

Machine Learning & Ethics

Juliane Klatt

Who's that person?

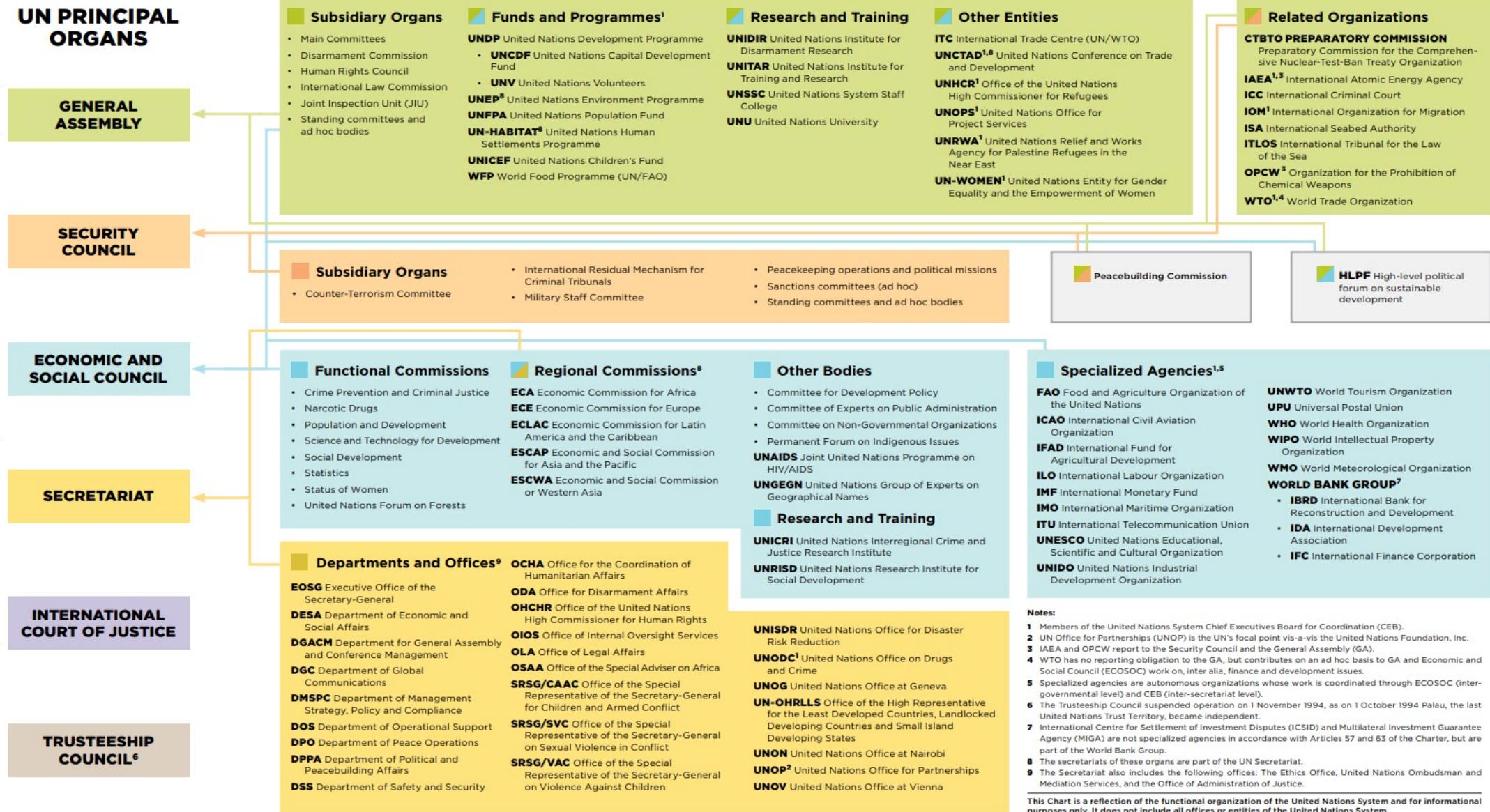


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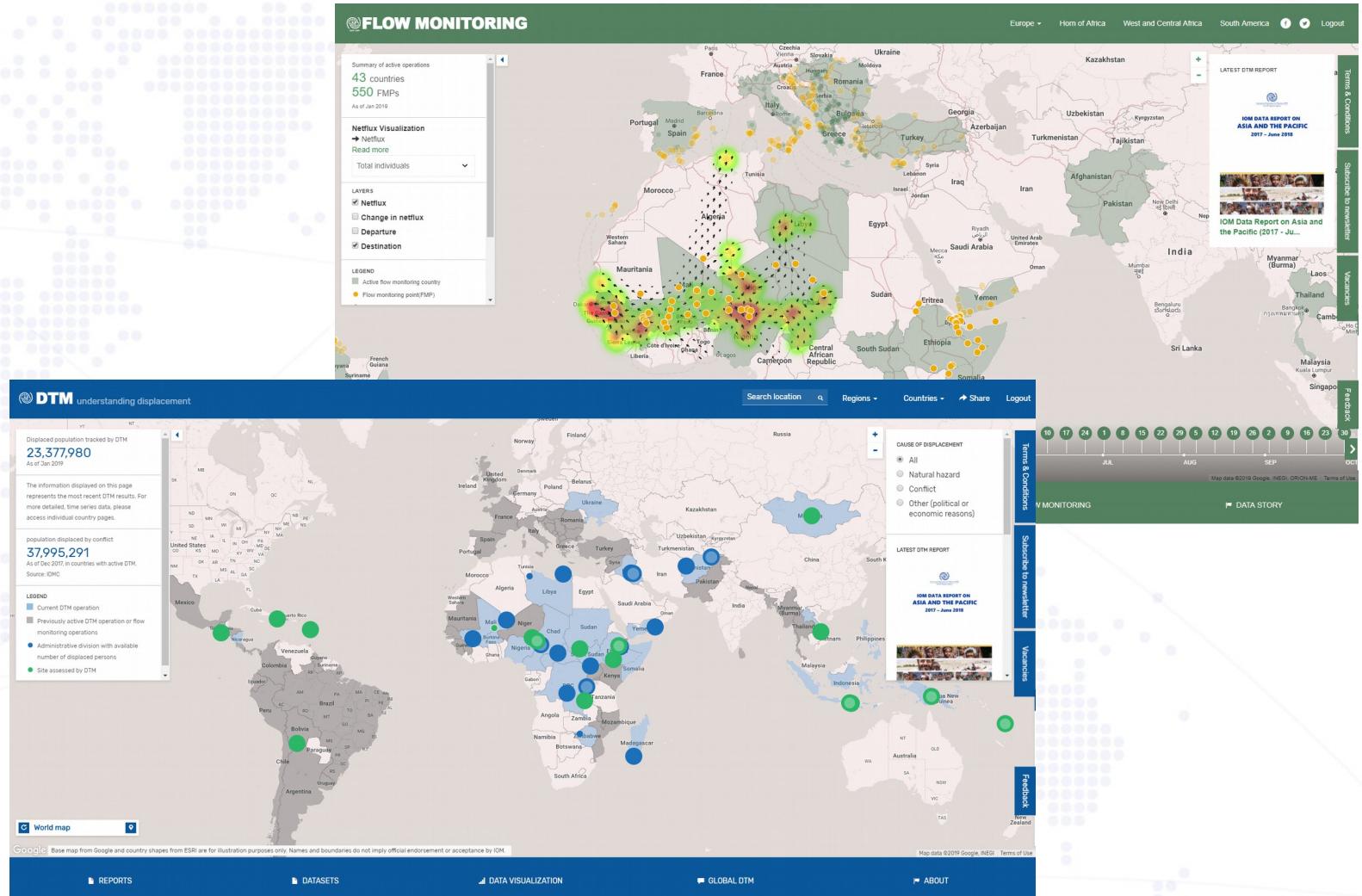
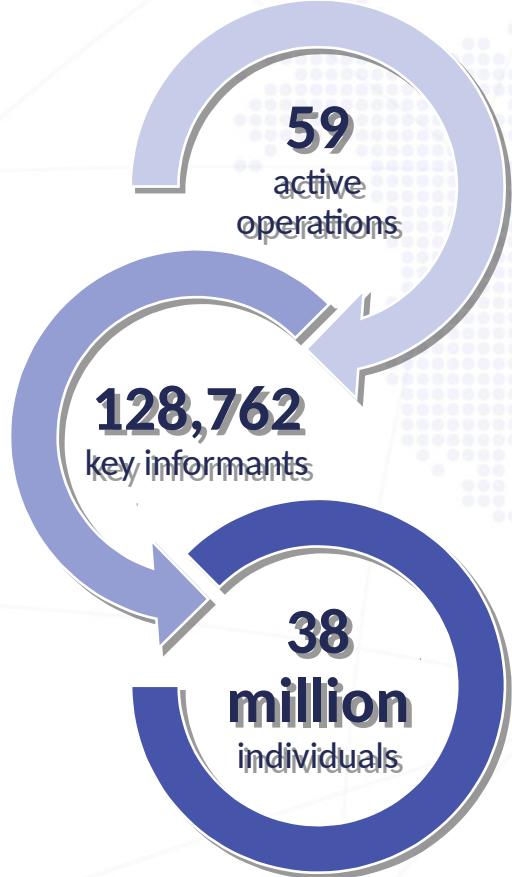




WORLD MIGRATION REPORT 2020



Who's that person?

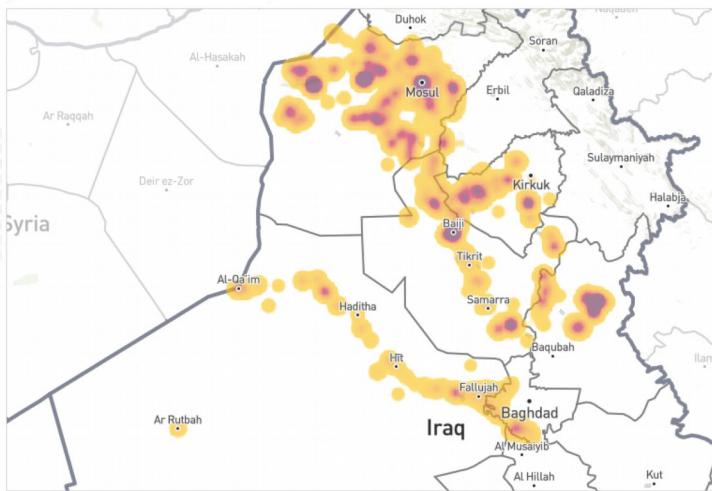


UN Operational support

Severity Rankings

- Iraq, Idai response

% of HH* outdoors	% of HH in Emergency shelter	Permanent shelter	Shelter Severity	Degree of Severity
0	0	100	1.00	very low
0	25	75	1.75	low
0	50	50	2.50	low
0	75	25	3.25	medium
25	0	75	3.25	medium
0	100	0	4.00	medium
25	25	50	4.00	medium
25	50	25	4.75	medium
25	75	0	5.50	high
50	0	50	5.50	high
50	25	25	6.25	high
50	50	0	7.00	high
75	0	25	7.75	very high
75	25	0	8.50	very high
100	0	0	10.00	critical

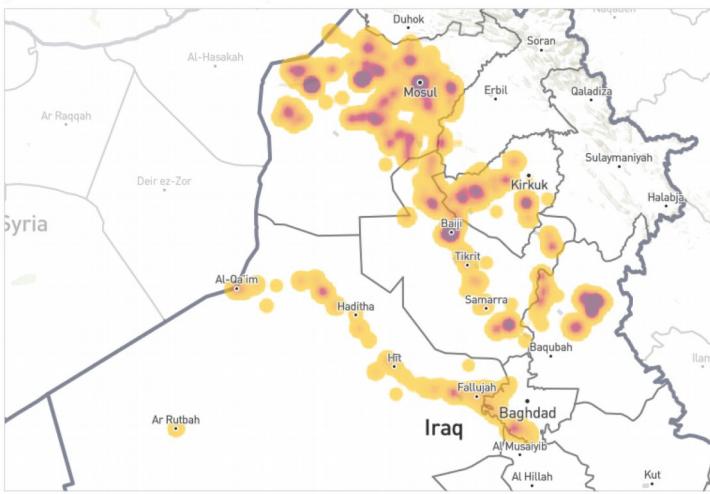


UN Operational Support

Severity Rankings

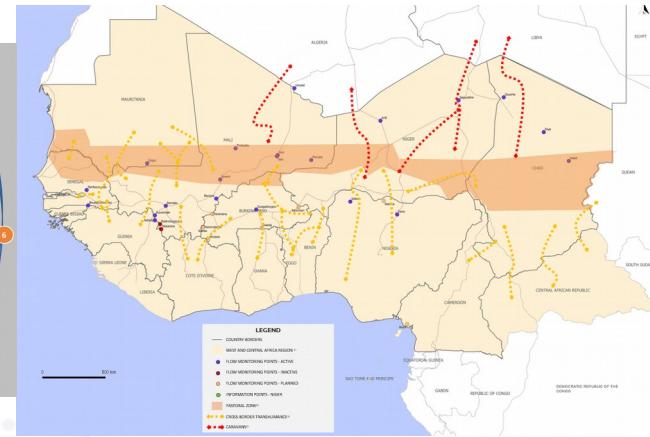
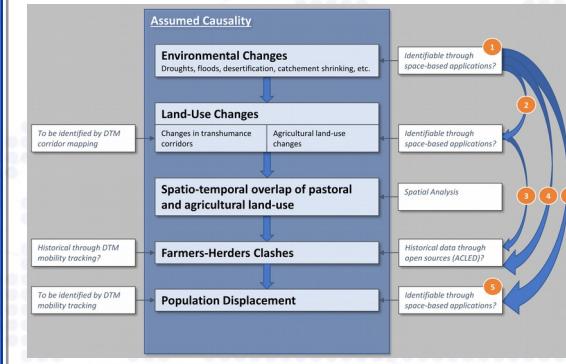
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Early Warning Systems

- Farmers-herders clashes in West and Central Africa

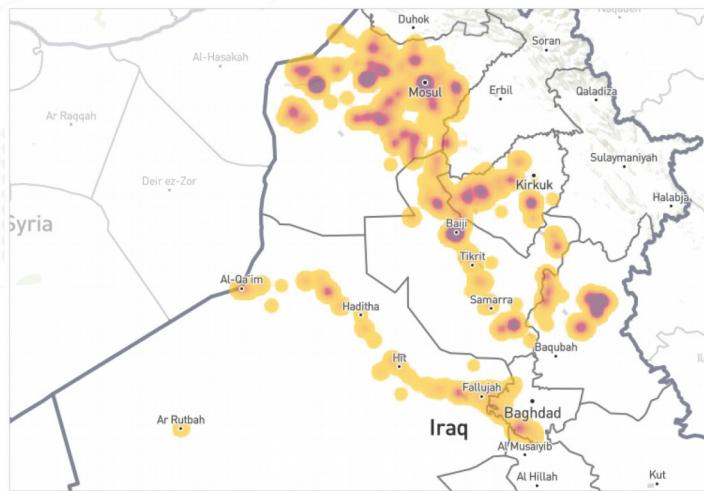


UN Operational Support

Severity Rankings

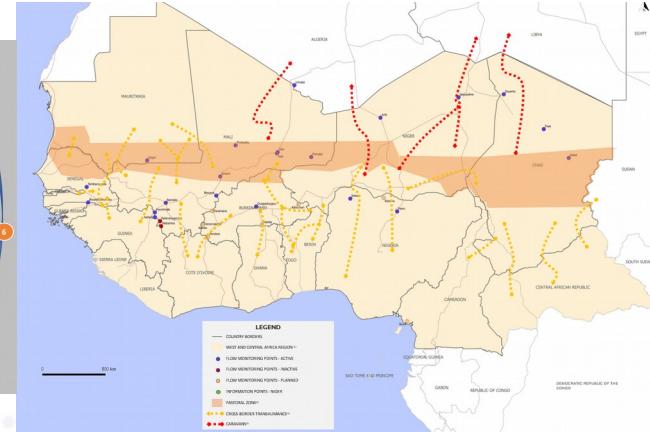
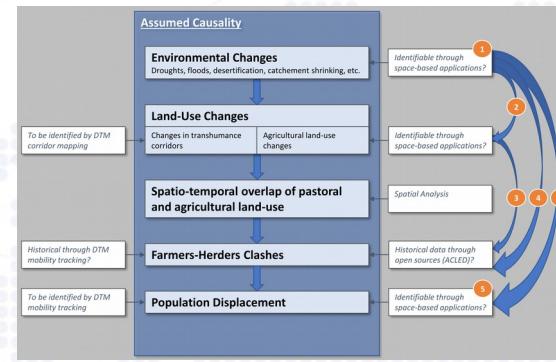
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Early Warning Systems

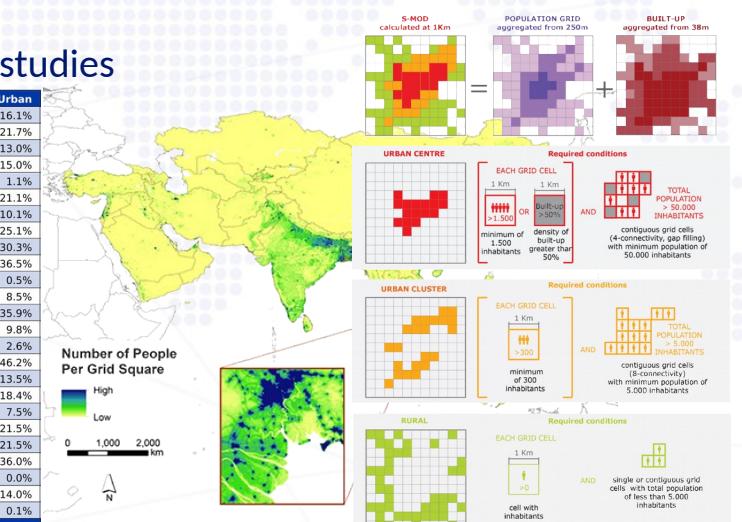
- Farmers-herders clashes in West and Central Africa



Urban displacement

- Global figures, local case studies

Country	# IDP	Rural	Peri-urban	Urban
Afghanistan	3,529,971	81.9%	1.9%	16.1%
Burundi	124,578	75.2%	3.1%	21.7%
Cameroon	253,813	85.7%	1.3%	13.0%
Central African Republic	580,692	73.2%	11.8%	15.0%
Chad	130,472	98.5%	0.4%	1.1%
Democratic Republic of the Congo	4,299,259	76.1%	2.8%	21.1%
Ethiopia	902,180	86.2%	3.7%	10.1%
Haiti	10,388	65.3%	9.6%	25.1%
Iraq	1,665,108	59.7%	10.0%	30.3%
Libya	172,541	33.4%	30.1%	36.5%
Madagascar	5,699	98.9%	0.6%	0.5%
Mali	99,039	88.5%	3.1%	8.5%
Nigeria	1,948,349	60.7%	3.4%	35.9%
Pakistan	13,325	89.2%	1.0%	9.8%
Papua New Guinea	64,040	96.6%	0.7%	2.6%
Peru	3,182	46.7%	7.1%	46.2%
Philippines (the)	24,867	77.6%	8.8%	13.5%
Somalia	1,187,838	71.4%	10.2%	18.4%
South Sudan	1,275,868	91.3%	1.1%	7.5%
Sri Lanka	24,809	74.7%	3.8%	21.5%
Sudan	2,042,896	76.7%	1.8%	21.5%
Syrian Arab Republic	6,183,887	43.5%	20.5%	36.0%
Vanuatu	5,591	100.0%	0.0%	0.0%
Yemen	3,647,250	83.8%	2.1%	14.0%
Zimbabwe	75,505	99.2%	0.7%	0.1%
Grand Total	28,271,147	69.5%	7.5%	23.0%



Machine Learning & Ethics... What's the Issue?

*In information societies, operations, **decisions** and choices previously left to humans **are increasingly delegated to algorithms**, which may advise, if not decide, about how data should be interpreted and what actions should be taken as a result.*

*More and more often, **algorithms mediate social processes**, business transactions, governmental decisions, and how we perceive, understand, and interact among ourselves and with the environment.*

Gaps between design and operation of algorithms and our understanding of their ethical implications can have severe consequences affecting individuals as well as groups and whole societies.

Examples of AI-based Decision-Making

- *Profiling*
- *Recommender systems*
- *Information personalizations*
- *Ranking and prioritization*
- *Trading (high-frequency trading)*
- *Autonomous cars*
- *Autonomous weapons*

Typology of Ethical Concerns

Ethics is a branch of philosophy that systematizes, defends, and recommends concepts of right and wrong conduct.

Theory of knowledge
Study of the nature of knowledge, truth, belief, justification, skepticism and rationality.

Epistemic

Normative

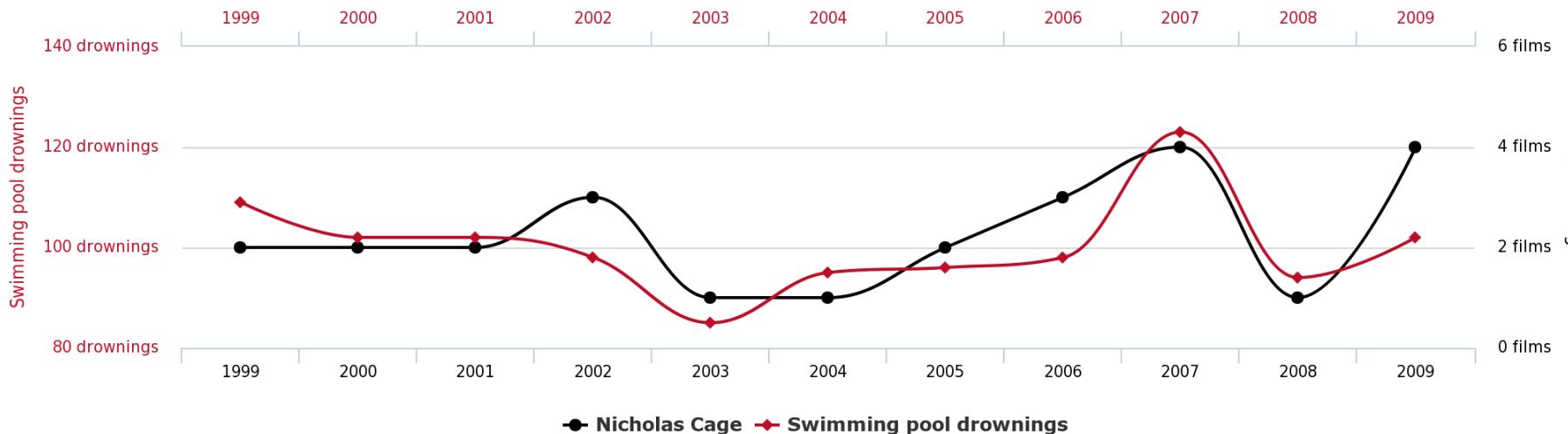
Normative statements
How things should be.
What is right or wrong.

Mapping the Debate

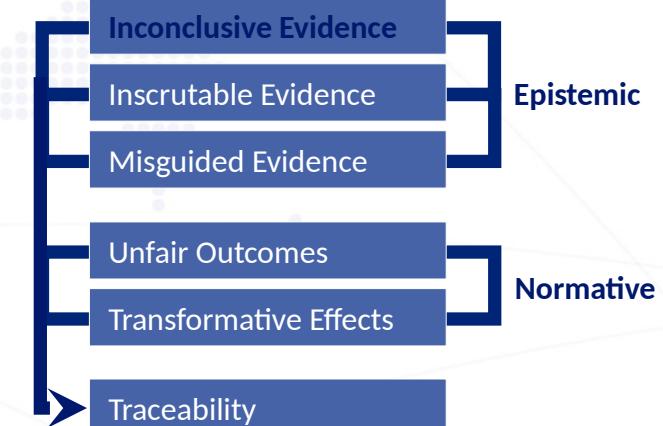


Inconclusive Evidence

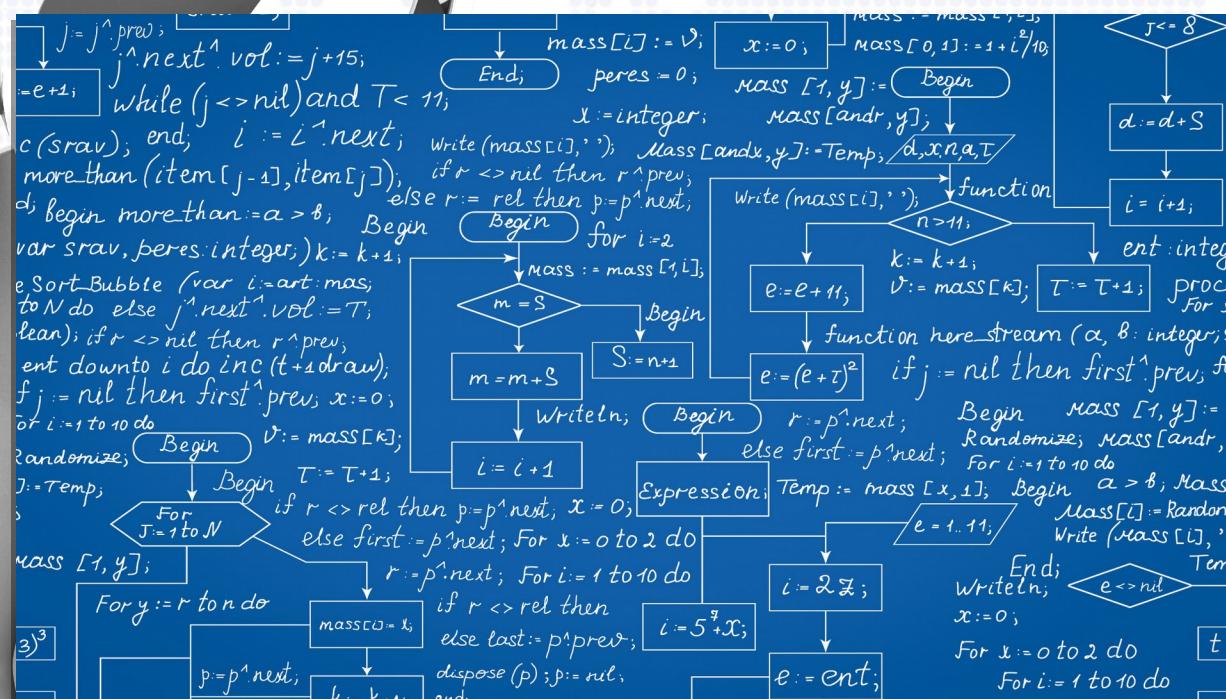
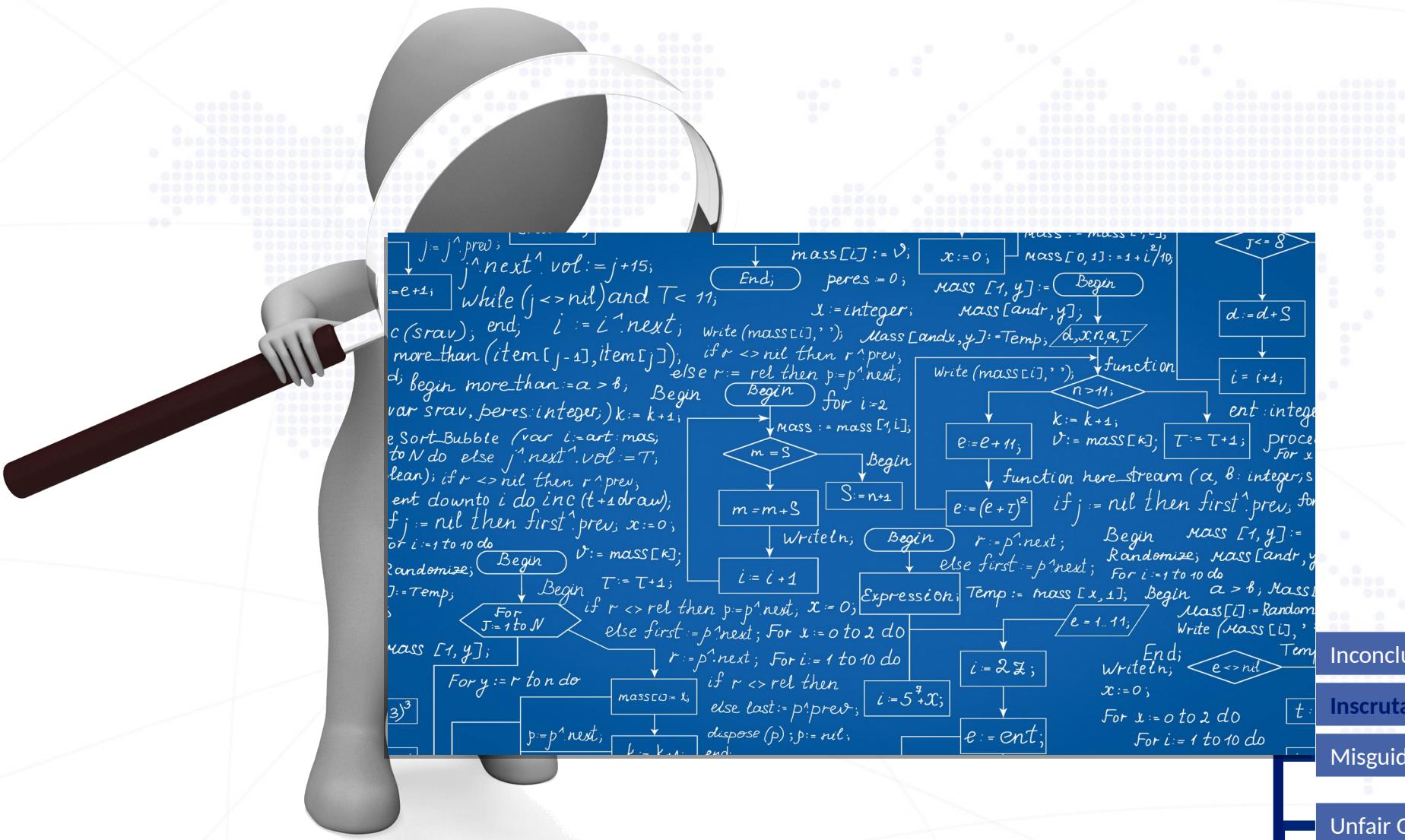
Number of people who drowned by falling into a pool
correlates with
Films Nicolas Cage appeared in



tylervigen.com



Inscrutable Evidence



Inconclusive Evidence

Inscrutable Evidence

Misguided Evidence

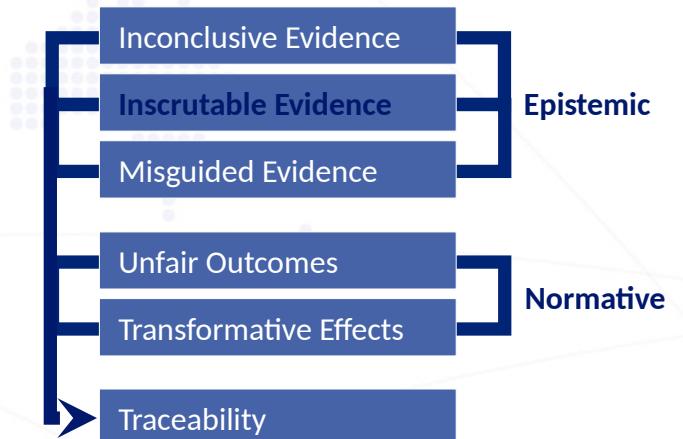
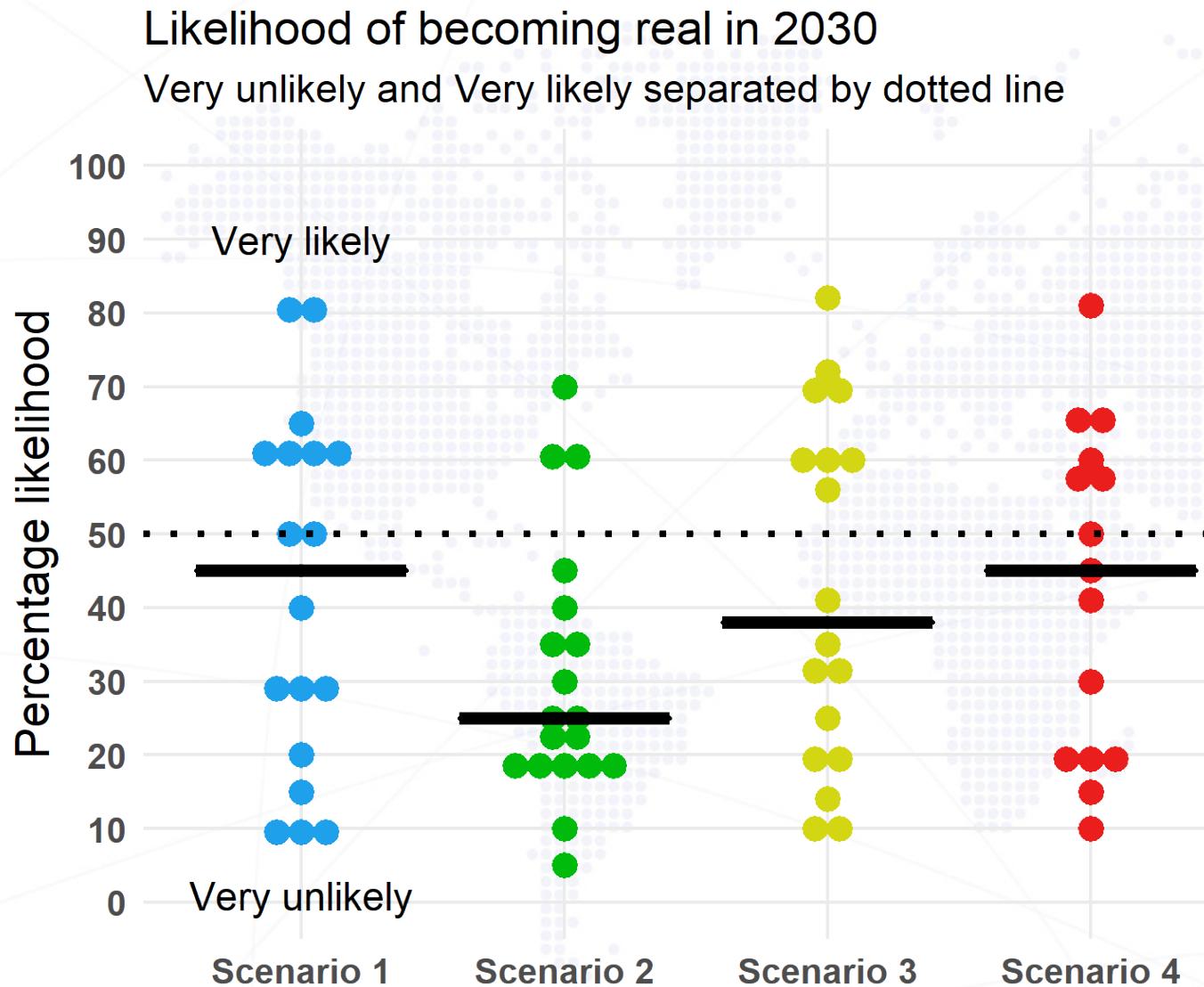
Unfair Outcomes

Transformative Effects

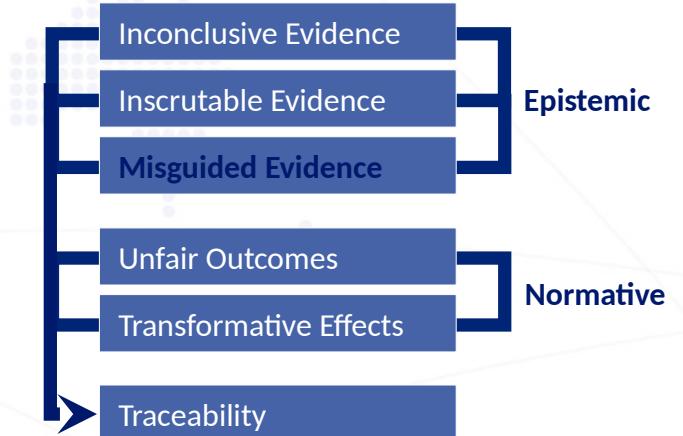
Epistemic

Normative

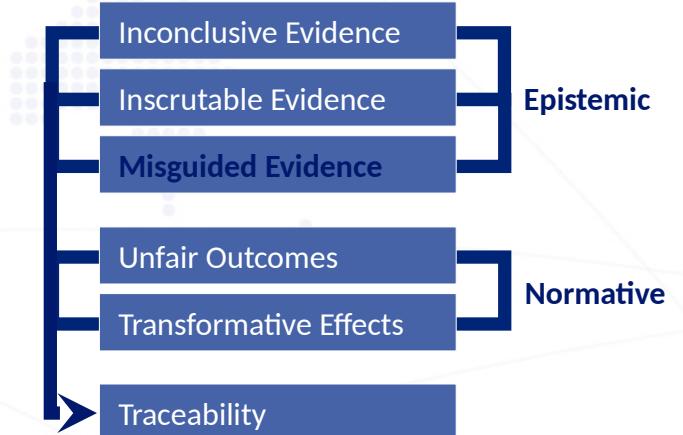
Inscrutable Evidence



Misguided Evidence



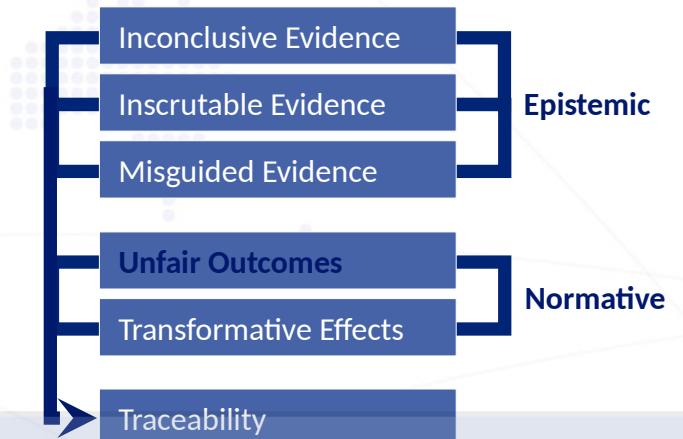
Misguided Evidence



Unfair Outcomes



ARRESTED



Unfair Outcomes

Early Recognition of Sepsis with Gaussian Process Temporal Convolutional Networks and Dynamic Time Warping

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Max Horn*,†

Bastian Rieck*,†

Damian Roqueiro*,†

Karsten Borgwardt*,†

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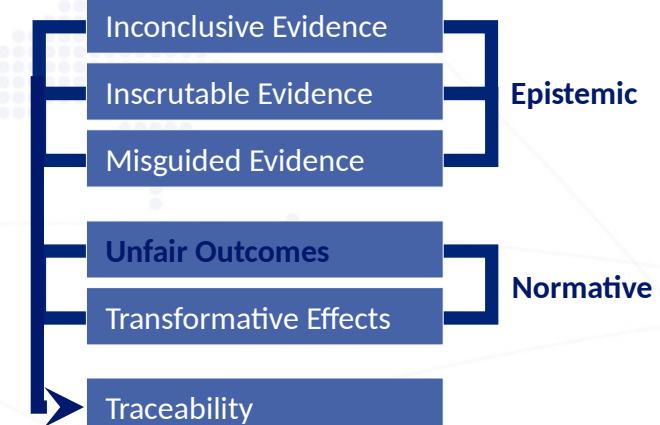
KARSTEN.BORGWARDT@BSSE.ETHZ.CH

*Department of Biosystems Science and Engineering, ETH Zurich, Switzerland

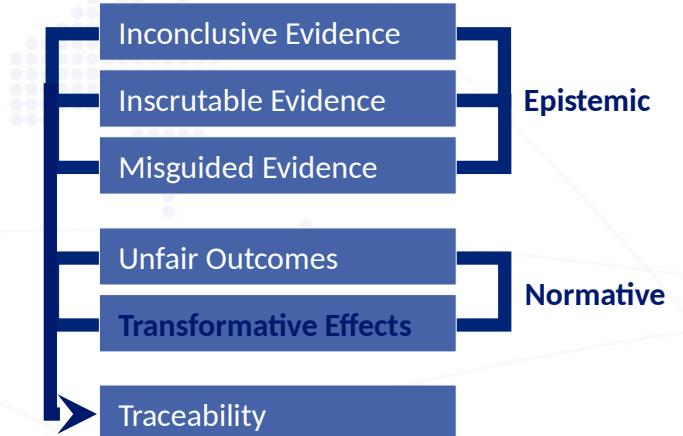
†SIB Swiss Institute of Bioinformatics, Switzerland

Table 1: Characteristics of the population included in the dataset. The mean sepsis onset is given in hours since admission to the ICU.

Variable	Sepsis Cases	Controls
n	570	5,618
Female	236 (41.4%)	2,548 (45.4%)
Male	334 (58.6%)	3,070 (54.6%)
Mean time to sepsis onset in ICU (median)	16.7 h (11.8 h)	—
Age ($\mu \pm \sigma$)	67.2 ± 15.3	64.2 ± 17.3
Ethnicity		
White	411 (72.1%)	4,047 (72.0%)
Black or African-American	41 (7.2%)	551 (9.8%)
Hispanic or Latino	7 (1.2%)	147 (2.6%)
Other	57 (10.0%)	493 (8.8%)
Not available	54 (9.5%)	380 (6.8%)
Admission type		
Emergency	504 (88.4%)	4,689 (83.5%)
Elective	60 (10.5%)	872 (15.5%)
Urgent	6 (1.1%)	57 (1.0%)



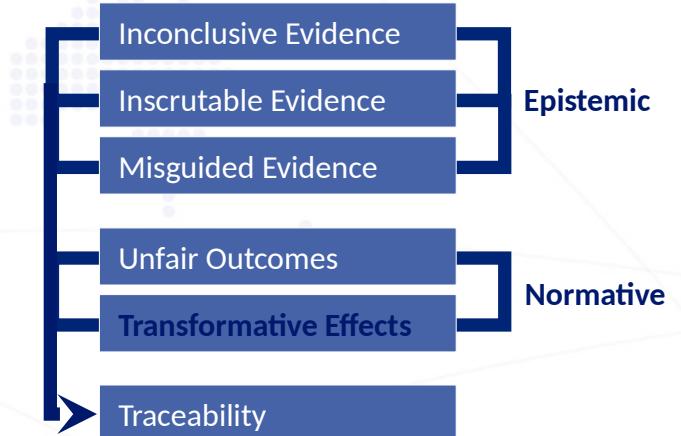
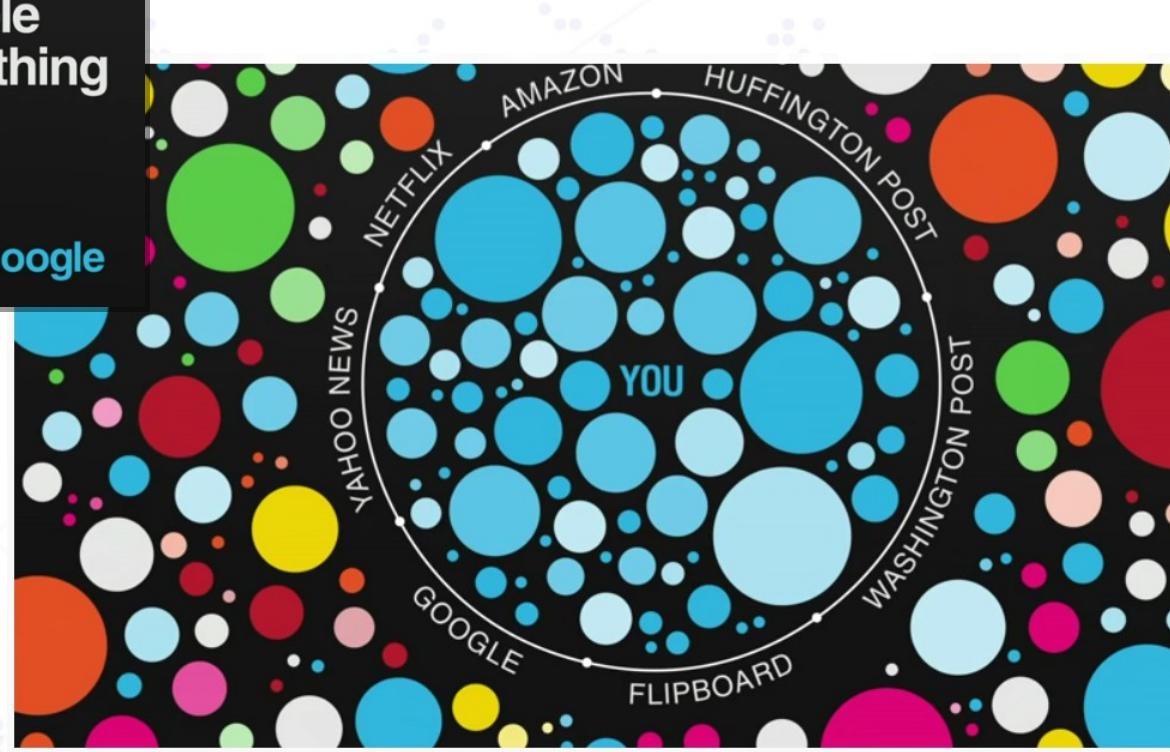
Transformative Effects



Transformative Effects

"It will be very hard for people to watch or consume something that has not in some sense been tailored for them."

Eric Schmidt, Google



Traceability



Humanitarian Data Science & Ethics



HARVARD HUMANITARIAN INITIATIVE

RESEARCH EDUCATION RESOURCES MENU ☰

The Signal Code: A Human Rights Approach to Information During Crisis

Faine Greenwood, Caitlin Howarth, Danielle Escudero Poole, Nathaniel A. Raymond, Daniel P. Scarneccia

Published:
Jan 2017

[Visit the Signal Code Minisite](#)

The Signal Code is the result of a six month study by the Signal Program on Human Security and Technology at the Harvard Humanitarian Initiative (HHI) at the Harvard T.H. Chan School of Public Health. The purpose of the study was to identify what human rights people have to information during disasters. The Signal Code identifies five rights from multiple sources of international human rights and humanitarian law and standards that already exist and apply to humanitarian information activities (HIAs).

These five rights are the following: 1. The Right to Information; 2. The Right to Protection; 3. The Right to Privacy and Security; 4. The Right to Data Agency; and 5. The Right to Rectification and Redress. The purpose of the Signal Code is to provide a foundation for the future development of ethical obligations for humanitarian actors and minimum technical standards for the safe, ethical, and responsible collection of HIAs before, during, and after disasters strike.

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A PEER REVIEW FRAMEWORK FOR
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HUMANITARIAN RESPONSE

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RESEARCH
DIGITAL CIVIL SOCIETY LAB

Overview

The Digital Civil Society Lab investigates the challenges and opportunities for civil society to thrive in the digital age.

The digital age has expanded the potential for civil society participation, and it has presented new challenges and threats. Our dependencies on digital software and infrastructure that are commercially built and government surveilled require new insights into how these digital systems work and how we can engage them **safely, ethically and effectively** for civil society's purposes.

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