

going the extra mile of complexity

controversy mapping and digital methods
as tools for the management of innovation

Tommaso Venturini
tommasoventurini.it

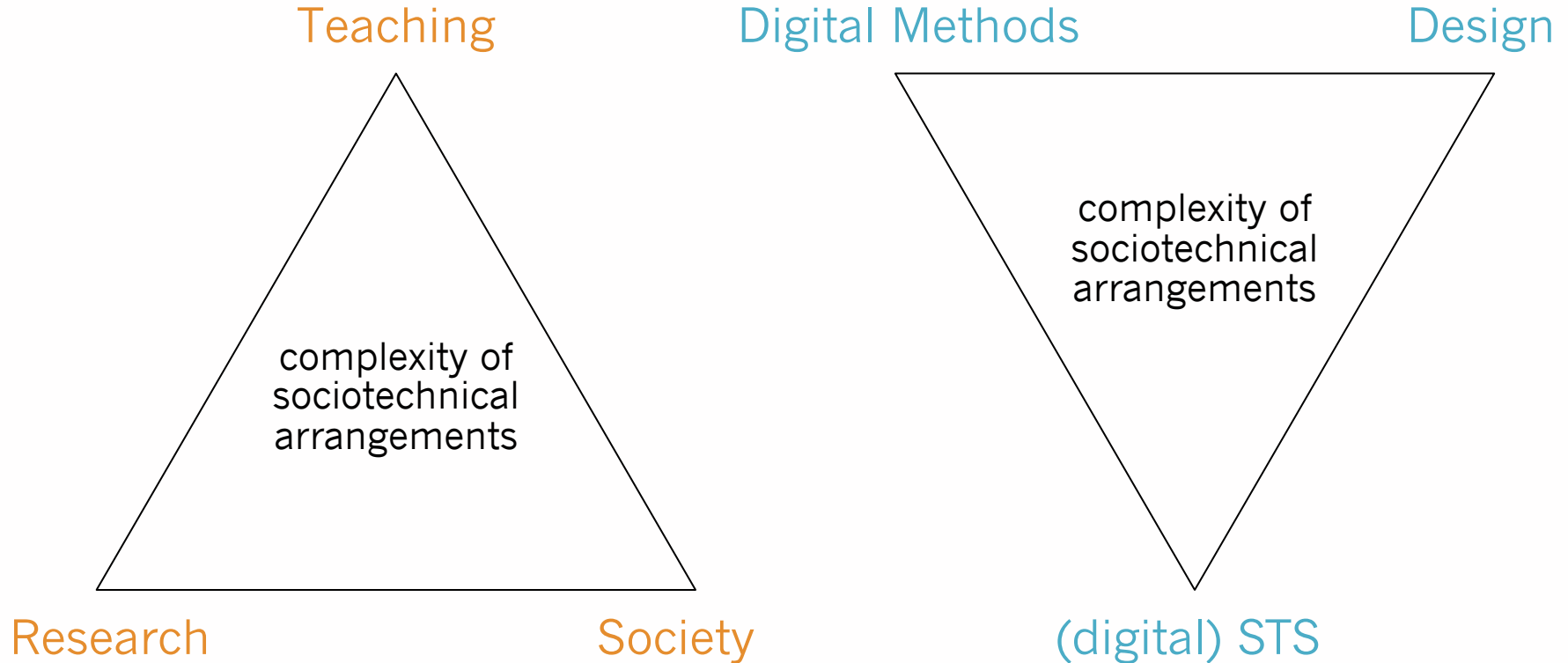
CONTROVERSY MAPPING A FIELD GUIDE



TOMMASO
VENTURINI
ANDERS
MUNK

polity

Controversy mapping as a method to explore and represent



CM in Teaching

FORCCAST project
www.controverses.org

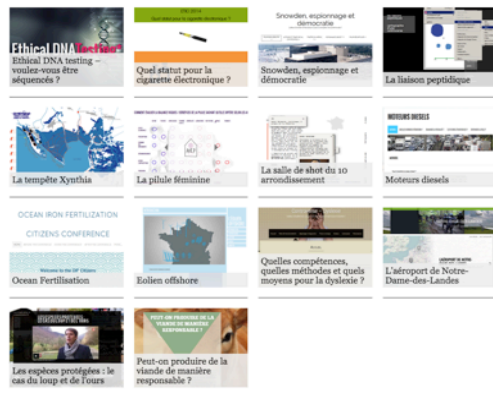
Controversy Mapping Archive

Universities Years Tags Search

2015



2014



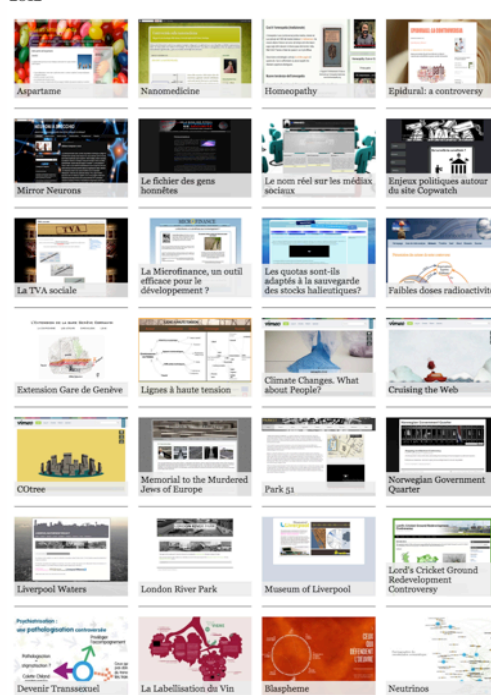
2013



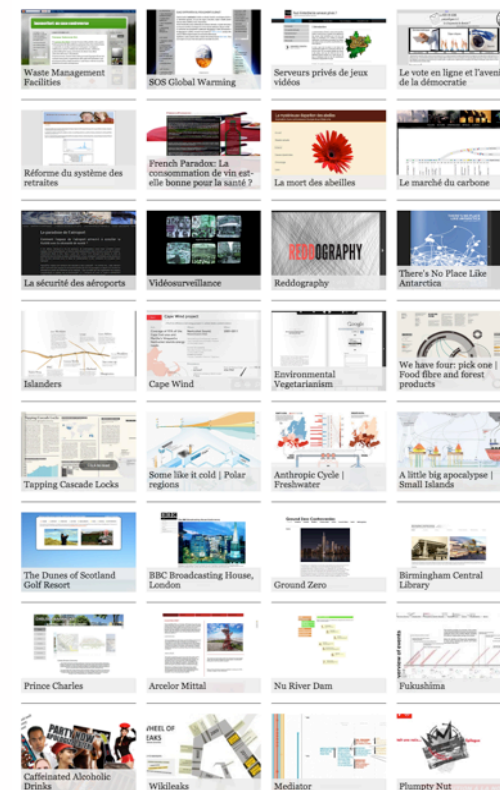
Venturini, Tommaso. 2010. "Diving in Magma: How to Explore Controversies with Actor-Network Theory" *Public Understanding of Science* 19(3)

Venturini, Tommaso. 2012. "Building on Faults: How to Represent Controversies with Digital Methods" *Public Understanding of Science* 21(7)

2012



2011

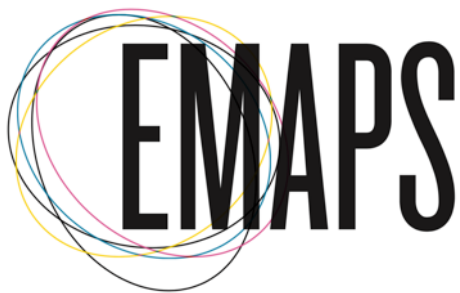


CM in Teaching



CM in Research

EMAPS project – climaps.eu A Global Atlas of Climate Change Adaptation

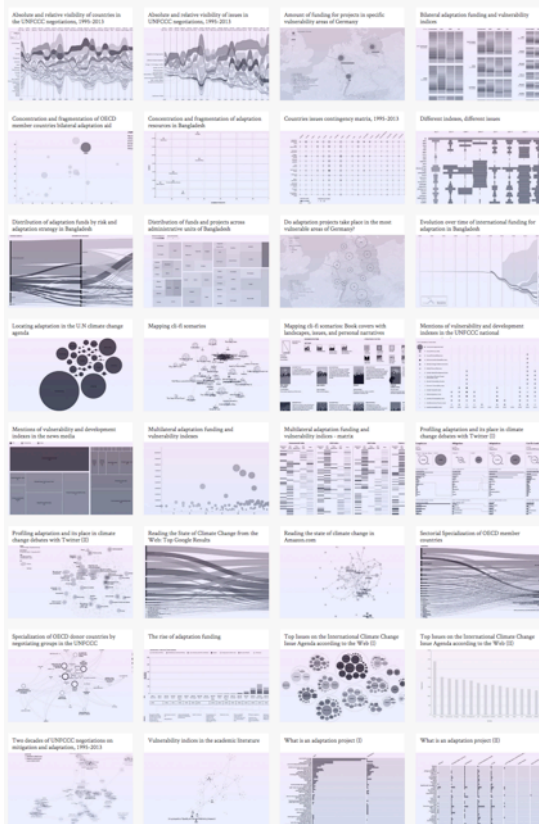


This website presents the results of the EU research project EMAPS, as well as its process: an experiment to use computation and visualization to harness the increasing availability of digital data and mobilize it for public debate. To do so, EMAPS gathered a team of social and data scientists, climate experts and information designers. It also reached out beyond the walls of Academia and engaged with the actors of the climate debate.

CM in Research

EMAPS project – climaps.eu Global Atlas of Climate Change Adaptation

Issue stories Issue maps



Mitigation And Adaptation In The UNFCCC Debates

An analysis of the UNFCCC discussions provided by the Earth Negotiations Bulletin

Climate Change Adaptation occupies the center of the climate negotiations. There are claims in the literature on climate adaptation about an 'adaptation' in the last part of the negotiations. We challenge those and find adaptation to have been present and highly visible from the very beginning, particularly the specific question of adaptation finance. In the larger debate on climate change, the notion of 'adaptation' is often opposed or at least considered to be that of 'mitigation'. Such a contrast is not without reason. The two notions refer to vastly different ways to deal with global warming. 'Mitigation' refers to the efforts to lessen the impacts of climate change by acting on its causes and therefore reducing the emissions of greenhouse gases (GHG). 'Adaptation', on the contrary, refers to the efforts to prepare our societies to cope with the effects of climate change. Though the two approaches are not mutually exclusive (there is no contradiction between striving to avoid the dangers and prepare to deal with those that cannot be avoided), they have often been opposed by the actors in the climate change debates. In this narrative we explore the status of mitigation and adaptation in the UNFCCC debate.

THE RISK OF ADAPTATION RELATED ISSUES

According to some actors of the climate debate, the shift from mitigation to adaptation change requires two risks. From a political point of view, the focus on adaptation risks drawing attention away from efforts to mitigate. As the focus on adaptation risks would make the fight against them less urgent. From a conceptual point of view, the shift from mitigation to adaptation change requires a relatively simple approach. Based on the identification of harmful gases and the determination of emission then should be a much complex approach that requires to take into consideration a multitude of social and natural factors (and to determine in more precise in future).

Below we compare the discussions on mitigation and adaptation in the United Nations Framework Convention on Climate Change (UNFCCC). Adapted to the Earth Summit in 1992 and ratified by 195 countries, the UNFCCC became primarily on mitigation. Its official aim is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system (UNFCCC 1992). However over the years, adaptation has assumed an increasingly important place in the international negotiations for climate change. The focus to impose significant GHG reductions, the growing visibility of climate change impacts, and the efforts of developing countries to obtain funds to cope with climate change. From these observations the following research questions can be derived.

1. Can the shift from mitigation to adaptation be observed in the UNFCCC negotiations?
2. How have debates on adaptation influenced and shaped the debate on mitigation?
3. How did the discussion of adaptation related issues evolve in UNFCCC negotiations?
4. Which countries promote adaptation related issues most?

By analyzing the reports on the UNFCCC discussions provided by Volume 12 of the Earth Negotiations Bulletin (ENB), we produced four maps to answer to these questions:

1. one showing the clustering of the expressions on appearing in the same paragraphs of the ENB (Figure 1);
2. another presenting the visibility of each cluster of expressions in the different Conferences of Parties (COP) to the UNFCCC (Figure 2);
3. a third presenting the visibility of different countries in the UNFCCC discussions (Figure 3);
4. and a fourth showing which negotiating countries are more connected to each issue (Figure 4).

THE 'PLACE' OF ADAPTATION

Looking at Figure 1, one will immediately notice that there is (with the exception of COP in the Figure) a general increase of the overall visibility of expressions of issues used by COP16 in Cancun. This reflects the increase of the total number of participants during the COP.

Adaptation and mitigation issues are both visible in the UNFCCC negotiations. However mitigation has been the very beginning to a priority in the negotiation agenda. In the first place of the negotiations little attention was dedicated to the issue of developing countries because more visible impacts of climate change. Except that the most vulnerable members succeeded in putting the issue of financing adaptation activities on the agenda from the first COP (see also Figure 1).

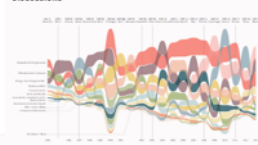
Adaptation, however, assumed greater importance in the second phase of the negotiations. With all parties facing difficulties in achieving their mitigation obligations, debates on what should be regarding vulnerability, climate change impacts and adaptation, as well as how to finance these issues became more relevant.

Reading the two maps (Figure 1 and 2) together, it is possible to remark that in several important plays a prominent role in climate discussions. Mitigation concerns the bulk of UNFCCC discussions. In different sub-issues (UNFCCC, GHG, technology transfer, climate development mechanisms, carbon sinks and land use) and in the adaptation agenda, the space of the debate and defines the rhythm (with the fluctuations of the debates as a leading process).

Adaptation, on the other hand, appears as a specific topic of the negotiations: a slightly emerging cluster of expressions is located in a precise position in the map. Yes, and this was not obvious before our analysis, adaptation appears to occupy the center of the climate negotiations and has been present and highly visible from the very beginning (especially with the topic of adaptation finance). These findings suggest some of the debates in the literature about climate adaptation as 'adaptation turn' in the past few years of the negotiations.

When comparing the maps another interesting explanation emerges. What has always been present and visible in the negotiations is not the entire discussion about adaptation, but the specific question of adaptation finance. Interestingly, this question appears to be the most marginal of the adaptation-related topics, with a position that is not necessarily different from that of the topic of mitigation. As 'adaptation turn', however, can be recognized in the rise of the question of vulnerability (from COP15 to COP16) and in the more recent ascent of the question of the climate impacts (from COP15). These are the two clusters that occupy the center of Figure 1.

RISE AND FALL OF ISSUES IN THE UNFCCC DISCUSSIONS



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The visibility of some countries increases in a postulated future as specific COP. Mexico, for example, shows a rather low profile during most negotiations, but makes 10th during COP16 (Cancun), organized in Mexico. Turkey's trajectory been maintaining as well from the Kyoto conference, this small Pacific island has ranked among the 21 most visible member countries. Yet, Turkey also reached rank 13 in Panama (COP14), rank 19 in Copenhagen (COP15), and rank 12 in Cancun (COP16). During those discussions, Turkey mainly addressed the issue of a successor to the Kyoto Protocol – the island even proposed its own proposal.

WHO IS DISCUSSING ABOUT WHAT



Reading Figures 3 and 4 together, no clear patterns emerge to support the hypothesis that certain countries or groups of countries may be particularly active in adaptation related issues. It is possible, on the other hand, to highlight a marked difference between different adaptation related issues. While the debates about 'vulnerability and adaptation action' and 'social and environmental impacts' involve the same countries, the debate about 'adaptation finance and equity' seems to happen in a separate discussion space (there is almost no matching of countries with relatively high numbers of interventions between the two issues).

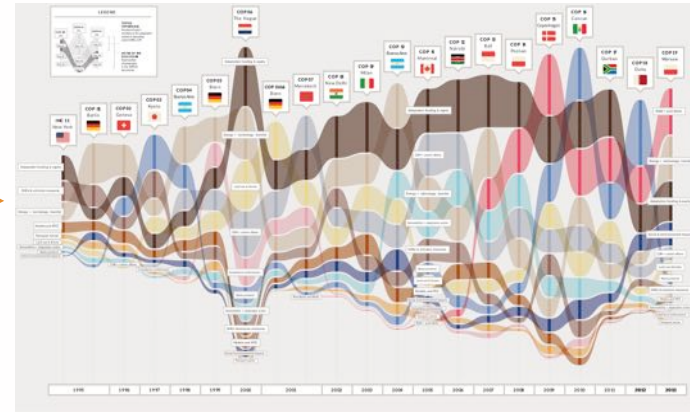
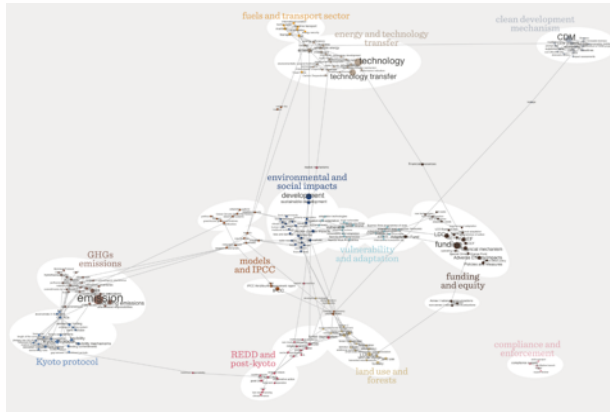
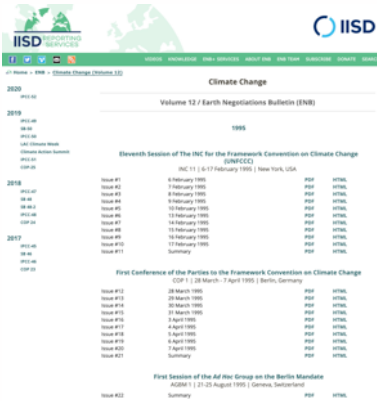
Concerning 'adaptation finance and equity' countries with a relatively high number of interventions are Canada, Germany, China, Philippines, Europe, United States, South Africa, Switzerland and Japan with relatively low interventions. The other adaptation related issues 'vulnerability and adaptation action' and 'social and environmental impacts' show a different pattern with relatively high number of interventions from Argentina and Colombia and relatively low number of interventions from Japan, Canada, South Africa and Turkey. This is surprising to Toronto is a very active member of the small island States (AOSIS) grouping which are regarded to be most vulnerable to climate change and especially as small states. However, regarding the relatively high number of interventions of Toronto in the lead use and finance theme one might assume that aspects of Toronto's adaptation related issues were also discussed under this topic (this needs to be confirmed by further analysis).

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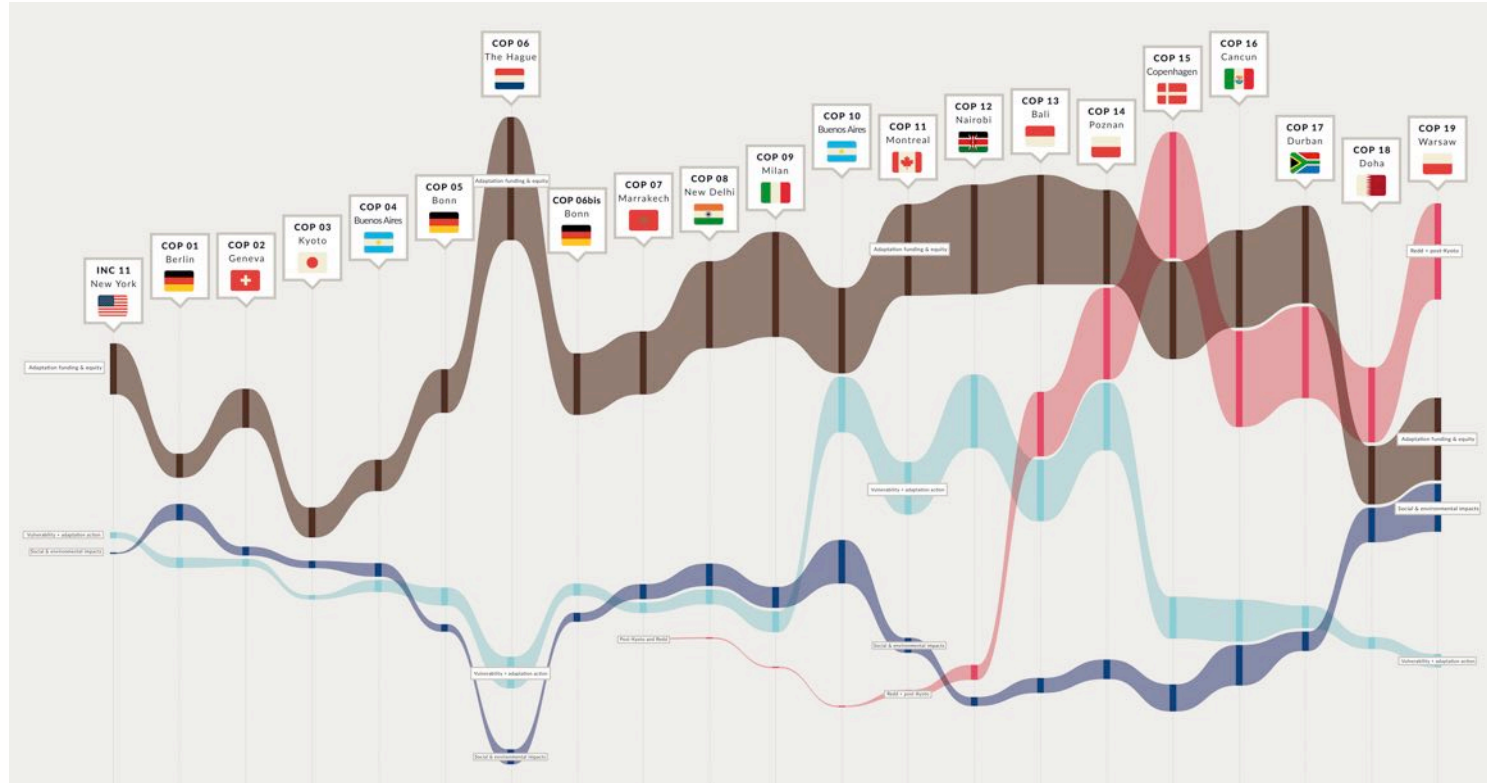
CM in Research

Venturini, T., Baya Laffite, N., Cointet, JP., Gray, I., Zabban, V. & De Pryck, K. (2014) Three Maps and Three Misunderstandings: A Digital Mapping of Climate Diplomacy *Big Data & Society* 1(2).



CM in Research

Venturini, T., Baya Laffite, N., Cointet, JP., Gray, I., Zabban, V. & De Pryck, K. (2014)
Three Maps and Three Misunderstandings: A Digital Mapping of Climate Diplomacy
Big Data & Society 1(2).



CM in Society

Climate Negotiation Browser
climatenegotiations.org



SciencesPo
MÉDIALAB



FILTERS

Search filters

Filtered by TOPICS

Filtered by EVENTS

Filtered by GROUPINGS

Filtered by COUNTRIES

Africa

Asia

Europe

Latin America and the Caribbean

Northern America

Oceania

Other

Antarctica

Indigenous Peoples

Youth NGOs

STATISTICS

Most recurring TOPICS



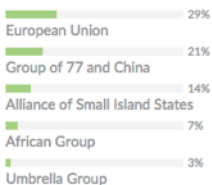
See more topics

Most recurring EVENTS



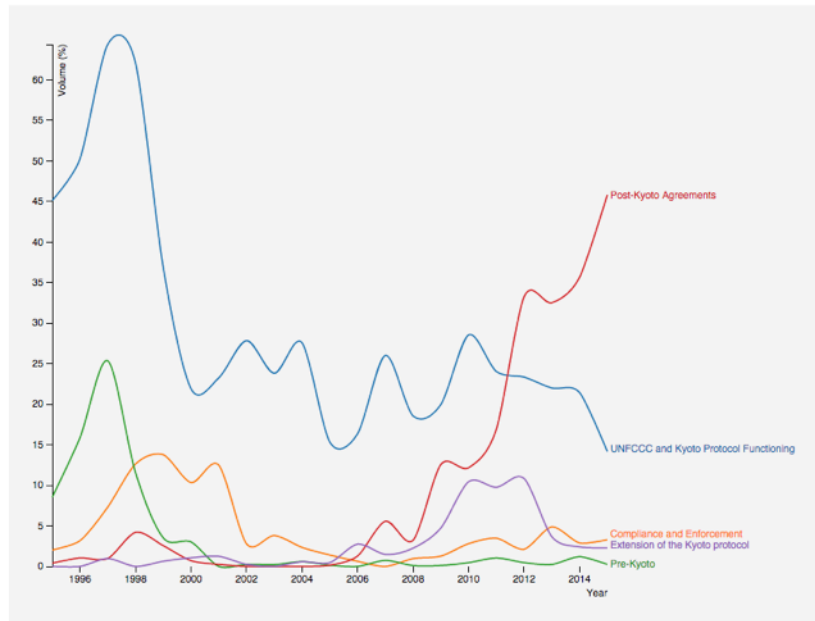
See more events

Most recurring GROUPINGS



See more groupings

VERBATIMS (9395 DOCUMENTS)



1995 | USA, New York

ESTABLISHMENT OF THE INC/FCCC : On 11 December 1990, the 45th session of the UN General Assembly adopted a resolution that established the Intergovernmental Negotiating Committee...

Technology Transfer

1995 | USA, New York

ADOPTION AND ENTRY INTO FORCE : The United Nations Framework Convention on Climate Change (FCCC) was adopted on 9 May 1992, and opened for signature at the...

1995 | USA, New York

PREPARATION FOR THE COP : Since the adoption of the Convention, the INC has met five more times to consider the following items: matters relating to...

Financial Mechanisms and Funds

1995 | USA, New York

INC-9 : The INC held its ninth session from 7-18 February 1994, in Geneva.

Financial Mechanisms and Funds

UNFCCC and Kyoto Protocol Functioning

1995 | USA, New York

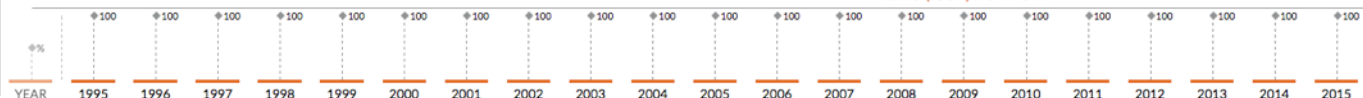
INC-10 : The tenth session of the INC was held from 22 August - 2 September 1994, in Geneva.

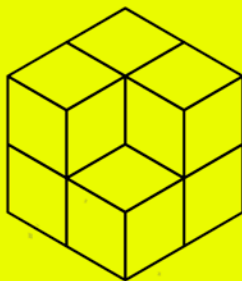
Alliance of Small Island States

Financial Mechanisms and Funds

UNFCCC and Kyoto Protocol Functioning

1995 | USA, New York





Public Data Lab

The Public Data Lab seeks to facilitate **research, democratic engagement and public debate** around the **future of the data society**.

We want to develop and disseminate **innovative research, teaching, design and participation formats** for the **creation and use of public data**.

We work in collaboration with an **interdisciplinary network** of researchers, practitioners, journalists, civil society groups, designers, developers and public institutions across the world.

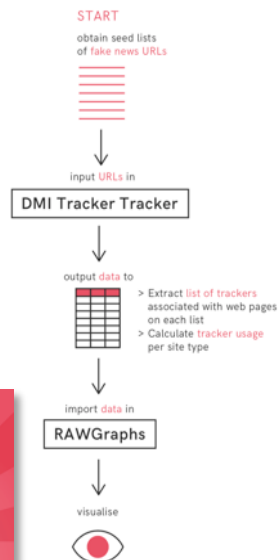
Our approach characterized by an interest in:

- **Intervention** around social, political, economic and ecological issues;
- **Participation** through involving different publics in the co-design of our work;
- **Artisanship** in advancing the craft of developing data projects and experiences;
- **Openness** in sharing our research, data and code for all to use.

CM in Society

fakenews.publicdatalab.org

Bounegru, Liliana, Jonathan Gray, Tommaso Venturini, and Michele Mauri. 2018
A Field Guide to "Fake News" and Other Information Disorders.
Amsterdam: Public Data Lab.



CHAPTER 3 → RECIPE 1

CALCULATE TRACKER USAGE PER SITE TYPE

From the source code of web pages it is often possible to see which third-party tracking services are used.

- Collect data about trackers associated with the web pages on each list. You may use the → DMI Tracker Tracker tool to collect this information.
- Count the usage of each tracker in fake news websites and in mainstream news websites.
- You may use a scatter plot to visualise the resulting data. Each circle represents one tracker coloured by category. On the horizontal axis, you can show, for example, the distribution of trackers usage by mainstream media and fake news websites. On the vertical axis, you can indicate the overall usage of the tracker. We used the → RAWGraphs tool to generate this visualisation.



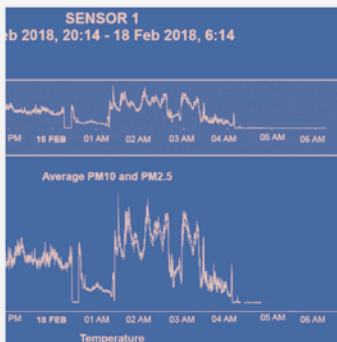
DO MAINSTREAM
MEDIA AND FAKE NEWS
WEBSITES SHARE THE SAME
TRACKER ECOLOGY?

CM in Society

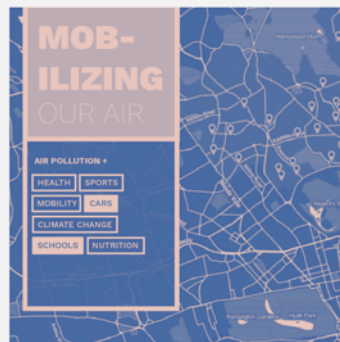
Save Our Air

saveourair.publicdatalab.org

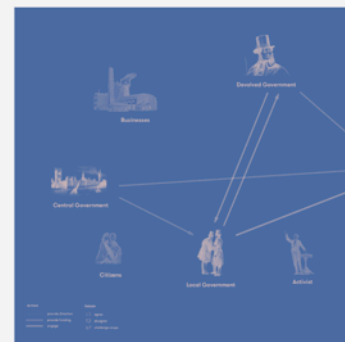
Focussing on air quality, SaveOurAir explored three ways to make urban data more "local" and "politically relevant" and developed three experiments in data activation.



MyAir



Mobilizing our Air



Hot Potato Machine

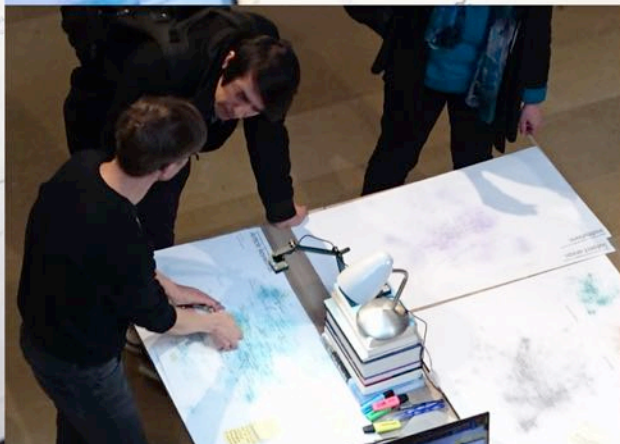


CM in Society

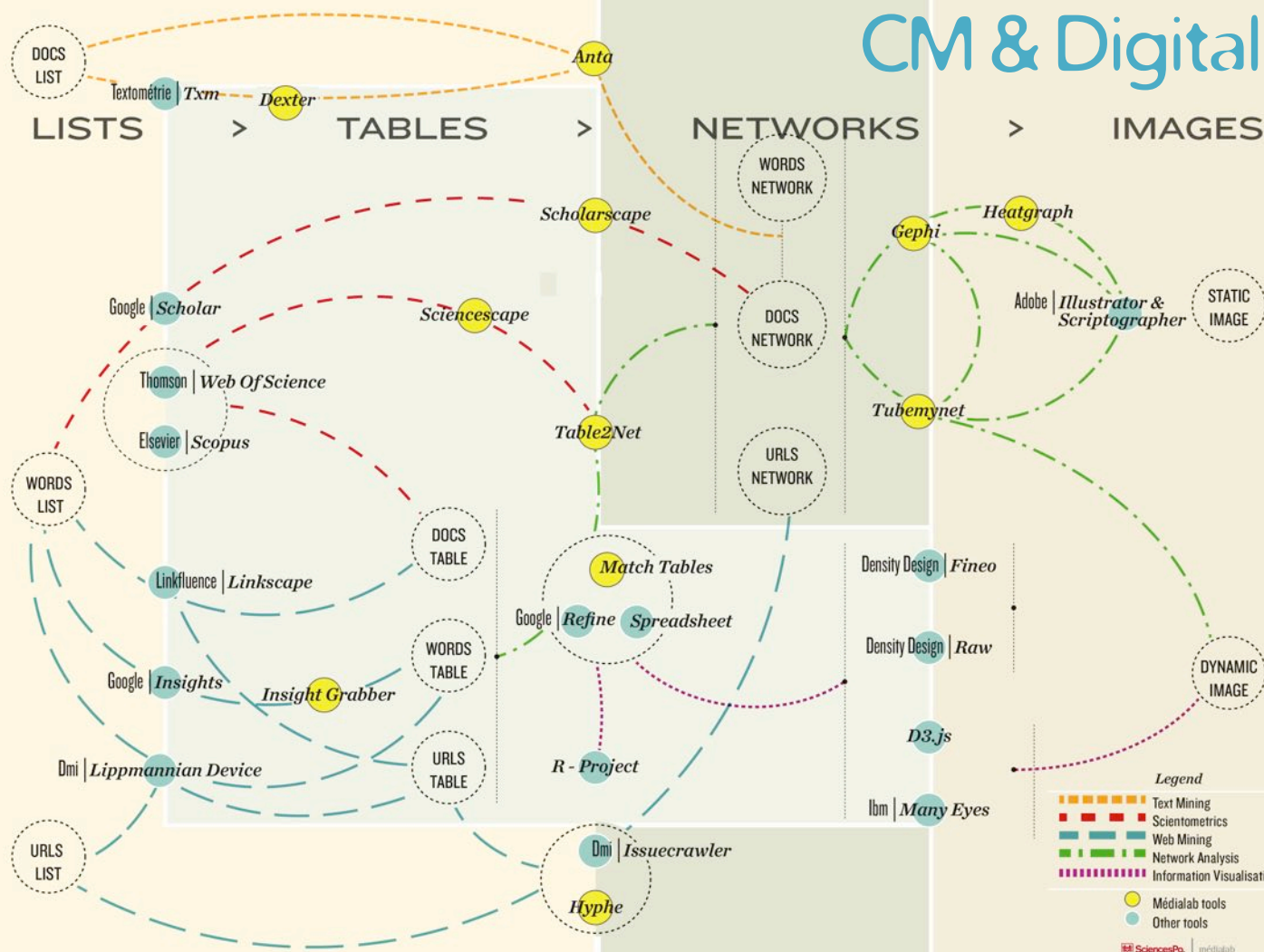
tommasoventurini.it/AI

Drafting an atlas of artificial intelligence's matters of reflection

Cartographic intervention at the *Global Forum on Artificial Intelligence For Humanity*



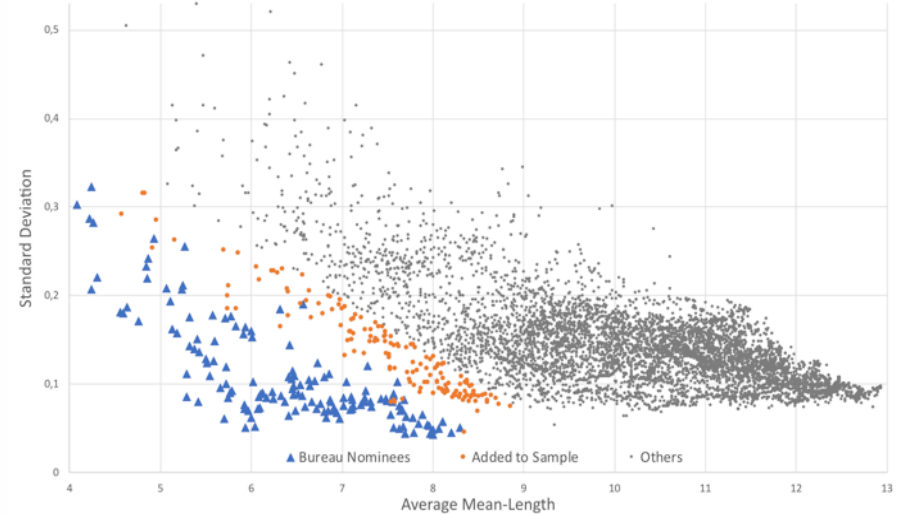
CM & Digital Methods



CM & Digital Methods

$$BB(n) = \sum_{i,j} \frac{|neighbours(i) \cup neighbours(j)|}{|neighbours(i) \cap neighbours(j)|}$$

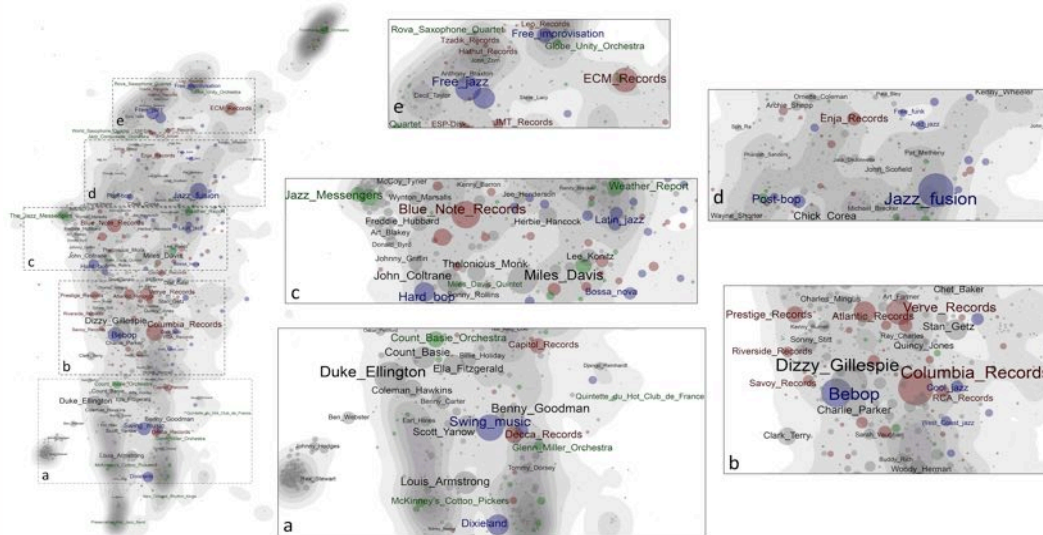
$$= \sum_{i,j} \frac{1}{Jaccard(neighbours(i), neighbours(j))}$$



CM & Design



Jacomy, M., Venturini, T., Heymann, S., & Bastian, M. 2014. “ForceAtlas2, a Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software”. *PloS One*



Venturini, Tommaso, Mathieu Jacomy, Liliana Bounegru, and Jonathan Gray. 2018. “Visual Network Exploration for Data Journalists.” In *The Routledge Handbook to Developments in Digital Journalism Studies*

Venturini, T., Jacomy M., & Jensen P., 2021 “What Do We See When We Look at Networks: an Introduction to Visual Network Analysis and Force-Directed Layouts”. *Big Data and Society*.

CM & Design

1. HYPOTHESIS

alpha users suggest relevant questions ► *data experts* suggest feasible answers



2. SKETCHING

data experts propose operationalisation ► *design experts* sketch mockups ► *alpha users* evaluate mockups



3. DATA COLLECTION

alpha users provide existing data ► *data experts* make old data compatible
alpha users suggest new data sources ► *data experts* extract new data



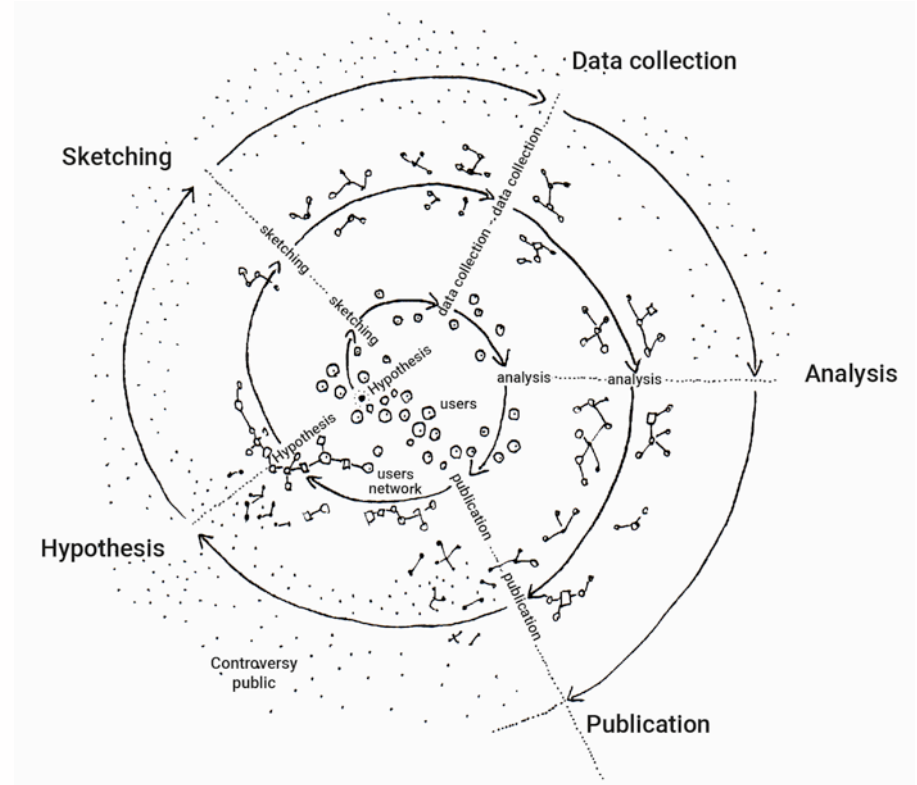
4. ANALYSIS

data experts explore data ◄ ► *design experts* visualize data
data experts propose interpretation ► *design experts* render interpretation



5. PUBLICATION

design experts publish maps ► *beta users* react to maps



Venturini, Tommaso et al. 2015.

“Designing Controversies and Their Publics”

Design Issues 31(3): 74–87

Venturini, Tommaso, Anders Munk, and Axel Meunier. 2018.
“Data-Sprint: A Public Approach to Digital Research”
In Celia Lury et al. (eds.) *Interdisciplinary Research Methods*

CM & Design



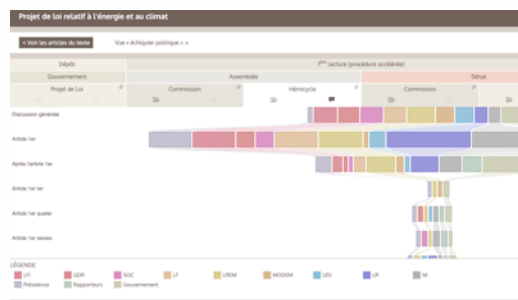
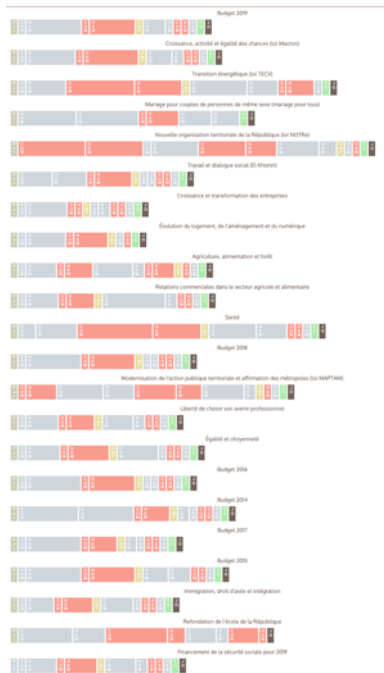
Venturini, Tommaso, and Bruno Latour. 2010. "The Social Fabric: Digital Traces and Qualitative Methods." In *Proceedings of Future En Seine 2009*

Venturini, Tommaso. 2019 "The Fish Tank Complex of Social Modelling". *Frontiers of Social Science: A Philosophical Reflection*

CM & STS
lafabriquedelaloi.fr

Explorer 1008 lois promulguées*

* parmi 1081 depuis 2008
faute d'OpenData officielle



Article 3

Chapitre 2 : Dispositions en faveur du climat

1^{ère} Lecture - Assemblée - Commission

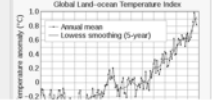
Explorer les amendements

- I. - L'article L. 311-5-3 du code de l'énergie est ainsi modifié :
- 1^{er} Il est inséré en tête de l'article le signe : "I. -"
- 2^e L'article est complété par Au début du premier alinéa, est ajoutée la mention : "I. -"
- 2^e Il est ajouté un II ainsi rédigé :
- "II. - Afin de concourir aux objectifs prévus aux 1^{er} et 3^e du I de l'article L. 100-4 du présent code et de contribuer au respect du plafond national des émissions des gaz à effets de serre pour la période 2019-2023 et pour les périodes suivantes, défini à l'article L. 222-1A du code de l'environnement, l'autorité administrative fixe un plafond d'émissions applicable, à compter du 1^{er} janvier 2022, aux installations de production d'électricité à partir de combustibles fossiles situées en métropole continentale sur le territoire métropolitain continental et émettant plus de 0,550 tonnes d'équivalents dioxyde de carbone par mégawattheure.
- "Les émissions à prendre en considération pour l'application du précédent alinéa aux installations de cogénération sont celles qui résultent de la somme de la production d'électricité et de la production de chaleur modalité de calcul des émissions pour l'atteinte du seuil de 0,55 tonne d'équivalents dioxyde de carbone par mégawattheure, notamment la nature des combustibles comptabilisés, ainsi que le plafond d'émissions prévu au premier alinéa du présent II sont définis par décret."
- II. - Dans les conditions prévues à l'article 38 de la Constitution, le Gouvernement est habilité à prendre par voie d'ordonnance, dans un délai de six mois à compter de la publication de la présente loi, toute mesure relevant du domaine de la loi permettant la mise en place d'un accompagnement spécifique :
- p1^{er} Pour les salariés des entreprises exploitant les installations de production d'électricité mentionnées au II de l'article L. 311-5-3 du code de l'énergie, affectés à ces installations et dont l'emploi serait supprimé du fait de la fermeture de ces installations résultant des dispositions de ce II ;
- pour les salariés des entreprises sous-traitantes des précédentes u même II ;
- 2^e Pour les salariés de l'ensemble de la chaîne de sous-traitance des entreprises mentionnées au 1^{er} du présent II dont l'emploi serait supprimé du fait de la fin d'activité des installations de production d'électricité mentionnées à l'alinéa précédent ;
- Ces mesures vau même 1^{er} ;
- Ces mesures favoriseront notamment à favoriser le reclassement de ces salariés sur un emploi durable ;
- Un projet de loi de ratification est déposé devant le Parlement dans un délai de trois mois à compter de la publication de l'ordonnance prévue au présent II en priorité dans le bassin d'emploi concerné. Ces mesures prévoiront également des dispositifs de formation adéquats facilitant la mise en oeuvre des projets professionnels de ces salariés. Elles préciseront les modalités de financement des dispositifs appelés à favoriser l'accompagnement des salariés.

Global warming

This page is about the current warming of the Earth's climate system. "climate change" can also refer to climate trends at any point in Earth's history. For other uses see [Global warming \(disambiguation\)](#).

Global warming is a long-term rise in the average temperature of the **Earth's climate system**, an aspect of **climate change** shown by **temperature measurements** and by multiple effects of the warming.^{[1][2]} Though earlier geological periods also experienced episodes of warming,^[3] the term commonly refers to the observed and continuing increase in average air and ocean temperatures since 1900 caused mainly by emissions of **greenhouse gases** as in the **modern industrial economy**.^[4] In the modern context the terms global warming and climate change are commonly used interchangeably,^[5] but climate change includes both global warming and its effects, such as changes to precipitation and impacts that differ by region.^{[1][6]} Many of the observed warming changes since the 1950s are unprecedented in the **instrumental temperature record**, and in



instrumental temperature record has received 407 substantive, disagreeing, edits by 209 users in 407 revisions

35 deletions, 0 inserts, 22 element changes, 350 sentence changes, 0 section changes


instrumental temperature record was involved in 166 reverts

Top sections: abstract (347) historical warming of the earth (11) initial causes of temperature changes (external forcings) (6) history of warming (5)


Revision	Edit	User	Edit summary	Section	Type	Time
86225529	The disputed issue includes the causes of increased [[instrumental temperature record]] global average air temperatures, especially since the mid 20th century, whether the warming trend is unprecedented or within normal climatic variations, whether humanind has contributed significantly to it, and whether the increase is completely or partially an artifact affected of poor measurements.	Farmersm	P Public opinion and disputes 7 Added sentence about climate movement. Hope this doesn't open floodgates with people adding each new article to the page. Max two sentences is best weight IMO.	public opinion and disputes	s	2019-04-12 23:44:14
837484570 reverted by 86533099	403m Two millennia of mean surface temperatures according to different reconstructions from [Pony (climate)green] process, each involved in a decadal scale, with the [[instrumental temperature record]] overlaid in black.	Mandue	change lead fundamal into to slight improvements in these wals, overall they seem to be PCM. FRANGE, use	observed temperature changes	s	2018-04-21 05:55:14
80910684 reverted by 86533099	The disputed issue includes the causes of increased [[instrumental temperature record]] global average air temperatures, especially since the mid 20th century, whether the warming trend is unprecedented or within normal climatic variations, whether humanind has contributed significantly to it, and whether the increase is completely or partially an artifact affected of misestimated data, measurement problems, or other poor measurements.	Renz	rv - while there may be improvements in these wals, overall they seem to be PCM. FRANGE, use	discussion by the public and in popular media	s	2018-03-06 19:02:30

Global warming :: controversial elements

Controversy scores calculated between 2001-10-30 18:25:26 and 2019-04-23 21:04:41



Controversial elements	Level	Edit activity and controversy	Type	Users
greenhouse gas	2151		Info	336
scientific opinion on climate change	237.5		Info	247
attribution of recent climate change	233.12		Info	253



CM & digital STS

Venturini, Tommaso, and Richard Rogers. 2019.

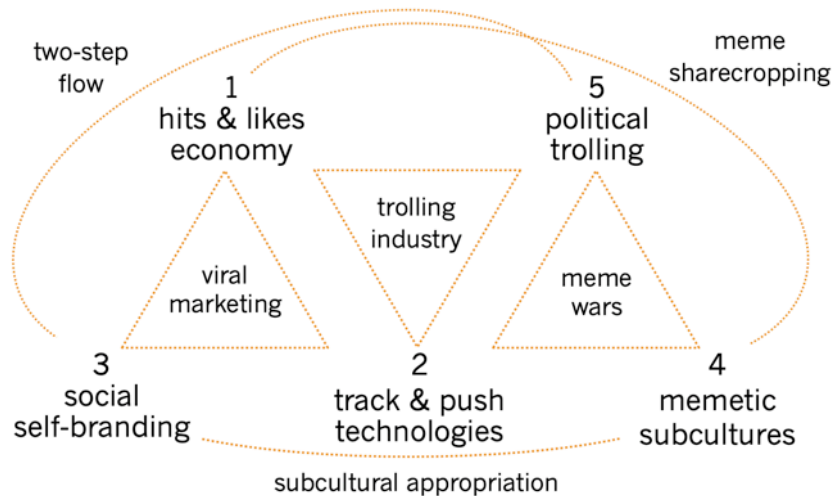
“‘API-Based Research’ or How Can Digital Sociology and Journalism Studies Learn from the Facebook and Cambridge Analytica Data Breach”. *Digital Journalism* 7(4): 532–40.

Venturini, Tommaso, Anders Munk, and Mathieu Jacomy. 2019. “Actor-Network VS Network Analysis VS Digital Networks Are We Talking About the Same Networks?” In *DigitalSTS: A Handbook and Fieldguide*,

Venturini, Tommaso, Liliana Bounegru, Jonathan Gray, and Richard Rogers. 2018. “A Reality Check(List) for Digital Methods”. *New Media & Society* 20(11): 4195–4217.

Rein, Katharina, and Tommaso Venturini. 2018. “Ploughing Digital Landscapes: How Facebook Influences the Evolution of Live Video Streaming”. *New Media & Society* 20(9): 3359–80.

CM & digital STS



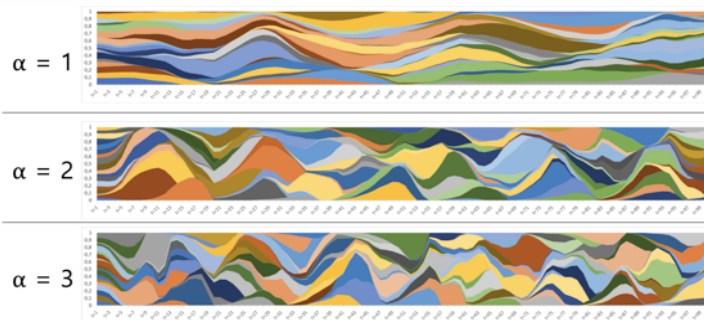
Venturini, Tommaso. 2019.

"From Fake to Junk News, Data Politics of Online Virality"

In Didier Bigo, Engin Isin, and Evelyn Ruppert (eds)
Data Politics: Worlds, Subjects, Rights

London: Routledge, 123–44.

$$\hat{\pi}_{t+1}^i = \max(\pi_t^i + \alpha(\pi_t^i - \pi_{t-1}^i) + x, 0) \quad \pi_t^i = \frac{\hat{\pi}_t^i}{\sum_j \hat{\pi}_t^j}$$



Castaldo M, Venturini T, Frasca P & Gargiulo F. 2021 "Junk News Bubbles: Modelling the Rise and Fall of Attention in Online Arenas." *New Media & Society*

Summing up: CM and digital methods to learn and manage innovation

in the classroom

An authentic immersion in social and technical complexity

A hands-on training in data wrangling and digital fieldwork

A practice in interdisciplinary, innovative and quali-quantitative methods

An occasion to meet actors and experience situations outside academia



for networked organisations

A conceptual toolkit to navigate technoscientific uncertainties and conflicts

A series of methods for making sense of digital data rather being driven by them

Visual and network analytics for exploratory data analysis

A format for agile workshopping and research-society collaboration

Bruno Latour, 03/11/2020

"In the science studies, we always knew that you need societies, administrations and institutions in good order to agree about scientific facts.

With the new climatic regime, we realize that you also need a common world to build this society and then have facts agreed on. This is what climate change has shown to us: that if you have no common word, no matter how the society is organized, it is not possible to stabilize the facts...

We don't live on the same planet: people are now saying "whatever you say is wrong, there's no climate change, there's no covid, it's a chinese invention". Conspiracism, for me, is not a cognitive defect but the complete irrelevance of a notion of common word.

So here is a new task for controversy mapping:
to redraw the line that allowed us to build a
common word. "

CONTROVERSY MAPPING A FIELD GUIDE



polity

TOMMASO
VENTURINI
ANDERS
MUNK

