Closing the Divide

AI for the most vulnerable

unicef
for every child

June 2020

The capacity gap

Tencent says there are only 300,000 AI engineers worldwide, but millions are needed
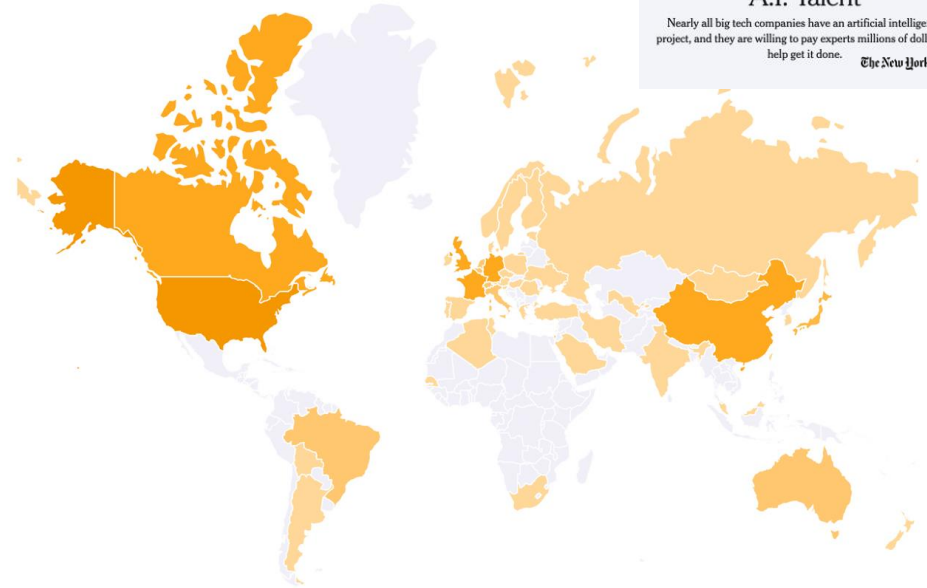
A new report from the Chinese tech giant attempts to put a number on the AI talent shortfall

By James Vincent | Dec 5, 2017, 1:37pm EST

Tech Giants Are Paying Huge Salaries for Scarce A.I. Talent

Nearly all big tech companies have an artificial intelligence project, and they are willing to pay experts millions of dollars to help get it done.

The New York Times

- AI talent and breakthroughs are far from the most vulnerable.

- Very little in Humanitarian and Development

Source: https://jfgagne.ai/talent/
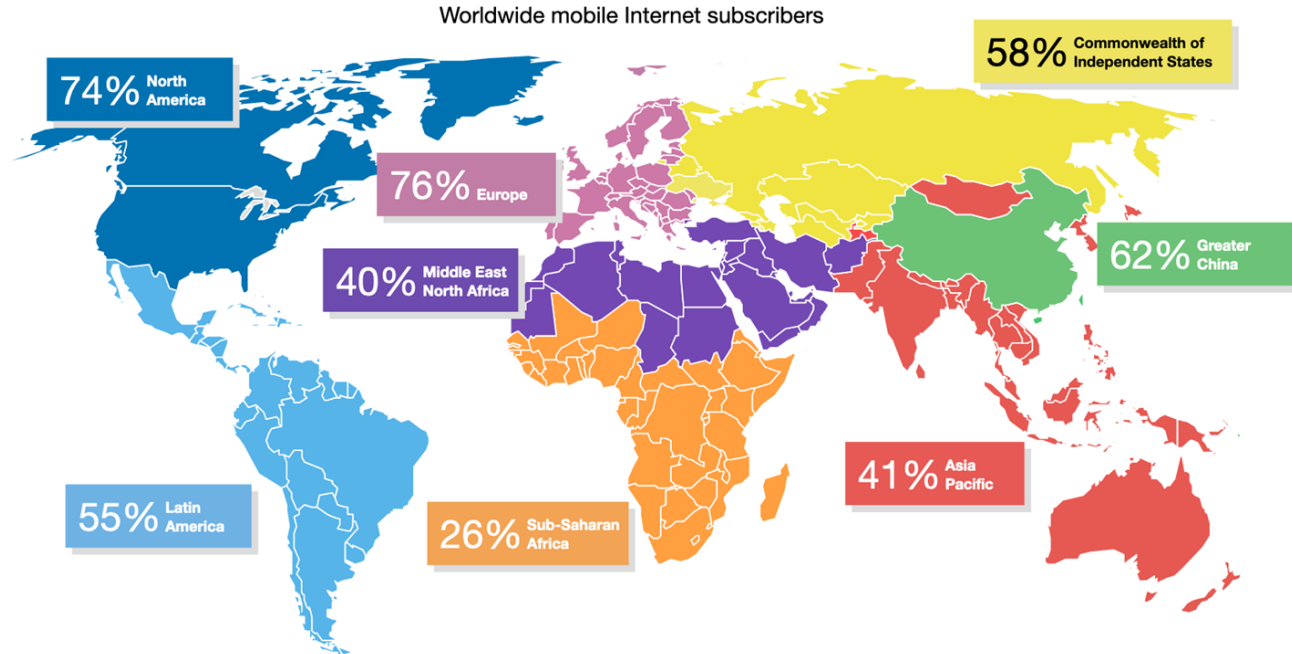
The technology gap

Teaching machines with what?

(Data Inequalities & AI rich-world Assumptions)

Teaching machines for what?

(Optimization Objectives & AI goals)

Access to technology is unequal

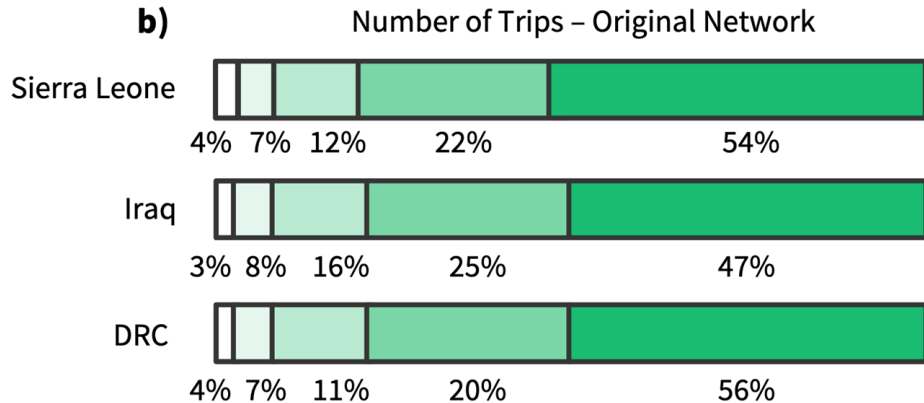...which makes Big Data biased
...and AI training data sets too

Worldwide mobile Internet subscribers

- 74% North America
- 58% Commonwealth of Independent States
- 76% Europe
- 40% Middle East North Africa
- 62% Greater China
- 55% Latin America
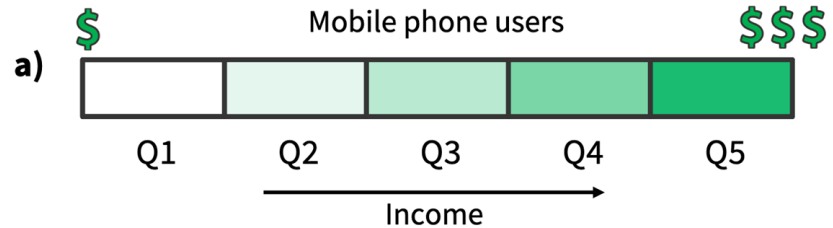- 26% Sub-Saharan Africa
- 41% Asia Pacific
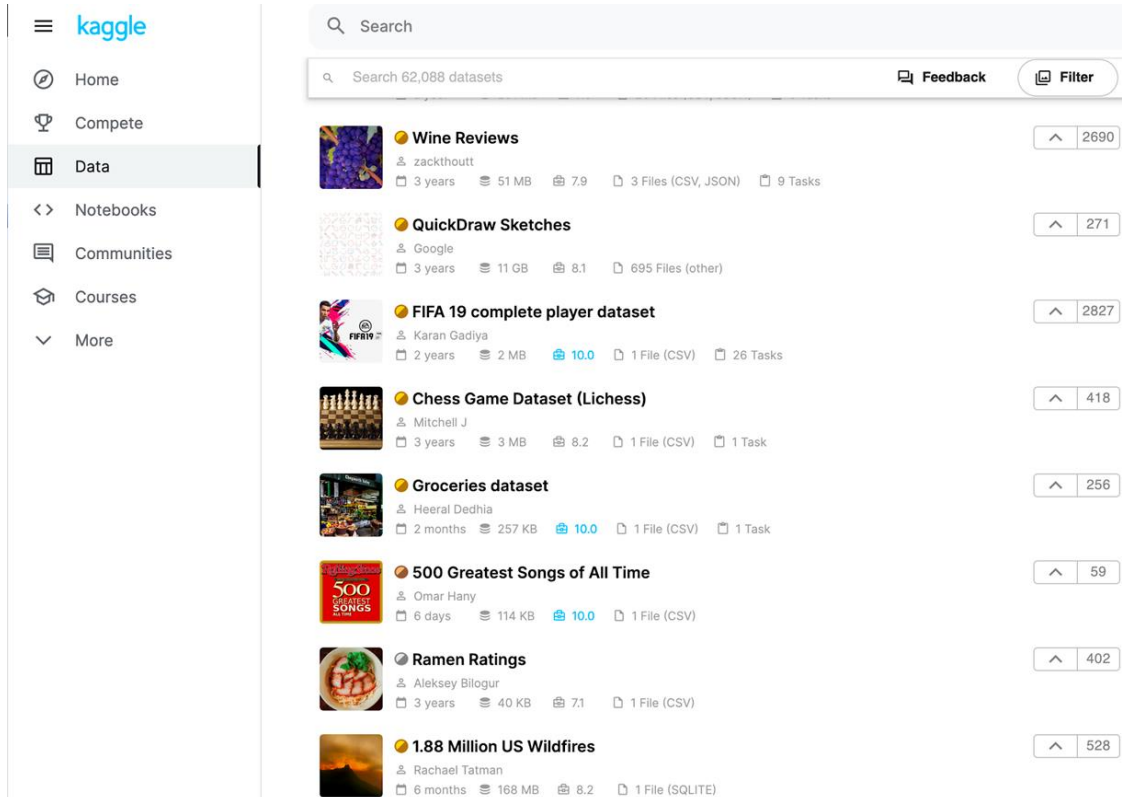
Data production is unequal

...which adds bias even for those with access to technology

In mobility from phone data, more than 50% of the data is produced by the richest 20% of phone users.

Travel patterns from the poor are severely underrepresented

a) Mobile phone users

$ — Q1 — Q2 — Q3 — Q4 — Q5 — $$$

Income

b) Number of Trips – Original Network

Sierra Leone: 4% 7% 12% 22% 54%

Iraq: 3% 8% 16% 25% 47%

DRC: 4% 7% 11% 20% 56%

As a result: AI mostly advances with rich world data, problems and assumptions

How we work to address these gaps:

- Developing **policy guidance** to protect children

- Growing **capacity** and platforms for collaboration for the most vulnerable

- Growing AI **solutions** that address SDGs

Policy: How do AI systems impact children?

- Policy guidance on AI for Children draft report released in September in partnership with Government of Finland

- Ethical issues, with focus on children, on digital contact tracing during COVID

Digital contact tracing and surveillance during COVID-19

General and Child-specific Ethical Issues

Gabrielle Berman, Karen Carter, Manuel Garcia-Herranz and Vedran Sekara

Office of Research – Innocenti Working Paper
WP 2020-01 | June 2020

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Policy guidance on AI for children

DRAFT 1.0 | SEPTEMBER 2020

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Investing in entrepreneurial capacity

The UNICEF Innovation Fund

Digital public goods are required for the challenges facing children today

UNICEF's $30M Venture Fund is a vehicle to grow new solutions and to shape markets of emerging technologies that exist at the intersection of **$100 billion business markets and 1 billion persons' needs**.

The Venture Fund **generates value** by:

- **strengthening communities** of problem solvers,
- increasing **open source** intellectual property, and
- **growing solutions** that bring results for children.
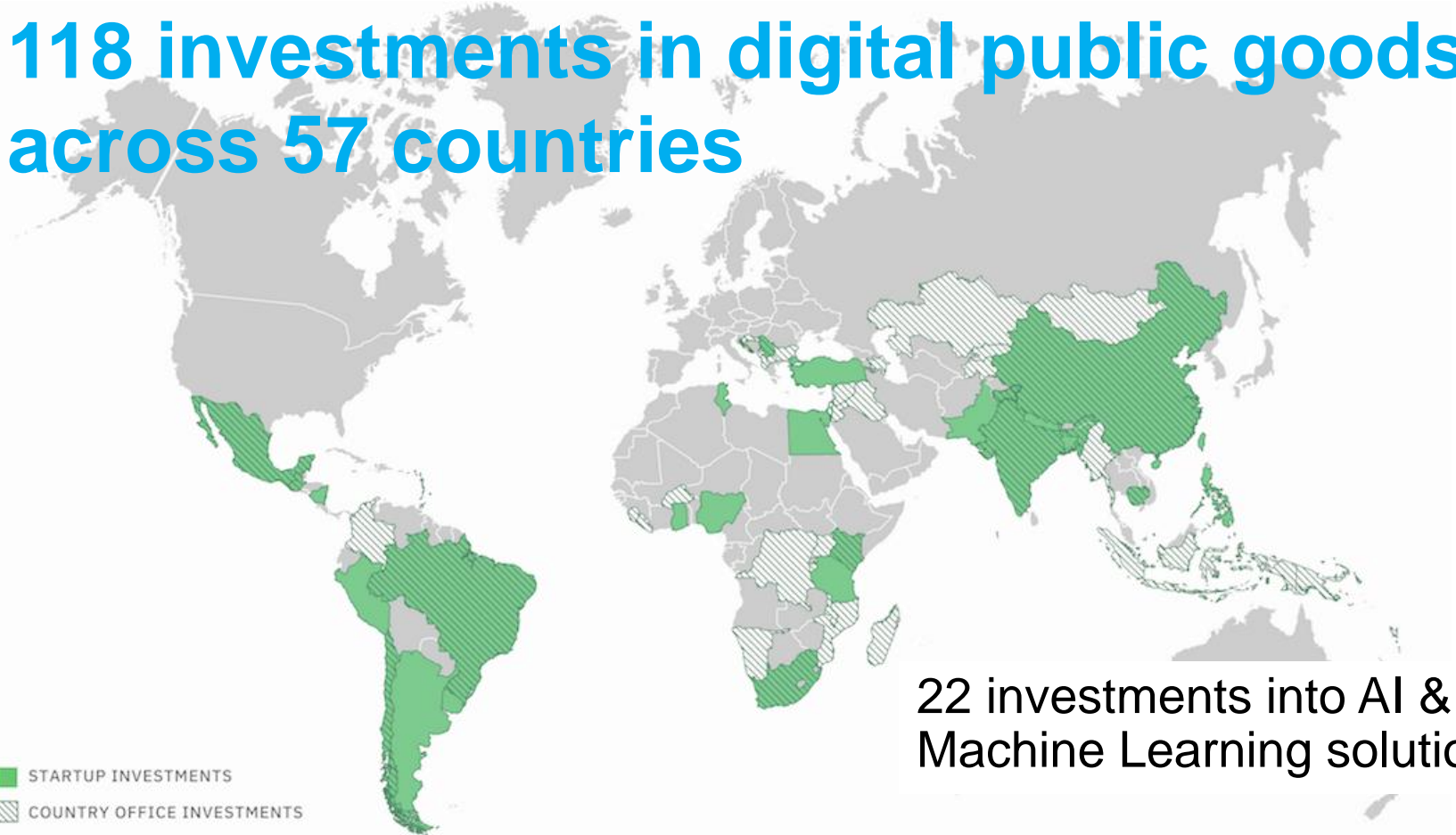
www.unicefinnovationfund.org →

© UNICEF/Zarina Nurmukhambetova

REACH

118 investments in digital public goods across 57 countries

22 investments into AI & Machine Learning solutions

STARTUP INVESTMENTS

COUNTRY OFFICE INVESTMENTS

Growing internal capacity and platforms for collaboration

Magic Box:

UNICEF's open source big data & AI innovation program

Purpose

- **Provide** UNICEF and governments with new and faster ways of analysing the world

- **Generate** critical insights and resources to ensure vulnerable populations are not left behind in AI development

- **Used** in 20+ countries for epidemic modeling and responses, infrastructure mapping or new ways of measuring socio-economic indicators
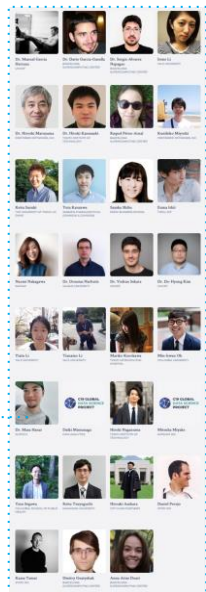
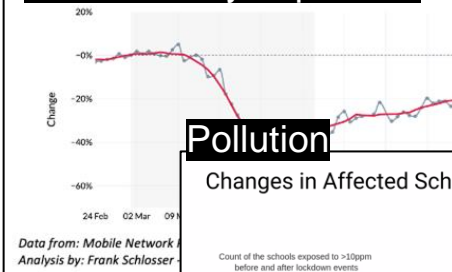**Magic Box** provides a platform for collaboration and contributions

Convene networks of AI experts to help explore neglected or pressing COVID problems
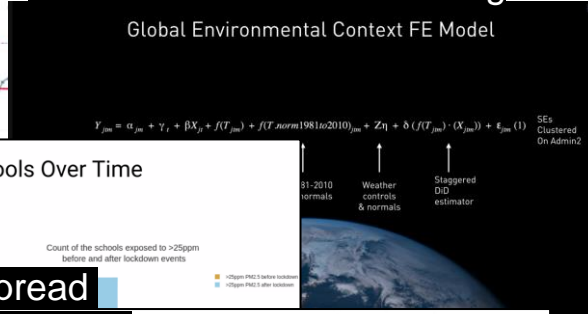(Faster response, deeper thinking)

Developing AI Digital Public Goods

Portfolio of AI and Data Science digital public goods

22 solutions across 17 countries using AI and Machine Learning

Map schools and their connectivity	Virtual assistants for parents, children and young people on early childhood development, covid19, and other life-saving themes

Provide insights from big data and satellite imagery on epidemics, poverty, and emergencies

Improved diagnostics of neonatal sepsis	Job-matching for young people and persons with disabilities	Map safe spaces for women and girls using imagery collected by taxies	Game-based learning tailored to each learner

Ilhasoft

COUNTRY: BRAZIL

SOLUTION: Ilhasoft developed Bothub, an open platform for training and sharing Natural Language Processing datasets in multiple languages, with 180 languages supported to date.
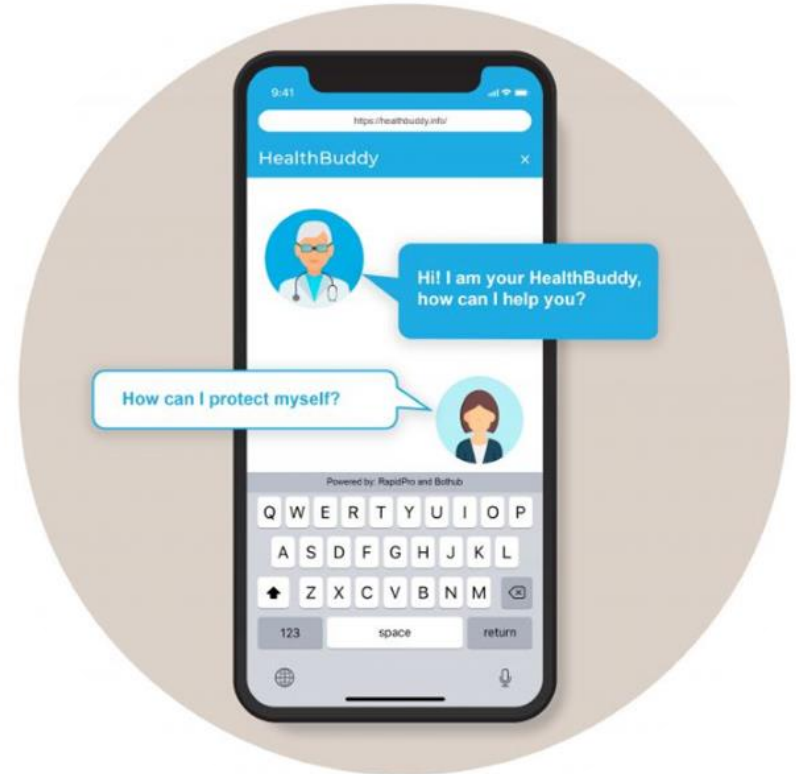
IMPACT SNAPSHOT: The platform is used to provide information and initial screening for Covid-19 prevention and fake news monitoring in 7 languages.

PARTNERS & COLLABORATORS: Rapidpro, UNICEF UNICEF East Asia and Pacific Regional Office (EAPRO),UNICEF Europe and Central Asia (ECARO) and , Alagoas Government, UNICEF Iraq

Kimetrica

Kimetrica

COUNTRY: KENYA

SOLUTION: Kimetrica developed the MERON app, which uses facial recognition technology to detect malnutrition in children (aged 0-5) from one photo.

IMPACT SNAPSHOT: MERON correctly predicted adult BMI classification with 78 percent accuracy and successfully classified 60 percent of malnutrition cases. MERON can achieve a saving of up to $13.64 per child when compared to existing solutions.

PARTNERS & COLLABORATORS: UNICEF Kenya

Pixframe Studios

COUNTRY: MEXICO

SOLUTION: Pixframe developed 'Towi' a game-based-learning platform to assess and develop children's cognitive skills, such as attention, memory, planning and organization skills, audiovisual perception, inhibition and flexibility.

IMPACT SNAPSHOT: 21,000+ students from 65 schools will use the platform in a pilot funded by the Ministry of Education of Mexico.

Scaling up the solution to new geographies to support children in continuous learning during COVID-19.

PARTNERS & COLLABORATORS: Mexican Ministry of Education, UNICEF Mexico

Afinidata

COUNTRY: GUATEMALA

SOLUTION: Afinidata uses artificial intelligence to provide parents with a personal assistant that guides them with personalized and effortless early-childhood activities.

IMPACT SNAPSHOT: Used by 75,000 families, delivered over 1.7 million educational sessions. 24% higher usage rate compared to similar applications. Scaling up the solution to new geographies to support continued ECD during COVID-19

PARTNERS & COLLABORATORS: Botnar Foundation, Seedstars Latin America, Futurebound Accelerator, Harvard, Swiss Tropical & Public Health Institute, UNICEF LACRO, Abu Dhabi Early Childhood Authority (ECA)
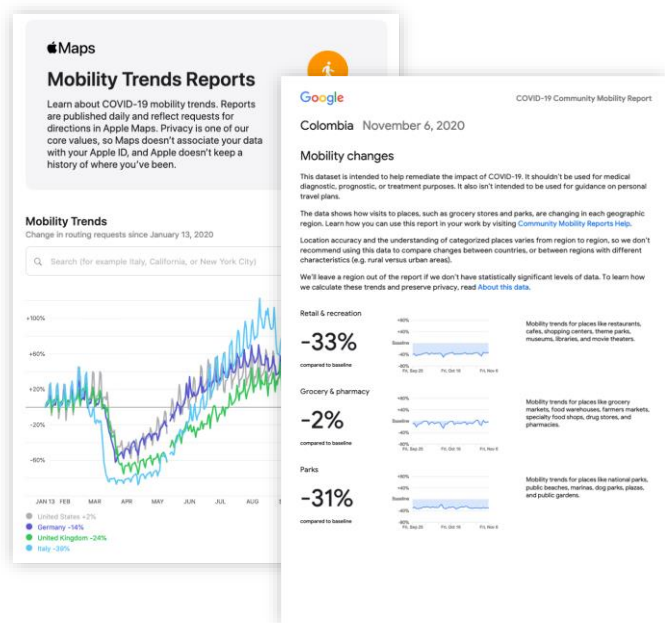
COVID

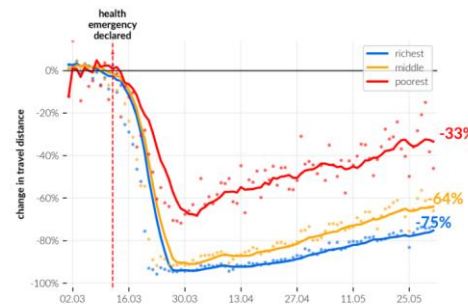https://www.unicef.org/innovation/magicbox/covid
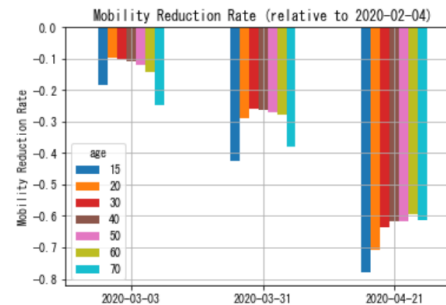
Steer global analysis for the most vulnerable...

While the world focused on mobility changes due to COVID lockdowns

Internal capacity and existing data agreements allowed as to spearhead similar analysis...

Focussing on poverty

Focussing on children

...support UNICEF country offices and government partners:

in building local tools,
accessing data,
or doing analysis

School Mapping

https://www.projectconnect.world/
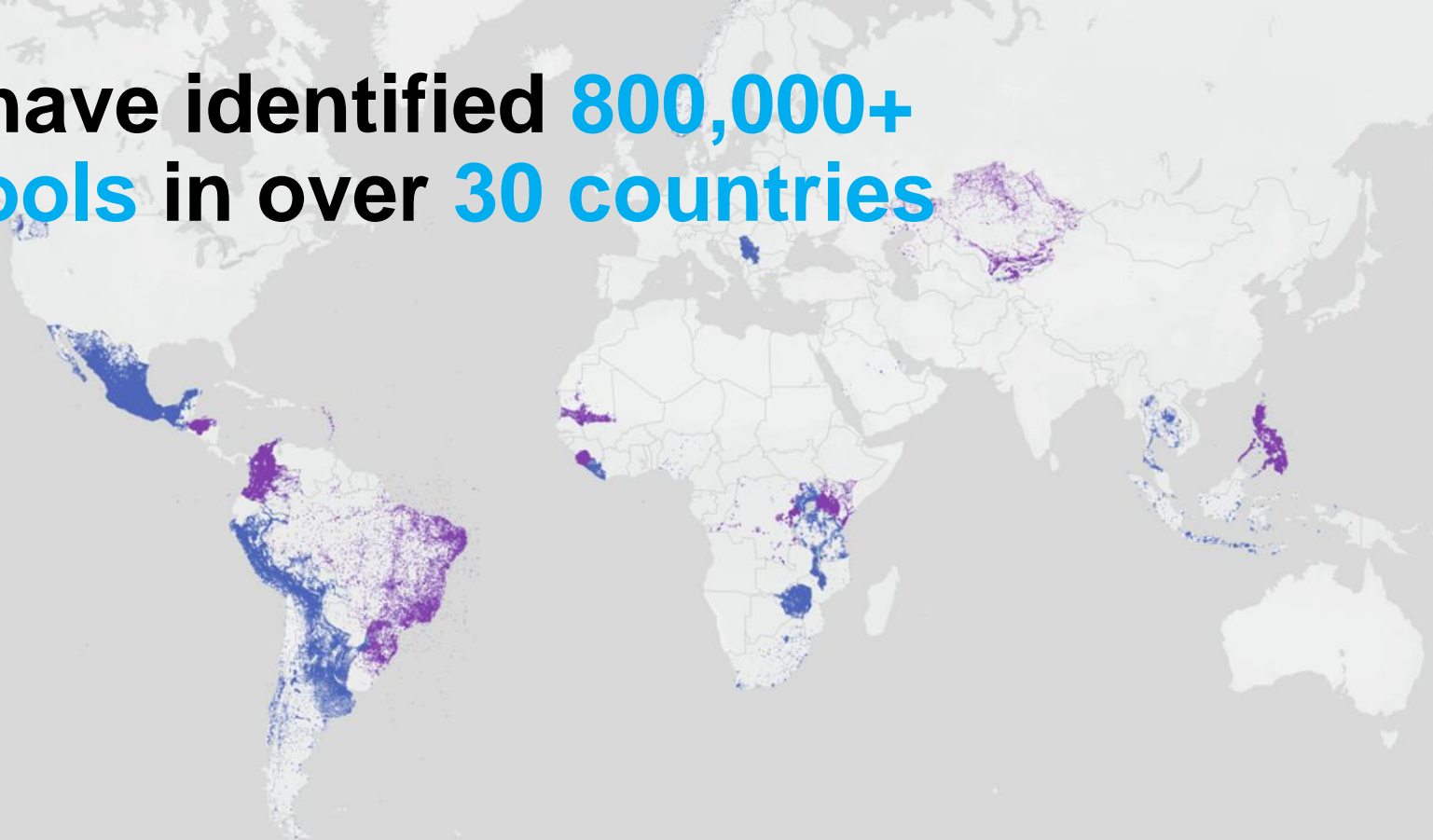
ML modeling in Colombia

In **Colombia**, UNICEF applied **AI algorithms to automatically map** schools from high resolution satellite imagery.

The algorithm **found the location of 6,900** previously unmapped schools.

www.projectconnect.world →

We have identified **800,000+ schools** in over **30 countries**

www.projectconnect.world →

Digital Public Goods

DIGITAL PUBLIC GOODS

If the benefits of increased Internet connectivity are to be realized, it is important that all actors, including Member States, the United Nations system, the private sector and other stakeholders, promote open-source software, open data, open artificial intelligence models, open standards and open content that adhere to privacy and other applicable international and domestic laws, standards and best practices and do no harm.

Report of the Secretary-General

Roadmap for Digital Cooperation

JUNE 2020
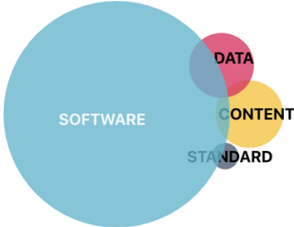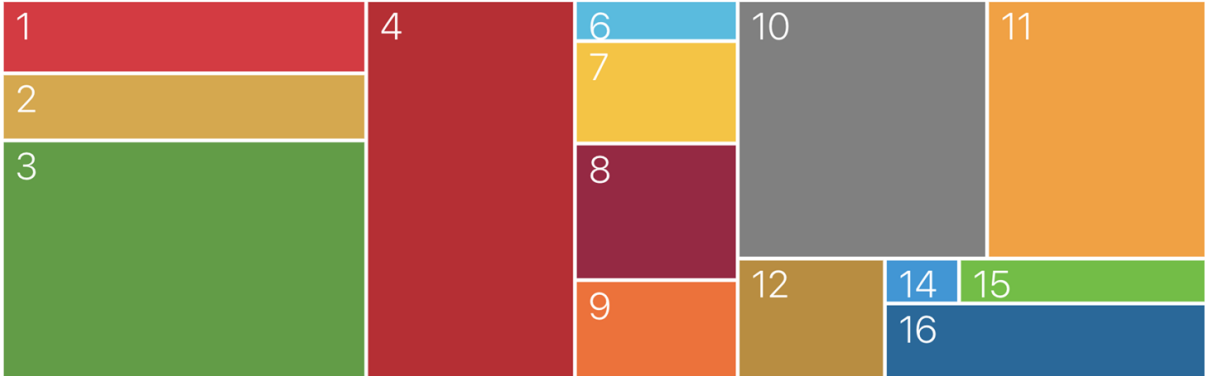
Growing a global registry of DPGs

Thank you.

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