

Hexagons, Satellites and Semantic Background

Dario Rodighiero

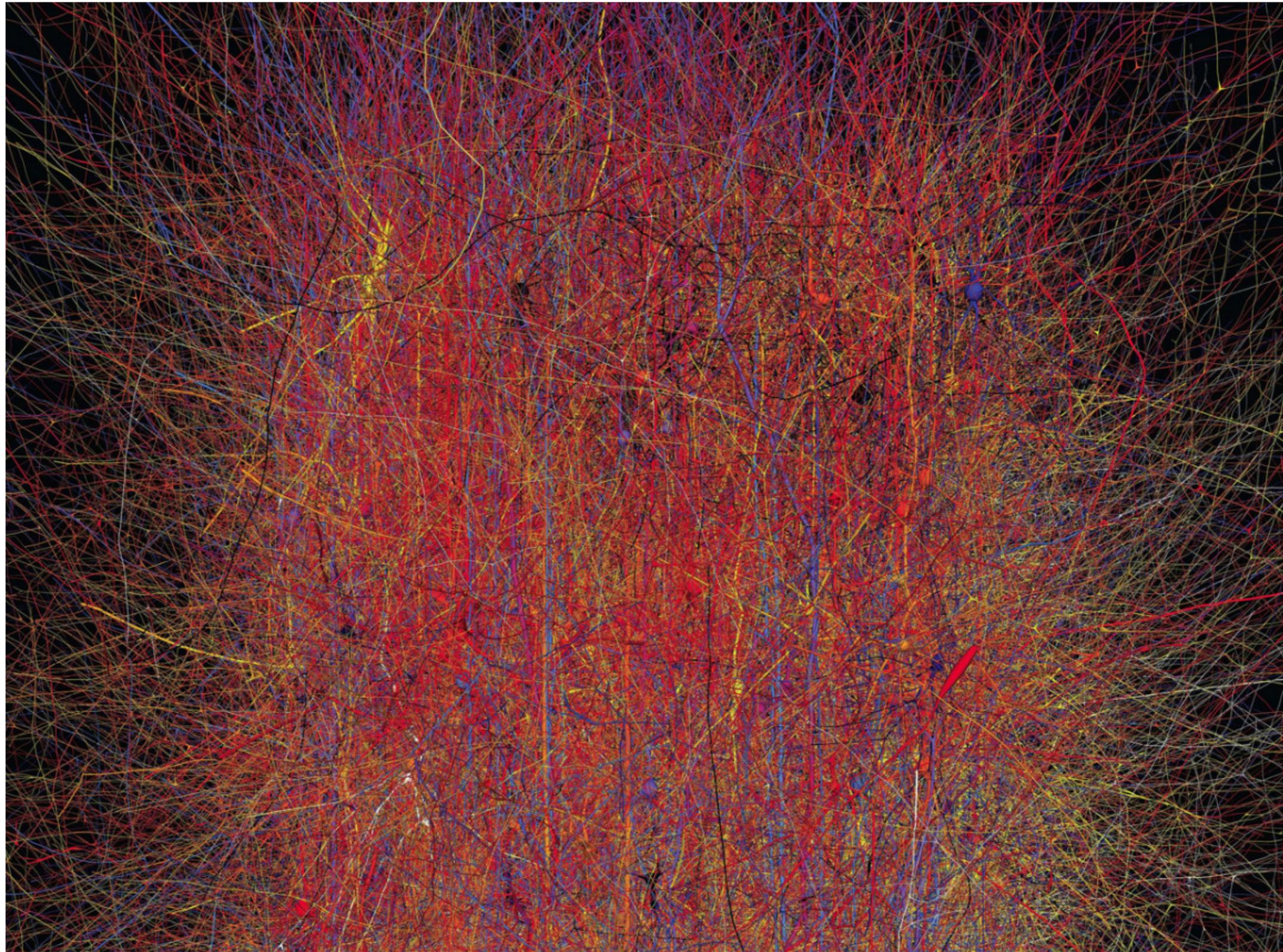
Laboratory of Digital Humanities (DHLAB)

École polytechnique fédérale de Lausanne (EPFL)

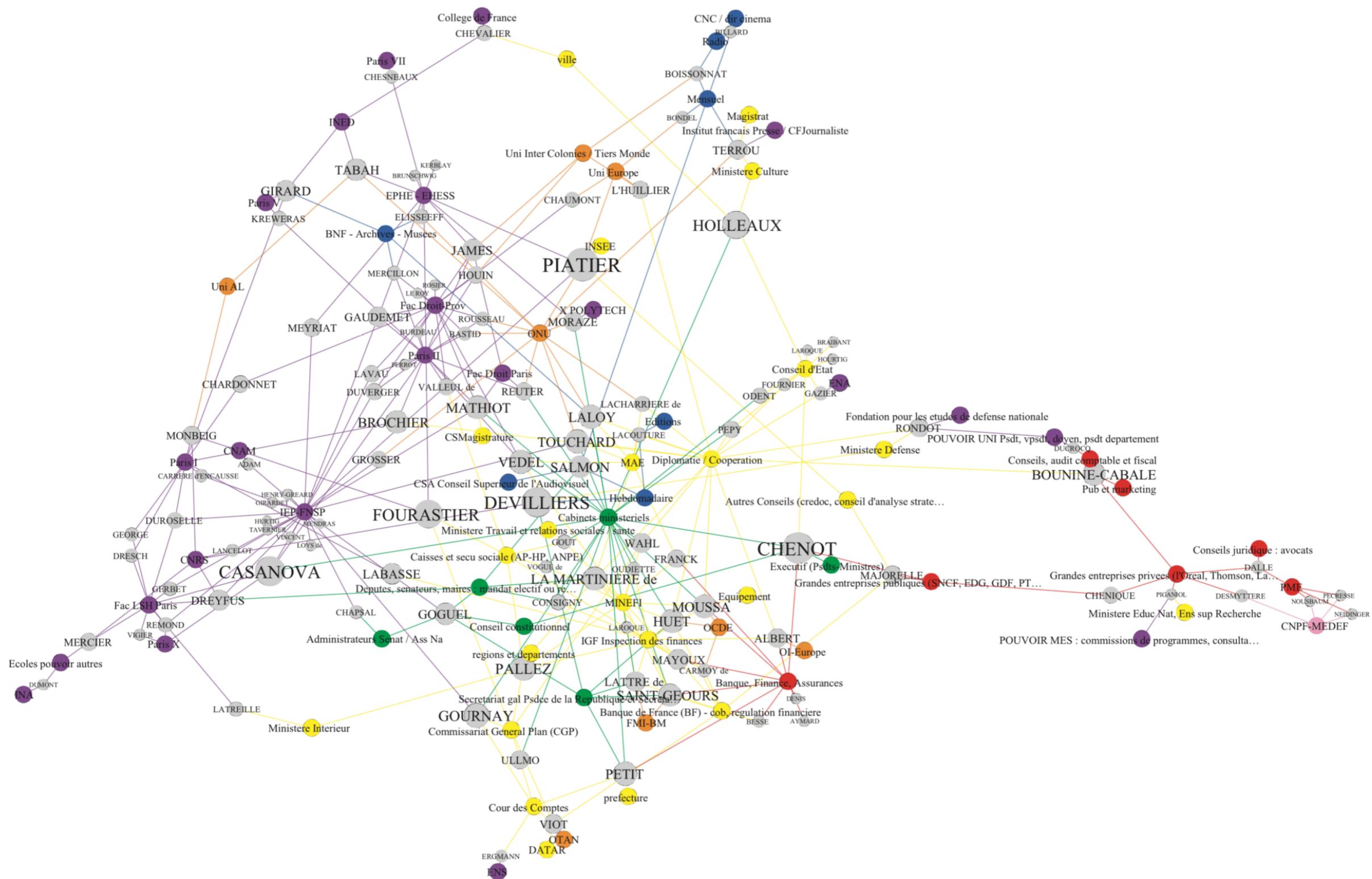
Micro Meso Macro

Thursday, November 8th 2018

1. Actual Networks

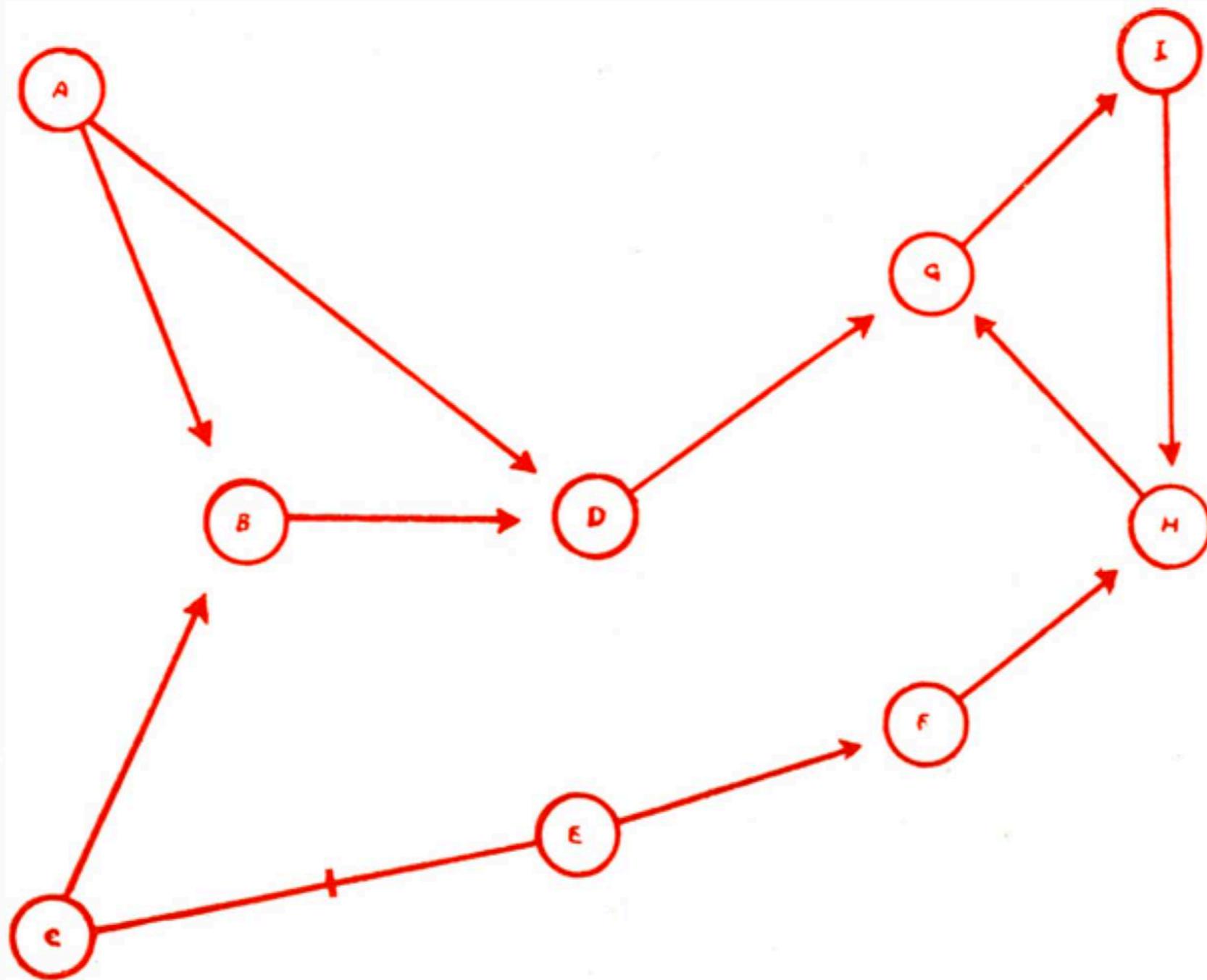


Lima, Manuel. 2011. *Visual Complexity: Mapping Patterns of Information*.



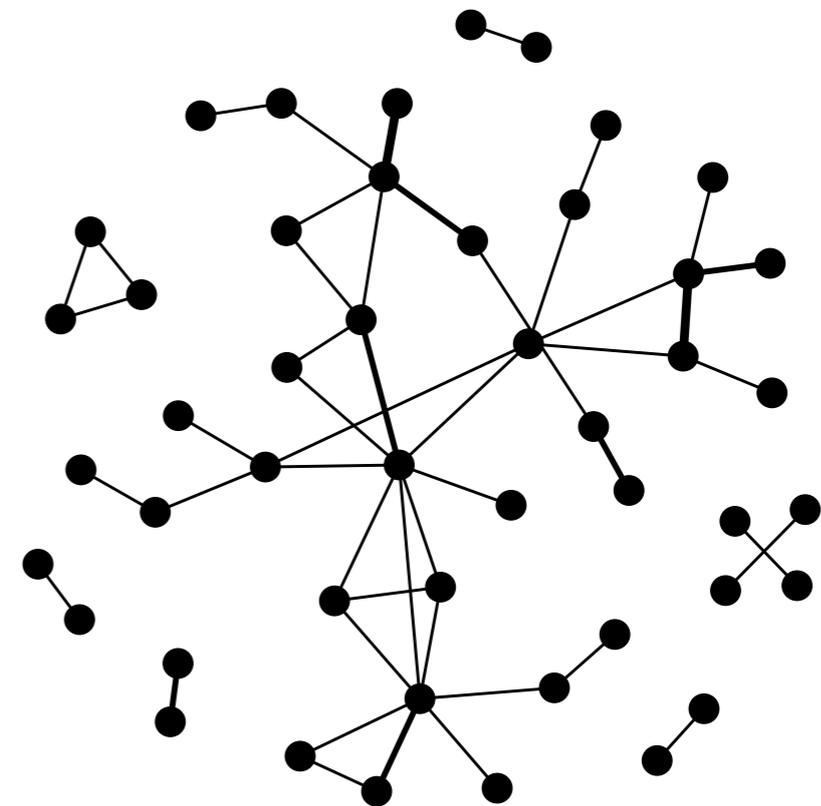
Venturini, Jacomy, Meunier, Latour. 2017.

An Unexpected Journey: a Few Lessons From Sciences Po Médialab's Experience.



Moreno, Jacob L. 1934. Who Shall Survive?

Max Connections	Infinite
Metrics	Distance / Proximity
Polarity	Absent
Visualization space	two-dimensional
Data space	multi-dimensional

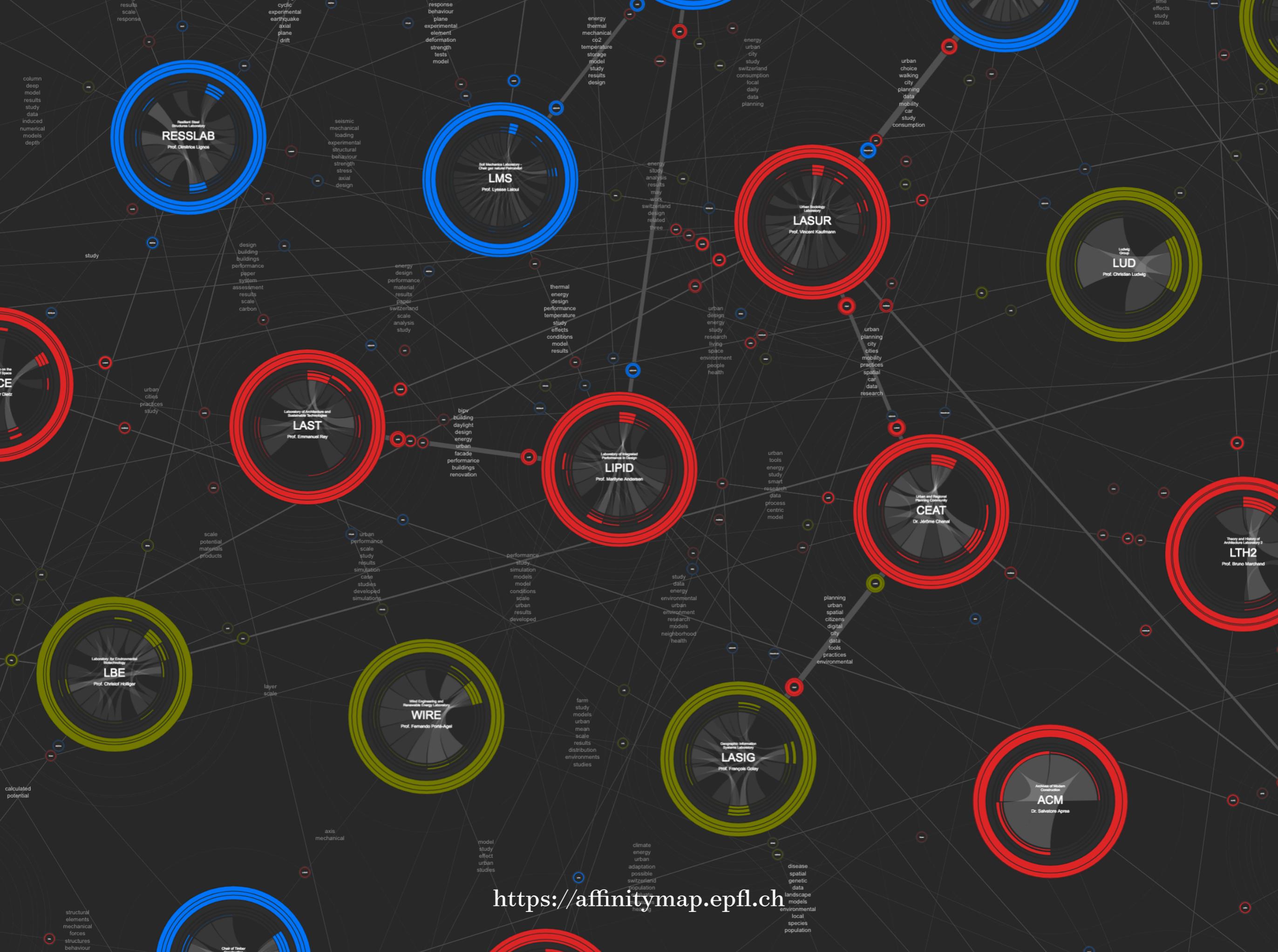


Simplification

2. Affinity Map

Mapping affinities:
visualizing
academic practice
through collaboration

Thesis



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Laboratoire
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Prof. Christof Holliger

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Wind Engineering and
Renewable Energy Laboratory
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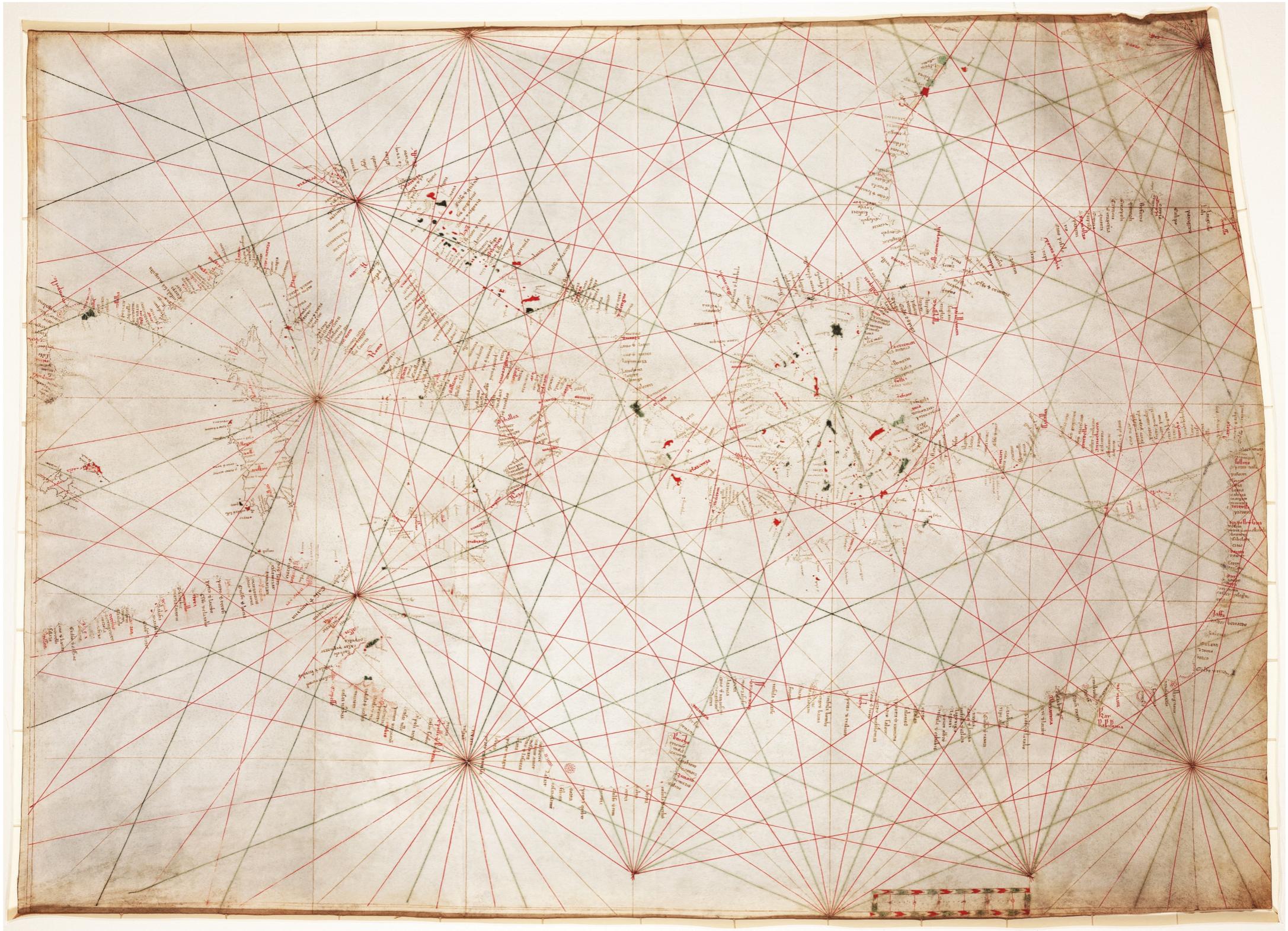
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Geographic Information
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ACM
Archives of Modern
Construction
Dr. Salvatore Aprea

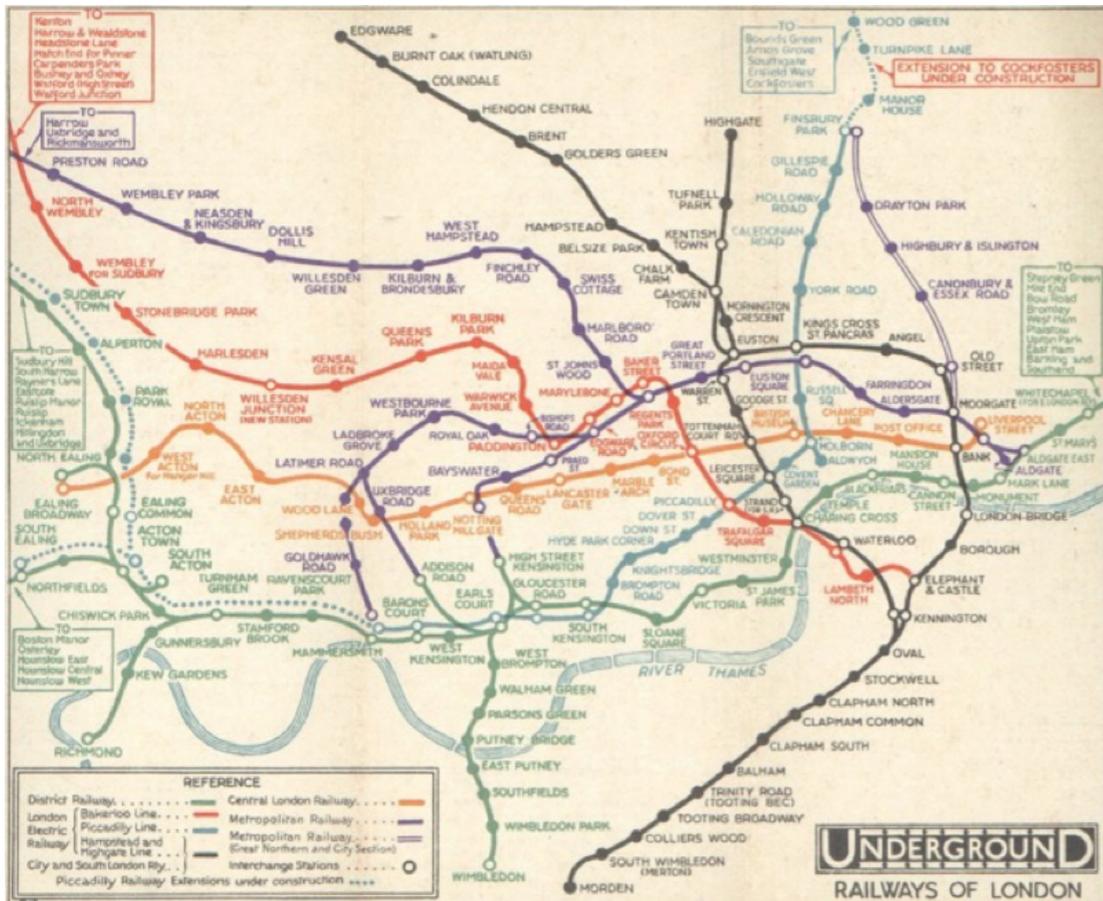
<https://affinitymap.epfl.ch>

3. Hexagonal Pattern

*“Design is the conscious and intuitive effort to impose **meaningful order**. [...] Our delight in the order we find in frost flowers on a window pane, in the hexagonal perfection of a honeycomb, in leaves, or in the architecture of a rose, reflects man’s preoccupation with pattern.”*

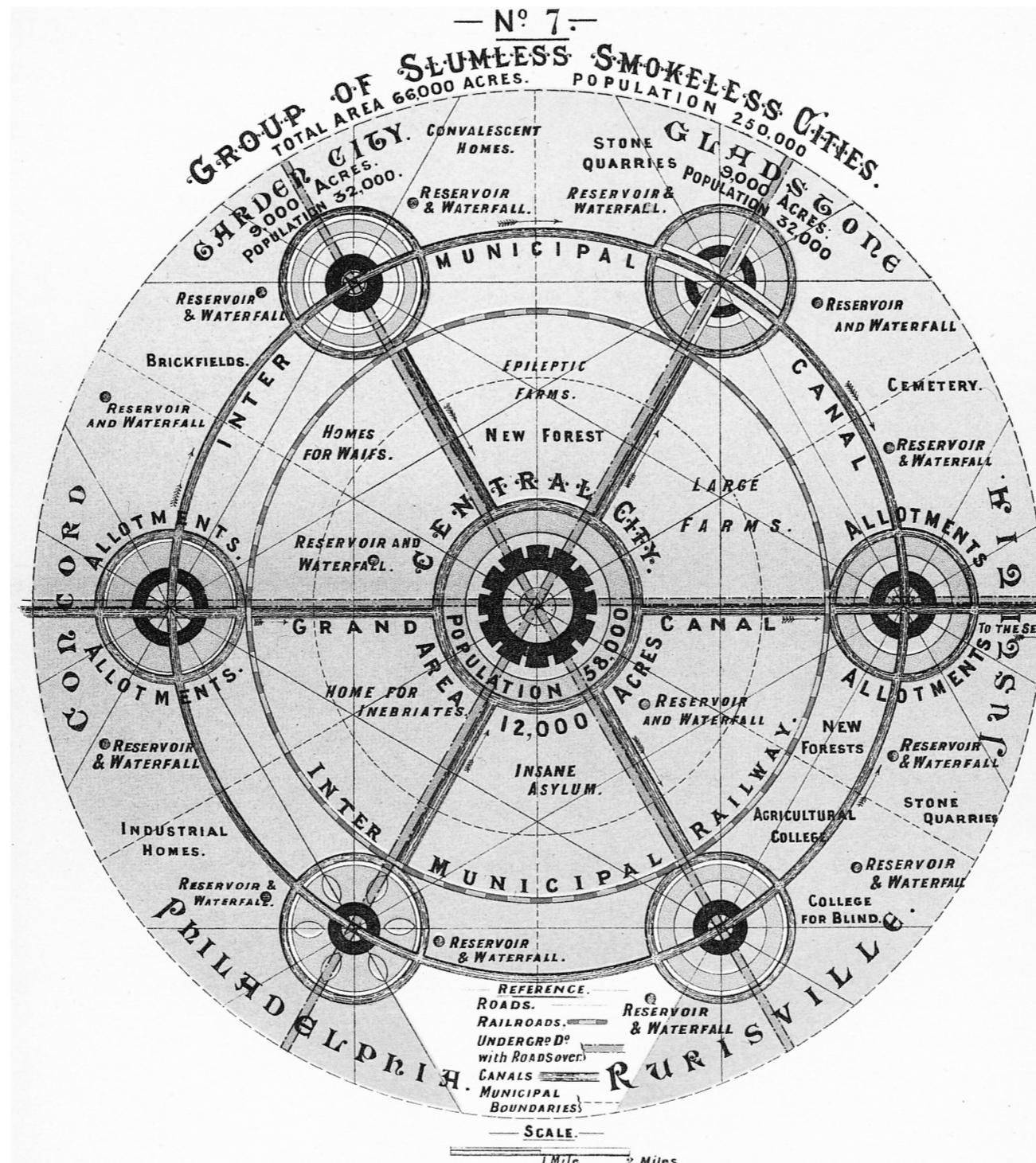


A Portolan chart that represents the Mediterranean Sea and its winds during the second quarter of the 14th century. © Library of Congress



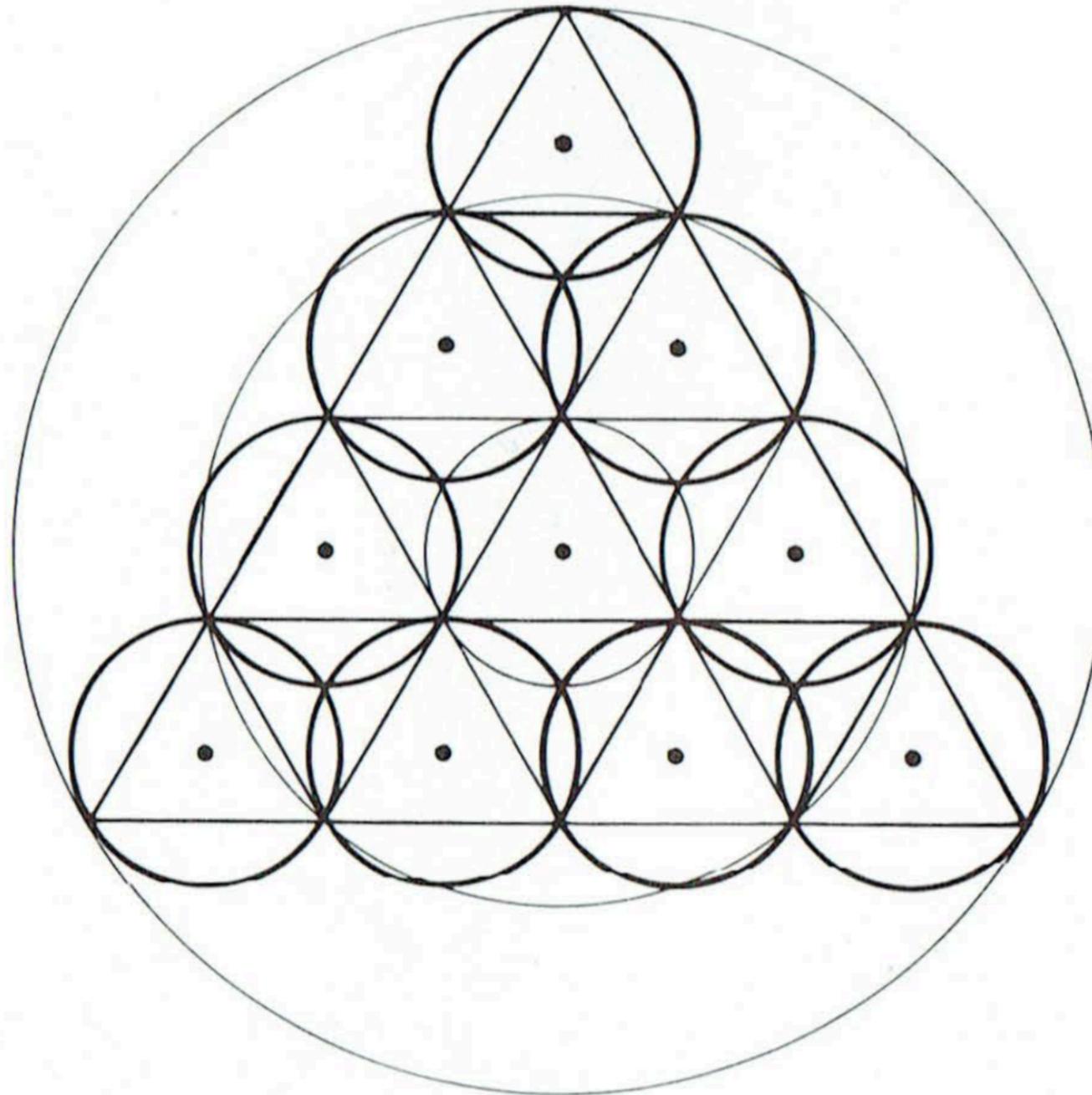
Pre and post Harry Beck's London underground map.

*“Regular graphs are unique in that each node has exactly the same number of links. Indeed, in a two-dimensional mesh of perpendicular lines forming a simple square lattice each node has exactly four links, or in a **hexagonal lattice** of a beehive each node is connected to exactly three others [links].”*

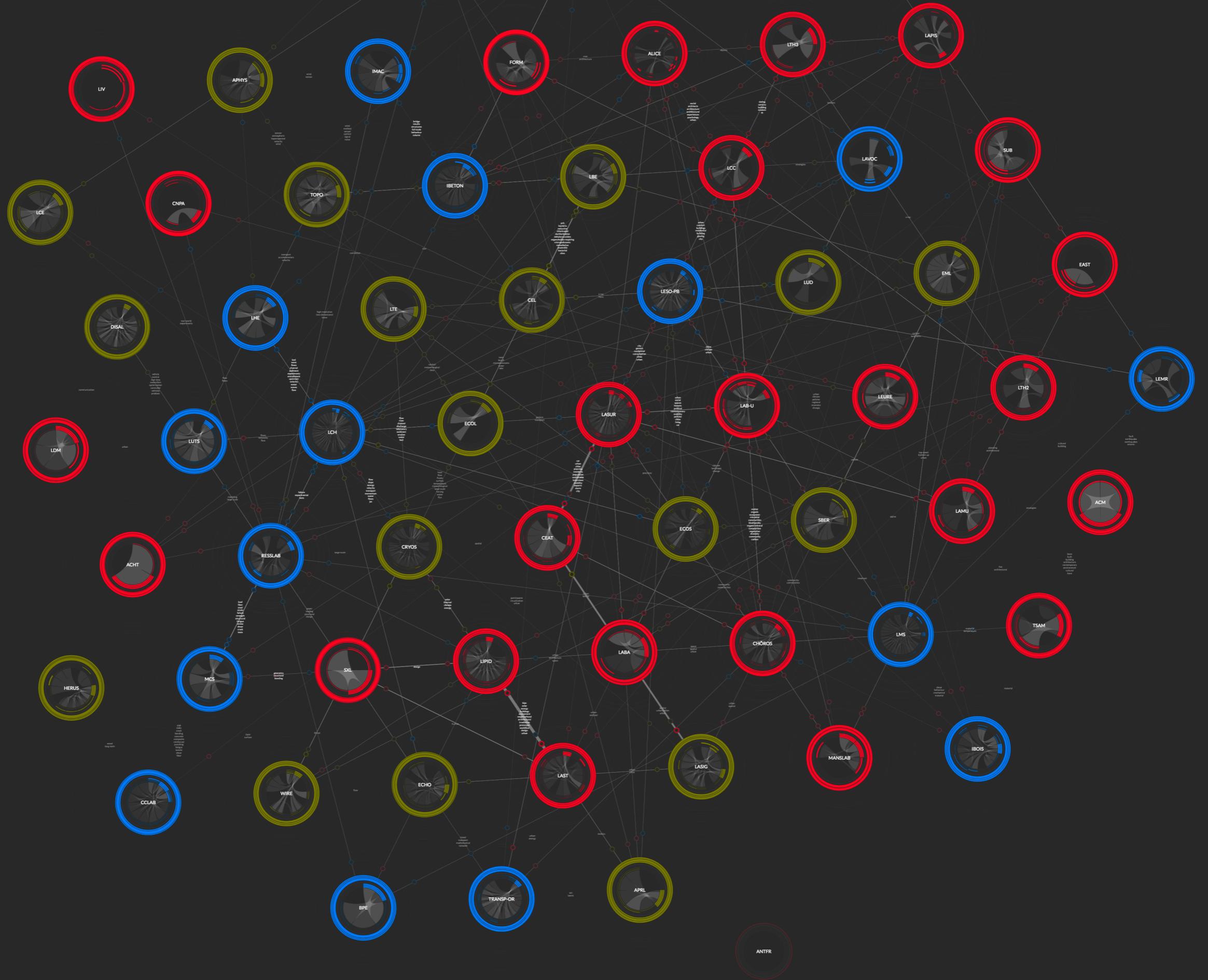


Beevers, Robert. 1988. *The Garden City Utopia: a Critical Biography of Ebenezer Howard.*

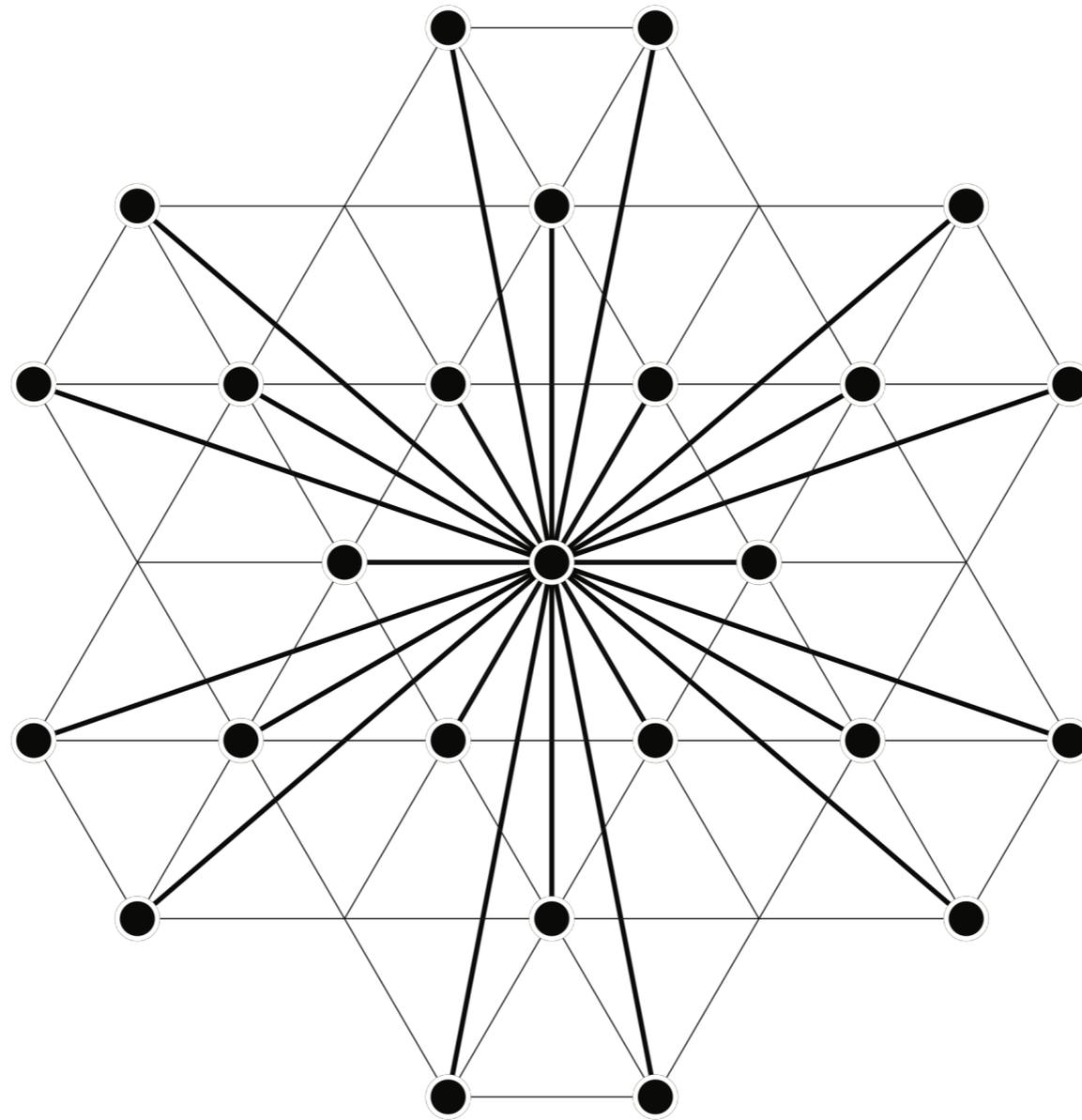
“From the basic circle and the hexagonal arrangement of a group of tangential circles of the same radius surrounding it emerge the three primary shapes: the triangle, the hexagon and the square. These three shapes are explored in detail to reveal their inherent structure, subdivision, proportional ratios and interrelatedness. From this last, which can be called the ‘sociability’ of the polygons.”



Critchlow, Keith. 1976. Islamic Patterns.



Rodighiero, D., F. Kaplan, and B. Beau. 2018. Mapping Affinities in Academic Organizations.



24 direct connections

Hexagonal tessellation properties:

Optimize space

Normalize link direction

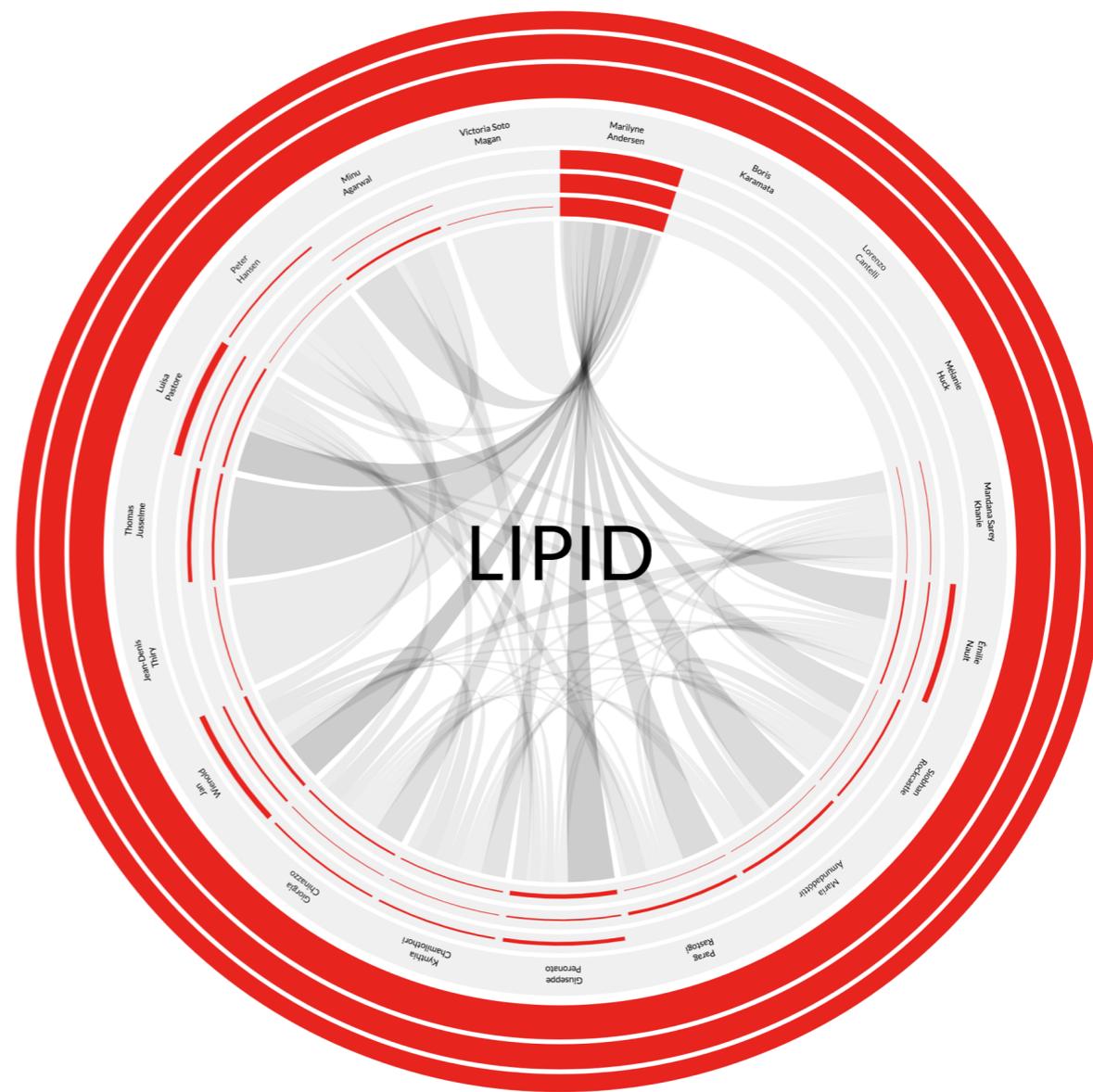
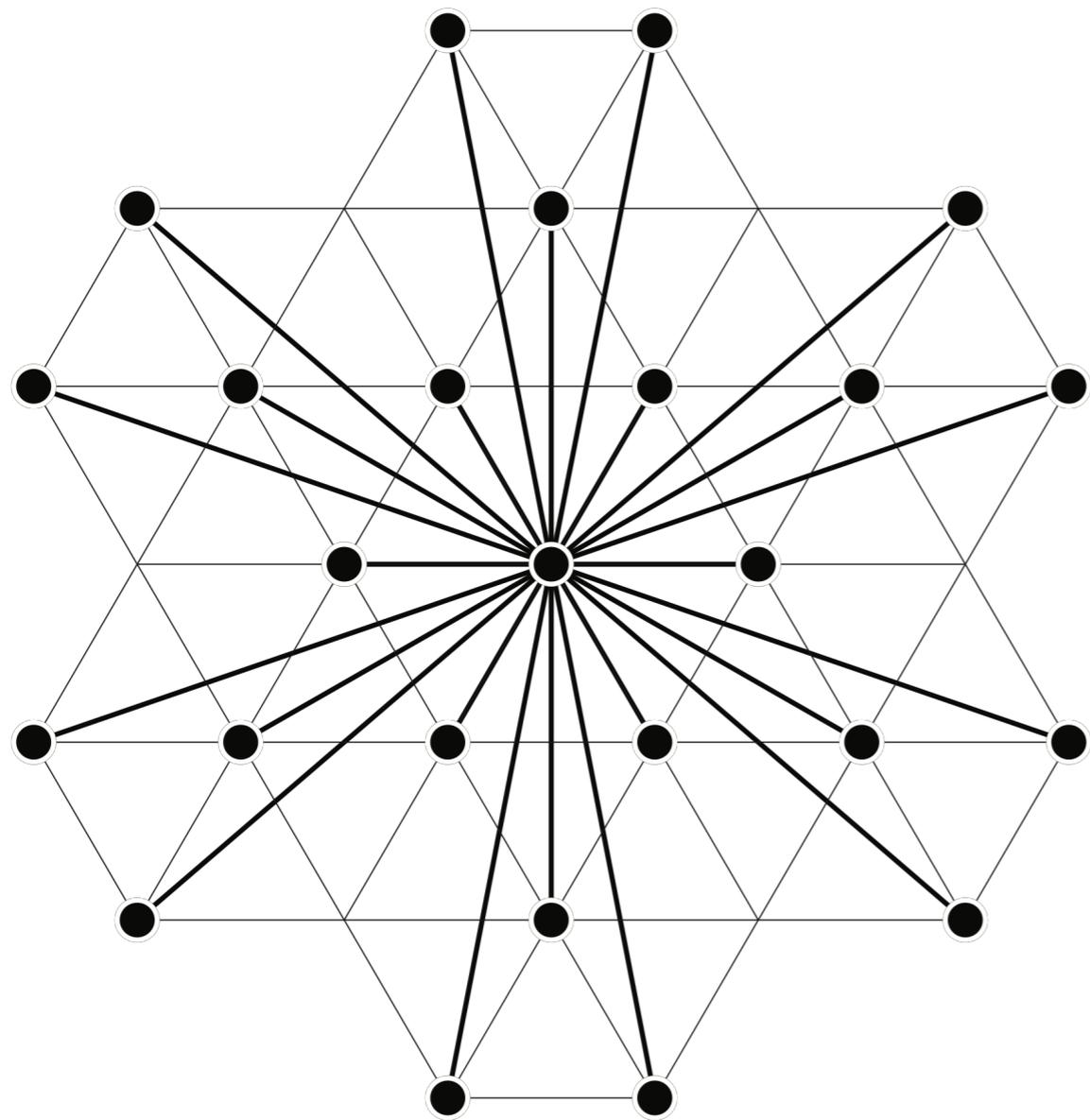
Normalize distances

Reduce overlapping

Infinite tessellation

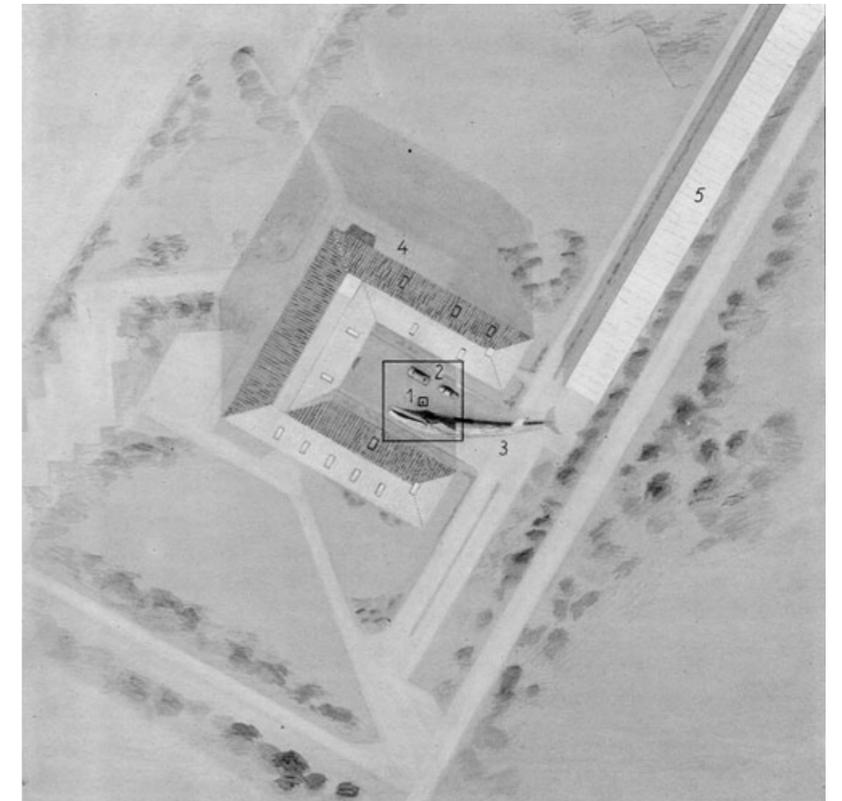
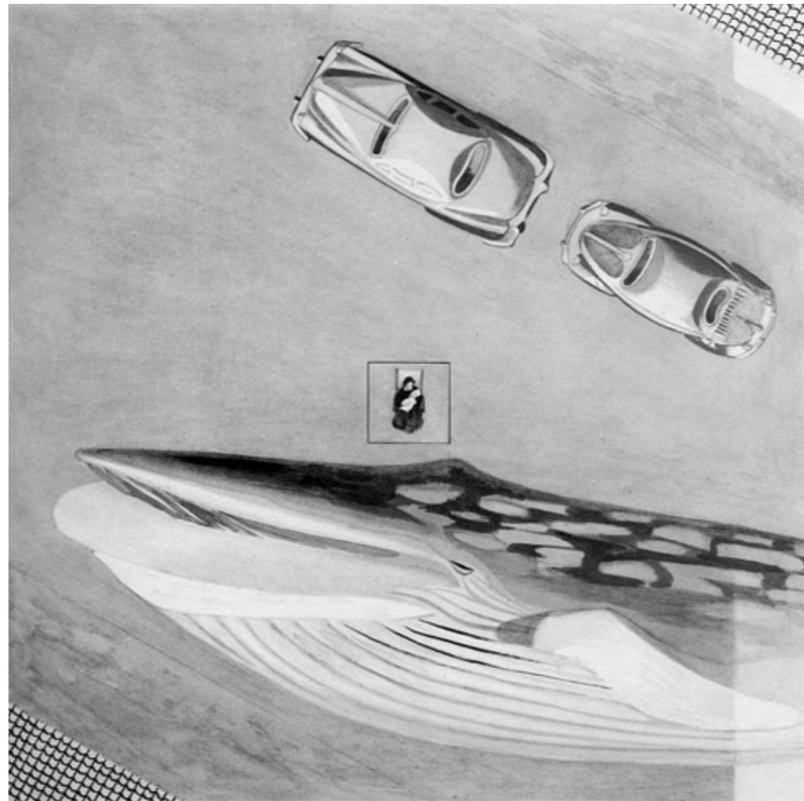
Collectiveness

4. Satellites



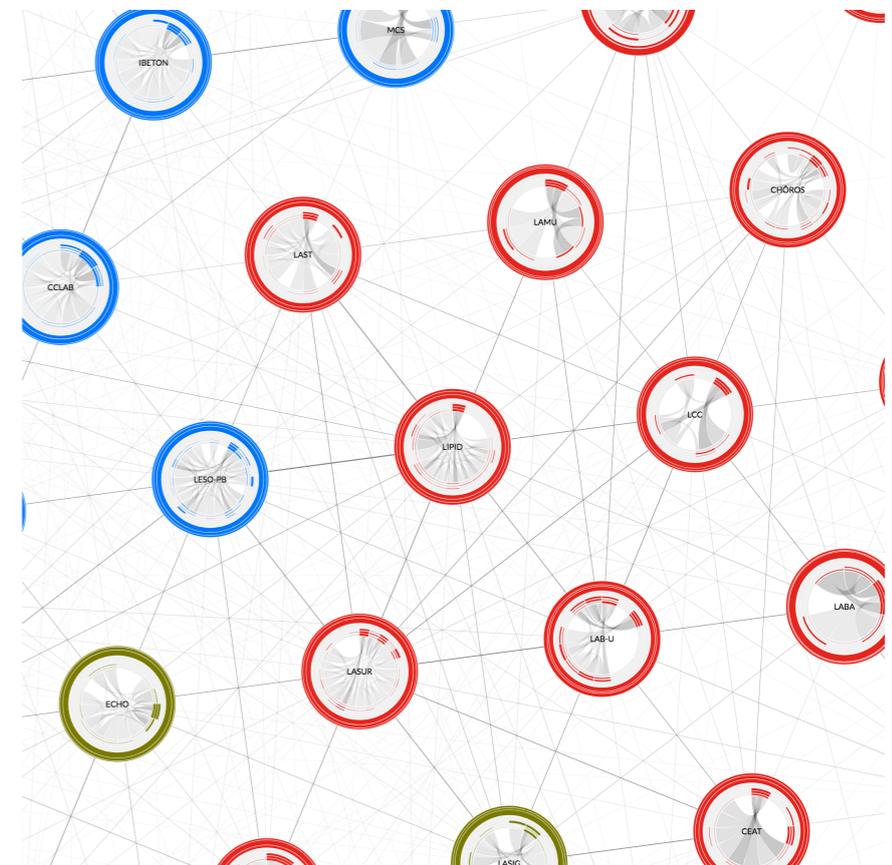
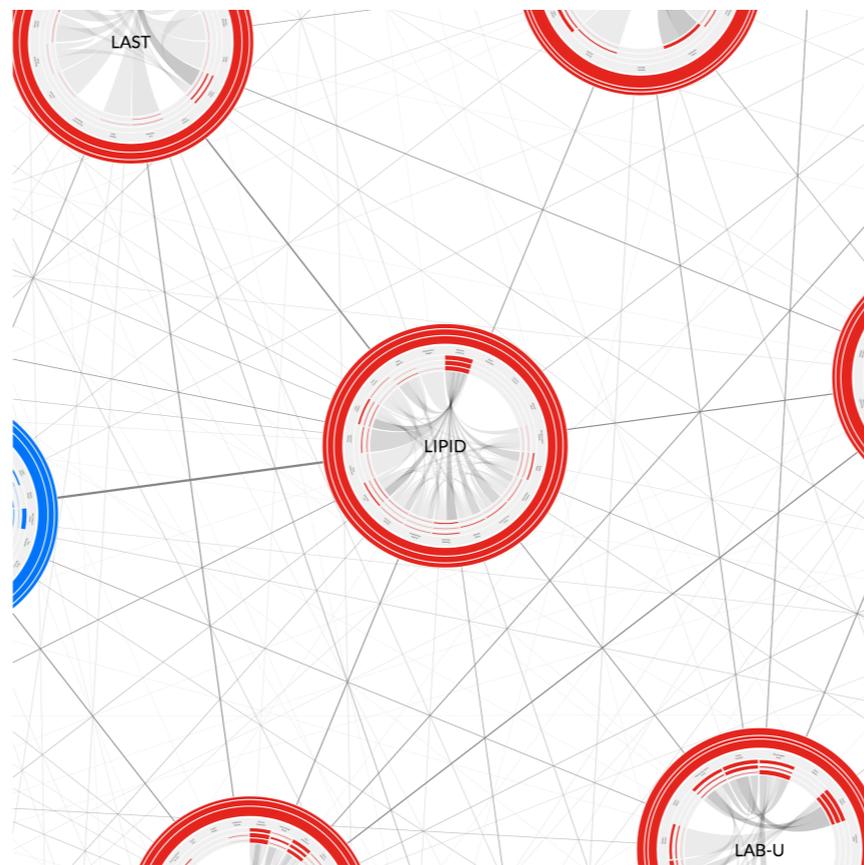
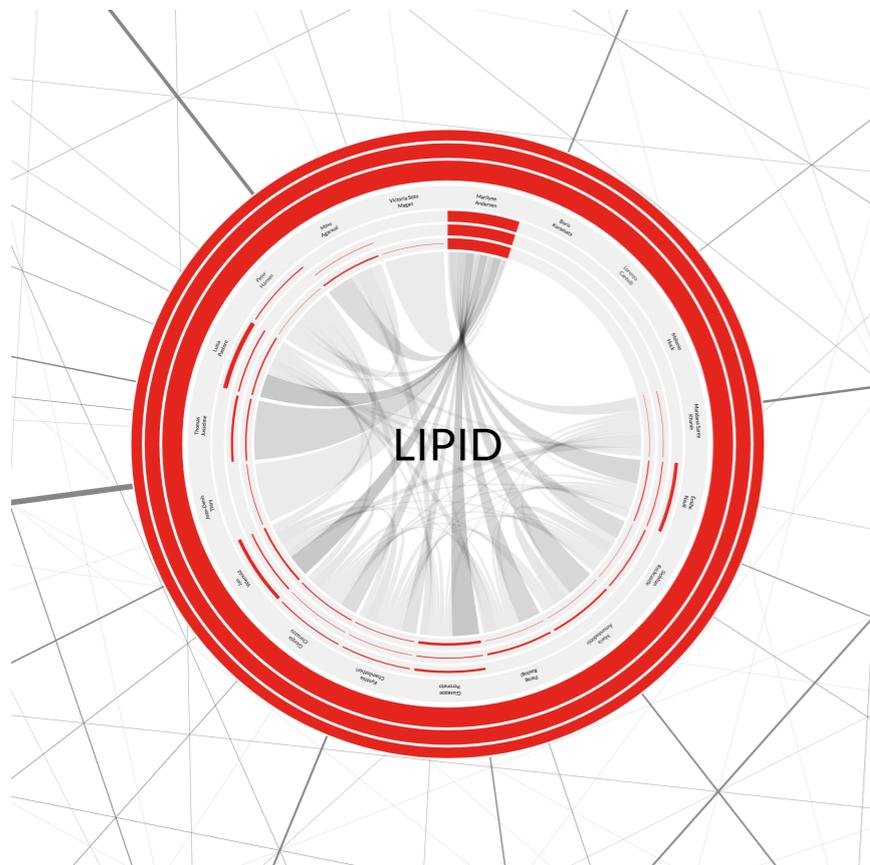
Intermediary level: Meso

“Visual Information-Seeking Mantra: overview first, zoom and filter, then details on demand.”



Boeke, Kees. 1957. Cosmic View.

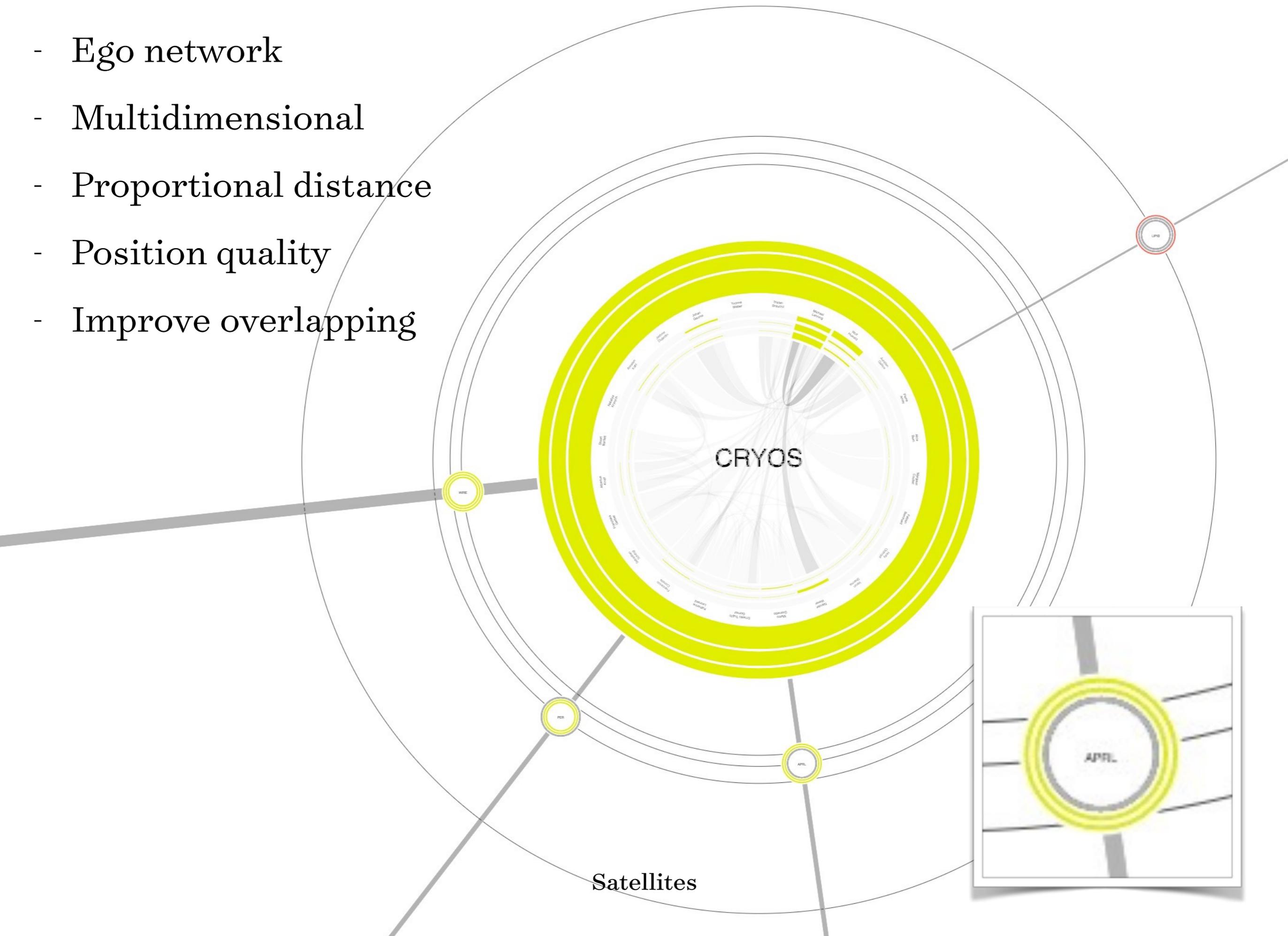
“In this awesome journey to the ends of the universe, you have learned an immense amount about its structure and the beings and things that occupy it, and above all about the relationships of things to each other, in their various scales of dimension, with a vividness that words cannot express.”



Hexagonal network is unified with the visualizations of the nodes.

It is incorrect [...] to think that maps [...] prove the reality of the zoom effect: when one shifts from a map on a scale of 1 cm to 1 km to one on 1 cm to 10 km, the latter does not contain the same information as the former: it contains other information that might (or might not) coincide with what appears in the former.

- Ego network
- Multidimensional
- Proportional distance
- Position quality
- Improve overlapping



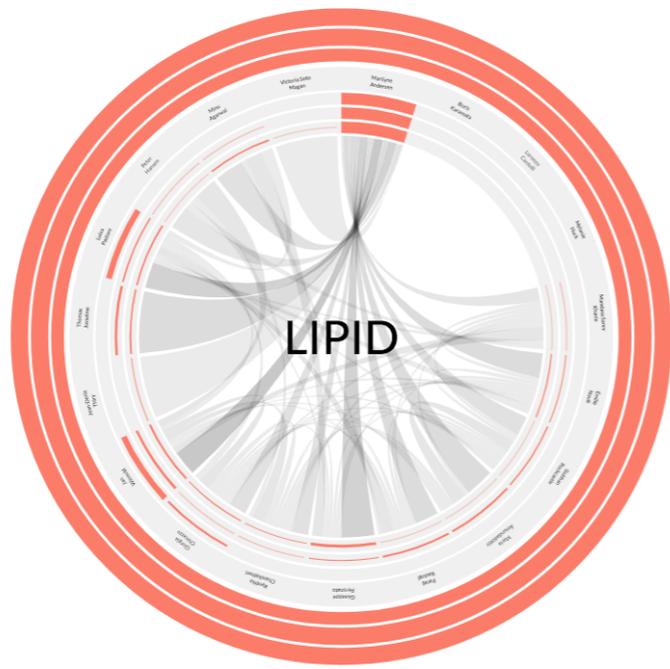
“Micro and macro [...] are really two faces of the same thing”

5. Background

“In information retrieval, $tf-idf$ or $TFIDF$, short for term frequency–inverse document frequency, is a numerical statistic that is intended to reflect how important a word is to a document in a collection or corpus.”

— Wikipedia 2018

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2    "id": 53310,
3    "authors": ["Bradley, Joseph", "Loucks, Jeff", "Macaulay, James", "Noronha, Andy", "Wade, Mi
4    "title": "Digital vortex: How digital disruption is redefining industries",
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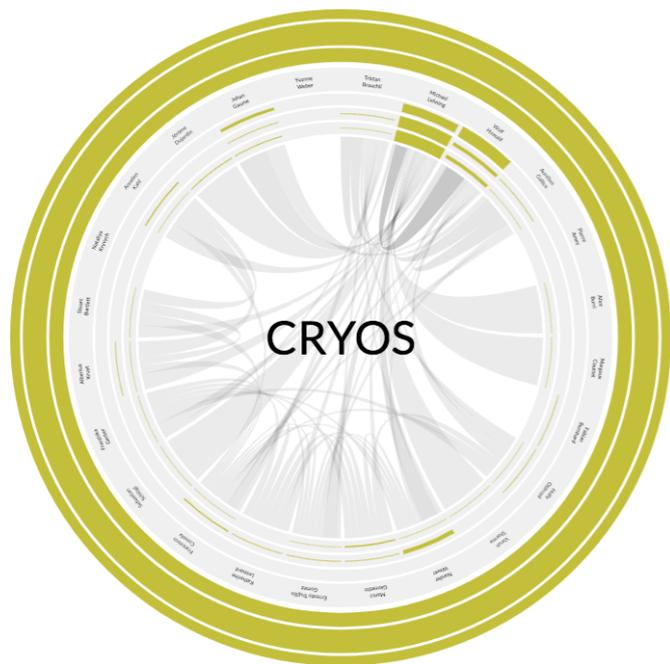


solar
thermal
climate
energy

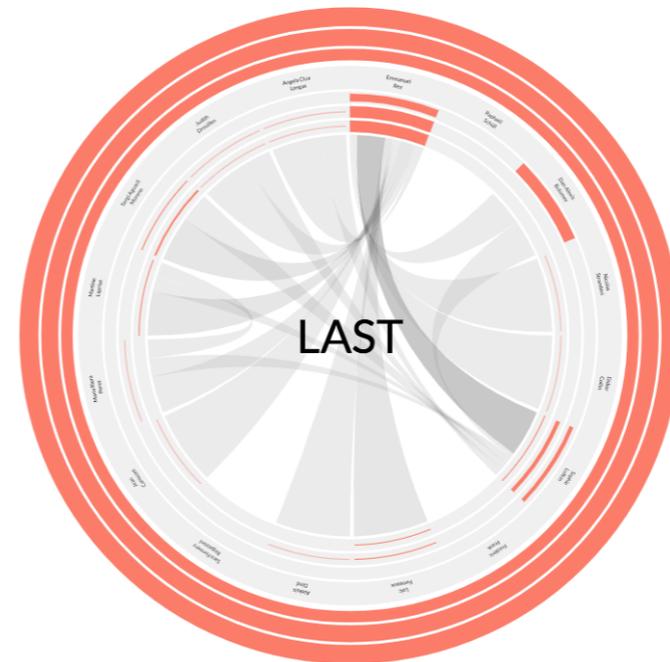
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irradiation
prototype
workflow
design
urban

Characteristics

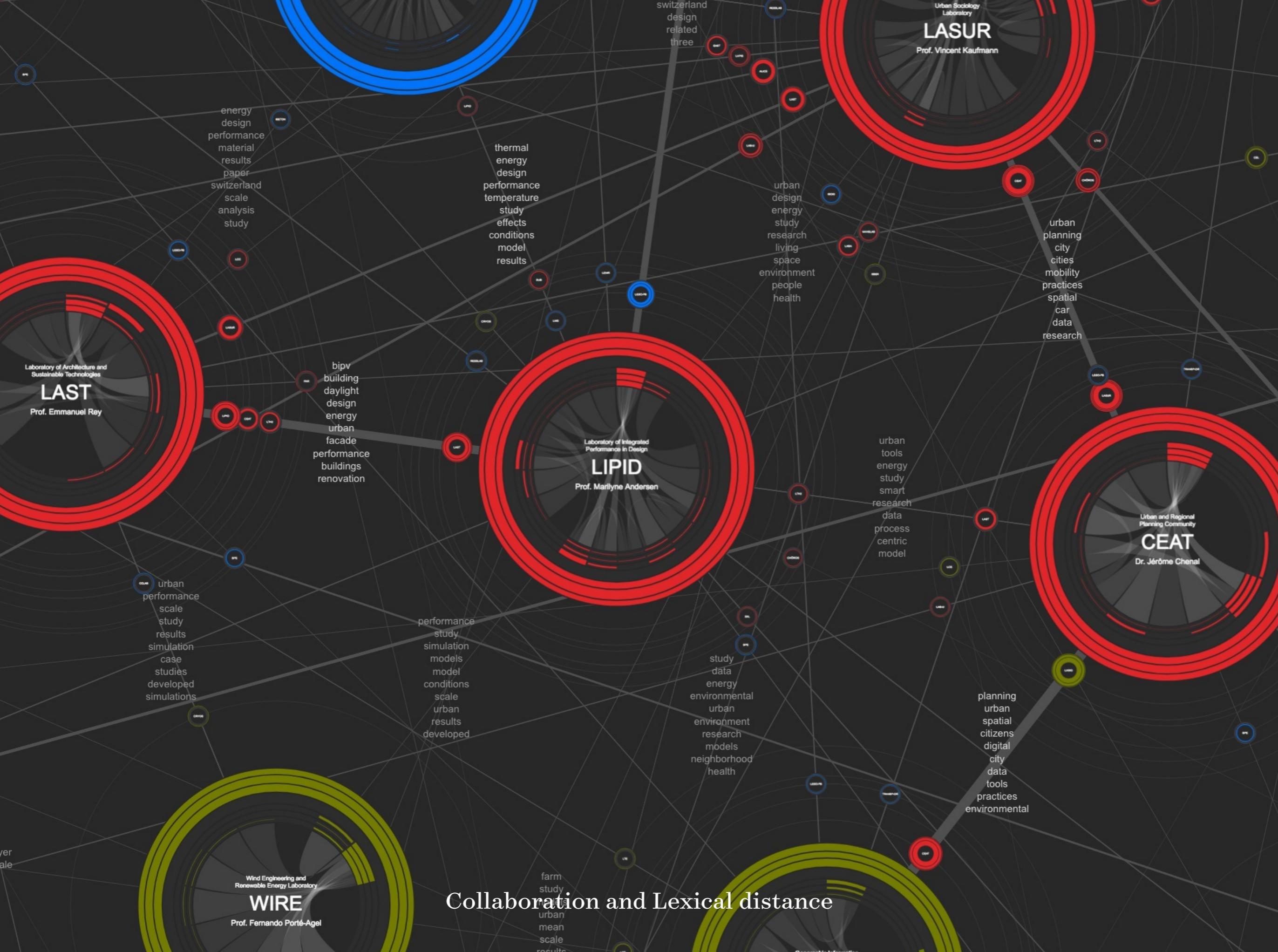
- Use of hexagonal grid
- Justification of closeness
- Semantic layer on links
- Color meaning



solar
energy



Keywords as potential affinities.



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Collaboration and Lexical distance

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switzerland design related three

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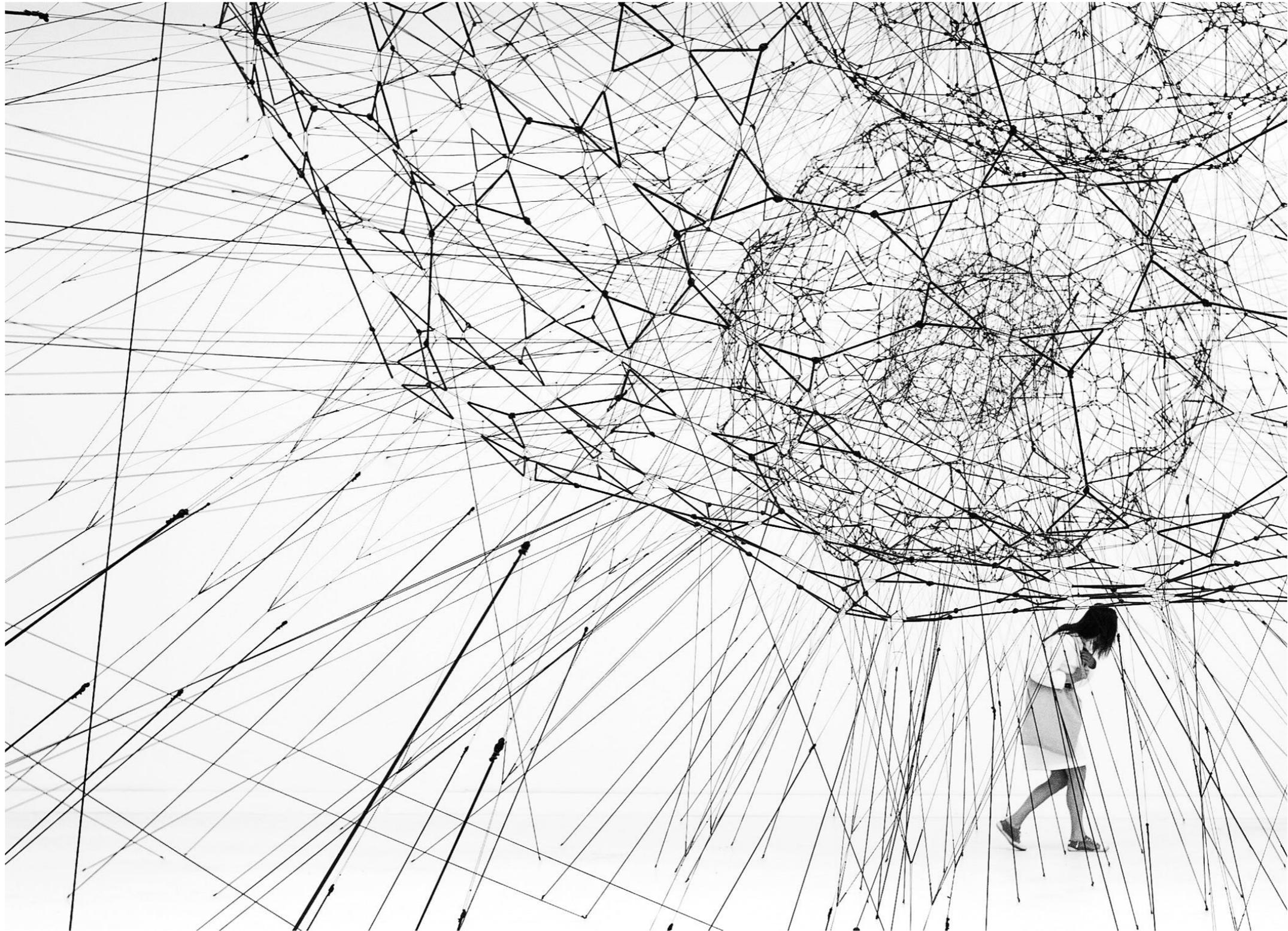
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farm study urban mean scale results

6. Conclusions

“Higher Gestalten are those in which the combined effect of unity of the whole and manifoldness of the parts is greater”



Latour, Bruno. 2013. Some Experiments in Art and Politics.
<https://www.apollo-magazine.com/art-diary/tomas-saraceno-sfmoma/>

*“Dans une formule célèbre de la **Monadologie**, Leibniz dit que les notions individuelles sont sans portes ni fenêtres. [...] Les notions individuelles sont sans portes ni fenêtres, tout est inclus en chacune, et pourtant il y a un monde commun à toutes les notions individuelles: **c’est que ce que chaque notion individuelle inclut, à savoir la totalité du monde**”*

Micro *Meso* Macro

Thanks

<https://dariorodighiero.com>

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