



# geography as a working desk: a meeting place for data, statisticians and users

la geografia come tavolo di lavoro:  
un luogo di incontro per dati, statistici e utenti

rina camporese

sivsp gruppo valorizzazione statistiche pubbliche  
workshop Enhancement and Social Responsibility of Official Statistics  
roma, 28-29 aprile 2011

# georeferenced microdata

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the characterisation  
of statistical units and  
measurements  
in a geographical context

enables the analysis  
of the relationships  
among unconnected data  
by the use of the territory  
as a merging key



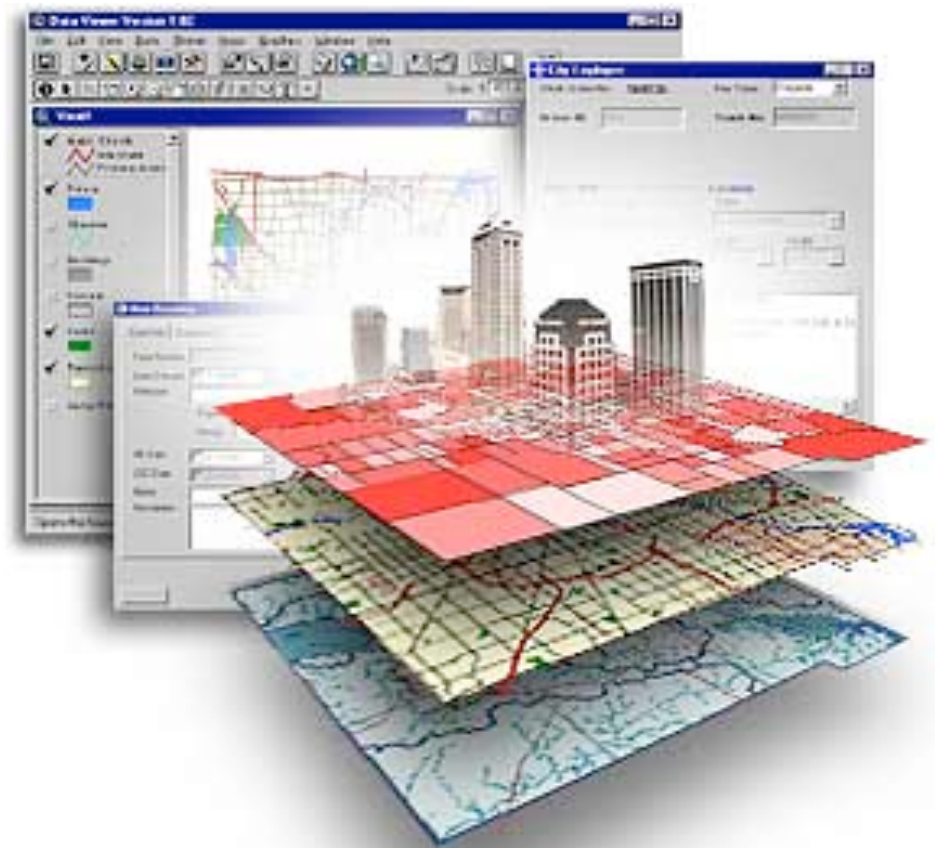
# geographical information science

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overlapped statistical layers  
on a geographical basis

in the style of  
Geographic Information Science

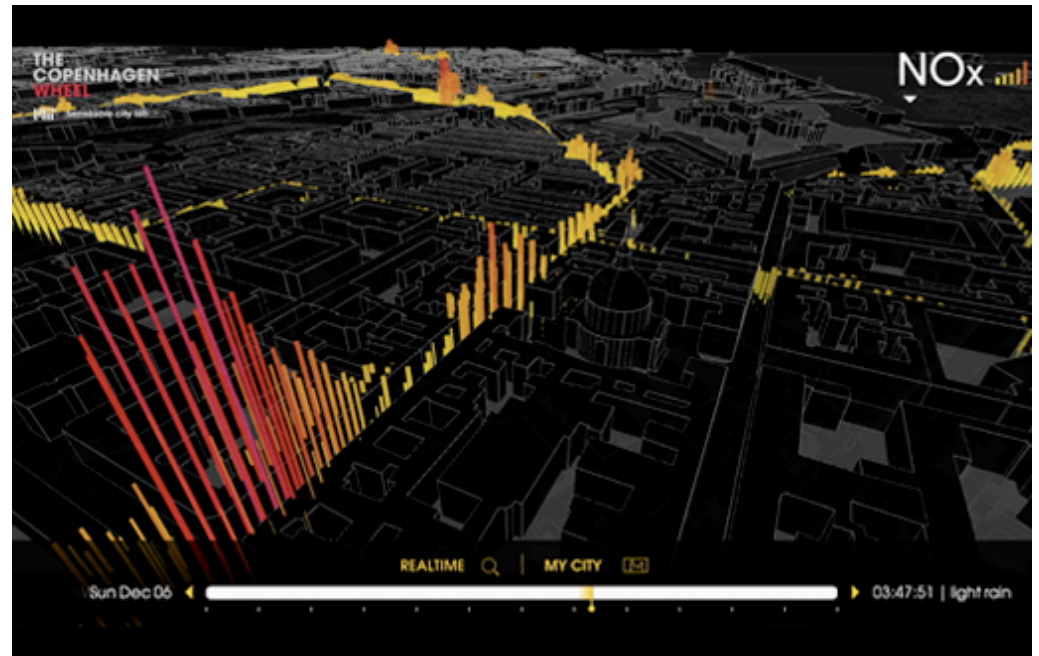
create new synergic information  
and enlighten the relations  
among different phenomena  
occurring in the same area



# geography & infodesign

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offer effective techniques  
to analyse and display  
complex statistical data  
on a geographical underlying layer



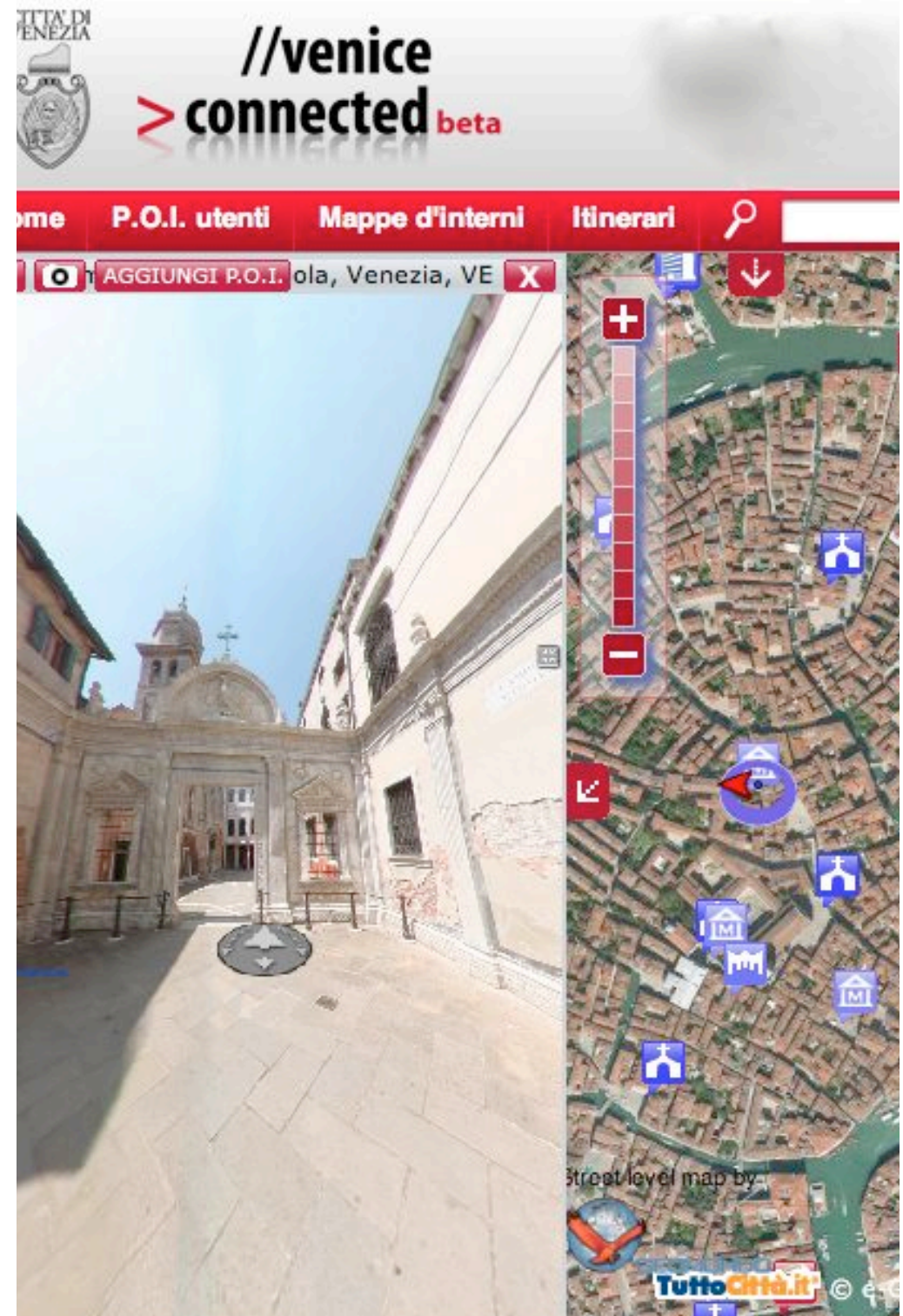
# places

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images, maps and navigation tools  
zoom, pan, view angle, etc.

make the representation  
of statistics possible  
into natural representation  
of the environment

enriching them  
with the context information  
about the places  
numbers belong to



# sensitive data

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strategies to protect  
data confidentiality are essential

some are easy to imagine

different views related to zoom levels

buffers of proper size to mask identities

ad hoc coordinates' transformations to prevent  
overlapping on common reference systems

others have to be invented

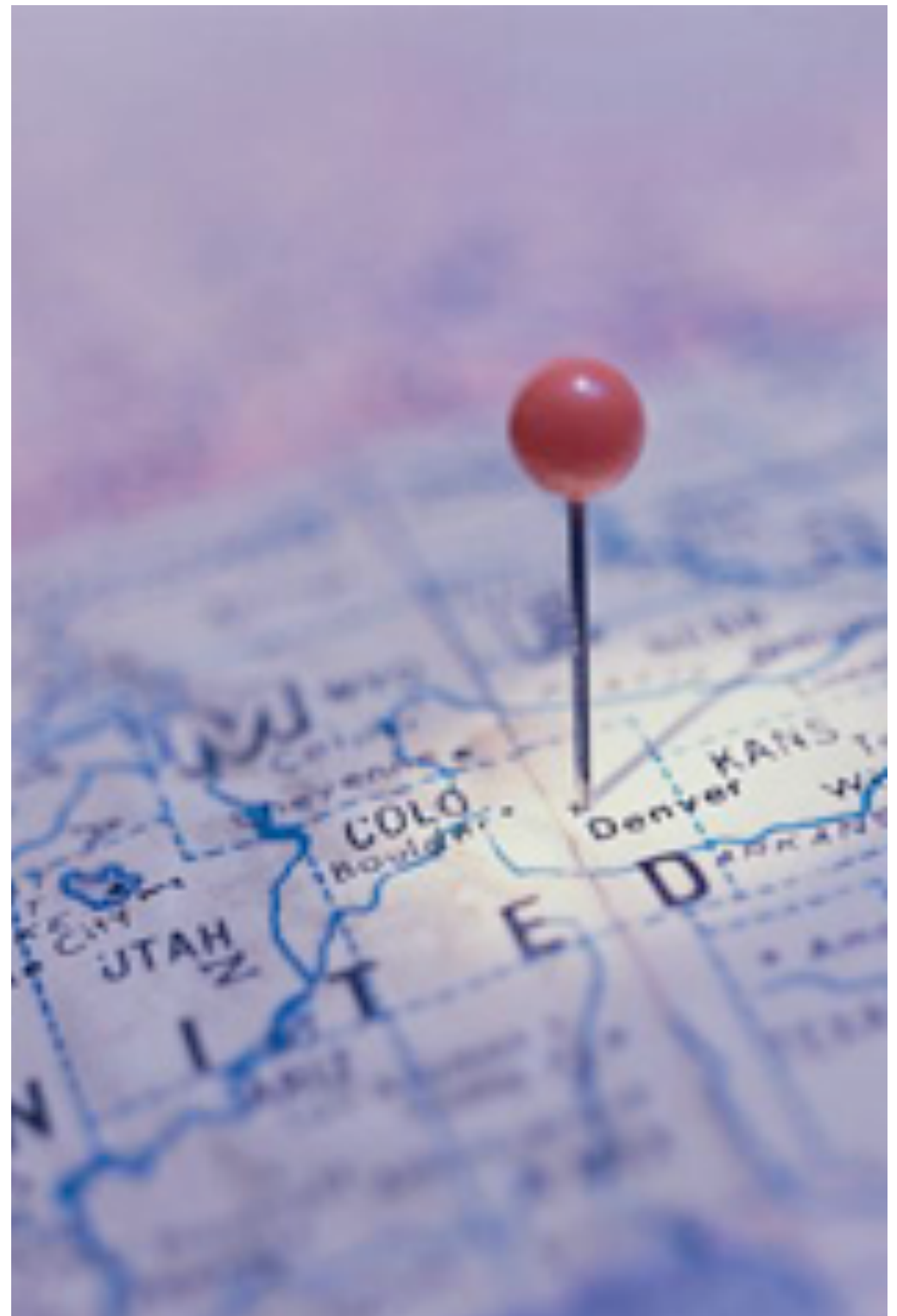


# three examples

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georeferenced micro-data to

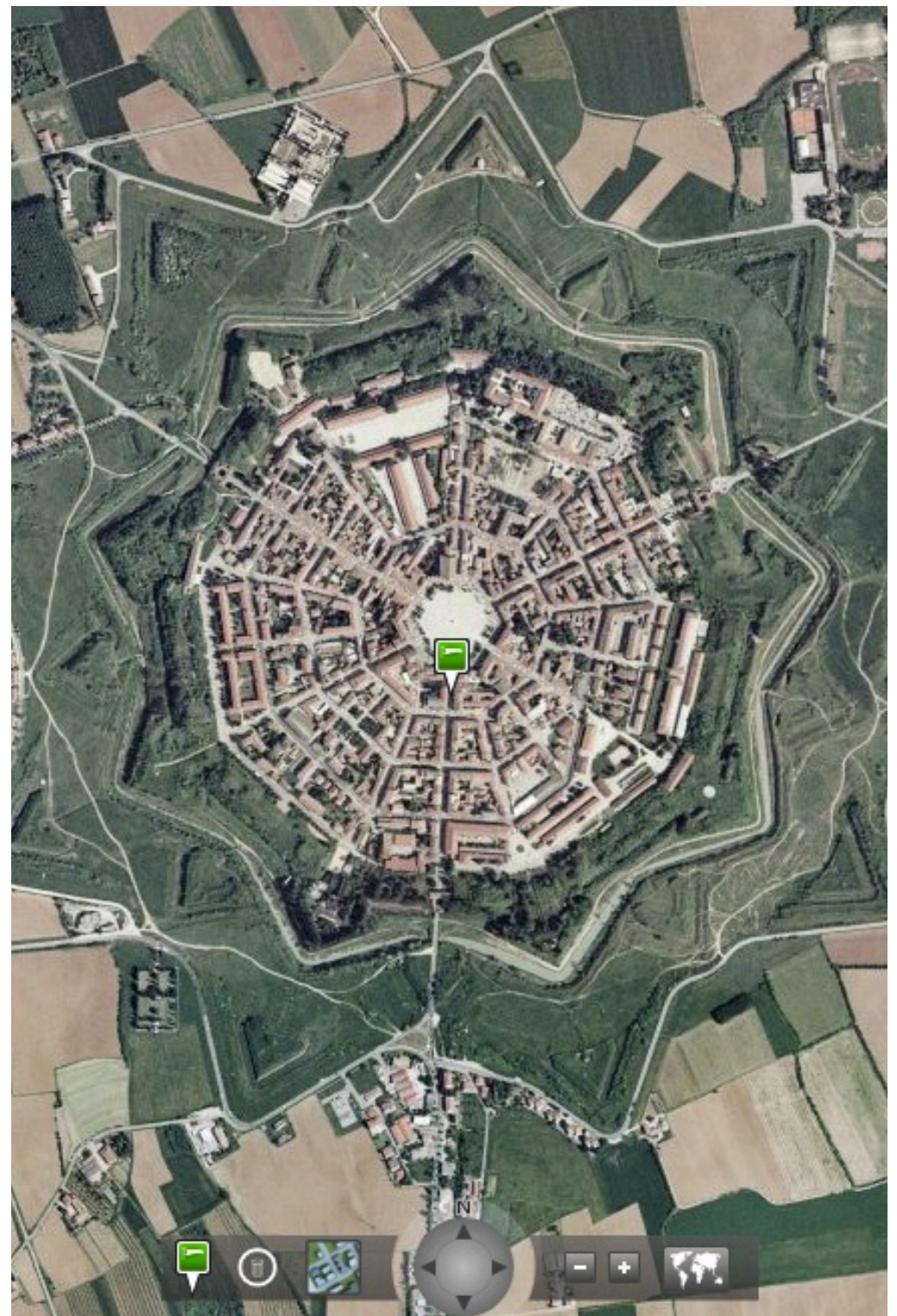
- disseminate data
- define reference areas
- integrate independent sources





geographic  
web  
platform

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# new web technologies

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cloud computing  
mash-up

...



to share  
environmental  
institutional  
data

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monitoring stations

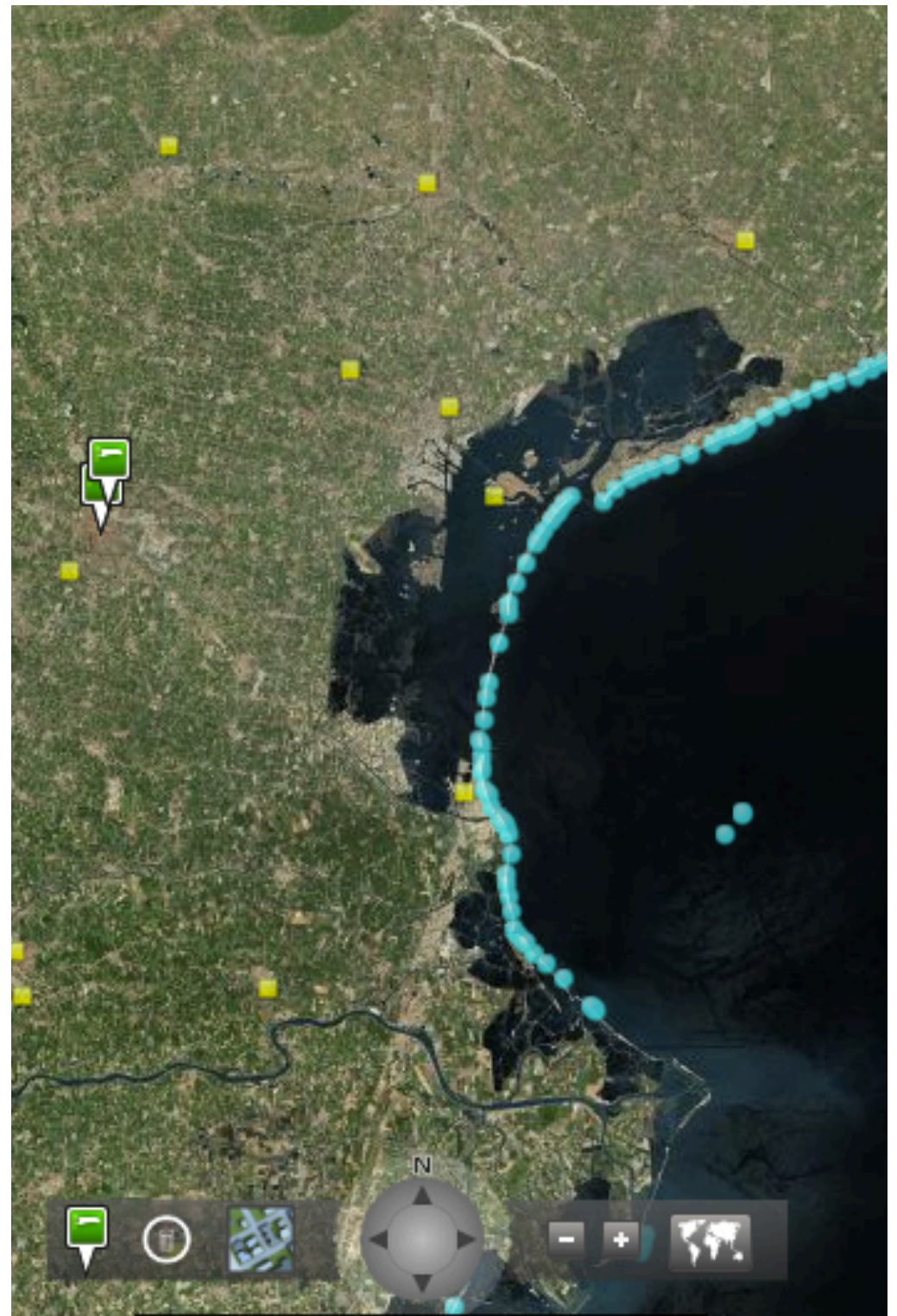


air

&



water



open to  
citizens' perceptions

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rich with details

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PUNTA SABBIONI VIA M...

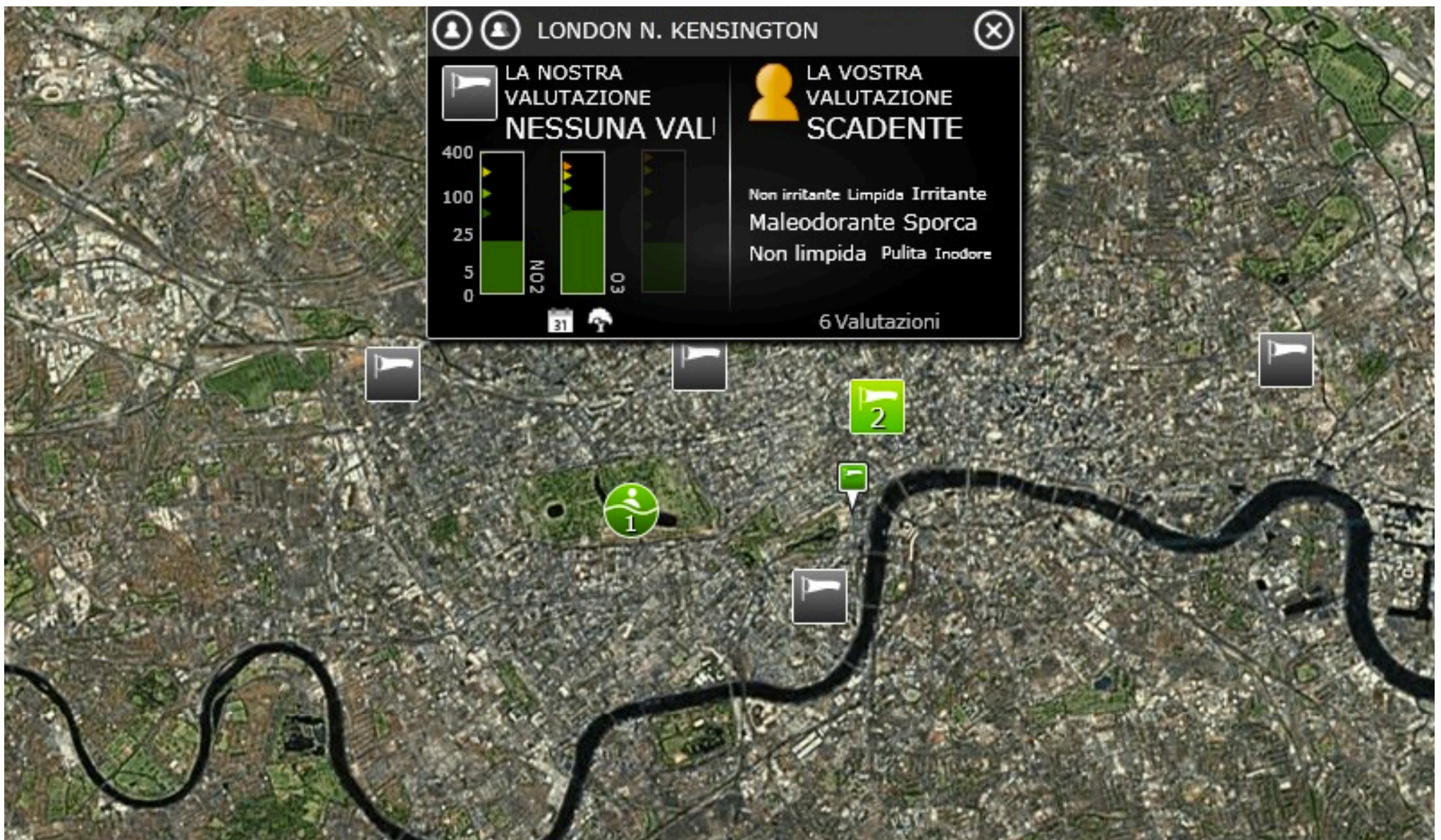
**DATI ANNUALI**

Anno	Nostri	Vostri
2009		(0)
2008		(10)

**DATI STAGIONALI**

Data	Nostri	Vostri
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Annulla



institutions and citizens gather around a table covered by remote sensing images to compare objective environmental measurements and subjective perceptions



access to information is familiar  
to web and social networks users



data and documentation  
follow strict scientific criteria

this makes official agencies and citizens closer and  
provides data for an informed dialog among different stakeholders

## key ideas

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objective measurements  
exposed to the comments of citizens:  
subjective perceptions  
of those living environment

beyond sources' hierarchies of authority  
attributing value to the voice of people

debating on environmental issues  
having tools for informed discussion



# confidentiality

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such punctual micro-data  
can be published without violating  
anybody's privacy

with appropriate changes  
the idea could be applied also  
to more sensitive data





no  
boundaries

administrative

# boundaries by convention

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statistical units belong to  
an administrative area  
by convention

a merely formal link  
connects them  
to the institutions  
governing their area of pertinence

administrative boundaries  
are invisible  
and materialize themselves  
only at the time of accessing  
services provided by agencies  
in their jurisdiction



# statistics are prisoners of administrative territorial fragmentation

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individuals, and statistical units,  
cross many boundaries  
in everyday life

&

they locate themselves  
into administrative areas  
according to convenience  
not necessarily  
reflecting the *de facto* situation



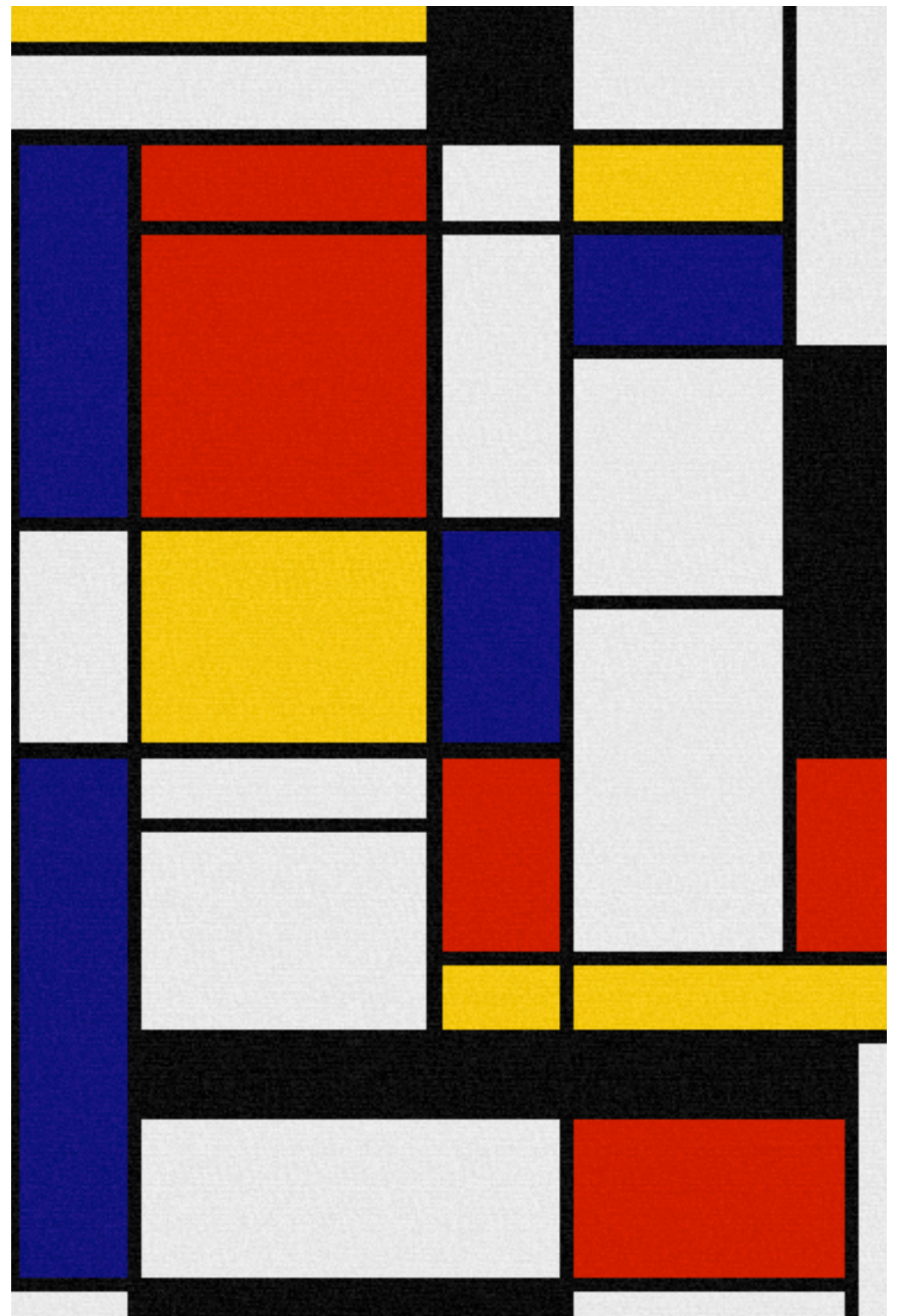
# maup & ef

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Modifiable Areal Unit Problem  
&  
Ecological Fallacy  
affect data aggregated by area

administrative boundaries  
should be bypassed  
when they obscure  
spatial distribution of phenomena

actual technologies  
can deal with complex data  
taking also into account  
their geographical location



# geocoding microdata

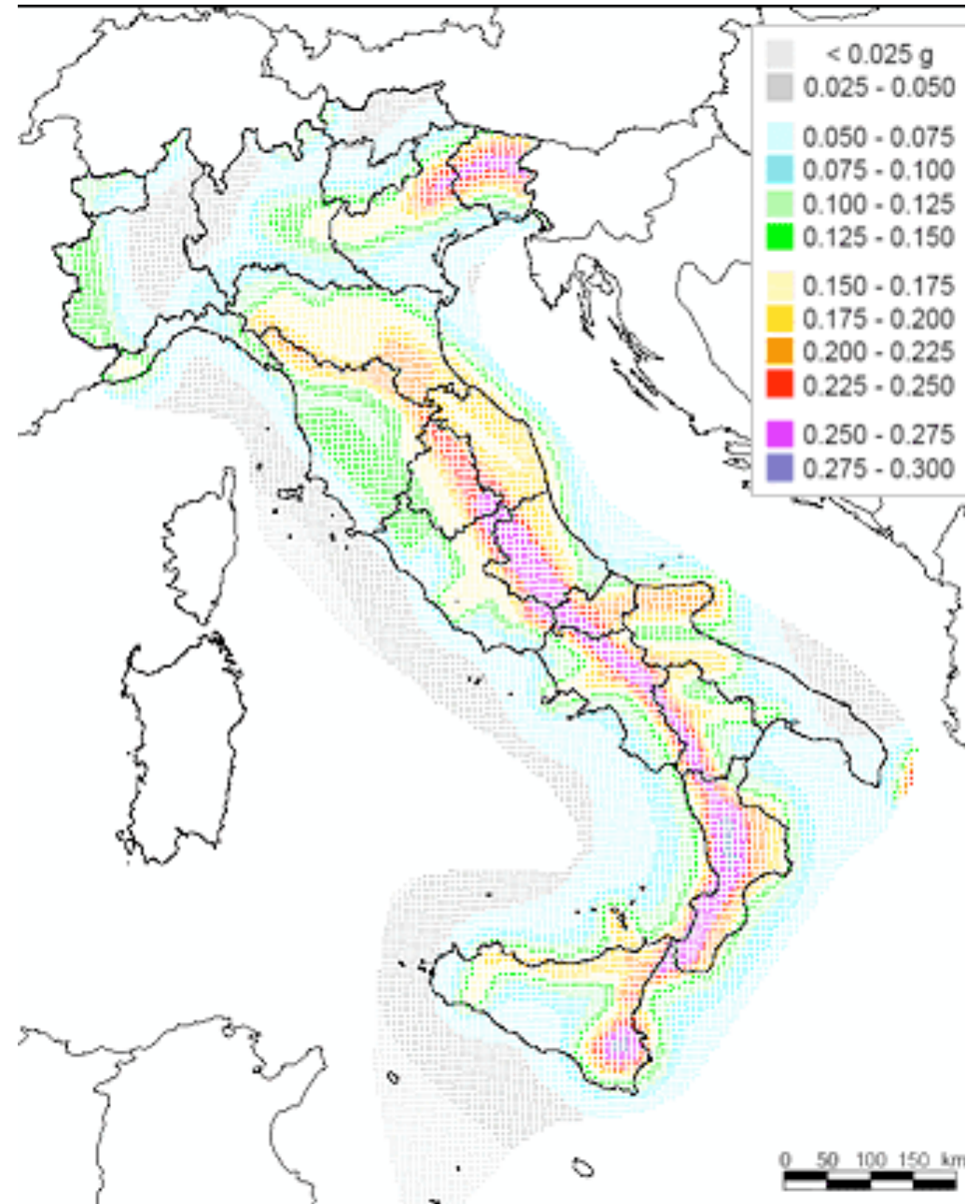
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bypass administrative boundaries

&

enables greater freedom  
in defining areas of analysis

by using this kind of geographical  
perspective, spatial trends could  
be better highlighted



# creative areas of analysis

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continuous urban areas  
crossing separate administrative units

proximity / distance  
from points of interest

spatial clusters

within and beyond  
relevant geographical limits

non contiguous areas  
sharing similar characteristics

urban-rural classification  
using remote sensing imagery

etc.





geo synergy

data fusion by coordinates

# location as a merging key

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locational relationship  
among various entities  
on the same territory

enables to calculate indicators  
that would otherwise  
have not been known



# what for?

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synergic information

derived variables  
without burden on respondents

deployment of  
existing information deposits

innovative techniques  
for social and environmental statistics



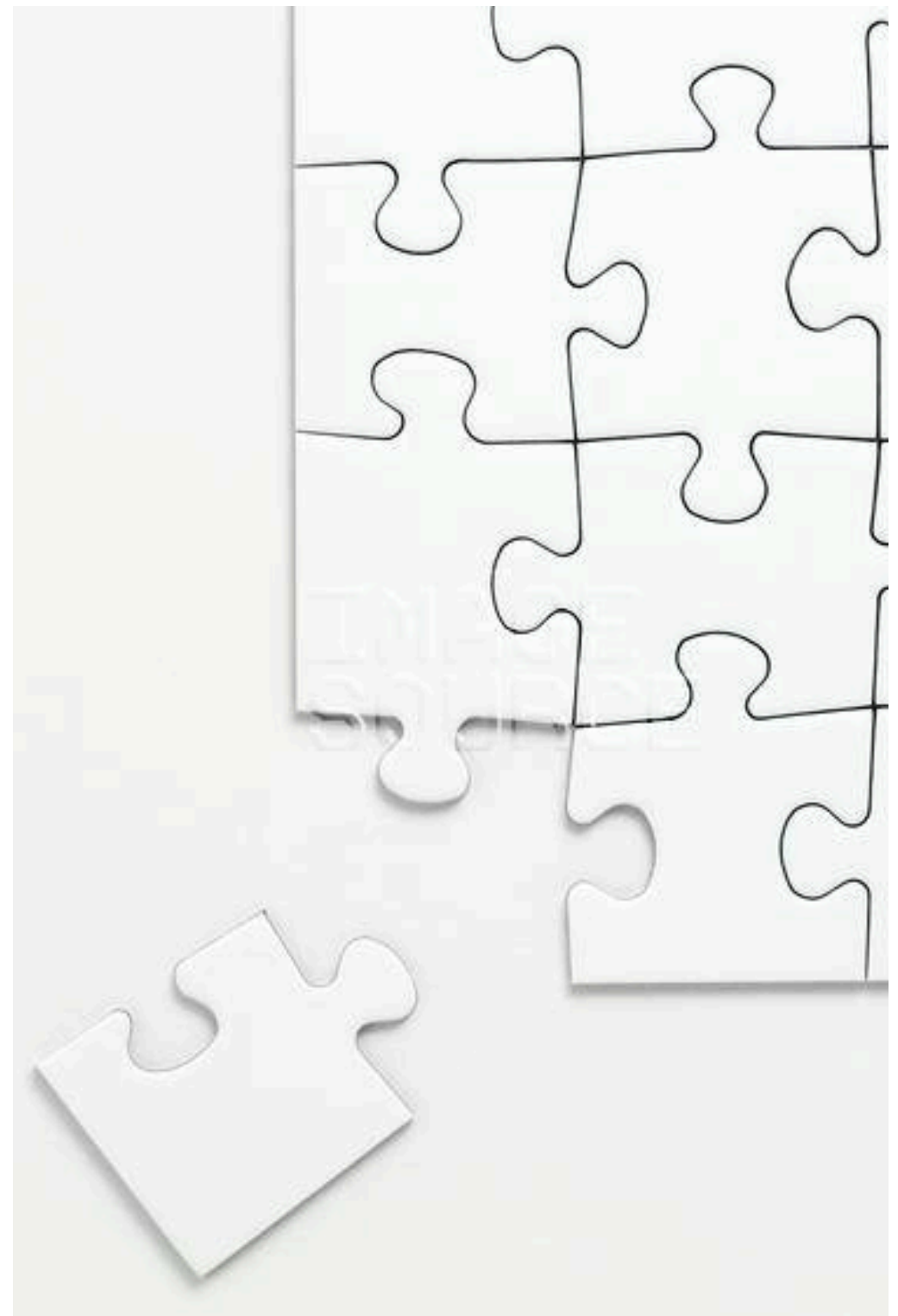
e.g.  
environment

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citizens' perceptions, evaluations  
&  
behaviours  
social sample surveys on daily life

*versus*

quantitative measurements  
&  
institutional policies and strategies  
environmental agencies' data



# examples

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MOD. ISTAT/IMF-7/A.08

**Istat**  
SISTEMA STATISTICO NAZIONALE  
ISTITUTO NAZIONALE DI STATISTICA

**INDAGINE  
STATISTICA  
MULTISCOPO  
SULLE  
FAMIGLIE**

**ASPETTI DELLA VITA  
QUOTIDIANA  
ANNO 2008**

7 CODICE INTERVISTATORE d

6 L'INTERVISTATORE  
(Cognome e nome soggetti)  
Firma del rilevatore  
e CARO DELL'UFFICIO  
ADESSO ALLA RILEVAZIONE

1 Provincia C  
Comune C  
Sezione di Censimento d C

2 (a cura del Comune)  
Numero d'ordine definitivo della famiglia d  
Da 0001 al totale dei modelli ISTAT/IMF-7/A compilati

3 Numero d'ordine della famiglia nell'elenco di appartenenza (Mod. ISTAT/IMF/2 Elenco) d  
Da 0001 al totale delle famiglie nell'elenco

4 Numero dei componenti la famiglia anagrafica b (Colonna 4 del Mod. ISTAT/IMF/2 Elenco)

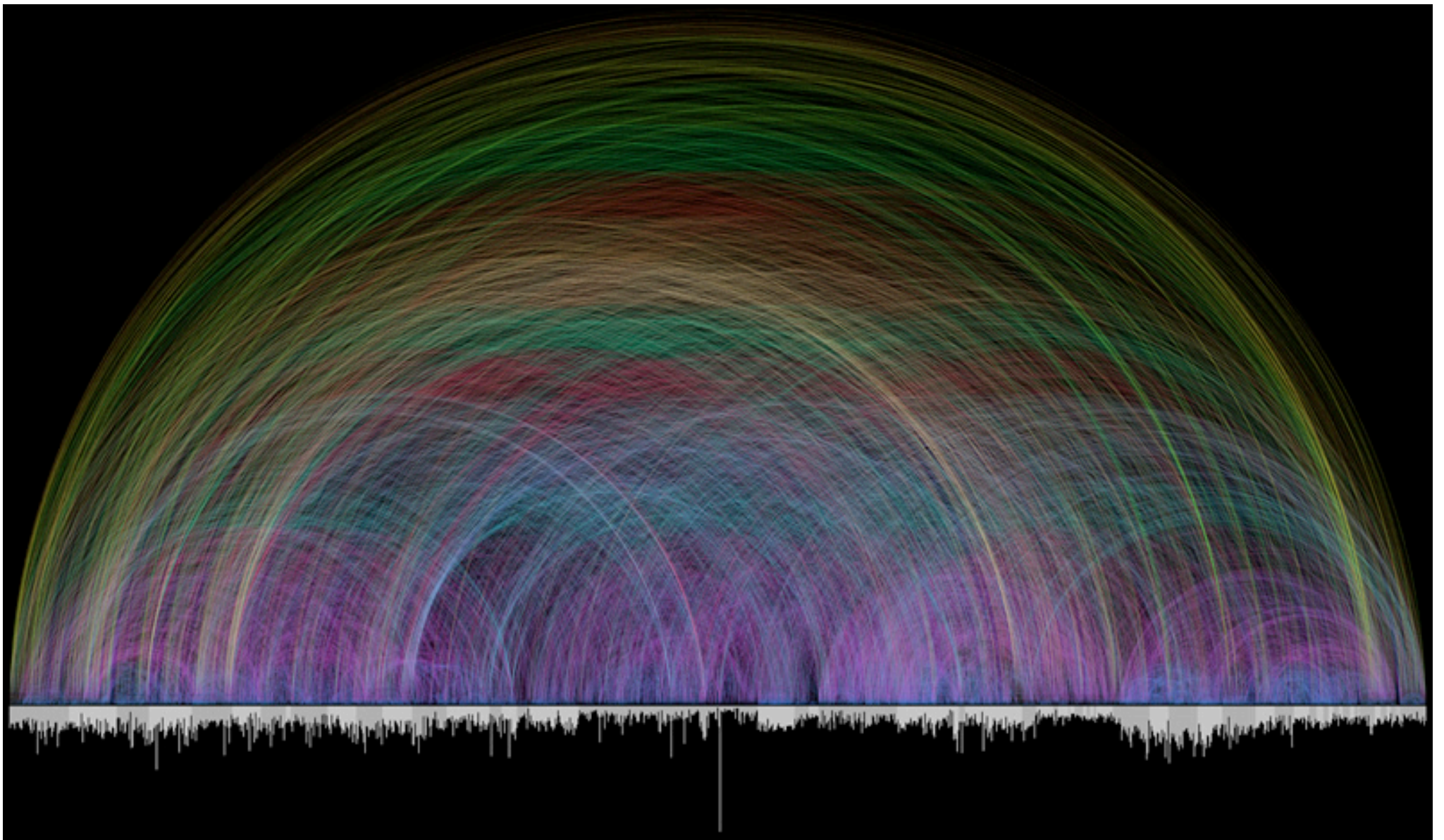
5 Numero dei componenti la famiglia attuale b

6 RISERVATO ISTAT a

odours  
urbanvegetation  
water  
noise  
publictransport  
waste  
traffic

## *disclaimer*

geographic details of individual responses would only be used during the analysis phase  
results would be aggregated and respectful of territorial disaggregation allowed by the sample



complex

but intriguing

# References

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Goodchild, M.F., Janelle, D.G. (eds.): Spatially Integrated Social Science. Oxford University Press, New York (2004)

Longley P.A., Goodchild M.F., Maguire D.J., Rhind D.W.: Geographic Information Systems and Science, 3rd Edition, Wiley, New York, (2010)

Robinson, W.S.: Ecological Correlations and the Behaviour of Individuals. American Sociological Review, 15 (3), 351–357 (1950)

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