



Quantifying **intangible** properties

AI for Human Systems

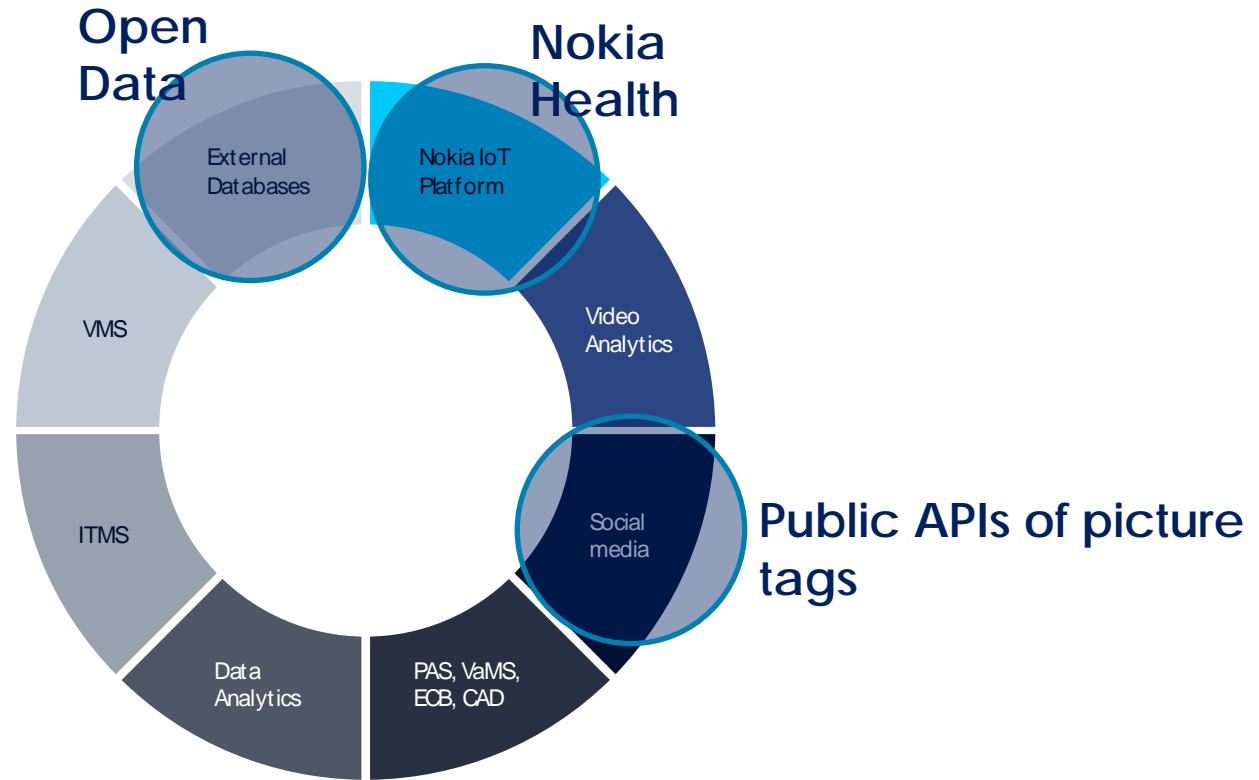
Social Dynamics team, Cambridge UK

60 slides, each for 20 seconds = 20 minutes

Wish me luck (and luck to the simultaneous translator)



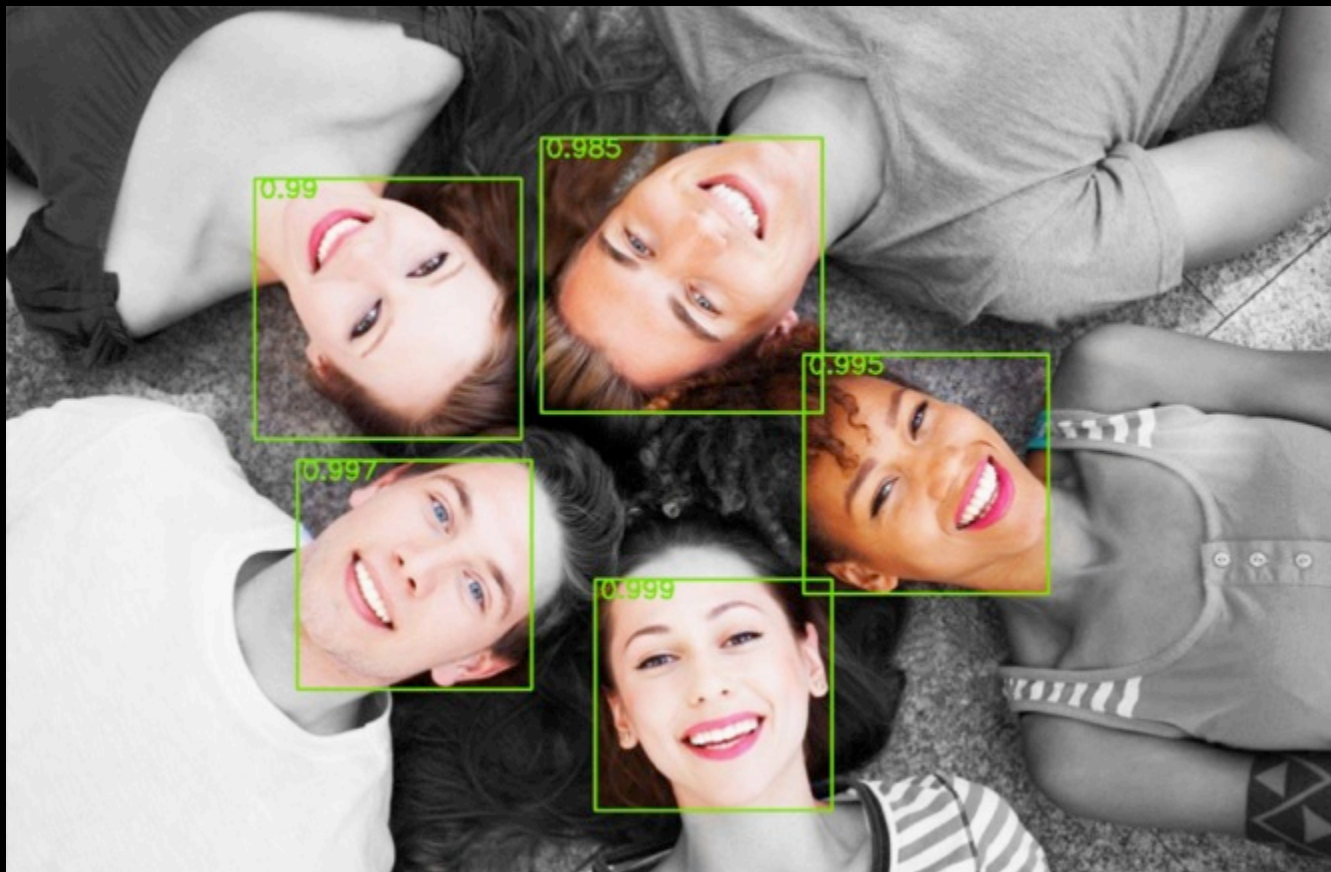
Nokia Integration Platform



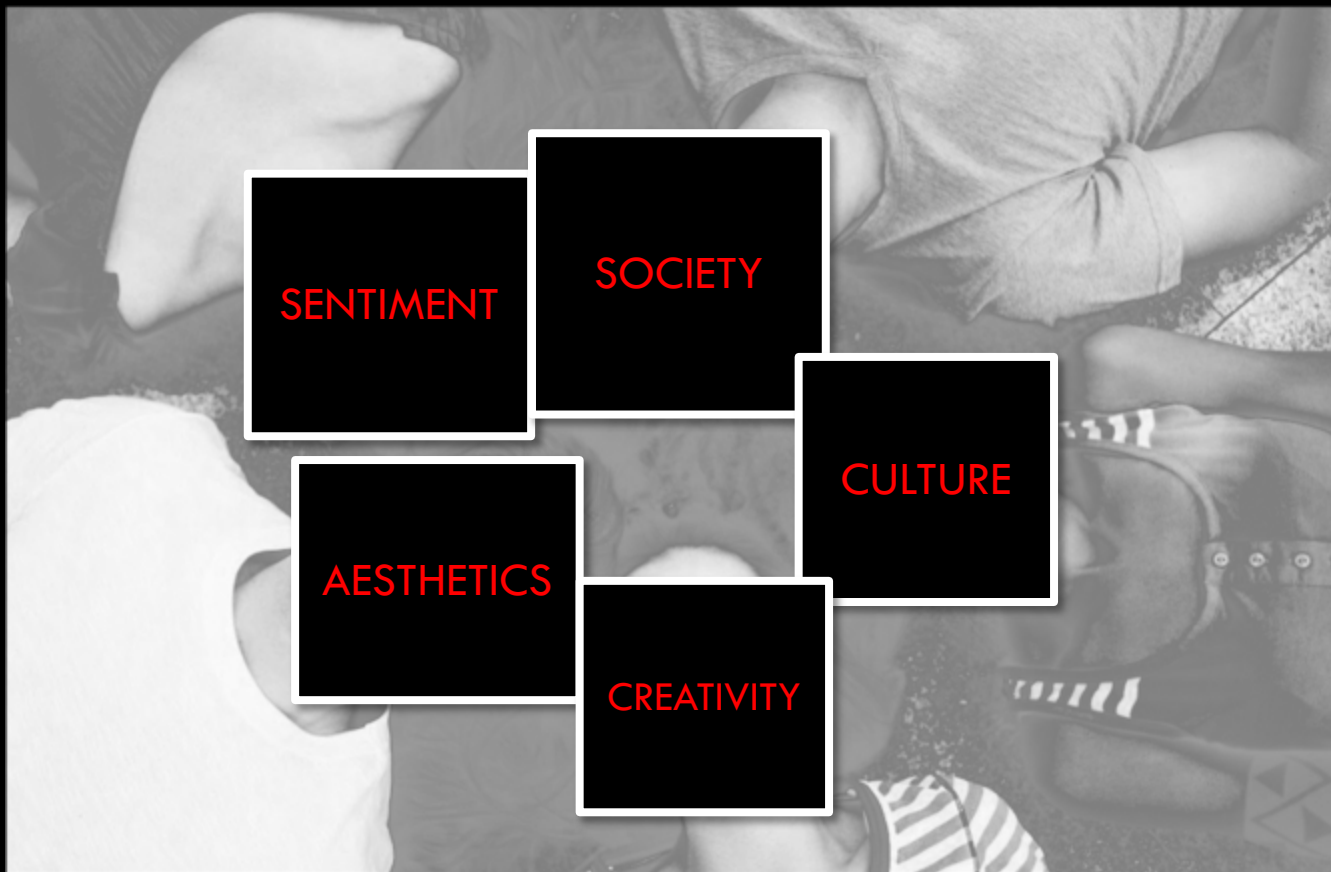
COMPUTER VISION



VISIBLE



INVISIBLE



smart city

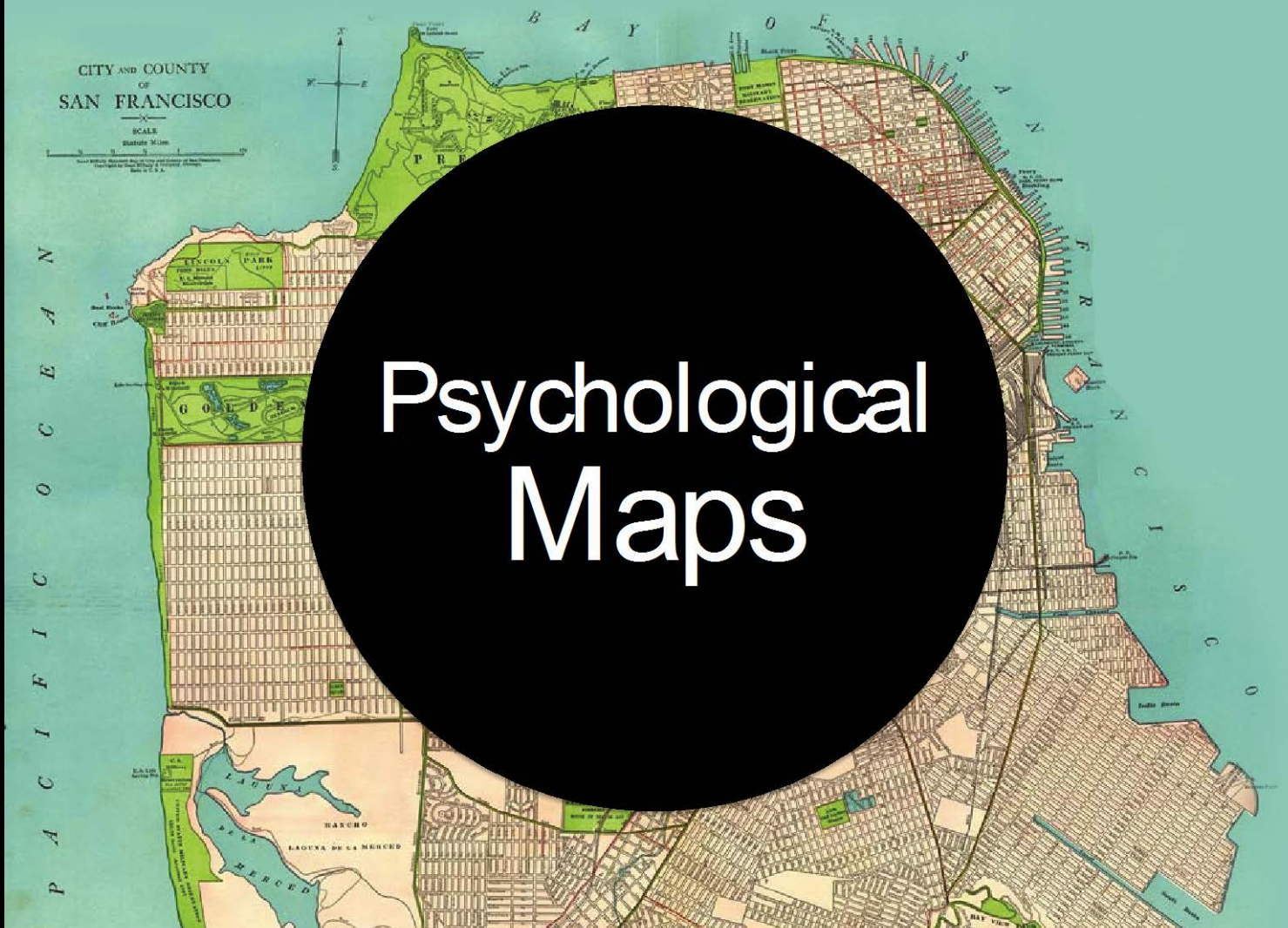


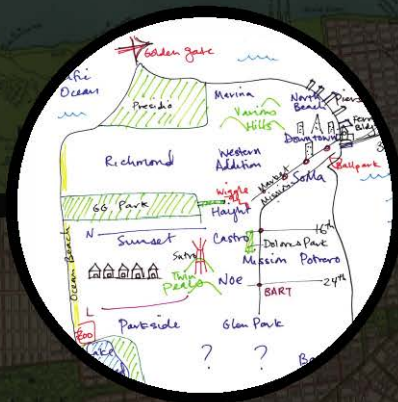
CITY AND COUNTY
OF
SAN FRANCISCO

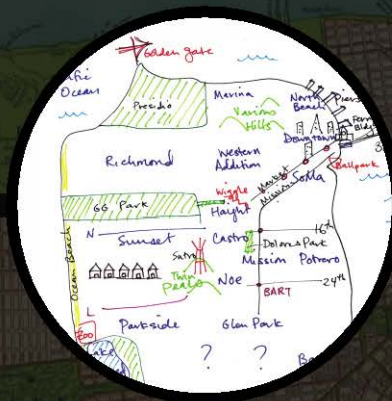
SCALE
Statute Miles

Small text: This map is published by the City and County of San Francisco, California, U.S.A.

Psychological Maps

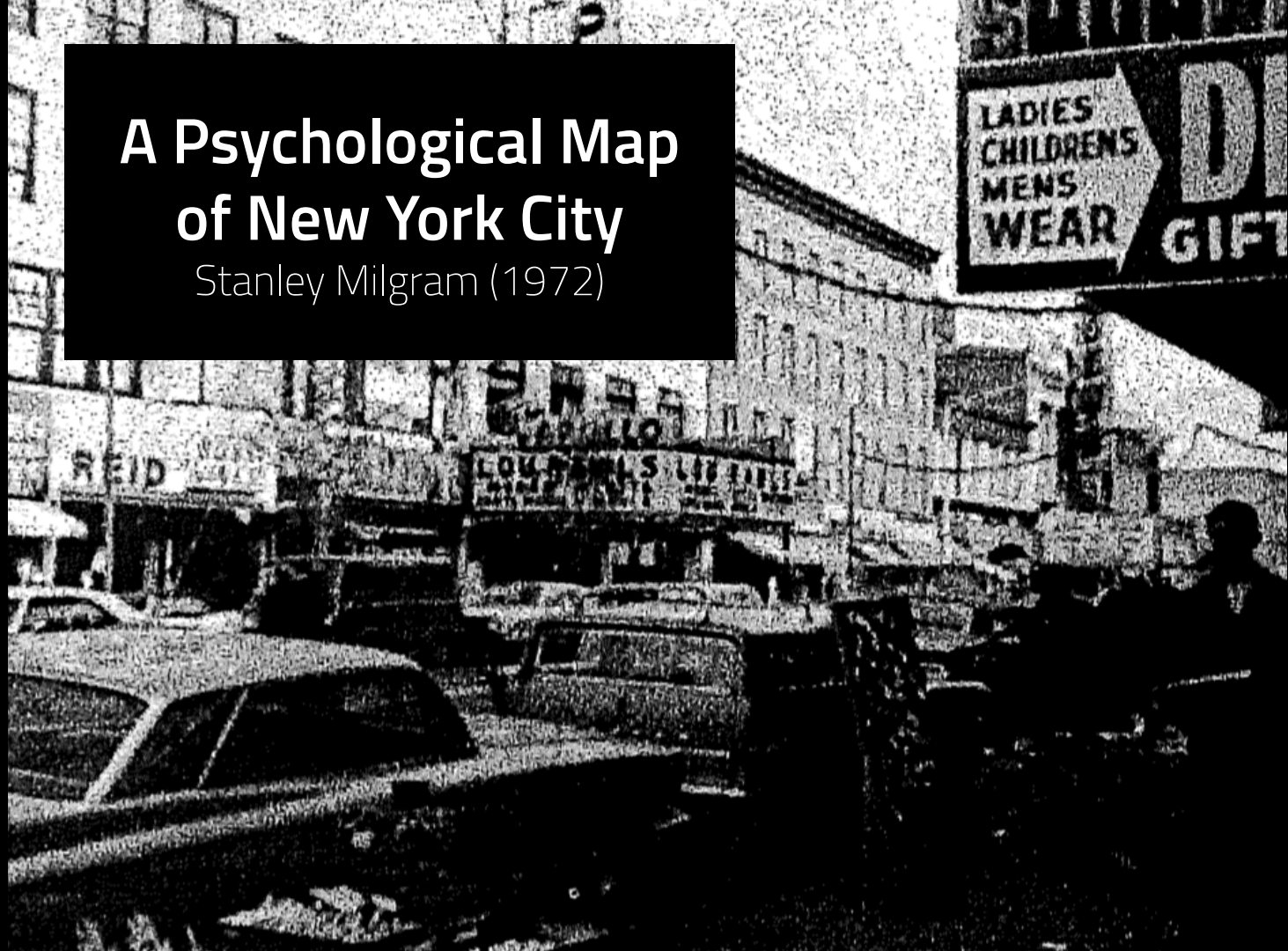






A Psychological Map of New York City

Stanley Milgram (1972)







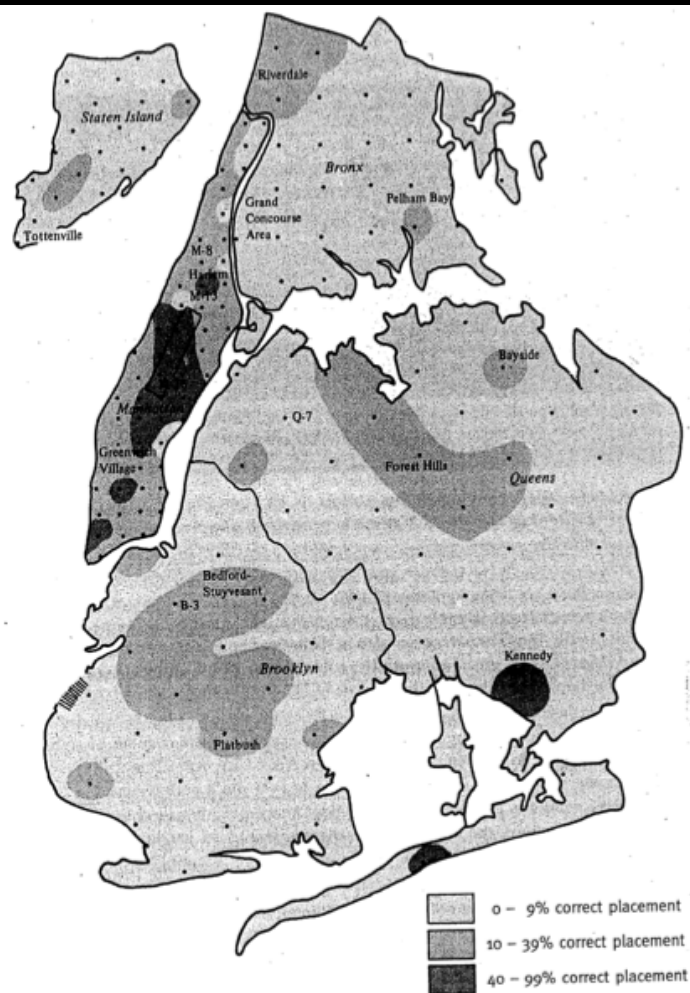


FIGURE 7.4 This stylized map of New York City shows the correct placement of scenes at 152 viewing points in the city, placed according to neighborhood.



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).



Google

The closest London tube station is

Ok



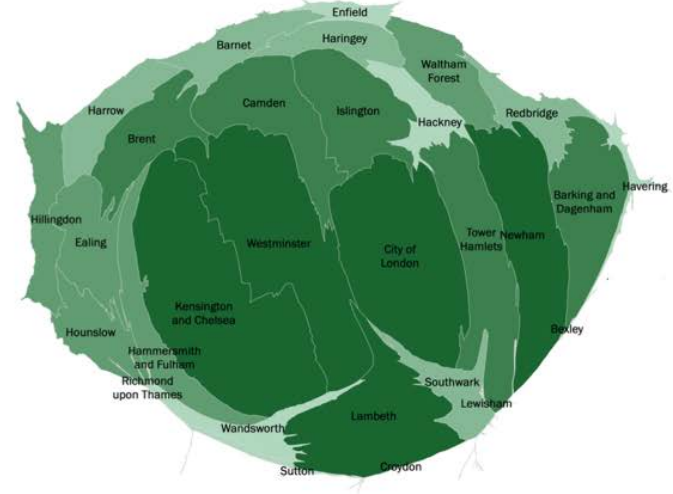
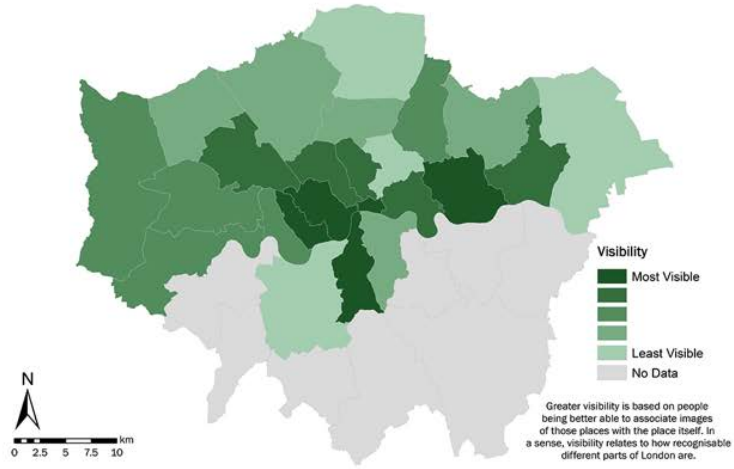
View larger image

© 2012 Google - Terms of Use



Recognizability

ity Map



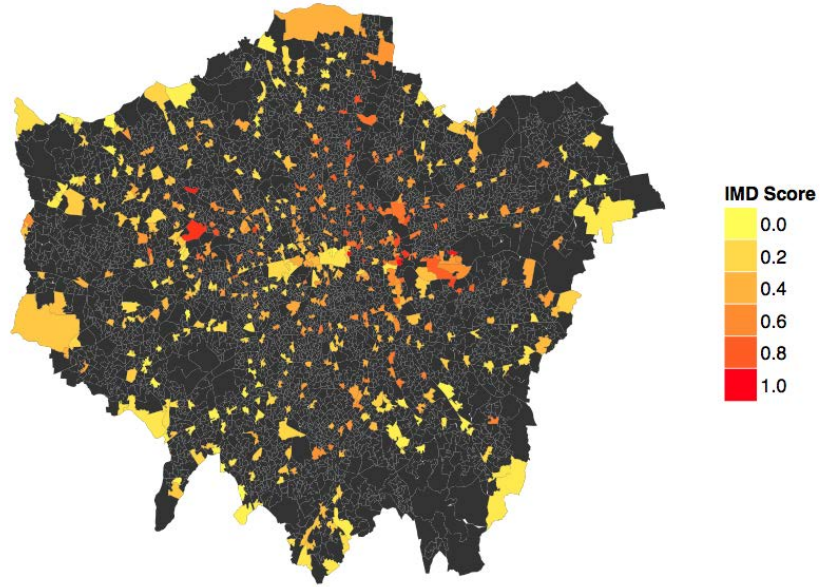
A woman is lying down, her head tilted back, wearing a top with a colorful butterfly pattern. The background is a soft-focus outdoor scene with green foliage and bright, circular bokeh light spots. A large black circle is centered over the image, containing the text.

Recognizability vs Well-Being

IMD

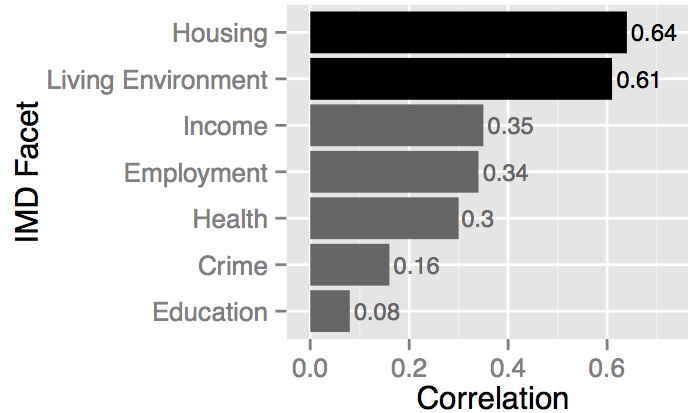
(Index of Multiple Deprivation)

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



Recognizability *VS* Well-being

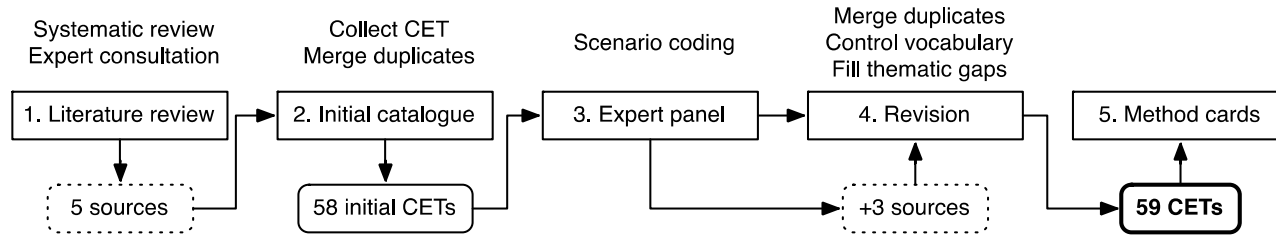
borough-level



goodcitylife.org/six-hacks/

Are you failing to engage colleagues and peers in a complex project?
Would you like to open a new community and don't know why?

Play with our stack of cards (our a tinder-like engagement game)



Community Engagement Triage: Lightweight Prompts for Systematic Reviews

39:7

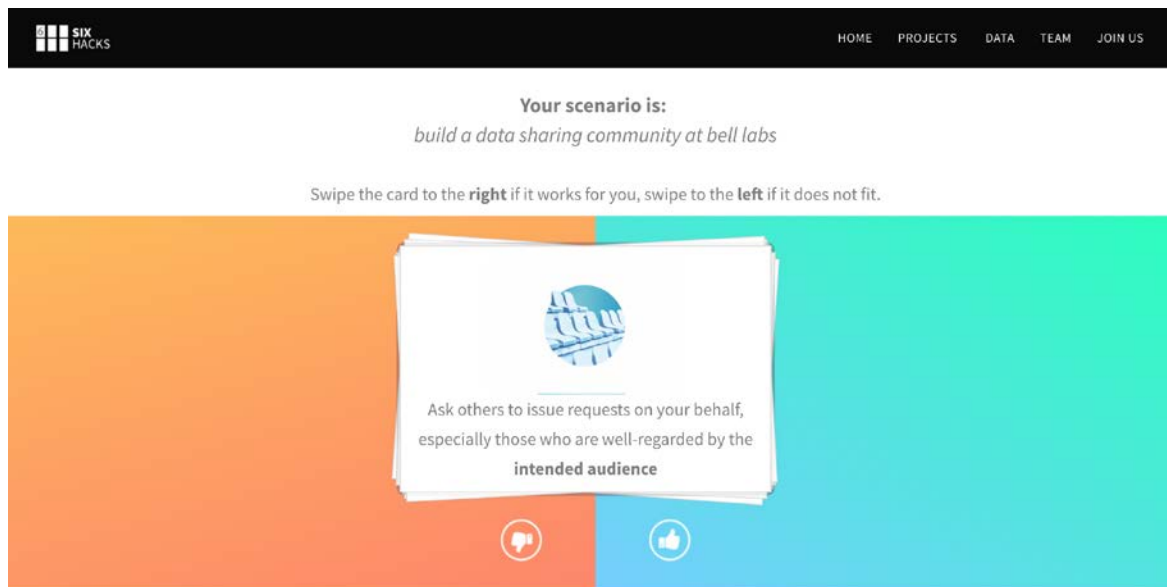
Domain	#	Community engagement technique	Sources
Discovery	1.	Promote repeatedly across a range of media platforms to ensure visibility	[16, 38]
	2.	Appoint a person responsible for recruitment	[16]
	3.	Build relationships with prospective members	[16]
	4.	Present community contributions well and update 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	[23]
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]
	19.	Recruit people who have prior relationships outside the group, this can yield stronger ties between members	[23]
Participation	20.	Provide clear guidance and navigation to avoid confusion	[38]
	21.	Issue clear norms and policies about acceptable conduct and appropriate contributions	[23, 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]
	29.	Give members strategic autonomy in their work	[16]
Evaluation	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	[16, 24]
	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	[27]
	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	[23]
	51.	Highlight commonalities among members to foster familiarity, but avoid excluding others	[23]
	52.	Foster a sense of community and shared identity among members	[16]
Collaboration	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 organisers 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]
	59.	Provide support for collaboration: communication, idea development, task management, peer support, ...	[3, 38]

Table 1. Catalogue of community engagement techniques.



SIX HACKS

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



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

60 secs

40 secs

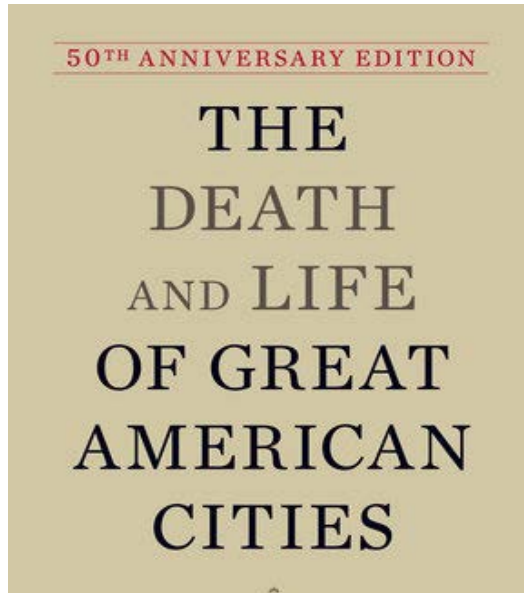
20 secs



intangible property: **urban vitality**

The Death and Life of Great Italian Cities: A Mobile Phone Data Perspective

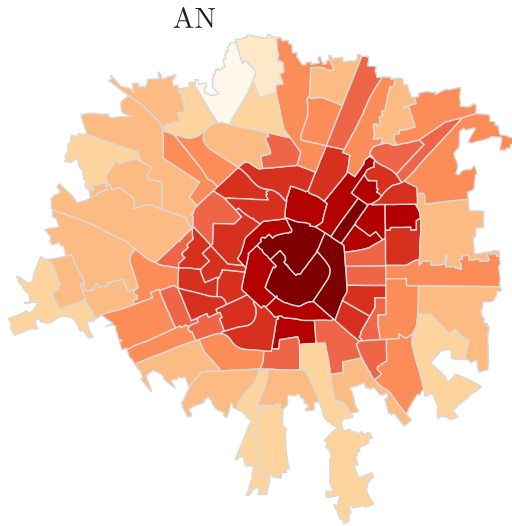
The theory: Jane Jacobs



Jacobs' diversity conditions

LAND USE	SMALL BLOCKS
AGED BUILDINGS	DENSITY

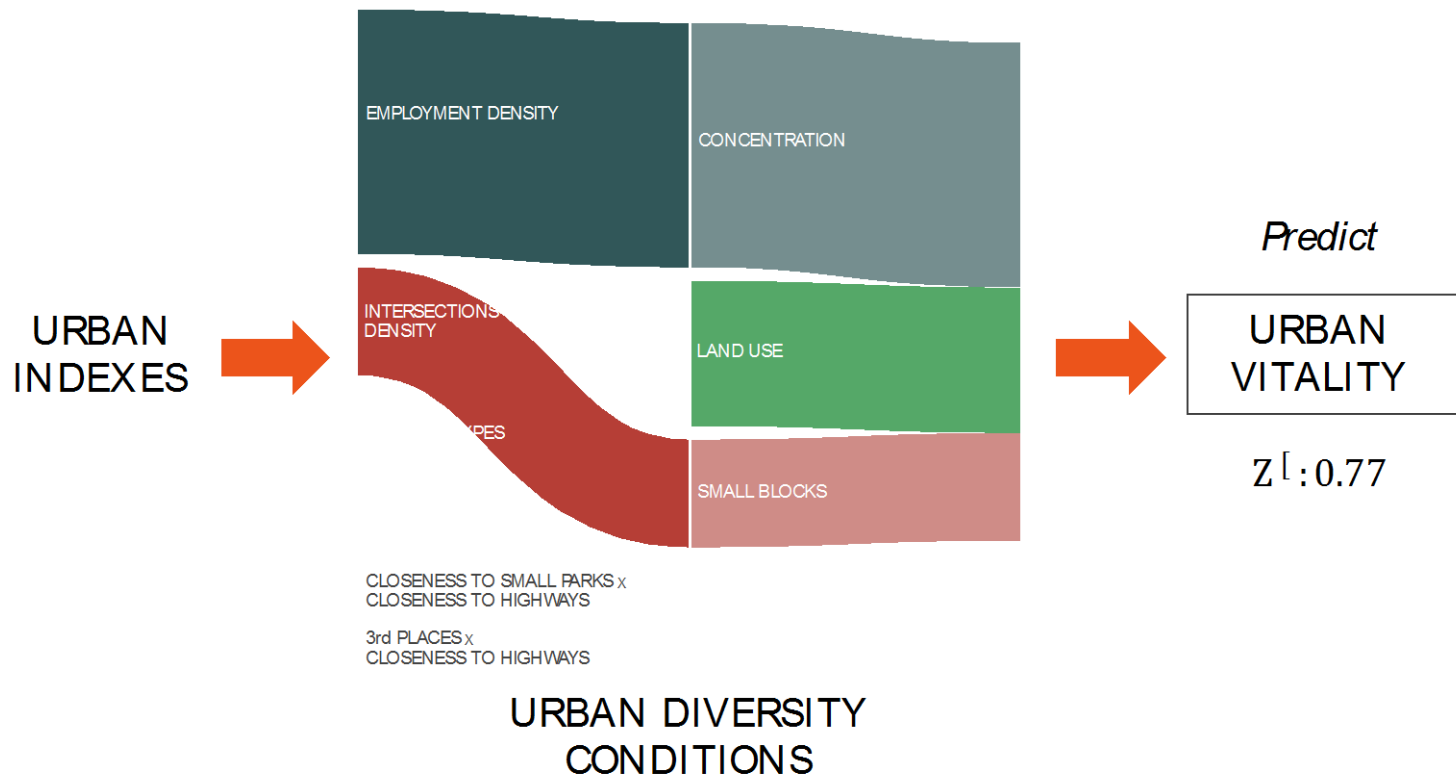
“Operationalize” Vitality



- Mobile Internet activity as a proxy for urban vitality



Urban diversity to urban vitality



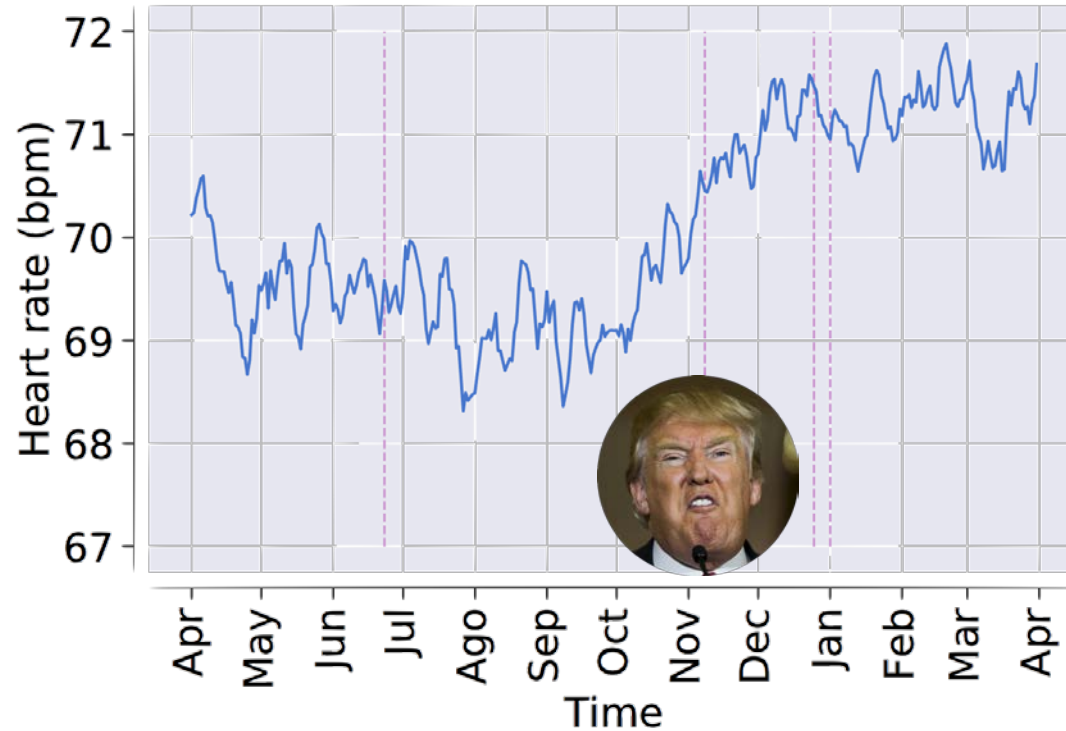


intangible property: city's pulse

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



intangible property = **urban beauty**



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

A



B



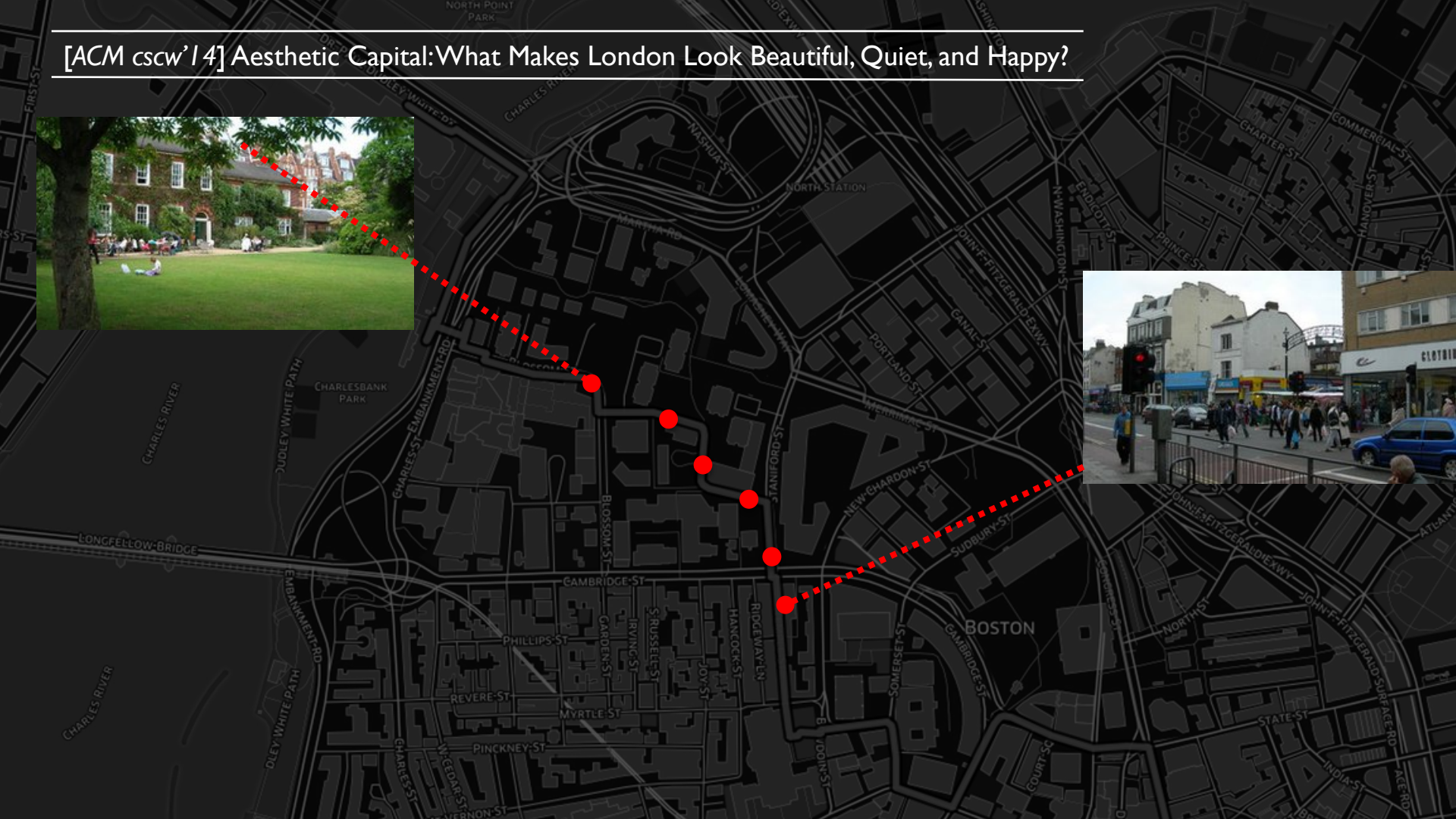
most
beautiful



least
beautiful



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



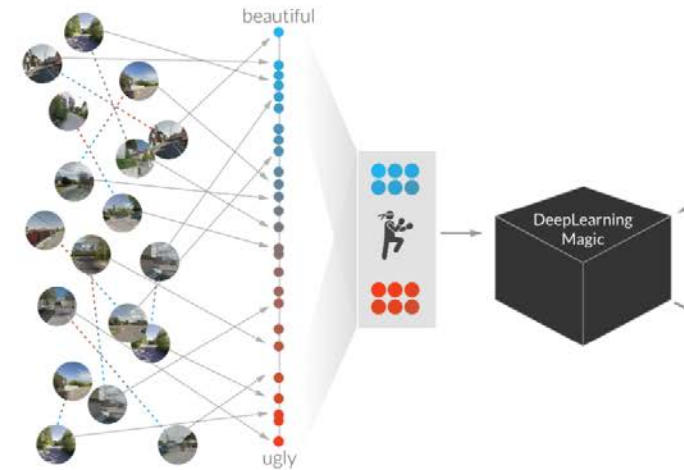
QUIET

Map data ©2014 Google

FaceLift

A transparent generative deep learning model to beautify the world

How does it work?



Rating images

Training
Data

Deep Learning

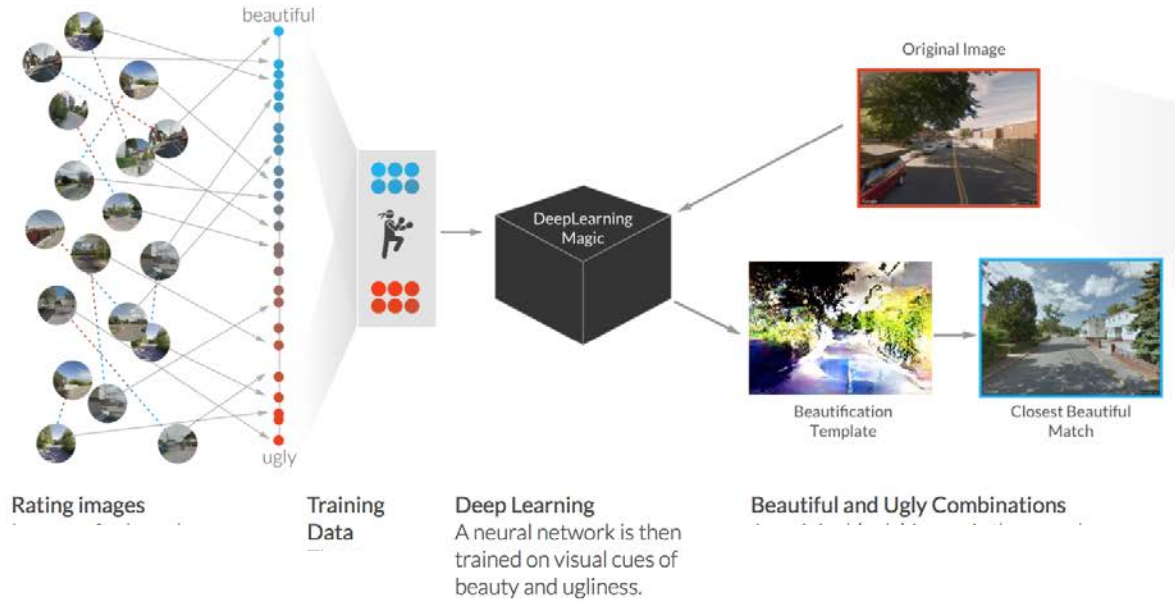
A neural network is then trained on visual cues of beauty and ugliness.

Paper and demo

FaceLift

A transparent generative deep learning model to beautify the world

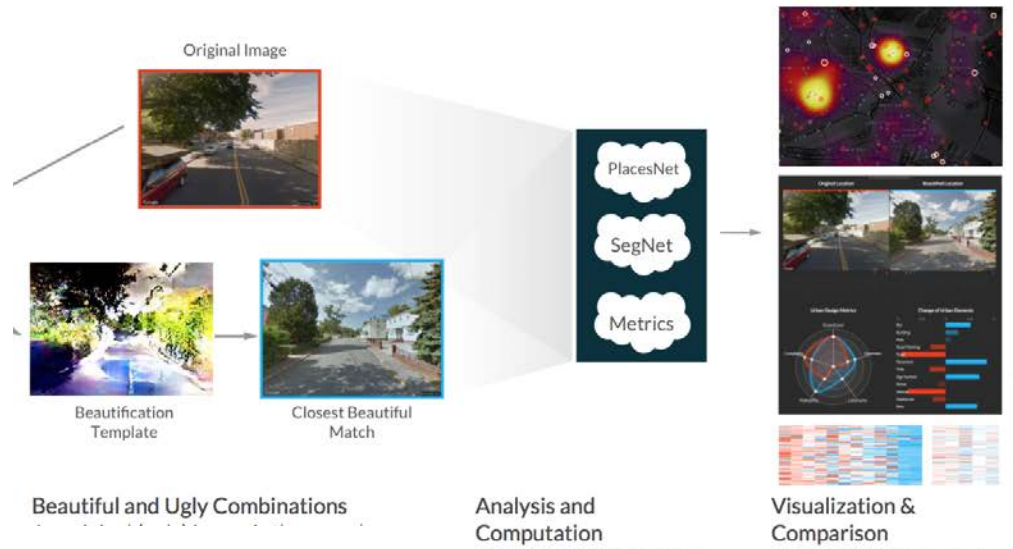
How does it work?



Paper and demo

FaceLift

A transparent generative deep learning model to beautify the world



Paper and demo

transformation



Original



Template Transform



Beautified



CHEAP

Trees, Fences, Road
Marking and Vehicles

MEDIUM

Pavement, Sign
Symbols and Poles

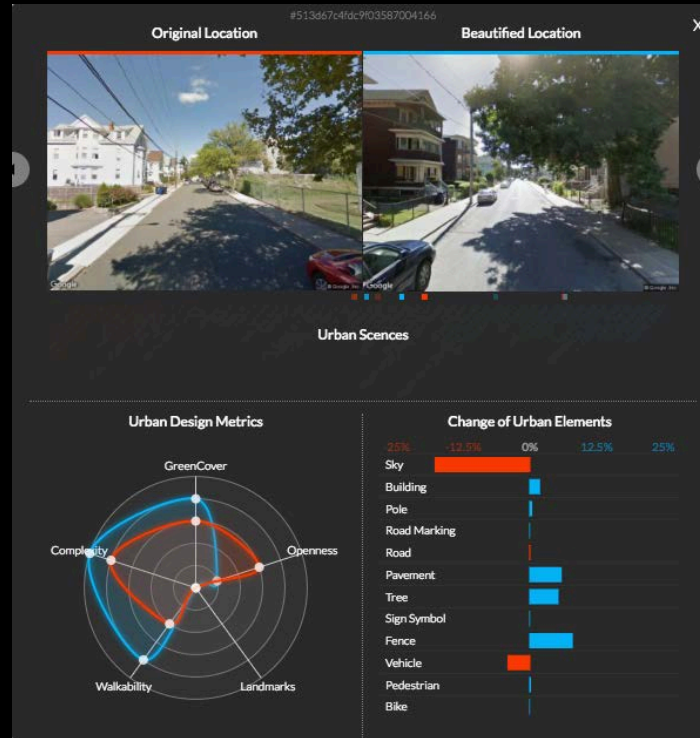
EXPENSIVE

Buildings and Roads





facelift.datadissonance.org




60 secs

40 secs

20 secs

intangible property = **sensory perceptions**

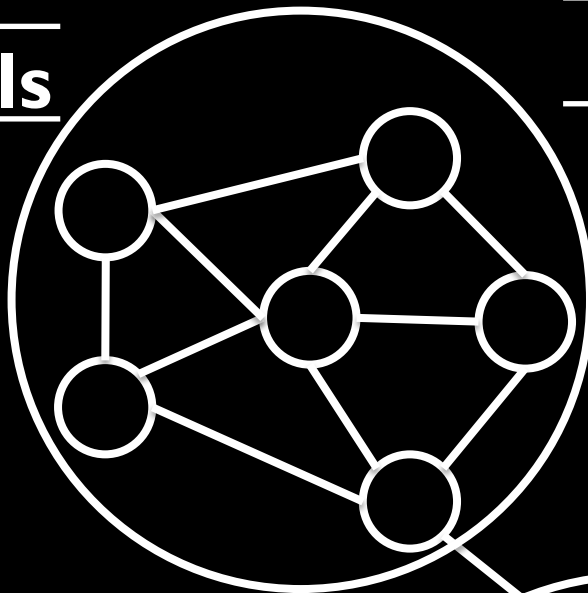


smell walks
Amsterdam,
Pamplona, Glasgow,
Edinburgh, Newport,
Paris, New York.

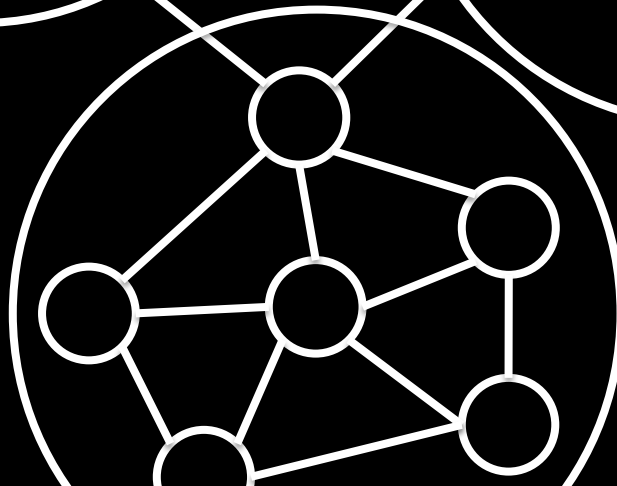
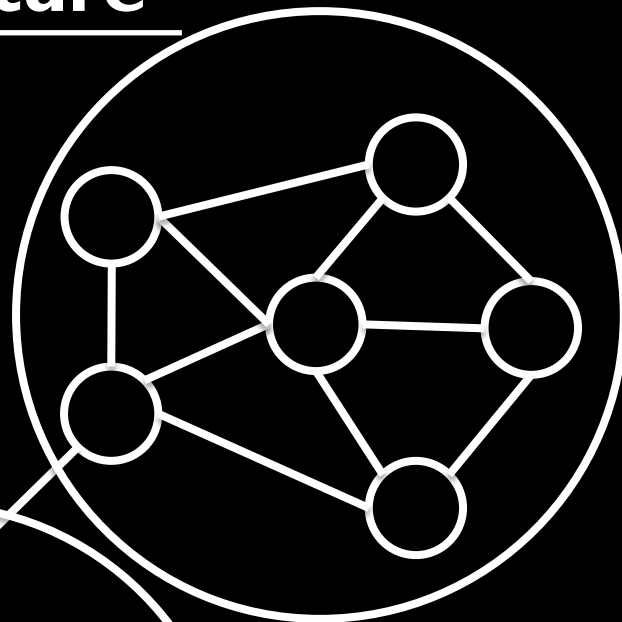
Match collected words to social media



Animals



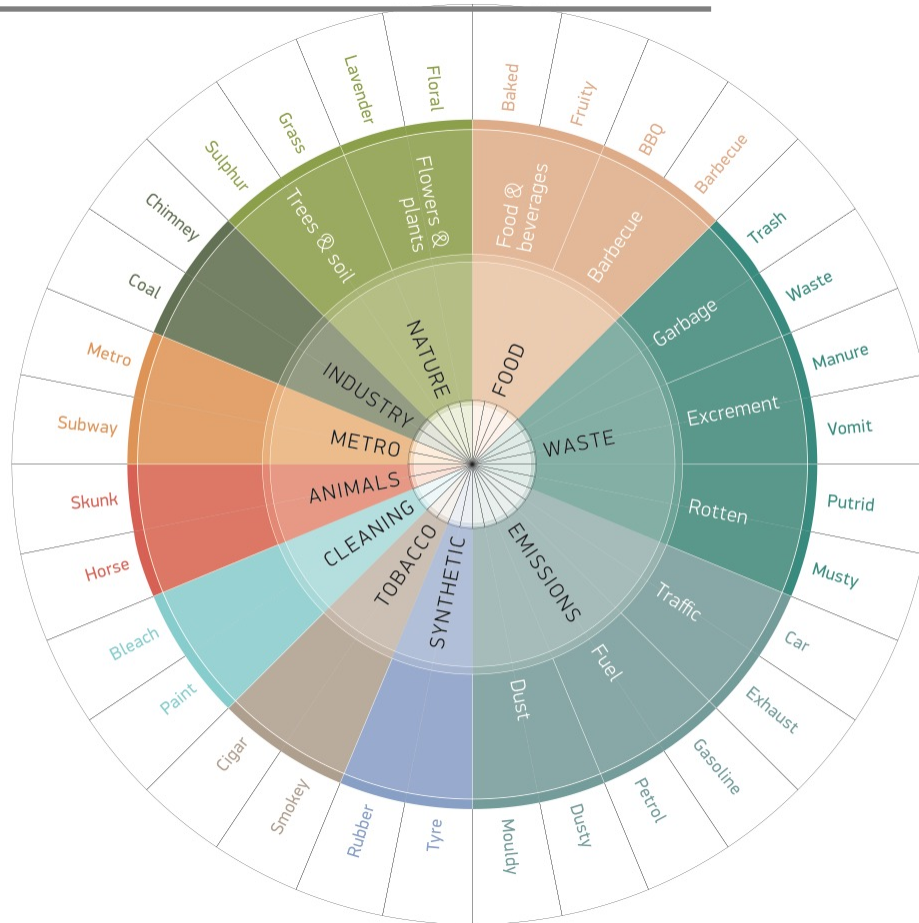
Nature



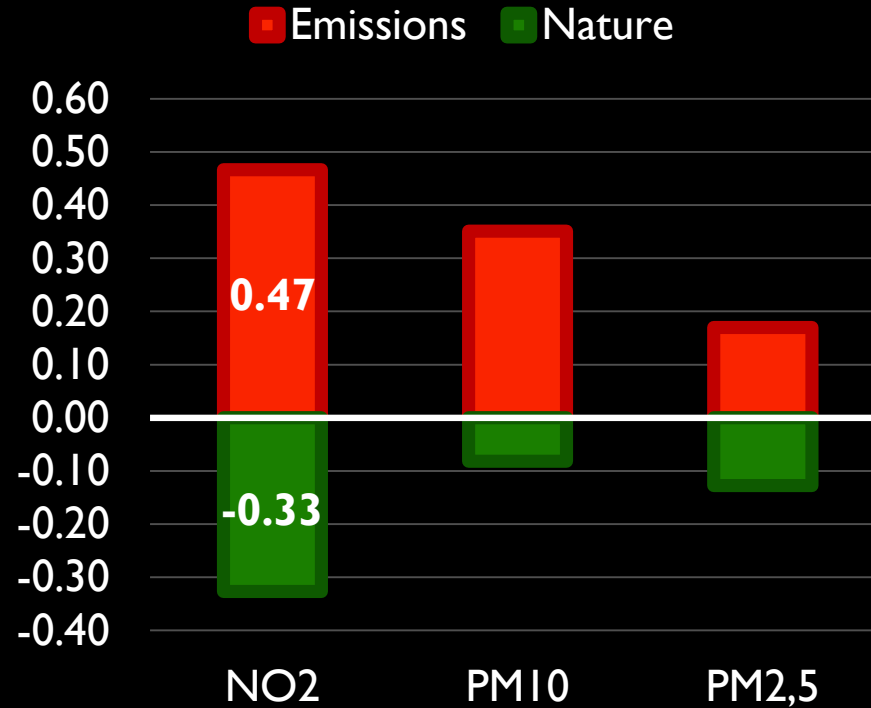
Emissions



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



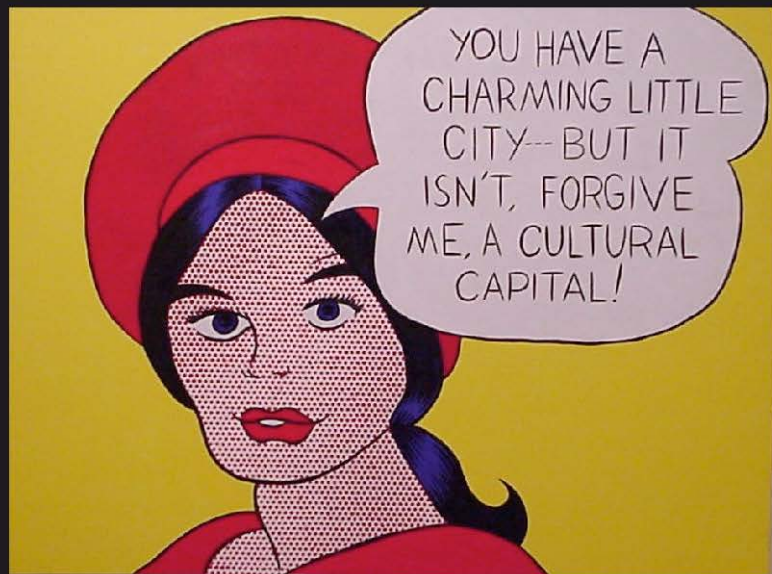
AIR POLLUTION vs SMELL in LONDON





intangible property = **culture**

CULTURAL CAPITAL:
*Does culture make
places successful?*

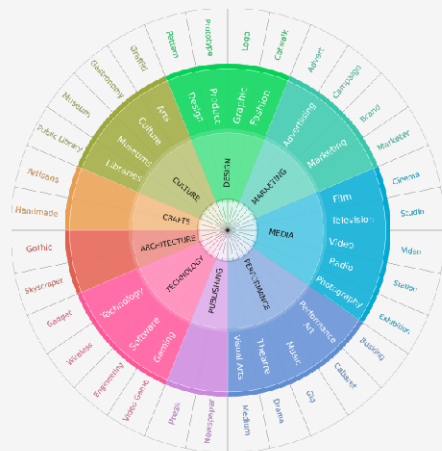




[Digital] Cultural Capital



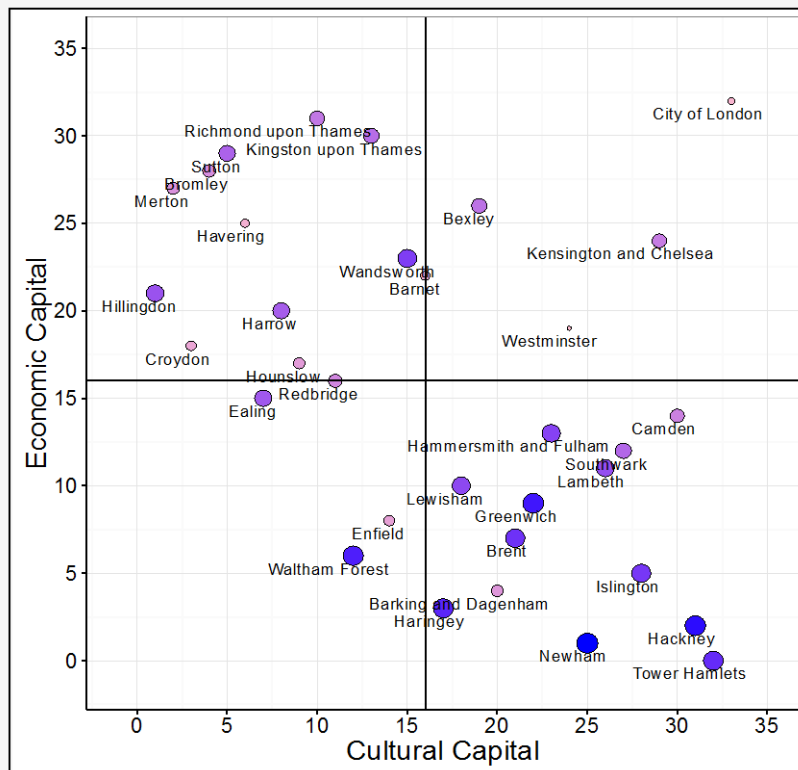
We build a taxonomy of 263 cultural terms from the hierarchy of Wikipedia articles related to 9 top level categories.



Architecture
Crafts
Culture
Design
Marketing
Media
Performance
Publishing
Technology

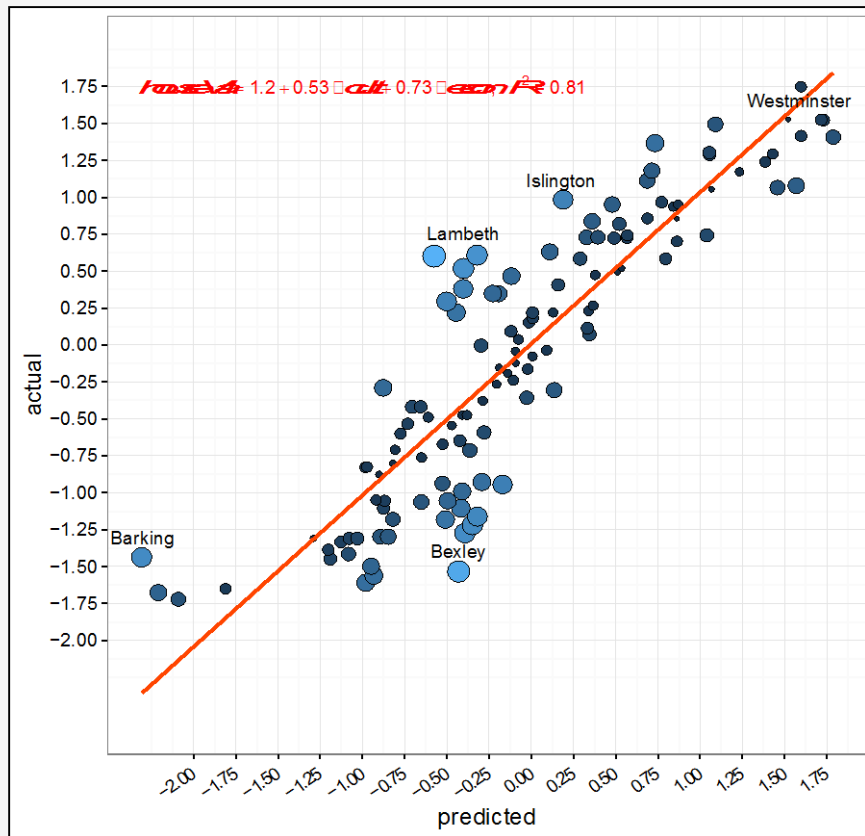
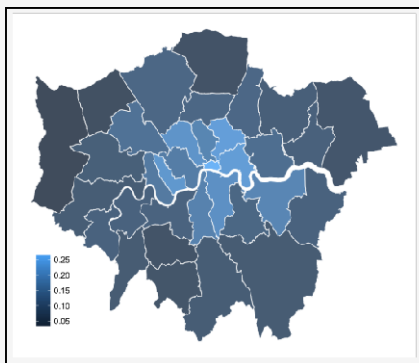
Cultural vs Economic Capital

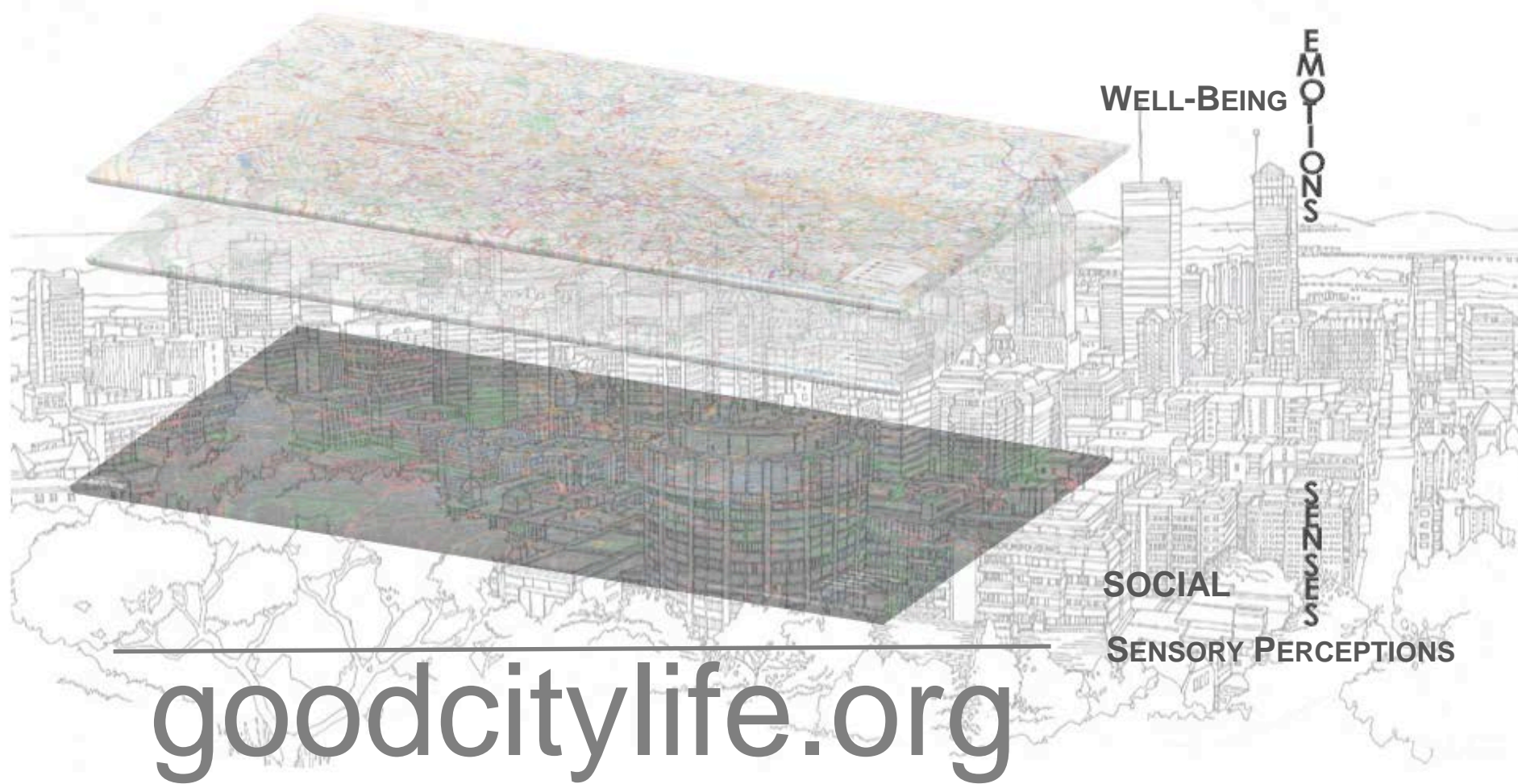
Economic capital (income) rank vs Cultural capital rank (Flickr) for neighbourhoods in 2010. Color and size indicate the percent change in IMD.





Housing price prediction





WELL-BEING

EMOTIONS

SOCIAL

SENSORY PERCEPTIONS

SENSORY PERCEPTIONS

goodcitylife.org
