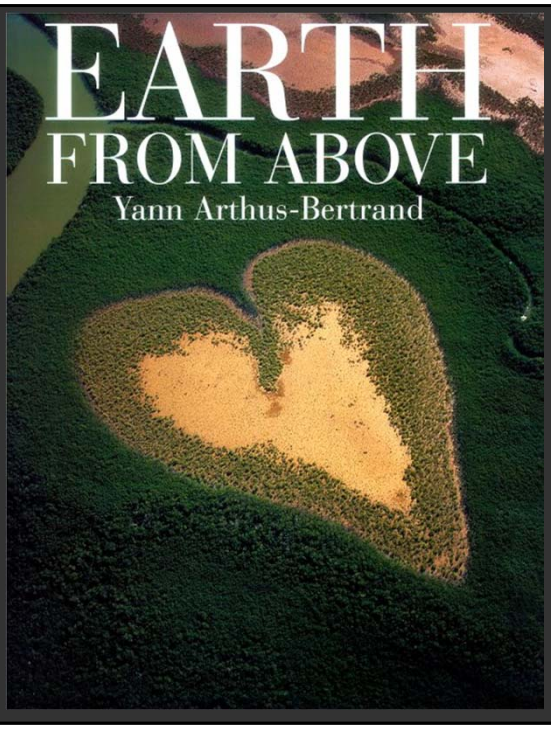
PLACES & SPACES

MAPPING SCIENCE

scimaps.org

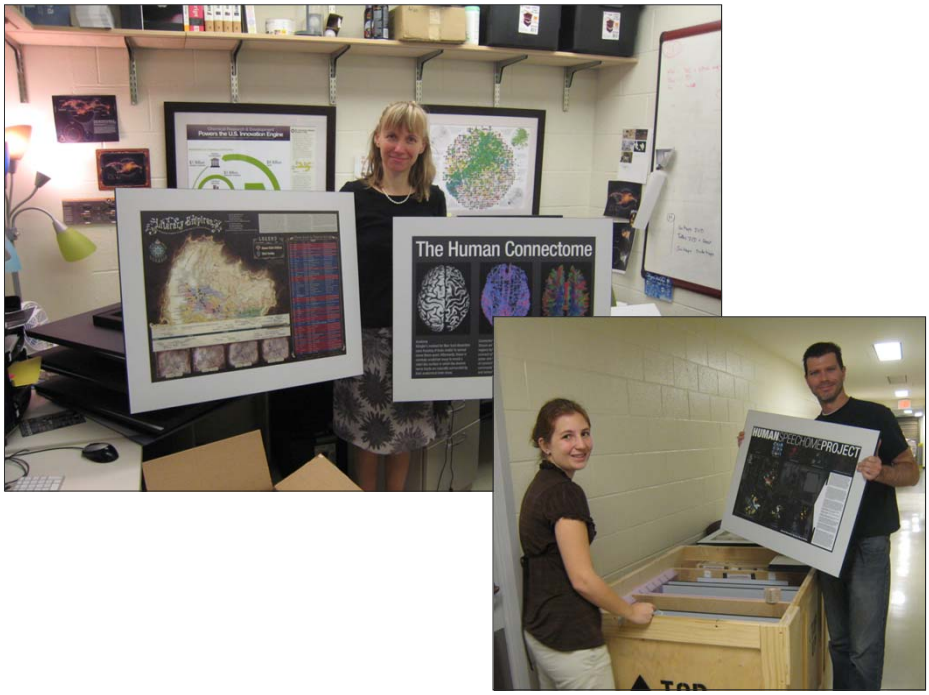


How can we communicate the beauty, structure, and dynamics of science to a general audience?

April, 2005: 101st Annual Meeting of the
Association of American Geographer, Denver, Colorado.


The Structure of Science
9, 2005: 101st Annual Meetin
American Geographer, Denv


INDIANA
UNIVERSITY
PLACES AND SPACES
EXHIBIT

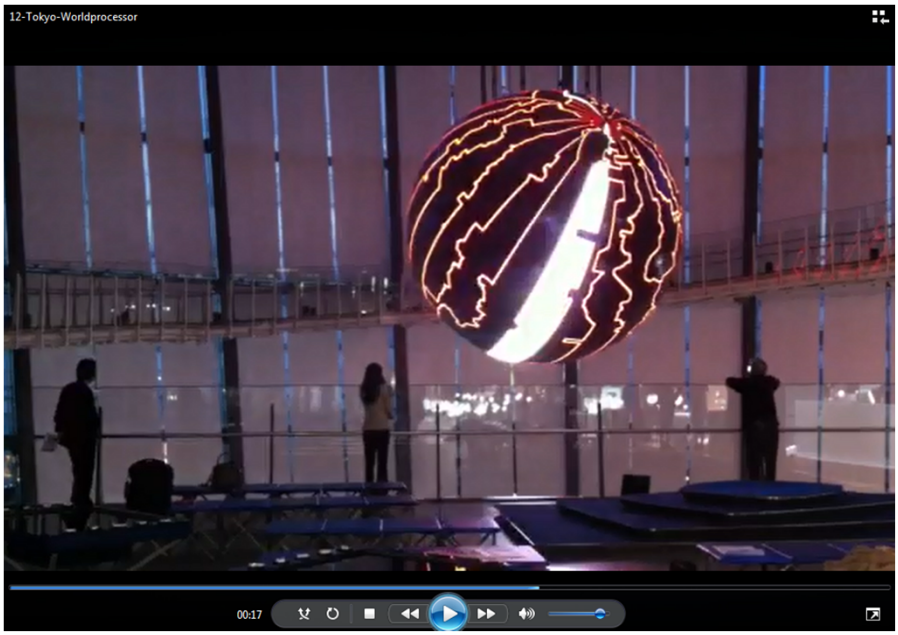


Debut of 5th Iteration of the Mapping Science Exhibit at MEDIA X was in 2009 at Wallenberg Hall, Stanford University.

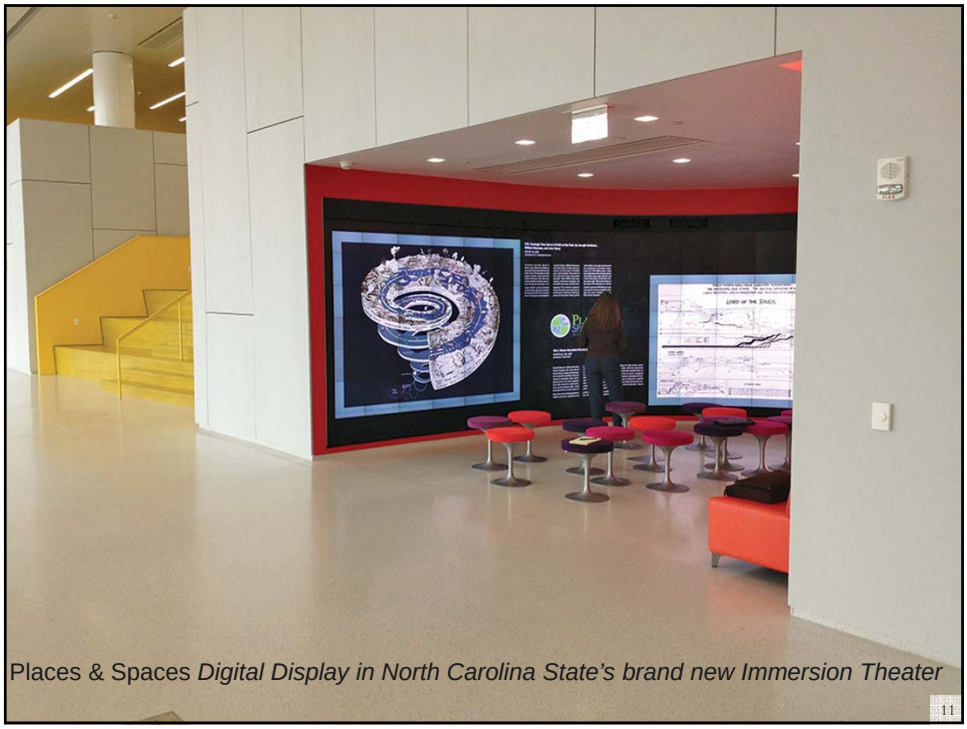
8

Science Maps in “Expedition Zukunft” science train visited 62 cities in 7 months. Opening was on April 23rd, 2009 by German Chancellor Merkel

9



Ingo Gunther's Worldprocessor globe design on display at the Museum of Emerging Science and Innovation in Tokyo, Japan



Places & Spaces *Digital Display in North Carolina State's brand new Immersion Theater*

11

Places & Spaces: Mapping Science is meant to inspire cross-disciplinary discussion on how to best track and communicate human activity and scientific progress on a global scale. It has two components: the physical part supports the close inspection of high quality reproductions of maps for display at conferences and education centers; the accompanying website provides links to a selected series of maps and their makers along with detailed explanations of how these maps work.

The exhibit is a 10-year effort. Each year, 10 new maps were added, resulting in **100 maps in the current exhibit, divided into 10 iterations.**

LOCATIONS

- Iterations 1-5 (50 maps) are displayed in the Stanley and Jewell Glasgow Hall, Perez Architecture Center, on the first floor of the School of Architecture.
- Iterations 6-10 (50 maps), the globes, and the illuminated diagram are displayed in the first and second floors of the Otto G. Richter Library.

CALENDAR OF EVENTS

This schedule can be subject to changes.
For updates, visit visualization.miami.edu

Thursday, SEPTEMBER 4
Inauguration of the exhibit. Keynote talk by Katy Börner. Glasgow Hall, School of Architecture. 6-8 PM

Thursday, SEPTEMBER 18
Creative visualization and data art, with Manuel Lima. Glasgow Hall, School of Architecture. 6-7 PM

Monday, SEPTEMBER 29
Mapping Informal Cities, with Adib Cure, Carie Penabad and Chris Mader. Glasgow Hall, School of Architecture. 6-7 PM

Thursday, OCTOBER 2
How science can inspire art, with Nela Ochoa, Xavier Cortada, and Patricia Van Dalen. CAS Wesley Gallery. 5.30-7.30 PM

Thursday, OCTOBER 9
Humor in visualization and infographics, with Nigel Holmes. Glasgow Hall, School of Architecture. 6-7 PM

Thursday, OCTOBER 23
Visualization for effective communication, with Stephen Few and John Grimwade. Glasgow Hall, School of Architecture. 6-8 PM

Sunday, NOVEMBER 9
Family day. Details on the website.

Wednesday, NOVEMBER 13
Cross-Resonance in the Arts and Sciences, with Ruth West. Richter Library, 3rd floor conference room. 6-7 PM

Monday, NOVEMBER 17th
Data Mapping and 3D Visualization with GIS, with Li Yi. Glasgow Hall, School of Architecture. 6-7 PM

Wednesday, NOVEMBER 19
GIS day. Richter Library, 3rd floor conference room. 6-7 PM

Sunday, DECEMBER 7
Art Basel Self-Guided Tours of the Exhibit and Brunch at the Lowe Art Museum. Lowe Art Museum, 9-11.30 AM

Thursday, DECEMBER 11
Closing ceremony. Keynote talk by Juhong Park. Glasgow Hall, School of Architecture. 6-8 PM

Sponsored by
Center for Computational Science
School of Communication
College of Arts & Sciences

For more information:
visualization.miami.edu
scimaps.org/miami

Display locations
The Stanley and Jewell Glasgow Hall, Perez Architecture Center, School of Architecture
1223 Theo Dickinson Dr, Coral Gables, FL 33146

Otto G. Richter Library
1300 Memorial Dr, Coral Gables, FL 33146

September 4 - December 11, 2014

UNIVERSITY OF MIAMI

10 iterations over 10 years

equal

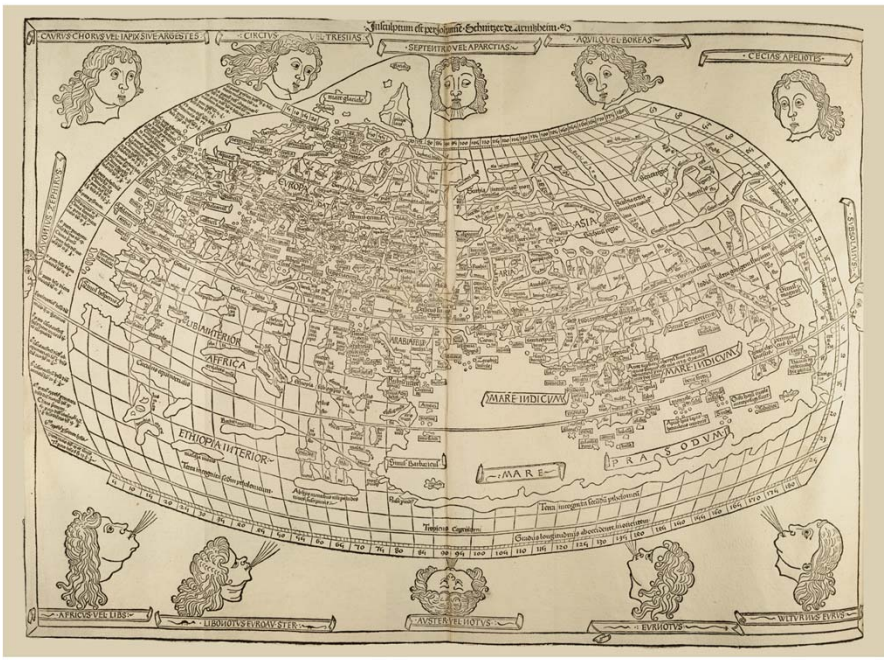
10 x 10 = 100 maps!

The Power of Maps 2005

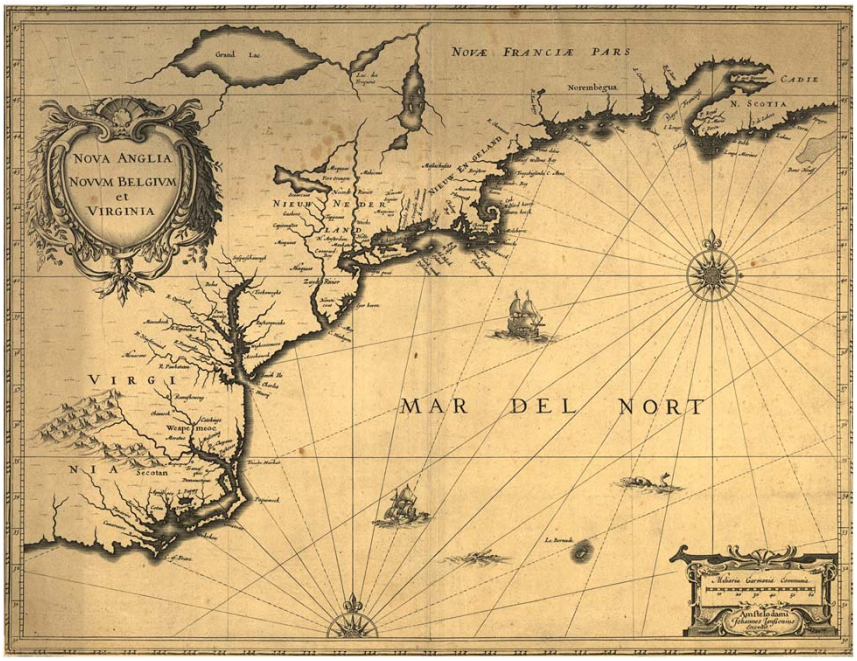
Cartographic maps of physical places have guided mankind's explorations for centuries.

They enabled the discovery of new worlds while also marking territories inhabited by the unknown.

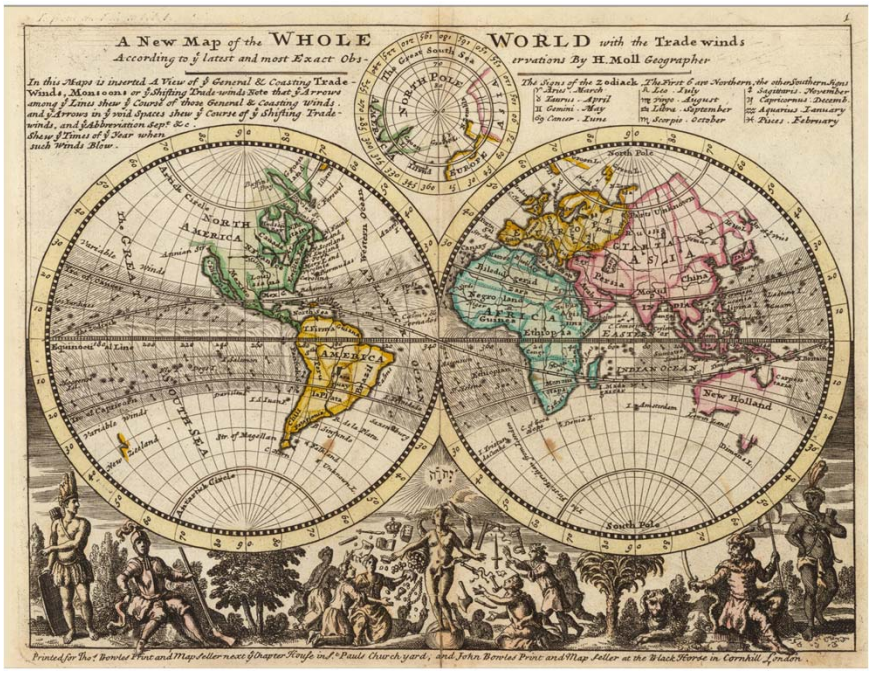
Without maps, we would be lost.



Cosmographia World Map - Claudius Ptolemy - 1482



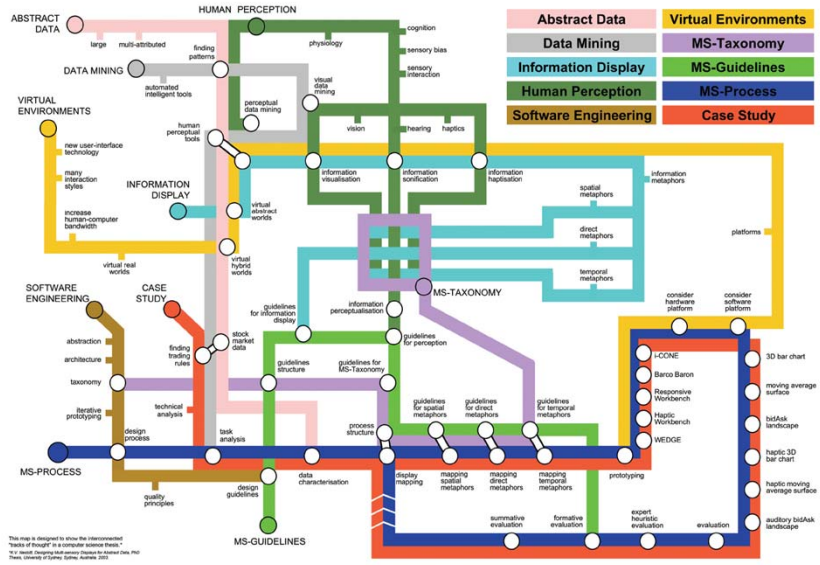
Nova Anglia, Novvm Belgivm et Virginia - Jan Jannson - 1642



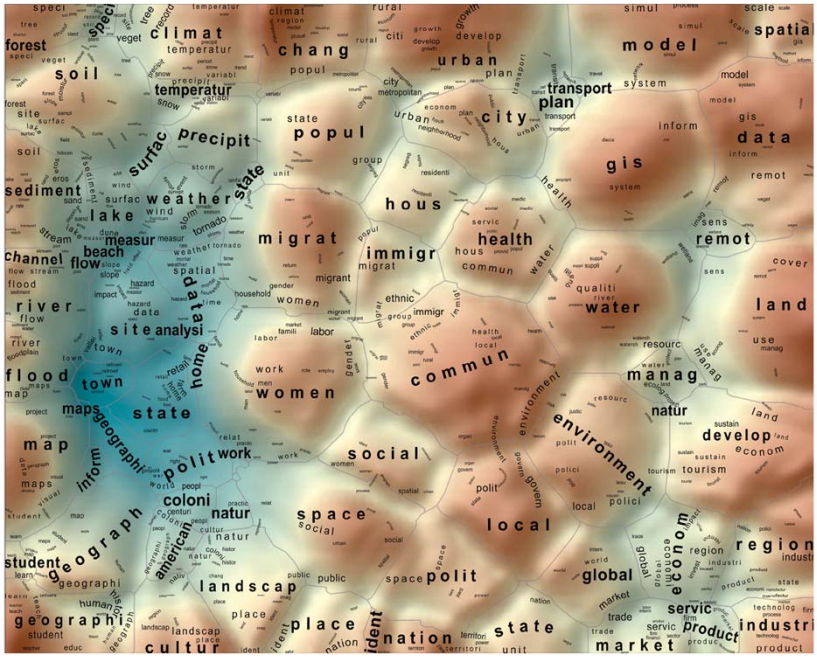
A New Map of the Whole World with Trade Winds According to the Latest and Most Exact Observations - Herman Moll - 1736

Science maps of abstract semantic spaces aim to serve today's explorers navigating the world of science.

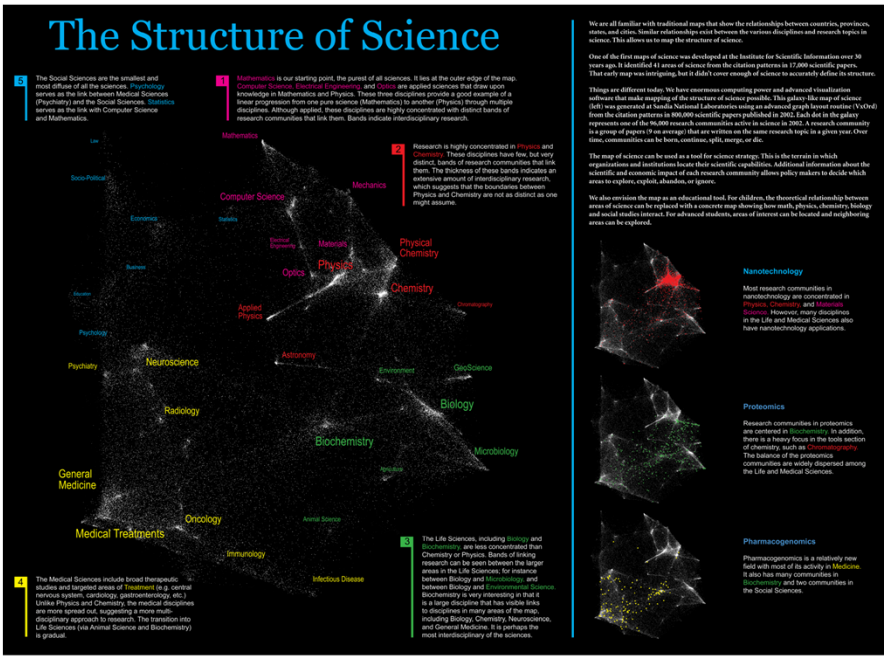
They can be used to identify objectively major experts, institutions, collections. They allow us to track the emergence, evolution, and disappearance of topics and help to identify the most promising areas of research.



Ph.D. Thesis Map - Keith B. Nesbitt - 2004

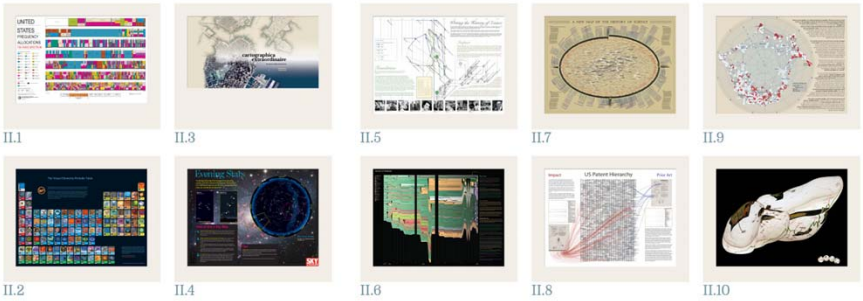


In Terms of Geography - Andre Skupin - 2005



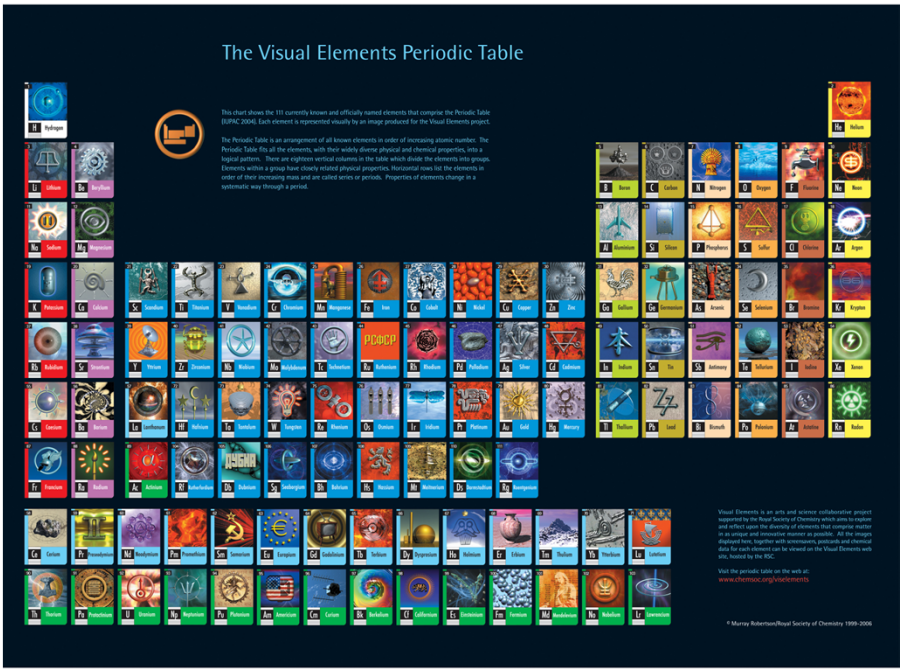
The Structure of Science - Kevin Boyack, Richard Klavans - 2005

The Power of Reference Systems 2006

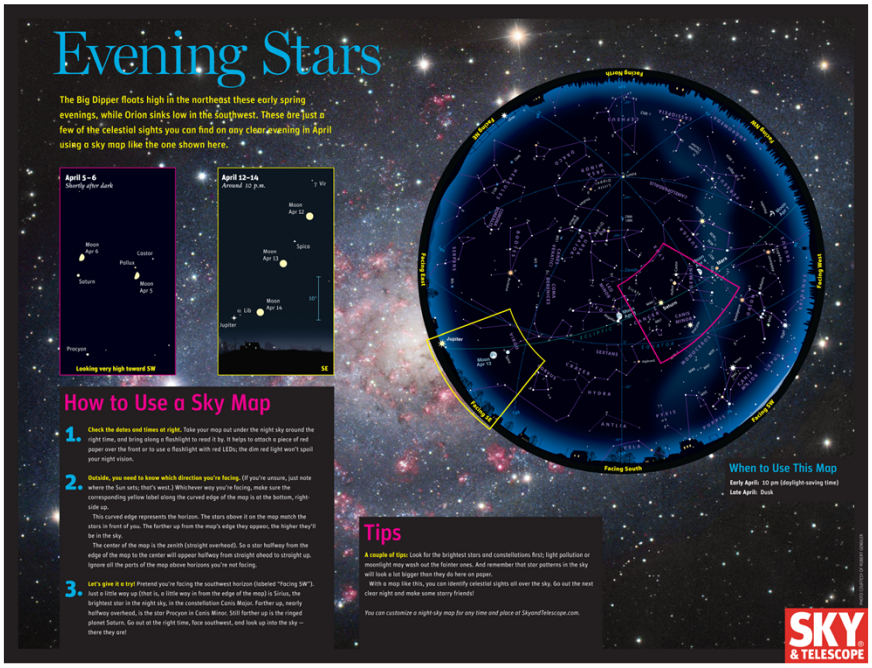


II.1 II.3 II.5 II.7 II.9

II.2 II.4 II.6 II.8 II.10



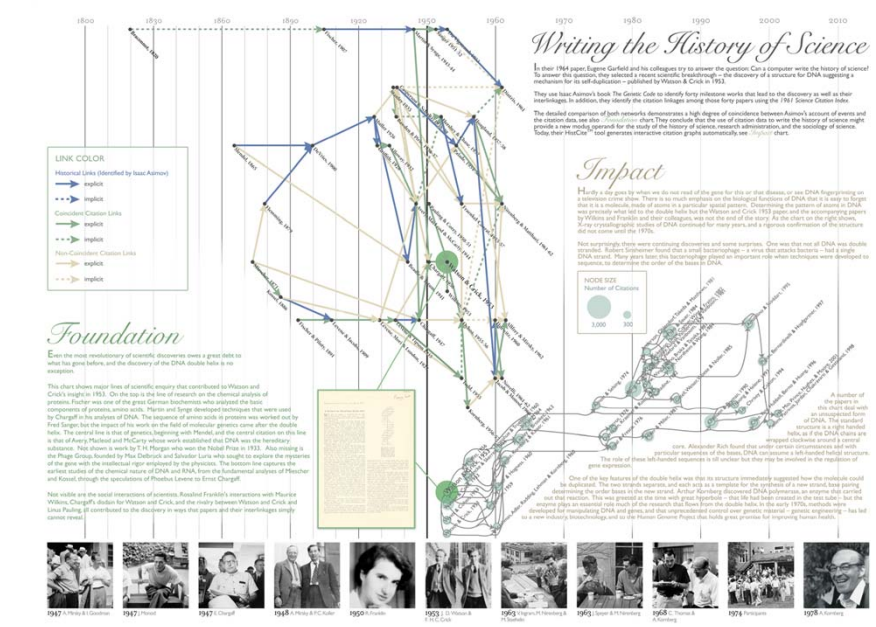
Visual Elements Periodic Table - Murray Robertson, John Emsley - 2005



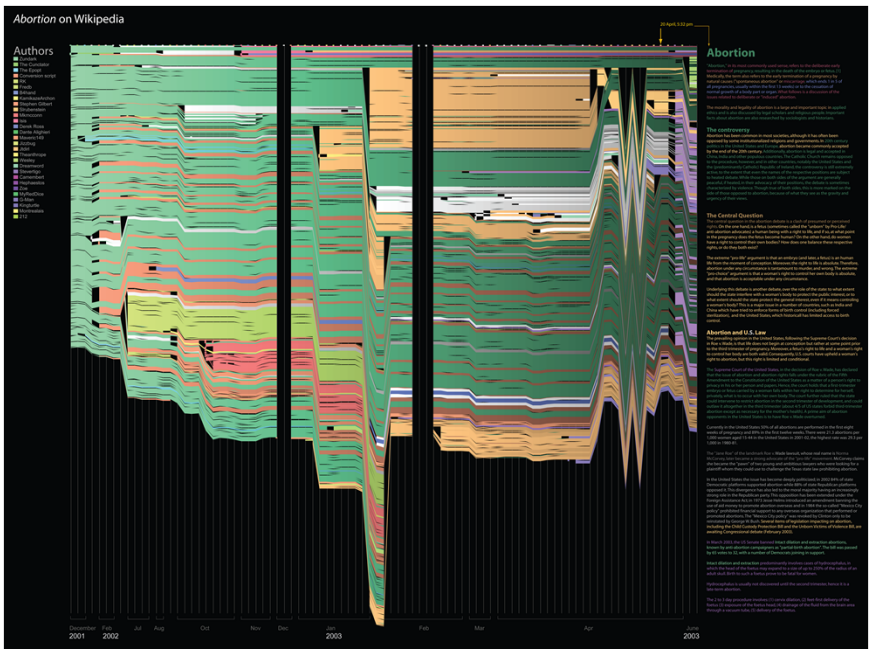
Sky Chart of New York City in April 2006 - Roger W. Sinnott, Interactive Factory - 2006

How would a reference system for all of science look?

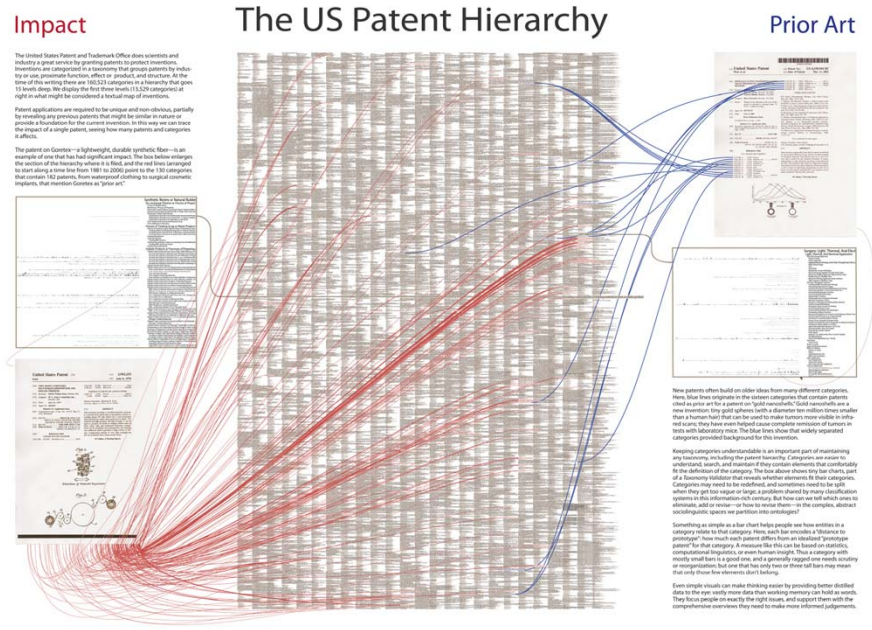
What dimensions would it have?



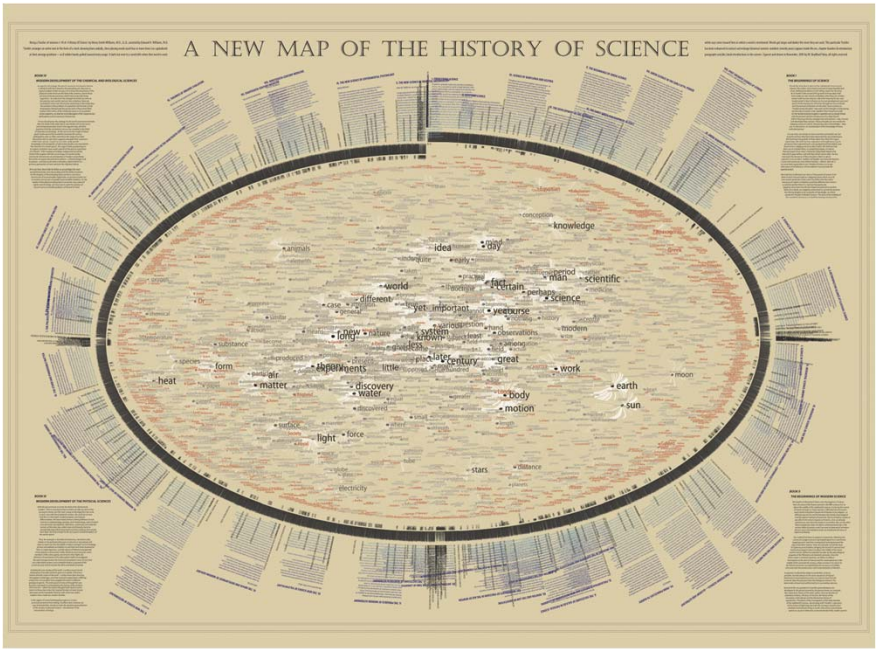
HistCiteTM Visualization of DNA Development - Eugene Garfield, Elisha Hardy, Katy Börner, Ludmila Pollock, Jan Witkowski - 2006



History Flow Visualization of the Wikipedia Entry on "Abortion" - Martin Wattenberg and Fernanda B. Viégas - 2006



Taxonomy Visualization of Patent Data - Katy Borner, Elisha Hardy, Bruce Herr, Todd Holloway, Bradford Paley - 2006

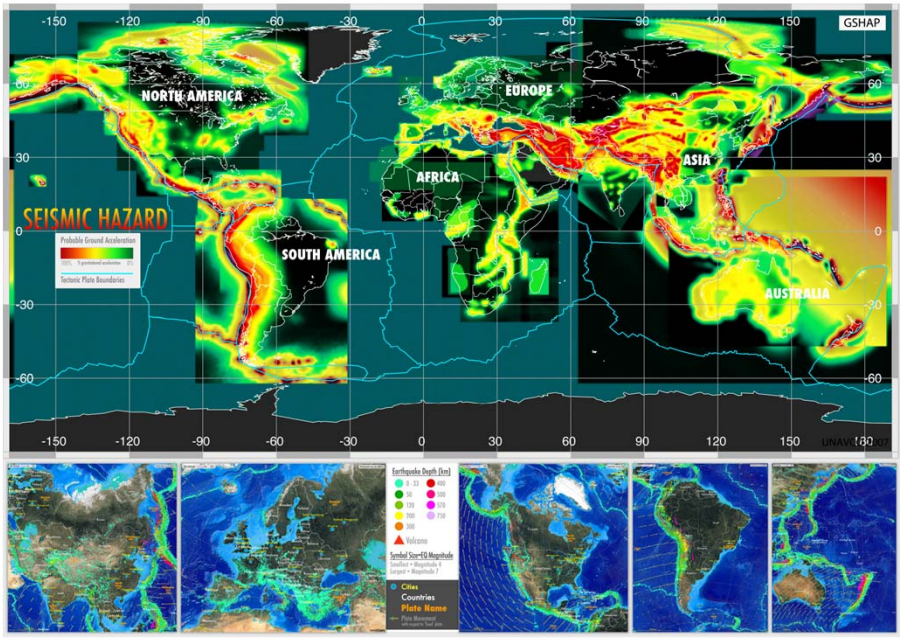


TexArc Visualization of "The History of Science" - W. Bradford Paley - 2006

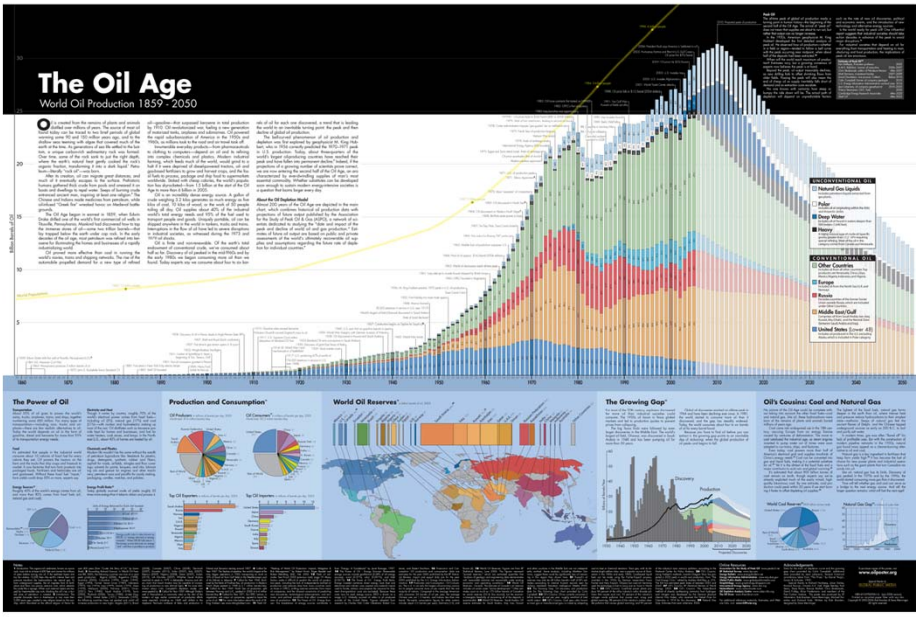
The Power of Forecasts 2007

III.1 III.3 III.5 III.7 III.9

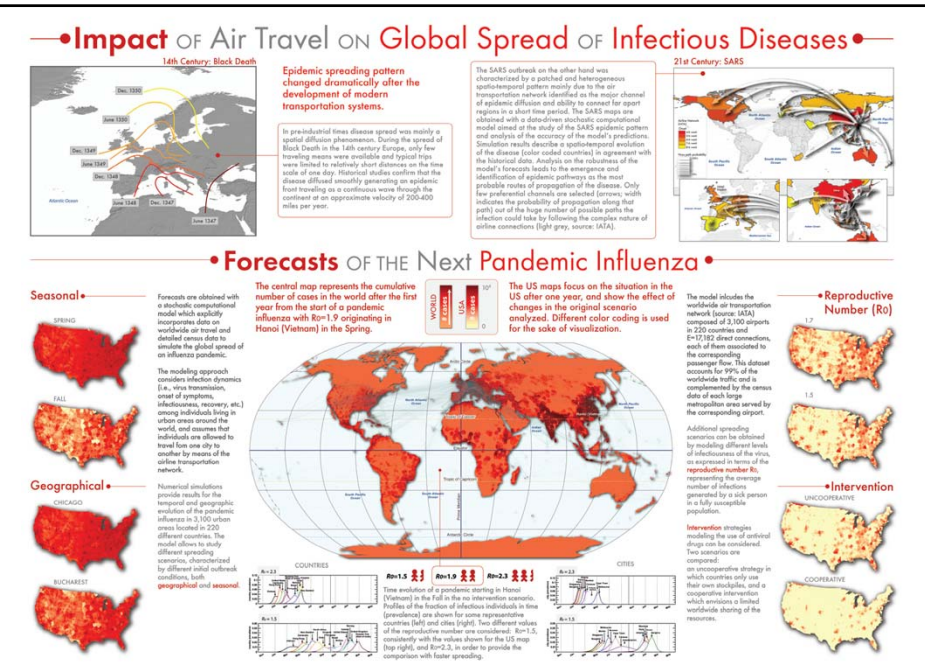
III.2 III.4 III.6 III.8 III.10



Tectonic Movements and Earthquake Hazard Predictions - Martin W. Hamburger, Lou Estey, Chuck Meertens, Elisha Hardy - 2005



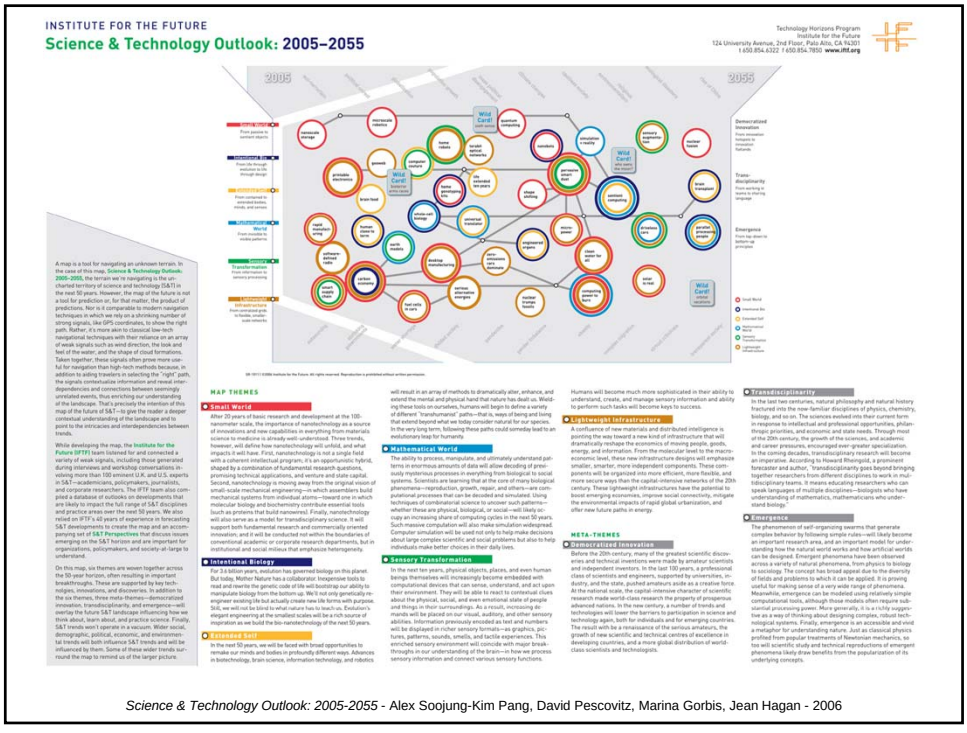
The Oil Age: World Oil Production 1859-2050 - Rob Bracken, Dave Menninger, Michael Poremba, Richard Katz - 2005



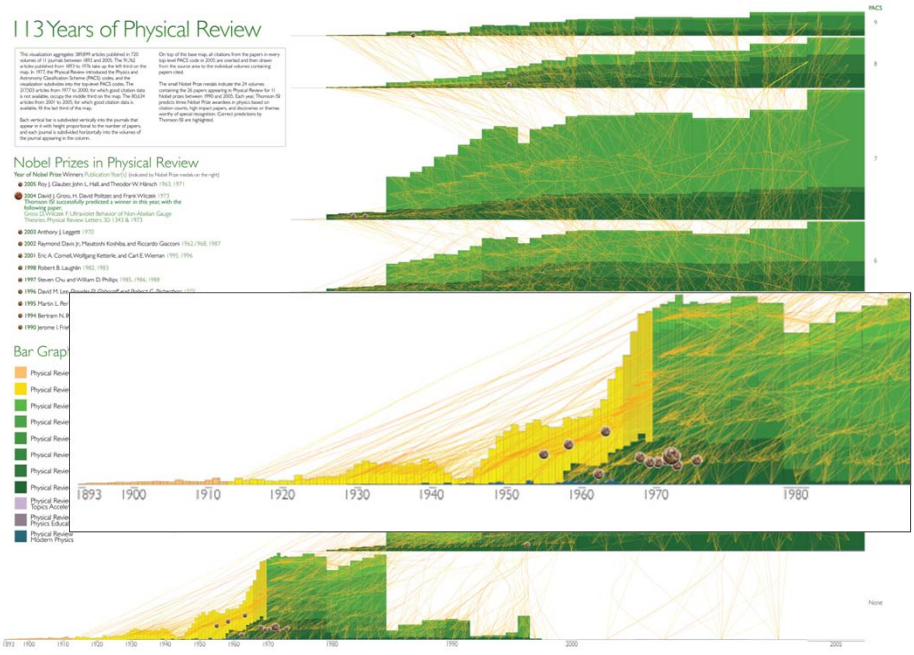
Impact of Air Travel on Global Spread of Infectious Diseases - Vittoria Colizza, Alessandro Vespignani - 2007

Can one forecast science?

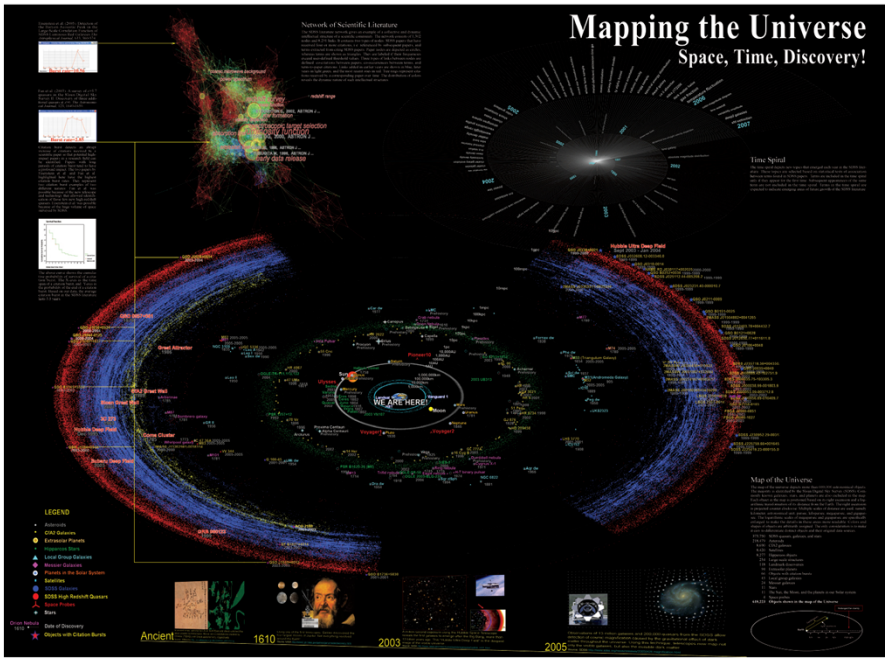
What ‘science forecast language’ will work to communicate results?



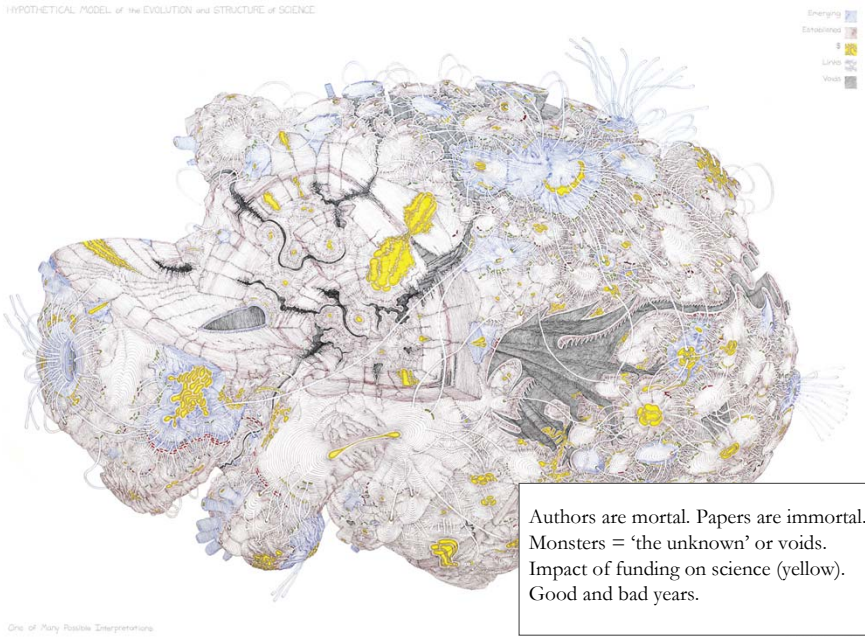
Science & Technology Outlook: 2005-2055 - Alex Soojung-Kim Pang, David Pescovitz, Marina Gorbis, Jean Hagan - 2006



114 Years of Physical Review - Bruce W. Herr II, Russell Duhon, Katy Borner, Elisha Hardy, Shashikant Penumarthy - 2007

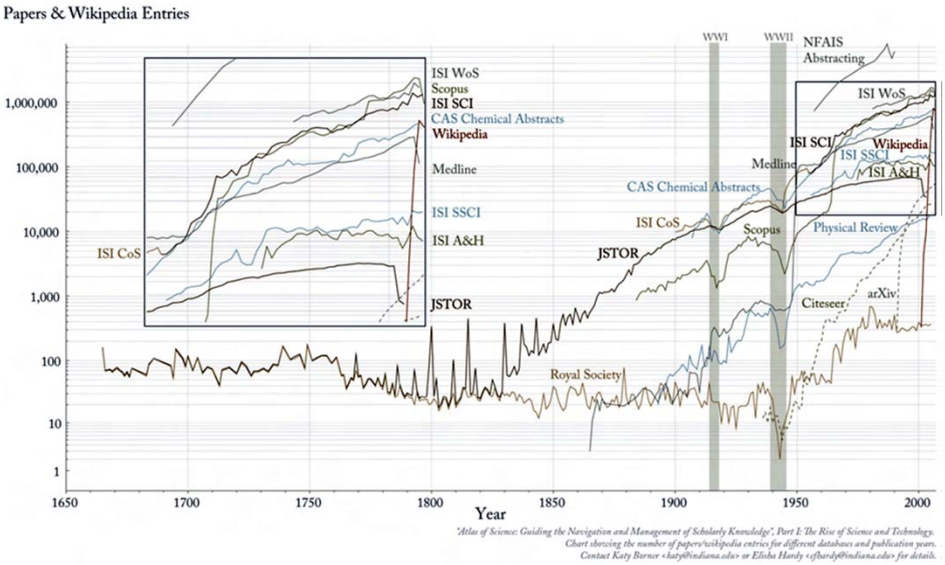


Mapping the Universe: Space, Time, Discovery!
Choumei Chen, Jian Zhang, Michael S. Vogeley, J. Richard Gott III, Mario Juric, Lisa Kershner - 2007

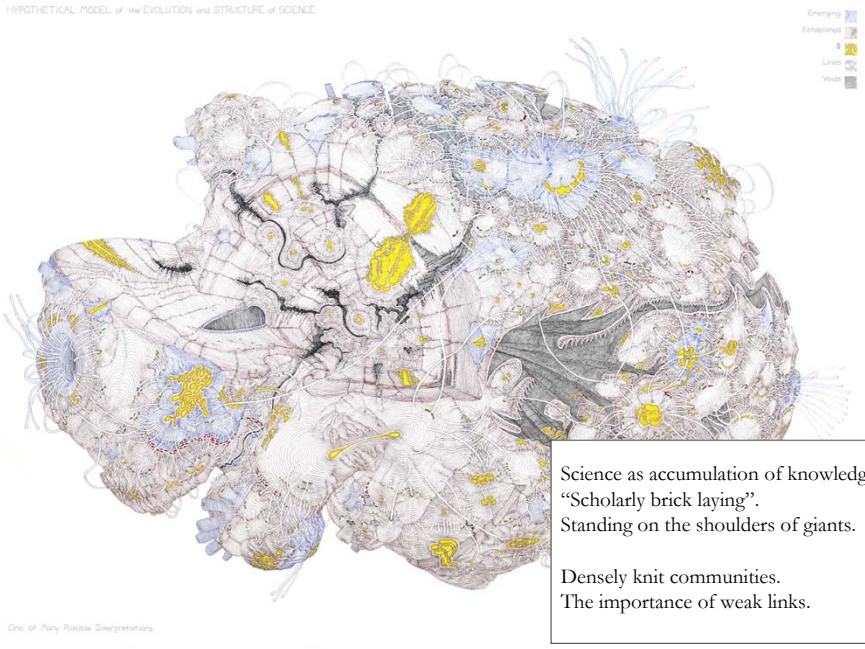


Authors are mortal. Papers are immortal.
Monsters = 'the unknown' or voids.
Impact of funding on science (yellow).
Good and bad years.

Hypothetical Model of the Evolution of Science - Daniel Zeller - 2007



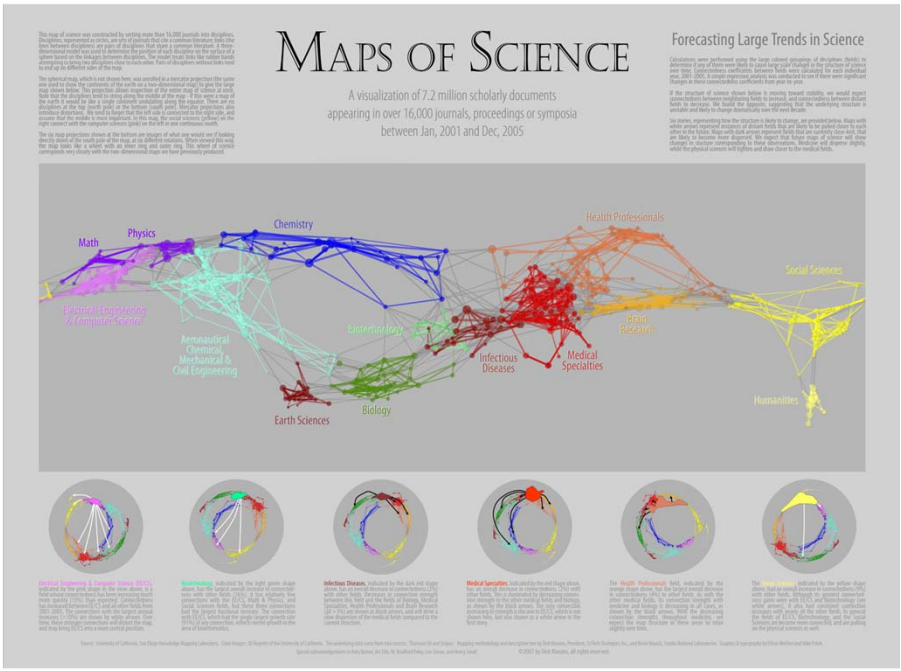
Atlas of Science - Katy Borner - 2010



Science as accumulation of knowledge.
"Scholarly brick laying".
Standing on the shoulders of giants.

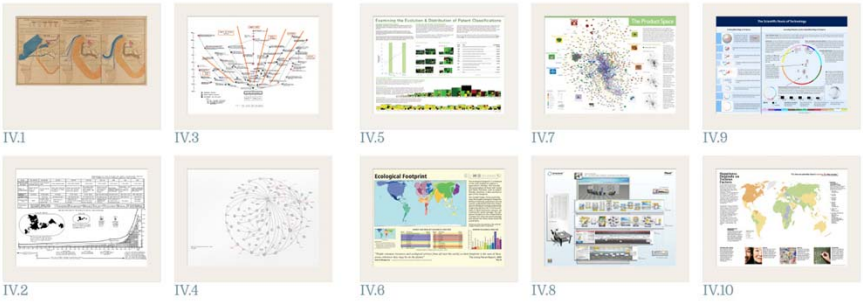
Densely knit communities.
The importance of weak links.

Hypothetical Model of the Evolution of Science - Daniel Zeller - 2007



Maps of Science: Forecasting Large Trends in Science - Richard Klavans, Kevin Boyack - 2007

Science Maps for Economic Decision Makers 2008

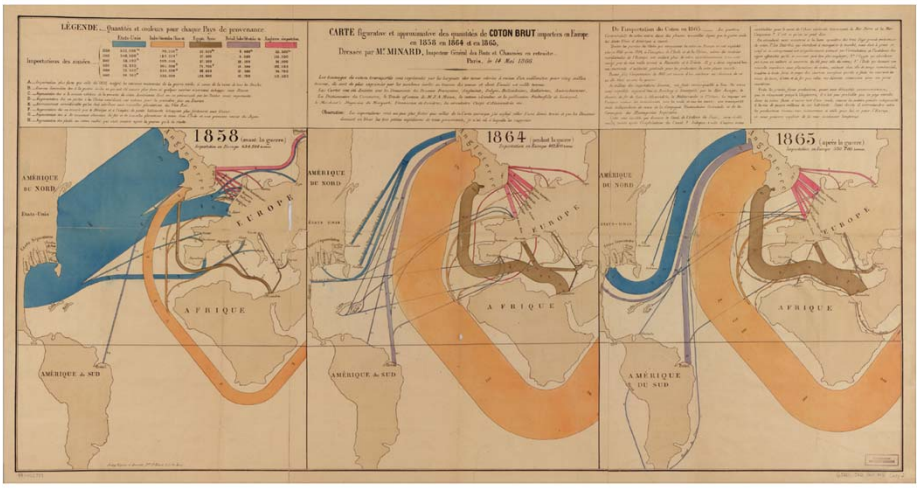


IV.1 IV.3 IV.5 IV.7 IV.9

IV.2 IV.4 IV.6 IV.8 IV.10

What insight needs to economic decision makers have?

What data views are most useful?



Europe Raw Cotton Imports in 1858, 1864 and 1865 - Charles Joseph Minard - 1866

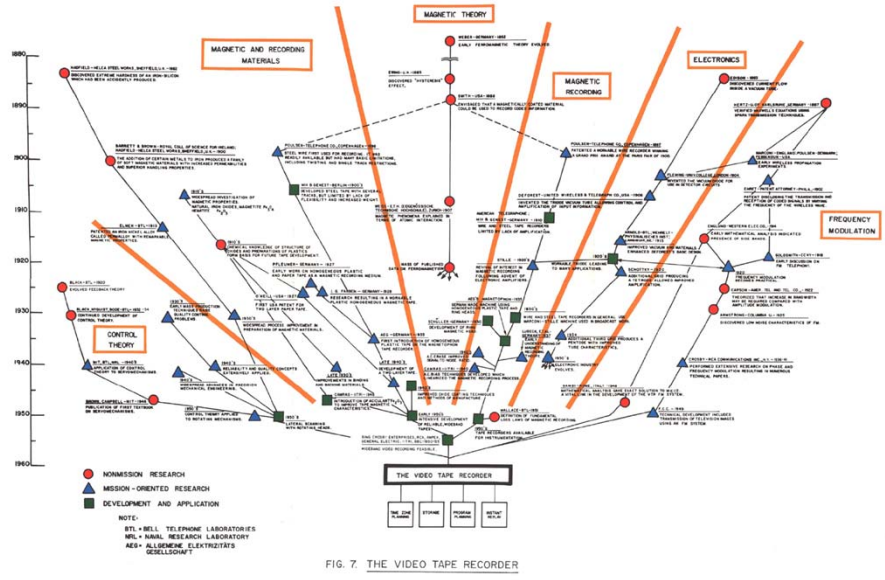
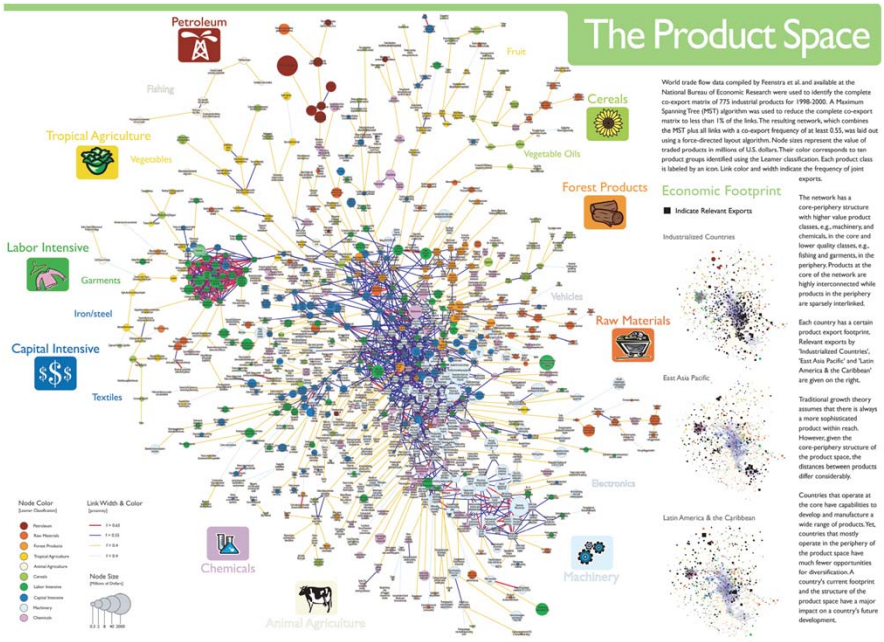
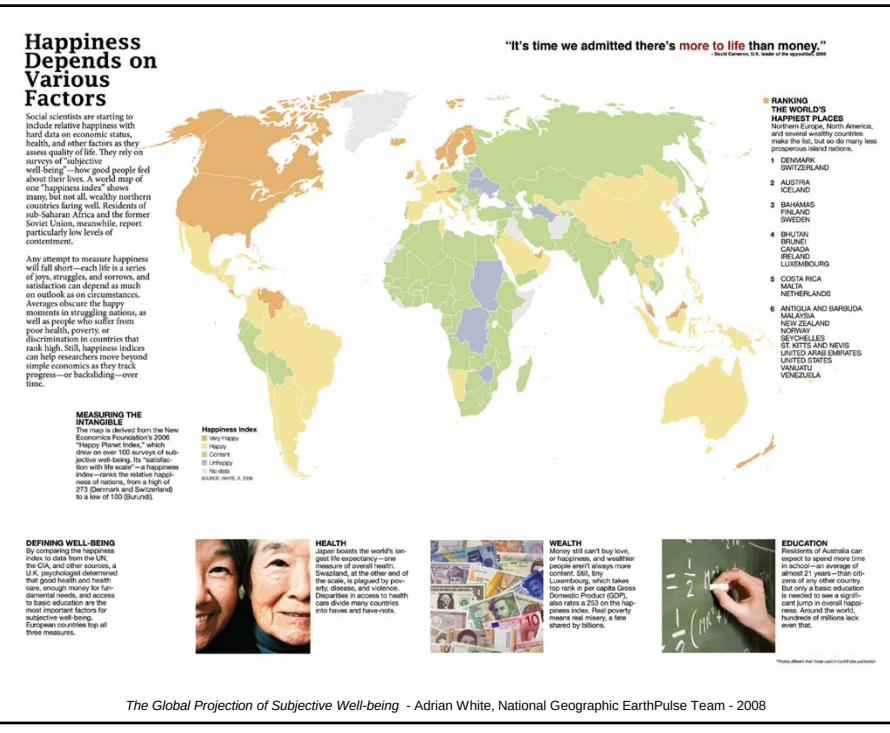


FIG. 7. THE VIDEO TAPE RECORDER

Tracing of Key Events in the Development of the Video Tape Recorder - Mr. G. Benn, Francis Narin - 1968

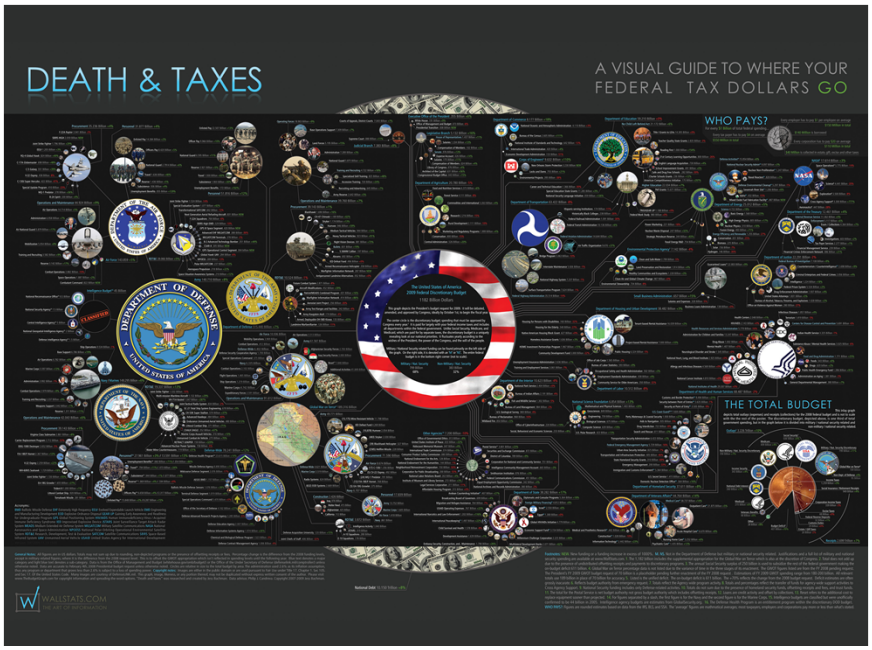


The Product Space - Cesar A. Hidalgo, Bailey Klinger, Albert-Laszlo Barabasi, Ricardo Hausmann - 2007

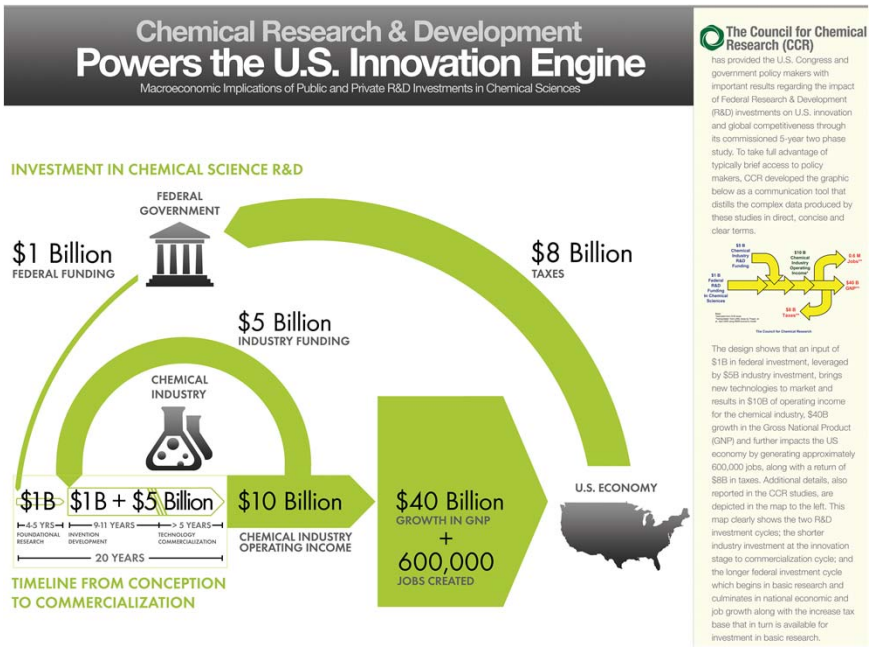


The Global Projection of Subjective Well-being - Adrian White, National Geographic EarthPulse Team - 2008

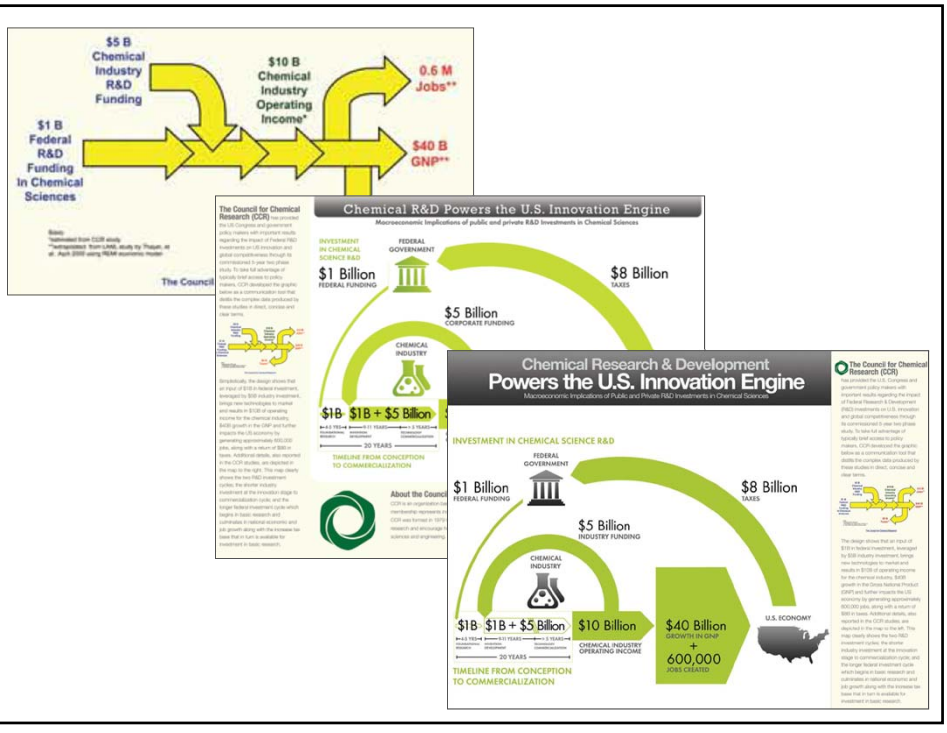
Science Maps for Science Policy Makers 2009

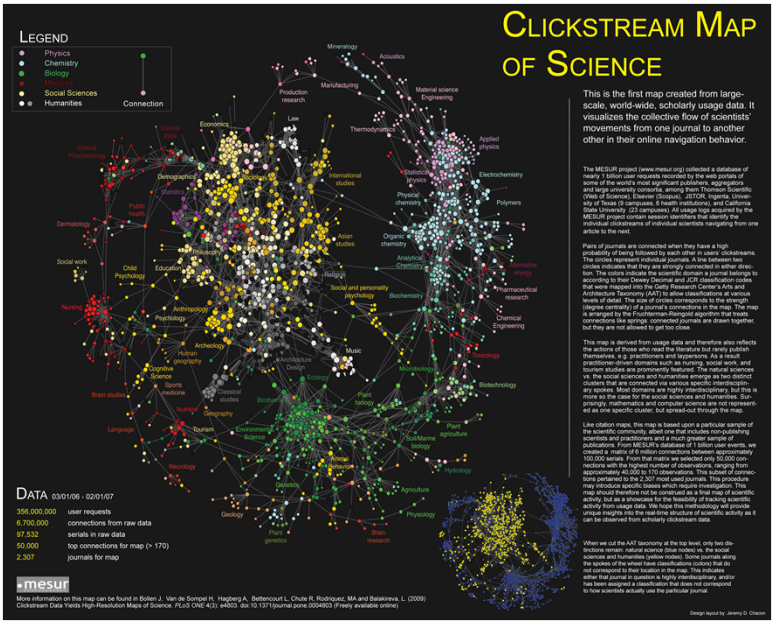


Death and Taxes 2009 - Jess Bachman - 2009

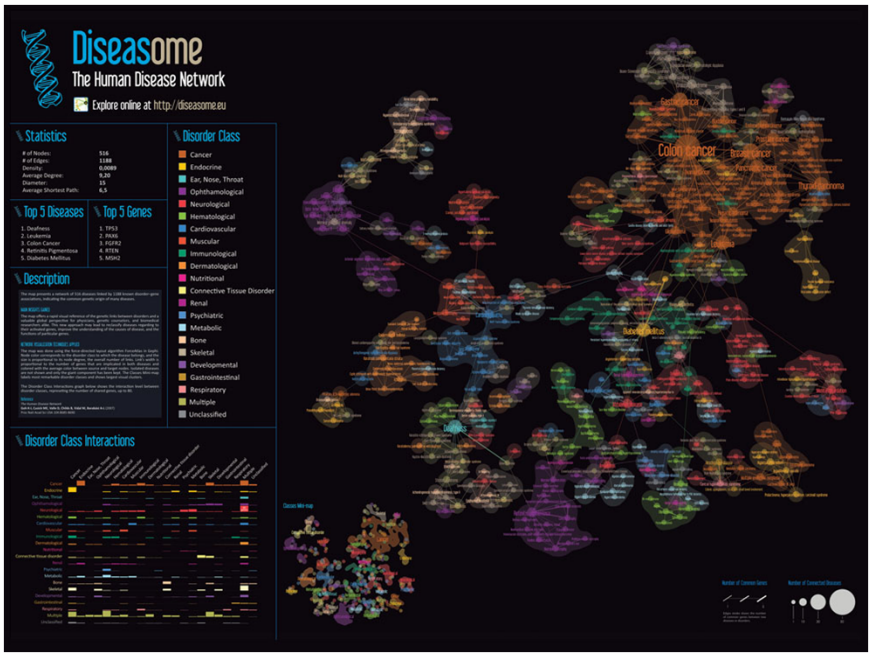


Chemical R&D Powers the U.S. Innovation Engine - The Council for Chemical Research - 2009

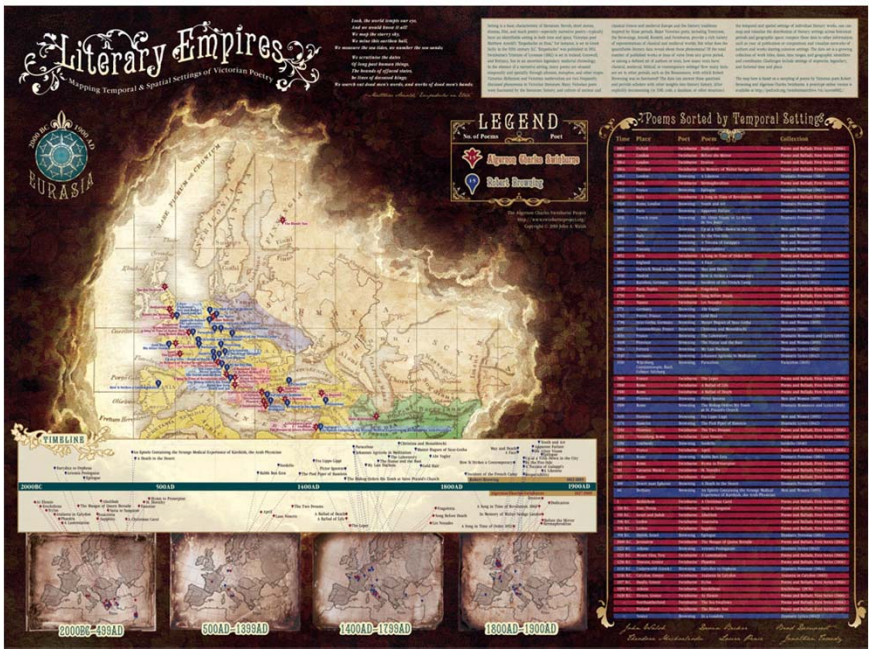




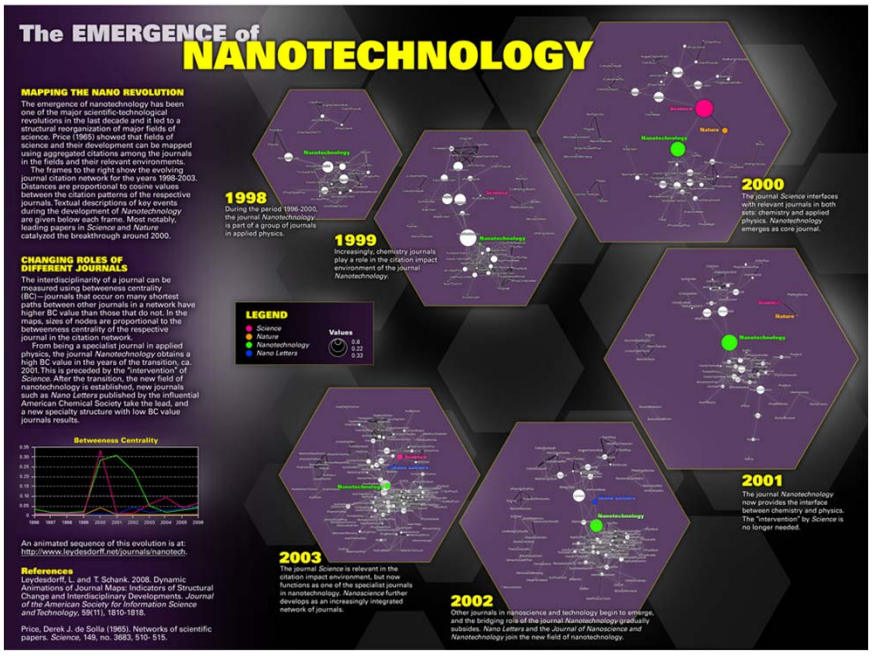
A Clickstream Map of Science
Johan Bollen, Herbert Van de Sompel, Aric Hagberg, Luís M. A. Bettencourt, Ryan Chute, Marko A. Rodriguez, and Lyudmila Balakireva - 2008



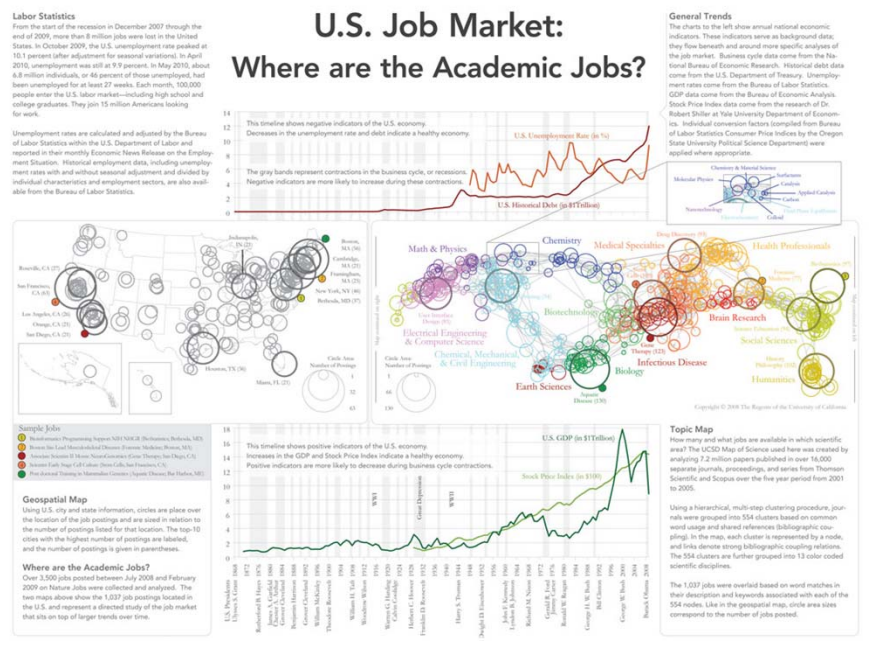
Diseasome - Mathieu Bastian & Sebastien Heymann - 2009



Literary Empires: Mapping Temporal and Spatial Settings of Victorian Poetry
John A. Walsh, Devin Becker, Bradford Demarest, Jonathan Tweedy, Theodora Michaelidou & Laura Pence - 2010



The Emergence of Nanoscience & Technology - Loet Leydesdorff - 2010

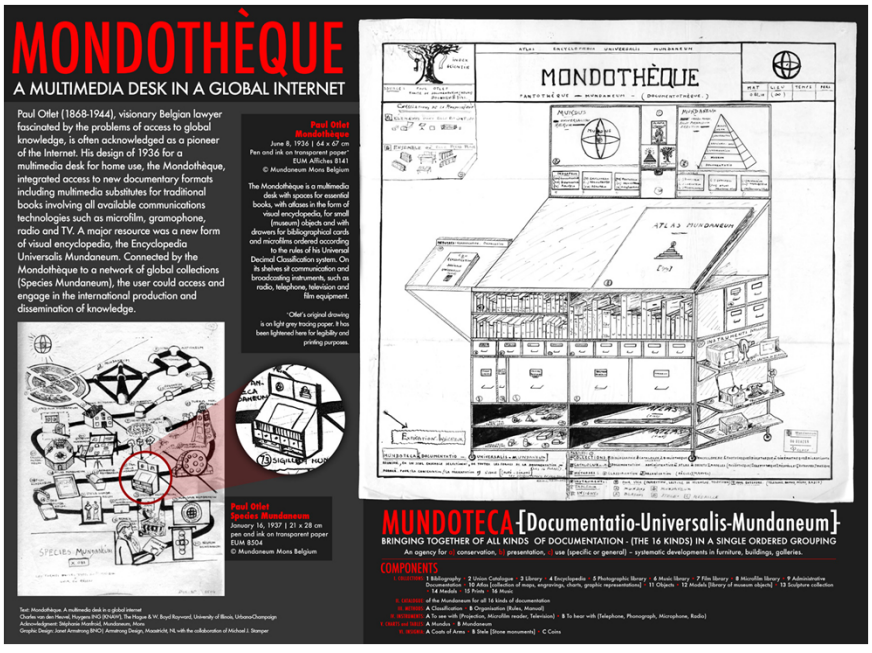


U.S. Job Market: Where are the Academic Jobs? - Angela M. Zoss & Katy Börner - 2010

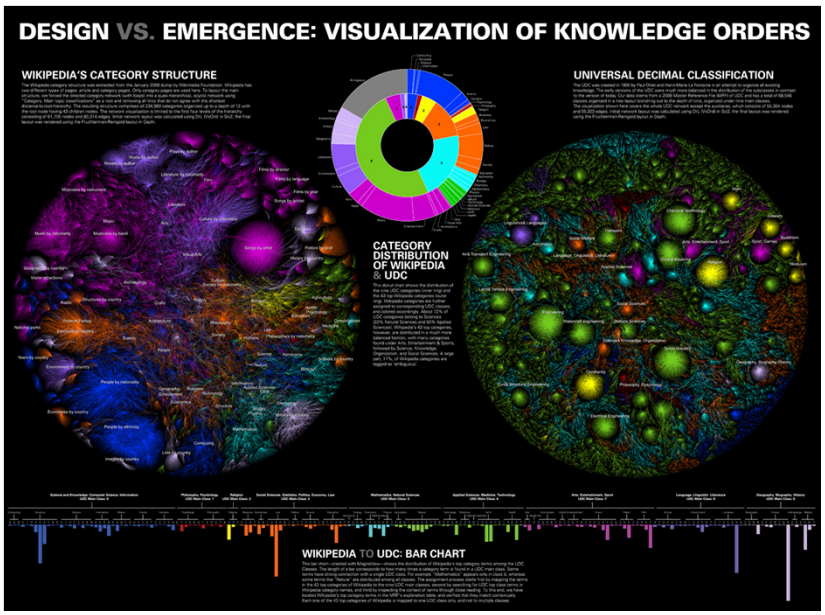
Science Maps as Visual Interfaces to Digital Libraries 2011

VII.1 VII.3 VII.5 VII.7 VII.9

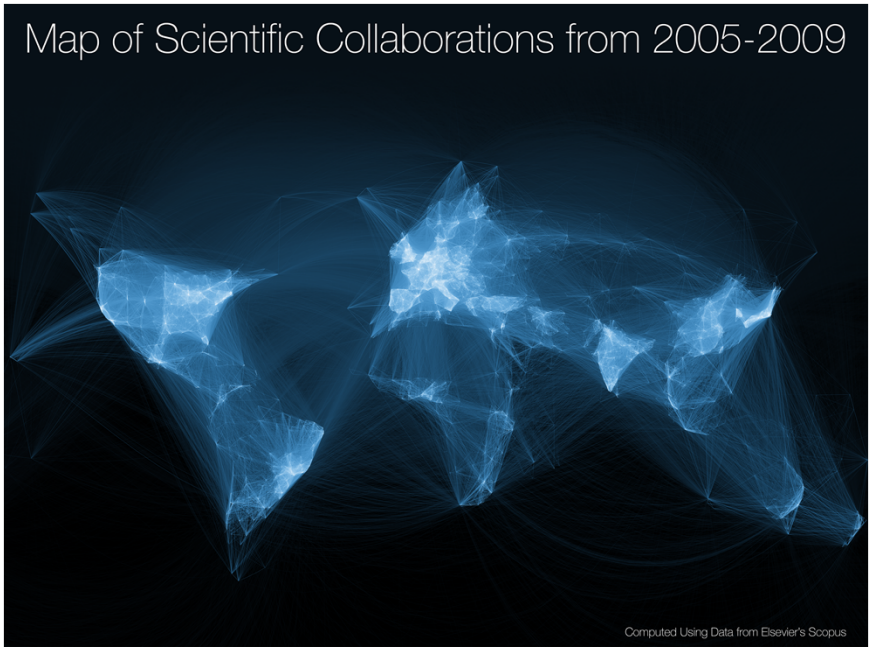
VII.2 VII.4 VII.6 VII.8 VII.10



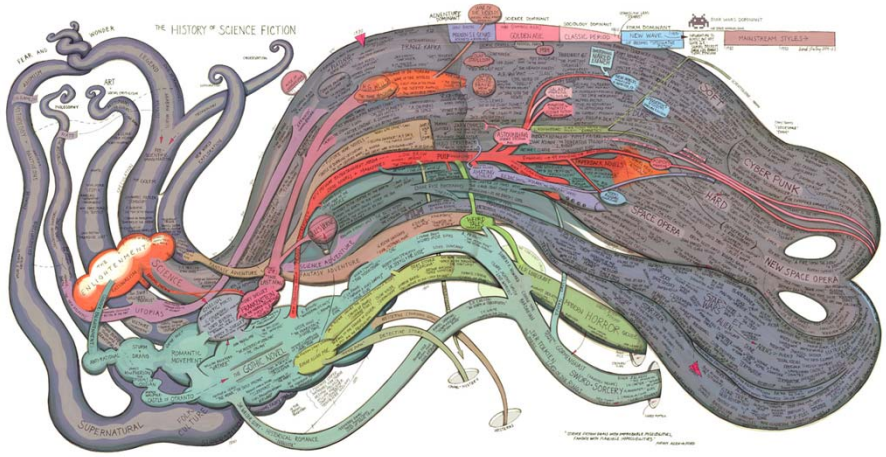
Mondothèque. Multimedia Desk in a Global Internet - Paul Otlet - 1936/37



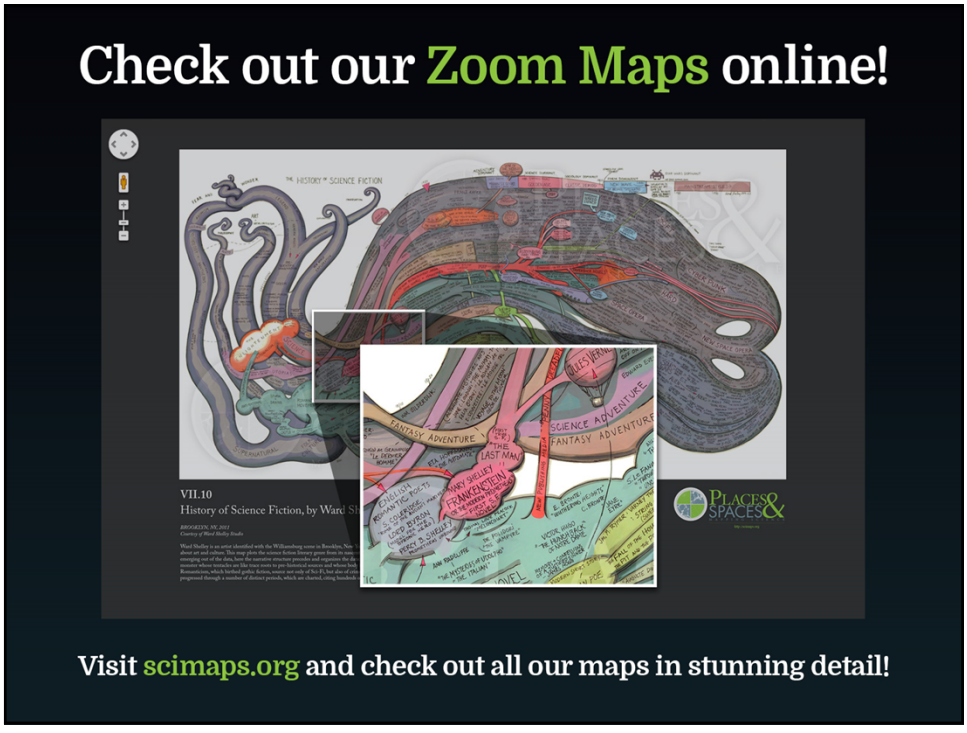
Design vs. Emergence: Visualization of Knowledge Orders
Alkim Almila Akdag Salah, Cheng Gao, Krzysztof Suchecki, and Andrea Scharnhorst - 2011



Stream of Scientific Collaborations between World Cities - Olivier H. Beauchesne - 2012



History of Science Fiction - Ward Shelley - 2011



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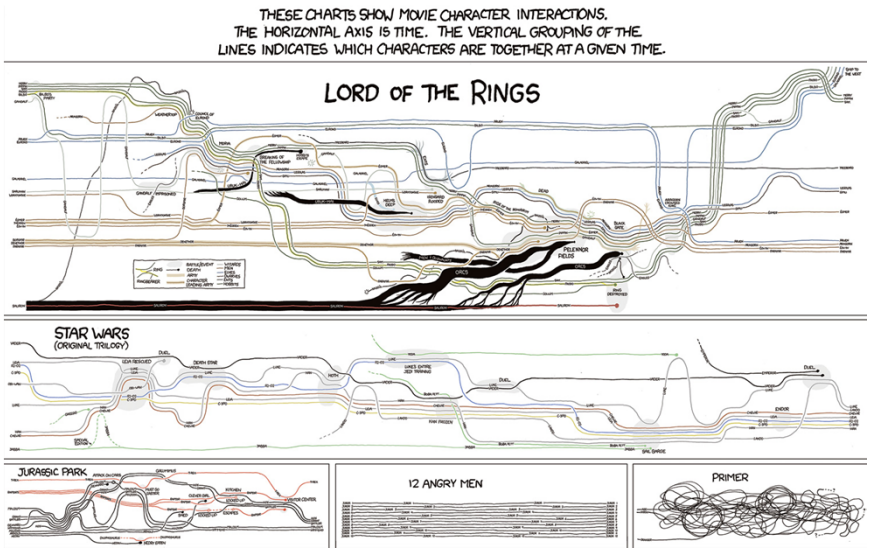

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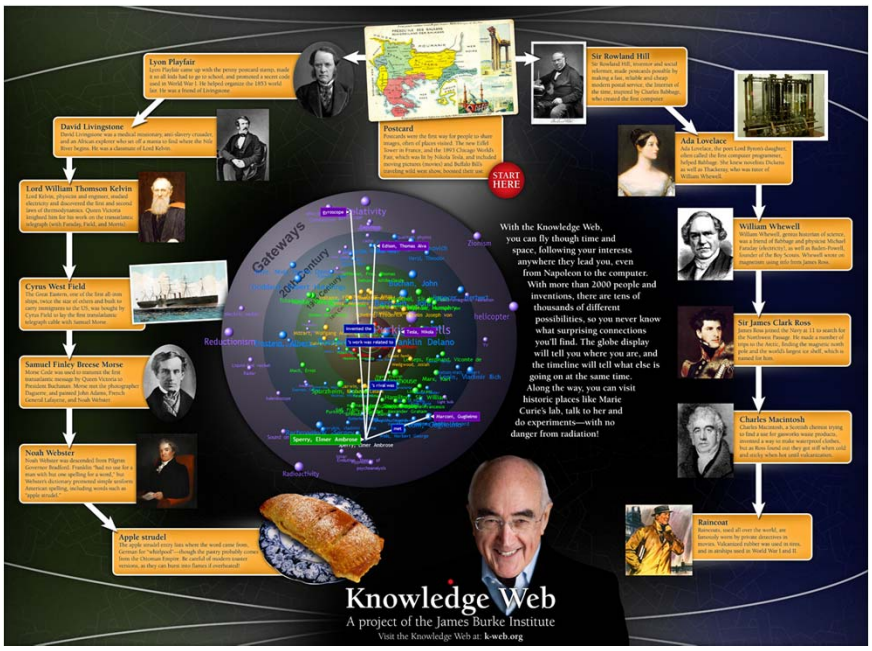

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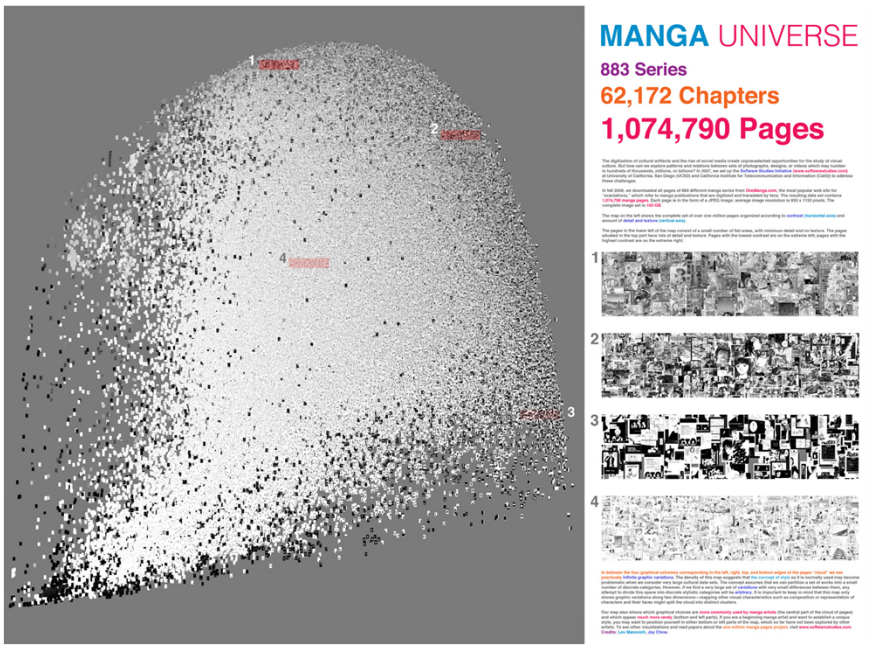

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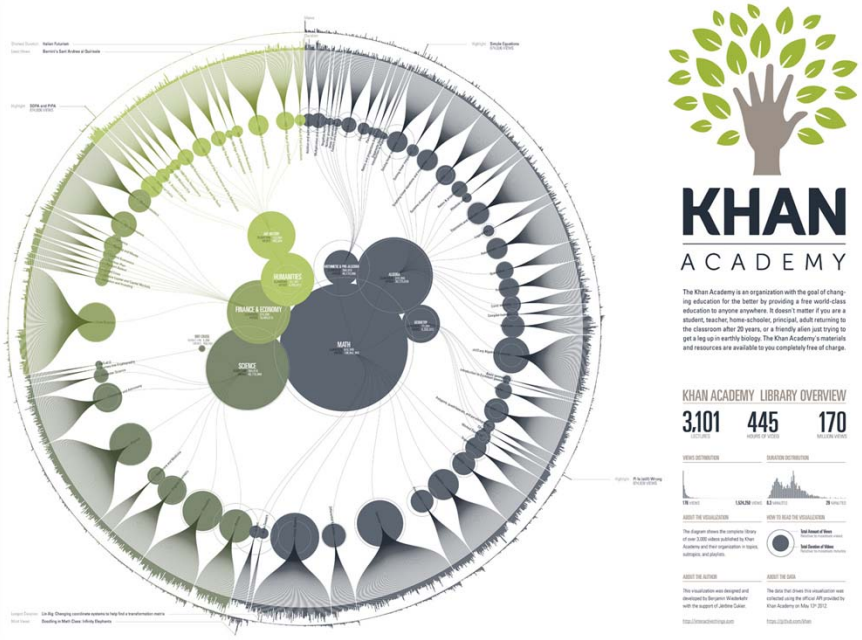

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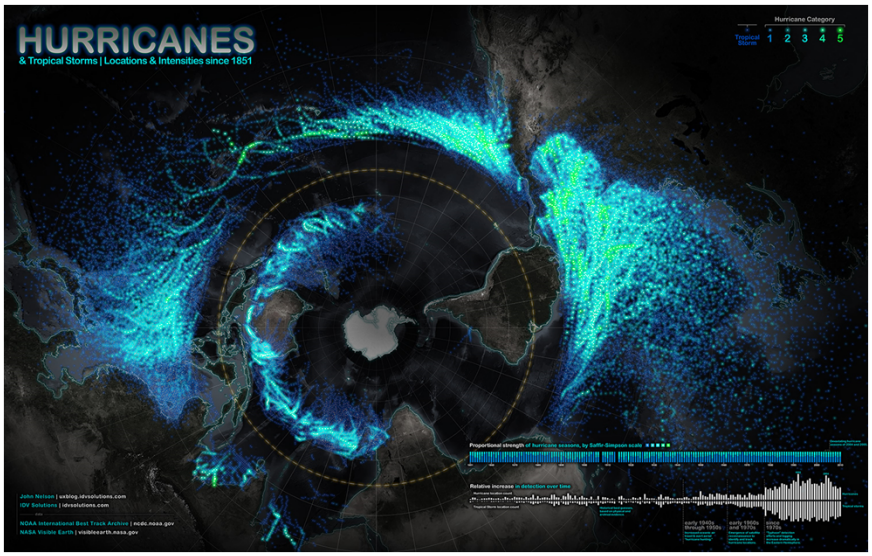

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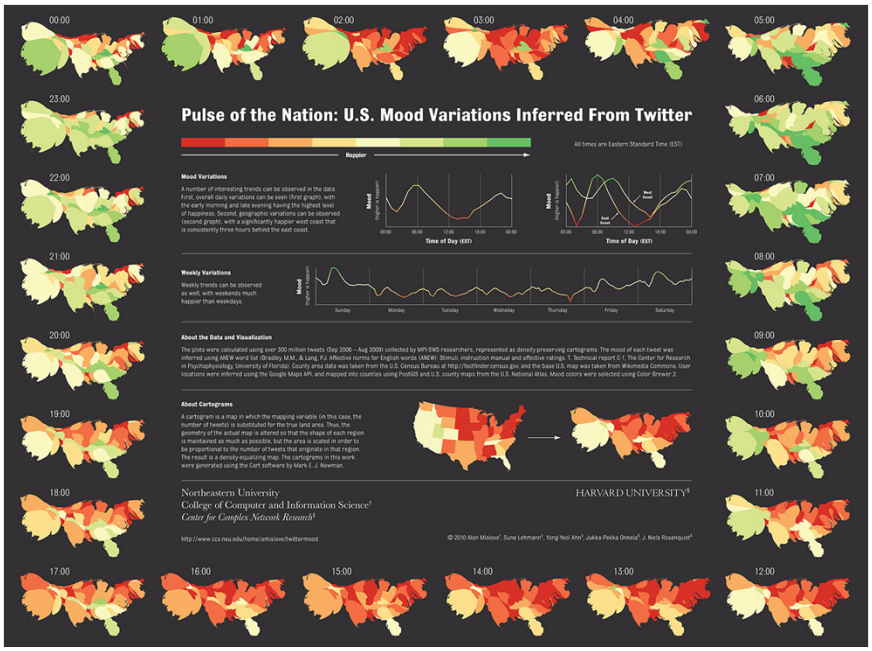

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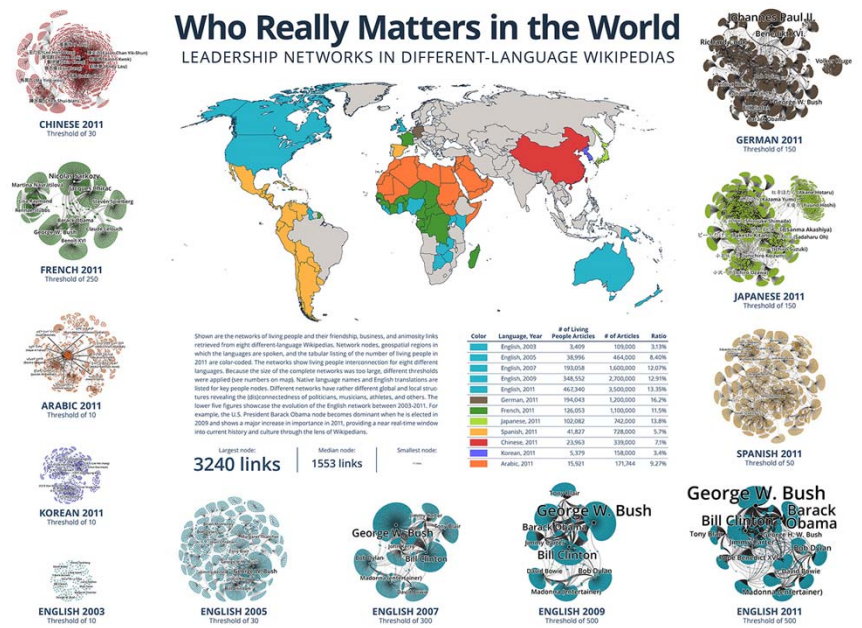

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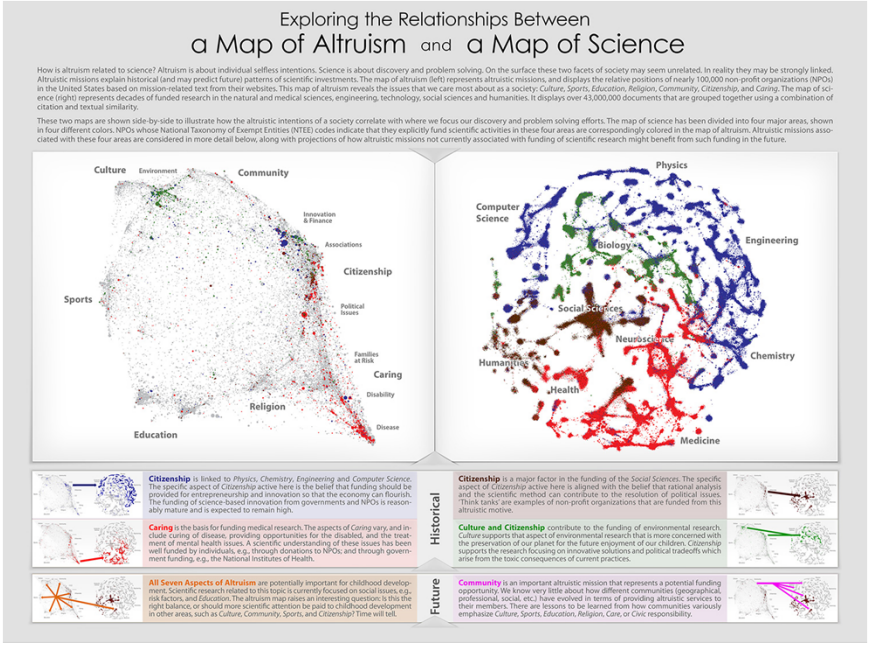

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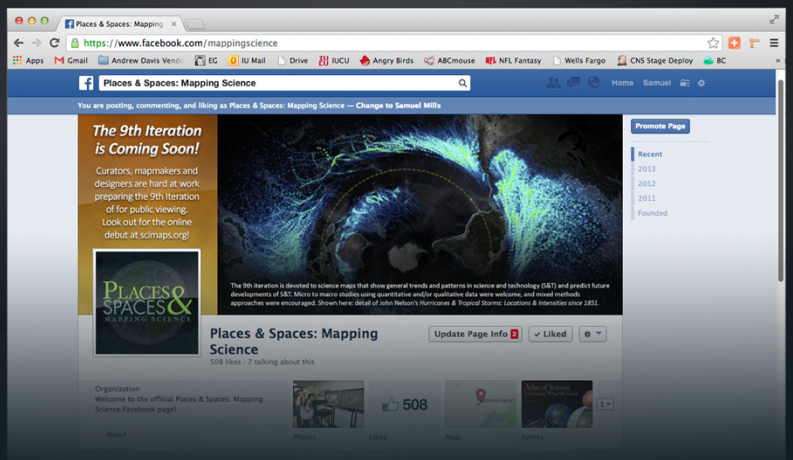

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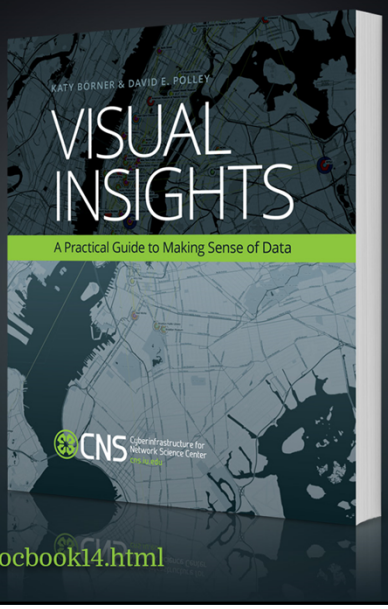

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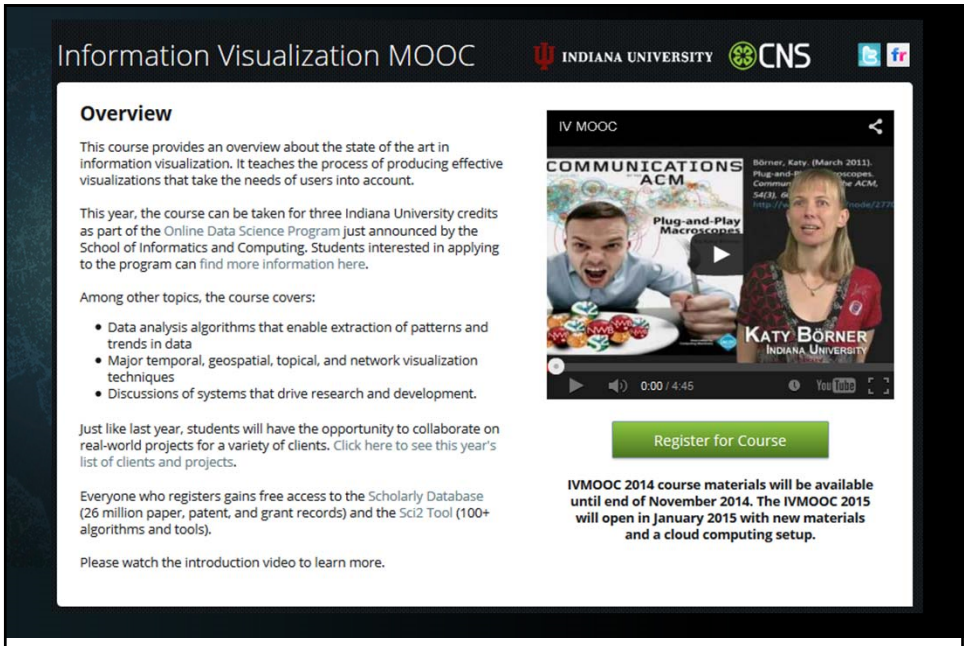

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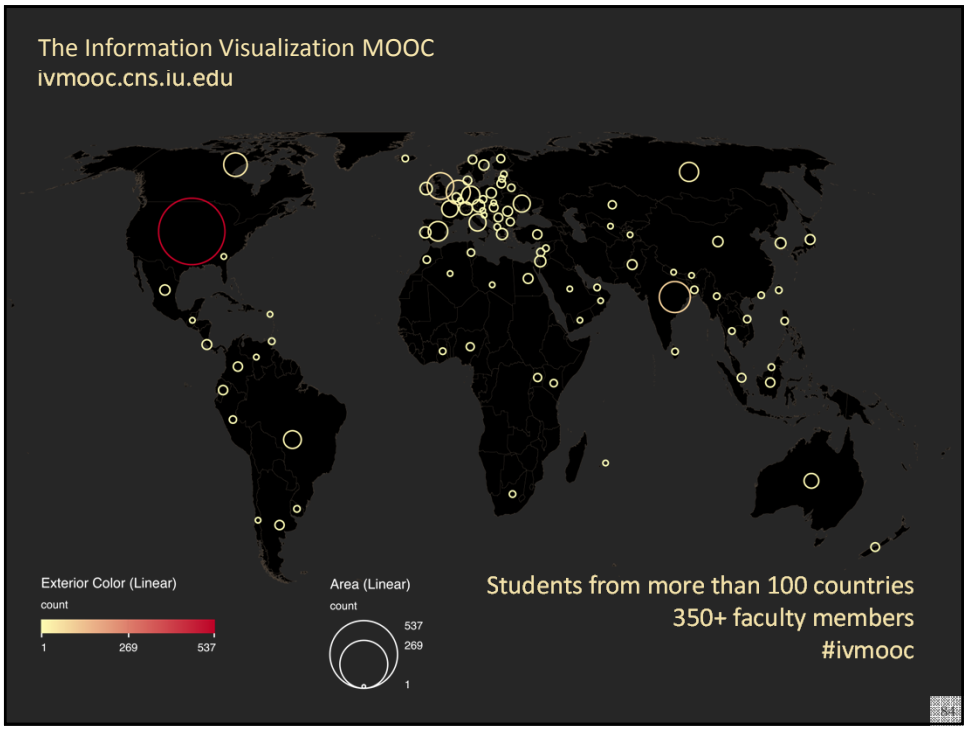

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Times Cited	Publication Year	City of Publisher	Country	Journal Title (Full)	Title	Subject Category	Authors
12	2011	NEW YORK	USA	COMMUNICATIONS OF THE ACM	Plug-and-Play Macroscopes	Computer Science	Borner, K
18	2010	MALDEN	USA	CTS-CLINICAL AND TRANSLATIONAL SCIENCE	Advancing the Science of Team Science	Research & Experimental Medicine	Falk-Krzesinski, HJ|Borner, K|Contractor, N|Fiore, SM|Hall, KL|Keyton, J|Spring, B|Stokols, D|Trochim, W|Uzzi, B
13	2010	WASHINGTON	USA	SCIENCE TRANSLATIONAL MEDICINE	A Multi-Level Systems Perspective for the Science of Team	Cell Biology |Research & Experimental Medicine	Borner, K|Contractor, N|Falk-Krzesinski, HJ|Fiore, SM|Hall, KL|Keyton, J|Spring, [illegible]rochim,

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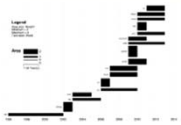
Location	Count	# Citations
Netherlands	13	292
United States	9	318
Germany	11	36
United Kingdom	1	2



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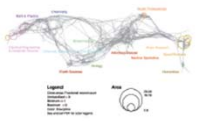

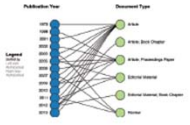

Co-author and many other bi-modal networks.

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