13 September 2017, VGIscience Summer School TU Dresden

Visualising VGI
for application to the fields of landscape and urban planning

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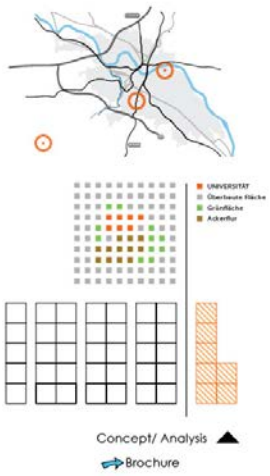
Department of Geosciences, Cartographic Communication

background



Concept/ Analysis

Brochure

OPEN SPACE ANALYSIS AND DESIGN

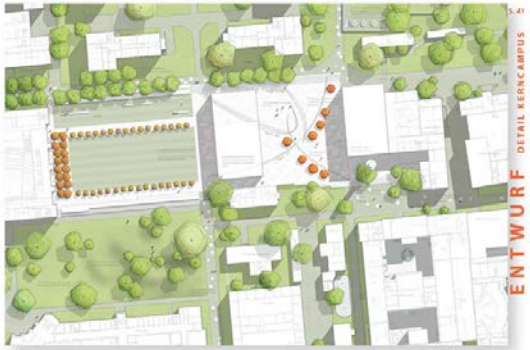
During the last part of studying landscape architecture at the UT Dresden, I focused on classical landscape architecture open space design projects such as the redesign masterplan for the **UT Dresden CAMPUS (1), Wilhelm-Kuelz-Plaza Redesign (2),** or a project in cooperation with Addis Abeba to develop unused open space structures in critical areas of the city **(3).**

2007 - 2009

Illustration, central plaza design

Still frame from 3D Animation, Design / Light Concept

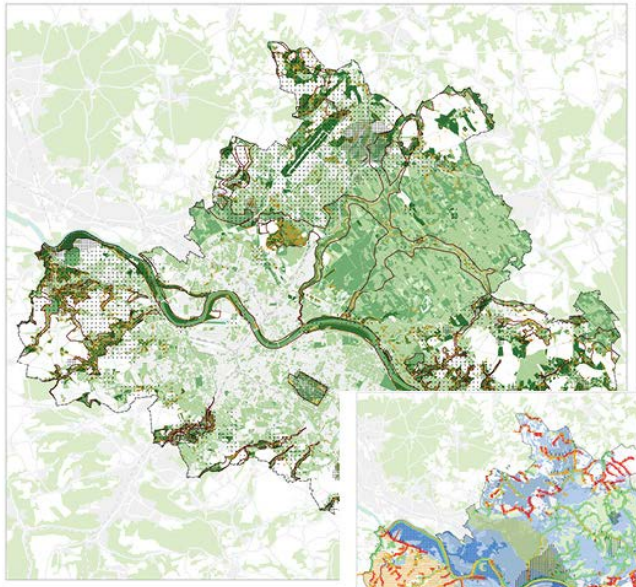
Animation/Video



Design plan close-up

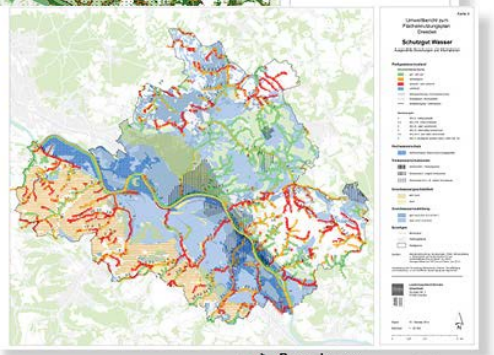
Full Size

5



Biodiversity map for Dresden

Water Quality



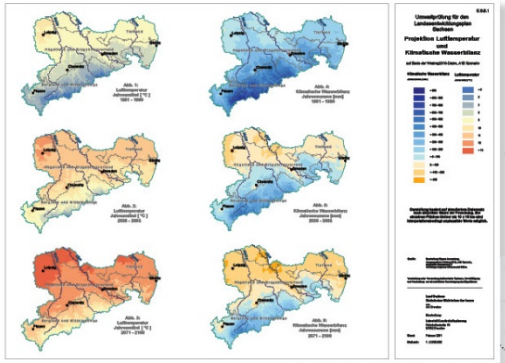
Brochure

1

STRATEGIC ENVIRONMENTAL IMPACT ASSESSMENT

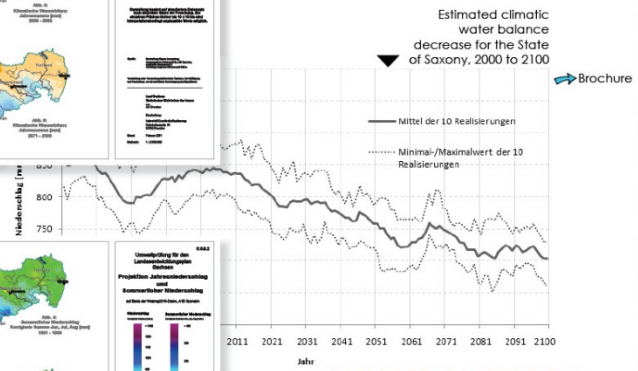
Landscape Architecture:
Public Space Design

Landscape &
Urban Planning:
Decision Making



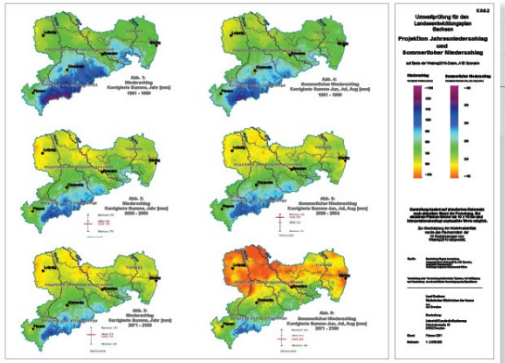
Forecasted temperature increase and climatic water balance decrease for the State of Saxony

Full Size



Estimated climatic water balance decrease for the State of Saxony, 2000 to 2100

Brochure



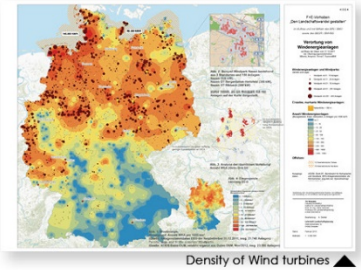
Overall precipitation forecast (left column) and summer precipitation forecast (right column). Upper row: today, middle row: forecast horizon 2038-2065, bottom row: forecast horizon 2071 - 2100

Full Size

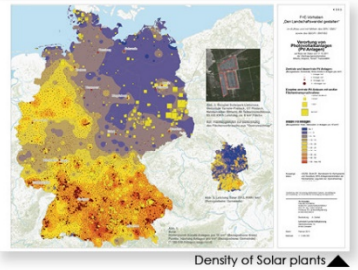
CLIMATE CHANGE & ECOLOGICAL RESIELENCE

As a research associate at the UT Dresden, 2010-2016, I focused on several third-party financed projects. The graphics above were created as part of the Strategic Environmental Impact Assessment (SUP) for the 2020 State development plan (LEP) for the State of Saxony. On this scale, it was particularly important to identify the potential impact of the forthcoming climate change. For this purpose, a nationwide climate model (Wettreg 2010) had to be regionalized based on local residua, which I conducted in cooperation with the Meteorological Department.

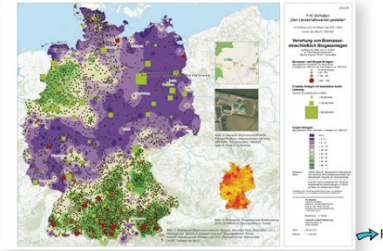
2012/13



Density of Wind turbines

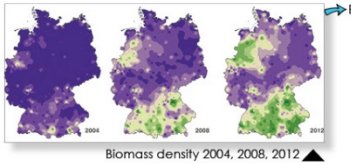


Density of Solar plants



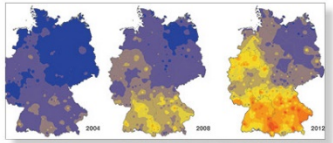
Full Size

Density of Biomass facilities



Brochure

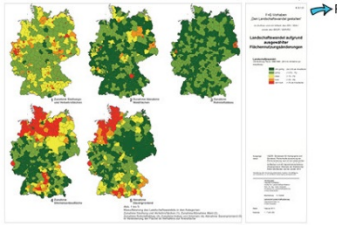
Biomass density 2004, 2008, 2012



Solar density 2004, 2008, 2012

Supplementary visualizations for evaluating Landscape Change

Full Size



IMPACT OF RENEWABLE ENERGY DEVELOPMENT IN GERMANY

Another project I compiled at the Department of Environmental Planning at UTD was commissioned by the Federal Environment Agency. Due to the increasing development of renewable energy facilities in Germany, it was important to identify respective influences on landscape appearance. We were able to show that the appearance of large parts of the landscape change rather quickly, and dramatically. Most of these graphics are based on a spatial conversion of the nationwide EEG database (provided by electricity network operators in txt-data).

2014

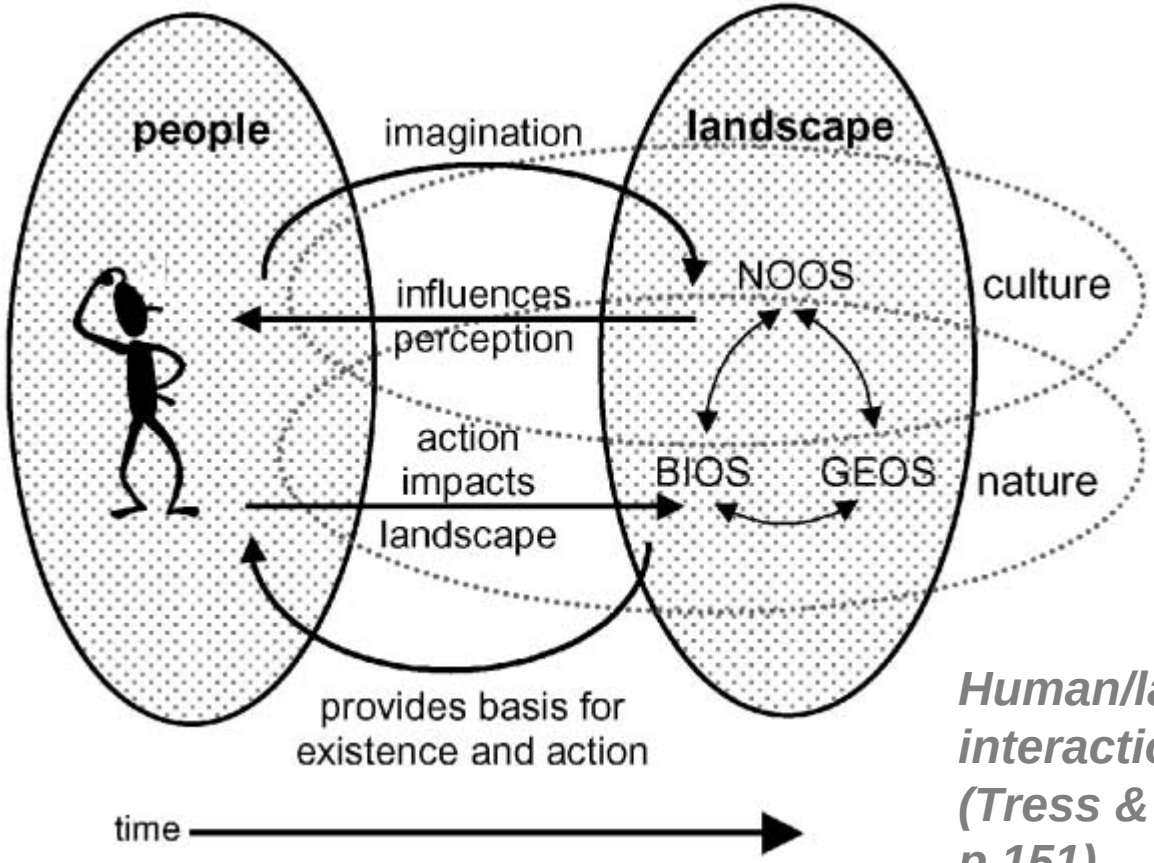
Regional Planning:

Strategic & Long Term Goals

EU Landscape Convention:

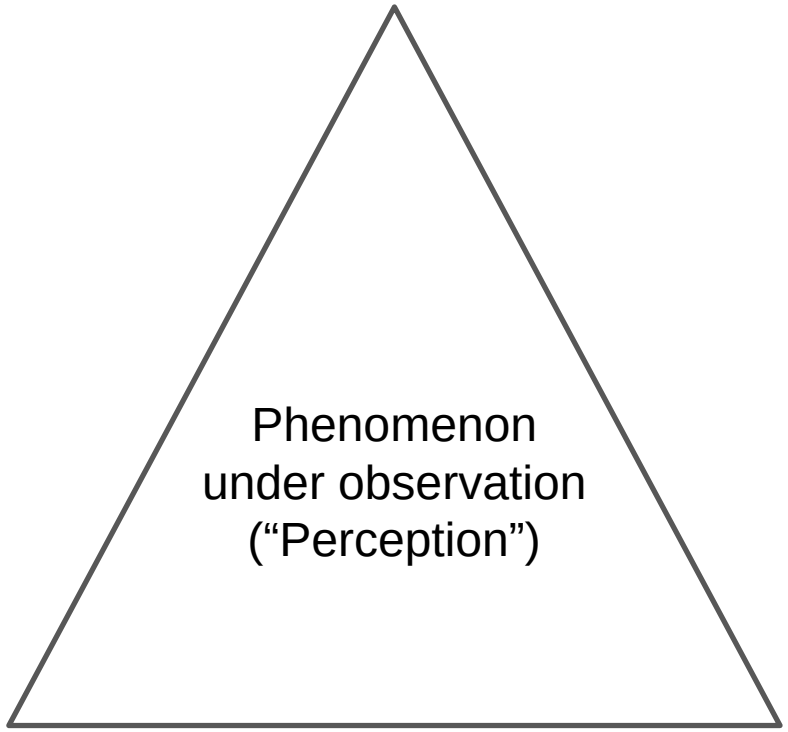
… landscape “as a zone or area as perceived by local people or visitors” (ELC art. 1, para. 38).

Problem(s):
Landscape and perception (= valuation)
of the landscape are inseparably intertwined.



Human/landscape interaction model (Tress & Tress, 2001; p.151)

Traditional GI data (census information, landscape inventories etc.)

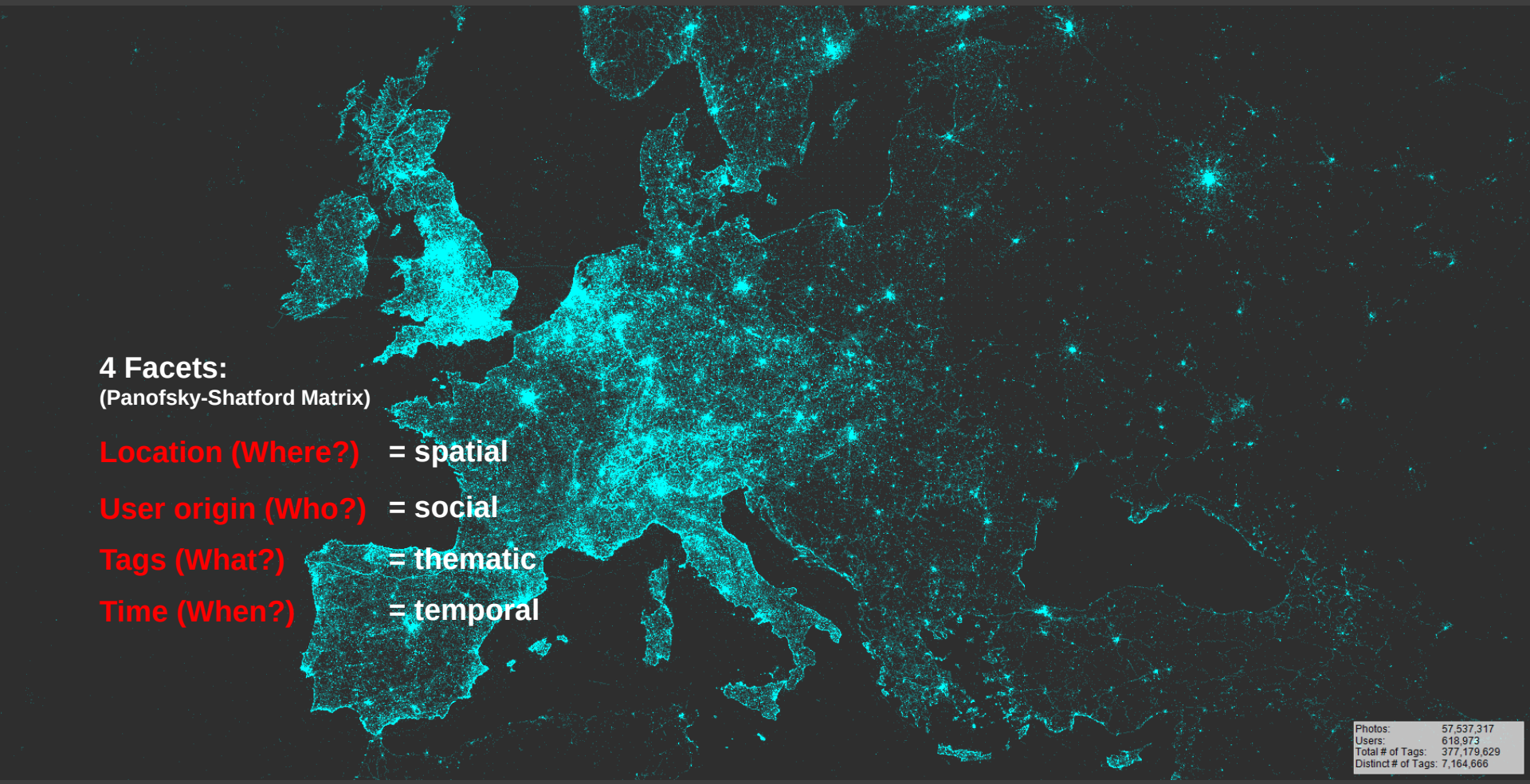


Surveys

Expert opinion

Triangulation (Social Sciences): Combination of different data sources, approaches and methods

VGI as a source for understanding collective human behavior and attribution of values and meaning



72 Million Photo Locations in Europe

A. Dunkel, Source: Flickr, 2007-2017

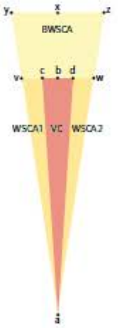
Video:
https://www.flickr.com/photos/64974314@N08/33757785893/in/dateposted-public/

Application Examples

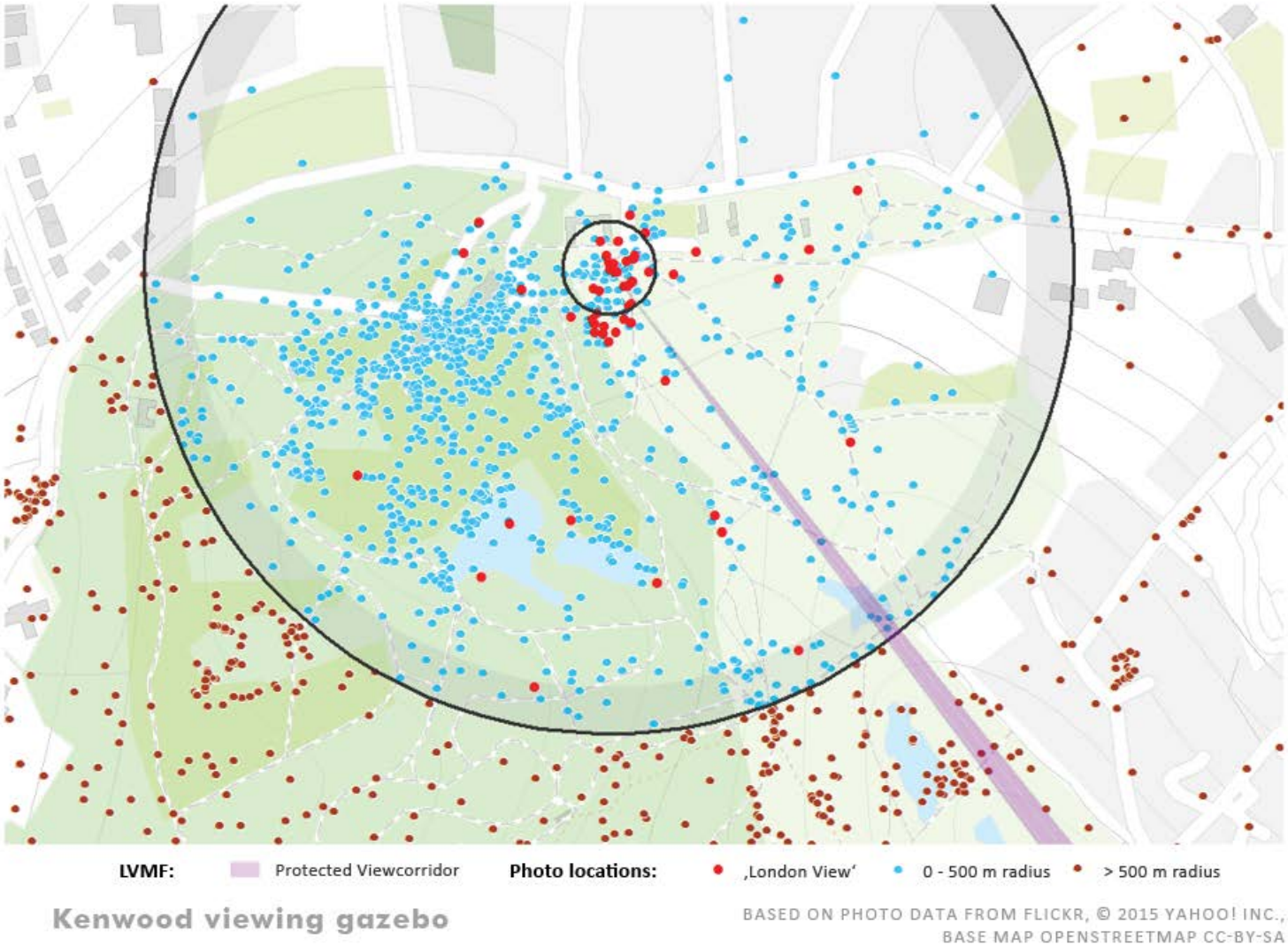
Where:

Photo location

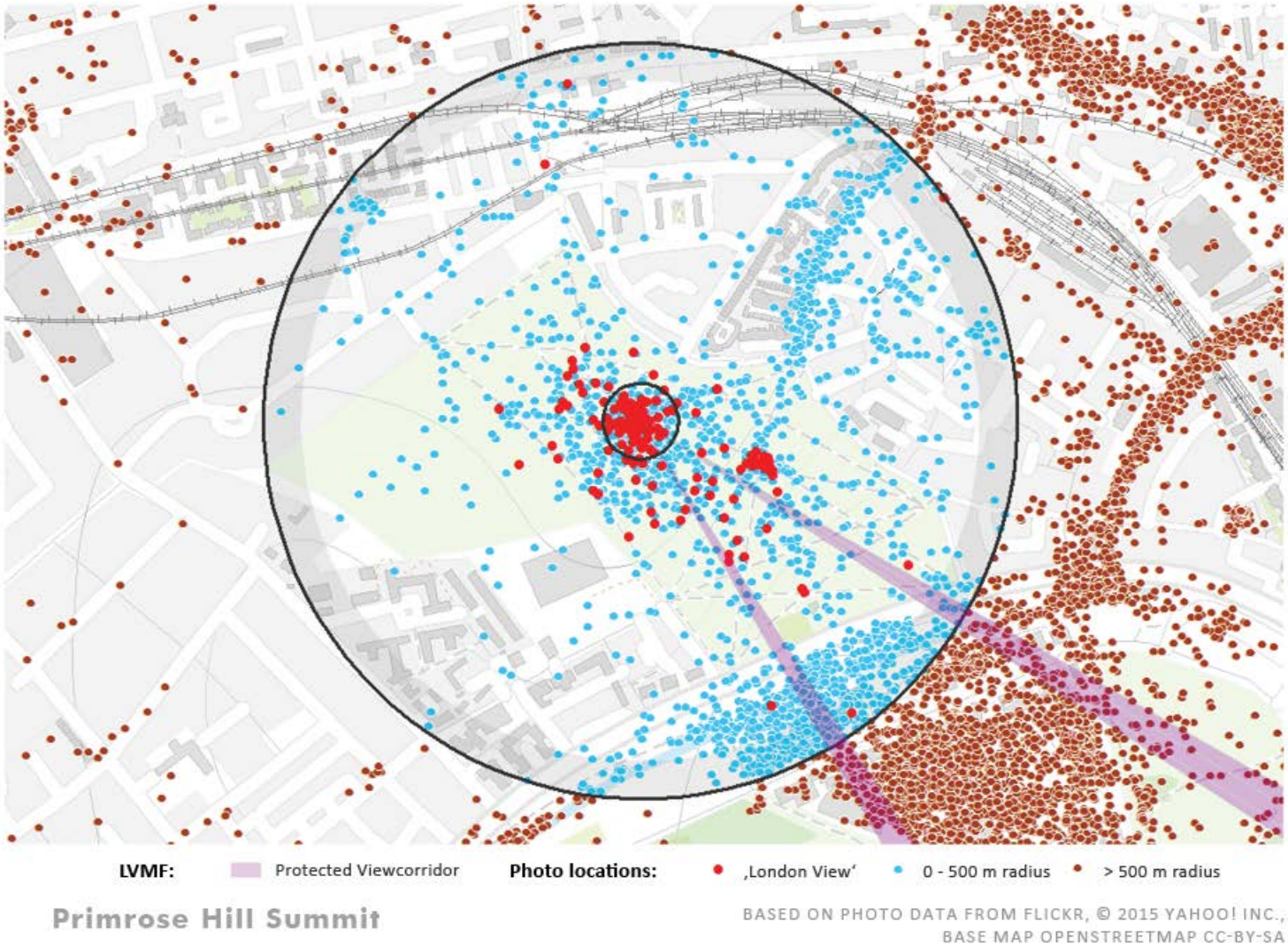
Protected Vista from Assessment Point 2A.1
from: Parliament Hill: the summit – looking toward St Paul's Cathedral
to: St Paul's Cathedral



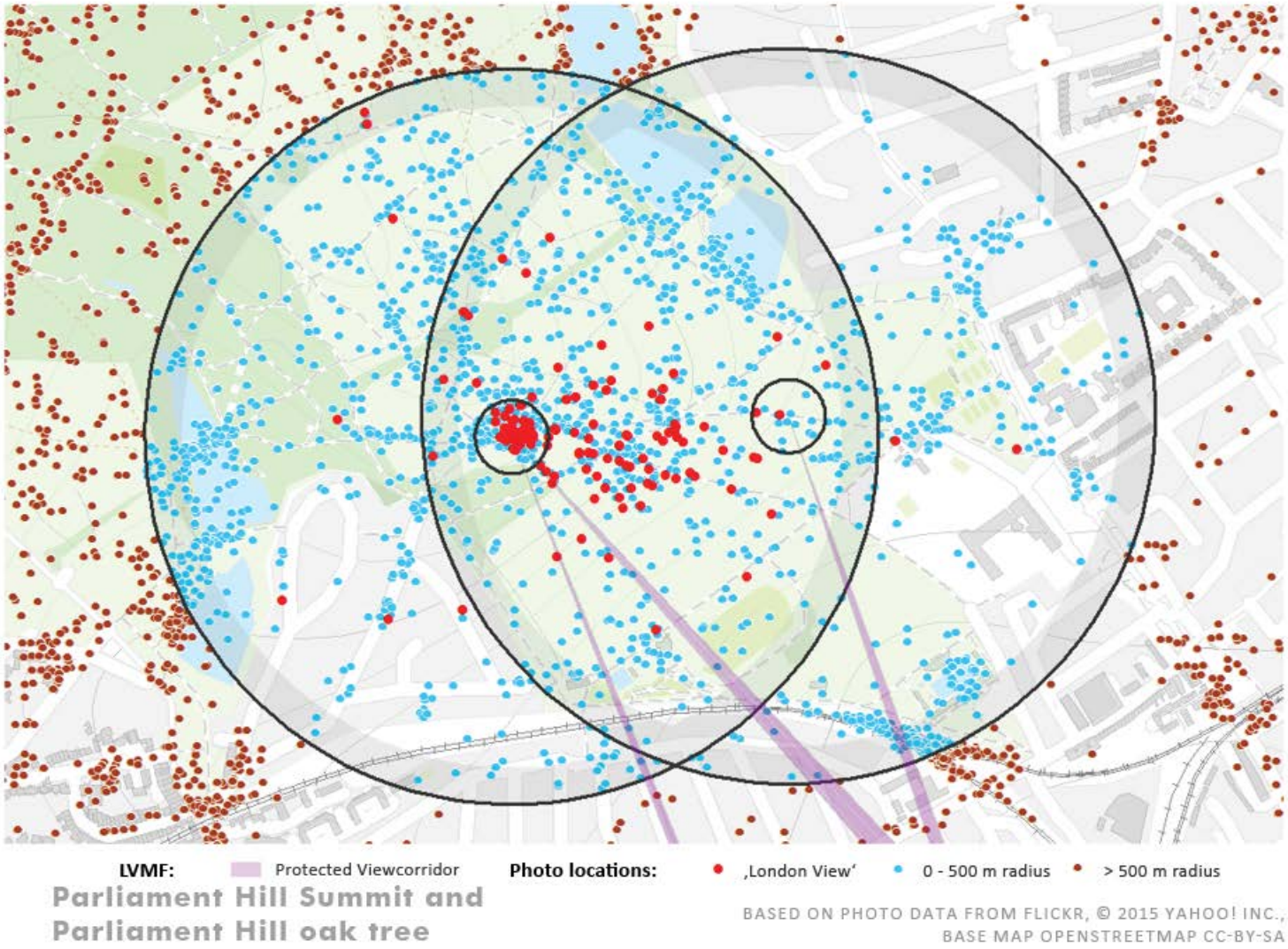
Viewing Corridor (VC)			
a	527,605.4E	186,131.5N	98.1mAOD
c	532,084.4E	181,168.6N	52.1mAOD
d	531,979.3E	181,076.2N	52.1mAOD
Length (ab)			6,645.0m
Width at monument (cd)			140.0m
Defining point at St Paul's Cathedral			
b	532,054.4E	181,142.2N	52.1mAOD
Wider Setting Consultation Area 1 (WSCA1)			
a	527,605.4E	186,131.5N	98.1mAOD
v	532,167.0E	181,241.3N	52.1mAOD
c	532,084.4E	181,168.6N	52.1mAOD
Width at monument (cv)			110.0m
Wider Setting Consultation Area 2 (WSCA2)			
a	527,605.4E	186,131.5N	98.1mAOD
d	531,979.3E	181,076.2N	52.1mAOD
w	531,941.8E	181,043.1N	52.1mAOD
Width at monument (dw)			50.0m
Background Wider Setting Consultation Area (BWSCA)			
v	532,167.0E	181,241.3N	52.1mAOD
y	533,860.0E	179,401.5N	52.1mAOD
z	533,550.0E	179,128.8N	52.1mAOD
w	531,941.8E	181,043.1N	52.1mAOD
Length (bx)			2,500.0m



All photo locations (blue) and those where people attributed to the view of London (red)



All photo locations (blue) and those where people attributed to the view of London (red)



All photo locations (blue) and those where people attributed to the view of London (red)

Who:

Representativeness

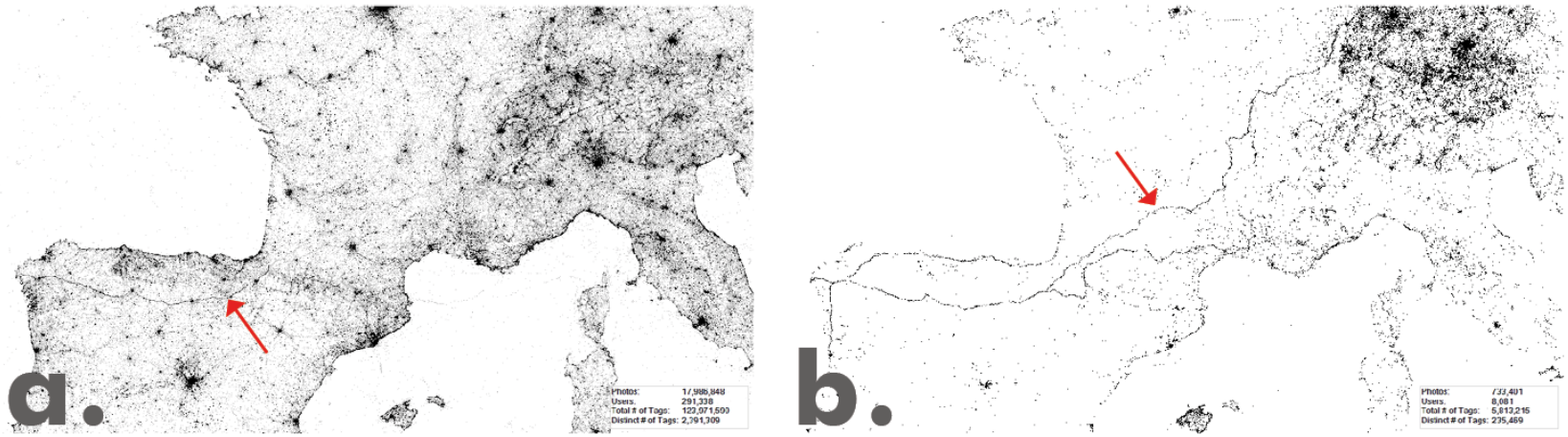
“Bias of Information”

Bias

Americans

Europeans

Bias?



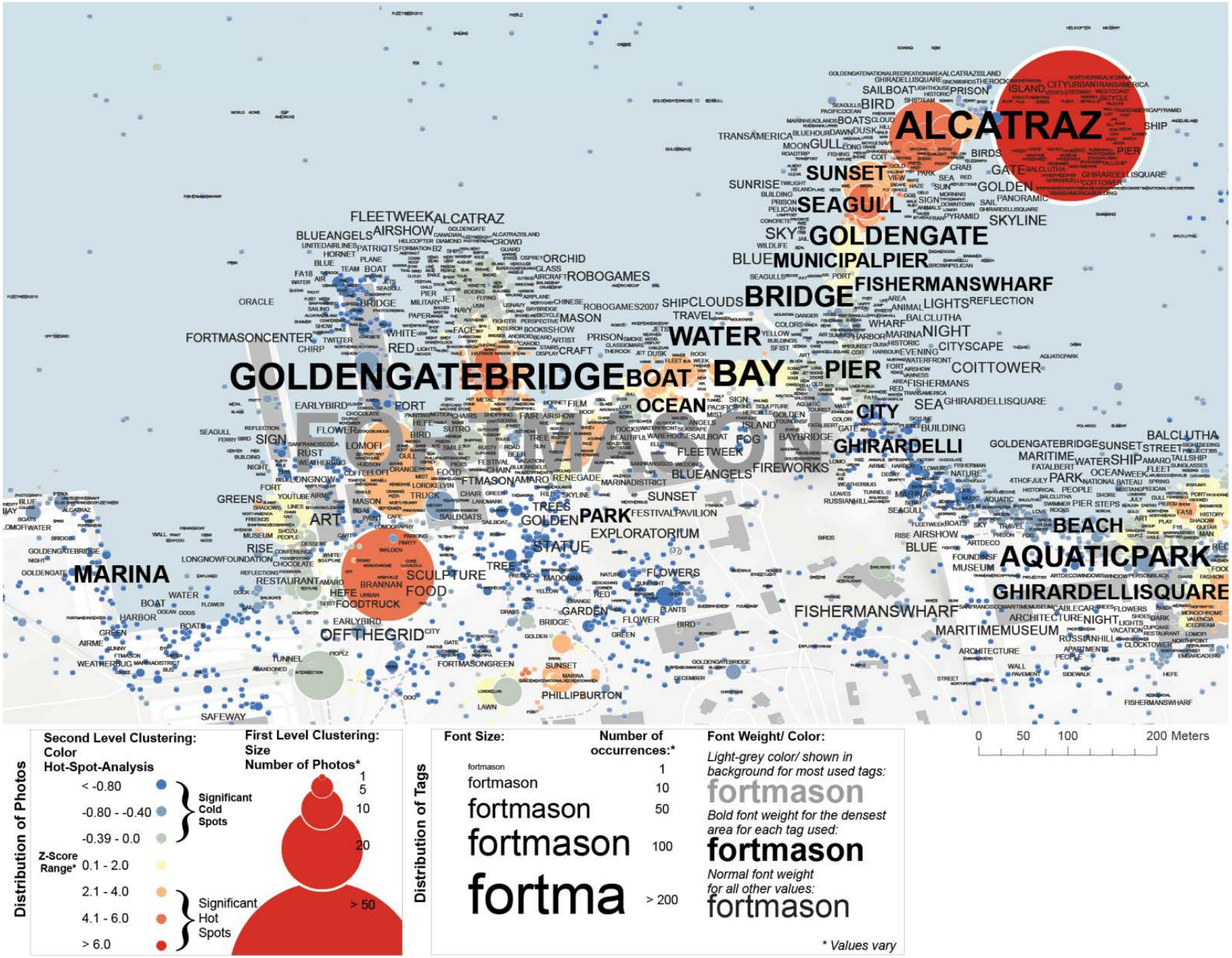
Camino de Santiago

Attribution of meaning:

Tags

Spatio-temporal Tag Clouds

(or “Tag Maps”)


Distribution of Photos
Second Level Clustering:
Color
Hot-Spot-Analysis
< -0.80
-0.80 - -0.40
-0.39 - 0.0
Significant Cold Spots
Z-Score Range*
0.1 - 2.0
2.1 - 4.0
4.1 - 6.0
> 6.0
Significant Hot Spots
First Level Clustering:
Size
Number of Photos*
1
5
10
20
> 50
Distribution of Tags
Font Size:
Number of occurrences:*
fortmason 1
fortmason 10
fortmason 50
fortmason 100
fortma > 200
Font Weight/ Color:
Light-grey color/ shown in background for most used tags:
fortmason
Bold font weight for the densest area for each tag used:
fortmason
Normal font weight for all other values:
fortmason
* Values vary
0 50 100 200 Meters

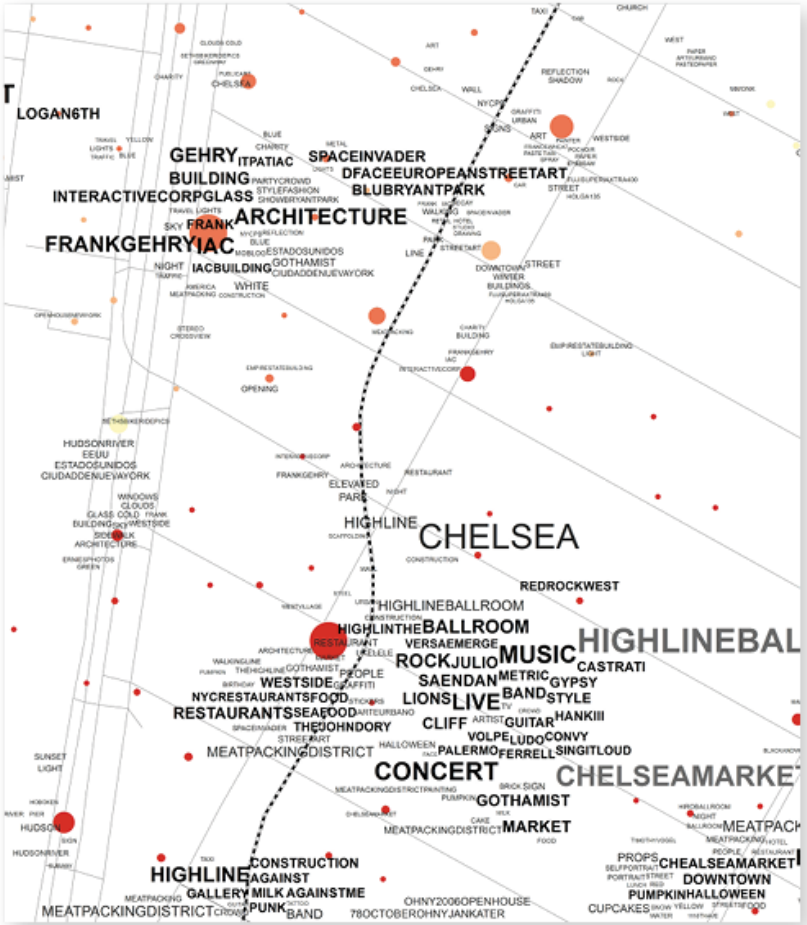
maps.alexanderdunkel.com

Time-based filtering:

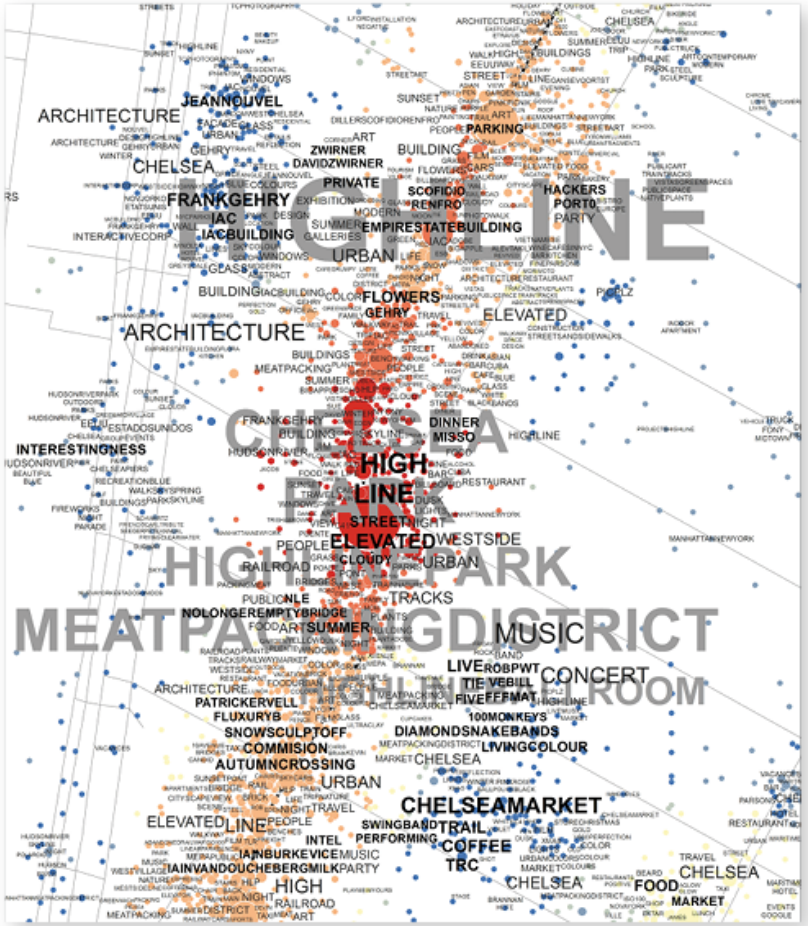
Monitoring

Video:
https://www.flickr.com/photos/64974314@N08/8140970785

High Line, NY



2006-2009



2009-2011

fieldoperations FOLGEN

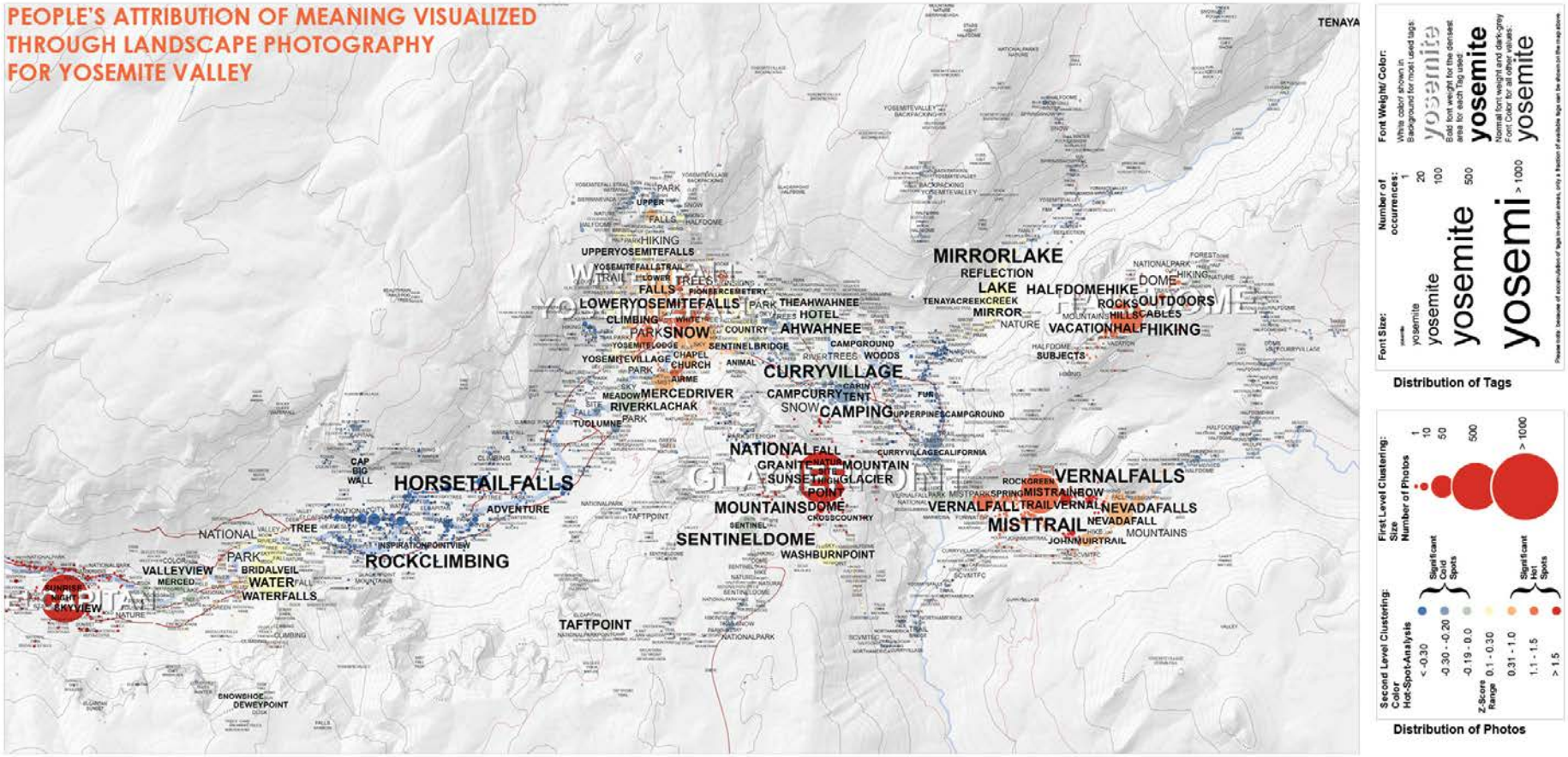
Gefällt 112 Mal 5Wo.

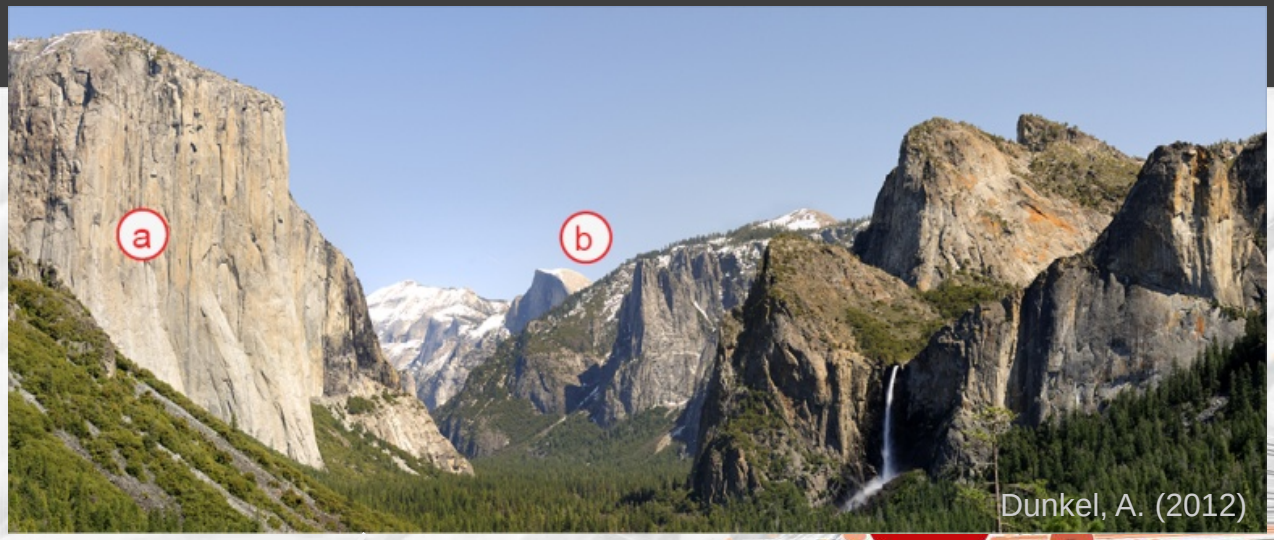
fieldoperations This High Line book is out! One last look, at the last chapter. Order link in bio, and @phaidonsnaps Today: 07_Unforeseen

Once built, the High Line quickly became an icon and a symbol of NYC, its level of popularity taking us a bit by surprise! This chapter explores the many unforeseen aspects of the High Line, ranging from the different ways people use it, to its economic impacts, to how it has influenced other cities' approach infrastructure reuse. The two maps above, by Alexander Dunkel, show the spike in Flickr photos taken on the High Line before and after Phase 1's opening in 2009. @highlinenyc and continues to skillfully guide the High Line's everyday operations, maintenance, art, and programming, ensuring it strikes a balance between popular destination

Melde dich an, um mit „Gefällt mir“ zu markieren oder zu kommentieren.

Yosemite Valley





Dunkel, A. (2012)

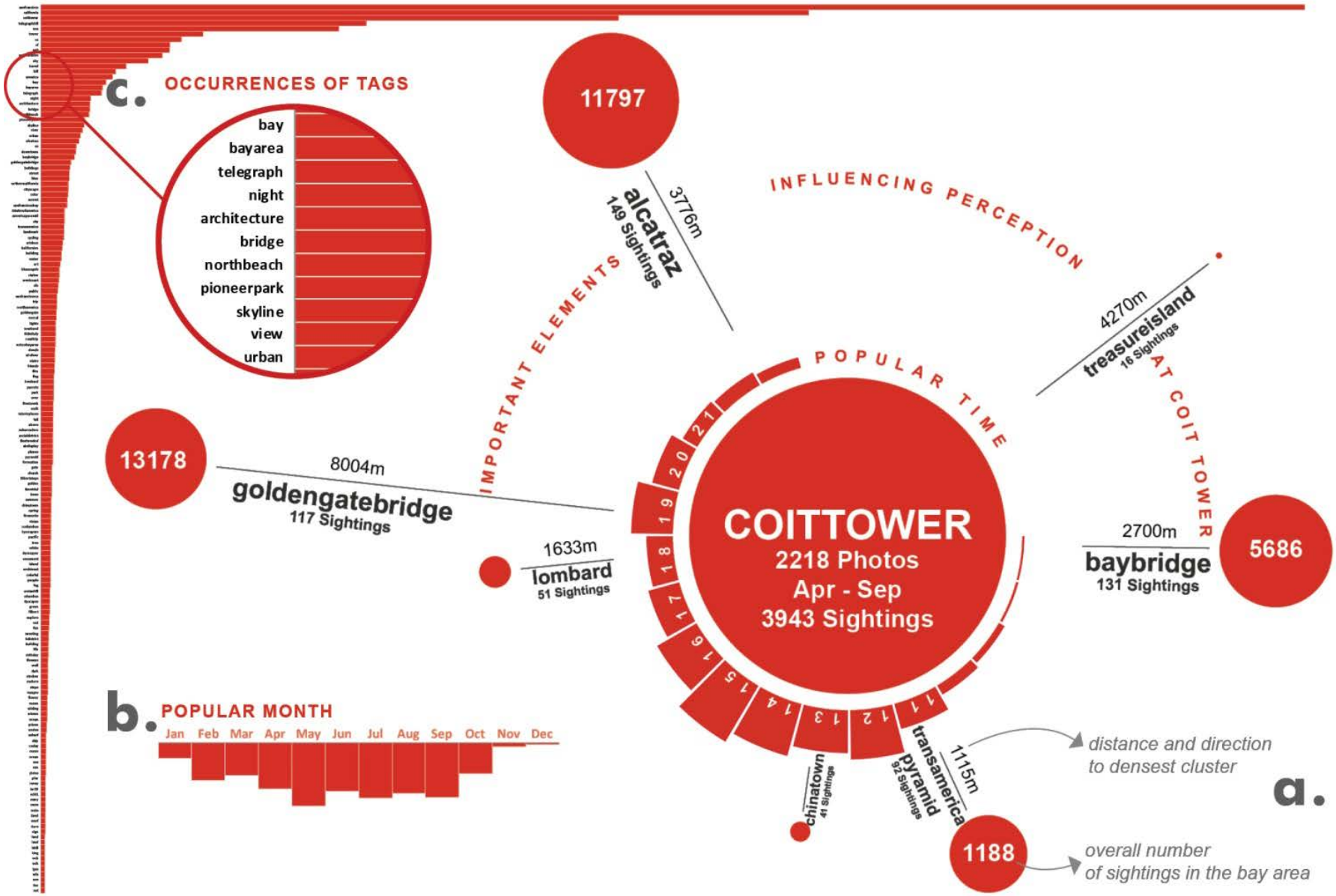
Yosemite Valley

HALF DOME
3188
5%
ELCAPITAN
994
GLACIER POINT
279
11%

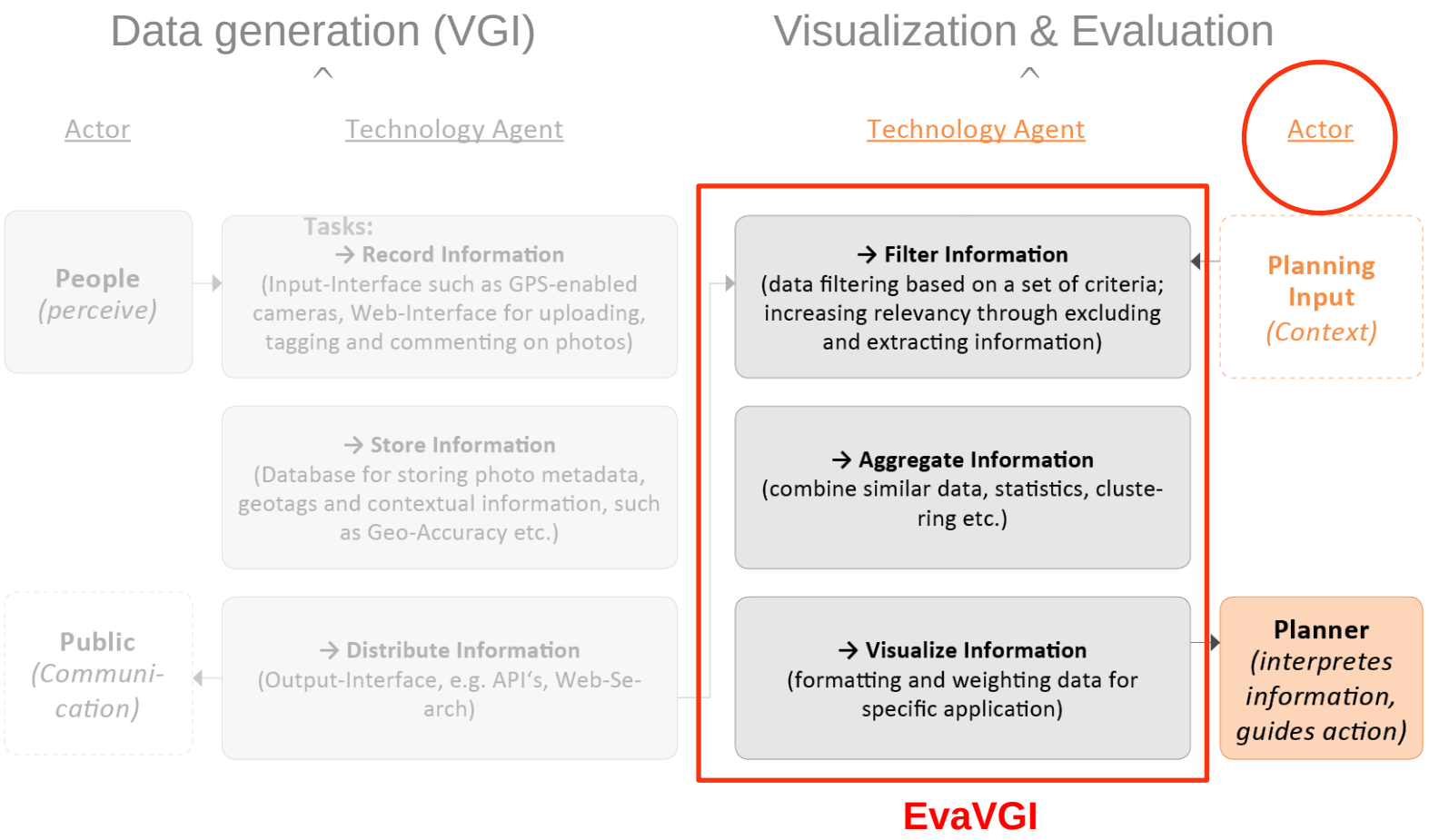
→ Meaning of a place as a subject (grey)
compared to its meaning as a vantage point (red)

„TORONTO ON THE HORIZON“, FLICKR © DENIS GILES, 2008, CC BY-NC-ND 2.0

Fig. 61: View of Toronto skyline from across Lake Ontario, bridging a distance of about 50 kilometers. While other aspects disappear at this distance, CN Tower and large sky-scrapers stand exposed against the contrasting cloud backdrop.


c.
OCCURRENCES OF TAGS
bay
bayarea
telegraph
night
architecture
bridge
northbeach
pioneerpark
skyline
view
urban
11797
alcatraz
149 Sightings
3776m
INFLUENCING PERCEPTION
IMPORTANT ELEMENTS
4270m
treasureisland
16 Sightings
AT COIT TOWER
POPULAR TIME
13178
8004m
goldengatebridge
117 Sightings
COITTOWER
2218 Photos
Apr - Sep
3943 Sightings
1633m
lombard
51 Sightings
2700m
baybridge
131 Sightings
5686
21
20
19
18
17
16
15
14
13
12
11
b.
POPULAR MONTH
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
chinatown
41 Sightings
pyramid
92 Sightings
transamerica
1115m
distance and direction
to densest cluster
a.
1188
overall number
of sightings in the bay area

Application Framework



Dunkel (2016)

Thank You