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NOKIA Bell Labs

CUSP
LONDON

CUSP Spring Week 2018

Welcome to CUSP London

(S) 5.01

KING'S
College
LONDON



CENTER FOR URBAN
SCIENCE+PROGRESS

LONDON



Measuring the intangible

WELL-BEING

EMOTIONS

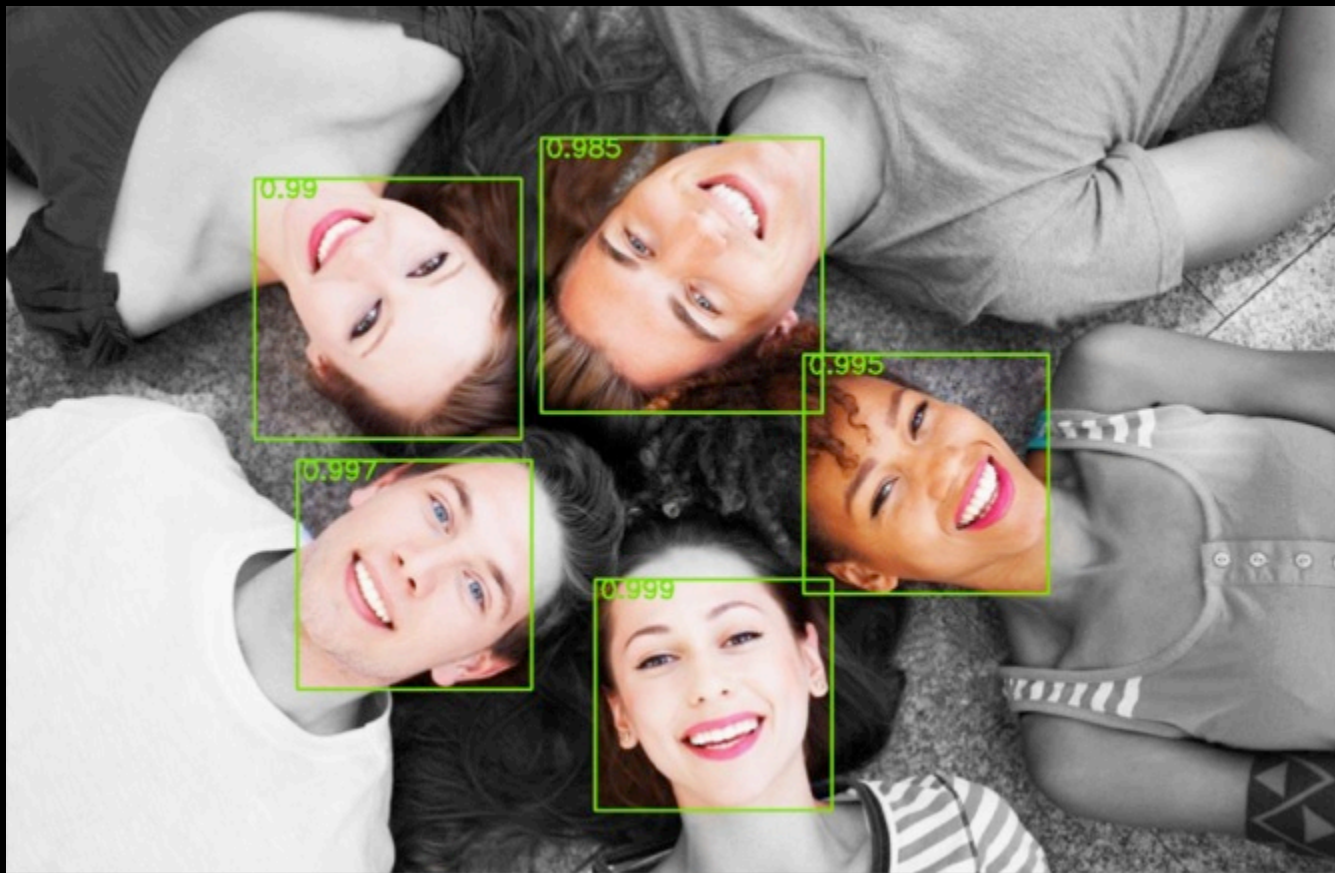
SOCIAL

SENSORY PERCEPTIONS

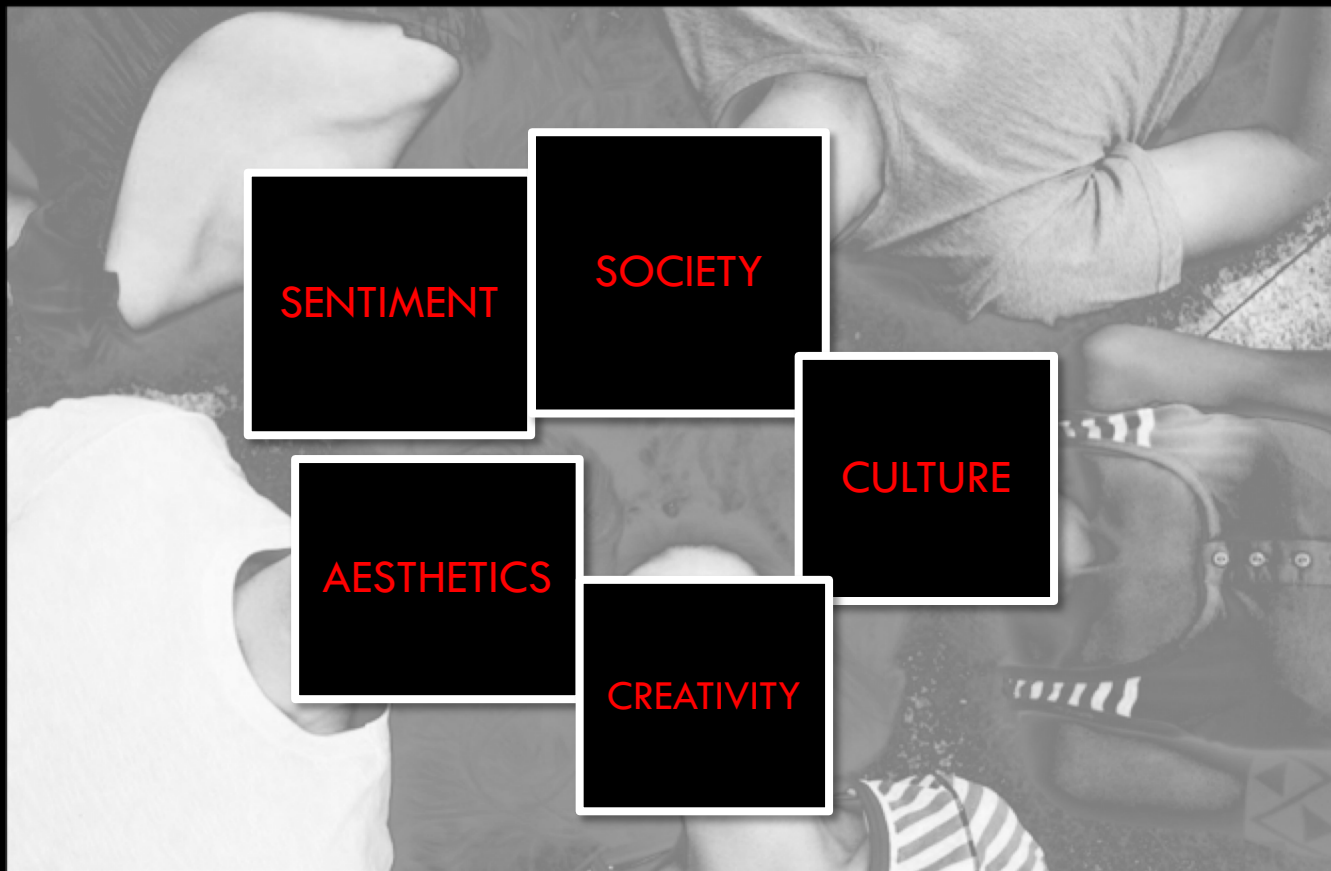
goodcitylife.org

COMPUTER VISION

VISIBLE



INVISIBLE



smart city

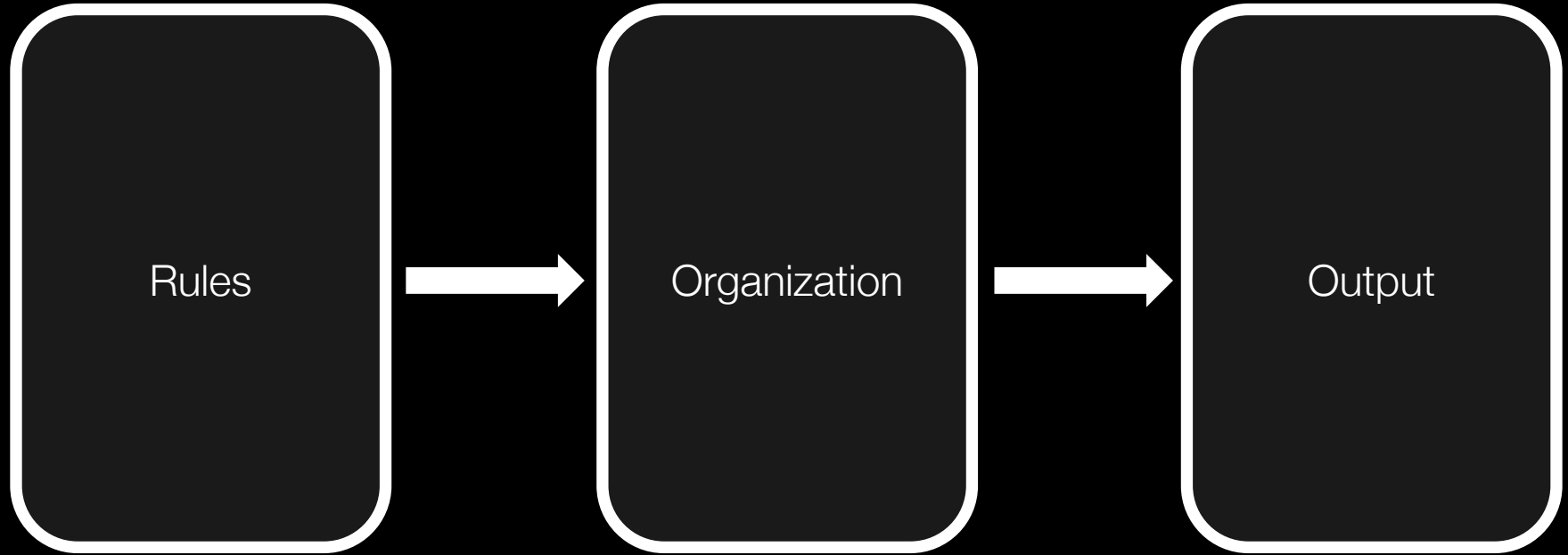


goodcitylife.org

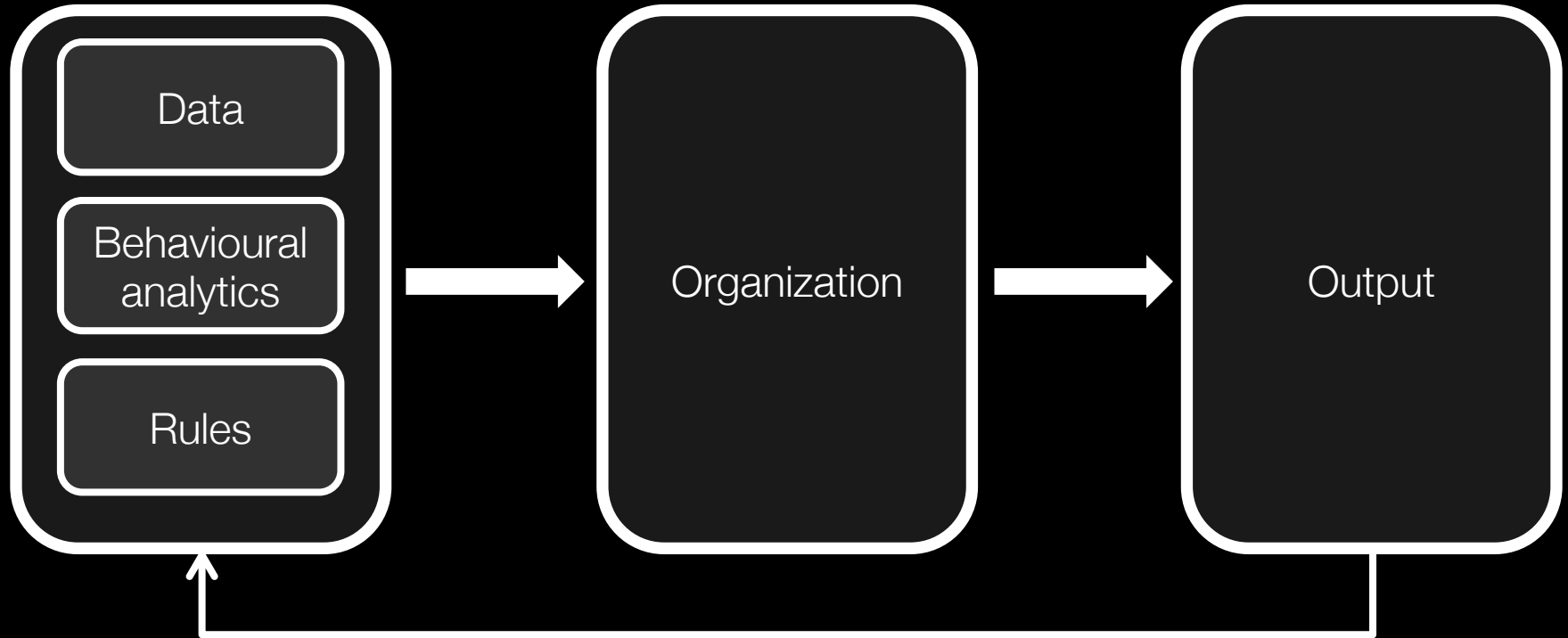
Algorithmic Regulation



Traditional organization



Algorithmic regulation



Time2change

Fast

Slow

Startup

Corporate

City





couchsurfing



Good for the
Community
Good for the City

Home Sharing
Helped
Save My Home

LET US
HOST

I SUPPORT
Short Term
Rentals

HOME SHARING
HELPED
SAVE MY
HOME

I SUPPORT
Short Term
Rentals

MY NEIGHBORS
HELPED
SAVE MY HOME

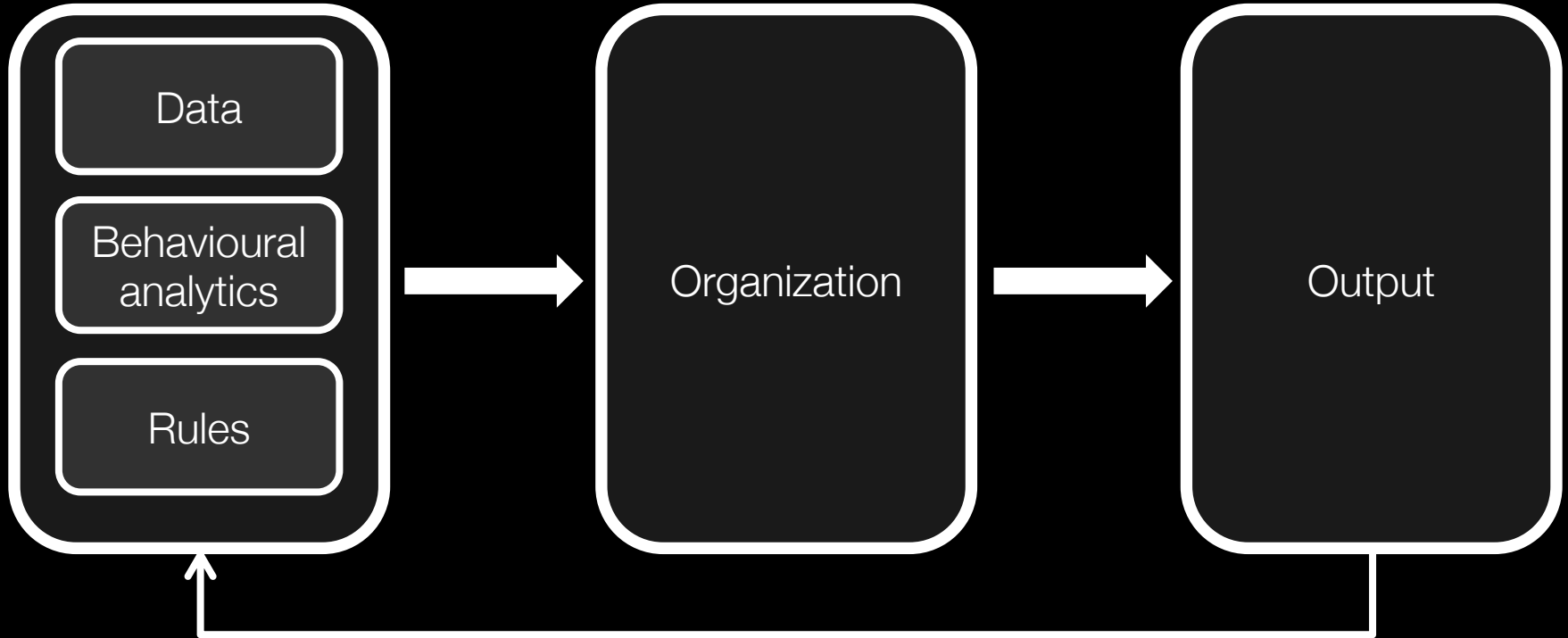
Short Term
FEED
FAM

PASS FAIR AND
PROGRESSIVE
LEGISLATION
NOW

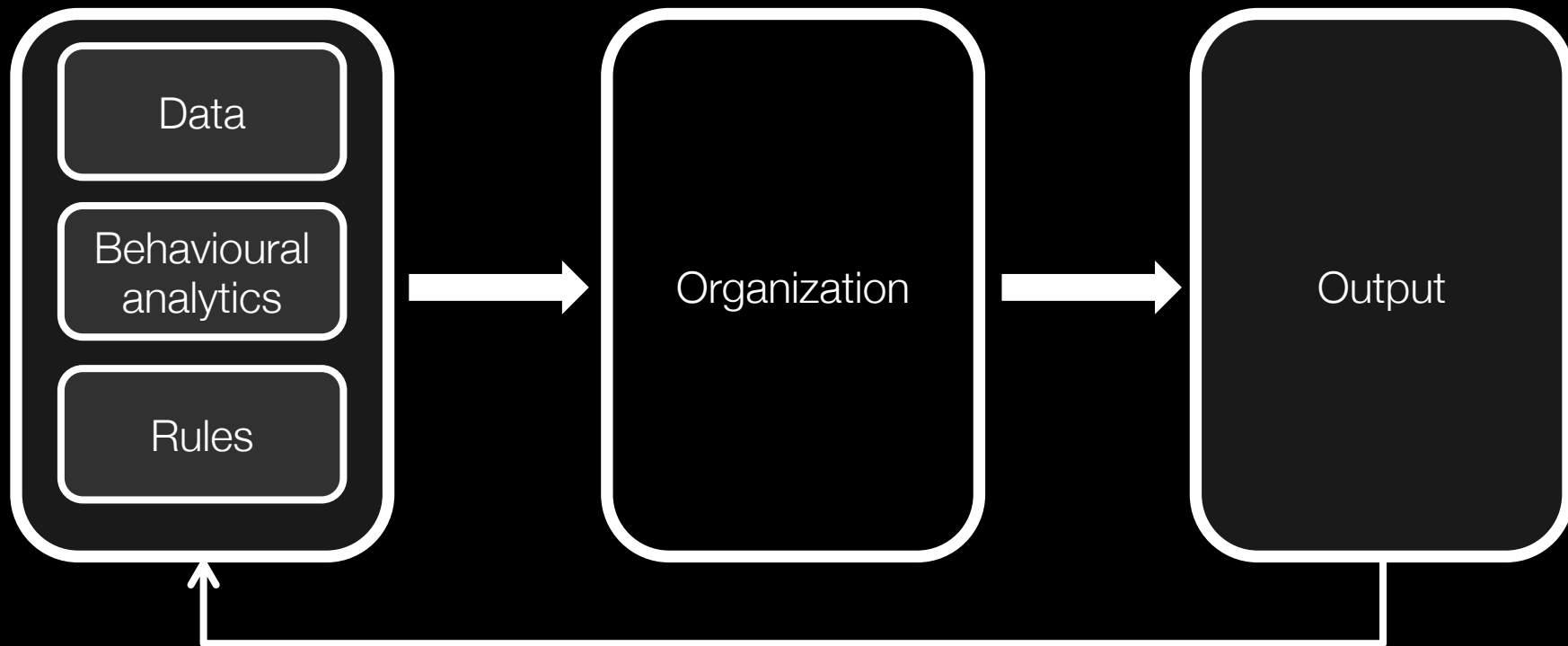
=
ABLE
G!



Algorithmic regulation



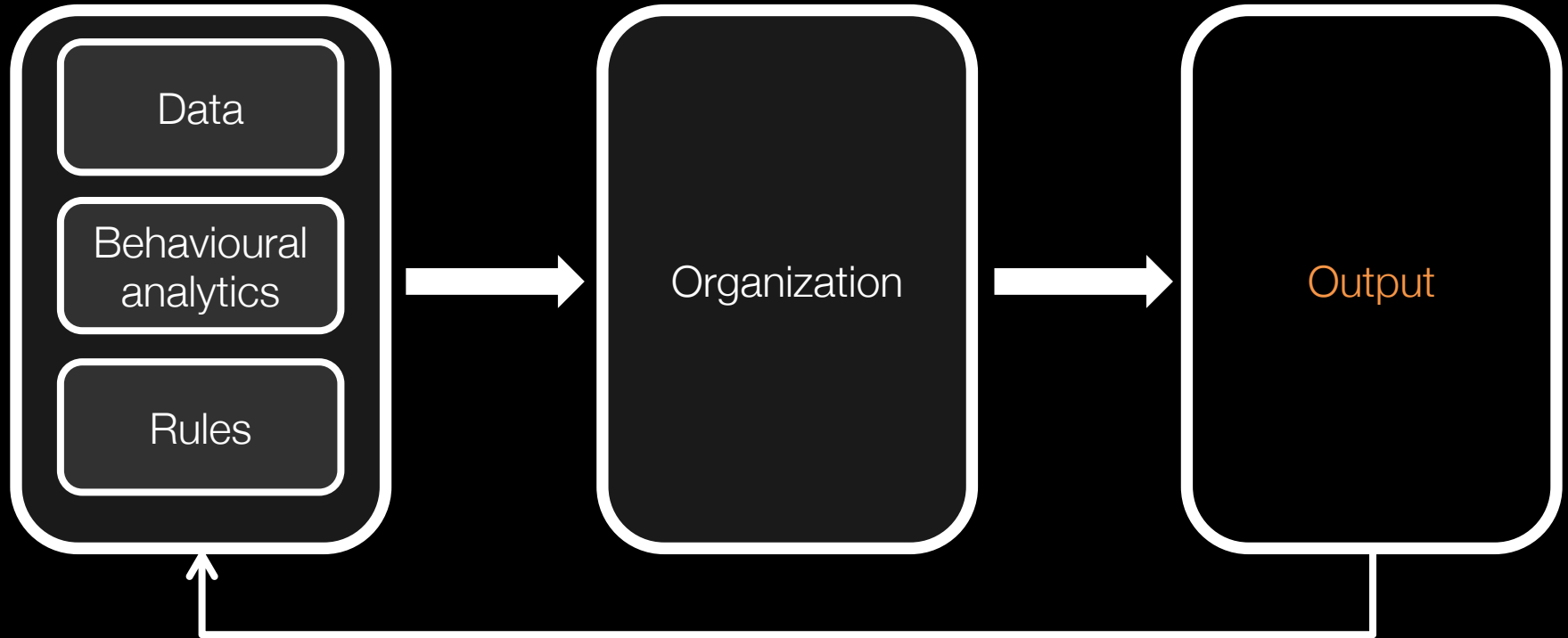
Algorithmic regulation



Organization=city



Algorithmic regulation

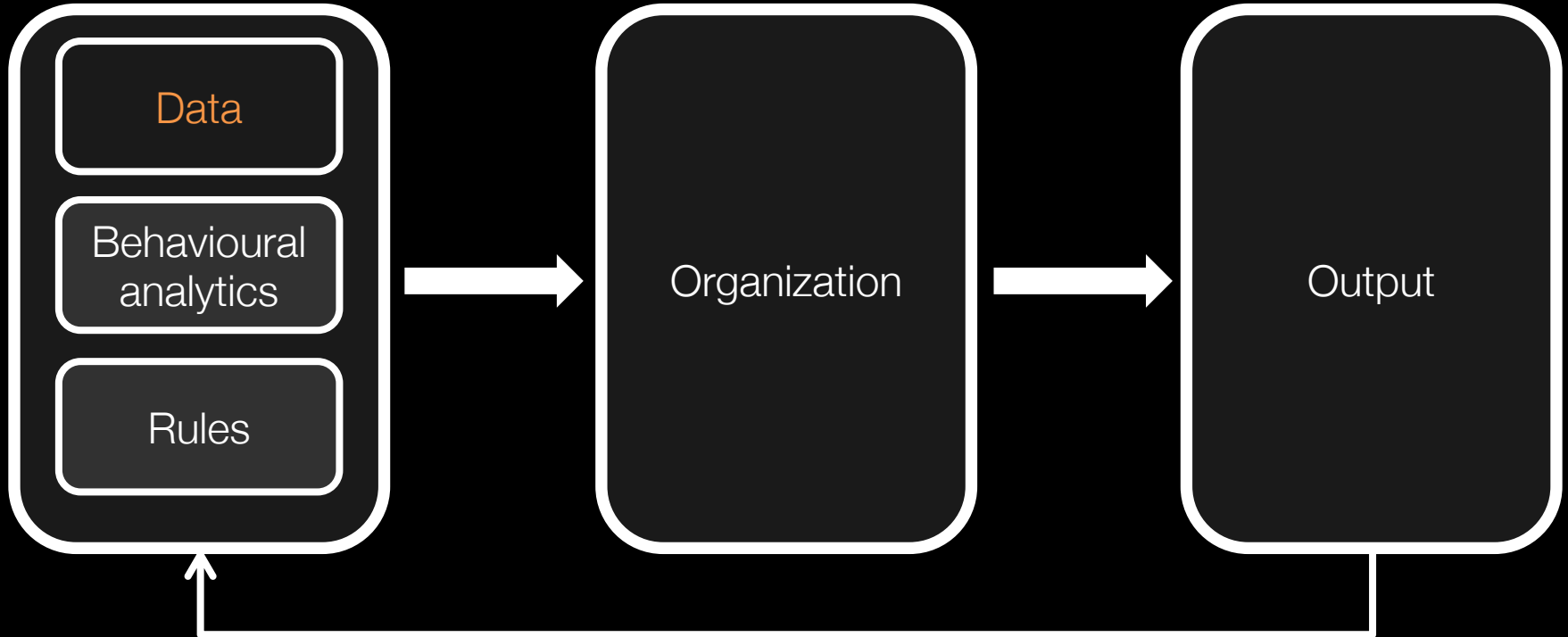


Output to maximise

Local economies benefit.

Tourism should be sustainable.

Algorithmic regulation



Airbnb Data



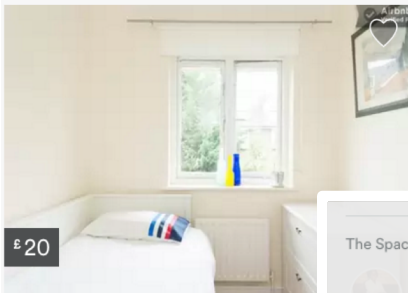
£75

SuperCosy DoubleBed in Bermondsey
Entire home/flat - ★★★★★ - 30 reviews



£49

Double with own shower room
Private room - ★★★★★ - 17 reviews



£20

LOVELY PURE SINGLE ROOM FOR LESS ✨
Private room - ★★★★★ - 13 reviews

The Space

£30

Accommodates: 2
Bathrooms: 1
Bed type: Real Bed
Bedrooms: 1
Beds: 1

Check In: 4:00 PM
Check Out: 12:00 PM (approx)
Property type: Apartment
Room type: Entire home/flat

LOVELY ROOM FOR 1 OR 2
Private room - ★★★★★ - 13 reviews

House Rules

Reviews (30)

Reviews From Guests



Sabrina

Nous sommes ravis de notre séjour chez Keji ! Après avoir marché toute la journée, nous étions bien contents de rentrer dans un appartement bien chauffé, propre et calme. L'installation était tout à fait conforme aux photos. Rien de plus simple que circuler avec le bus pour rejoindre le centre de Londres. Notre hôte s'est montrée patiente malgré notre anglais, pleine de bons conseils et de gentilles attentions (café, sèche-cheveux...). Un grand merci à Keji de nous avoir accueilli avec autant de gentillesse. Nous y retournerons probablement ! :-)

From Savonnières, France · April 2016

🏠 SuperCosy DoubleBed in Bermondsey



Daniel

Keji is a super nice, courteous and friendly host. We enjoyed our stay at her super clean and cosy apartment. It's amazing how easy it is to get to town. There are 4 different main buses departing about every 5-6 minutes which take you to every place you want. Thank you for the amazing days:-)

From Freiburg, Germany · April 2016

🏠 SuperCosy DoubleBed in Bermondsey



Fabrice

Keji is an amazing host. She is very friendly and will make you feel at home. The flat is modern, clean and perfectly located: there are lots of buses going to the center. There is a big supermarket in the neighborhood (about a 5 minutes walk). The room itself is cosy and big enough for two people. You won't be bothered by any noise at night, as the room looks onto a courtyard. We had a really great vacation at Keji's place :-)

From Confignon, Switzerland · April 2016

🏠 SuperCosy DoubleBed in Bermondsey

Census Data



Age, house price, income ... ownership, education

Foursquare Data

Points of Interest



Points of Interest

[Try it >](#)[How to buy >](#)

Download trial data

- Select -

[DOWNLOAD](#)

Benefits and key features



Case studies



Licensing



Specifications



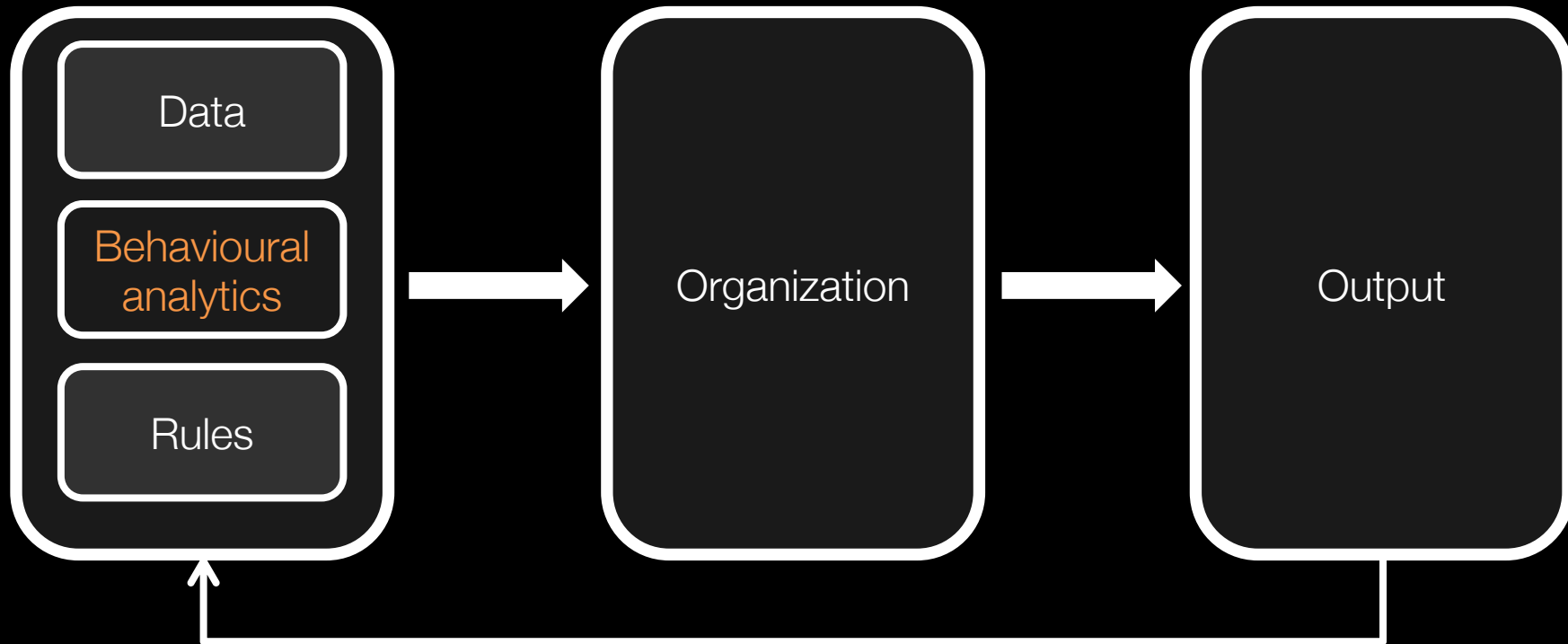
Related products



Support

Or **contact us** if you have a question that's not answered here...

Algorithmic regulation



Behavioural Analytics



$$\text{airbnb} = \beta_1 * \text{ownership} + \beta_2 * \text{attractive} + \beta_3 * \text{young} + \dots + \varepsilon$$






Behavioural Analytics

Q1 Which areas have Airbnb?

Q2 How did it change?








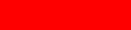




Q1

Airbnb listings are present in **central**, **attractive** areas, populated by **young** residents having a **low income**. Airbnb listings tend to be in areas where there are less owned properties than **rented** ones.

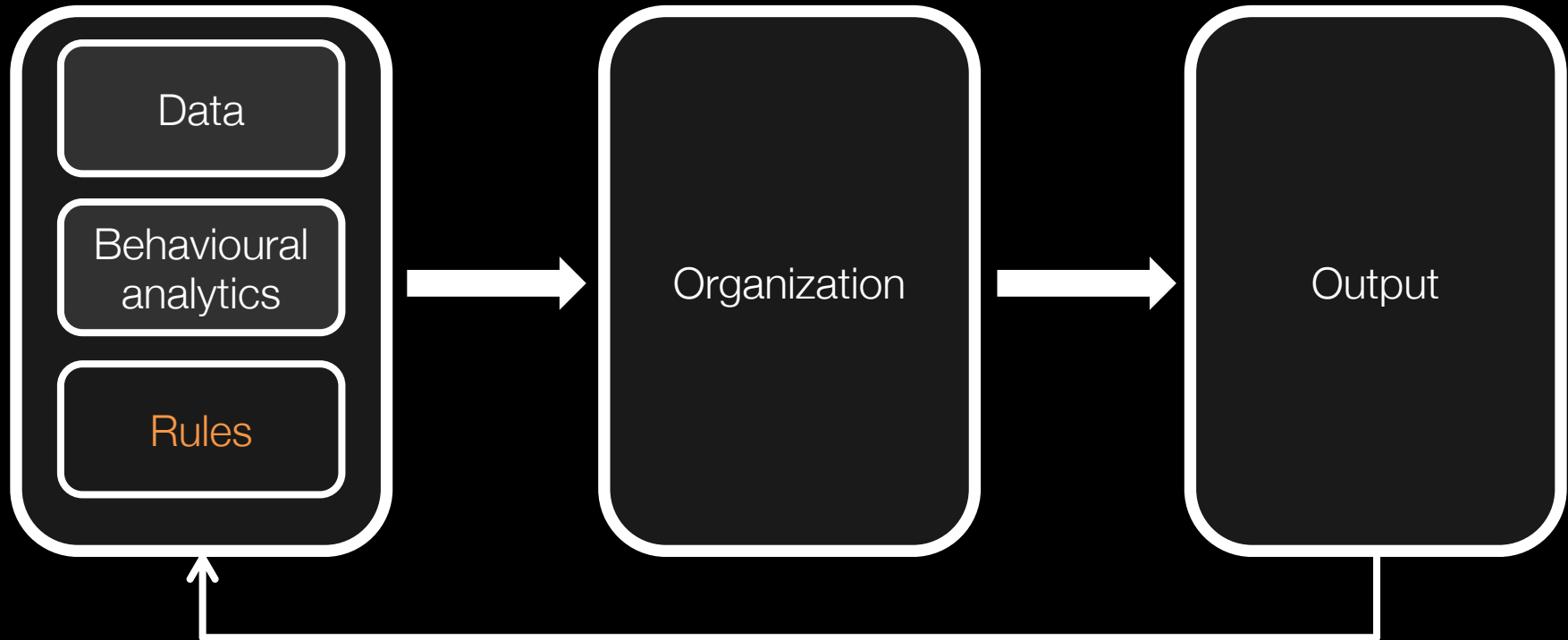
<i>Variable</i>	<i>Importance</i>
distance	 -0.25
attractiveness	 0.14
young	 0.40
income	 -0.16
ownership	 -0.23

Q2

Central areas become consistently less predominant year after year. The presence of low income areas increases year after year. Rented properties increase too.

	2012	2013	2014	2015
Variable	Importance			
distance	 -0.32	 -0.19	 -0.12	 -0.13
income	 0.05	 -0.21	 -0.42	 -0.62
				

Algorithmic regulation



How

Transferable
sharing rights

Tourism should
be sustainable

Where

Policies neighborhood dependent

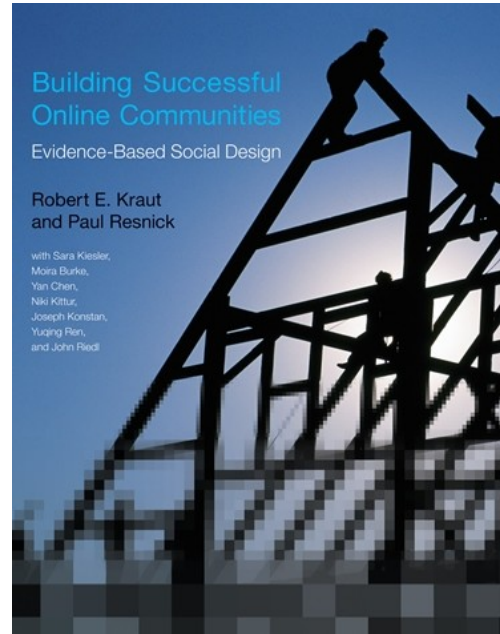
When

Initial conditions matter

Enforcing

Municipalities should incentivize the
creation of a data sharing ecosystem

intangible property = **community engagement**



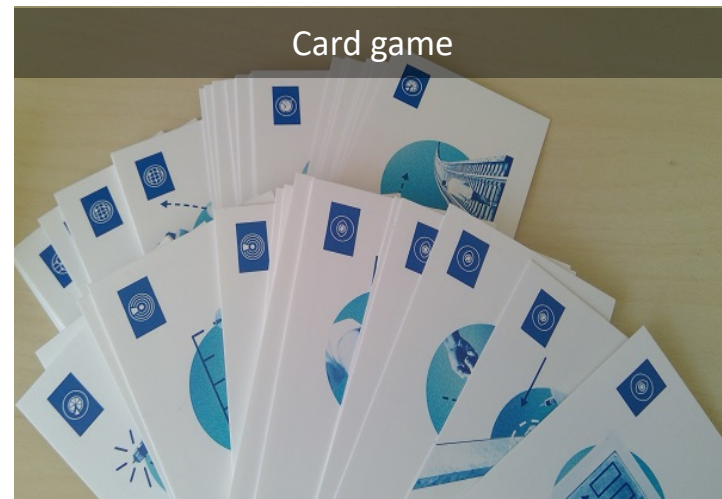
Community engagement made easy

Domain	#	Community engagement technique	Sources
Discovery	1.	Promote repeatedly across a range of media platforms to ensure visibility	[16, 38]
	2.	Appoint a person responsible for recruitment	[16]
	3.	Build relationships with prospective members	[16]
	4.	Present community contributions well and update them frequently to encourage repeat visits	[38]
	5.	Make it easy for people to search and discover community contributions that interest them	[38]
	6.	Maintain a list of requested contributions to increase the likelihood that someone will provide them	[24]
	7.	Allow members to track new and ongoing work, for example through opt-in notifications	[24]
	8.	Define the topic of the group well to recruit members with particular interest in the topic	[24]
Appeals	9.	Keep requests simple to avoid early loss of interest	[24]
	10.	Emphasise the benefits of contributing to motivate those who care	[24]
	11.	Appeal to shared fears if necessary, but carefully explain your reasoning	[24]
	12.	Ask others to issue requests on your behalf, especially those who are well regarded by the intended audience	[16, 24, 38]
	13.	Show that others are already contributing	[24]
	14.	Issue specific and highly challenging goals	[24]
	15.	Set concrete deadlines to increase the likelihood of community contributions	[24]
	16.	Highlight people's individual ability to make unique contributions	[24]
	17.	Tailor requests to people's interests and capabilities	[24]
	18.	Address people individually instead of broadcasting requests	[24, 27]
Participation	19.	Recruit people who have prior relationships outside the group, this can yield stronger ties between members	[24]
	20.	Provide clear guidance and navigation to avoid confusion	[38]
	21.	Issue clear norms and policies about acceptable conduct and appropriate contributions	[24, 38, 38]
	22.	Foster empathy, trust, mutual support, and shared pursuit	[38]
	23.	Provide newcomer support and training, for example in the form of tutorials and demo videos	[16, 27, 38]
	24.	Remove technical, logistical, and physical barriers to entry	[3, 38]
	25.	Provide a safe space for members, and be considerate of their privacy	[27, 38]
	26.	Provide simple starting points so that people can start gradually with small contributions	[38]
	27.	Provide support for large and frequent contributions by highly active members	[38]
	28.	Design immersive experiences with hard challenges, but leave members in control, and provide clear goals and feedback	[24]
Evaluation	29.	Give members strategic autonomy in their work	[16]
	30.	Provide tools and processes to deal with spam and vandalism	[38]
	31.	Implement effective processes to resolve differences and disputes, and deal with unhelpful members	[38]
	32.	Engage people in reflection about their work to foster gradual improvement	[16]
	33.	Ask members to review contributions and provide constructive feedback	[38]
	34.	Highlight contributions that are complementary, and emphasise the collective undertaking	[24]
	35.	Give feedback in relation to specific goals, in particular when it is positive and sincere	[24]
	36.	Issue tangible rewards for good contributions, but be mindful that this can foster competition	[24]
	37.	Issue tangible rewards for simple tasks to increase contribution volume, but carefully observe contribution quality	[24]
	38.	Avoid tangible rewards based on contribution volume if quality is a concern, it encourages gaming the system	[24]
	39.	Make member contribution activity visible to others to foster interaction and collaboration	[3, 16, 38]
	40.	Provide recognition and respect for high-quality contributions, and for providing guidance to others	[38]
	41.	Credit groups for shared achievements, comparative individual feedback can foster competition	[3, 24, 27]
	42.	Recognise different kinds of contributions, emphasise that there are many ways to participate	[27, 38]
Encounter	43.	Bring together disparate groups, and encourage different points of view to improve understanding of a complex task	[27]
	44.	Give everyone an opportunity to speak prevent individuals from dominating meetings and activities	[27]
	45.	Develop a common language to foster mutual understanding and a shared identity	[27]
	46.	Implement ideas that emerged in the community to show that shared discussions can have a real impact	[27]
	47.	Encourage social contact between members to increase enjoyment, and make tedious tasks more engaging	[16, 24]
	48.	Offer a variety of ways for members to get to know each other, as different people like different modes of encounter	[16, 24]
	49.	Provide ways for members to identify relevant and competent collaborators	[38]
	50.	Avoid anonymity or aliases if you want to discourage social loafing and free riders	[24]
Collaboration	51.	Highlight commonalities among members to foster familiarity, but avoid excluding others	[3]
	52.	Foster a sense of community and shared identity among members	[16]
	53.	Maintain cohesion by carefully controlling group size: set growth limits, cull inactive members, form subgroups, ...	[16, 23, 24]
	54.	Nominate mentors, and let experienced members guide newcomers	[27, 38]
	55.	Promote charismatic negotiators with visionary goals to inspire participation	[38]
	56.	Celebrate members by highlighting their efforts, providing tribute, sharing historical narratives	[38]
	57.	Give organisers special powers, but state your expectations and hold them accountable	[27, 38]
	58.	Include a broad range of members in important decisions to benefit from a diversity of perspectives	[23, 27]
	59.	Provide support for collaboration: communication, idea development, task management, peer support, ...	[3, 38]

Table 1. Catalogue of community engagement techniques.

Community engagement made easy

- 5 The literature on community engagement in 59 cards
- 5 (techniques that can be quickly reviewed in problem-solving workshops by community organizers)



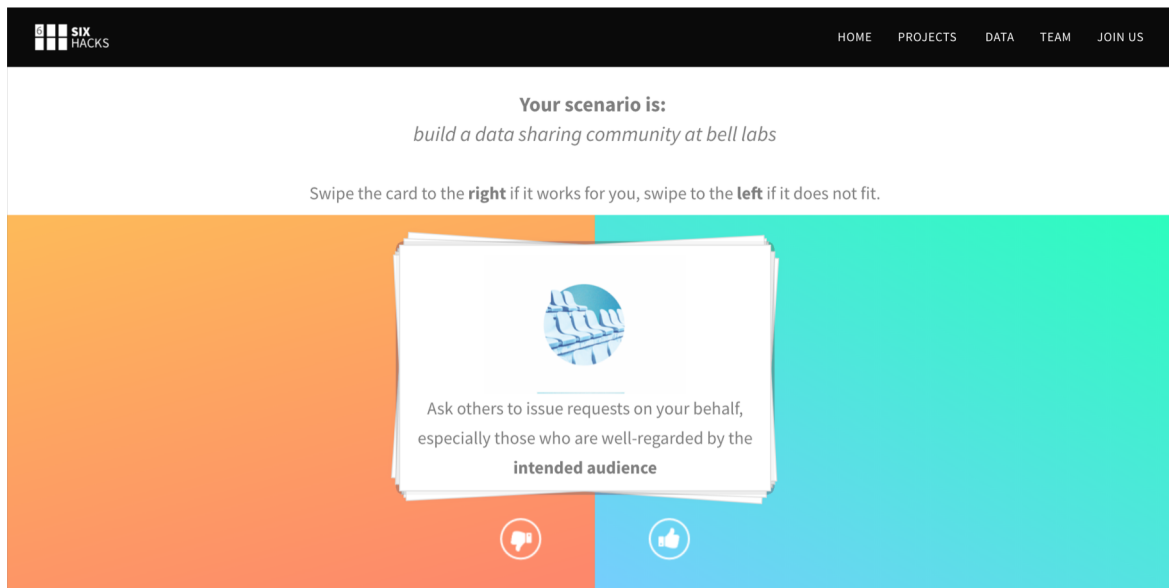
Community engagement made easy

goodcitylife.org/six-hacks/



SIX HACKS

Play online on www.goodcitylife.org/six-hacks



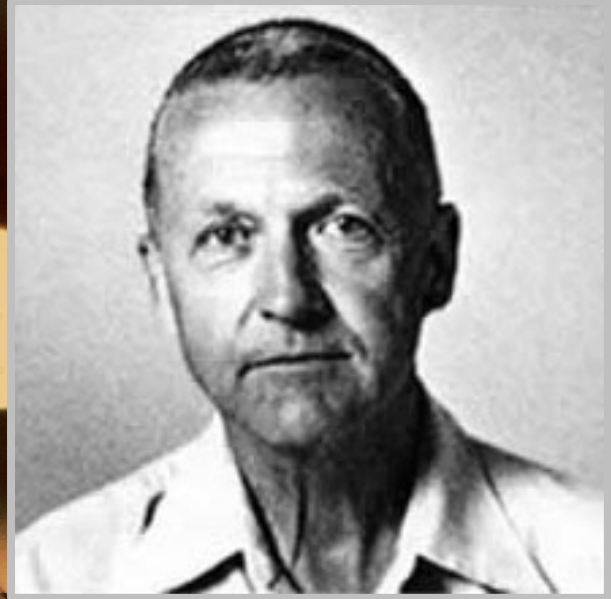
Print & play cards ([pdf](#))



Jane Jacobs



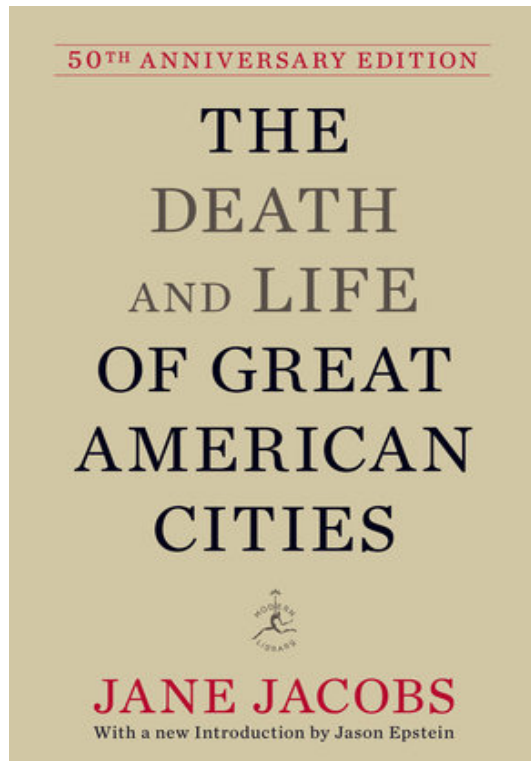
Stanley Milgram



Kevin Lynch

intangible property = **urban vitality**

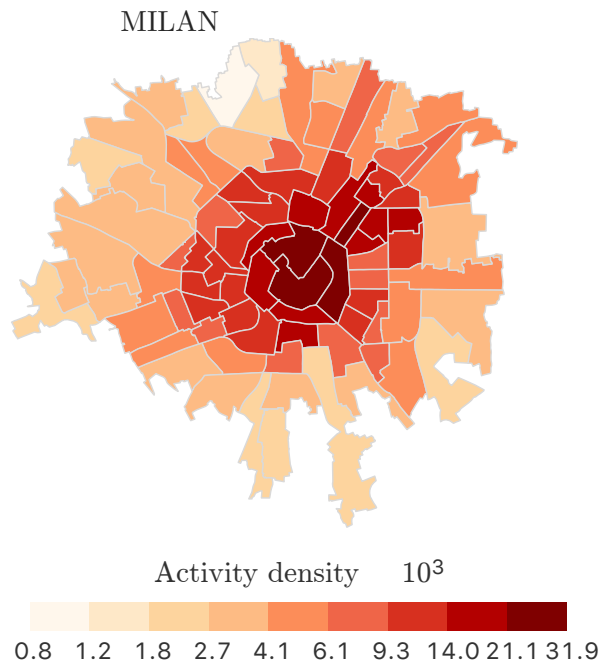
The theory: Jane Jacobs



Jacobs' diversity conditions

LAND USE	SMALL BLOCKS
AGED BUILDINGS	DENSITY

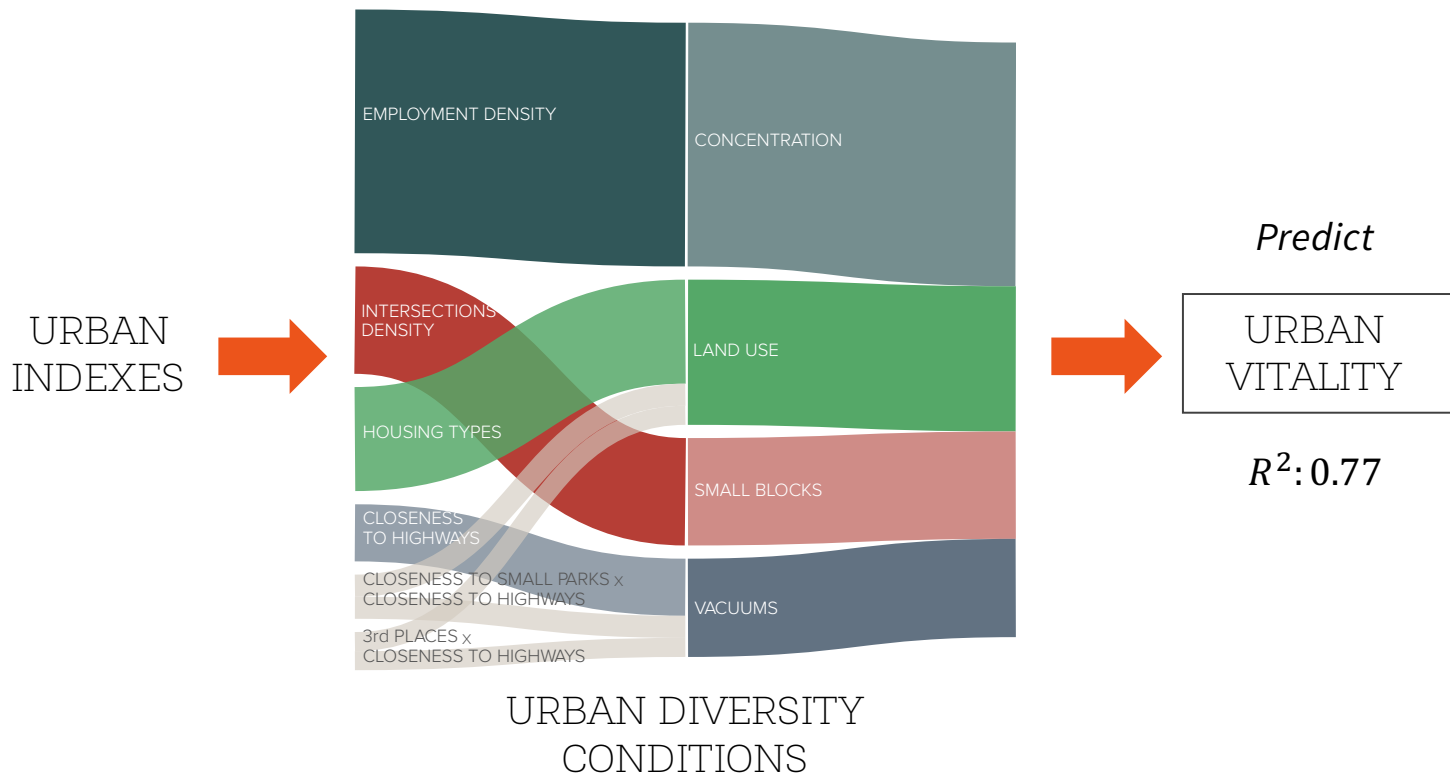
“Operationalize” Vitality



- Mobile Internet activity as a proxy for urban vitality



Urban diversity to urban vitality



intangible property = **“health”**

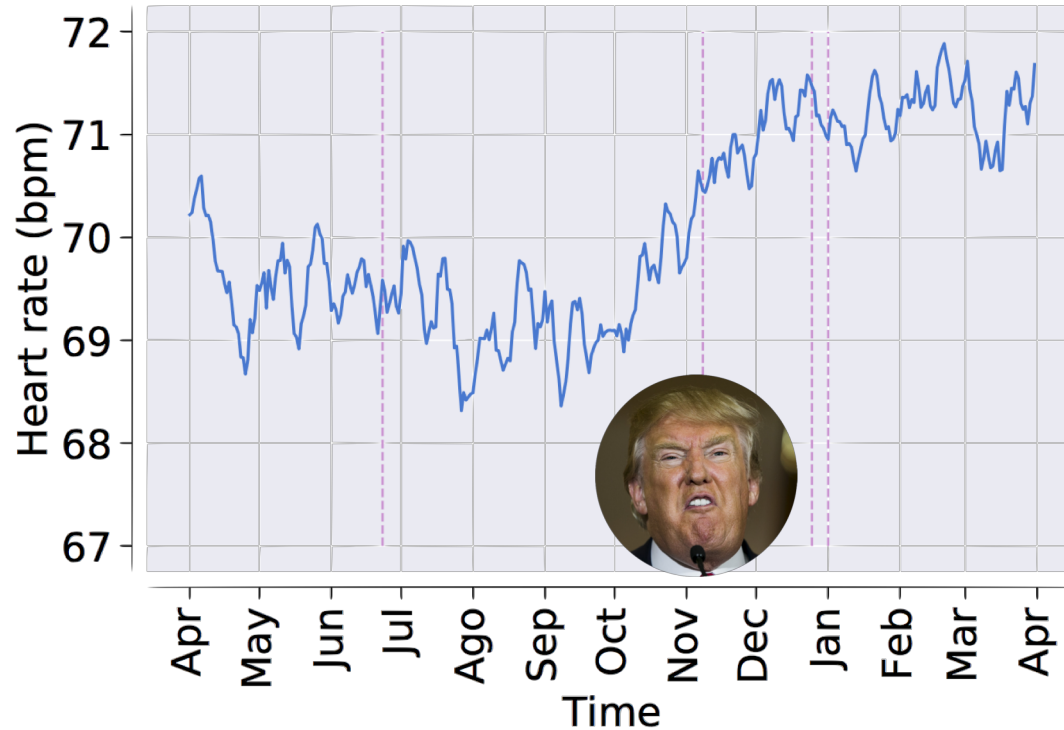
intangible property: city's pulse



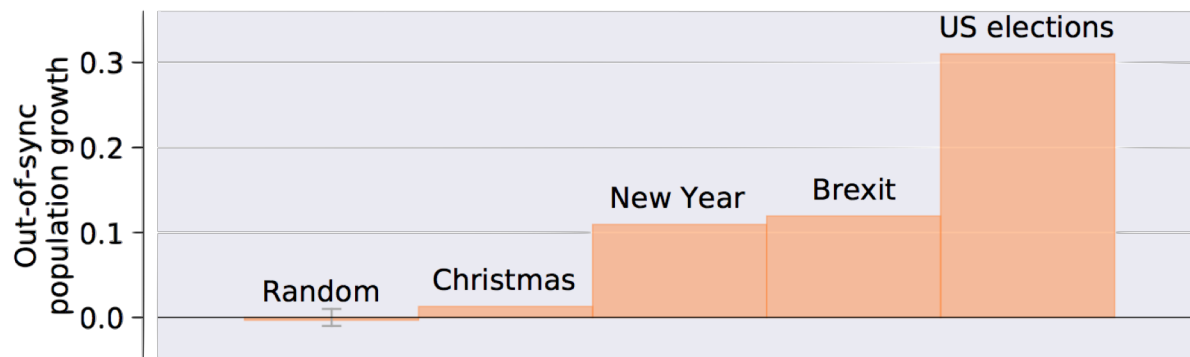
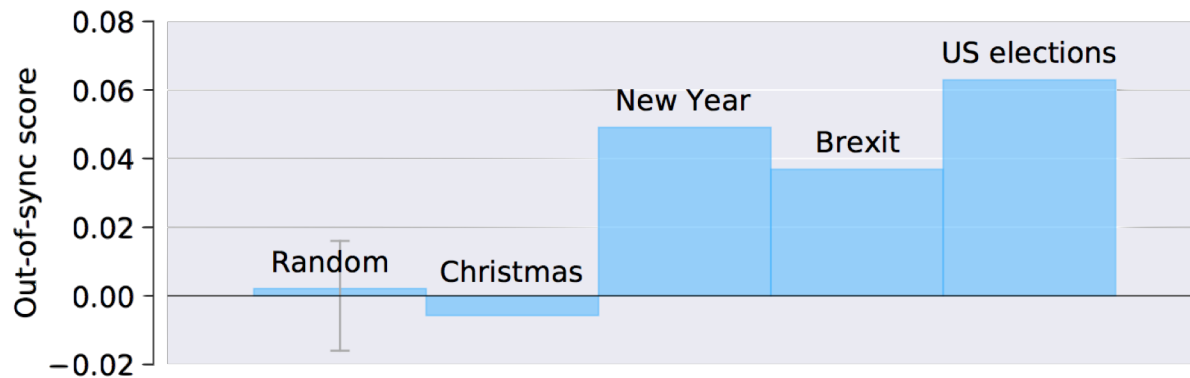
NOKIA HEALTH

- 11,600 users in London and San Francisco over 365 days
- ~4M daily datapoints
- Steps, sleep duration, heart rate

Aggregate avg volume of heart rate



Synchronicity disruption

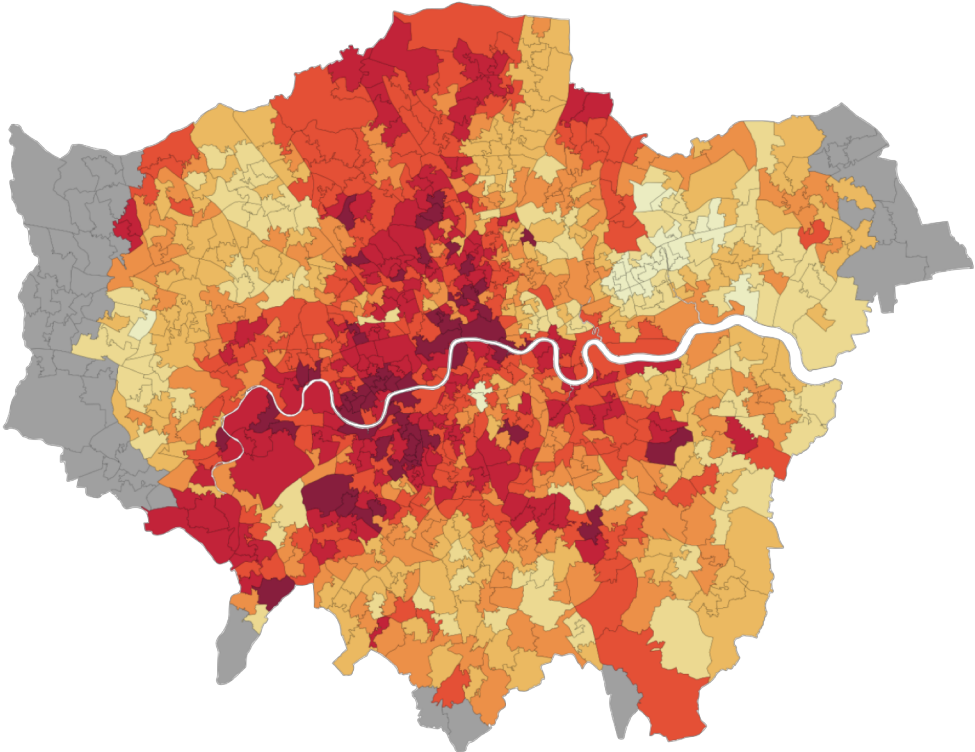




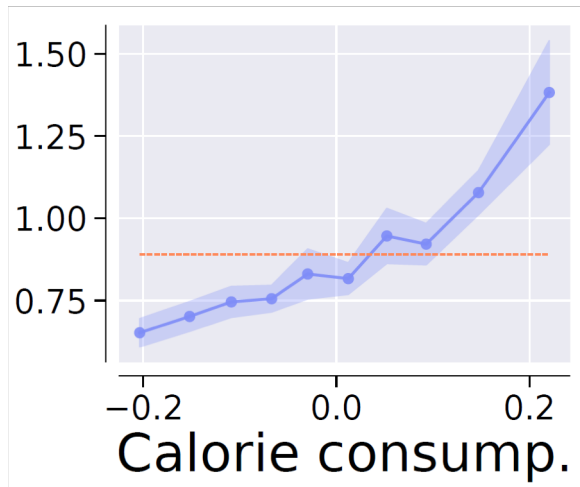
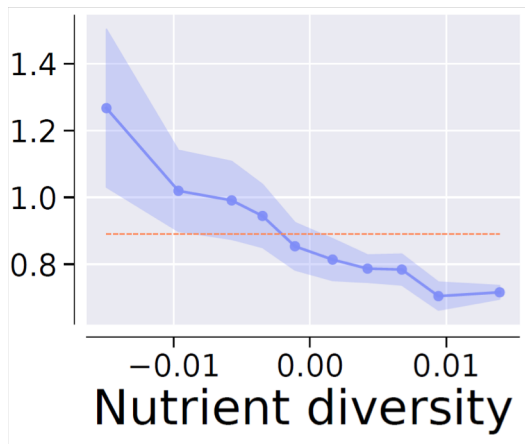
FOOD CONSUMPTION

- 1.6M customer in London over 365 days
- ~1.6B food purchases in 400+ stores
- Products = nutrients

Map of Nutrient Diversity



You can **predict diabetes** from nutrient diversity & calories, for example



STANLEY MILGRAM

The Individual in a Social World



What we remember

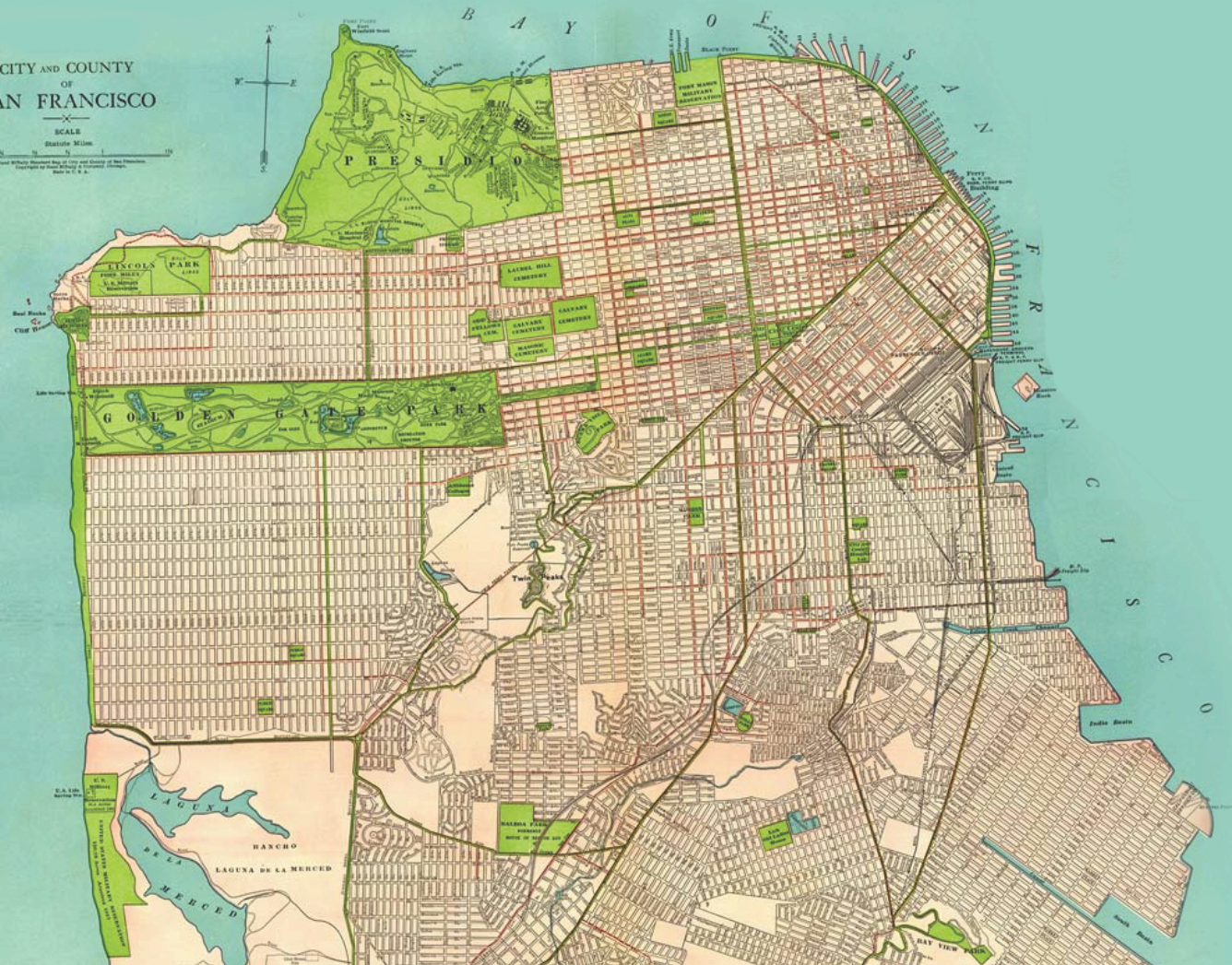
ESSAYS AND EXPERIMENTS
EDITED BY THOMAS BLASS

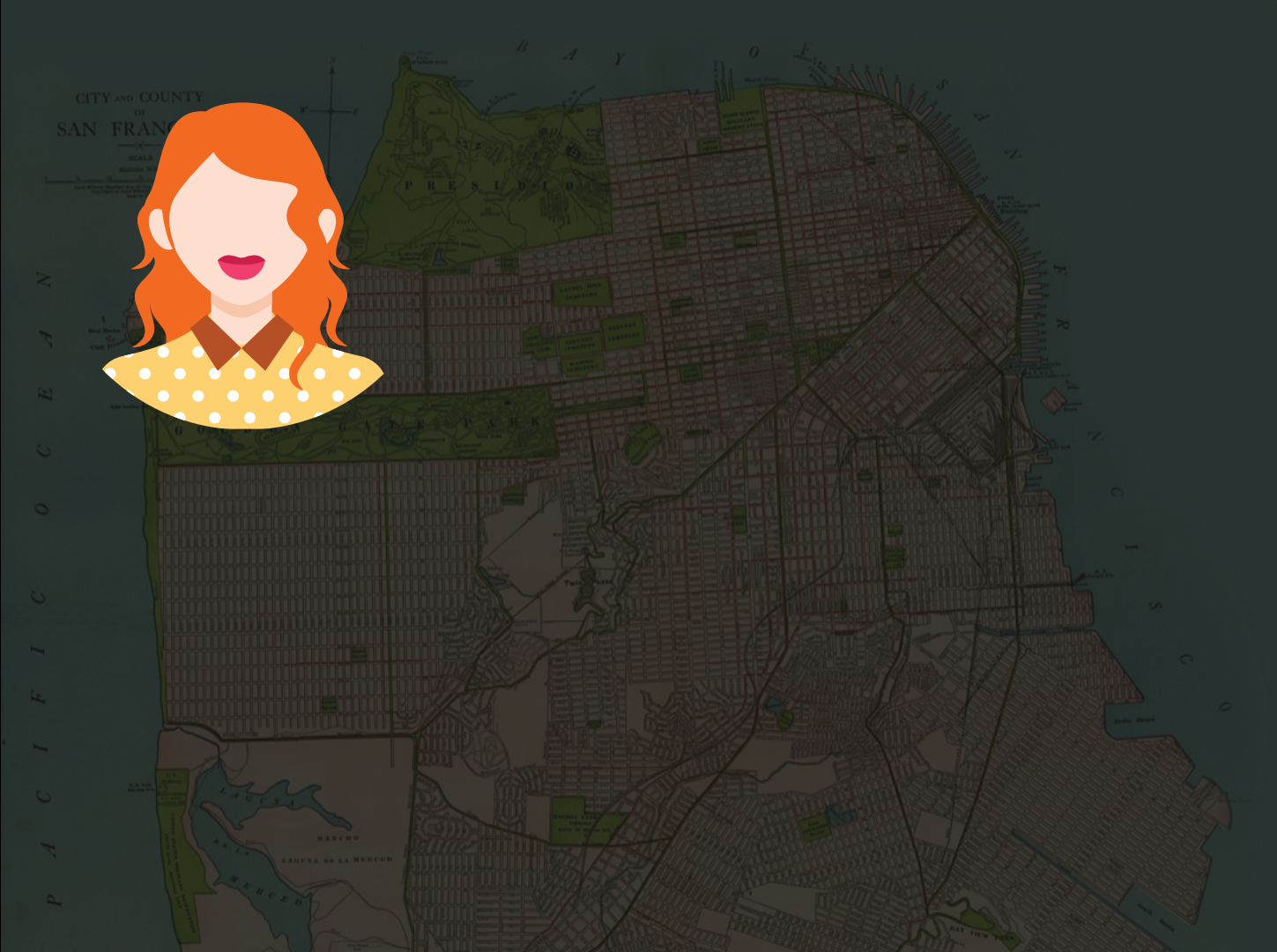
34 expanded
editions

CITY AND COUNTY
OF
SAN FRANCISCO

SCALE
Statute Miles.
East of the City of San Francisco
East of the City of San Francisco
East of the City of San Francisco

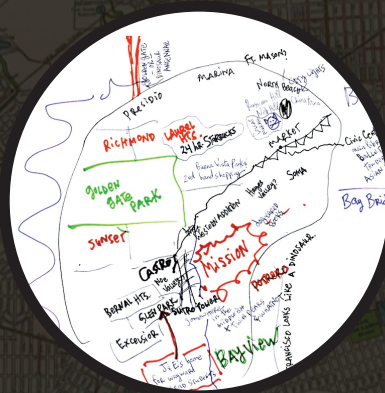
P A C I F I C O C E A N





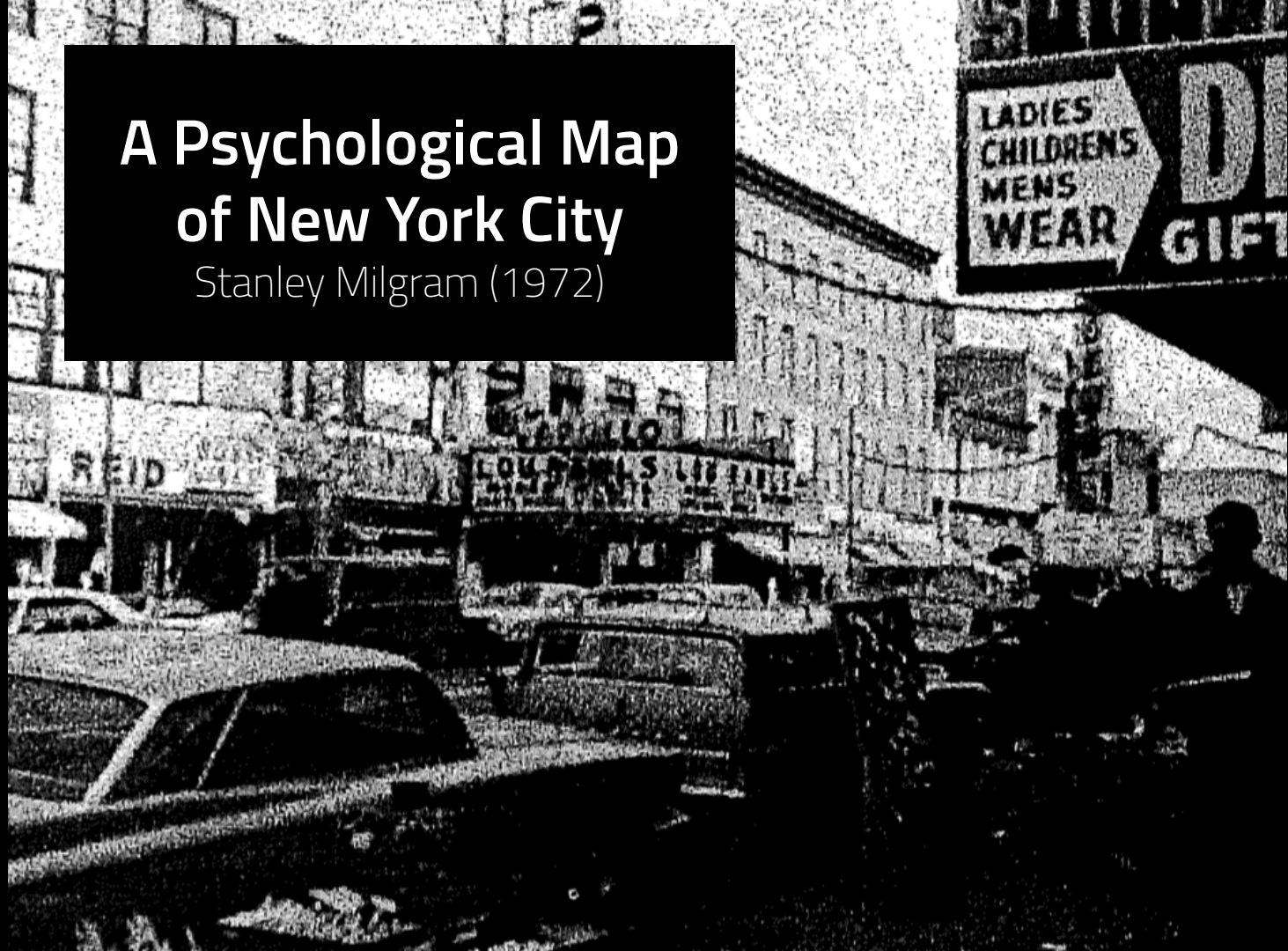






A Psychological Map of New York City

Stanley Milgram (1972)







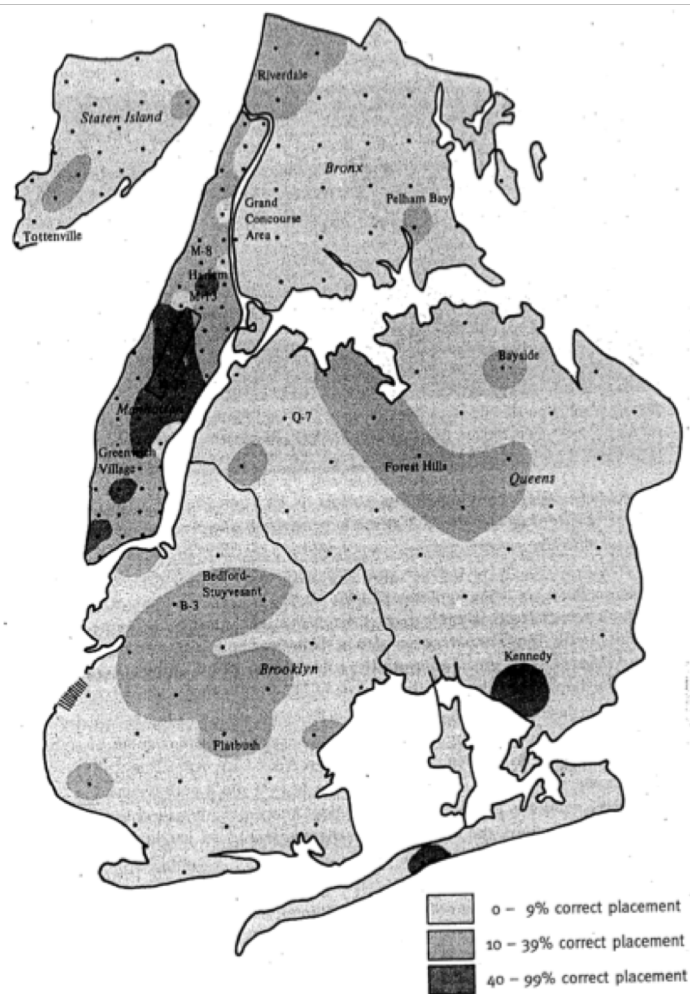


FIGURE 7.4 This stylized map of New York City shows the correct placement of scenes at 152 viewing points in the city, placed according to neighborhood.



WWW Game!

[www'13] Psychological Maps 2.0

urbanopticon.org

UrbanOpticon - How well do you know London?

urbanopticon

Like 108 Tweet 80 +1 9


UNIVERSITY OF CAMBRIDGE UFMG

Where is this?


Score: 0 Progress: 0/10

Choose Your Answer's Precision: Tube Station Borough Don't know

Guess the tube stations close to this picture.
The closer, the more points (max 100).



The closest London tube station is



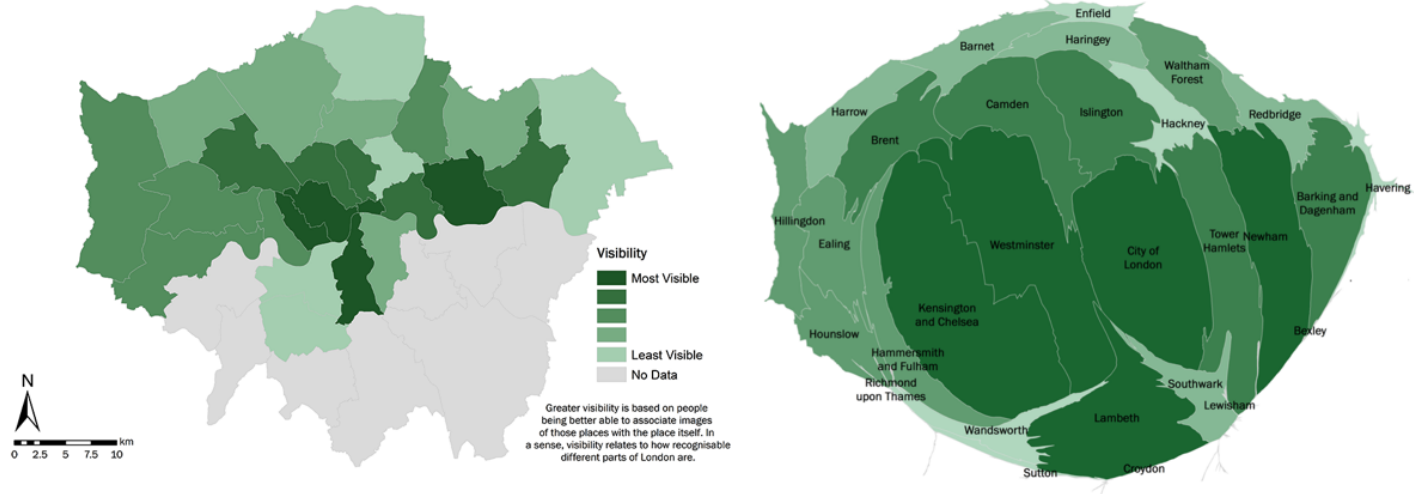
[View larger image](#)


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Recognizability

Collective Recognizability Map



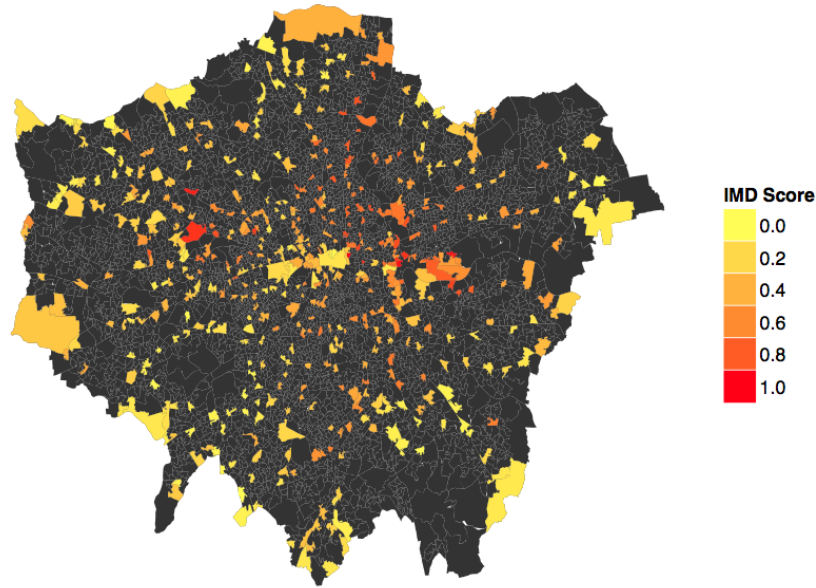
A woman is lying down, her head tilted back, wearing a top with a colorful butterfly pattern. The background is a soft-focus outdoor scene with green foliage and bright, circular bokeh light spots. A large black circle is centered over the image, containing the text.

Recognizability *vs* Well-Being

IMD

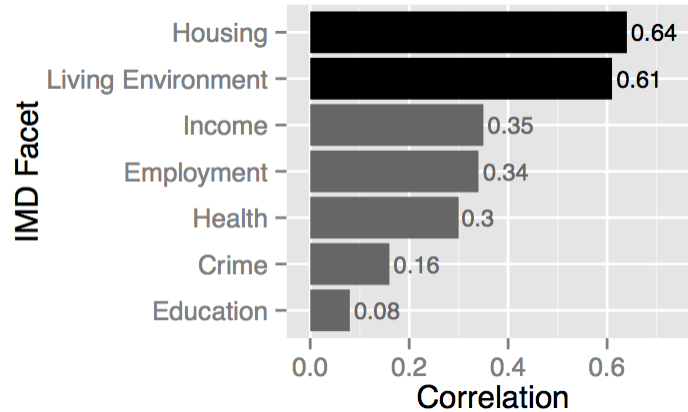
(Index of Multiple Deprivation)

1. Income
2. Employment
3. Health
4. Education
5. Housing
6. Crime
7. Living Environment



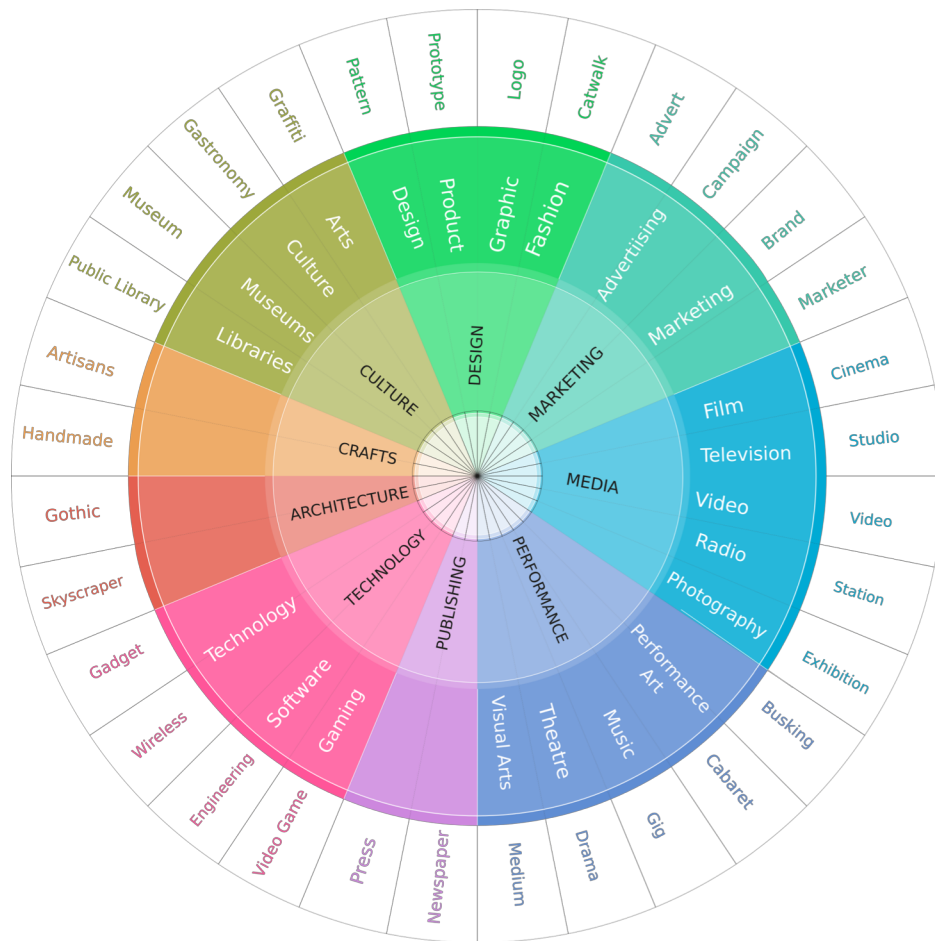
Recognizability *VS* Well-being

borough-level

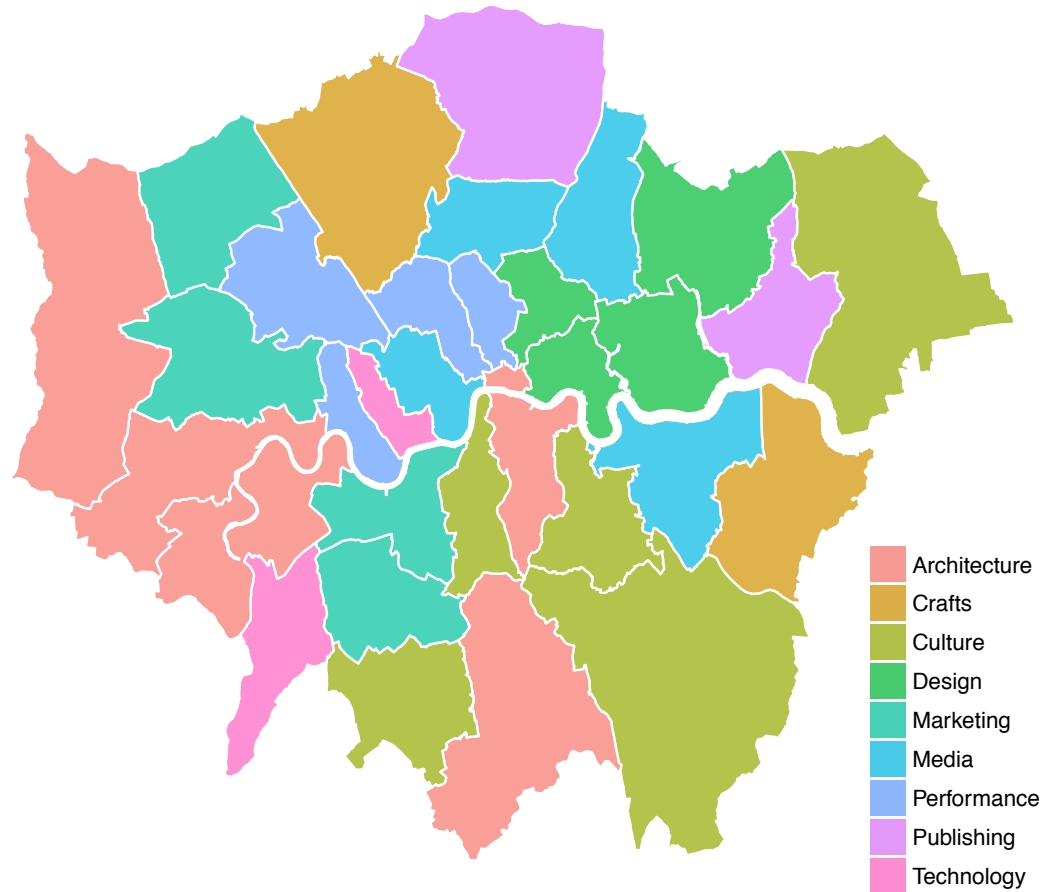


intangible property = **culture**

[Frontiers] The New Urban Success: How Culture Pays

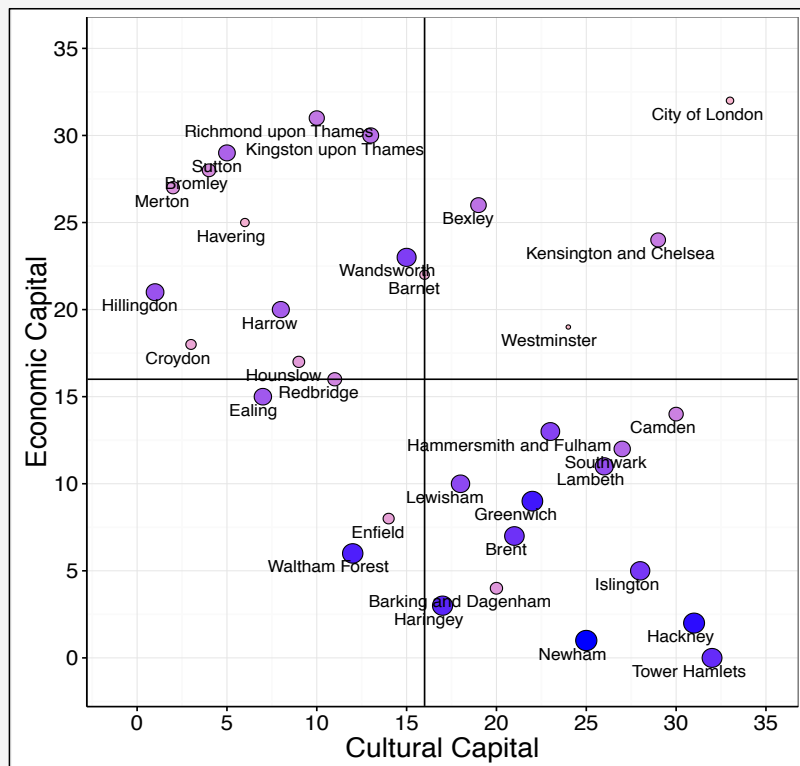


[Frontiers] The New Urban Success: How Culture Pays

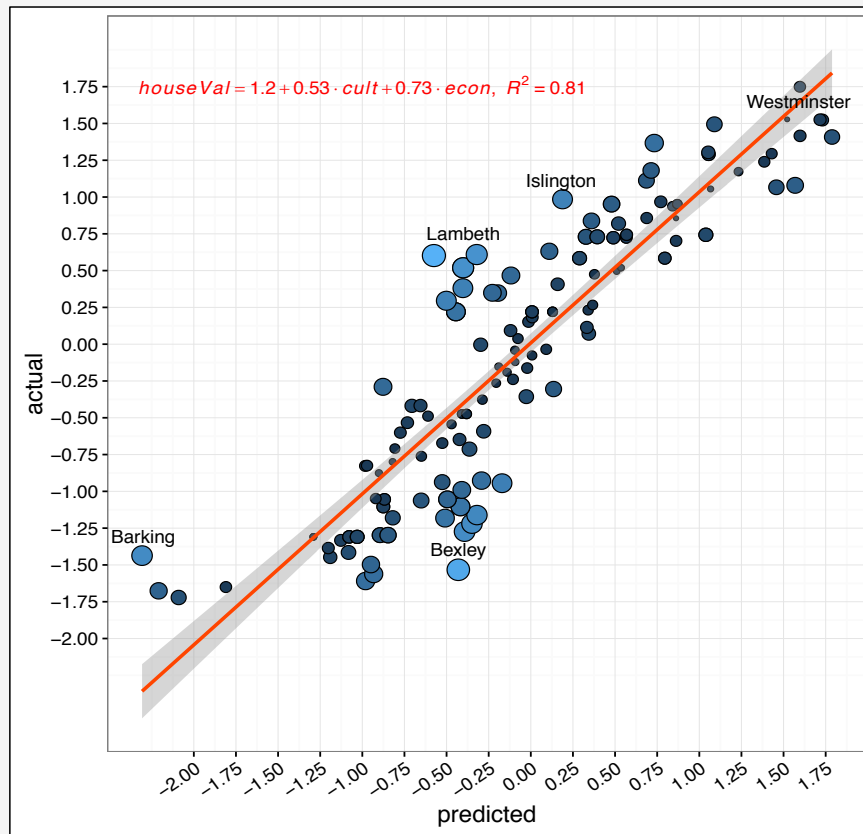
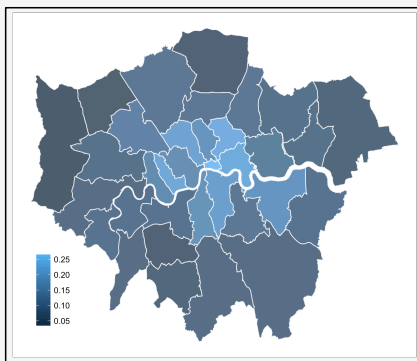


Cultural vs Economic Capital

Economic capital (income) rank vs Cultural capital rank (Flickr) for neighbourhoods in 2010. Color and size indicate the percent change in IMD.



Housing price prediction



intangible property = **economic success**

Startup success



Square

Product designer
2013-2014

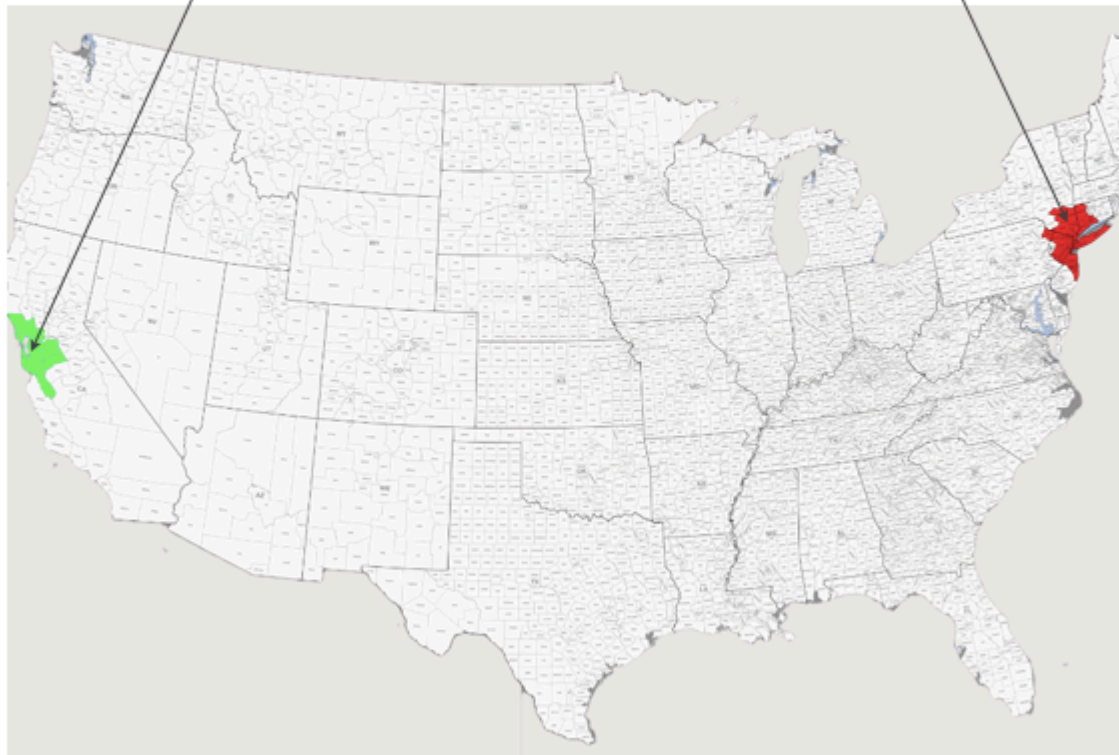


Ramy Majouji

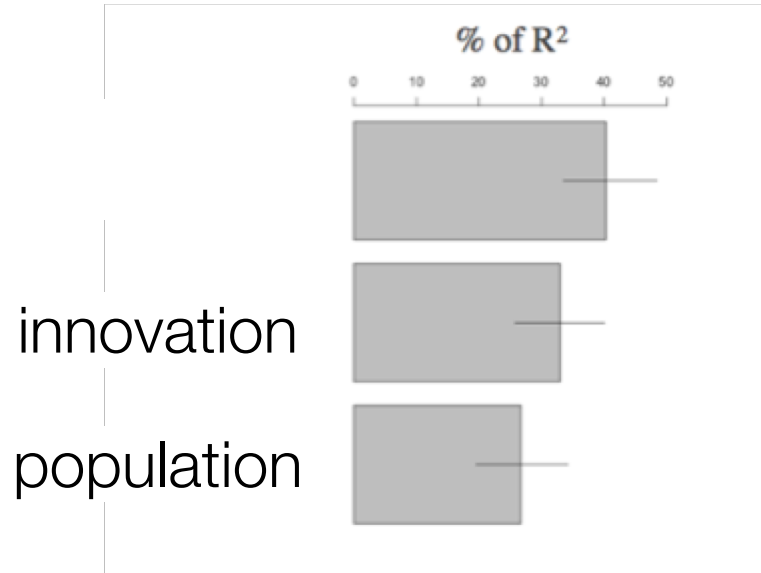
Product designer
2014-2015



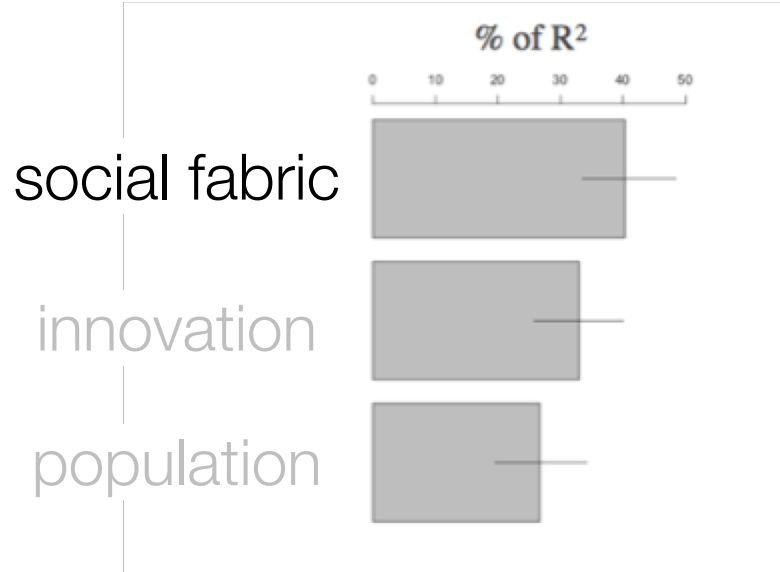
Codecademy



success & the city



success & the city



“First life, then spaces, then buildings” Jan Gehl

Social Tie ~ Tie Strength

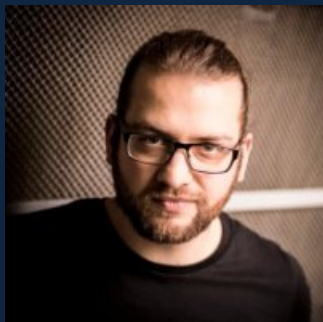
Coloring in the Links

[under submission] Coloring in the Links: Capturing Social Ties as They're Perceived



Sebastian Deri

Cornell University
Experimental Design



Tobias Kauer

Postdam School Design
User Interaction



Eva Sharma

Georgia Tech
Platform development &
Data Science



Jeremie Rappaz

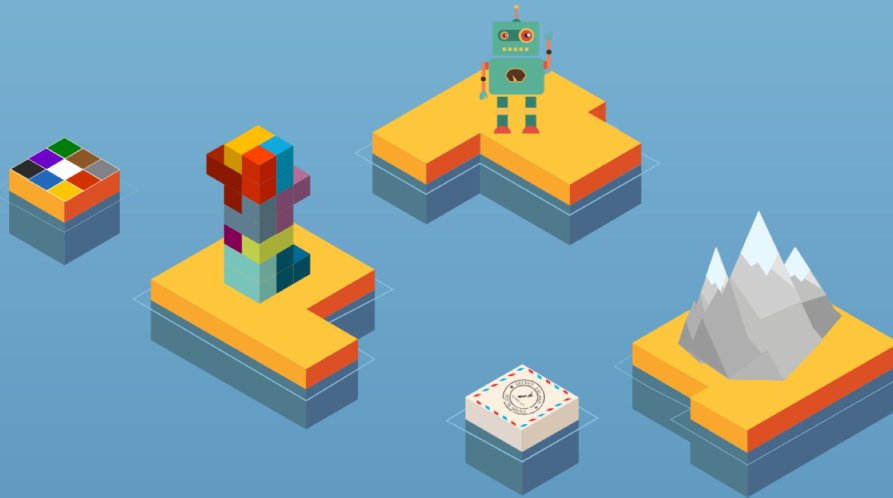
EPFL
Platform development &
Data Science





Click on an island and discover who you are

[f](#) login



Click on an island and discover who you are

Pick three blocks describing your relation with *Carlos Alberto-Alejandro Castillo Ocaranza*

If you can think about one thing only, then pick the same block multiple times.

Similarity

Trust

Romance

Social support

Identity

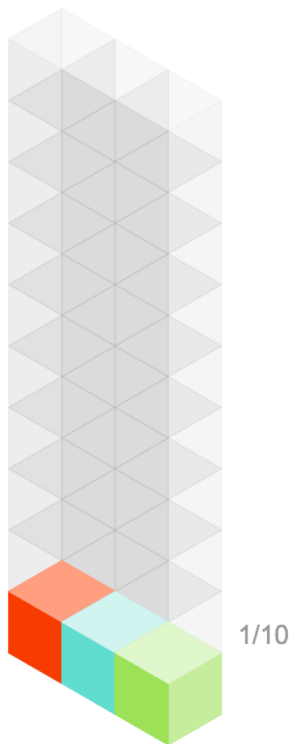
Respect

Knowledge transfer

Power

Fun

Conflict



Undo

Skip

[or restart](#)



Isle of Ties

You likely know many people, but what are the relationships in your life really about? Play this game to find out what you really value in your relationships and how you compares to others.

intangible property = **urban beauty**



[ACM cscw'14] Aesthetic Capital: What Makes London Look Beautiful, Quiet, and Happy?

A



B



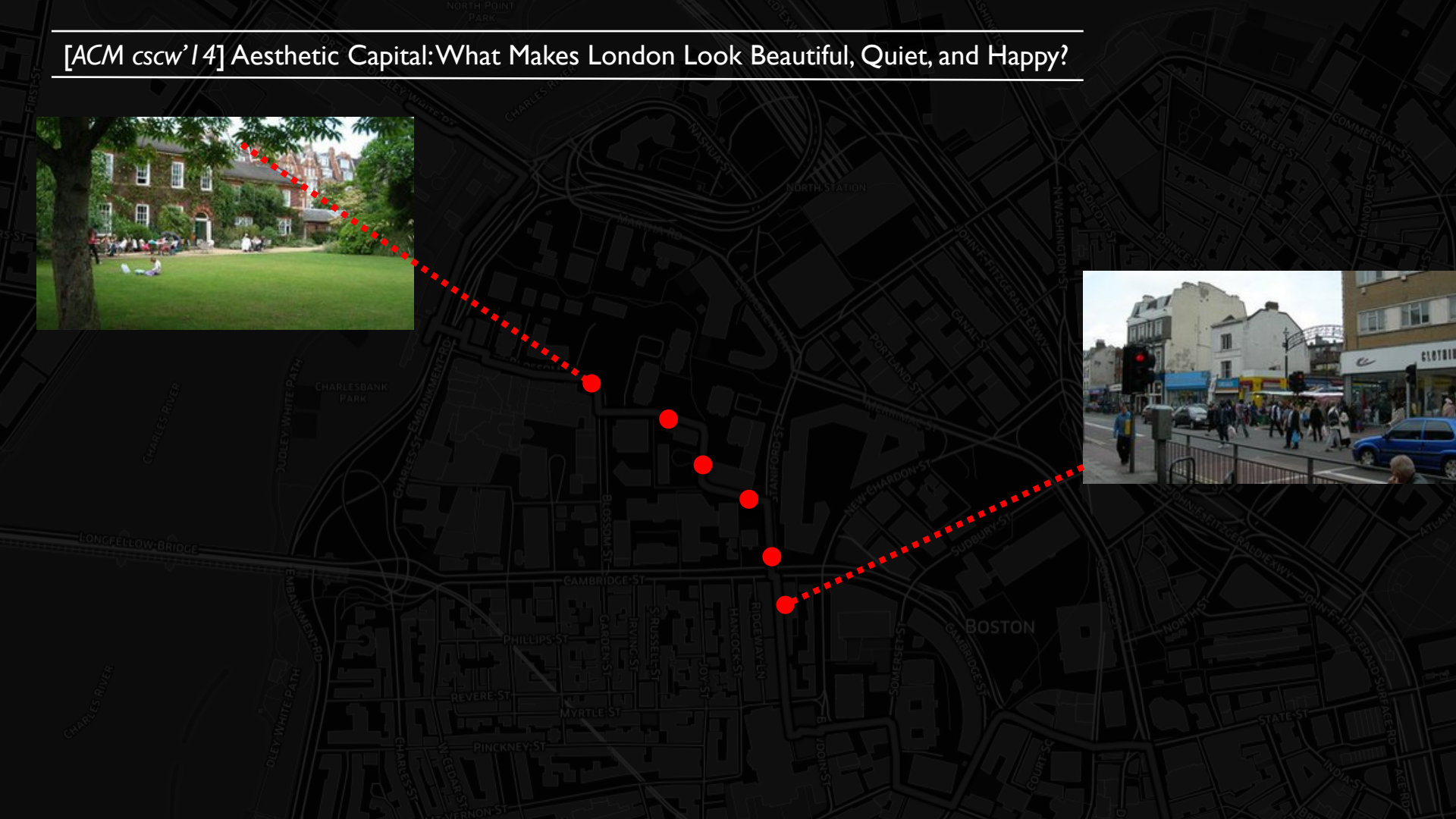
most
beautiful



least
beautiful



[ACM cscw'14] Aesthetic Capital: What Makes London Look Beautiful, Quiet, and Happy?







CHEAP

Trees, Fences, Road
Marking and Vehicles

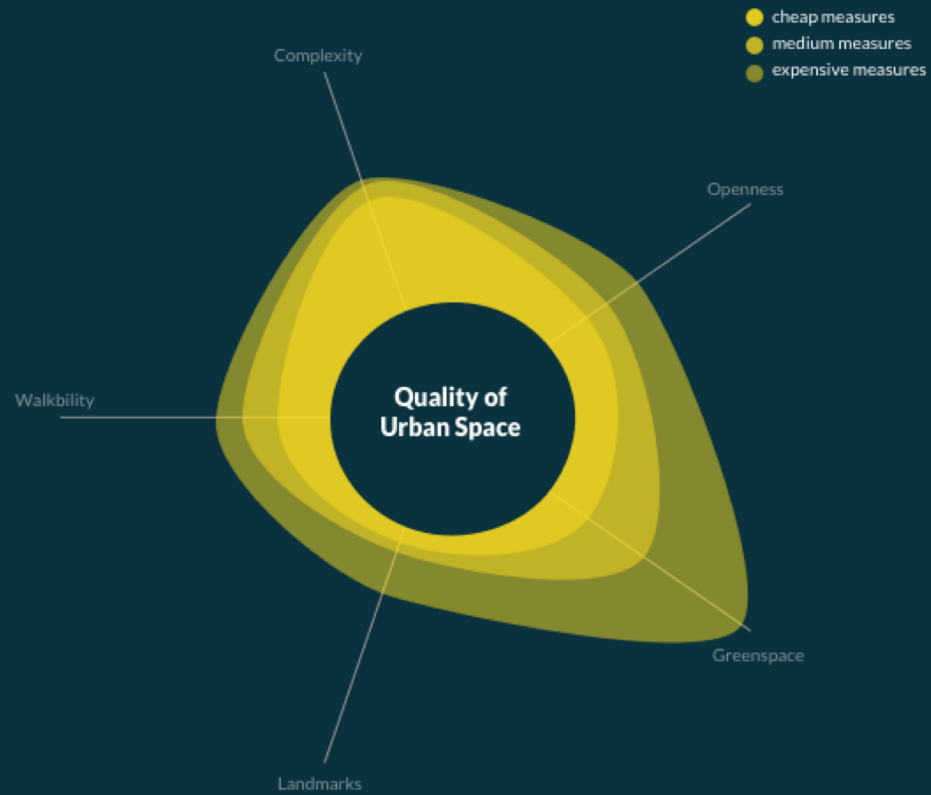
MEDIUM

Pavement, Sign
Symbols and Poles

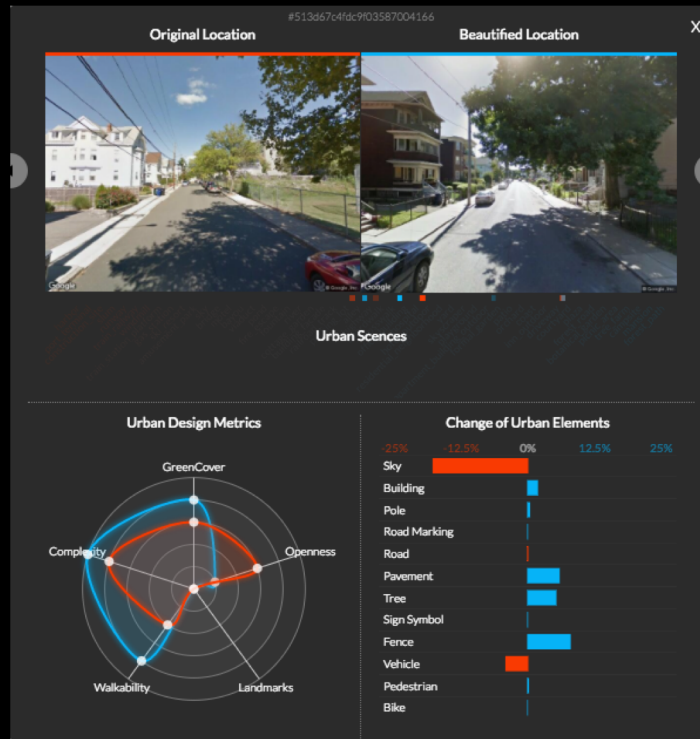
EXPENSIVE

Buildings and Roads

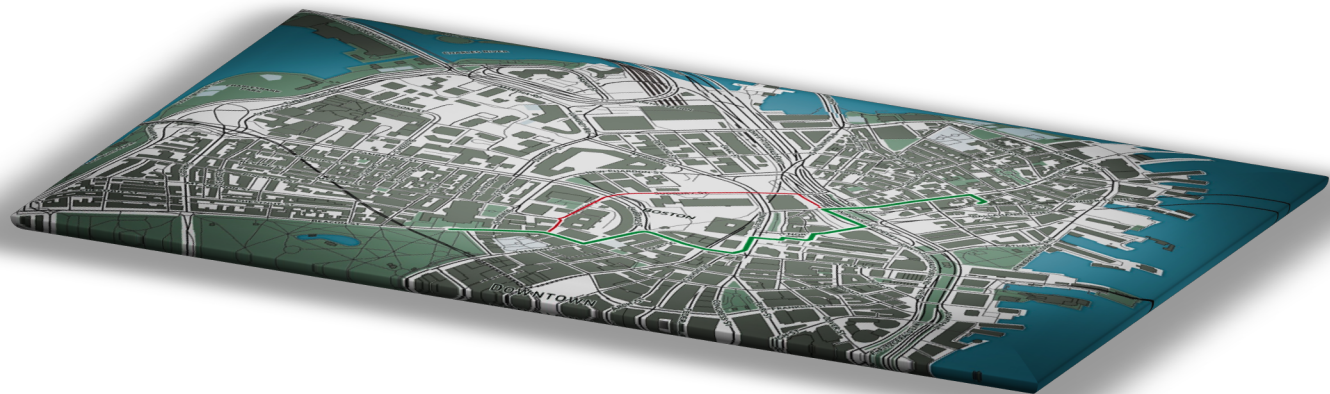




facelift.datadissonance.org



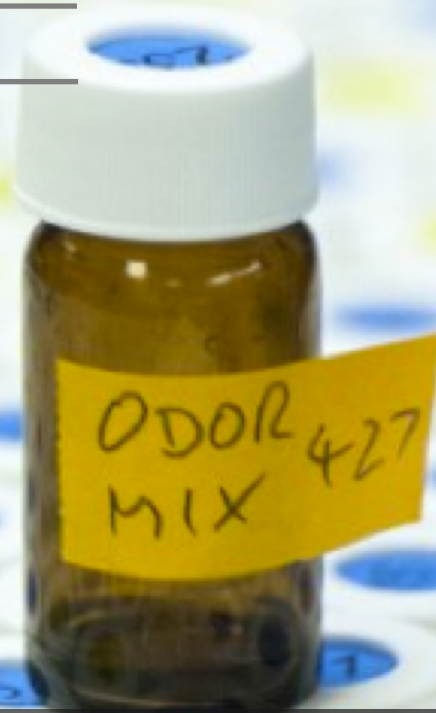
[ht'15] The shortest path to happiness: Recommending beautiful, quiet, and happy routes in the city



SIGHT

S
E
N
S
E
S

intangible property = **smell+sound**




Humans Can Discriminate More than 1 Trillion Olfactory Stimuli
Science, March 2014

[AAAI ICWSM] Smelly Maps: The Digital Life of Urban Smellscapes

Yet, city planning can discriminate only a few bad odors



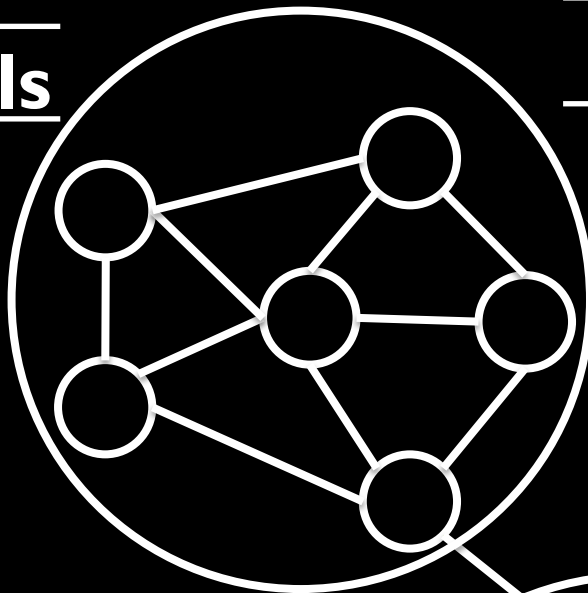


smell walks
Amsterdam,
Pamplona, Glasgow,
Edinburgh, Newport,
Paris, New York.

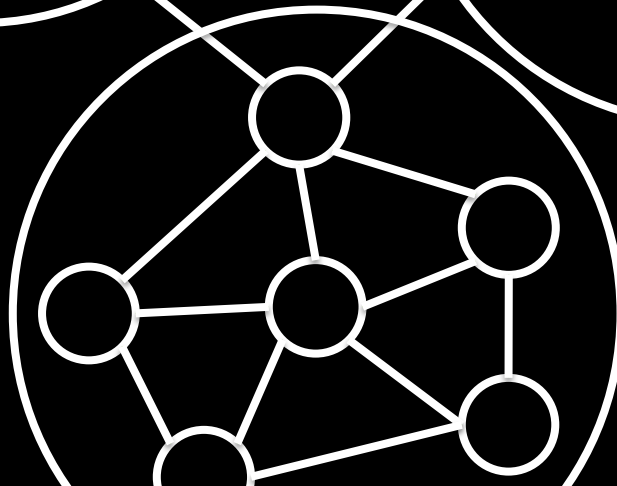
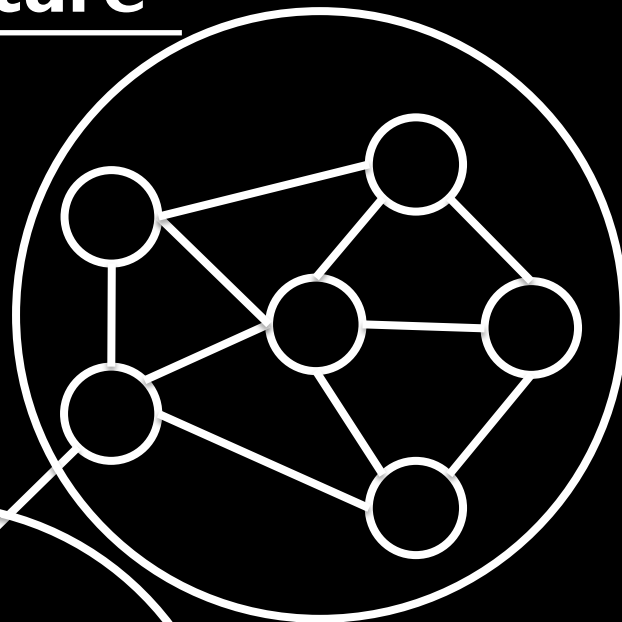
Match collected words to social media



Animals

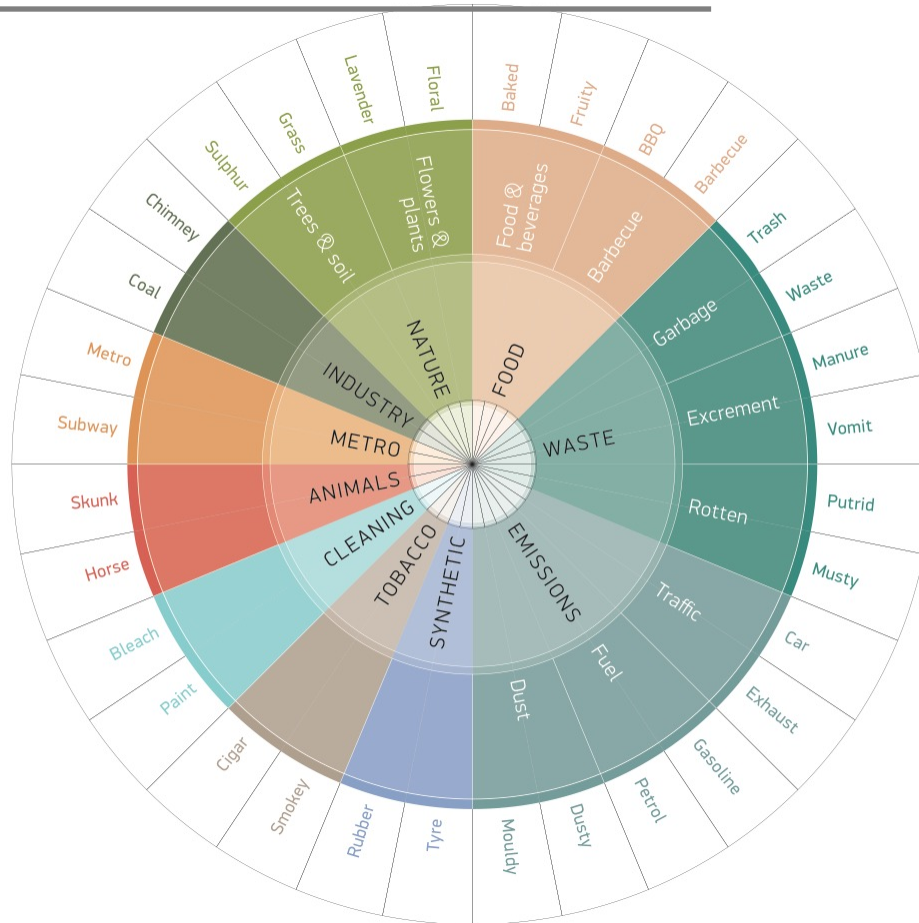


Nature

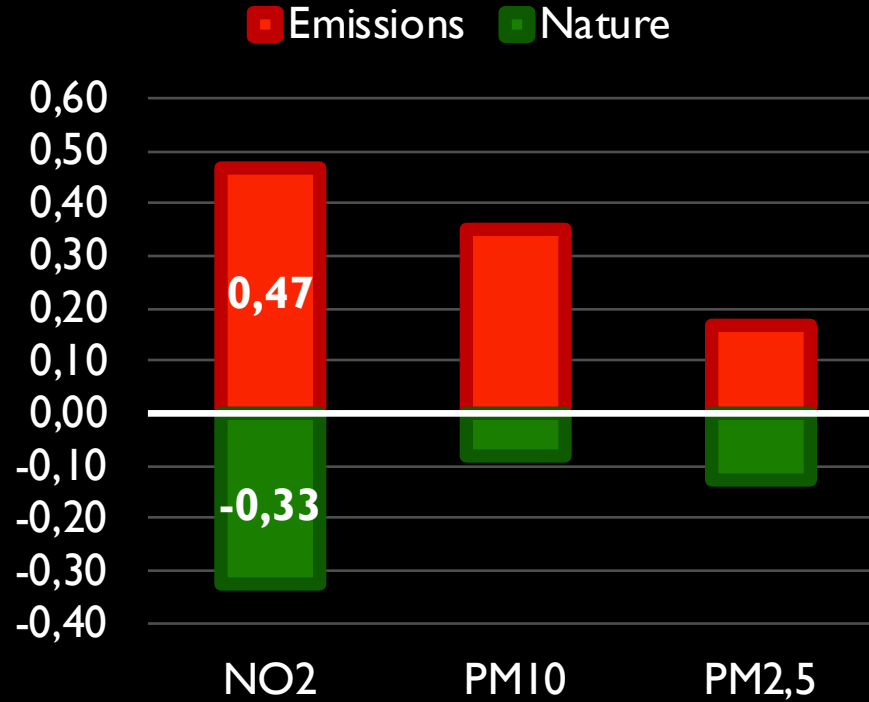


Emissions

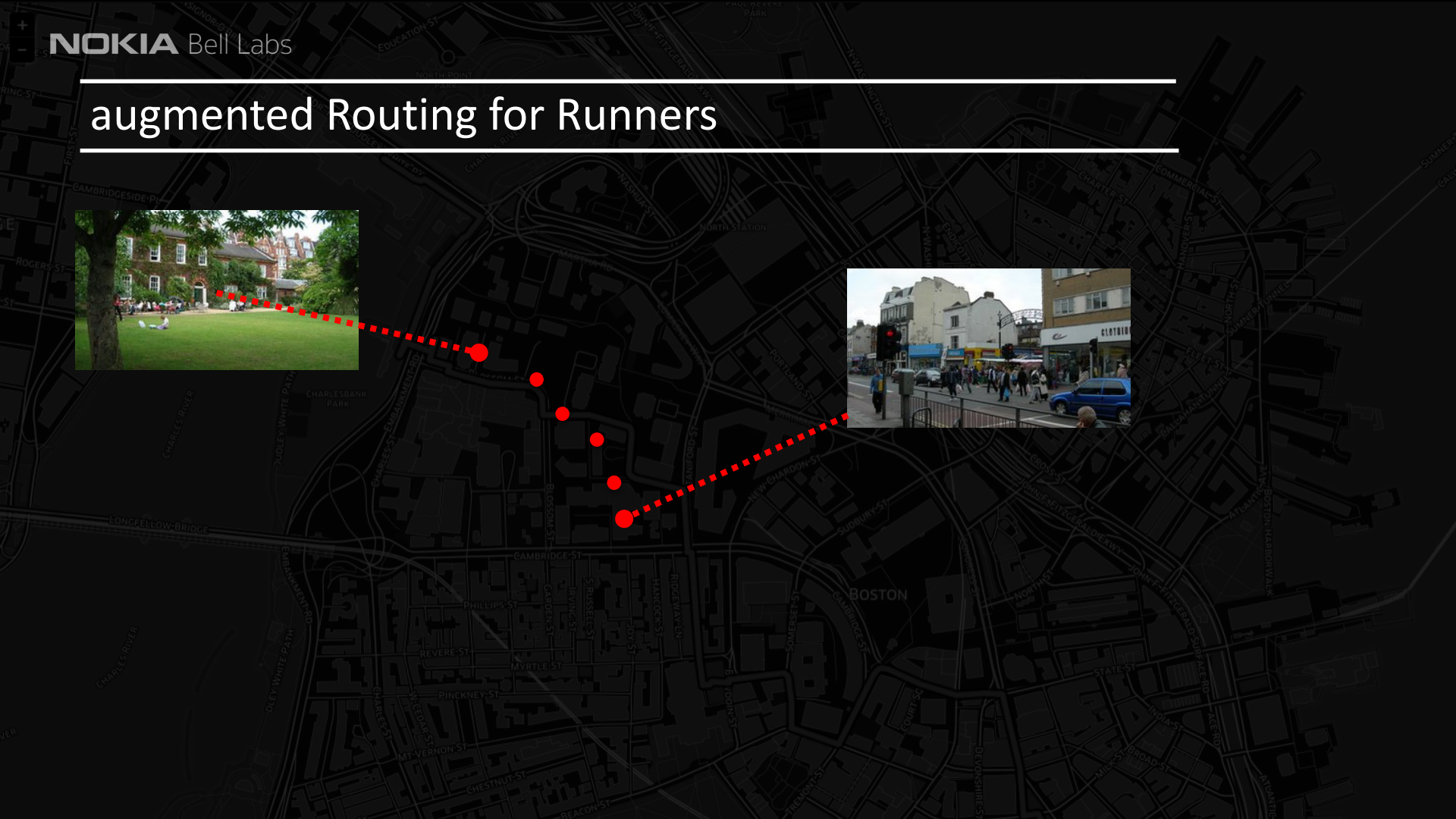
[AAAI ICWSM] Smelly Maps: The Digital Life of Urban Smellscapes



AIR POLLUTION vs SMELL in LONDON



augmented Routing for Runners



Carrier

12:35 PM



What are you up to today?

How may miles do you
want to run?

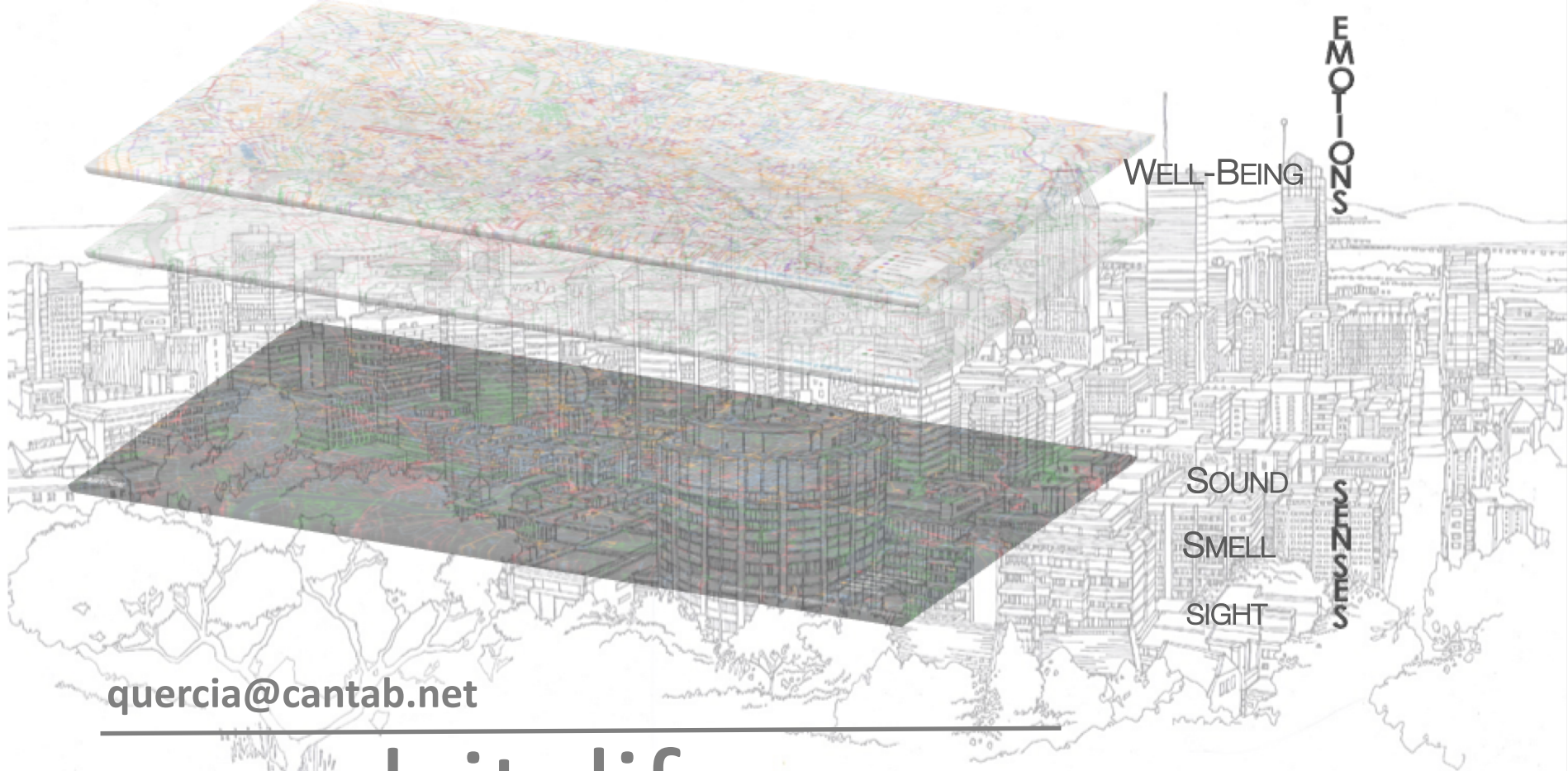


What is your preferred experience today?

mindful

vibrant

GIVE ME A GOOD ROUTE



quercia@cantab.net

goodcitylife.org

