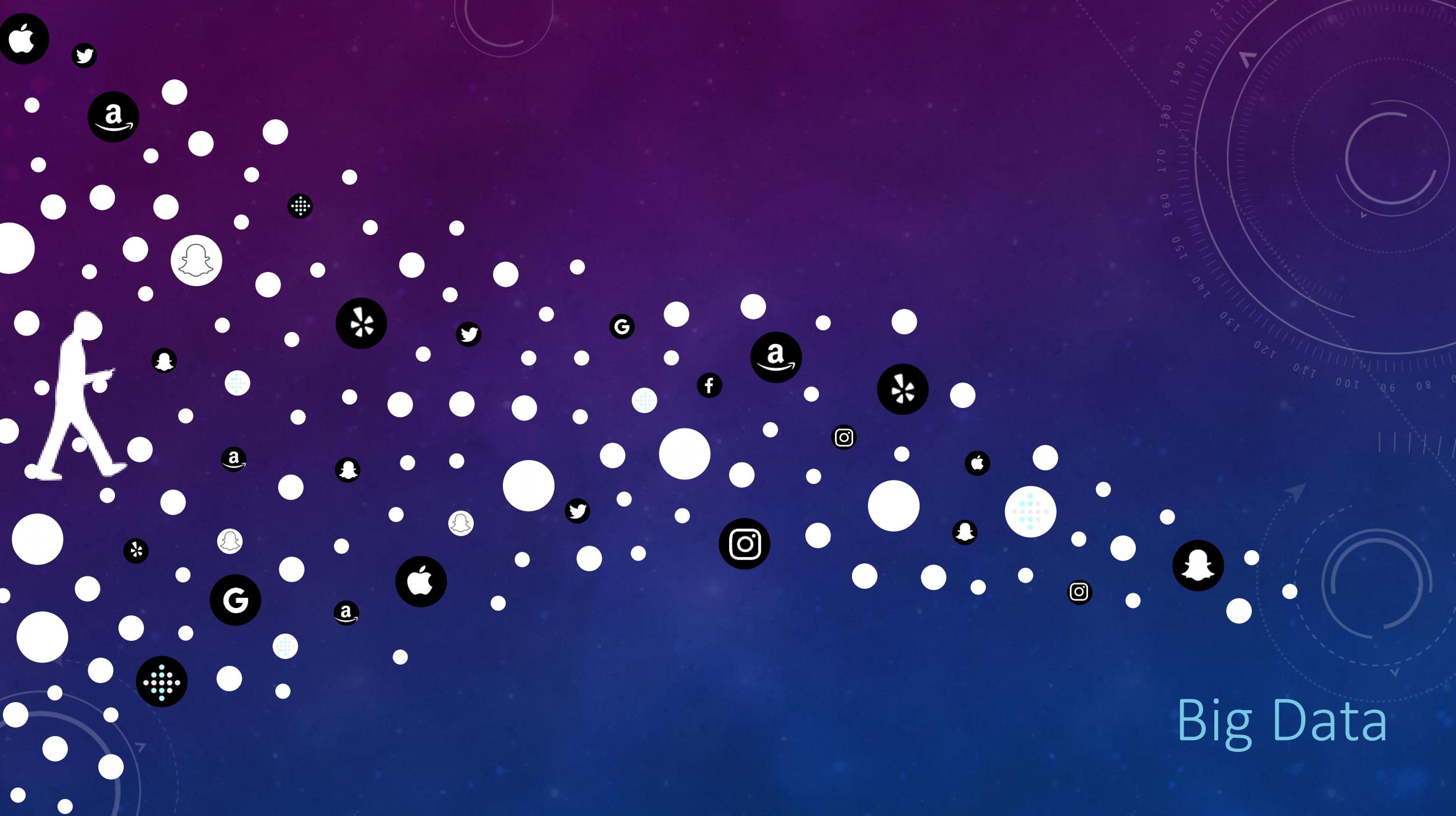




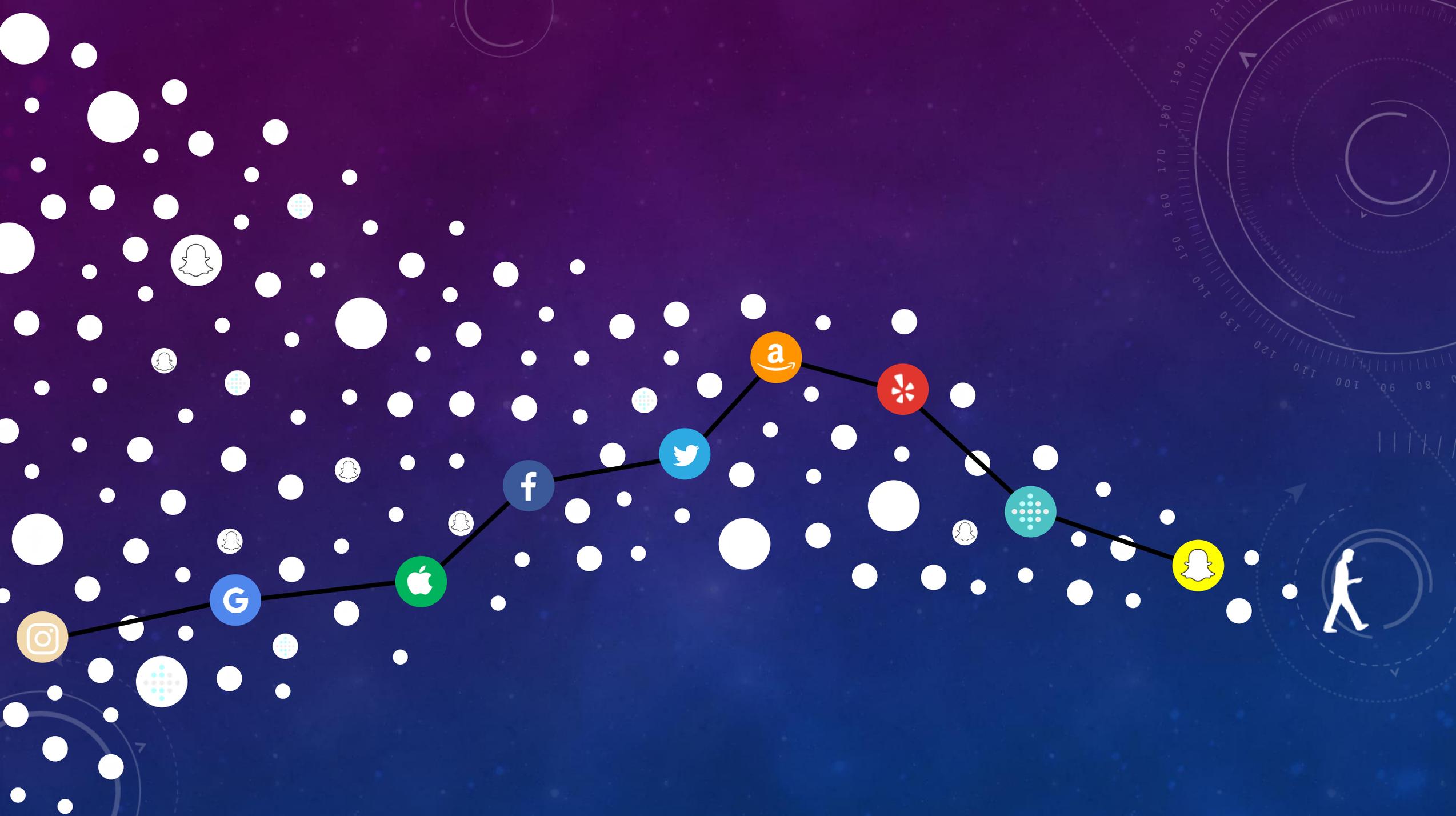
COMMUNITY OF PRACTICE SPACE 4 HEALTH



Big Data



Meaningful health data amid noise



Digital signal detection

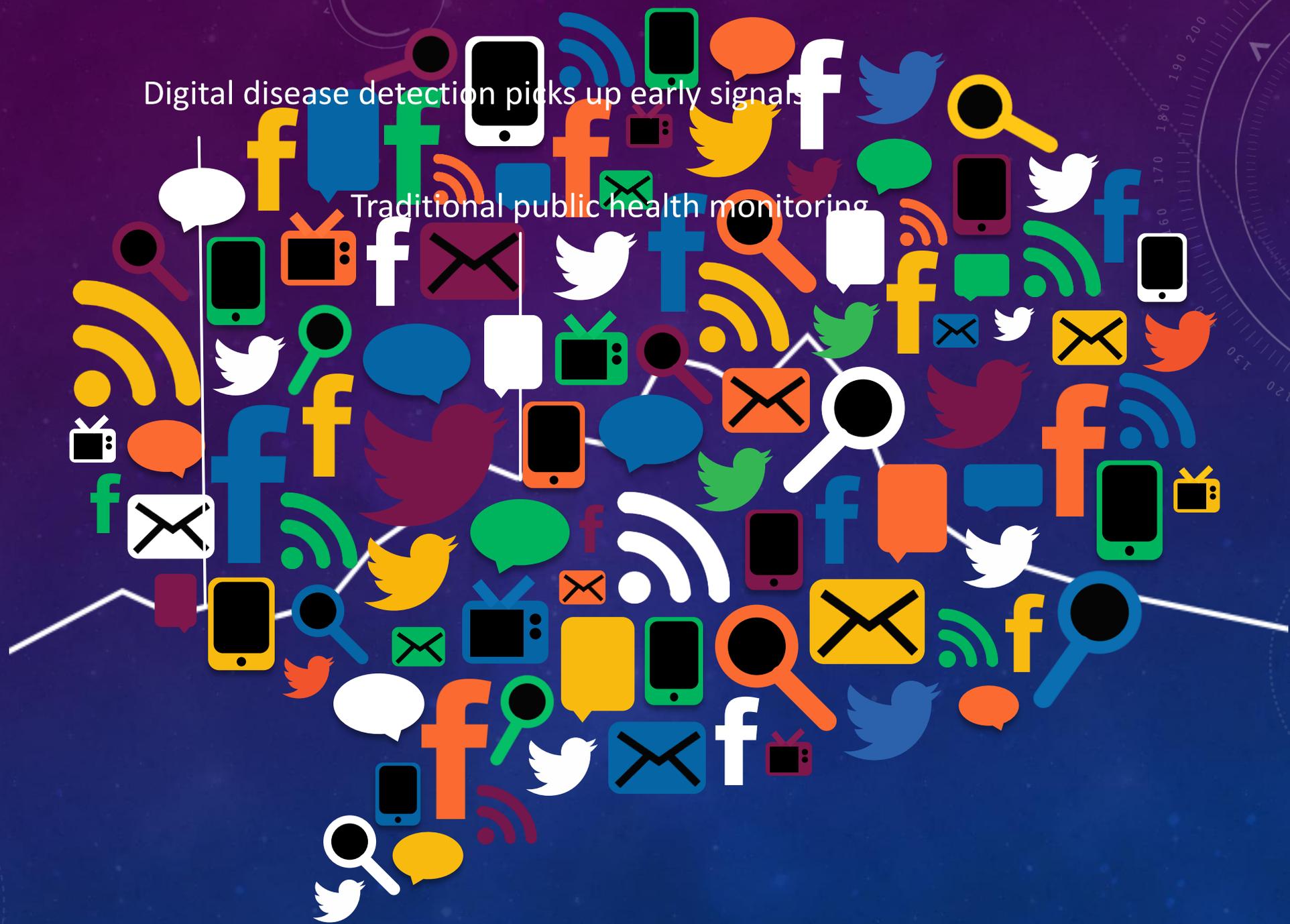
Traditional public health surveillance



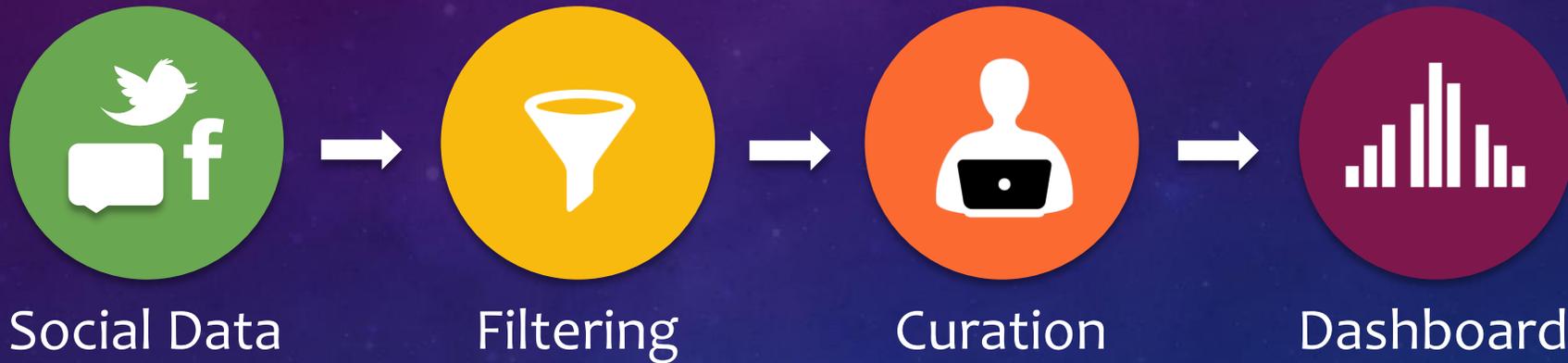


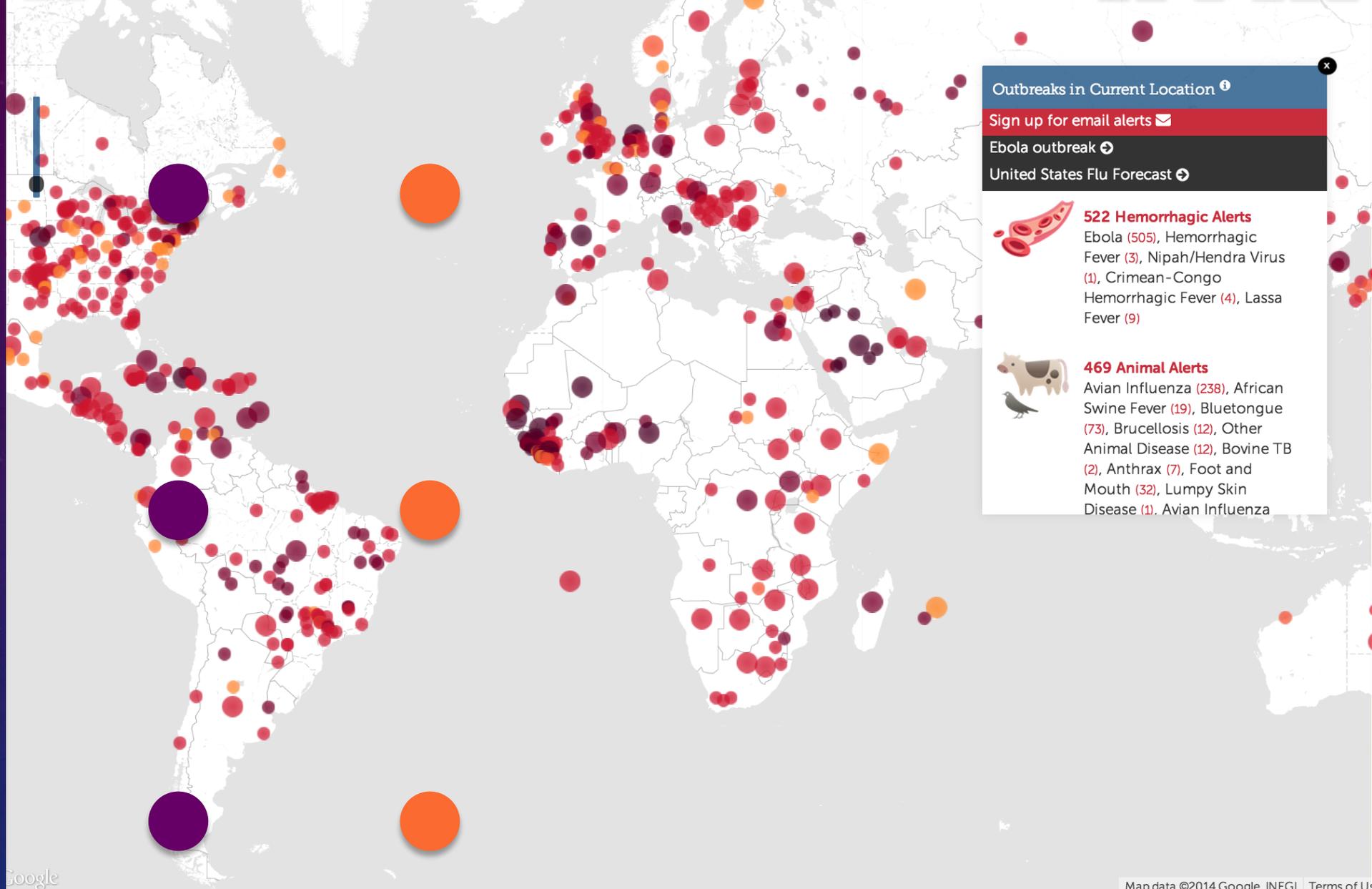
Digital disease detection picks up early signals

Traditional public health monitoring



DATA FLOW





Outbreaks in Current Location ⓘ

Sign up for email alerts ✉

Ebola outbreak ↻

United States Flu Forecast ↻

522 Hemorrhagic Alerts
Ebola (505), Hemorrhagic Fever (3), Nipah/Hendra Virus (1), Crimean-Congo Hemorrhagic Fever (4), Lassa Fever (9)

469 Animal Alerts
Avian Influenza (238), African Swine Fever (19), Bluetongue (73), Brucellosis (12), Other Animal Disease (12), Bovine TB (2), Anthrax (7), Foot and Mouth (32), Lumpy Skin Disease (1), Avian Influenza



TIME
IN PARTNERSHIP WITH **CNN**

Wednesday, Sep. 09, 2009

Is a Swine Flu Outbreak Coming? Ask Your iPhone

By Bryan Walsh



The NEW ENGLAND JOURNAL of MEDICINE

HOME

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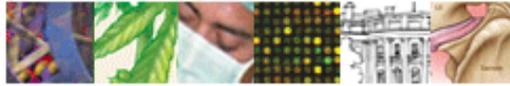
ISSUES



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For Authors

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Perspective

Digital Disease Detection Health Surveillance

John S. Brownstein, Ph.D., Clark C. Freifeld, B.S. N Engl J Med 2009; 360:2153-2157 | May 21, 2009

OPEN ACCESS

HEALTH IN ACTION

Surveillance Sans Frontières: Internet-Based Emerging Infectious Disease Intelligence and the HealthMap Project

John S Brownstein, Clark C Freifeld, Ben Y Reis, Kenneth D Mandl

Published: July 08, 2008 • DOI: 10.1371/journal.pmed.0050151

plos.org

15,955

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nature

International weekly journal of science

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Emerging fungal threats to animal, plant and ecosystem health

Matthew C. Fisher, Daniel A. Henk, Cheryl J. Briggs, John S. Brownstein, Lawrence Madoff, Sarah L. McCraw & Sarah J. Gurr

Pediatrics, 2013 Jul;132(1):18-27. doi: 10.1542/peds.2012-2978. Epub 2013 Jun 3.

Adult prescription drug use and pediatric medication exposures and poisonings.

Burghardt LC, Avers JW, Brownstein JS, Bronstein AC, Ewald MB, Bourgeois F

Author information

PEDIATRICS

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Abstract

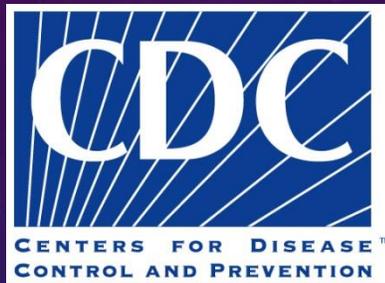
BACKGROUND AND OBJECTIVES: Nontherapeutic medication ingestion and poisonings despite a number of public health interventions. It is unknown how changes in adult prescription drug use relate to pediatric medication poisonings. The objective of the study was to measure the association between changing adult prescription drug patterns and pediatric medication exposures and poisonings and identify high-risk classes of medications and pediatric age groups.

METHODS: We measured monthly pediatric exposures and poisonings using the National Poison Data System and prescriptions written for adults using the National Ambulatory Medical Care Surveys for 2000 through 2009. Associations between adult prescriptions for oral hypoglycemics, antihyperlipidemics, β -blockers, and opioids and exposures and poisonings among children 0 to 5, 6 to 12, and 13 to 19 years were analyzed by using multiple time-series analysis. Emergency department visits, serious injuries, and hospitalizations stemming from these associations were described.

RESULTS: Adult medication prescriptions were statistically significantly associated with exposures and poisonings in children of all ages, with the strongest association observed for opioids. Across medications, the greatest risk was among children 0 to 5 years old, followed by 13- to 19-year-olds. Rates of emergency department visits were highest for events related to hypoglycemics (60.1%) and β -blockers (59.7%), whereas serious injuries and hospitalizations occurred most frequently with opioids (26.8% and 35.2%, respectively) and hypoglycemics (19.5% and 49.4%, respectively).

CONCLUSIONS: Increasing adult drug prescriptions are strongly associated with rising pediatric exposures and poisonings, particularly for opioids and among children 0 to 5 years old. These associations have sizable impacts, including high rates of serious injury and health care use.

HEALTHMAP IS NOW A GOLD STANDARD FOR DIGITAL DISEASE DETECTION



INTERNATIONAL HEALTH REGULATIONS (IHR)

– from policy to people's health security

What are the IHR?

The IHR are legally binding and help countries work together to protect lives threatened by the spread of diseases and other health risks, including radiation and chemical hazards



5 reasons why the IHR matter



HEALTH THREATS HAVE NO BORDERS

The IHR strengthen countries' abilities to control diseases that cross borders at ports, airports and ground crossings



TRAVEL AND TRADE ARE MADE SAFER

The IHR promote trade and tourism in countries and prevent economic damage



GLOBAL HEALTH SECURITY IS ENHANCED

The IHR establish an early warning system not only for diseases but for anything that threatens human health and livelihoods



DAILY THREATS ARE KEPT UNDER CONTROL

The IHR guide countries to detect, assess and respond to threats and inform other countries quickly



ALL SECTORS BENEFIT

The IHR prepare all sectors for potential emergencies through coordination and information sharing



World Health
Organization

REGIONAL OFFICE FOR
Europe

Until all sectors are on board with the IHR, no country is ready

www.euro.who.int/ihr

H1N1 2009



The NEW ENGLAND
JOURNAL of MEDICINE



Influenza A (H1N1) Reports

Source

- Informal Sources (Media)
 Official Sources (ie: CDC, WHO)

[All HealthMap Sources >>](#)

Category

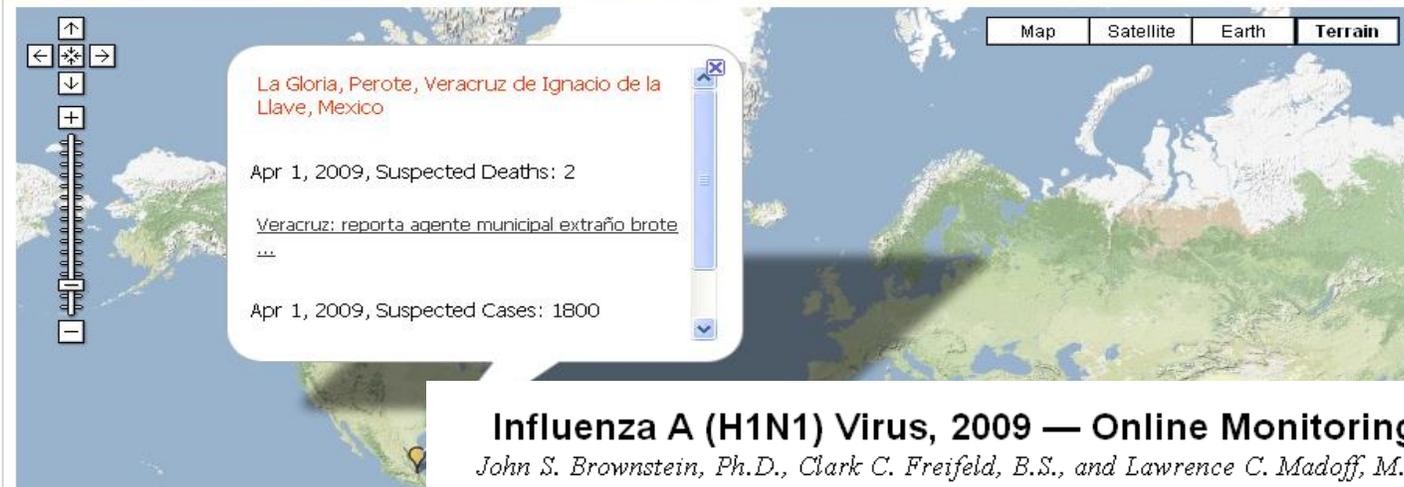
- Ruled Out
 Suspected Cases
 Suspected Deaths
 Confirmed Cases
 Confirmed Deaths

Zoom to country

[Mexico](#)

Zoom to: [N. America](#) [S. America](#) [Europe](#) [Africa](#) [Mideast](#) [Asia](#) [Australia](#) [World](#)

[Full Screen](#)



Influenza A (H1N1) Virus, 2009 — Online Monitoring
John S. Brownstein, Ph.D., Clark C. Freifeld, B.S., and Lawrence C. Madoff, M.D.

La Jornada

[Portada](#) [Edición impresa](#) [Especiales](#) [Multimedia](#) [Servicios](#) [Escríbanos](#)

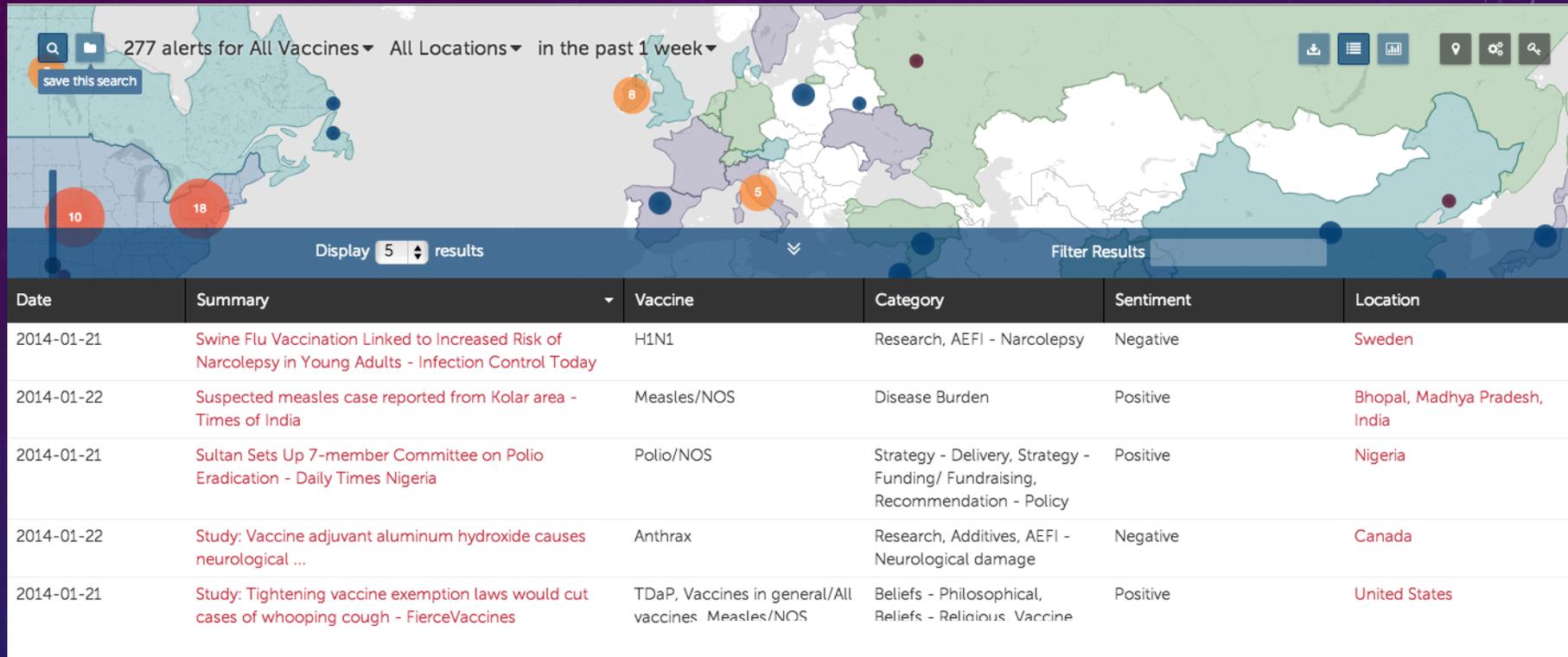
Usted está aquí: [Portada](#) → [2009](#) → [04](#) → [01](#) → Veracruz: reporta agente municipal extraño brote epidémico que ha cobrado dos vidas

Veracruz: reporta agente municipal extraño brote epidémico que ha cobrado dos vidas

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[Imprimir esta página](#)

La funcionaria de La Gloria informó que el raro padecimiento ha afectado a 60 por ciento de sus tres mil habitantes con infecciones respiratorias.

MONITORING POLIO VACCINE SENTIMENT



Showing 46 to 50 of 277 results

THE LANCET Infectious Diseases

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The Lancet Infectious Diseases, Early Online Publication, 13 May 2013
doi:10.1016/S1473-3099(13)70108-7 [Cite or Link Using DOI](#)

This article can be found in the following collections: [Public Health](#); [Infectious Diseases \(Immunisation & vaccination\)](#)

Measuring vaccine confidence: analysis of data obtained by a media surveillance system used to analyse public concerns about vaccines

Dr [Heidi J Larson](#) PhD ^{a b} , [David MD Smith](#) DPhil ^a, [Pauline Paterson](#) PhD ^a, [Melissa Cumming](#) MS ^c, [Elisabeth Eckersberger](#) MPA ^a, [Clark C Freifeld](#) MS ^{d e}, [Isaac Ghinai](#) BSc ^a, [Caitlin Jarrett](#) MPH ^a, [Louisa Paushter](#) MPH ^c, [John S Brownstein](#) PhD ^{d f}, Prof [Lawrence C Madoff](#) MD ^{c g}

CONFID

EBOLA 2014

THE LANCET Infectious Diseases



Map data ©2014 Google, Maps GISrael, ORION-ME based on BGN IGN

August 27

Guinea	607 cases	406 deaths	Sierra Leone	910 cases	392 deaths
Liberia	1082 cases	624 deaths	Nigeria	16 cases	5 deaths

* suspected case and death counts from WHO

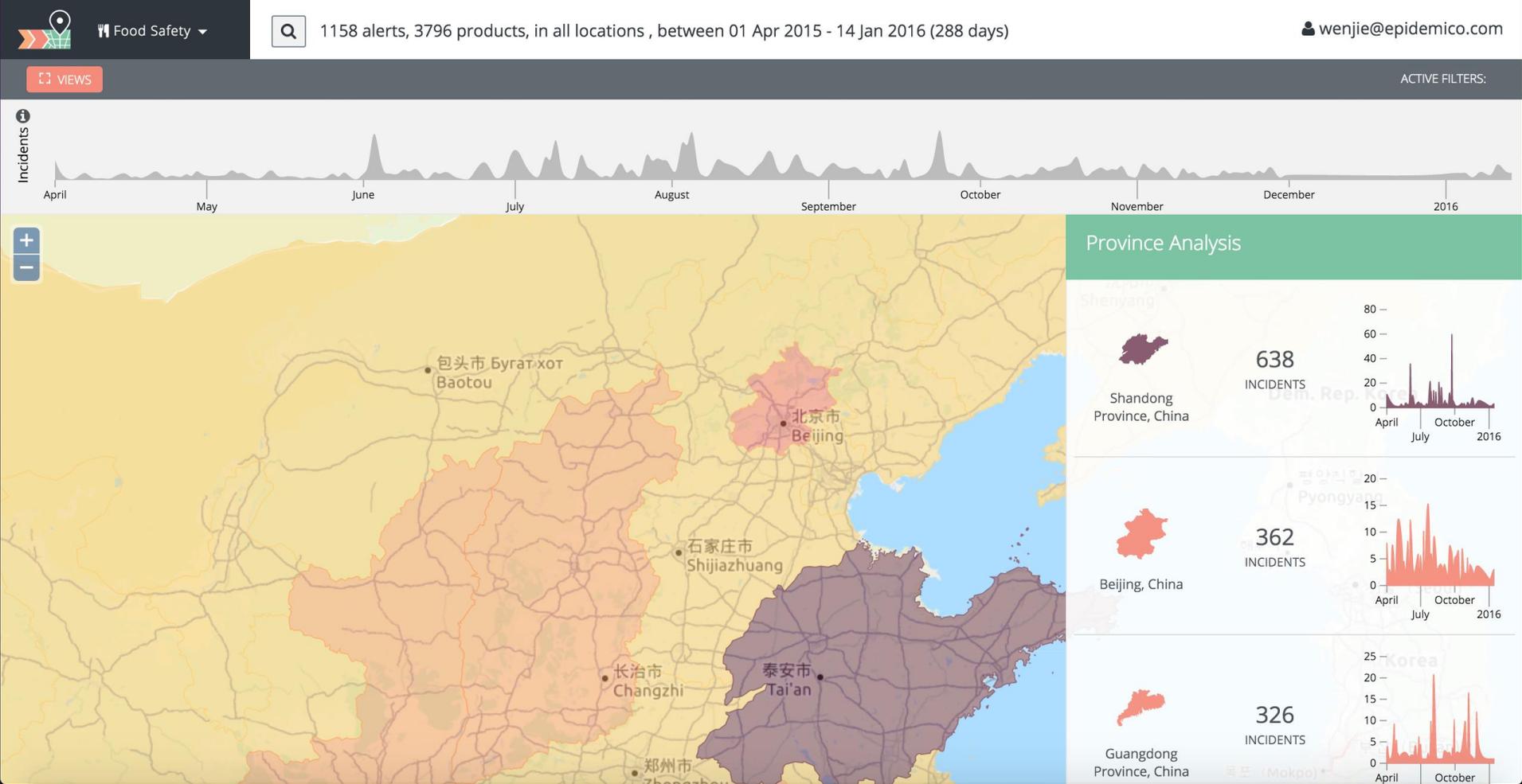
Death toll in Congo Ebola outbreak reaches 13 - ITV News

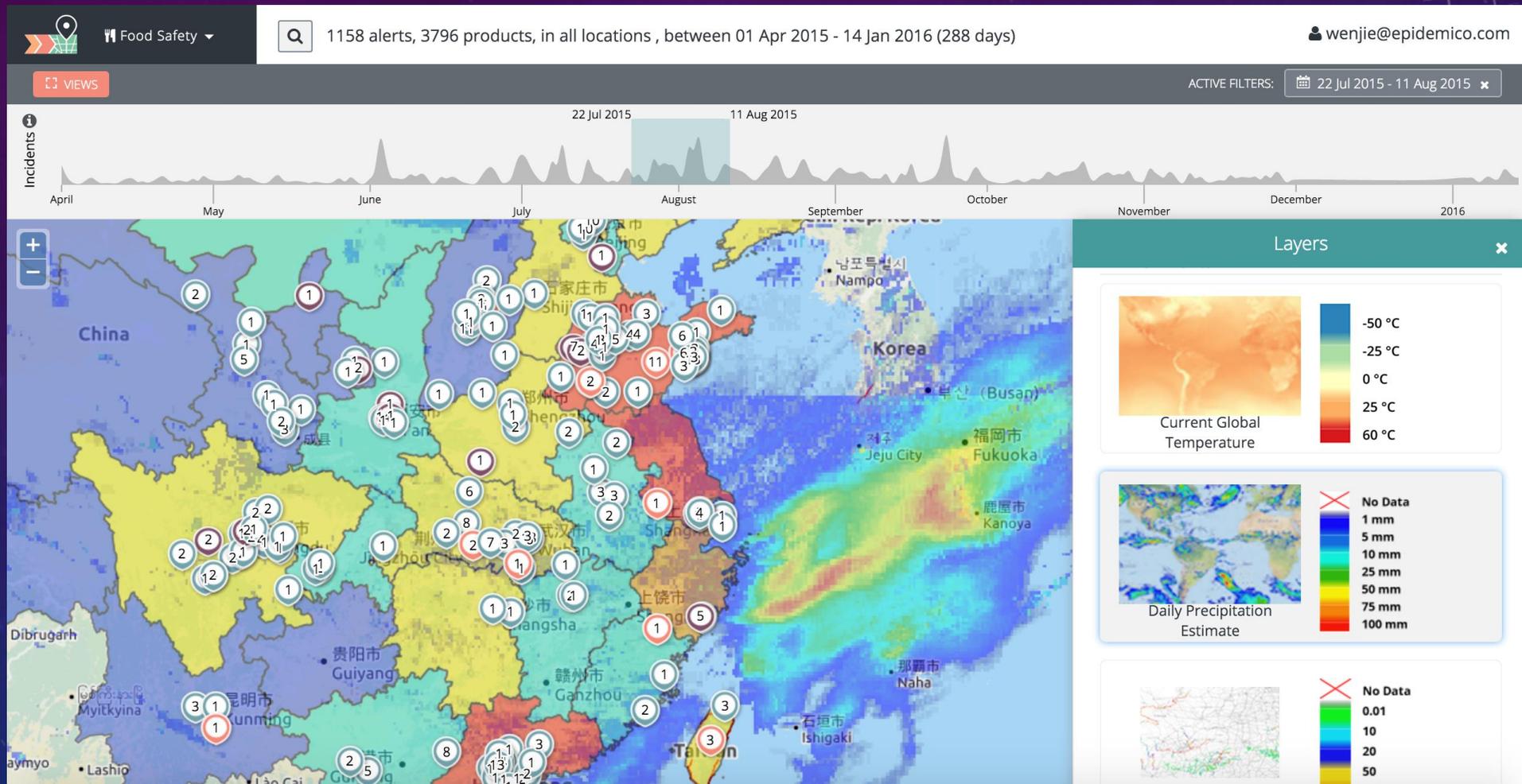
- * A total of 13 people, including five health workers, have now died from Ebola in the Democratic Republic of Congo, according to a report by the UN. The government has said it will be quarantining the area around the province of Equateur, where a high number of suspected cases has been reported.

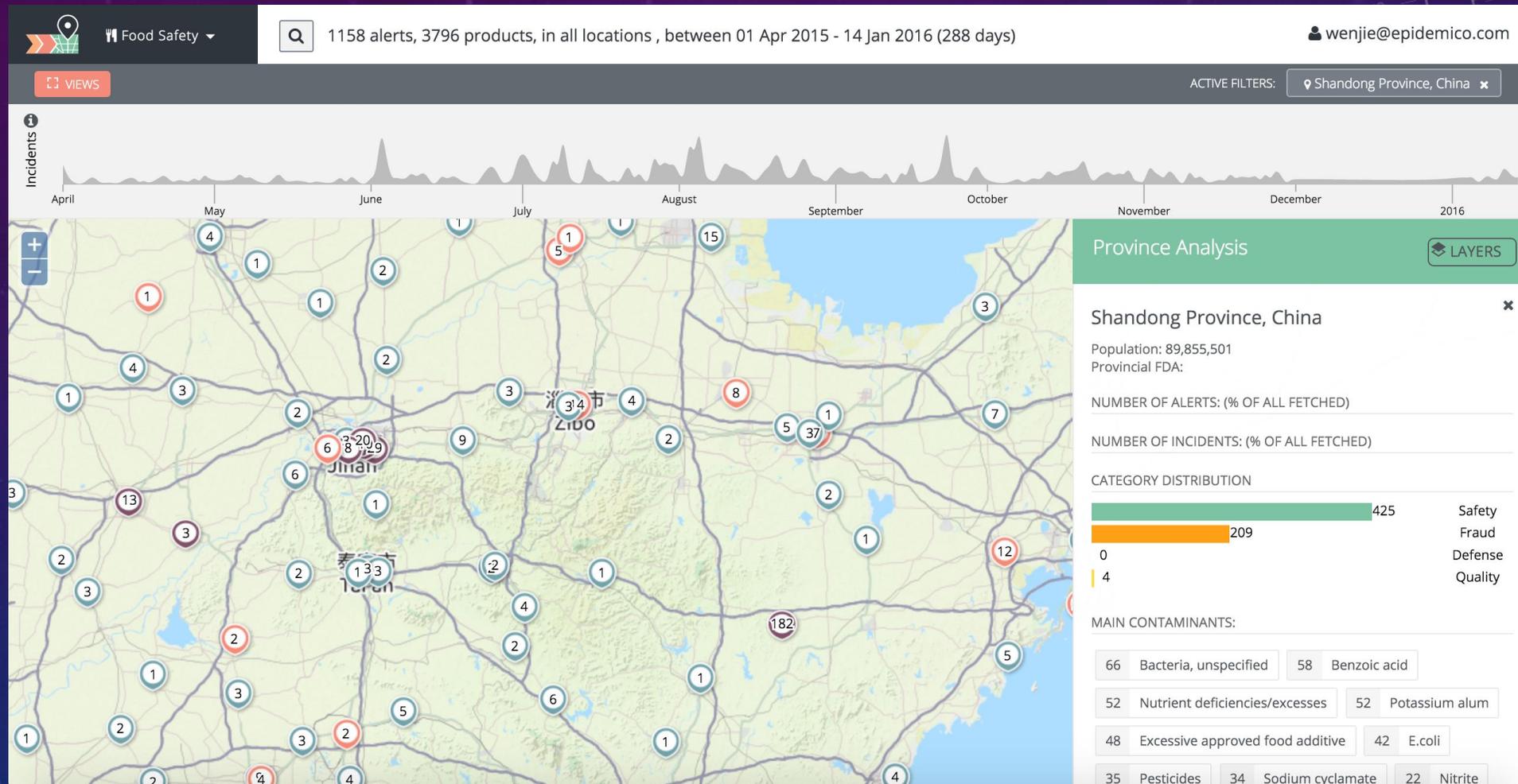


2014 Ebola Outbreak

SupplyChainMap









1 NO POVERTY



2 ZERO HUNGER



3 GOOD HEALTH AND WELL-BEING



4 QUALITY EDUCATION



5 GENDER EQUALITY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



17 PARTNERSHIPS FOR THE GOALS



SUSTAINABLE DEVELOPMENT GOALS

8 DECENT WORK AND ECONOMIC GROWTH



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



15 LIFE ON LAND



14 LIFE BELOW WATER



13 CLIMATE ACTION



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



11 SUSTAINABLE CITIES AND COMMUNITIES



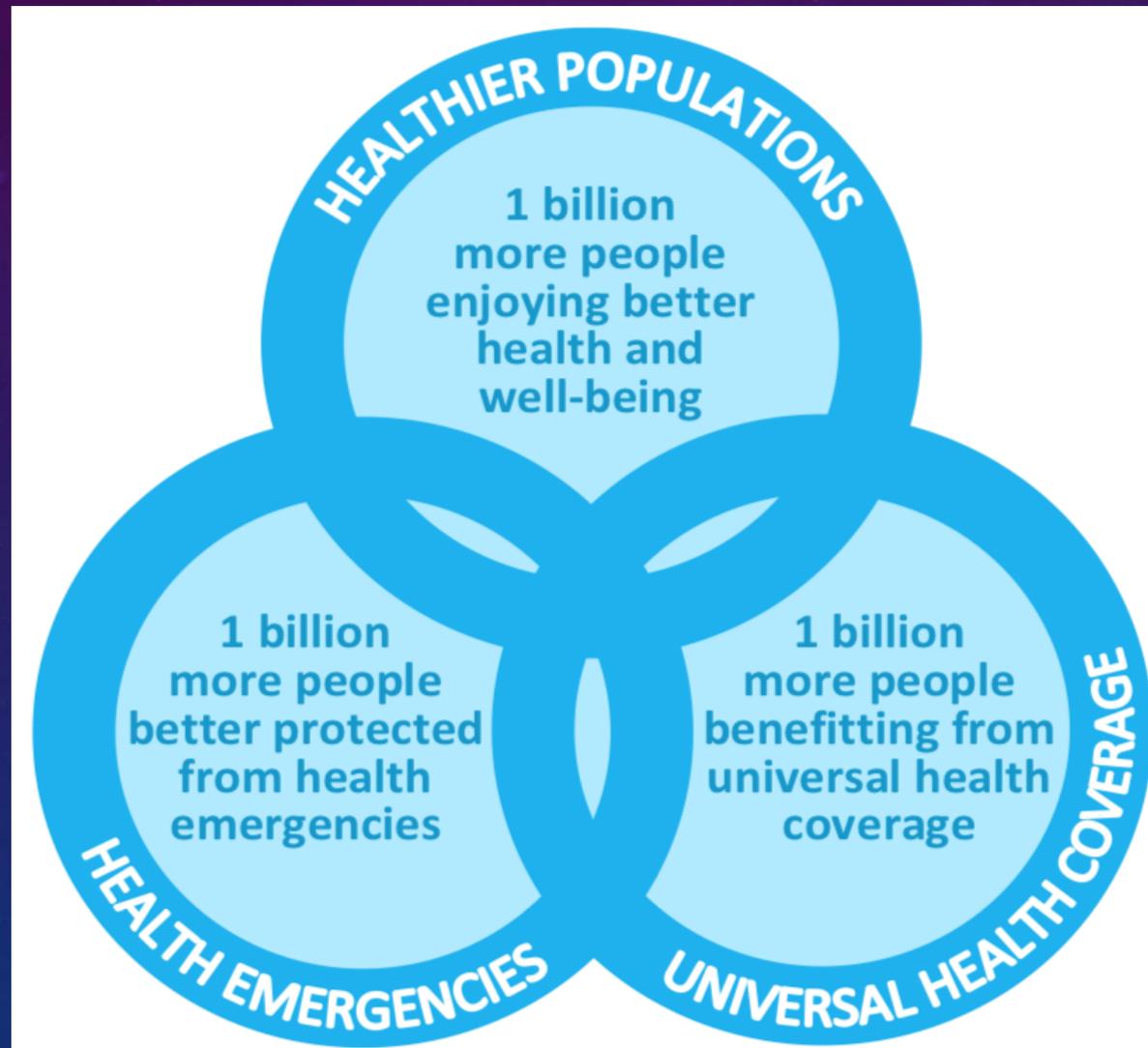
10 REDUCED INEQUALITIES



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



WHO: TRIPLE BILLION STRATEGIC PRIORITIES, 2019- 2023



COMMUNITY OF PRACTICE

Expert Focus Group - Space & Global Health

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Home

Objectives and Structure

News

People & Institutions

Open Community Approach

Recommendations (Topics)

Events - Meetings

Video Presentations

Get Involved...

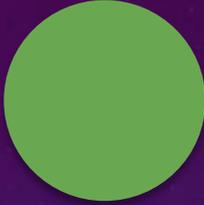
FAQ & Feedback Summary

One Health & Space

Based on the [AT6 & AT6FUI background](#) the initiative has [>>One Health Risk Mitigation](#) as objective with application of the [Open Community Approach](#).

[Explore EFG-SGH](#)





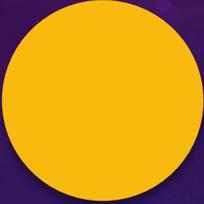
Universities: Academics, students



USERS



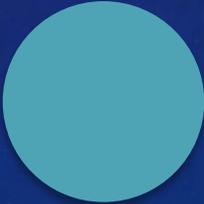
UN Agencies:
WHO, UNICEF,
UNHRC, UNISDR



Engaged Citizens:
Space Generation Advisory Council
Citizen scientists
Healthcare practitioners
Social entrepreneurs



Member States,
Ministries of Health



NGOs: ICRC, MSF,
Red Cross, Red Crescent

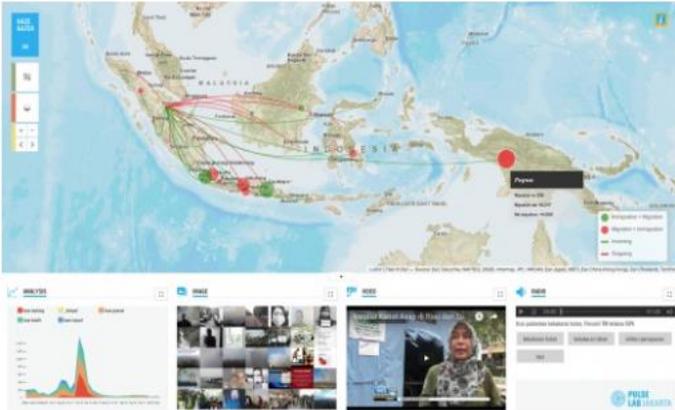
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Objectives:

- Learning and iteration
- Capacity building
- Evidence generation
- Knowledge sharing
- Partnership building
- Multi-sectoral collaboration

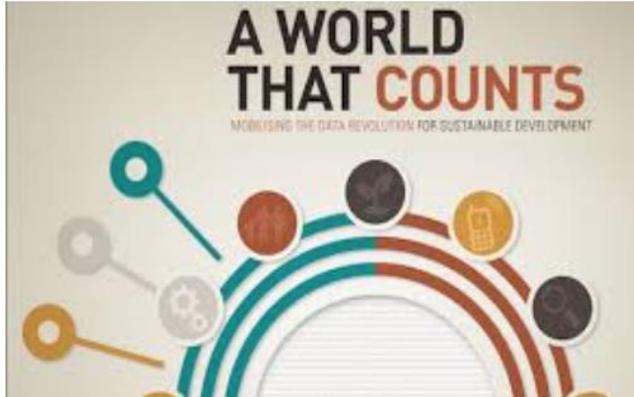
COMMUNITY OF PRACTICE

Outputs:



Data Innovation Project and Tool Briefs
Learn about the projects and tools completed or ongoing with partners.

Case studies, Open Educational Resources (OERs), Open Source Software



Reports
UN Global Pulse produces a number of reports on big data and innovation projects every year

Official UN and government Reports & Policies



Scientific and Technical Publications
A compendium of scientific publications authored and co-authored

Open-Access peer-reviewed & technical publications

LIVING LABS



UNITED NATIONS TECHNOLOGY INNOVATION LABS

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UNTIL Lab Locations



The global UNTIL network is currently planning to start multiple collaborative projects to help the member UN mandate areas in development, human rights, and peace and security. The first UNTIL lab is located in

UNTIL Finland | Espoo



UNLEASH - A global innovation lab for the SDGs

UNLEASH is a global innovation lab, which gathers 1,000 talent annually to collaborate on solutions to meet the United Nations Sustainable Development Goals. UNLEASH has taken place in both Denmark and in Singapore and will travel to a new destination every year.

[Learn more about UNLEASH 2018](#)

COMMUNITY OF PRACTICE

Technology Stack:

- Blends web-based and crowd-sourced open data
- Integrates geospatial, environmental, epidemiological, financial, health, and nutrition data
- Low-cost, easily adaptable to local and regional requirements
- Country-specific, privacy-protected data under full technology control of Member States

SITUATIONAL DATA:
Space technology data

TRANSPORTATION

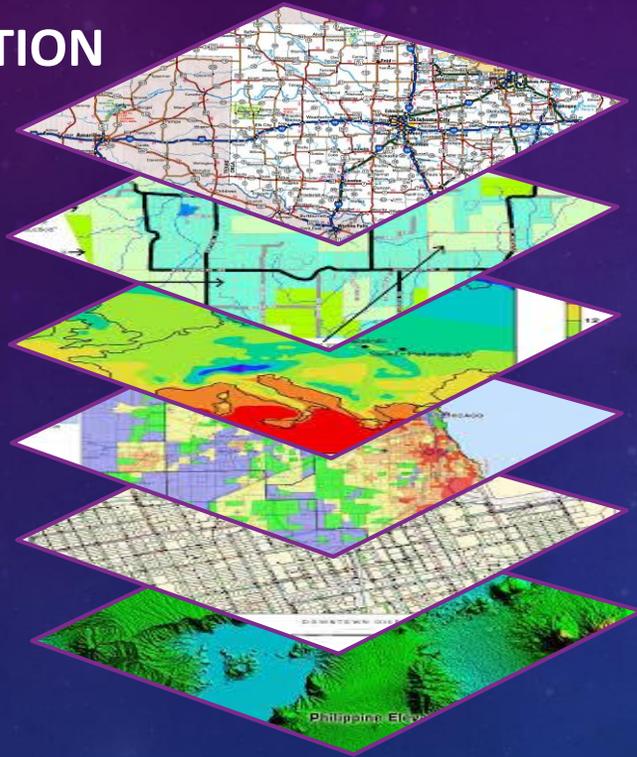
SOCIO-DEMO

CLIMATE

CENSUS

STRUCTURES

GEO



INDIVIDUAL DATA:
Anonymized, aggregated health data

IoT

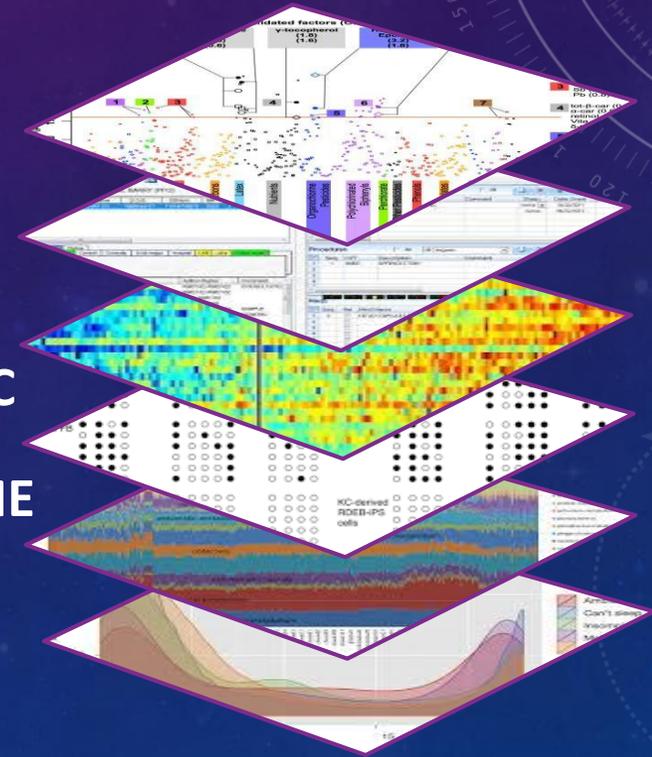
EMR

GENOME

EPIGENOMIC

MICROBIOME

INSURANCE



OPEN SOURCE INFRASTRUCTURE

- Open Source Disaster Management Software



Sahana Foundation

Open Source Disaster Management Solutions

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Open Source Disaster Management Software

Making high quality information management systems for emergency preparedness, response, recovery and resilience-building accessible to all.

- Open Geo Data



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This portal provides technical information on the Sentinel missions. [Read more](#) about what S...
Information about Copernicus contributing missions are instead available in the [Copernicus Access Portal](#).

SENTINEL-1 MISSION STATUS REPORT

The Sentinel-1 status report provides weekly updates regarding Mission Status, Satellite, Ground Segment and Mission Outlook.

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NASA Landsat Science

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Thu, 07 Feb 2019
 - Sharp Bends Make Rivers Meander, As Landsat Attests**
Wed, 06 Feb 2019
 - New Research Shows Significant Decline of Glaciers in Western North America**
Wed, 30 Jan 2019
 - Antarctica Losing Six Times More**

Recent Imagery

The Landsat Program

This joint NASA/USGS program provides a space-based record of Earth's land resources and our environment. Landsat satellites provide essential data for land managers and policy makers to make informed decisions about our resources and our environment.

Loss of Intertidal Ecosystem Communities

The study used machine-learning to analyze 700,000 Landsat images to map changes in intertidal ecosystems.

• Humanitarian Crowd-Sourcing Tools

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CrisisMappers

THE HUMANITARIAN TECHNOLOGY NETWORK

■ **CRISIS MAPPERS IN THE 1**

 **OpenStreetMap** [Edit](#) [History](#) [Export](#)

 **ICT4 for peace foundation**

We are grateful to the **ICT4 Foundation** for hosting and supporting the network. Their pioneering output & work in crisis mapping, over many years, is also with the United Nations and can be accessed [here](#).

Contributed hours to a C



Putting the World's Vulnerable People on the Map

Each year, disasters around the world kill nearly 100,000 and affect or displace 200 million people. Many of the places where these disasters occur are literally 'missing' from any map and first responders lack the information to make valuable decisions regarding relief efforts. Missing Maps is an open, collaborative project in which you can help to map areas where humanitarian organisations are trying to meet the needs of vulnerable people.

- Flexible information systems

 **healthsites.io** 
Building an open data commons of health facility data with OpenStreetMap

223277
healthsites
added

[edit the map](#)

[how it works](#)

Open Health News

The Voice for the Open Health Community

HOME

NEWS

CLIPPINGS

BLOGS

CALENDAR

HOME

District Health Information System 2 (DHIS2)

[District Health Information Software 2 \(DHIS2\)](#) is a free and open source health management data platform used by multiple organizations, including the [European Union \(EU\)](#), and governments worldwide. A total of 54 countries are deploying DHIS2 on a national scale, 30 of which are in the pilot stage or early phase in their rollouts. Since DHIS2's release in 2006, NGOs and national governments in 60 countries have deployed DHIS2 for health-related projects, including patient health monitoring, improving disease surveillance and pinpointing outbreaks, and speeding up health data access.

DHIS2 is an open source software platform developed by the [Health Information Systems Program \(HISP\)](#) and supported by the [University of Oslo's Department of Informatics](#). Although HISP initially focused on grassroots health committees and Community Information Systems in South African health districts, DHIS was quickly adopted for national implementation by South Africa and other African countries as was the web-based version, DHIS2, after its development in 2005-2006.

DHIS2 is used to aggregate statistical data collection, validation, analysis, management, and presentation. This [data analytics and management platform](#) is completely web-based and boasts great visualization features and the ability to create analysis from live



COP PARTNERSHIPS



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KNOWLEDGE PORTAL

Space-based information for Disaster Management and Emergency Response

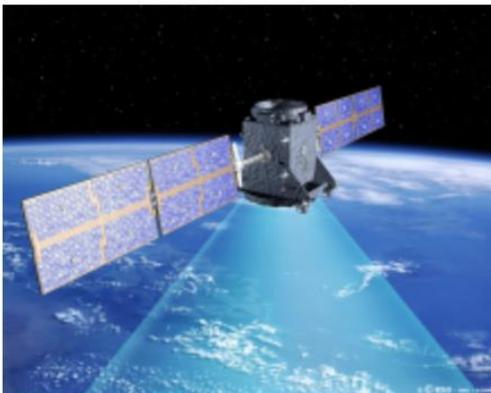
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Explore the Knowledge Portal

How can space technology be applied in disaster and risk management?



Where can I access satellite data, products and other resources?



Who are the users of space technology in disaster and risk management?



Which services can UN-SPIDER offer to Member States?



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UNITED NATIONS GLOBAL PULSE

Harnessing big data for development and humanitarian action

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2017 ANNUAL REPORT - UN GLOBAL PULSE

The 2017 Annual Report details exciting new explorations of big data and A.I. to advance the 2030 Agenda.

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HIGHLIGHTS FROM THE LABS

THE DATA FOR CLIMATE ACTION CHALLENGE

Global Pulse, Western Digital and the Skoll Global Threats Fund

11 companies donated data and tools
450 teams of data scientists from 87 countries
8 winning projects

THE STATE OF MOBILE DATA FOR SOCIAL GOOD

A publication by Global Pulse and GSMA

Identifies over 200 projects or studies leveraging mobile data for the SDGs

CYCLONON

Pulse Lab Jakarta

An analytics and visualization platform to monitor action before, during and after cyclones

27

27 academic papers produced by the Pulse Labs

Participation in 100+ conferences, events and workshops

70,000

Pulse Labs reached 70,000 followers on social media

DATA SCIENCE AFRICA

Pulse Lab Kampala

A workshop with 150 participants from 60 organizations
33 presentations and panel discussions held

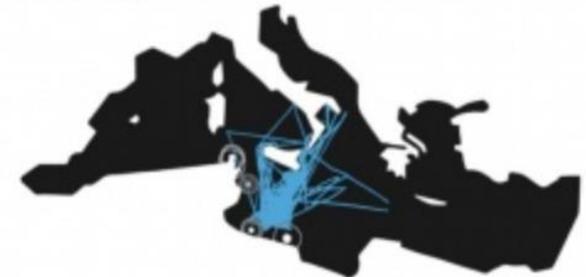
USING BIG DATA TO STUDY RESCUE PATTERNS IN THE MEDITERRANEAN

A project published in the Fatal Journeys Volume 3, an IOM annual global report

A GUIDANCE NOTE ON BIG DATA FOR SDGs, DATA PRIVACY, DATA PROTECTION AND ETHICS

Adopted by the United Nations Development Group

First policy guidance on big data and privacy endorsed by over 30 UN agencies



11

450

200

6

APIs + RSS

Aggregate all freely-
available, public APIs
& publications

10

Hackathons

6

UN official
languages

Space 4 Health: By 2020