# Make Measurement Matter for Human Development: Towards a Human AI

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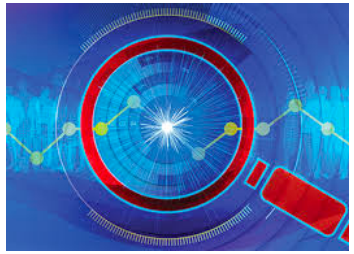
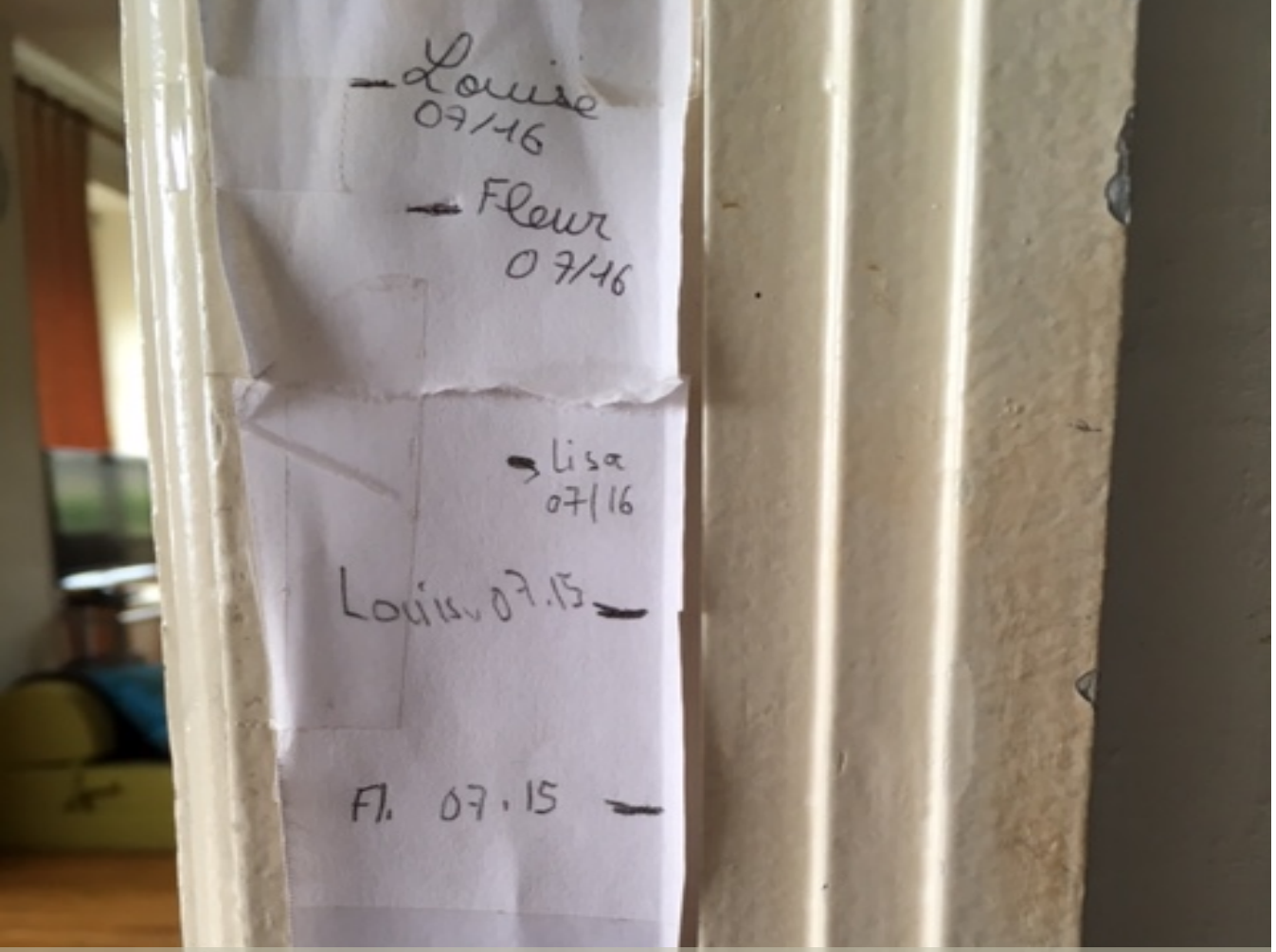
ITU 16th World Telecommunication and ICT Indicators Symposium:
Impact of telecommunications/ICTs and Emerging Technologies on Social and Economic Development

Geneva, December 10, 2018

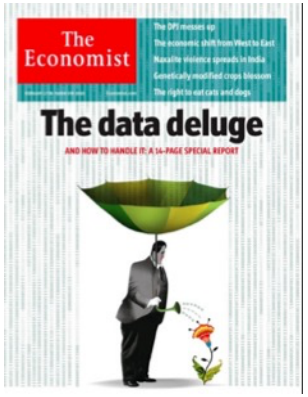




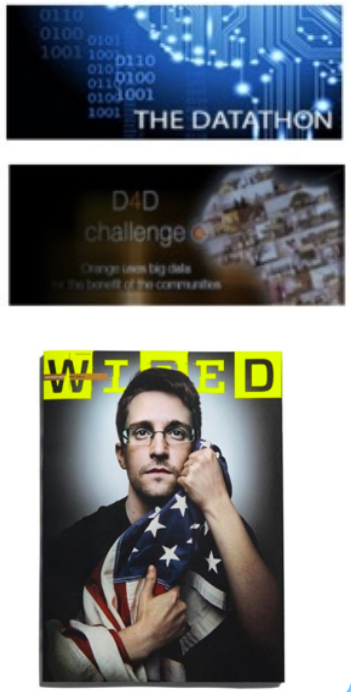

**Why do we measure our kids at home?**
**Are kids who get measured better off than those who don't? If so, why?**
**Why do we measure things?**
**How to make measurements matter?**

# A decade of Data Revolution, expectations, revelations, experimentations, controversies, questions…

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 ?

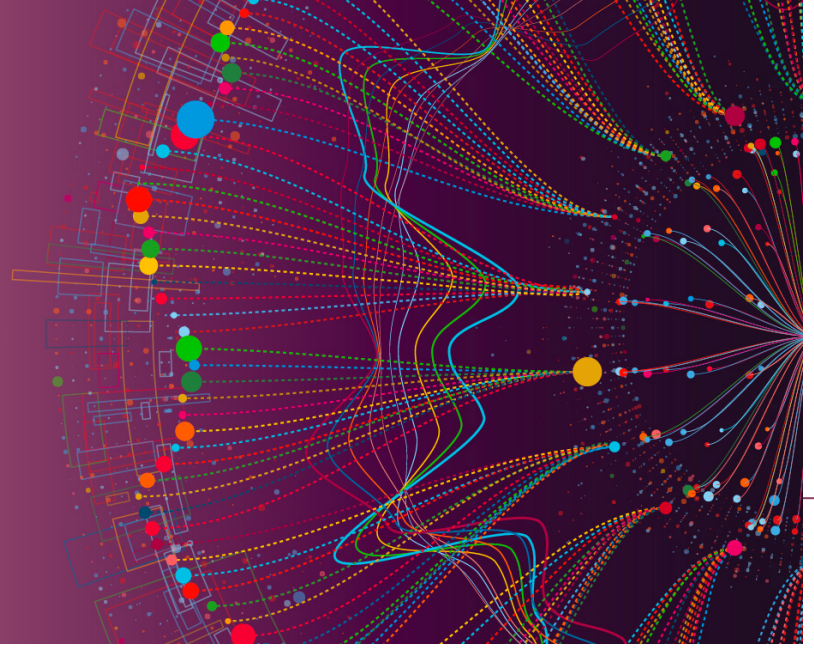



*"We are at the beginning of what I call The **Industrial Revolution of Data.**"*
Joe Hellerstein ,
Nov. 2008



ITU Journal
ICT Discoveries

ISSUE NO.2
Data for Good



ITU Journal: *ICT Discoveries*, Special Issue No. 2, 6 Dec. 2018

# TOWARDS A HUMAN ARTICIAL INTELLIGENCE FOR HUMAN DEVELOPMENT

Emmanuel Letouzé[1], Alex Pentland[2]
[1]Data-Pop Alliance, MIT Media Lab, and OPAL, [2]MIT and Data-Pop Alliance, and OPAL

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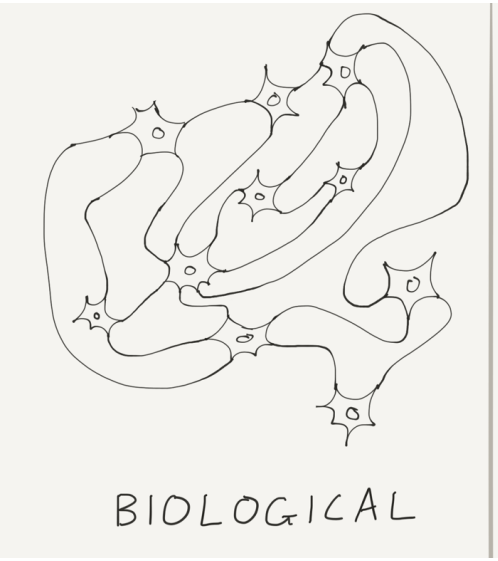
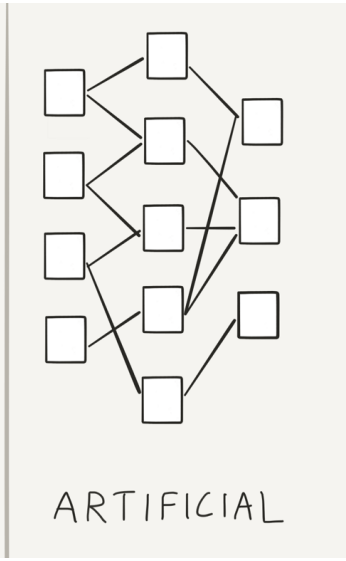
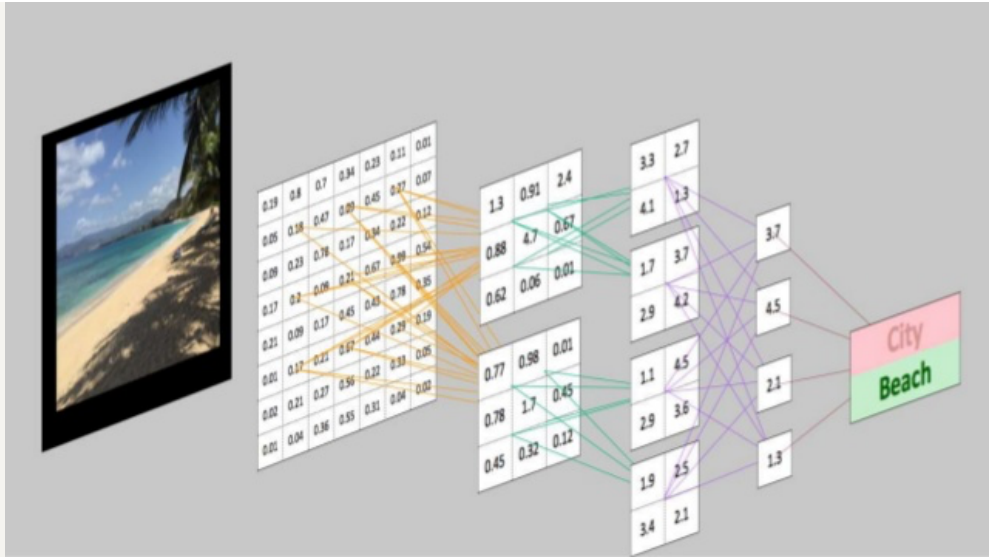
***Abstract*** *– This paper discusses the possibility of applying the key principles and tools of current artificial intelligence (AI) to design future human systems in ways that could make them more efficient, fair, responsive, and inclusive.*

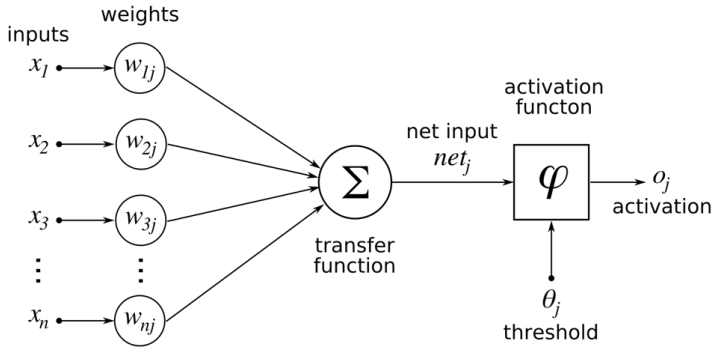
**Keywords** – Artificial intelligence, big data, human development, open algorithms, fourth industrial revolution

# From Big Data to IA: what can we learn?




*…it's neither new nor black magic…*

1. It is **at least 60+ years old**.
2. It still generalizes poorly. It has no sense of context. **It is still pretty stupid.**
3. We are **far from general AI**.
4. **Humans are still in control** (for better or worse).

*…but…*

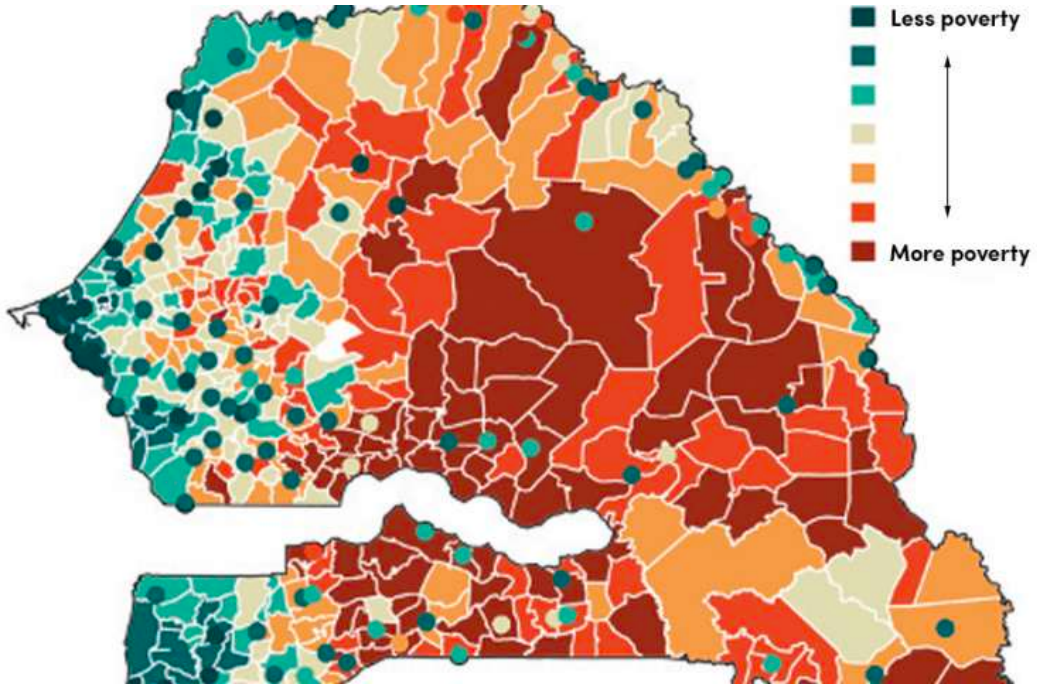
1. The **(good) magic / core of the current AI is the credit assignment function to encourage and reinforce neurons / functions that help** the most achieve the goal (and reverse if not).
2. The key **difference and is data. Big Data.**

# Scientific Prize and Ethics Mention: Construction of socio-demographic indicators with digital breadcrumbs

F. Bruckschen [1], T. Schmid [2], T. Zbiranski [1]

We show that socio-demographic indicators such as population, age, literacy, poverty, religion, ethnicity, electricity supply and others can be estimated in unprecedented detail and virtually ad-hoc using antenna-to antenna traffic data only. We offer a uniform approach that can be easily extended to other variables. Results are tested for spatio-temporal robustness and visualized as heat maps.

(1) Humboldt Universität Berlin, Germany - (2) Freie Universität Berlin, Germany




| Variable | Data |
|---|---|
| Caller ID | X76VG588RLPQ |
| Caller ID tower location | 2°24' 22.14" , 35°49' 56.54 |
| Recipient phone number | A81UTC93KK52A81UTC93KK52 |
| Recipient cell tower location | 3°26' 30.47", 31°12' 18:01" |
| Call time | 3013-11-07T15:15:00 |
| Call duration | 01:12:02 |

*Note: only the phone tower location is given for privacy reason.*
*Source: New primer on mobile phone network data for development. (UN Global Pulse, 5 November 2013)*

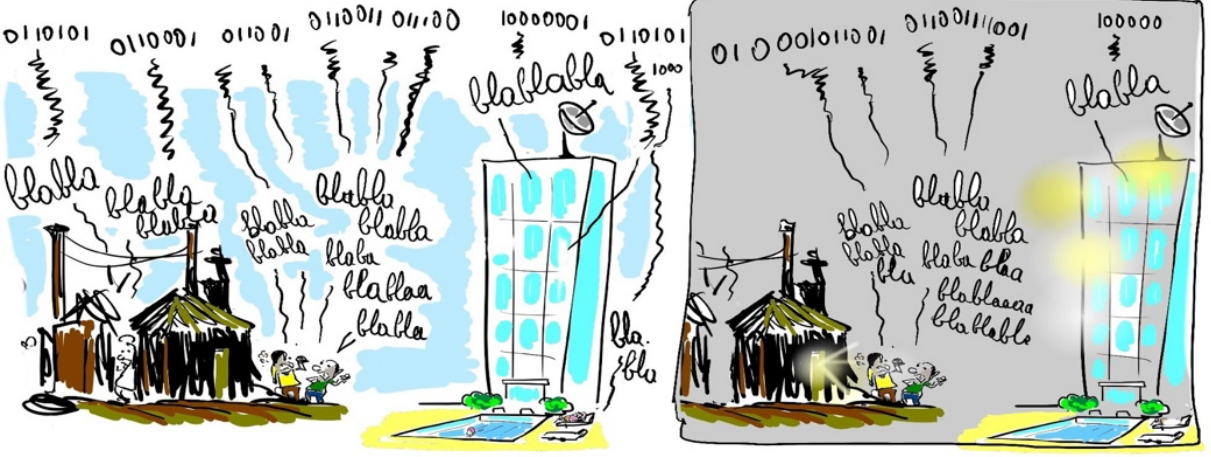
an illustred introduction to

# Predicting socioeconomic levels through cell-phone data

## Question:

## step ①

## step ②


blablabla
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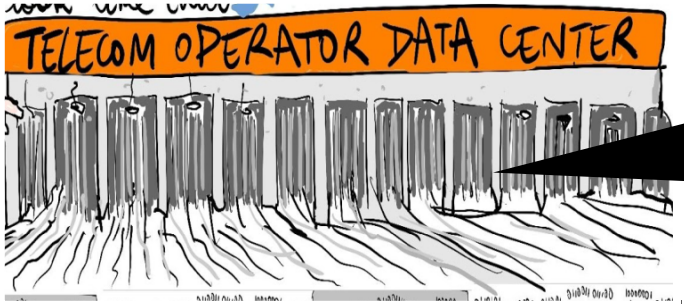
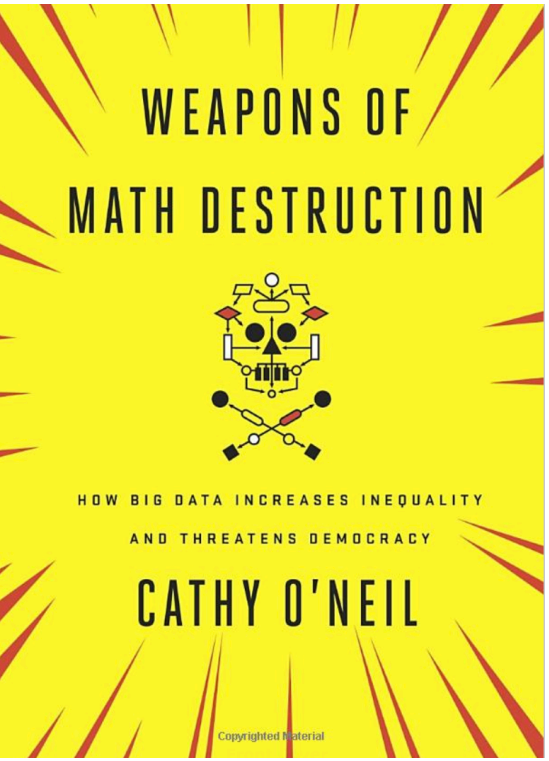
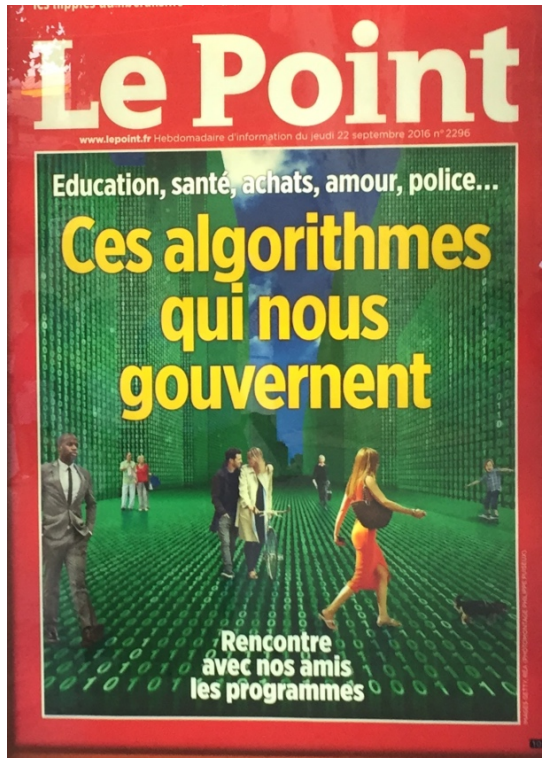
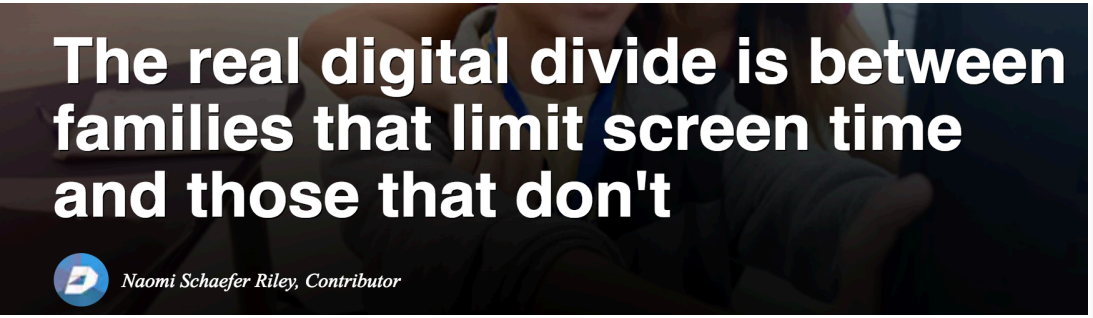
# Technology does have a dark side




*Data centers $CO_2$ emissions > entire airline industry*





# But we can’t give up on technology.

By Alex "Sandy" Pentland

## Saving Big Data from Itself

*Journal of Economic Perspectives—Volume 17, Number 4—Fall 2003—Pages 167–190*

## The Demographic Transition: Three Centuries of Fundamental Change

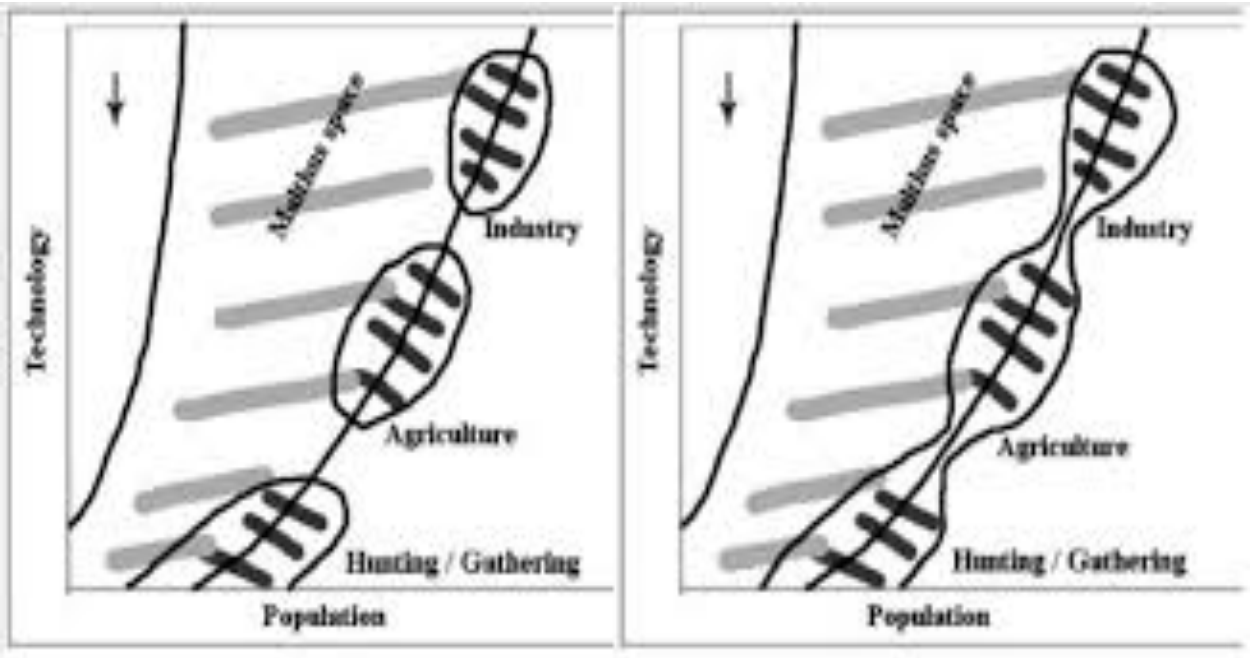
Ronald Lee

*Before the start of the demographic transition, life was short, births were many, growth was slow and the population was young.*

## Saving Big Data from Big Mouths

Those who would condemn big data ought to try making something

By Cesar A. Hidalgo | April 29, 2014




Ronald D. Lee: “Malthus and Boserup: A dynamic synthesis (1984)

# A positive vision: Towards “Human AI” ecologies

MIT Prof Alex ‘Sandy’ Pentland:

*“The big question that I'm asking myself these days is **how can we make a human artificial intelligence?** (…) I don't want to think small—people talk about robots and stuff—I want this to be global. (…)*
*What would happen if you had **a network of people where you could reinforce the ones that were helping** and maybe discourage the ones that weren't? **That begins to sound like a society** or a company”.*

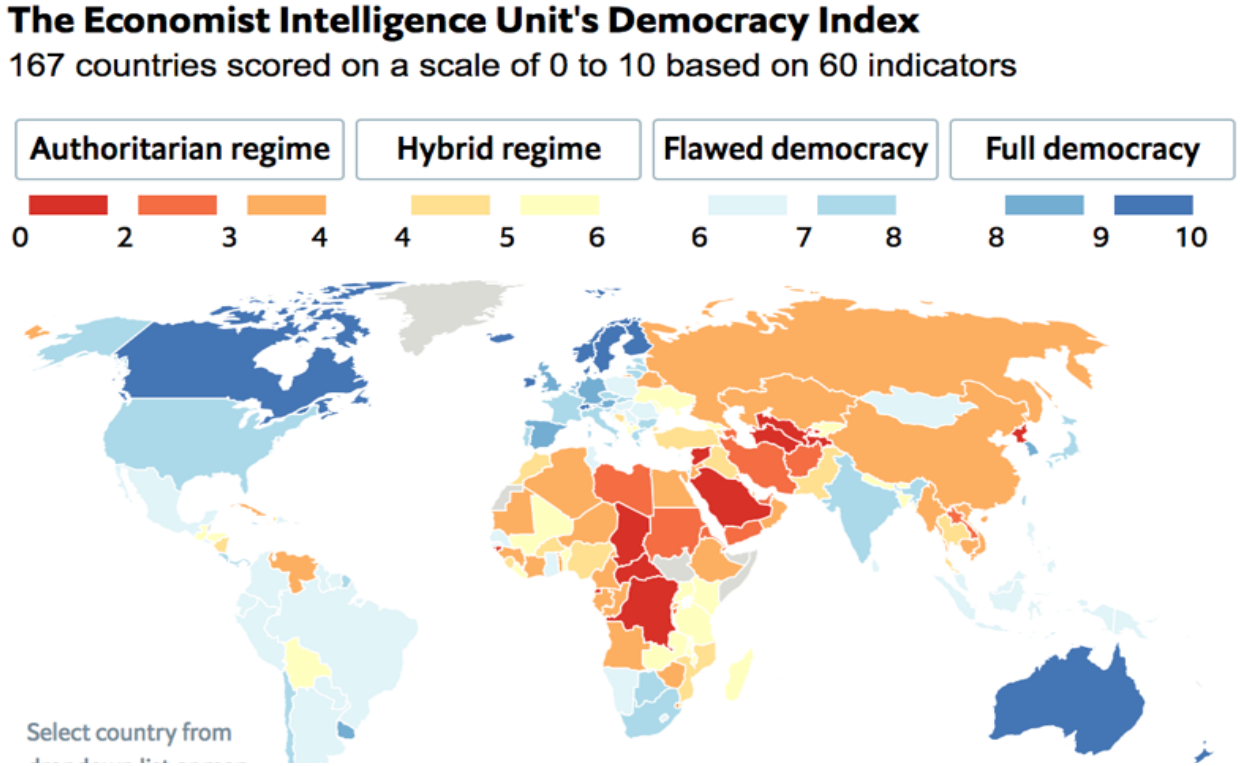
**The Human Strategy**. *www.thehumanstrategy.mit.edu*

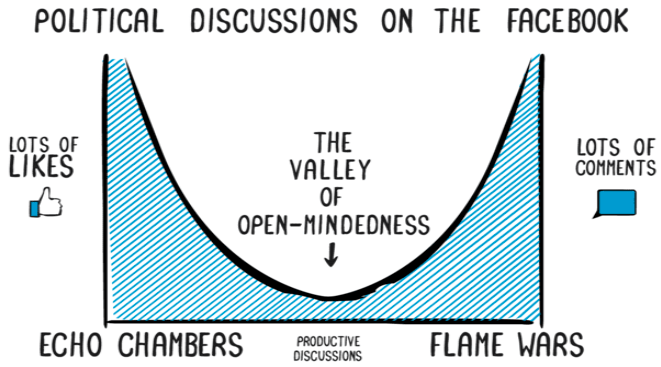
mit media lab

# Main challenges to a Human AI

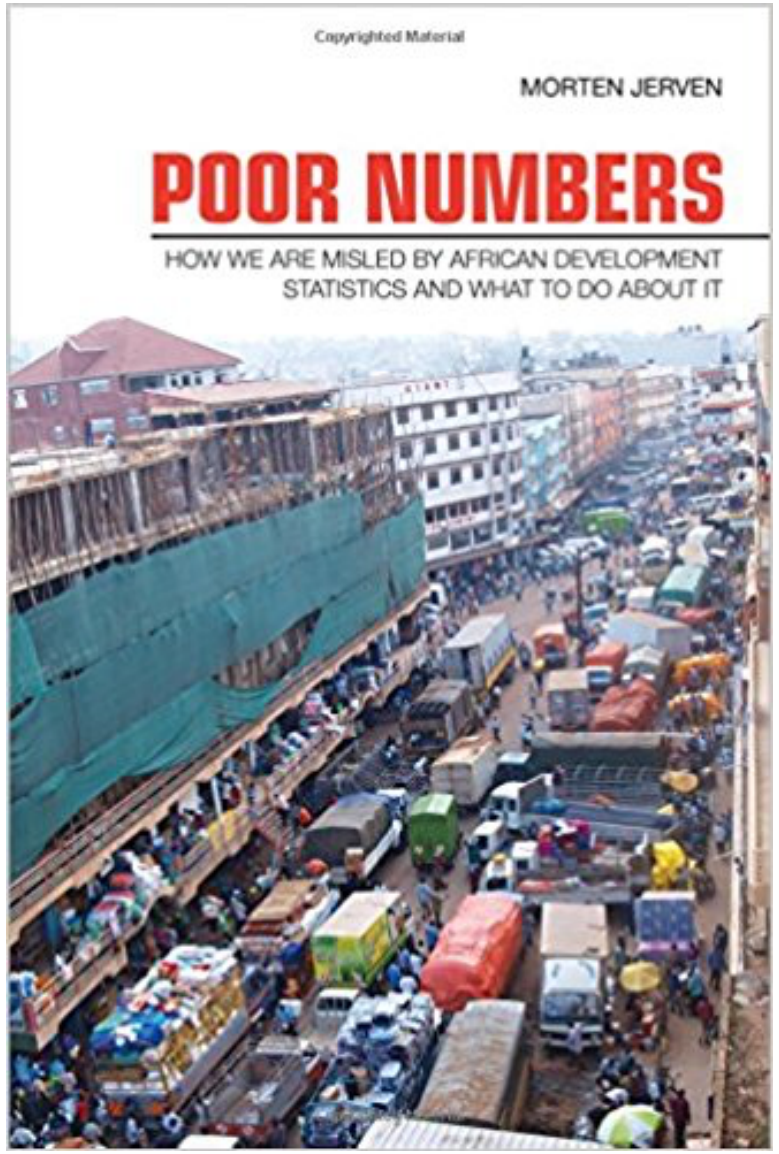
1. Powerful **agents have an incentive for this not to work** (e.g. economic and political elites benefit from status quo).
2. Most **societies / countries currently lack appropriate data connections, capacities, and culture** for this.
3. There is **widespread digital and analog distrust, disdain,** echo chambers, alternative facts narratives, hampering cooperation, consensus, compromise.

➔ **Very hard for facts to "matter"**





# Data ➔ Decisions ➔ Development?




*"Despite the many publications I think there are still many holes in our knowledge. There is a further need for empirical research on the lines of 'political ethnography of indicators'.*

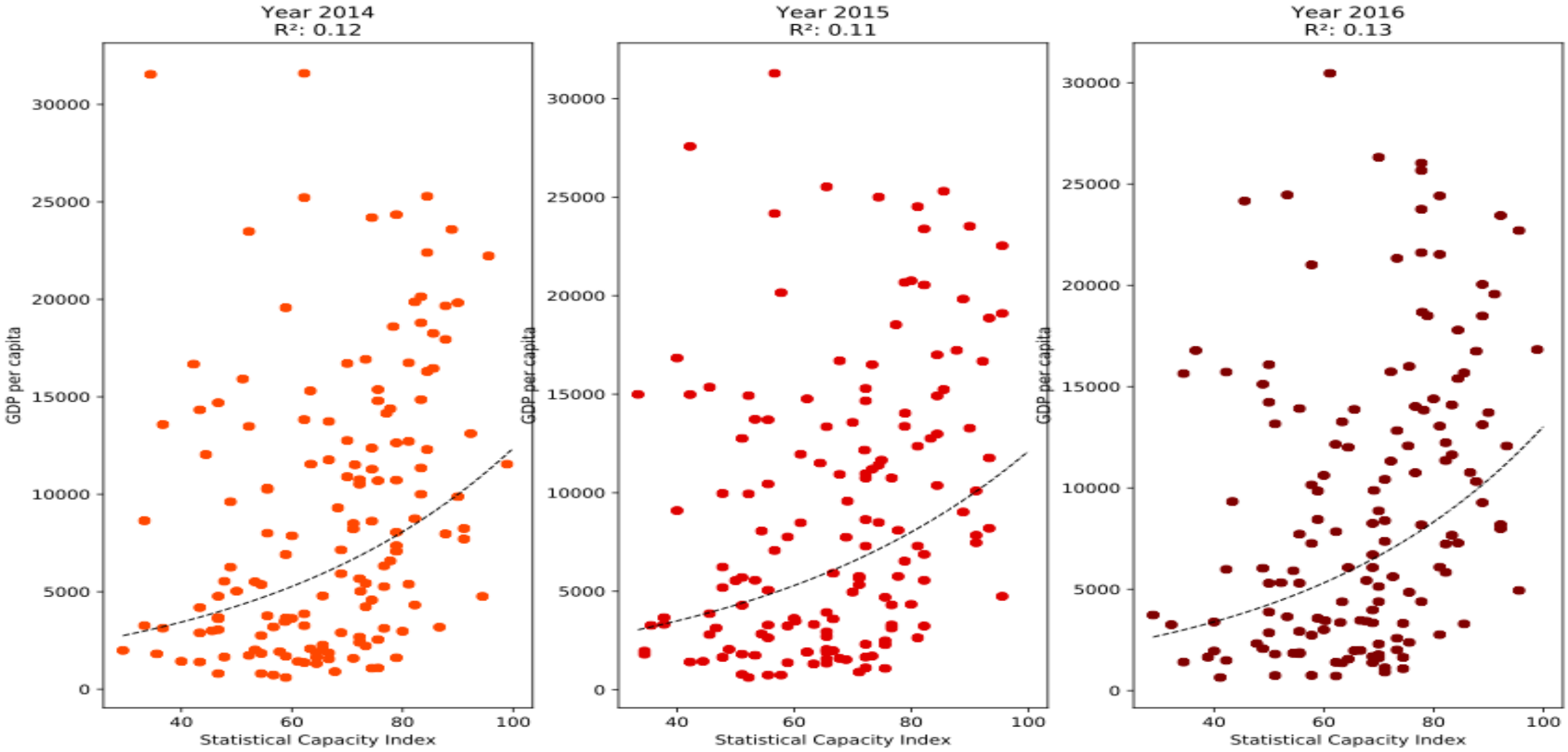
***Particularly is there a gap in theory and empirical studies on the line of causality from 'data' to 'decisions'"***

*Morten Jerven, 2015*

## What does the evidence suggest?

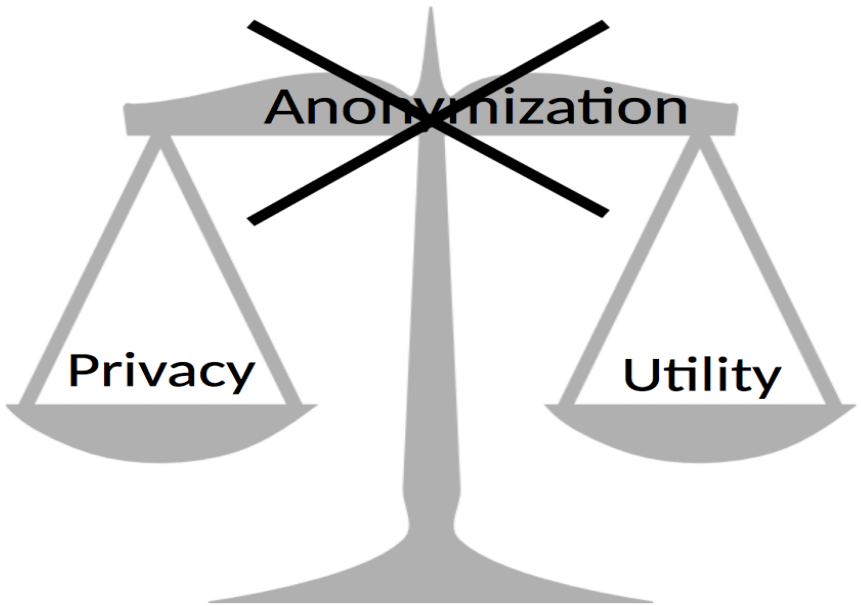
## Why?

# GDP/capita vs. statistical capacity: a rather weak link



# Challenge: Privacy, representativeness, power…

## Privacy-Utility Tradeoff

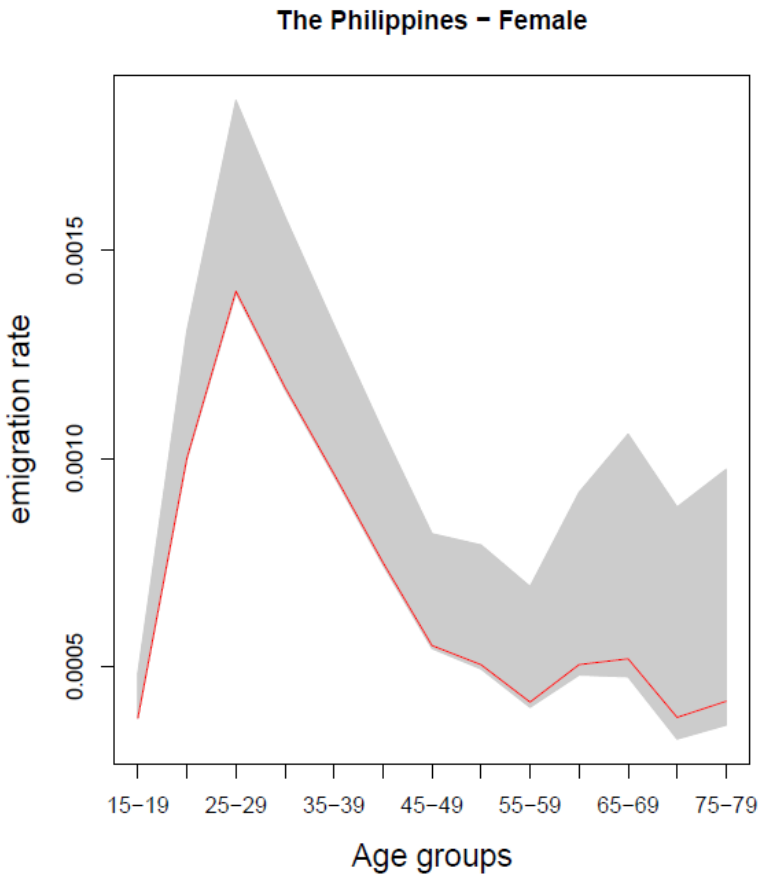



## Computational Privacy

How human behavior bounds privacy and what we can do about it

Yves-Alexandre de Montjoye
Twitter: yvesalexandre
MIT Media Lab – Human Dynamics

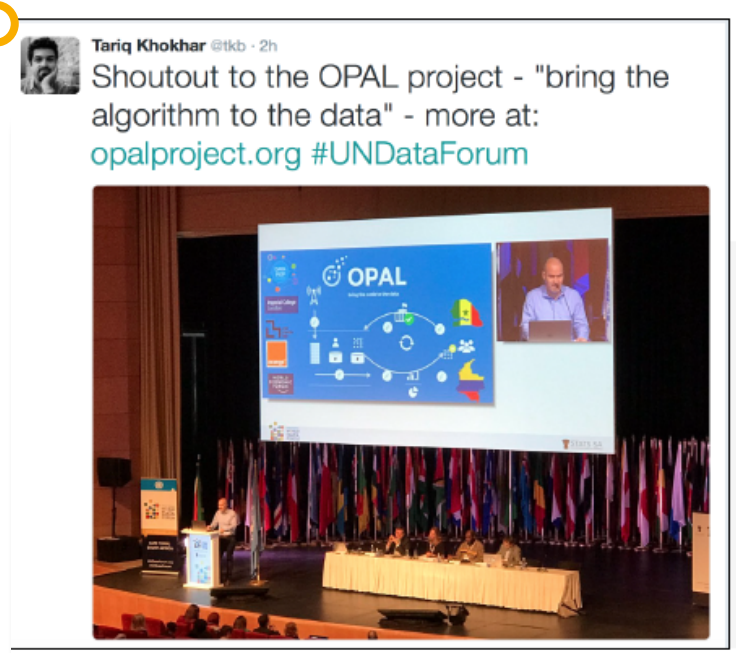
## Sample bias correction factors ("not everybody has a cellphone")




Science Zagheni, E. and I. Weber 2012 "You are where you e-mail: Using e-mail data to estimate Conference proceedings, 25 June 2012. international migration rates." In: ACM Web

## Power imbalances(s) and abuse(s) with data access and analysis

# “Open Algorithms” (OPAL): a revolutionary vision to make facts and measurements matter, and data, algorithms and AI ‘work’ for the majority and the SDGS




**The Open Algorithm project: Developing indicators, capacity and trust**

To address the complex challenge of data access, Orange, MIT Media Lab, Data-Pop Alliance, Imperial College London and the World Economic Forum — supported by Agence Française de Développement and the World Bank — are developing a platform to unleash the power of “big data” held by private companies for public good in a privacy preserving, commercially sensible, stable, scalable and sustainable manner.

## Open algorithms: A new paradigm for using private data for social good

*By Thomas Roca, Emmanuel Letouzé* | 18 July 2016

MONDE

## Mettre le Big Data privé au service du bien public

BENOÎT GEORGES - LES ECHOS | LE 06/12/2016

Le projet Open Algorithm vise à utiliser les données d'entreprises privées pour des actions de développement.

Elisabeth MEDOU BA DANG,
Porte-parole et directrice Afrique, Moyen-Orient, Orange
Rabat, 2 juillet 2018

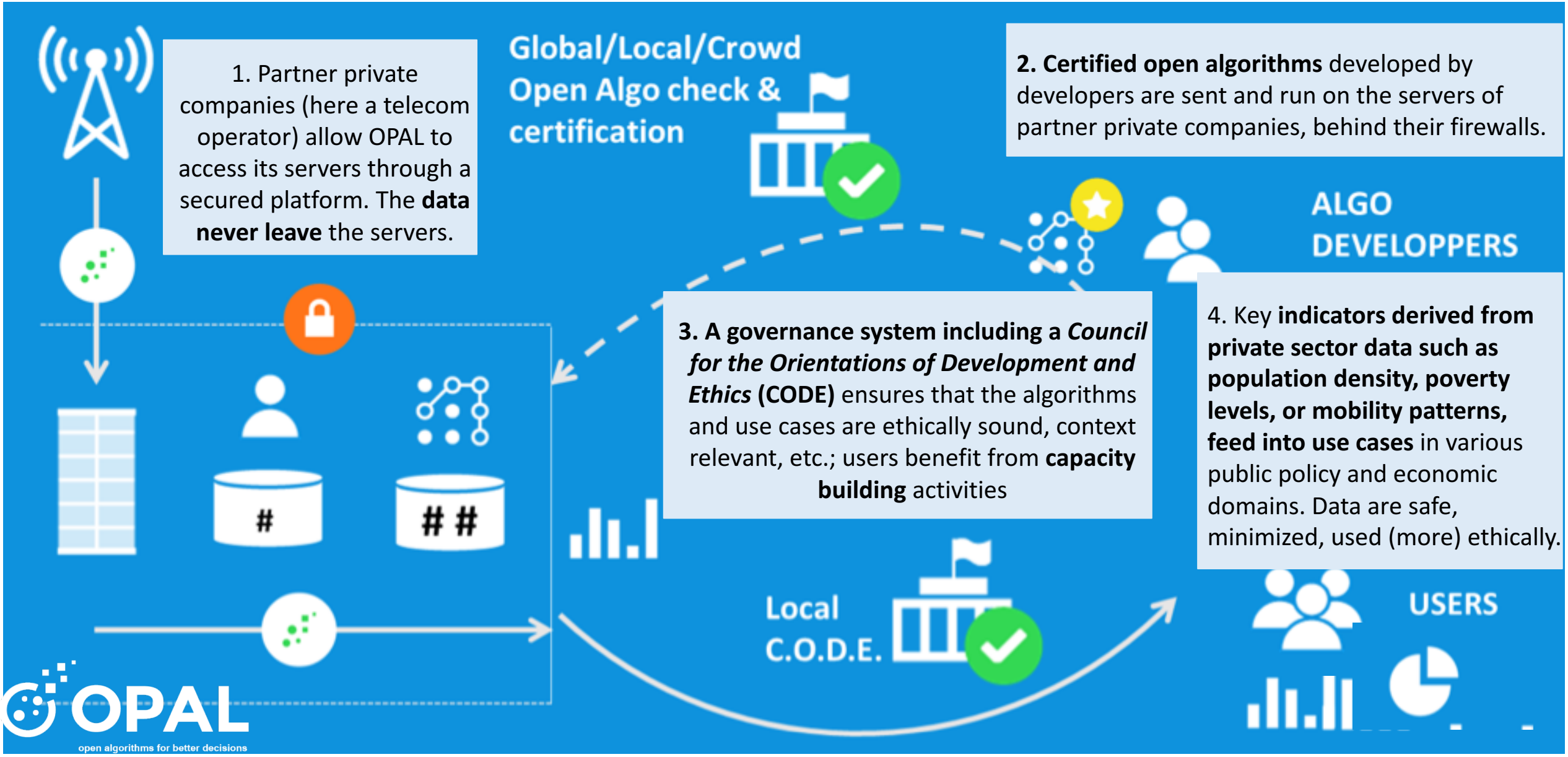
Aujourd’hui, le projet OPAL est développé avec l’Agence Française de Développement, Telefonika et d’autres partenaires. Des tests sont en cours au Sénégal et en Colombie. Nous espérons pouvoir mettre en œuvre plusieurs usages d’ici la fin de l’année. Cette plateforme constitue un levier important pour industrialiser l’usage du big data au service du développement.

COLOMBIE
SÉNÉGAL 23 MAI 2018

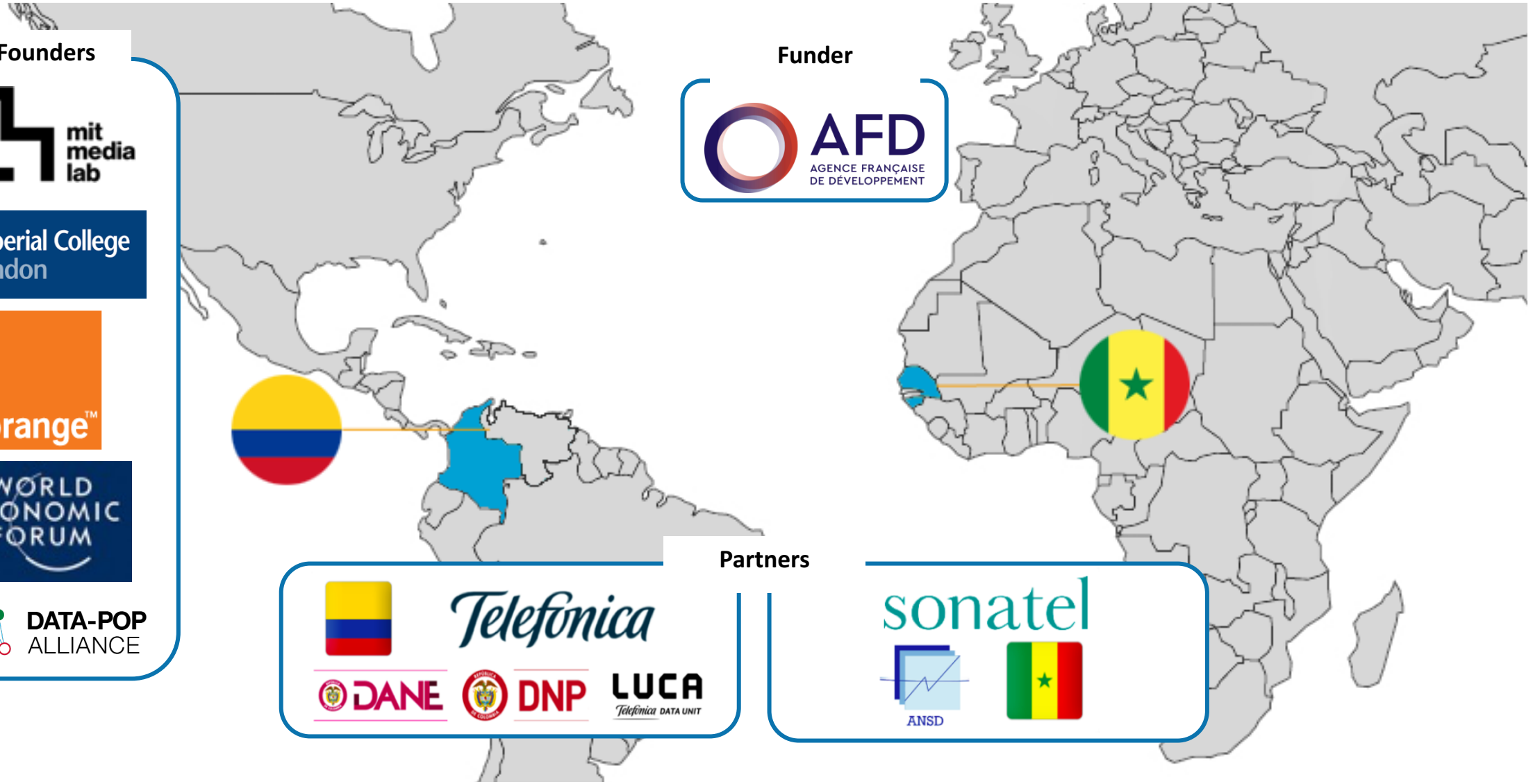
PROJET OPAL : LE BIG DATA AU SERVICE DU DÉVELOPPEMENT

AFD AGENCE FRANÇAISE DE DÉVELOPPEMENT

# OPAL: Setting Human AI data systems and standards



# OPAL is a unique case of a Public-Private-People Partnership piloted in Colombia and Senegal



**Founders**

mit media lab

Imperial College London

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WORLD ECONOMIC FORUM

DATA-POP ALLIANCE

**Funder**

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**Partners**

Telefónica

DANE

DNP

LUCA Telefónica DATA UNIT

sonatel

ANSD

# Keys to make measurement matter: “(rational) compassion”, connections, and data literacy

DATA-POP ALLIANCE
WHITE PAPER SERIES

**Beyond Data Literacy:**
Reinventing Community Engagement and Empowerment in the Age of Data

October 2015

*We define data literacy as the **“the desire and ability to constructively engage in society through or about data”**.*

**Trai ing workshop “Big Data et Developpement durable”**
OPAL – Data-Pop Alliance Dakar Mars 2018

## Building Literacy for the Data Generation

December 18, 2015

MasterCard | MasterCard Center for Inclusive Growth

*A unique opportunity exists to develop data literacy education for children born into a world shaped by big data.*

MIT
Connection
Science

DATA-POP
ALLIANCE

# Thank you

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@datapopalliance.org