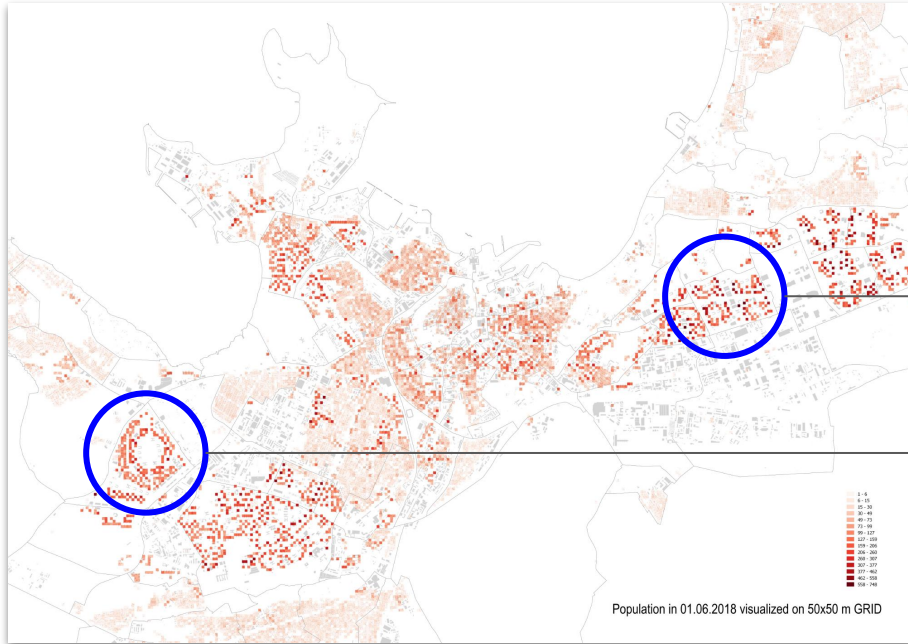


OPTIONAL
NECESSARY

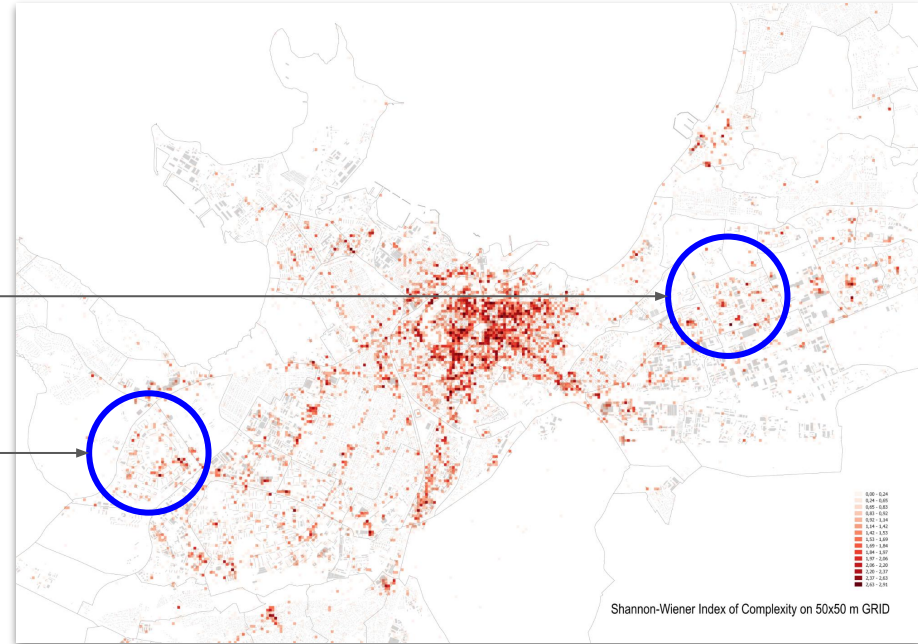
City of Tallinn

Most densely populated area offers minimal diversity of services

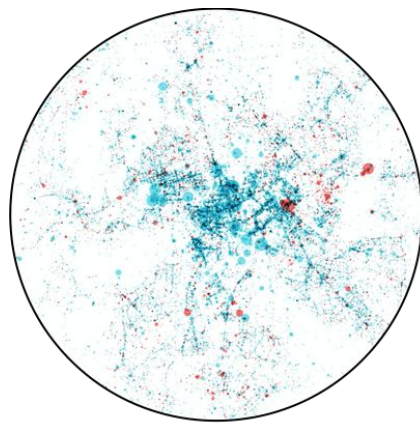
Moderns planning favours one big shop than many and diverse



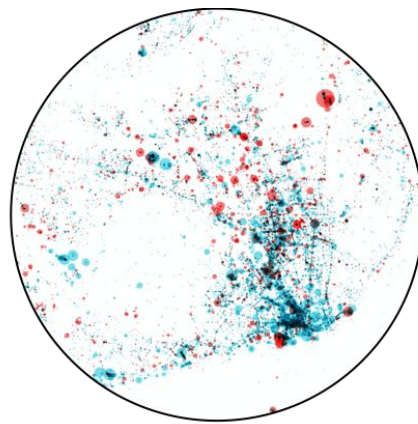
Population **density**



Diversity of services



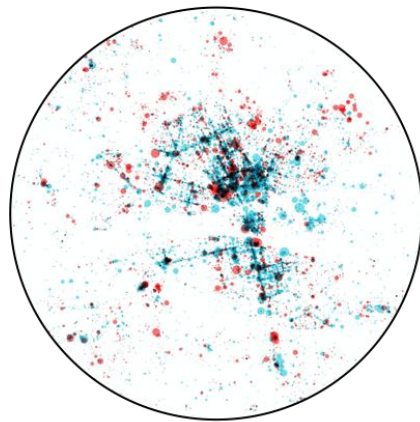
Rome



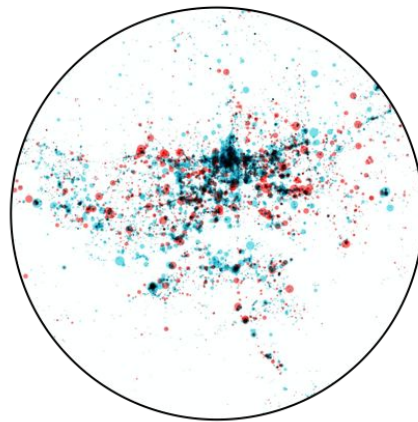
Lisbon



Amsterdam



Stockholm



Zagreb



Dublin

Monitoring drivers of urbanisation

	HEL April	HEL Sept	Hel /pop	Stockholm	Stock /pop	Copenhagen	Cop /pop
Food	7,94	6,53	4,0	8,33	4,3	8,50	5,3
Coffee	4.75	4,67	2,9	4,46	2,3	5,27	3,3
Art + Entert	7.56	7,54	4,6	7,14	3,7	7,89	4,9
Supermarket	2.57	2,27	1,4	4,23	2,2	3,50	2,2
Food/Drink store	4.57	4,36	2,7	5,53	2,8	5,69	3,6
Bars and clubs	7.65	7,65	4,7	6,86	3,5	7,82	4,9
Shop + service	8.59	8,60	5,3	8,23	4,2	8,61	5,4
Clothing	5.81	5,82	3,6	5,94	3,0	6,58	4,1
Sport centres	7.20	7,27	4,5	6,61	3,4	6,95	4,3
Spiritual centres	5.83	5,84	3,6	5,7	2,9	6,09	3,8

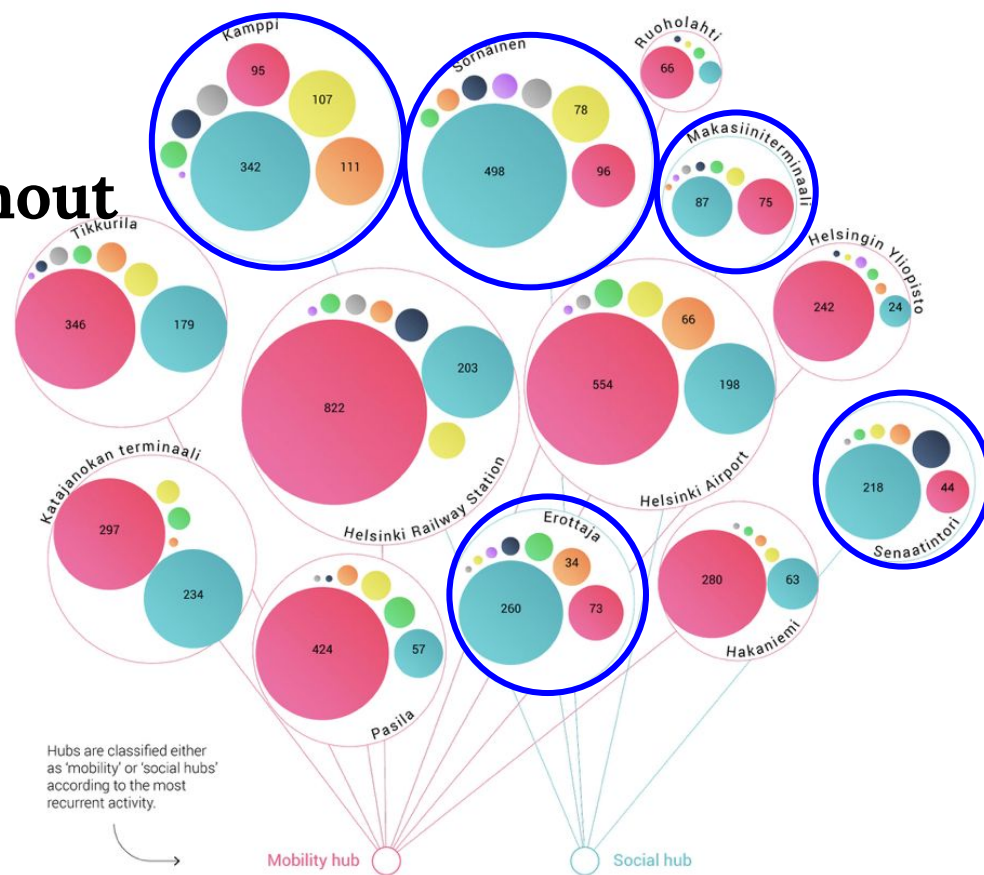
	Finland	/pop	Sweden	/pop
Food	9,63	6,4	9,93	5,0
Coffee	5,95	4,0	5,84	2,9
Art + Entert	9,42	6,3	9,21	4,6
Supermarket	3,64	2,4	4,88	2,5
Food/Drink store	5,83	3,9	7,00	3,5
Bars and clubs	10,06	6,7	8,81	4,4
Shop + service	9,89	6,6	9,56	4,8
Clothing	6,59	4,4	7,00	3,5
Sport centres	8,83	5,9	8,53	4,3
Spiritual centres	7,70	5,1	7,93	4,0

NATIONAL AVERAGE

Tells about our changing preferences without personal data

The bigger the dot
The bigger the attraction

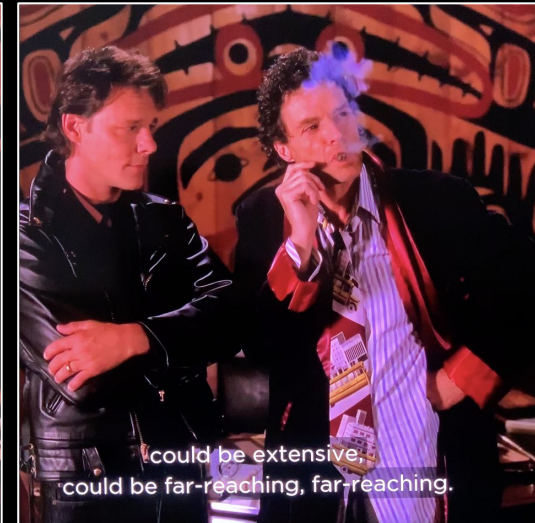
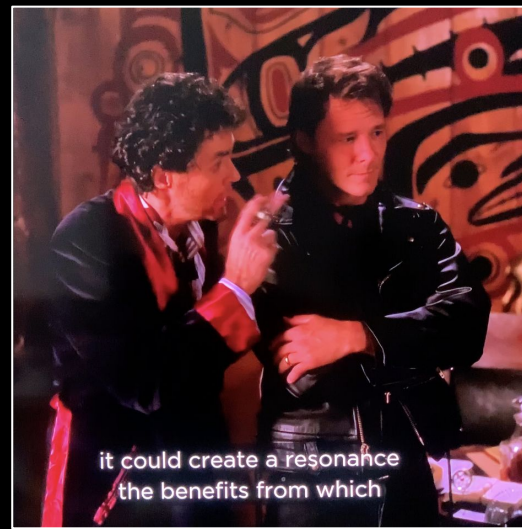
In blue, hubs where social activities are more popular than transit



Mobility Social/leisure Income Nutrition Education Civic Consumption Health

The goal of urban planning

Benjamin Horne



**You don't always need social media
to tell a good story**



Street surfaces for cars

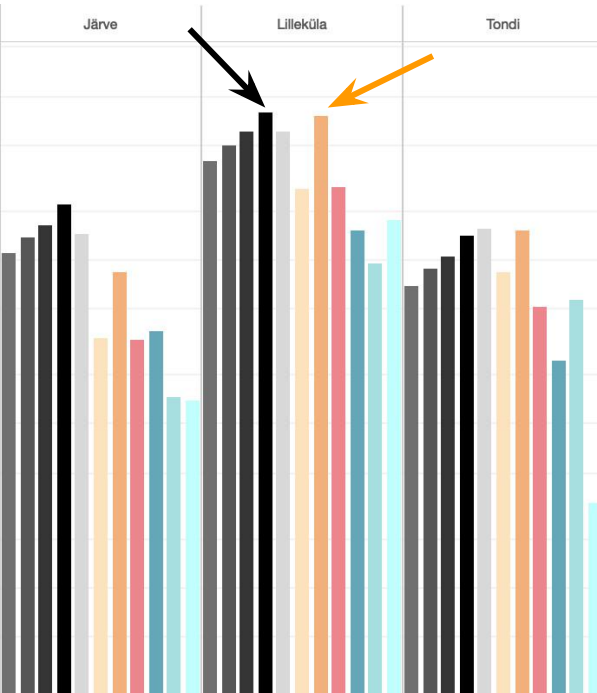
Pedestrian and bicycle surfaces

Other drivable surfaces not streets (parkings, etc)

SPIN
UNIT

There is twice the space for cars than for living and working

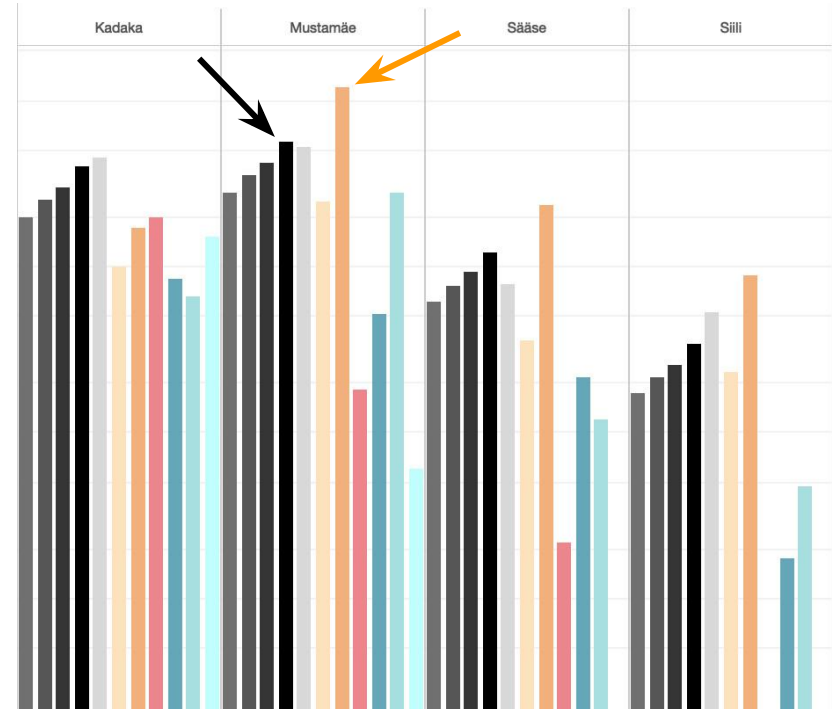
Kristiine



Measure Names

- Parking places area (20m²/pp)
- Parking places area (25m²/pp)
- Parking places area (30m²/pp)
- Parking places area (40m²/pp)
- Street network (m²)
- Pedestrian area (m²)
- Living (m²)
- Office (m²)
- Commercial and service (m²)
- Entertainment, education, health a..
- Industrial and warehouse (m²)

Mustamäe

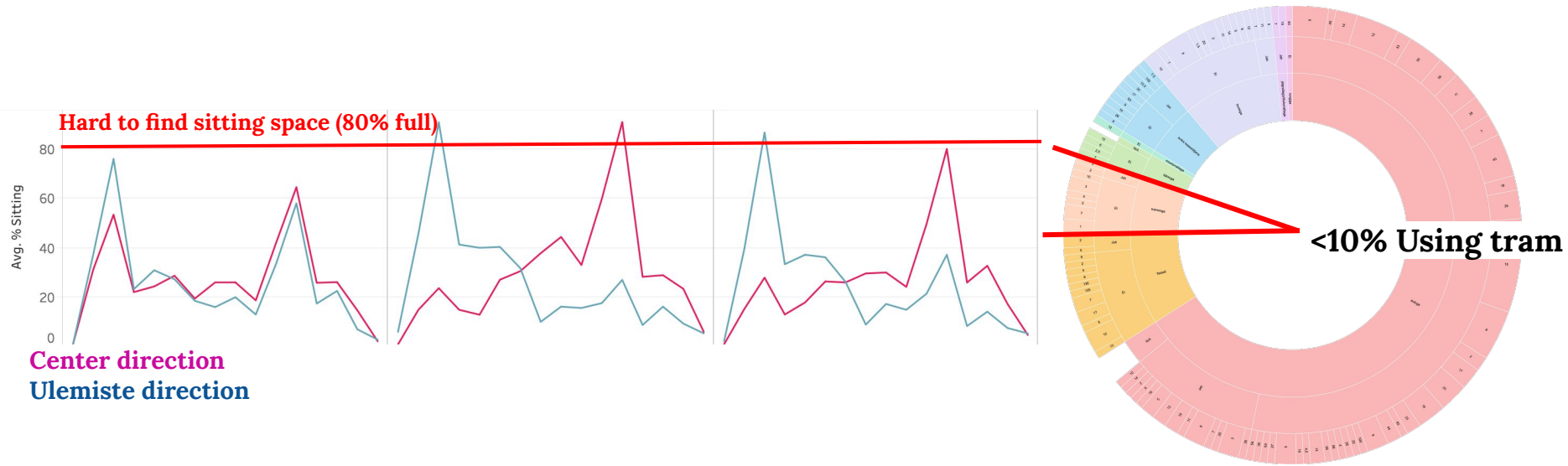


Don't use users' insights for users' behavioural nudges
(manipulating)

Use user's insights to profile space.

- Aggregate anonymous data to make it private
- Don't aggregate different data traits of a single user to avoid profiling

Compare one users' insight with one environmental index at the time

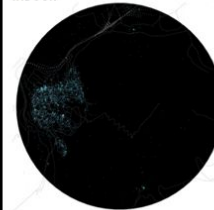




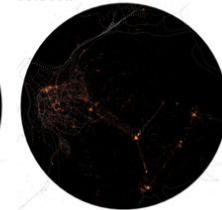
SPIN Unit | The hidden life of 31 Russian monotonous
Maps section 2 //

Profile the environment

INDOOR



OUTDOOR

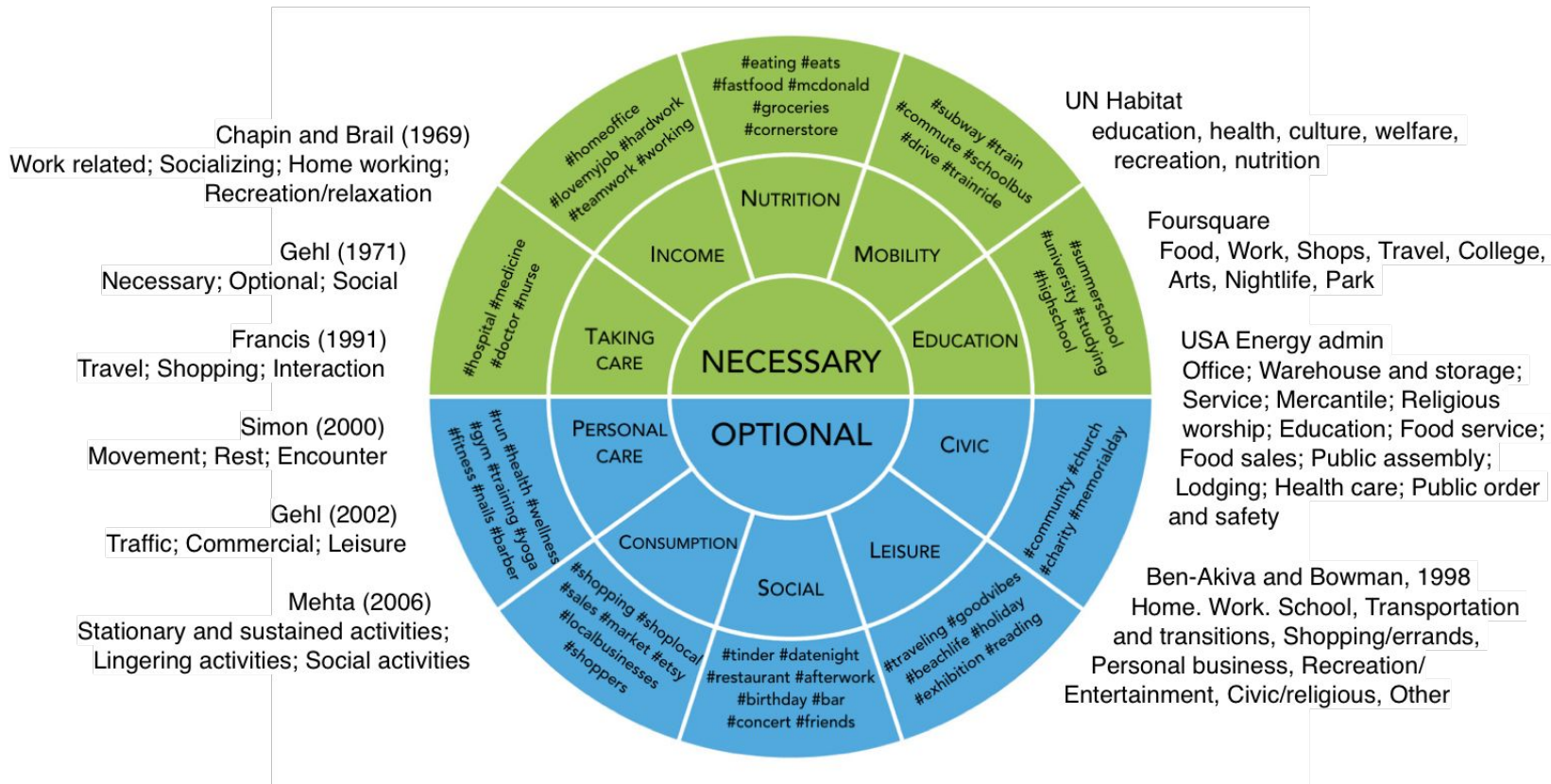


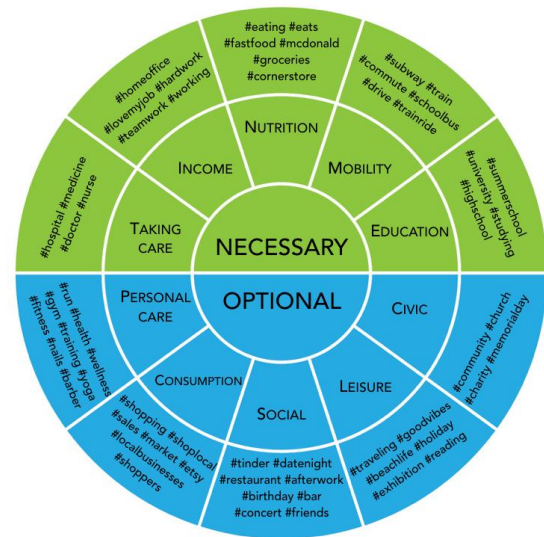
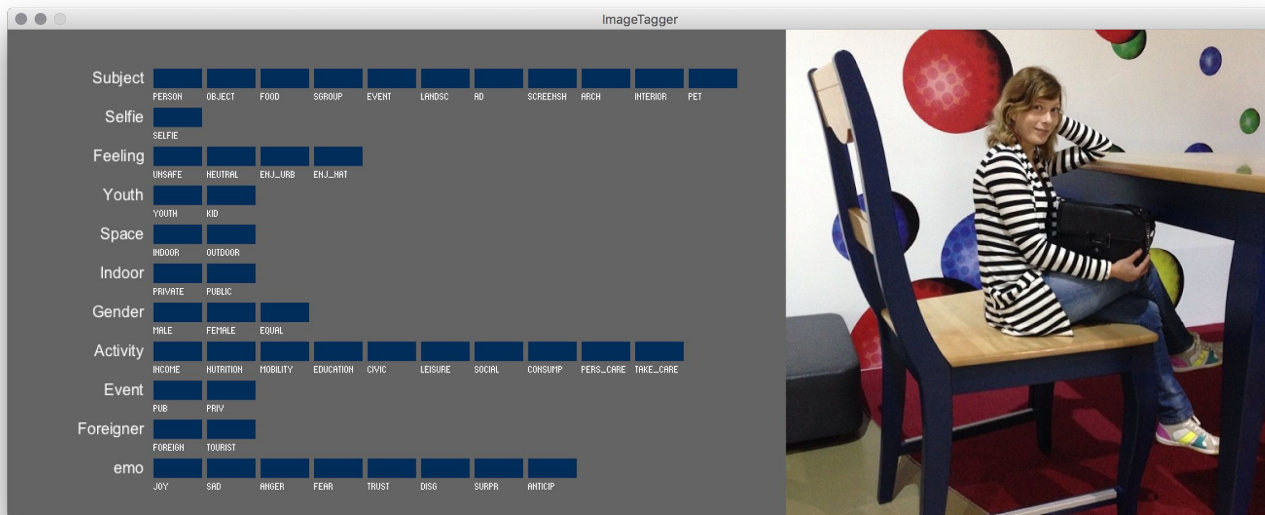
→ KIROVSK

SPIN activity wheel

(Cerrone, Lopez, Lehtovuori; 2018)

Categorising data for human experience





- Erase UDI and use Picture ID instead
- Surveyors and data analyst should not be capable to be aware to know if two different images belong to the same user
- Each surveyor studies 200 pictures at the time. A script produce the subset randomly so that one surveyor doesn't have consecutive pictures from the same user

QUICK FACTS

1931
Establishment

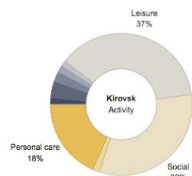
26,97K
Population
2016

28,62K
Population
2010

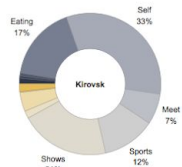
4,4 %
Unemployment
2015

54 745 RUB/MO
Average salary
2015

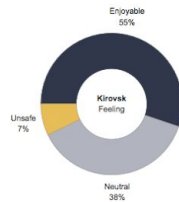
Activities manually tagged



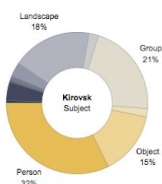
Activities machine learning



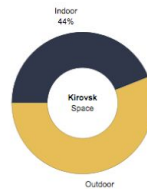
Quality of place



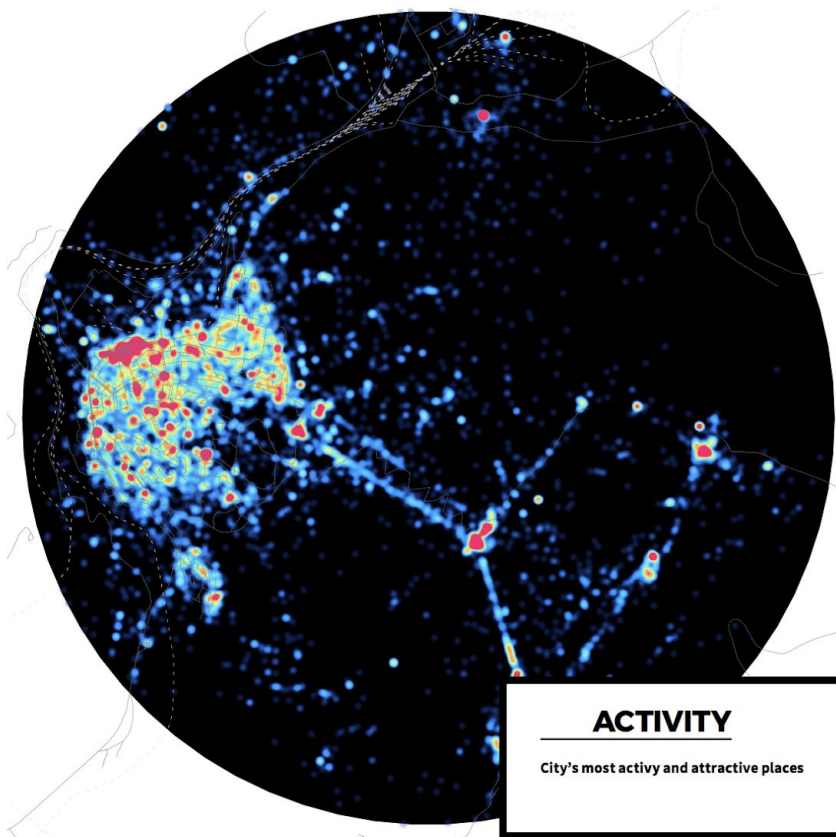
Picture subject



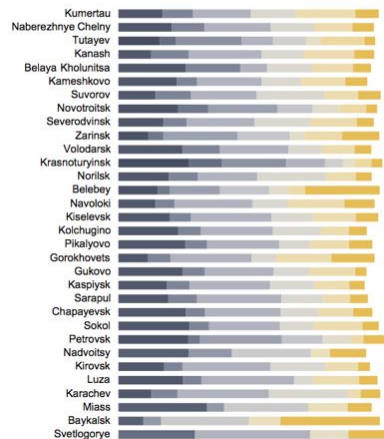
Indoor/Outdoor



Youth & Families with kids



Deduced by the variety of activities, not user's experiences



QUALITY OF LIFE

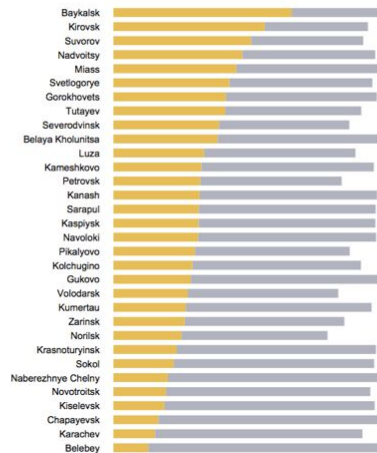
One of our main challenges was understanding the quality of life in the 32 cities without having any economic or demographic indicator to start with. Therefore we conceptualized a measure of the quality of life according to the number of activities occurring in one city and their distribution. So one city offers a better quality of life not only when there are many activities but when these are more evenly distributed.

The graphs show, from top to bottom, the cities with a higher number of activities that are also more evenly distributed.

The more one city is at the top, the more vibrant and various is its life.

$(\text{Number of activities} / \text{max number of activities between all cities}) \times (\text{max variance of activities values for all cities} / \text{variance of the activities values of one city})$

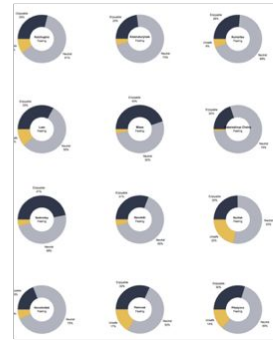
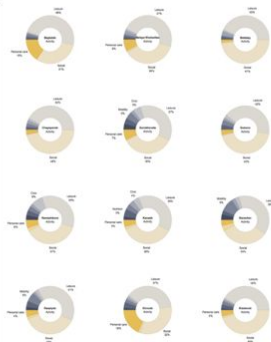
Observed by digital anthropologists, not from user's texts and comments

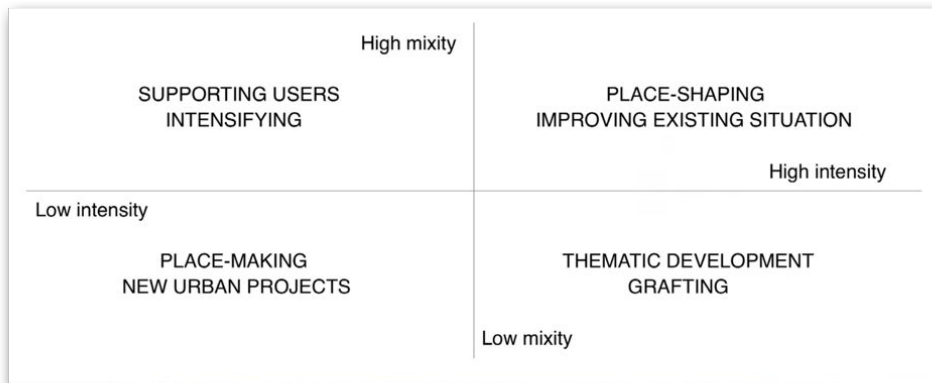


QUALITY OF PLACE

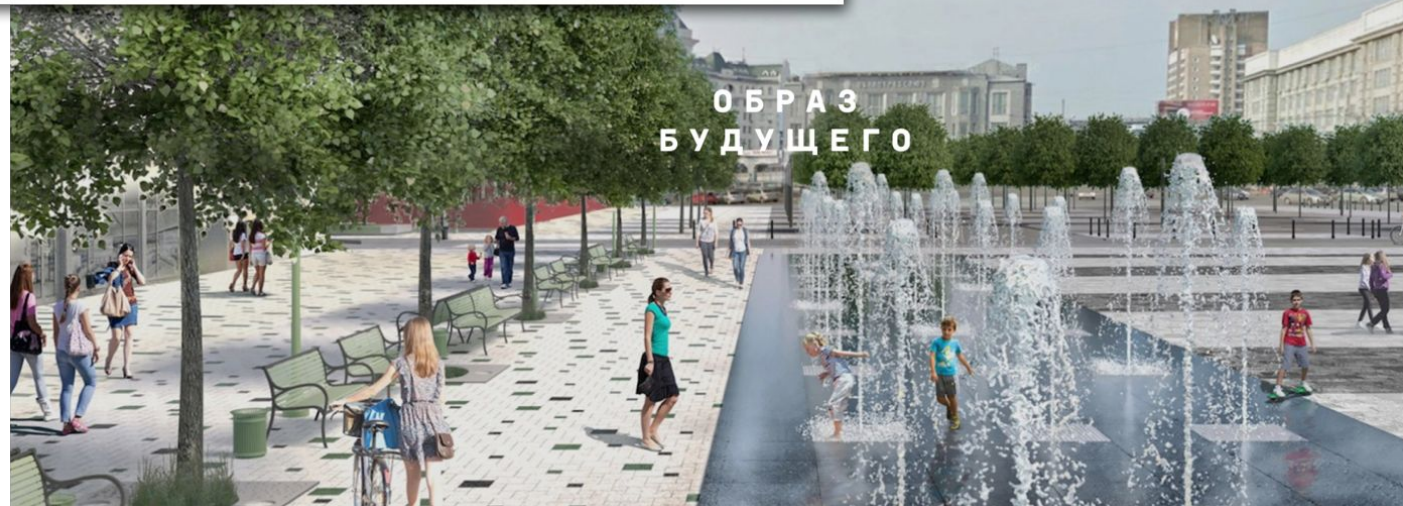
The graph shows the amount of enjoyable place against the amount of neutral places found in each city. The higher one city is represented in this graph, the more quality spaces it offers.

enjoyable
neutral



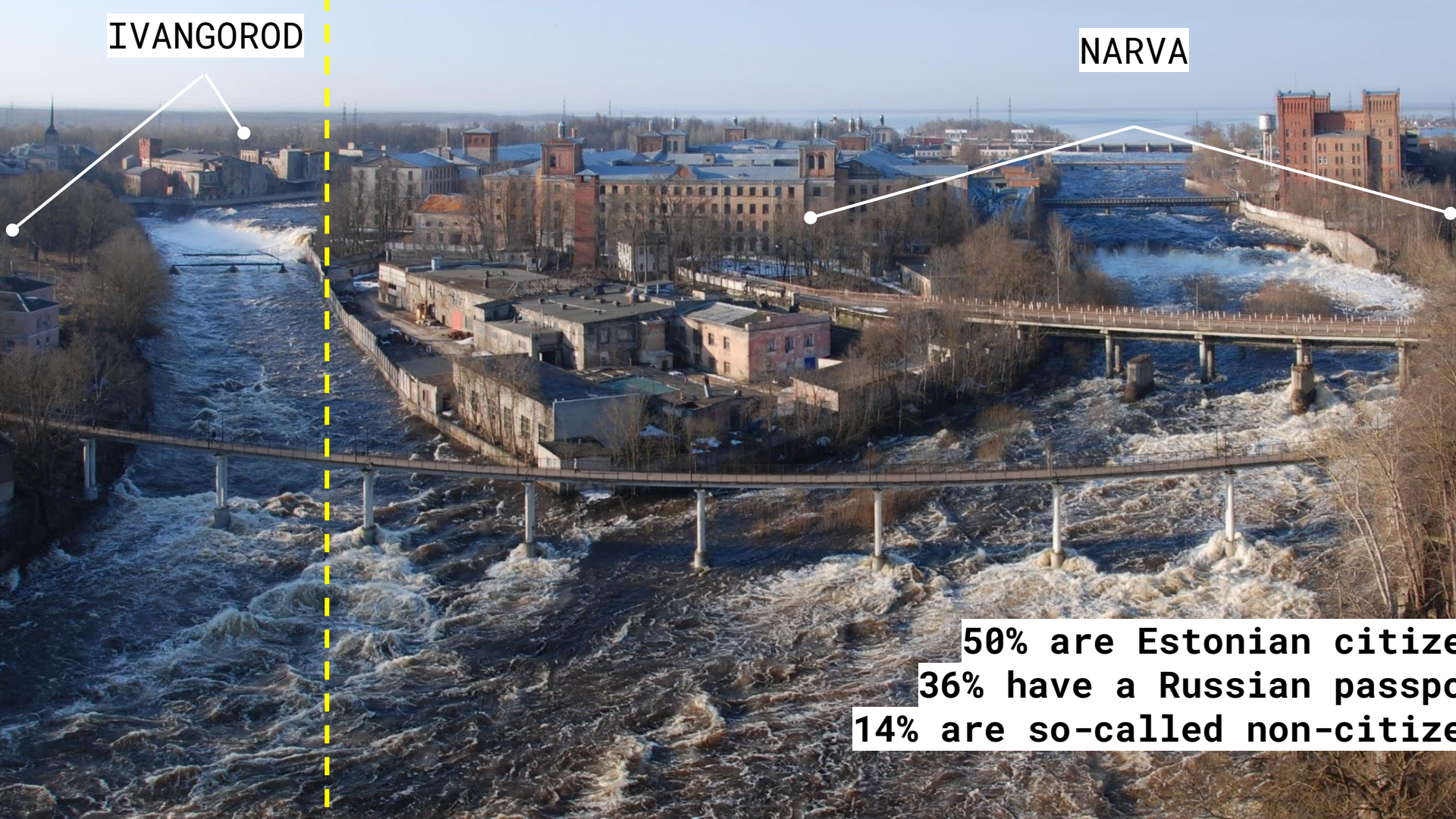


Space is profiled and
space is designed



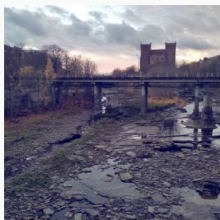
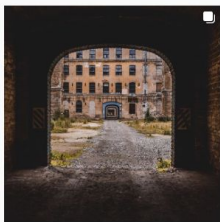
IVANGOROD

NARVA

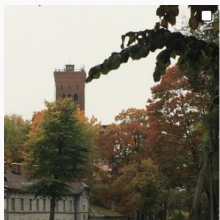


50% are Estonian citizens
36% have a Russian passport
14% are so-called non-citizens

Top posts

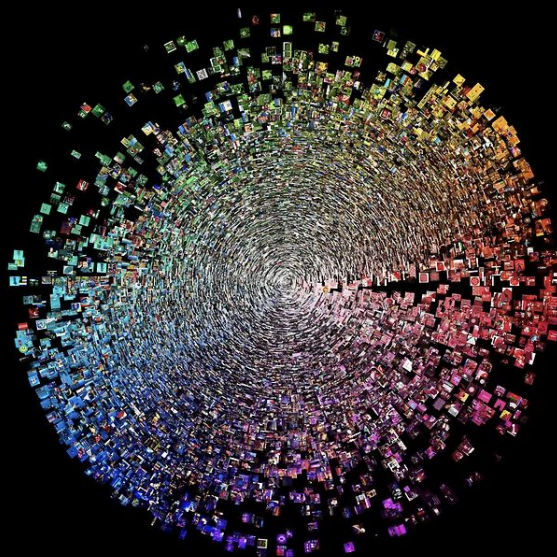


Most recent

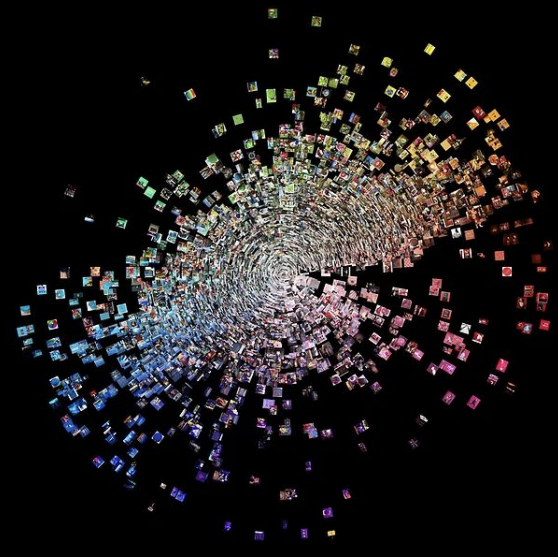


Cultural branding

Collective landscape of the city



NARVA

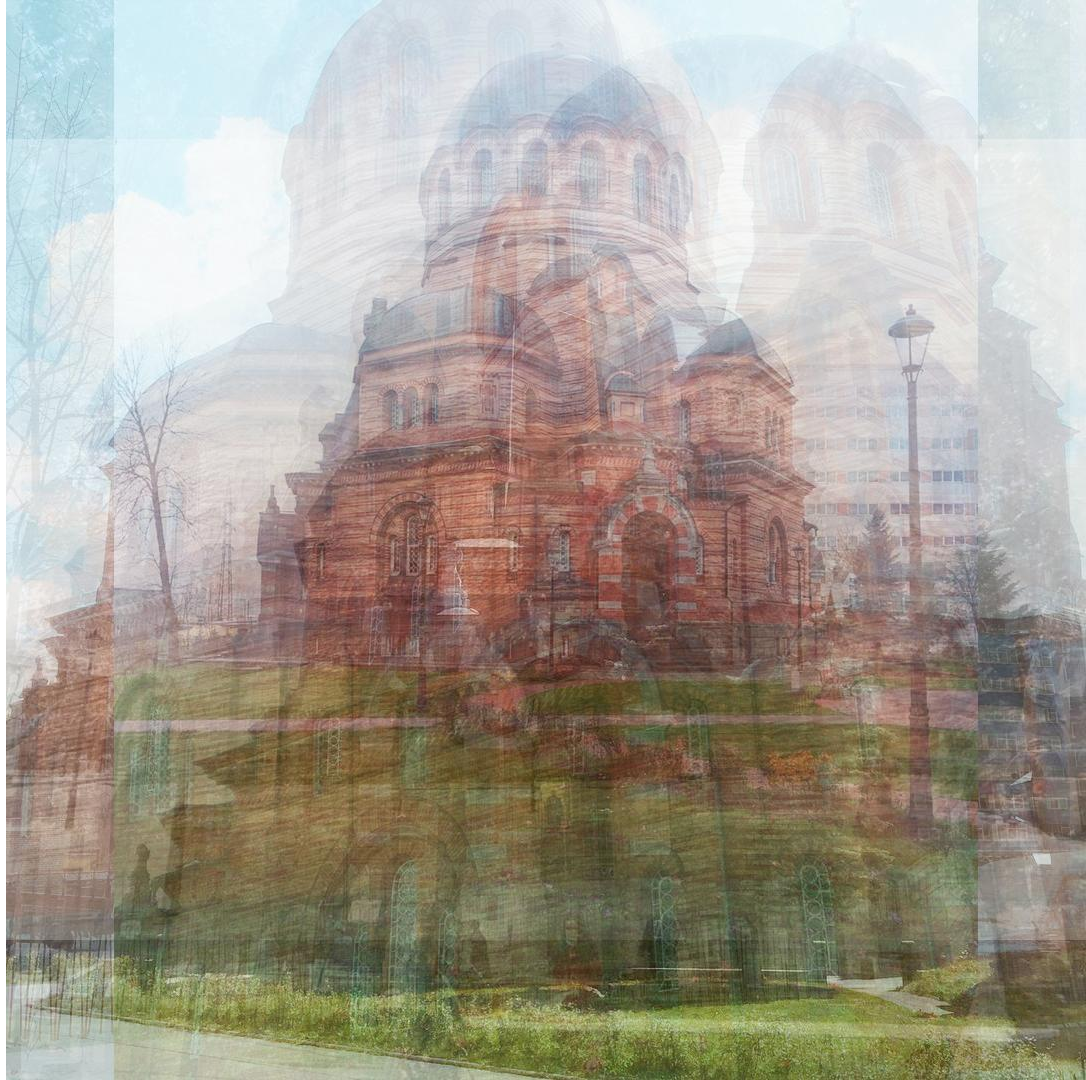


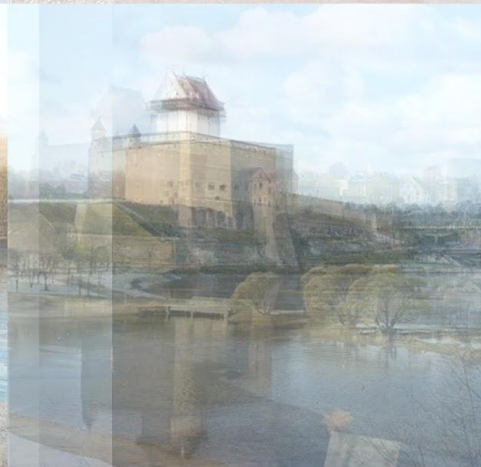
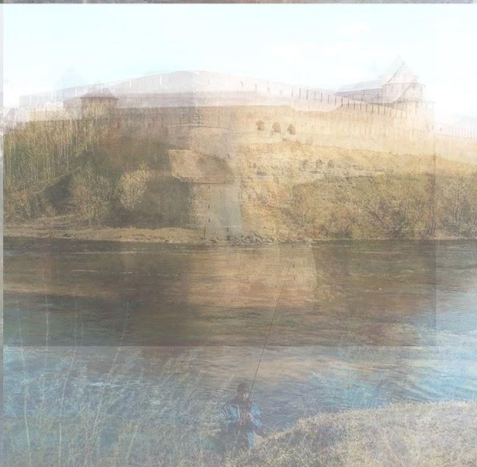
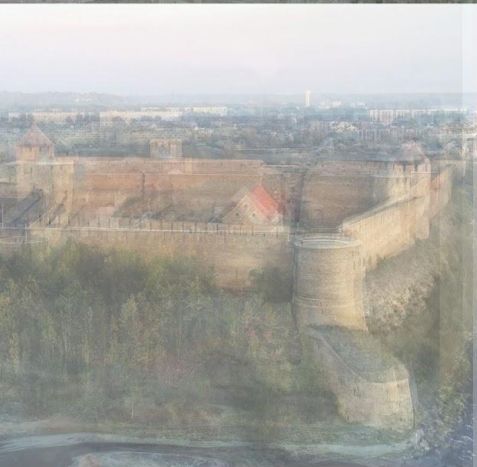
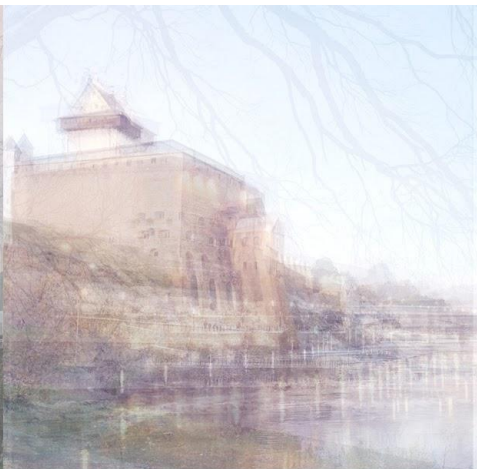
HAPBA

Industrial landscape



Cultural landscape





6Aika

Leverage from
the EU
2014–2020



WHAT IS 6AIIKA? ▾ PROJECTS RESULTS SIX CITIES ▾

CONTACT US FI 🔍

**Smart Cities
Work Together**



Using open data to establish a dominant position in sustainable urban development, connectivity and governance

City's networks generate self-reinforcing loops of data production and management

Helsinki
Vantaa
Espoo
Tampere
Turku
Oulu

Leverage from
the EU
2014–2020



Helsinki-Uusimaa
Regional Council

Global Data Index
Finland is 5th in the world
6Aika are the top 6 cities in Finland

Making better use of public data in the Helsinki region

SEARCH

142

APIs

257 layers only for the built environment
Some data is historic → AI forecasting

[SHOW MORE](#)[illegible][illegible]

ECONOMY AND TAXATION

Impacts of Finance of Government, Joint Institutions, Social Insurance, Budgets, Investments, Decisions, expenditures, economic indicators, operating expenses, accounting of fixed assets, profit and loss accounts, monetary control and financial management, tax revenue, company tax, income tax

Data

[Download data](#)
[Comparative analysis of National Accounts](#)
[Investing and saving](#)
[Investment by type of State](#)
[Procurement of Publicly, Extern, Internal and External](#)

Applications

[The impact of financial management on the economic development of the country](#)
[The impact of financial management on the economic development of the country](#)
[The impact of financial management on the economic development of the country](#)

Visuals

[Visuals in Finance of Government](#)
[Visuals in Finance of Government](#)
[Visuals in Finance of Government](#)

[illegible]



CULTURE AND RECREATION

[Library services](#)
[Archives](#)
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Applications





The [Library of Congress](#) is a valuable application for the [Library of Congress](#) website. The [Library of Congress](#) website is the online catalog of the [Library of Congress](#), which contains information on the [Library of Congress](#) and its collections.

[Library of Congress](#) is a valuable application for the [Library of Congress](#) website. The [Library of Congress](#) website is the online catalog of the [Library of Congress](#), which contains information on the [Library of Congress](#) and its collections.

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HOUSING

Holdings, housing prices, number of rooms, average size of dwellings, purpose of use, housing production
 type of dwelling, construction, rental, dwellings, number of persons, dwelling density

Data

Sweden, Stockholm & East
 Sweden, Stockholm, Malmö &
 Gothenburg
 Housing production in 14 Swedish
 municipalities
 Rental housing of Malmö;
 Housing
 Residential Network of Vienna
 Vienna & Vienna Region

Applications

The
 Housing Market Overview
 Map
 The
 Housing Market Overview
 Map
 The
 Housing Market Overview
 Map

and a lot more... [Click](#)

[illegible]

The screenshot displays the 'HEALTH AND SOCIAL SERVICES' website. The header includes a navigation bar with links like 'Home', 'About us', 'Contact us', 'Services', 'Partners', 'News', 'Publications', 'Research', 'Training', 'Events', 'Jobs', 'Feedback', and 'Help'. The main content area is divided into two columns. The left column, titled 'Data', features a section for 'Health and Social Services (HSS) 2018' with a list of reports and a 'Download all reports' link. The right column, titled 'Applications', features a section for 'Talentmanagement merket karriere' with a list of reports and a 'Download all reports' link. Below these, there are two sections: 'Health and Social Services (HSS) 2018' and 'Health and Social Services (HSS) 2018', each with a list of reports and a 'Download all reports' link. The bottom of the page contains a footer with 'Health and Social Services' and '© 2018'.

[illegible]

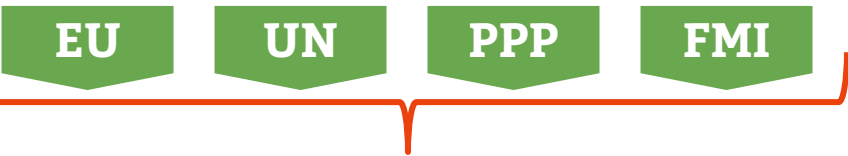
832 possible applications of which 83 implemented



Source:
City of Helsinki 3D experts

PRODUCTION

Demographics	3D model	Mobility	Migration
Environment	Culture	Maintenance	Ownership
Education	Construction	Energy usage	Income
Household stats	Jobs	Health	Tenders
Infrastructures	Pop surveys	Governance	Photo archive
Tourism	Pub registries	Traffic model	Ortographoto



CITIES

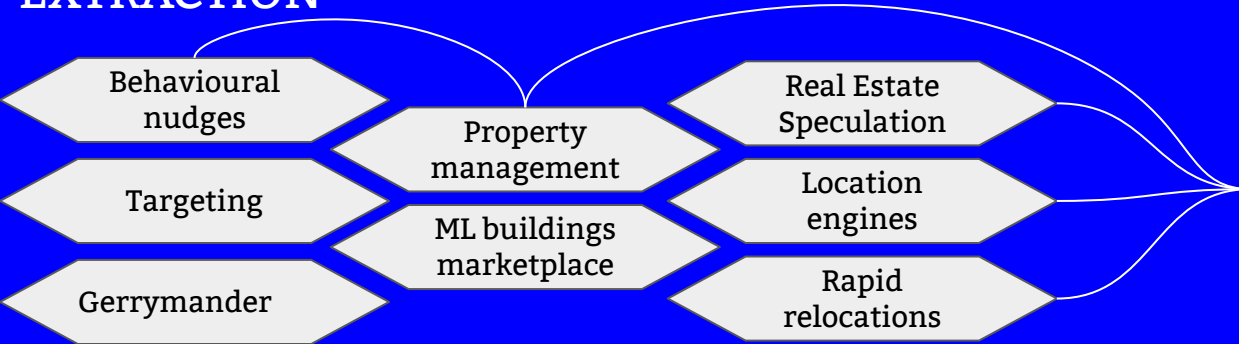
Data gathering
Digitalisation

Harmonisation

API

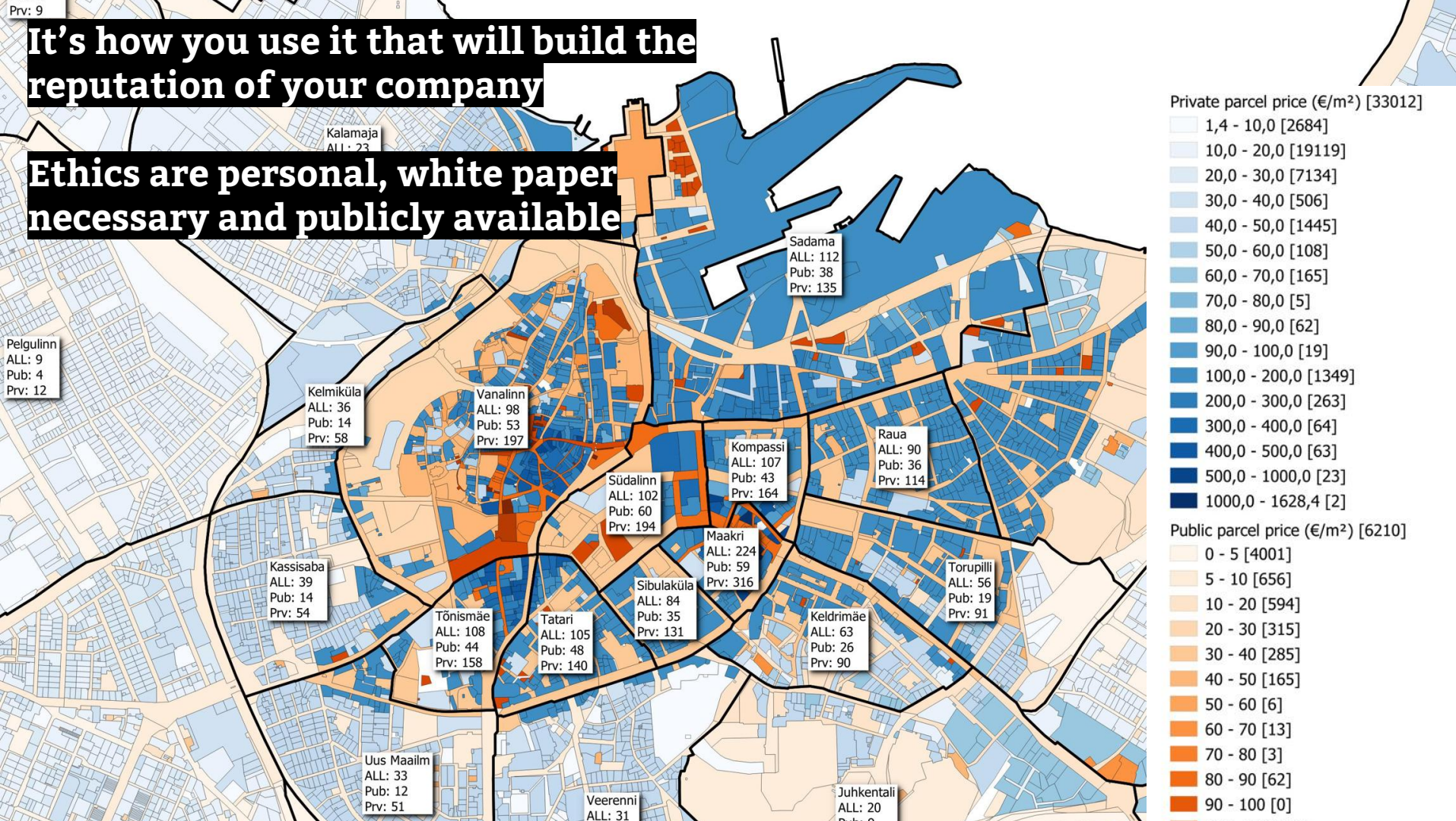
AI

EXTRACTION



It's how you use it that will build the reputation of your company

Ethics are personal, white paper necessary and publicly available



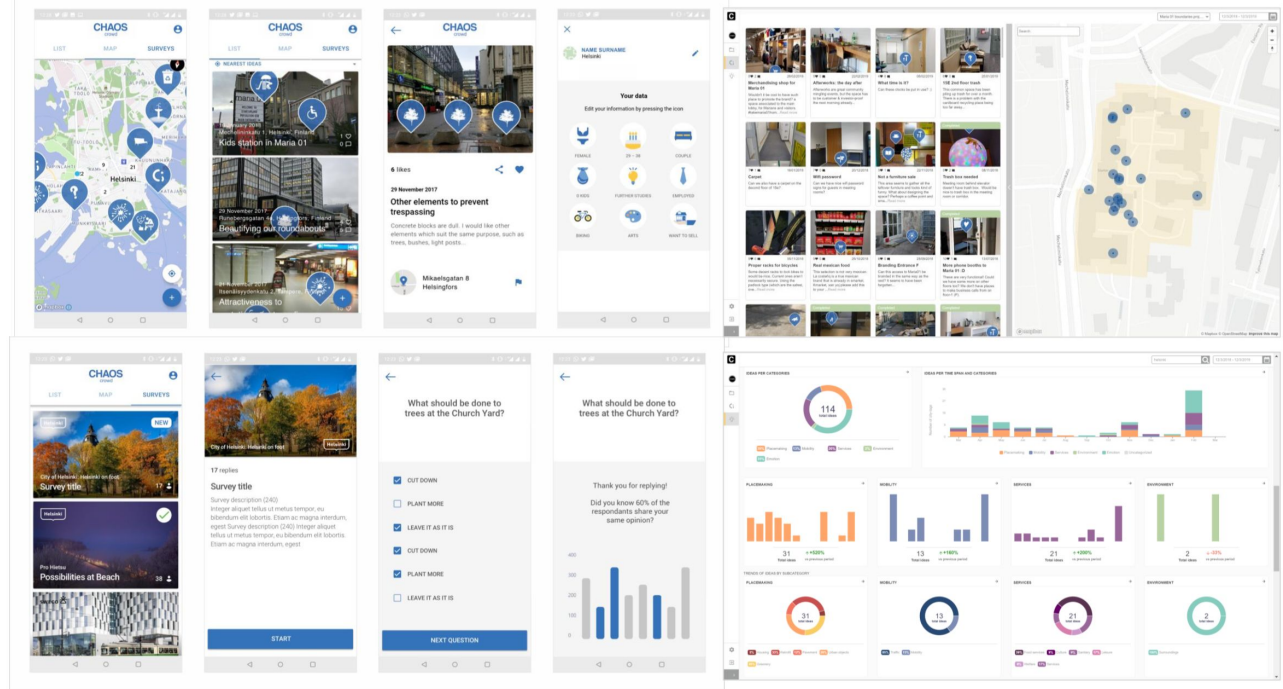
“I’m tracking the car not the driver”

Empowering citizens through digital engagement



CHAOS crowd
Your city reimaged!
CHAOS architects Oy

Free



CHAOS

Let cities store the data

Who is collecting data?

Collector for ArcGIS

Overview

Resources

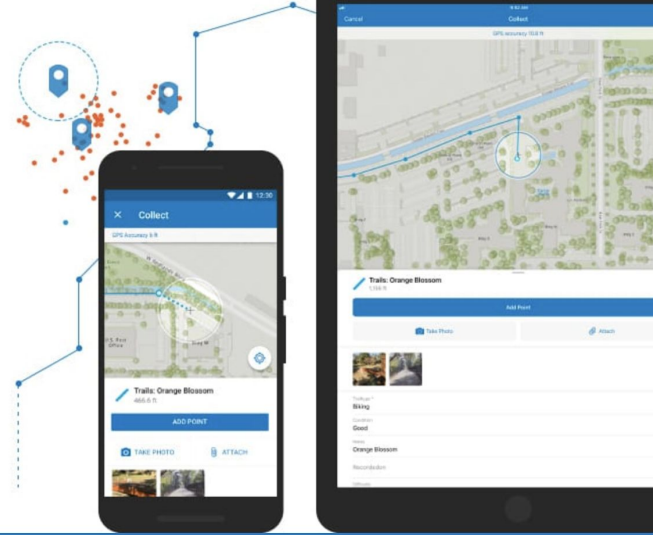
Free Trial



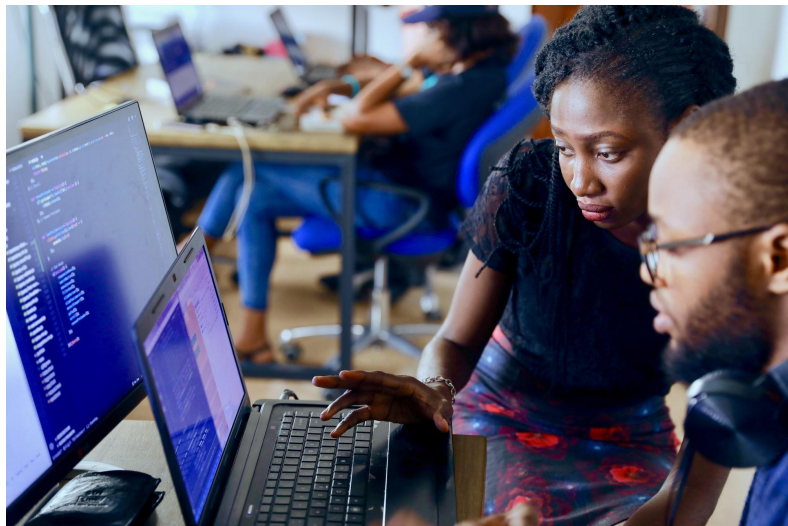
Collector

for ArcGIS

Accurate data collection made easy



Who is collecting data?



**Code for Africa**
Africa's Largest Civic Technology + Open Data + Data Journalism Initiative
📍 Africa 🌐 <https://codeforafrica.org> ✉ hello@codeforafrica.org Verified

📁 **Repositories** 153 📦 Packages 👤 People 2 📁 Projects

Grow your team on GitHub
Dismiss
GitHub is home to over 40 million developers working together. Join them to grow your own development teams, manage permissions, and collaborate on projects.
[Sign up](#)

Pinned repositories

**HealthTools.KE-theStarHealth**
HealthTools is a suite of data-driven web and SMS-based tools that help citizens check everything from medicine prices and hospital services, to whether their doctor is a quack or not. The toolkit ...
🟡 JavaScript ★ 17 🗲 15

**GotToVote**
GotToVote is a toolkit of simple web and SMS services that help citizens get to the ballot box informed and ready to vote. Kenya version accessible at <https://kenya.gottovote.cc>
🟡 JavaScript ★ 120 🗲 69

**openAFRICA**
openAFRICA aims to be largest independent repository of open data on the African continent. This repo contains the primary deployment scripts and files. Accessible at <https://openafrica.net/>
🟡 Dockerfile ★ 9 🗲 4

**sourceAFRICA**
Forked from documentcloud/documentcloud
sourceAFRICA is the continent's largest repository of documentary evidence and other "actionable documents" from investigative journalists and civic watchdogs. Forked from DocumentCloud.org, and bu...
🟡 Ruby ★ 6 🗲 5

**GenderGap.AFRICA**
GenderGap.AFRICA is a tool designed to help users calculate the gender pay gap in any African country. Accessible at <https://gendergap.africa/>
🟡 JavaScript ★ 3 🗲 2

**africanCOMMONS**
africanCOMMONS is a platform to showcase re-useable tools built across Africa and the people & organisations building them. Accessible at <https://commons.africa/>
🟡 JavaScript ★ 12 🗲 7

spinunit.gitlab.io/turku/

Keep it simple

What type of data?



Space

Hillier & Hanson → Mike Batty →
Aldo Rossi → Caniggia & Maffei
→ Lesley Martin → Kevin Lynch →
Andres Sevtsuk → Sergio Porta

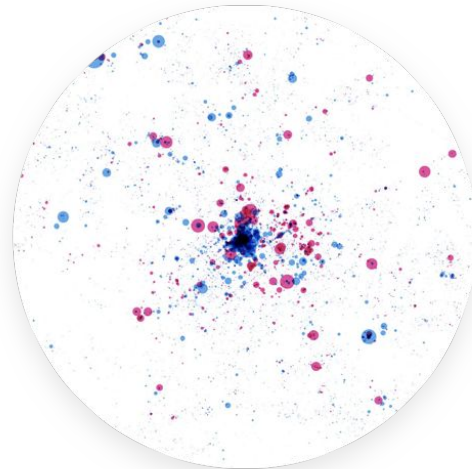
Measuring city form and
accessibility



Activities

Jane Jacobs → Christopher
Alexander → Jan Gehl → Henri
Lefebvre → Alberto Perez Gomez
→ Daniele Quercia

Measuring supply and variety
of services and activities



Values

Lav Manovich → Howard Gardner →
Richard Sennett → Shannon
Mattern → Aaron Renn → Walter
Benjamin → Richard Florida

Measuring social, cultural
and economic values

The millennial's paradigm of data driven planning

Data empowers
decision makers

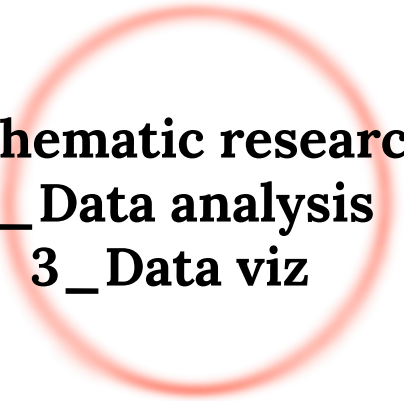
Data empowers
organisers



Open your dataset or have local activists work with you. They have different values, they will find useful applications

How to work with data

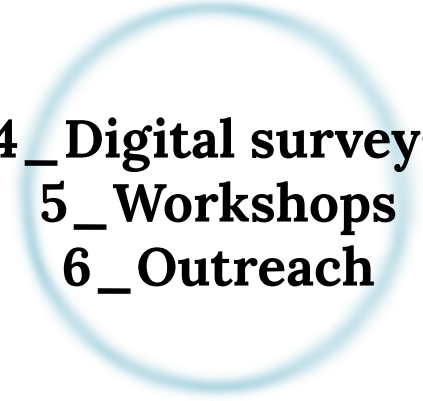
DATA

- 
- 1_ Thematic research
 - 2_ Data analysis
 - 3_ Data viz

Artificial Intelligence

QUESTIONS/CORRELATIONS

ENGAGEMENT

- 
- 4_ Digital surveys
 - 5_ Workshops
 - 6_ Outreach

Collective Intelligence

CAUSATIONS/INSIGHTS

FORESIGHT

- 
- 7_ Policy brief
 - 8_ Strategy
 - 9_ Impact

Expert Intelligence

STRATEGY



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Damiano Cerrone

@damianocerrone Follows you

Urbanist | Director at @SPINUNIT | PI at @terreformur |

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