



UN GLOBAL PULSE

ANNUAL REPORT 2018



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2018 saw increased public interest around how data is being collected and used, fueled by the global conversation around the opportunities and perils of new data sources and emerging technologies. The United Nations continued to drive the data revolution for sustainable development through the work of its innovation offices, including efforts led by UN Global Pulse. Demand for Global Pulse's expertise increased with partners wanting to collaborate with the Pulse Labs on projects, policy exploration, data protection and privacy frameworks, and public awareness raising.

BUILDING METHODS AND TOOLS TO HARNESS THE POWER OF DATA AND ANALYTICS

UN Global Pulse continues to be uniquely positioned to help UN partners explore the potential of big data and new technologies to benefit the people they serve. In 2018, UN partners and the Pulse Labs worked on over 15 data-driven projects: some experimental prototypes, and others, approaches that were brought to scale. In addition to partnering with agencies including UN Women, the World Food Programme (WFP), the UN Refugee Agency (UNHCR), the UN Office for the Coordination of Humanitarian Affairs (UN OCHA), UN Global Pulse concentrated on working with field offices -- UN country teams in Indonesia, Papua New Guinea, Samoa, Somalia, Turkey, Uganda and Vanuatu -- to develop fit-for-purpose projects based on national priorities.

A highlight of the Lab in 2018 was the expansion of the portfolio of tools and methods developed for and together with collaborators. Most notably, Global

Pulse built Qatalog, a data mining tool that UN partners can use to extract large volumes of information from social media and radio shows that they can analyse for issues relevant to their mandate. Interest from UN agencies was overwhelming and the tool was successfully tested in different development and humanitarian scenarios. Another notable addition to the initiative's arsenal of tools is PulseSatellite, a high precision tool prototyped with UNOSAT, a technology-intensive programme of the UN Institute for Training and Research (UNITAR), that automates the process of detecting structures in satellite imagery to support migrant and refugee operations.

These research initiatives were only made possible through the support of Government and UN collaborators, and thanks to the data sharing and data access partnerships forged by Global Pulse. In 2018, companies like Digicel, BBVA bank, Go-Pay, and Crimson Hexagon shared their data and technology for various research projects. Global Pulse also increased collaboration with Universities around the world that contributed expertise, staff, and resources. The uptake by Global Pulse's partners on the insights gained from these new data sources reinforces the value of big data for prediction, detection and monitoring.

INFLUENCING PRIVACY-PROTECTIVE POLICY AND SUPPORTING COMMUNITIES OF PRACTICE

UN Global Pulse supplemented its big data activities and research by advancing privacy-protective and ethical policies and frameworks, and by connecting communities of practice to new data sources, technologies and methods through challenges, events, and innovation programmes.

During the year, UN Global Pulse co-led efforts to develop data privacy and protection principles for the UN, engaged privacy specialists and regulators to contribute to policy frameworks for the use of big data, and worked with governments to facilitate synergies and knowledge exchange to create data protection legislations that foster safe innovation.

Efforts of the UN Privacy Policy Group, an inter-agency working group that UN Global Pulse co-chairs with the UN Office for Information and Communication Technology (UN OICT), led to the adoption of the first system-wide UN Principles on Personal Data Protection and Privacy. In Asia, Global Pulse was invited to conduct capacity building workshops for Asia-Pacific Resident Coordinators on data protection and ethics on three different occasions, while in Africa, it hosted workshops for Government and Ministry representatives in Uganda and Mauritius. Global Pulse continued to engage with the privacy, regulatory, and academic communities around the world through its Privacy Advisory Group, an informal group that it created in 2015 and which comprises data privacy and ethics experts, regulators and academics. Going forward, research ethics and data privacy will remain pillars of Global Pulse's work.

The initiative is a proud member of many innovation working groups and networks, including the UN Innovation Network (UNIN) an informal community of UN innovators, which it helped scale up in 2018. To forge greater collaboration and knowledge exchange between academia and the UN, Global Pulse also launched a Data Fellows Programme, a match-making exercise where Global Pulse identifies doctoral researchers with specific expertise in AI, data science, computational social science or data and design who are interested in working with the UN.

The significant increase in the number of instances where Global Pulse was asked to contribute expertise to high-level forums is testament to the fact that data-driven innovation is at the top of the priority agenda for everyone: the UN, Governments, private and public sector. Over 100 workshops,

trainings, and events were organized by the Pulse Labs throughout the year. Particularly, Global Pulse engaged with stakeholders during high level events it organized at the ECOSOC Partnership Forum, the AI for Good Global Summit, the UN General Assembly, the UN World Data Forum, the Data Science Africa workshops, and Indonesia's International Seminar on Digital Diplomacy.

LOOKING AHEAD

UN Global Pulse has been expanding the boundaries of its research and technology policy work in close alignment with the transformative innovation efforts within the Executive Office in which it operates. Looking forward, the Pulse Labs will continue to experiment with new data sources, and to scale proven approaches. Through its extensive network of partners, Global Pulse will advance rights-centric innovation to ensure a safe and equitable digital future. Lastly, it will continue to engage the public to help build trust and understanding of the way in which privacy-protecting big data and new technologies can, and should, be used to save lives and better livelihoods.

The issues of the digital age cannot be tackled by one company, or one government, or one institution alone. Progress to date would not have been possible without the support and commitment to our shared vision of donors, Government, UN counterparts, and private and public sector partners, to which Global Pulse is grateful.

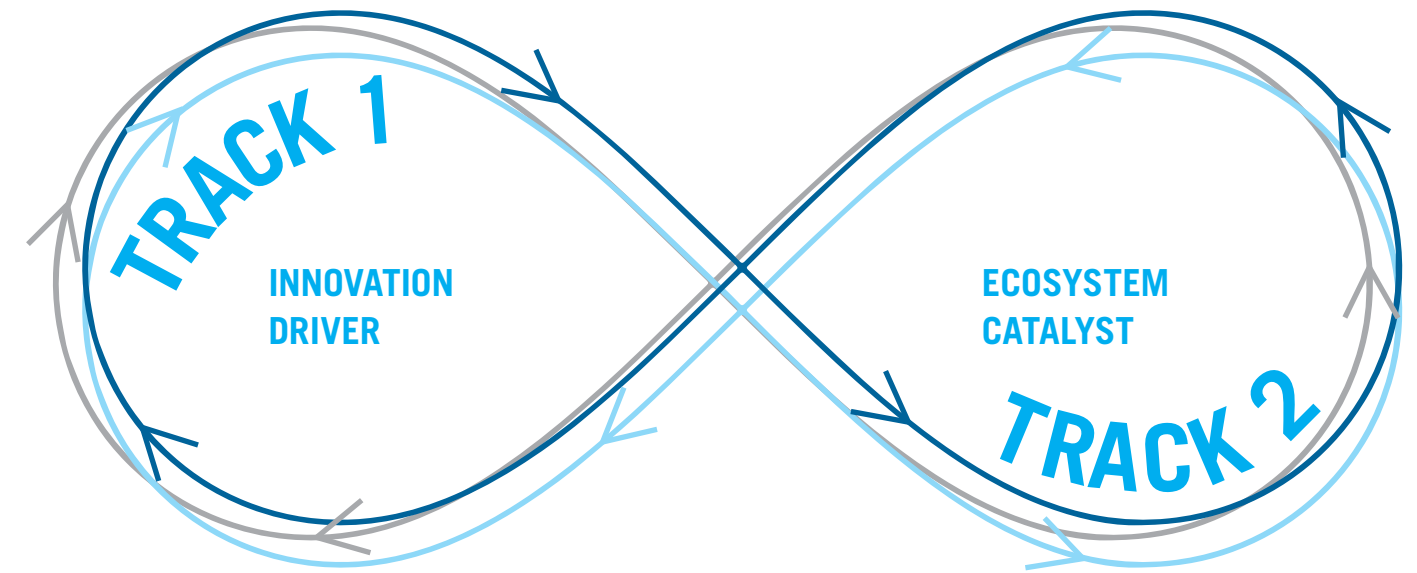
ABOUT UN GLOBAL PULSE

UN Global Pulse is a United Nations innovation initiative working to discover and mainstream applications of big data and artificial intelligence for sustainable development, humanitarian action, and peace. It works through a network of innovation labs, called Pulse Labs, which operate in Jakarta, Indonesia, in Kampala, Uganda, and in New York at the UN Headquarters.

OBJECTIVES

The overarching objectives of UN Global Pulse are to:

- I) drive exploratory research on new insights that can be gleaned from unconventional data sources and artificial intelligence;
- II) help UN entities, Governments and development partners make better use of their data; and
- III) advocate for the ethical use of data and technological platforms in line with the protection of individual privacy.



> Work with the UN system, governments, academia and private sector partners to discover, build, pilot and scale high-potential applications of big data and artificial intelligence for sustainable development, humanitarian action and peace.

> Contribute to global efforts to establish trusted frameworks for ethical and privacy protective data practices and innovation.

> Provide public sector organisations with the policy guidance and technical assistance needed for mainstream adoption of innovative data practices and technologies.

> Advocate for greater public awareness and support communities of practice across disciplines and geographies to accelerate development of big data and AI applications.

IMPLEMENTATION MODALITIES

UN Global Pulse employs three engagement models for working with partners on data-driven projects:

Executor:

Implements data-driven projects with UN and development partners contributing subject-matter expertise.

Facilitator:

Leads, coordinates or enables data science partnerships with private sector and academia to implement data-driven projects for UN and other partners.

Technical advisor:

Provides guidance on policy issues, including data privacy, data protection, data access, and data ethics, as well as technical matters, such as what methodologies, AI tools, and innovation best-practices to apply in data-driven projects.

PULSE LABS

UN Global Pulse brings together governments, UN entities and partners from academia and the private sector to test, refine and scale methods for using big data and AI to support the achievement of the Sustainable Development Goals. **Pulse Lab New York**, established in 2009, serves as the headquarters of UN Global Pulse and is the thought-leadership and knowledge sharing hub for the network of Pulse Labs.

Pulse Lab Jakarta was set up in 2012 as the Asia Pacific lab of UN Global Pulse, to facilitate more agile policy responses to better protect vulnerable populations from the impacts of global crises. The Lab is a joint initiative of the United Nations and the Government of Indonesia, via United Nations Global Pulse and the Ministry of National Development and Planning (Bappenas) respectively.

Pulse Lab Kampala opened its doors in 2014 as the first innovation office in Africa working to develop data-driven applications for the local context. It is an inter-agency initiative under the leadership of the United Nations Resident Coordinator in Uganda and its work contributes to the 'Delivering as One' approach.

The Labs consist of multidisciplinary teams of data scientists, engineers, designers, social scientists, communication experts, and data privacy and legal experts, who work together with development and humanitarian actors to prototype and implement innovation programmes. The Pulse Labs share knowledge from projects by producing reports and technical papers as well as project briefs.



PARTNERSHIPS

A network of strategic partners, at both the global and country level, is required to ensure sustainable access to the resources that drive data innovation at the UN. In particular, partners collaborate with UN Global Pulse through contributions of:

Data:

providing access to data to support research at the Pulse Labs,

Technology:

sharing tools for data mining and analytics, or computing capabilities,

Expertise:

making engineers, data scientists or researchers available to collaborate on projects,

Sponsorship:

providing funding to support Global Pulse's Labs, events, and capacity-building efforts.

INNOVATION DRIVER

- > **INNOVATION PROJECTS AND TOOLS**
- > **EXPLORING INSIGHTS FROM
NEW DATA SOURCES**
- > **BUILDING FIT-FOR-PURPOSE
TOOLS AND METHODS**
- > **SCIENTIFIC ARTICLES**




UN Global Pulse serves as a safe space for innovation and experimentation with new sources of big data and emerging digital technologies. The Pulse Labs work with development and humanitarian practitioners to discover, build, pilot and evaluate data-driven projects and tools to help achieve the SDGs. This section highlights some of the newest explorations taking place at the Pulse Labs, reviews the progress of scaling up projects that have proven impact, and presents the tools and methods developed as part of the data-innovation process in 2018.

INNOVATION PROJECTS

SDGs	Project Title	Partners	Data Type	Location
	Exploring the effects of extremist violence on online hate speech	IBM Science for Social Good, University of Pompeu Fabra	Social media	United Kingdom, United States
	Nowcasting air quality using social media		Social media	Indonesia
	Using big data and AI to support peace and security in Uganda and Somalia	Government of Uganda, Government of Somalia	Social media, Radio	Uganda, Somalia
	Scanning the airwaves to close health service gaps for people living with HIV in Uganda	Ministry of Health in Uganda	Radio	Uganda
	Using call detail records to understand refugee integration in Turkey	UNHCR Innovation, UNHCR Country Team	Call Detail Records	Turkey
	Using mobile network data to inform disaster response in Asia	UN Delivering Together Facility, Digicel, UNCT Papua New Guinea, Vanuatu, Samoa	Mobile Network	Papua New Guinea, Vanuatu, Samoa
	Monitoring economic and mobility resilience to earthquakes in Mexico	BBVA, Telefonica, INEGI Mexico	Mobile Network, Financial	Mexico

SDGs	Project Title	Partners	Data Type	Location
	Microfinance customers' journey in Cambodia	UNCDF-SHIFT	Loans and savings	Cambodia
	Port network analysis for development policy	Bappenas, Universitas Gadjah Mada	Automatic Identification System	Indonesia
	Using deep learning to tackle traffic safety in Jakarta	Jakarta Smart City, University of Chicago's Data Science for Social Good Fellowship Programme	CCTV systems	Indonesia
	Supporting humanitarian response to the Sulawesi earthquake and tsunami	UN OCHA, AHA Centre, Humanitarian Data Exchange, Humanitarian Country Team	3W ("Who Does What Where")	Indonesia
	Baking on Fintech: Financial inclusion for micro enterprises in Indonesia	Indonesia FinTech Association, BTPN, Wow!, Go-Pay, Amarth, UNCDF-SHIFT	Behavioural insights from field research	Indonesia
	After Dark: Safe transit for women travelling at night	UN Women	Behavioural insights from field research	Indonesia

INNOVATION TOOLS

SDGs	Tool	Functionality	Data Type
	QataLog	Data mining tool to extract, analyse, and visualize data from social media and radio shows	Social media, radio shows
	DisasterMon	Integrated big data analytics and visualisation tool to provide timely insights for natural disaster monitoring, emergency response and management of cyclones, earthquakes, hurricanes and floods	Hazard-related data that are available globally through APIs. Other data sets that have been accessed through partnerships.
	Financial Access Map	Interactive geospatial map of regions in Indonesia, that visualises financial service provision and existing gaps	Socio-economic data, geospatial infrastructure data, network coverage data, financial services location data
	PulseSatellite	Artificial Intelligence-based tool to identify and count structures in settlements of refugees and displaced persons in high resolution satellite imagery	Satellite imagery
	CheetahTracker	Tool to analyse transport-related aspects of health service delivery and provide SMS/email alerts to health officials	Global Positioning Systems
	SDGs Monitoring Dashboard	Interactive map dashboard to analyse data relevant to the SDGs	Satu Data Portal APIs
	Satu Data Toolkit	Data governance framework to help data stewards within the public sector to understand data governance policies and frameworks, which are aligned with the draft Presidential Regulation on Satu Data Indonesia	Behavioural insights from field research, Satu Data draft presidential regulation

EXPLORING INSIGHTS FROM NEW DATA SOURCES

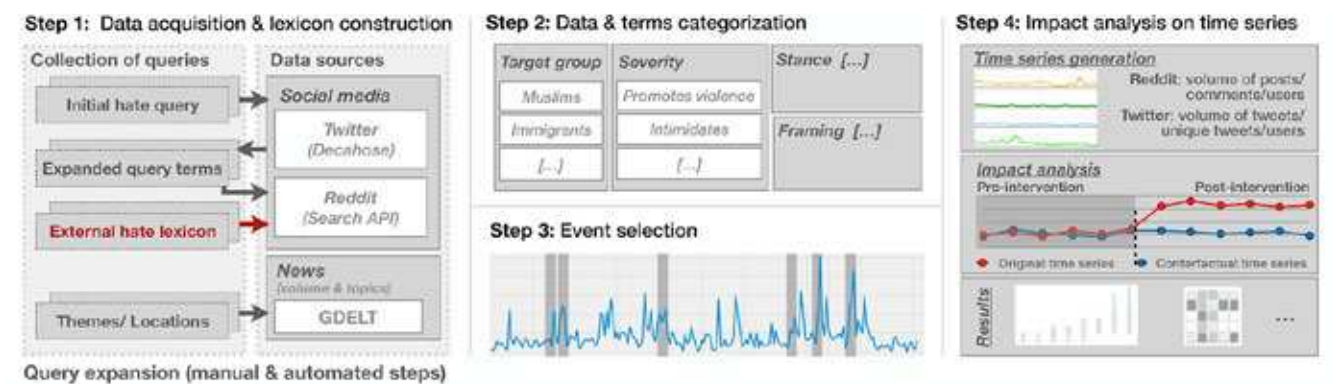
EXPLORING THE EFFECTS OF EXTREMIST VIOLENCE ON ONLINE HATE SPEECH

UN Global Pulse partnered with IBM Science for Social Good and the University of Pompeu Fabra in Spain to develop a taxonomy and build an initial corpus of terms related to online hate speech targeting Muslim communities in English-speaking countries.

The project explored methodologies to uncover the potential causal relationships between violence committed offline—either in the name of Islam or intentionally directed against Muslim communities—and the fluctuation of derogatory, offensive, or even inciting comments online.

Recent years have given rise to an increased prevalence of hate speech online which, according to the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, can reinforce the subordination of targeted minorities. Efforts to understand how and when the expression of hate thrives online can support the work of a wide variety of UN entities in de-escalating tensions.

UN Global Pulse included the methodology and findings of the research in a scientific paper that was presented at the 12th AAAI Conference on Web and Social Media (ICWSM'18), one of the global premier venues for computational social science.



<https://arxiv.org/abs/1804.05704>

USING BIG DATA AND ARTIFICIAL INTELLIGENCE TO SUPPORT PEACE AND SECURITY IN UGANDA AND SOMALIA

Over the last three years, Pulse Lab Kampala has been exploring how data generated from radio shows and social media can be used to inform development and humanitarian efforts in Africa. These efforts led to the development of a number of methodologies and tools, including the first speech recognition technology the Lab created to transcribe indigenous languages.

In 2018, the Lab used these methods to explore how they can inform the peace and security efforts coordinated by the UN in the region. The first test case used data extracted from social media, namely posts from public Facebook pages and groups, to analyse how influencers and fake news might be shaping discussions among online users in Somalia and to identify trending topics relevant to SDG16 - peace, justice and strong institutions. The second case study analysed public discussions on radio shows to detect instances of rumours and misconceptions, and of social tensions as reported by listeners in Uganda.

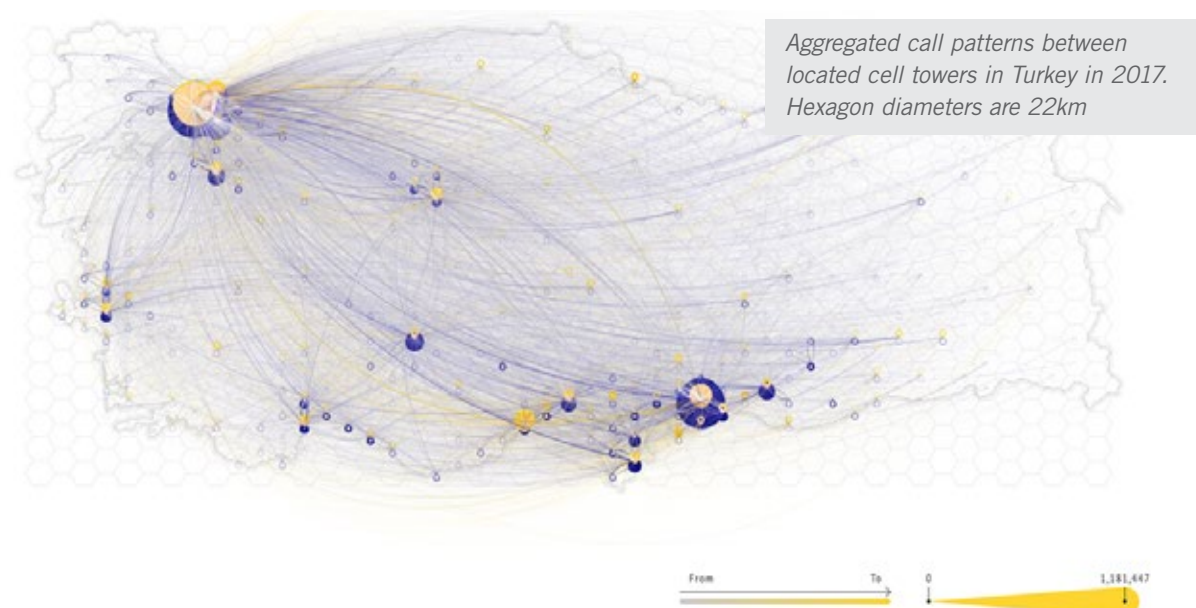
These initial studies showed that analysis of big data sources from social media and radio shows can provide rich and timely information for effective conflict mitigation by identifying trends as they emerge and monitoring contexts as they evolve.

The research is detailed in a report entitled Using Big Data and AI to Support Peace and Security.

<https://www.slideshare.net/unglobalpulse/experimenting-with-big-data-and-ai-to-support-peace-and-security>

USING CALL DETAIL RECORDS TO UNDERSTAND REFUGEE INTEGRATION IN TURKEY

UN Global Pulse continued its partnership with UNHCR to help the agency experiment with analysing mobile data to support the refugee crisis in Turkey. For this project, Global Pulse, UNHCR Innovation, and the UNHCR country team in Turkey analysed anonymized Call Detail Records (CDRs) provided by



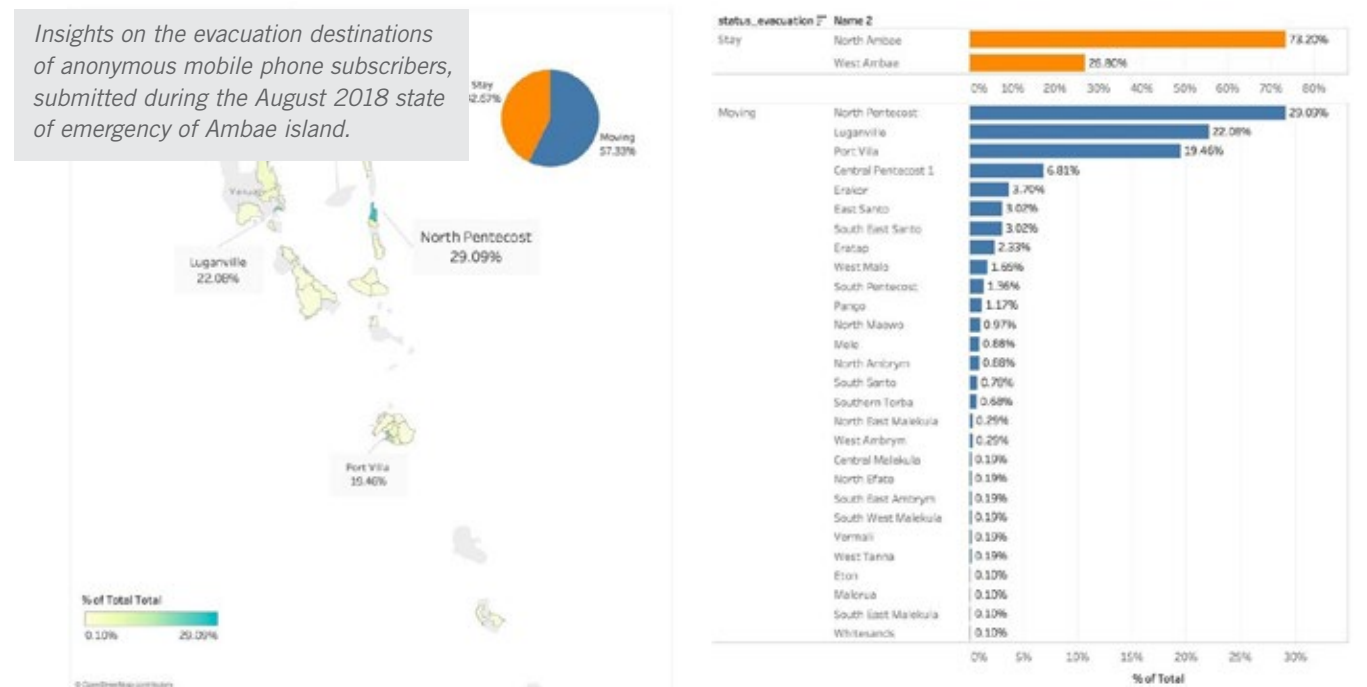
telecom operator Turk Telecom to understand refugee integration in Turkey, which is one of the main solutions recognised by UNHCR.

Integration is a complex and gradual legal, economic, social, and cultural process that burdens both the settling population and the receiving society. While the nature of this process generally differs from country to country, UNHCR acknowledges a need for standardised indicators that can be used to compare integration across countries and regions, and to assess the success of various efforts.

The research aimed to contribute a methodological framework for measuring integration through the lens of spatial and social segregation using CDR data, and for assessing the impact of programmes like the Emergency Social Safety Net (ESSN) cash transfer programme.

The findings are compiled in a report, and Global Pulse has also been invited to summarize the research for a chapter to be included in the book Guide to Mobile Data Analytics in Refugee Scenarios. UN Global Pulse will work with UNHCR, other humanitarian experts, and academia on a list of recommendations for Turk Telecom leadership and the Turkish Government based on the insights gained from this project.

<https://d4r-turktelekom.unglobalpulse.net/>



USING MOBILE NETWORK DATA TO INFORM DISASTER RESPONSE IN ASIA

Pulse Lab Jakarta partnered with mobile phone operator Digicel to conduct a project to mine mobile network data for insights on natural disasters. Covering the Highlands Earthquake in Papua New Guinea

and the Ambae Volcano in Vanuatu, Pulse Lab Jakarta developed insights on internal displacement to inform the targeting of humanitarian assistance.

The analysis indicated that not only can mobile network data be used to map evacuations in near real-time, but there is also the potential of building predictive models for evacuee destinations. In Vanuatu, the analysis created operational impact when the volcano erupted again in August 2018 and the Government asked Pulse Lab Jakarta to produce insights on citizen displacement.

Using data from Samoa, Pulse Lab Jakarta also prepared baseline information that could be used in the eventuality of a cyclone hitting the country during the wet season. The preparation included mapping the locations of storm shelters to understand which cell towers might see an increase in load during a cyclone; understanding the ratio between subscriber density and population density to develop rough scaling factors for population flows; descriptive analysis of the different frequencies of commuting and migration between administrative units; and descriptive analysis of the social network.

SCANNING THE AIRWAVES TO CLOSE HEALTH SERVICE GAPS FOR PEOPLE LIVING WITH HIV IN UGANDA

In Uganda, health experts and local leaders are often invited to discuss health issues or complaints with community members on radio talk shows. Using the radio in this way has allowed the Ministry of Health and local counterparts to share HIV prevention and care messages. Campaigns outline the importance of testing (with a special focus on men), initiating anti-retroviral treatment (ART), adherence of ART for pregnant women, plus infant and young child feeding, sexual reproductive health, and safer sexual practices.

Using speech recognition technology, Pulse Lab Kampala analysed caller feedback to identify critical issues in care and service delivery related to HIV. The tool works by automatically transcribing speech into text that is then mined for topics of interest, like HIV. Analysts review the information that was highlighted as relevant and use user-friendly dashboards to visualize the insights.



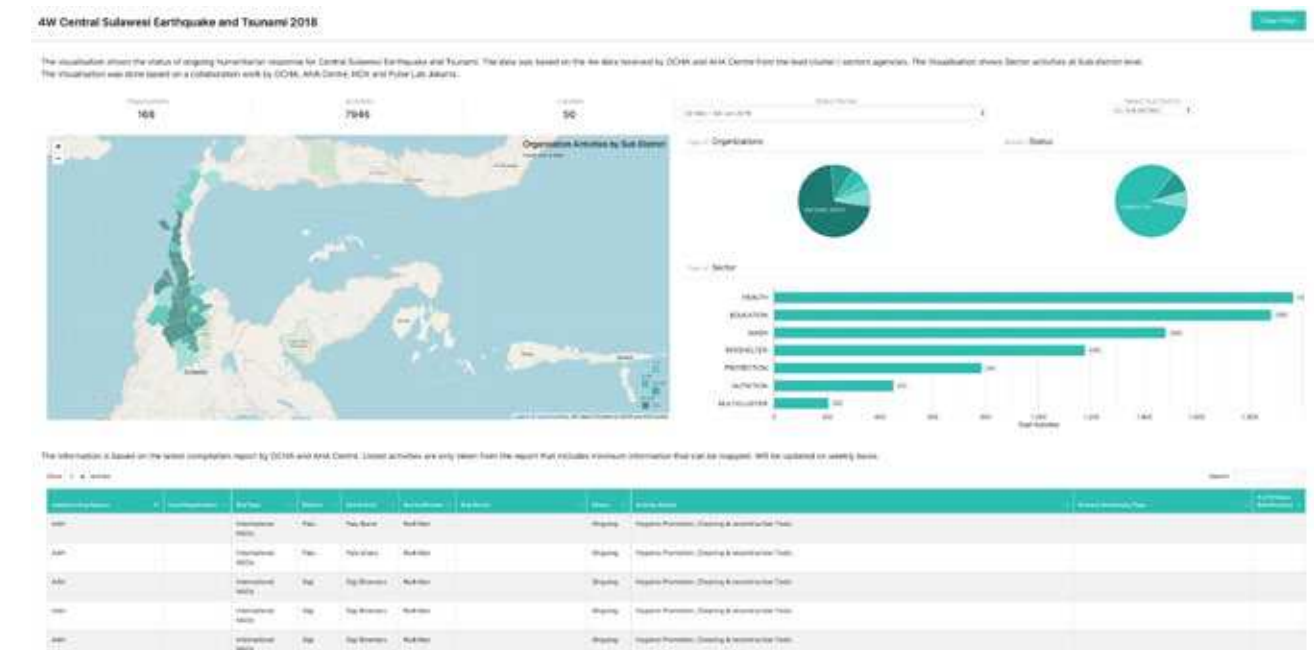
The Ministry of Health has expressed an interest in working more closely with Pulse Lab Kampala to make better use of community-generated information to define people-centric health strategies and interventions.

SUPPORTING HUMANITARIAN RESPONSE TO THE SULAWESI EARTHQUAKE AND TSUNAMI

Joining forces to support relief efforts for the September 2018 Central Sulawesi Earthquake and Tsunami, Pulse Lab Jakarta partnered with UN OCHA, AHA Centre and Humanitarian Data Exchange to create a data visualization dashboard, which highlights the status of ongoing humanitarian response in the region.

The dashboard used the 3W (“Who Does What Where”) data set which UN OCHA and AHA Centre receive from lead clusters and sector agencies (sector-specific coordination group of humanitarian organisations focused on strengthening preparedness and technical capacity to respond to humanitarian emergencies).

Providing a visual representation of ongoing response, the dashboard was used to indicate potential overlaps or gaps in response, as well as to enable the Government and interested organisations to identify potential humanitarian partners on the ground.



Status of ongoing humanitarian response for central Sulawesi Earthquake and Tsunami by Sector activities and Sub-district level.



BANKING ON FINTECH: FINANCIAL INCLUSION OF MICRO ENTERPRISES IN INDONESIA

Uncovering Behavioural Insights to Complement Data Analytics

With the support of the Australian Department of Foreign Affairs and Trade (DFAT) and in collaboration with the Indonesia Fintech Association (AFTECH), Pulse Lab Jakarta conducted research to contribute to the Government of Indonesia's financial inclusion goals, by uncovering behavioural and data analysis insights on micro enterprises as potential users of financial technology.

Roughly 99 per cent of all businesses in Indonesia are micro enterprises, according to the Ministry of Cooperatives and SMEs. These include small shop owners, street food vendors, and merchants -- many of whom are unbanked and are unable to expand their business in part due to a lack of access to formal financial services. Despite this challenge, several digital financial service providers in the country

have started to reach previously unbanked micro enterprises.

The main research question was: *Why, and how, despite the same obstacles and behavioural barriers, have some micro enterprises made the leap and begun to use these services?*

Pulse Lab Jakarta worked with three fintech companies: BTPN Wow! (mobile savings account), Go-Pay (mobile payment), and Amarnya (group peer to peer lending). As part of the research, more than 100 respondents were interviewed from cities including Jakarta, Bekasi, Sukabumi, Ciseeng, and Banyumas. Most of the interviewees were either users or agents of mobile savings accounts, mobile payments, and peer to peer group lending.

The research revealed some of the mental barriers that hamper micro merchants from accessing financial services, as well as the enabling factors that have encouraged some micro merchants to use fintech. Beyond understanding the users' realities, findings showed that for micro merchants, the way in which fintech services are introduced and implemented is more influential than details of the technology itself in convincing them to adopt a digital financial service.

Pulse Lab Jakarta developed a report that distills the insights gained throughout the research and which presents a set of practical design prin-

ciples. These principles can be applied by fintech companies as design directives in developing and testing a variety of solutions for micro enterprises in Indonesia.

The findings were also used to design a Challenge Fund aimed at promoting and accelerating the use of fintech for the financial inclusion of micro enterprises in Indonesia.

<https://www.slideshare.net/unglobalpulse/banking-on-fintech-financial-inclusion-for-micro-enterprises-in-indonesia>

... the way in which fintech services are introduced and implemented is more influential than details of the technology itself in convincing them to adopt a digital financial service.



BUILDING FIT-FOR-PURPOSE TOOLS AND METHODS



PULSESATELLITE AI - A NEW TOOL TO DETECT STRUCTURES IN SATELLITE IMAGES

When dealing with conflict and humanitarian crises, precision in satellite image analysis is key to supporting critical operations on the ground. UN Global Pulse and UNOSAT developed an automated tool to identify and count structures in settlements of refugees and displaced persons in high resolution satellite imagery using artificial intelligence.

The prototype tool maintains a strong emphasis on making use of human input relevant to maximize accuracy. One way it does that is by giving analysts without specific data science knowledge the means

of improving machine learning models through simple adaptation workflows on their own. It also enables interactive collaboration since dispersed teams can work on the same satellite image at the same time.

UN Global Pulse and UNOSAT are conducting accuracy assessments of the tool so potential users understand where and when it may be used, and when traditional and slower manual methods may be better suited. The tool is intended as a ‘container’ for such models. UN Global Pulse plans to add additional models for ‘flood mapping and other natural disasters’, and for ‘change detection for cultural heritage preservation and peacekeeping monitoring.’

EXPANDING THE USE OF SOCIAL MEDIA MONITORING TOOLS

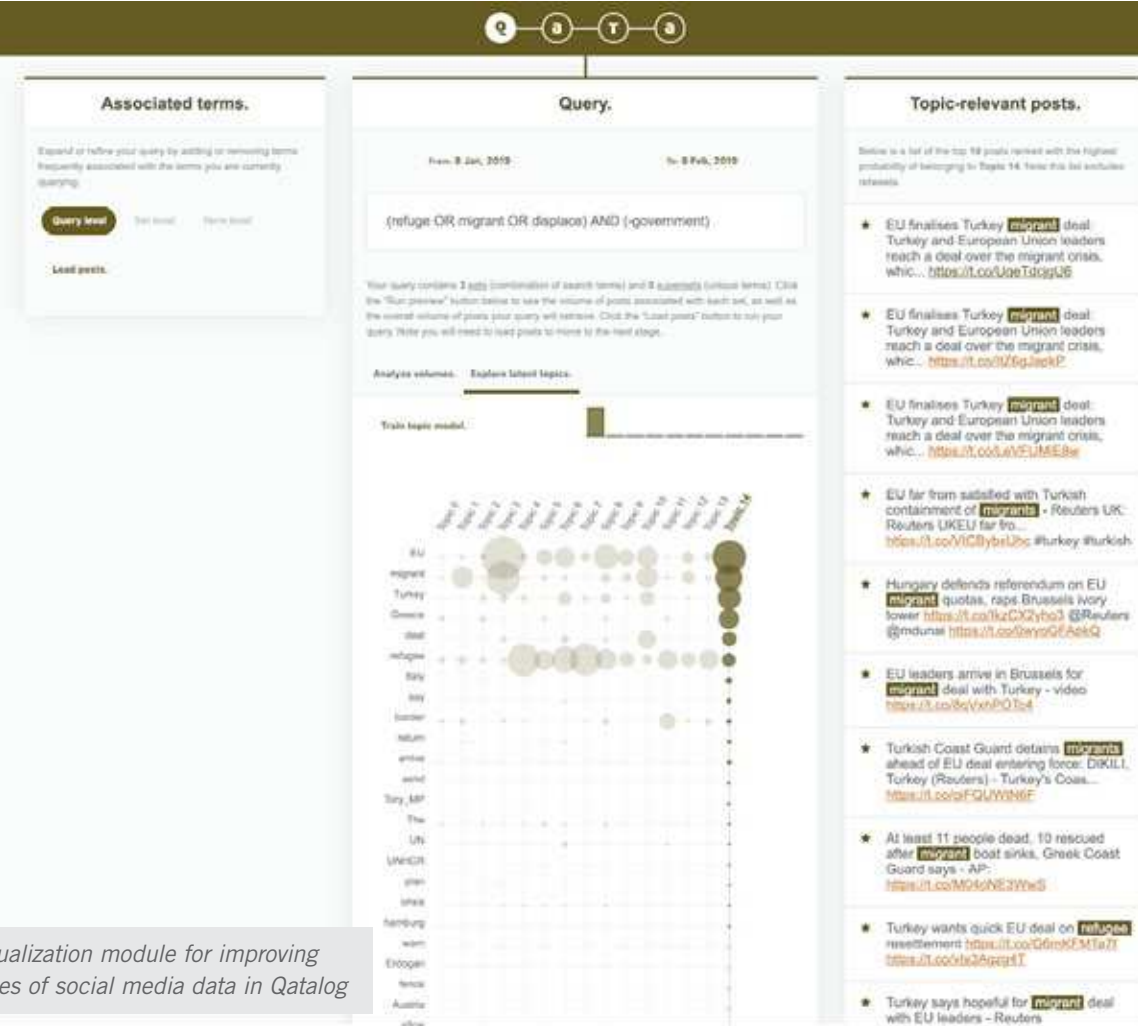
UN Global Pulse continued to forge partnerships with private sector companies with access to fit-for-purpose tools that can be used to inform the UN’s development, humanitarian, and peace efforts. In 2018, the partnership with Crimson Hexagon, a leading social media analytics company, was expanded to provide access to its data-mining tools to an increasing number of field units including UNHCR’s teams in Columbia, Nigeria, Cameroon, and Senegal; OCHA’s team in Venezuela; and IOM’s team in Peru. Through its partnership with Dataminr, a data mining company that provides breaking, real-time information before it hits the news, UN Global Pulse installed First Alert apps in the office of the United Nations Secretary-General.

CHEETAH TRACKER - A TOOL TO IMPROVE COORDINATION OF AMBULANCE EMERGENCY SERVICES

To understand how ambulances are being used and what other steps could be taken to improve emergency service delivery in Uganda, Pulse Lab Kampala developed a digital application called Cheetah Tracker.

The tool uses Global Positioning Systems (GPS) data to provide analytics on transport-related aspects of health service delivery through a user-friendly dashboard and SMS/email alerts. Metrics about how ambulances operate are gathered and analyzed, giving medical staff and health officials real-time tracking information.

For example, the application allows officials to know how much fuel was used, the top speed reached, and where, and for how long an ambulance was parked. In 2018, 27 GPS systems were installed in ambulances in the districts of West Nile and Rwenzori. There are ongoing plans to scale up the tool to national level.



A visualization module for improving queries of social media data in Qatalog

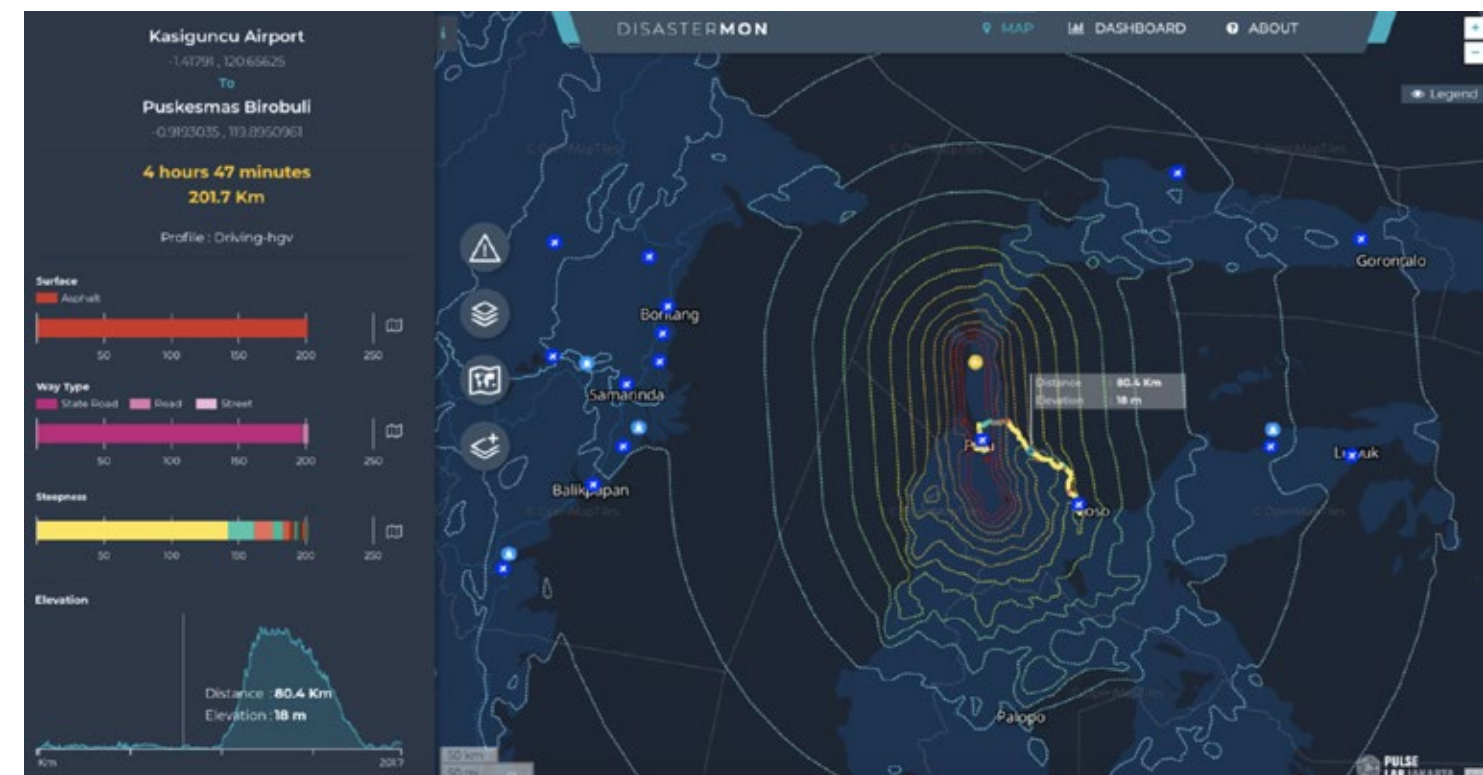
QATALOG - A NEW ANALYSIS AND VISUALIZATION DATA MINING TOOL

UN Global Pulse developed a data mining tool that can extract, analyse, and visualize data from social media and from radio shows. The tool allows users to extract useful information from large volumes of publicly available data and to analyse it for topics of interest using a combination of optimized manual annotations techniques and automatic helpers that include translation, geo-location and text classification. Users can visualize volumes of social media, currently from Facebook and Twitter, and radio conversations over time and space and can download the raw data for further analysis. The tool is being piloted with several UN teams and UN Global Pulse plans to include additional sources of data in 2019.

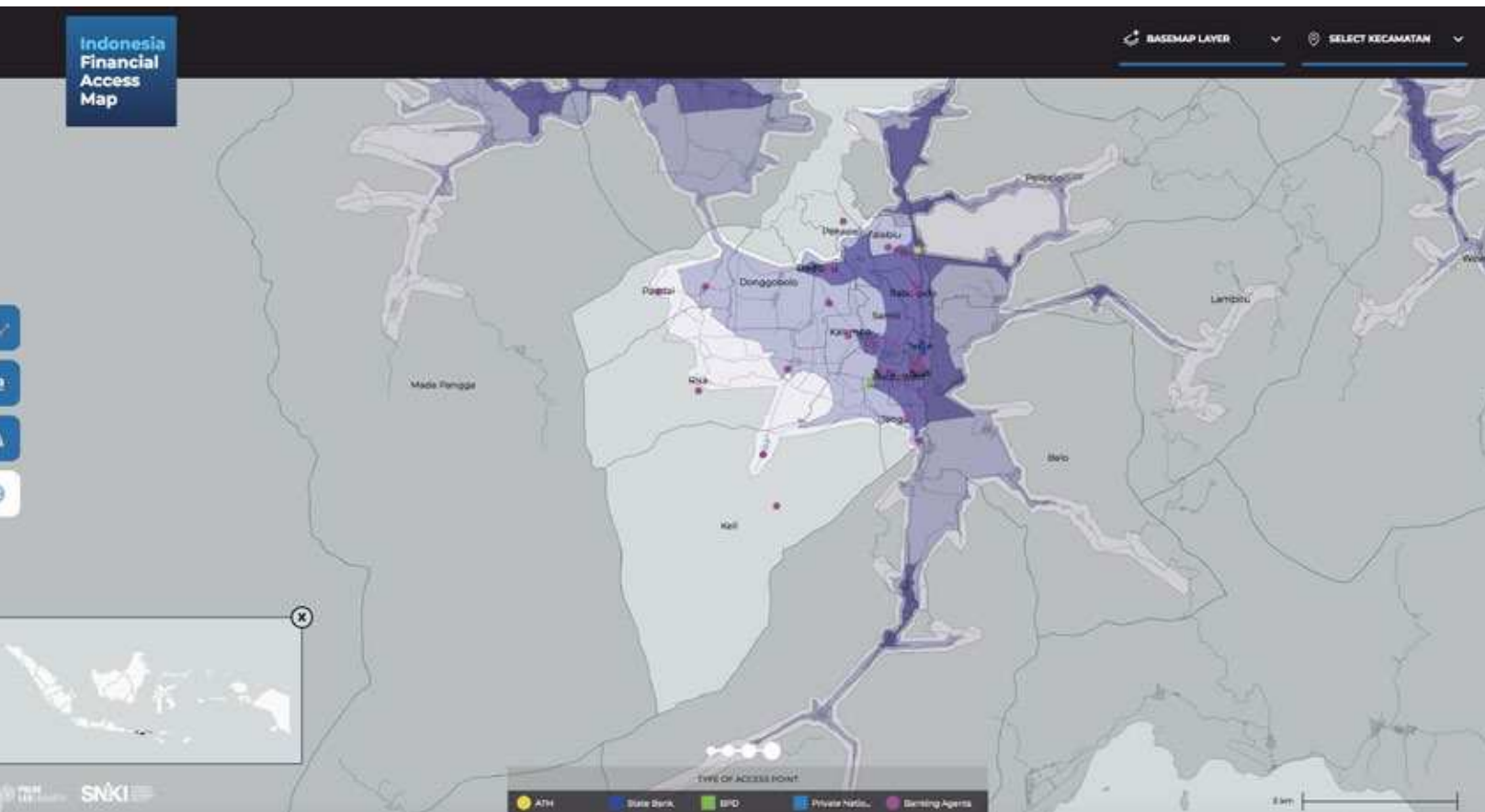
DISASTERMON - A BIG DATA DISASTER MONITORING TOOL

Building on the capabilities of its cyclone monitoring tool called CycloMon, Pulse Lab Jakarta created an integrated big data analytics and visualisation tool to provide timely insights for natural disaster monitoring, emergency response and management of cyclones, earthquakes, hurricanes and floods in Indonesia and countries in the Pacific region.

Called DisasterMon, the tool features three main data insight layers related to logistics planning, social media communication and socio-economic variables, which are based on multiple data sources, including open data platforms, national statistics, and social media, among others. DisasterMon seeks to enhance natural disaster monitoring at the local, national and international levels using big data, and has the potential to influence future development of automated real-time disaster monitoring systems.



Planning logistics data insight layer

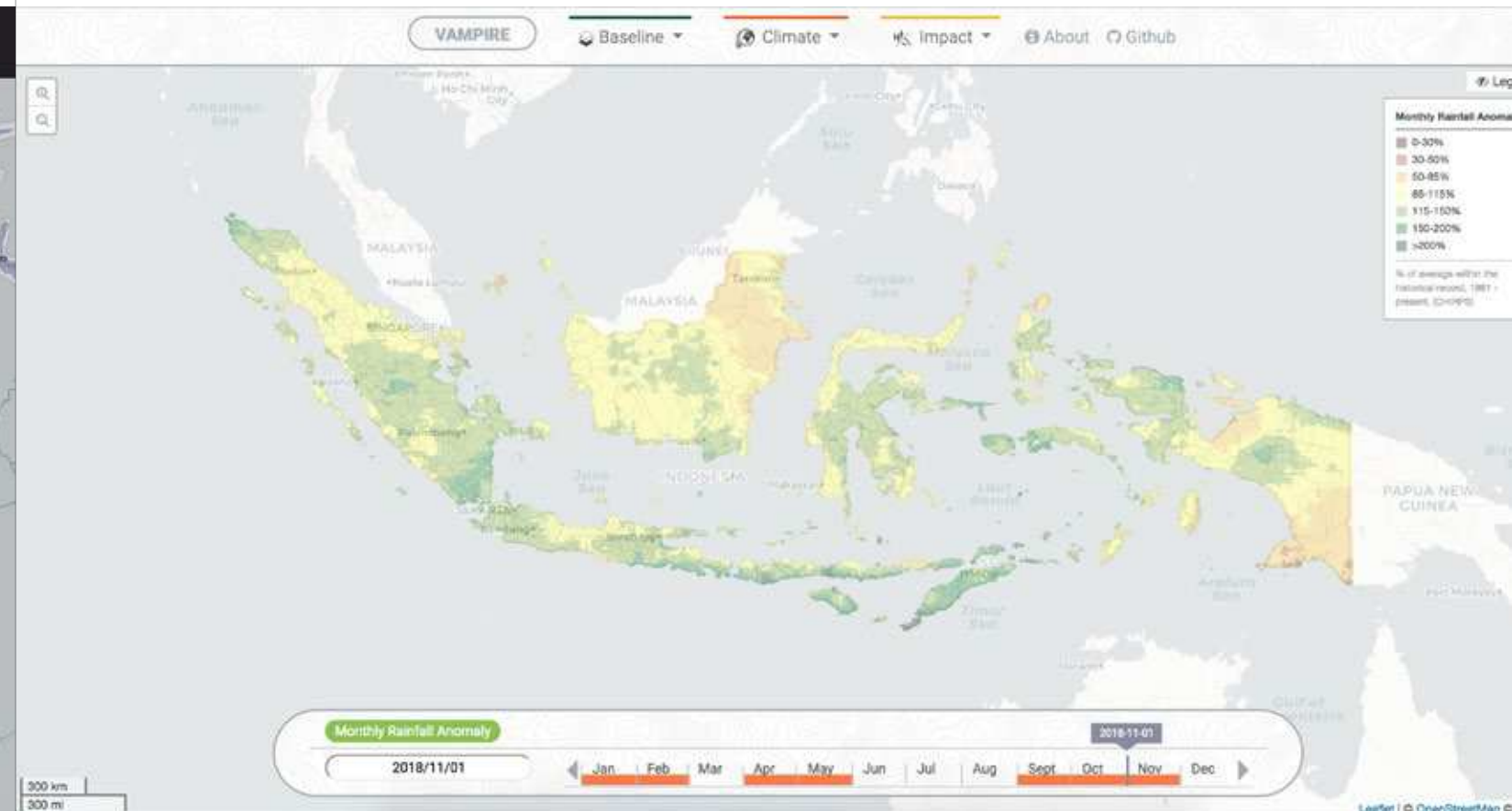


Interactive geospatial mapping of regions in Indonesia visualizing financial service provision and existing gaps

FINANCIAL ACCESS MAP

The Indonesian National Secretariat of Financial Inclusion together with Pulse Lab Jakarta and Women's World Banking developed a Financial Access Map dashboard, an interactive geospatial map of regions in Indonesia, that visualises financial service provision and existing gaps.

The dashboard highlights financial access points alongside per capita analysis, network coverage analysis and proximity analysis of financial access point locations. The prototype was endorsed by the Deputy Minister for Macroeconomic and Financial Coordination (Iskandar Simorangkir) and installed on the server of the National Team for the Acceleration of Poverty Reduction. There are ongoing discussions with regards to scaling the prototype up to the national level.



Climate layer: Analyses data on rainfall anomalies and the Indonesian vegetation health index

SCALING UP VAMPIRE (VULNERABILITY ANALYSIS MONITORING PLATFORM FOR IMPACT OF REGIONAL EVENTS)

New features were added to VAMPIRE, an analysis tool developed jointly by Pulse Lab Jakarta and WFP to measure the impact of weather anomalies (floods and droughts) on food security. The features include tabular and graph data visualisation for selected timelines, enabling enhanced monitoring and early warning of weather extremes. More specifically, it includes new layers that show (i) days since the last rainfall and (ii) flood forecast which gives an idea of likely impact based on crop and population distribution overlays.

At WFP's 2018 Innovation Accelerator Bootcamp in Munich, Germany, the tool was pitched to an audience of 200 investors. In addition, the code for VAMPIRE will be made open source, allowing relevant stakeholders to conveniently integrate the tool in their operations.

SCIENTIFIC ARTICLES

Humanitarian applications of machine learning with remote-sensing data: review and case study in refugee settlement mapping

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY

Identifying seasonal mobility profiles from anonymized and aggregated mobile phone data

PLOS ONE

On the privacy-conscientious use of mobile phone data

SCIENTIFIC DATA

Sequences of purchases in credit card data reveal life styles in urban populations

NATURE COMMUNICATIONS

Structuring Visualization Mock-Ups at the Graphical Level by Dividing the Display Space

IEEE TRANSACTIONS ON VISUALIZATION AND COMPUTER GRAPHICS

Using big data for non-communicable disease surveillance

THE LANCET DIABETES & ENDOCRINOLOGY

Big data for development indicators and social policies

**INTERNATIONAL CONFERENCE ON POPULATION AND SOCIAL POLICY
IN A DISRUPTED WORLD 2018**

Data fusion to describe and quantify search and rescue operations in the Mediterranean Sea

**IEEE INTERNATIONAL CONFERENCE ON DATA SCIENCE
AND ADVANCED ANALYTICS 2018**

Estimating the quality of crowdsourced translations based on the characteristics of source and target words and participants

**IEEE/ACM INTERNATIONAL CONFERENCE ON ADVANCES
IN SOCIAL NETWORKS ANALYSIS AND MINING W2018**

Improving traffic safety through video analysis in Jakarta, Indonesia

ANNUAL CONFERENCE ON NEURAL INFORMATION PROCESSING SYSTEMS 2018

Nowcasting air quality by fusing meteorological data, insights from satellite imagery and photos shared on social media using deep learning

**INTERNATIONAL CONFERENCE ON ADVANCES IN SOCIAL NETWORKS
ANALYSIS AND MINING 2018**

Predicting evacuation destinations due to a natural hazard using mobile network data

**INTERNATIONAL CONFERENCE ON INFORMATICS AND COMPUTATIONAL
SCIENCES 2018**

The effect of extremist violence on hateful speech online

INTERNATIONAL AAAI CONFERENCE ON WEB AND SOCIAL MEDIA 2018

ECOSYSTEM CATALYST

- > LOWERING BARRIERS TO SCALE
- > STRENGTHENING THE INNOVATION ECOSYSTEM
- > ENABLING INSTITUTIONAL ADOPTION

UN Global Pulse works on a programme of catalytic activities designed to foster an enabling environment for greater uptake of big data and artificial intelligence in development, humanitarian, and peace contexts. These activities include:

- I) lowering barriers to scale**, by contributing to global efforts to establish trusted frameworks for ethical and privacy protective data practices and innovation
- II) strengthening the innovation ecosystem**, by connecting communities of practice across disciplines and geographies and building capacity to accelerate the rate of discovery of high-potential applications of data science
- III) enabling institutional adoption**, by providing public sector organizations with the policy guidance and technical assistance needed for mainstream adoption of innovative data practices and technologies.

LOWERING BARRIERS TO SCALE

DRIVING TECHNOLOGY POLICY WORK FOR PRIVACY PROTECTIVE AND ETHICAL INNOVATION

During the year, UN Global Pulse co-led efforts to develop data protection and privacy principles for the UN, engaged with privacy specialists and regulators to contribute to policy frameworks for the use of big data, and worked with governments to facilitate synergies and knowledge exchange to create national strategies for the ethical and privacy-protective use of AI.

Beginning in late 2017, Global Pulse worked with the UN Privacy Policy Group (UN PPG), an inter-agency working group it co-chairs together with UN OICT, to develop the Principles on Personal Data Protection and Privacy. These Principles set out a basic framework for the privacy protective processing of data at the UN and were formally adopted by the UN System Organizations in October 2018. The UN PPG was formed by UN Global Pulse and UN OICT in 2016 to advance dialogue and information sharing on issues related to data privacy and protection and to unite existing efforts on data privacy, data protection

UN PRINCIPLES ON PERSONAL DATA PROTECTION AND PRIVACY

These Principles set out a basic framework for the processing of “personal data”, by, or on behalf of, the United Nations System Organizations in carrying out their mandated activities. They were formally adopted by the UN System organizations in October 2018.



PURPOSE SPECIFICATION

Personal data should be processed for specified purposes, which are consistent with the mandates of the United Nations System Organization concerned and take into account the balancing of relevant rights, freedoms and interests. Personal data should not be processed in ways that are incompatible with such purposes.

PROPORTIONALITY AND NECESSITY

The processing of personal data should be relevant, limited and adequate to what is necessary in relation to the specified purposes of personal data processing.

RETENTION

Personal data should only be retained for the time that is necessary for the specified purposes.

ACCURACY

Personal data should be accurate and, where necessary, up to date to fulfill the specified purposes.

CONFIDENTIALITY

Personal data should be processed with due regard to confidentiality.

SECURITY

Appropriate organizational, administrative, physical and technical

safeguards and procedures should be implemented to protect the security of personal data, including against or from unauthorized or accidental access, damage, loss or other risks presented by data processing.

TRANSPARENCY

Processing of personal data should be carried out with transparency to the data subjects, as appropriate and whenever possible. This should include, for example, provision of information about the processing of their personal data as well as information on how to request access, verification, rectification, and/or deletion of that personal data, insofar as the specified purpose for which personal data is processed is not frustrated.

TRANSFERS

In carrying out its mandated activities, a United Nations System Organization may transfer personal data to a third party, provided that, under the circumstances, the United Nations System Organization satisfies itself that the third party affords appropriate protection for the personal data.

ACCOUNTABILITY

United Nations System Organizations should have adequate policies and mechanisms in place to adhere to these Principles.

FAIR AND LEGITIMATE PROCESSING

The United Nations System Organizations should process personal data in a fair manner, in accordance with their mandates and governing instruments and on the basis of any of the following:

- (i) the consent of the data subject;
- (ii) the best interests of the data subject, consistent with the mandates of the United Nations System Organization concerned;
- (iii) the mandates and governing instruments of the United Nations System Organization concerned; or
- (iv) any other legal basis specifically identified by the United Nations System Organization concerned.

and data ethics across the UN. The UN PPG meets several times a year and is comprised of privacy, information security and legal experts from over 30 UN organisations.

In May, at the request of the Government of Uganda, UN Global Pulse hosted a capacity building workshop for authorities to assist with the adoption and further implementation of national data protection and privacy legislation. A subsequent benchmarking visit was organized for the Ugandan Government to the Republic of Mauritius to scope out opportunities for collaboration between the two countries in executing and implementing data protection legislations that foster safe innovation. These efforts were facilitated thanks to engagement from members of the Privacy Advisory Group (PAG), an informal group that UN Global Pulse created in 2015, which comprises data privacy and ethics experts, regulators and academics from all over the world. The PAG has been contributing to many of the policy instruments that UN Global Pulse created in recent years, including in the development of a guidance note on data privacy, protection and ethics, which was adopted by the UN Development Group in 2017. The Group also participated in an initial workshop to kick start the process of developing the UN Principles on Personal Data Protection and Privacy.

In the second half of 2018, Global Pulse published an updated version of its Risks, Harms, and Benefits Assessment, a tool that the Pulse Labs use to identify potential ethical and human rights issues that may occur at any stage of a data innovation process. The tool also helps develop a risk mitigation strategy and ensure that the risks of harms do not outweigh the expected benefits of any given project. Next, UN Global Pulse plans to publish an expanded version of the Assessment that will include a more comprehensive assessment of the actual risks and harms of data use and non-use. Global Pulse is also helping other UN entities who have expressed an interest in the tool to incorporate it into their own operating procedures.

Throughout the year, UN Global Pulse continued to engage with privacy regulatory and academic communities through various expert forums. Together with the European Data Protection Supervisor and the International Association of Privacy Professionals (IAPP), Global Pulse hosted a side event on digital ethics in development and humanitarian missions at the 2018 International Conference of Data Protection and Privacy Commissioners in Brussels, Belgium. During the conference, Global Pulse also met with the African Data Protection Network and the Ibero-American Data Protection Network as part of its continuous engagement to advance data protection and privacy in both regions. At the invitation of ITU, Global Pulse hosted a session on Enabling Policy and Regulatory Environments during the Regional Development Forum for Asia-Pacific where it discussed with resident coordinators the latest updates in data privacy and protection regulations. Global Pulse conducted three additional capacity building workshops (May, July, November) for Asia Pacific senior UN leaders during the year.

Global Pulse also provided expert guidance in various events organized by partner UN organizations, including UN OCHA, UN OICT, UN Women, UNICEF, UN DOCO, UNDP, ITU, UNHCR, and UNESCO among others. Global Pulse actively continues to support the activities of the Secretary-General High Level Panel on Digital Cooperation at the invitation of its secretariat by providing expertise in the area of privacy, ethics and AI during expert meetings and briefings. In December, UN Global Pulse was invited to become an observer to the EU Commission's Expert Group on Business to Government Data Sharing and to contribute to the EC report and frameworks for data sharing for social good. It is also an active observer to the International Conference of Data Privacy and Data Protection Commissioners.

During the year Global Pulse and IAPP published a report on Building Ethics into Privacy Frameworks for Big Data and AI. The report draws on the discussions of an event organized by the two organizations

as well as additional research about data ethics. It outlines tools and methodologies, including data protection and ethical impact assessments and ethical review boards, that practitioners can use to develop applications of big data and artificial intelligence.

<https://www.unsceb.org/privacy-principles>

http://bit.ly/UNGP_PIA

<https://www.unglobalpulse.org/data-privacy-advisory-group>

<https://iapp.org/resources/article/building-ethics-into-privacy-frameworks-for-big-data-and-ai/>



Members of the UN PPG, 2018

RAISING AWARENESS TO ADVANCE POLICY ACTION



THE FUTURE OF DATA PRIVACY AND DIGITAL ETHICS IN THE EMERGING WORLD OF DATA AND TECHNOLOGY

UN Global Pulse is a long-standing member of the Global Partnership for Sustainable Development Data (GPSDD), and as such attended the first Data for Development Festival, an event organized by the Partnership to drive action and foster strong links within its community.

At the Festival, UN Global Pulse hosted a session on data privacy and protection, among others. The session welcomed speakers from UN DESA, the UK Office for National Statistics, the UK Safer Internet Centre, and Privacy Matters. Discussants addressed the ways in which the current data privacy landscape is evolving globally, and how it does, or does not reflect on the management of potential risks, harms and benefits associated with the use of big data in development and humanitarian practice.

2018 ECOSOC PARTNERSHIP FORUM

UN Global Pulse engaged with the 2018 ECOSOC Partnership Forum where it helped organize and moderated an event that explored how public-private partnerships could be scaled to advance data philanthropy.

The Big Data for Public Good session gathered over 150 participants attending the UN Economic and Social Council (ECOSOC), which meets every year in April to share the latest innovations in how partnerships can best advance international development. UN Global Pulse opened the session with an overview of the data philanthropy landscape and of recent notable partnerships between the UN and private sector companies that are driving forward collaborative efforts.

A high level discussion between the executives of Millicom and Planet Labs, one an international telecom and media company and the other an earth imaging company, echoed the need to address the risks associated with big data use through stronger, multidisciplinary, inclusive and responsible partnerships. The event continued with interactive discussions from a panel of experts who explored what opportunities new technologies afford to help achieve sustainable development.

The session concluded with interventions and questions from guests. Event speakers included representatives from the Global Partnerships Forum, GSMA, LIRNEAsia, MasterCard, Statistics Canada, the Uganda AIDS Commission, UN DESA, and the World Bank Group.





AI FOR GOOD GLOBAL SUMMIT

UN Global Pulse attended the second AI for Good Global Summit organized in May in Geneva, Switzerland where it was invited to share insights from its AI projects and tools in three panel discussions: Safe and Secure AI; Innovative Applications of AI & Data Science in the Field; and Satellite Track - Poverty Mapping.

UN Global Pulse presented the machine learning and AI frameworks it built to extract information from radio shows and satellite imagery, and talked about the methods that were developed to scale up these tools. A common take-away from discussions was that AI-powered tools and technologies should be used to augment human analysis, through faster computations and analysis, but not replace it. UN Global Pulse also engaged in conversations around the privacy protective and ethical uses of AI, where it raised questions of how to balance the risks and harms of misuse versus the risks of non-use, or missed use, of these technologies in instances where they could advance humanitarian efforts and peace.

UN Global Pulse echoed commitments made by participants to work together to promote cooperation, reduce duplication, and operationalize some of the projects presented at the Summit.

FROM PRIVACY TO ETHICS: MISUSE, MISSED USE AND THE PUBLIC GOOD

UN Global Pulse in collaboration with the European Data Protection Supervisor and IAPP, hosted a roundtable discussion between commissioners, civil society and private sector that explored how ethics and privacy can help fill the gaps not yet covered by data privacy norms in the context of sustainable development and humanitarian action.

The event was organized on the margins of the 40th session of the International Conference of Data Protection and Privacy Commissioners in October in Brussels, Belgium. Gathering commissioners, data privacy and protection professionals, and ethics experts, discussions focused on the dangers of misuse of new technologies and how they can be mitigated. Discussants also addressed the risks associated with non use of data - those lost opportunities when the use of emerging technologies could prevent the loss of lives and help improve livelihoods.



THE UN WORLD DATA FORUM

The UN World Data Forum took place from 22 to 24 October 2018 in Dubai, the United Arab Emirates. The level of participation at this second edition showed a growing interest in big data by public officials and various other stakeholders, reinforcing the recognition that new data sources can accelerate the achievement of the 2030 Agenda.

UN Global Pulse in its capacity as member of the Programme Committee was heavily involved in the overall organization and design of the Forum. To advance the conversations started during the first World Data Forum, UN Global Pulse hosted three sessions, including a plenary entitled Big Data for Sustainable Development: What Does it Take to Get to the Next Level?

The plenary welcomed an all-female panel to discuss the opportunities and pitfalls of technology and share key lessons for using data for the public good. The panel welcomed speakers from BBVA bank, GSMA, the Office for National Statistics in the UK, the SDG Accelerator, and Global Pulse. In addition,

UN Global Pulse co-hosted two other events, the first on operationalizing mobile data for public good in collaboration with Digicel, and the second on data privacy, protection and the ethics of big data for the SDGs, together with the Federal Competitiveness and Statistics Authority of the UAE.



STRENGTHENING THE DATA INNOVATION ECOSYSTEM

INNOVATION NETWORKS, FUNDS, AND COMPETITIONS

THE UN INNOVATION NETWORK

The UN Innovation Network (UNIN) is a community of innovators from over 65 entities in over 70 countries interested in sharing their expertise and experience with others to promote and advance innovation within the UN System. The work of the UNIN is driven by the interests and needs of its members.

The network was founded in 2015 and is co-chaired by UNICEF and WFP. In 2018, UN Global Pulse acted as the UNIN data focal point and helped create its website, including a database of innovation projects from across the UN.

As a UNIN member organization, UN Global Pulse contributes regular updates to the UNIN newsletter and engages with the community through contributions in discussions and seminars where the Pulse Labs present their work and share best practices in developing data-driven projects and tools.

UN GLOBAL PULSE DATA FELLOWS PROGRAMME

In order to scale the collaboration between organizations of the UN and Academia, UN Global Pulse launched a Data Fellows Programme, a match-making exercise where Global Pulse identifies doctoral researchers with specific expertise in data science, computational social science or data and design, who are interested in working with the UN.

UN Global Pulse plans to organize an in-person meeting of the fellows and the UN entities they will be working with at the beginning of 2019 to facilitate introductions and guide the teams in conceptualizing their data-driven projects.

The first cohort of Data Fellows will include eight doctoral researchers who will work with the Multi-Partner Trust Fund Office, UN-Habitat, UNDP, UNHCR, UNOSAT, UN Global Pulse, UN Women, and the World Health Organization (WHO).



From left to right Data Fellows: Katherine, Adriana, Basma, Joe, Benjamin, Kevin, Lingzi



MICROENTERPRISE FINTECH INNOVATION CHALLENGE FUND

Pulse Lab Jakarta teamed up with the United Nations Capital Development Fund—Shaping Inclusive Finance Transformations (UNCDF-SHIFT) programme to launch a fund which challenged fintech companies to come up with innovative ideas on how to get micro enterprises digitally included.

The fund is designed to provide financial grants to incentivise the adoption and use of digital business solutions for micro enterprises operating in Indonesia. Overall, 33 applications were received, and of them 12 projects from 11 fintech companies were selected. The shortlisted projects pitched their proposed solutions to an evaluation committee.

The best six pitches were selected based on a mix of criteria, including original innovation idea, impact and scale, relevance to challenge and quality of the pitch. At the 2018 Singapore Fintech Festival, the six winners presented their proposed solutions: Youth-Led Digital Literacy Scheme; Mobile app platform for providing micro enterprise loans; Cashless payment system for distributors; Digital inventory management and cashless payment app for micro enterprises; Digital loan product for female micro entrepreneurs; Mobile agent network for micro-financing of micro enterprises. The six projects will embark on the piloting phase in 2019.



DATA SCIENCE AFRICA 2018

Thanks to growing support and interest, two Data Science Africa events took place in 2018 in Nyeri, Kenya and in Abuja, Nigeria.

In Kenya, Pulse Lab Kampala joined the Dedan Kimathi University of Technology and others to organize a five-day event that included a trainer of trainers school and a two-day workshop of presentations and interactive panel discussions. The event gathered participants from more than 60 local and international universities, research organizations, and companies.

The second event in Nigeria attracted 130 participants from eleven countries: Cameroon, Ghana, Kenya, Malawi, Nigeria, Rwanda, Senegal, Tanzania, Uganda, United Kingdom and the United States.

A three day school on machine learning and data science welcomed researchers from the African University of Science and Technology, University of Sheffield, University of Lagos, the AI and Data Science lab-Makerere University, Google, Facebook, and Amazon. It was followed by a two-day workshop where participants discussed the role of data science in supporting governments to monitor and evaluate progress towards the SDGs, provided lessons learned from their own experiences, and proposed new project ideas.

Data Science Africa was conceptualized by Pulse Lab Kampala and first launched in 2014.

ACCELERATING PUBLIC SECTOR ADOPTION

OUTREACH

UN Global Pulse continued to contribute to the discourse on innovation by hosting and facilitating a wide range of national and international events, writing reports, and working with the media to raise awareness of the privacy protective uses of data and new technologies for the public good. Below is a timeline summary of activities conducted during the year, many of which were delivered in collaboration with partners from government, the UN, public and private sector, and academia.

JANUARY

2018 Colloquomotion Series

Jakarta, Indonesia

Colloquomotion is a monthly sharing session series organised by Pulse Lab Jakarta featuring academics, analysts and other domain experts interested in development, data science, and human intelligence. In 2018, covering a range of topics, speakers discussed how new types of data can help to address and tackle issues related to their selected topic of interest and expertise.



Indonesia-Australia Digital Forum

Jakarta, Indonesia

Pulse Lab Jakarta presented on the merits of harnessing technology for smart, agile, and responsive government, with highlights from data innovation projects and tools developed by

the Lab and which are currently used by Government partners.

ICT Network Meeting

New York, USA

Global Pulse joined the annual meeting of Chief Information Officers where discussions centred on the developing regulatory landscape of data protection and privacy. Global Pulse provided updates on the progress of the UN PPG.

FEBRUARY

UNA-USA Global Engagement Summit

New York, USA

UN Global Pulse discussed how different types of big data, including radio and satellite imagery, can provide real-time insights for decision-makers and citizens, in a session on Using Technology for Social Good.

Harnessing Big Data in the Agriculture Sector Seminar

Depok, Indonesia

Pulse Lab Jakarta was invited to attend and present some of its work focused on using big data analytics to improve food security.



MARCH

Data for Development Festival

Bristol, UK

UN Global Pulse presented its work in several workshops and hosted an event that discussed what aspects of data protection and privacy, and of digital ethics should accompany a data innovation project.

Global Privacy Summit

Washington DC, USA

Global Pulse attended an annual gathering of privacy professionals and regulators in Washington D.C., organized by the International Association of Privacy Professionals.



Challenges of Our Era Summit

Milan, Italy

Pulse Lab Kampala delivered a presentation of its speech-to-text technology and presented several case studies where UN agencies are using the tool to inform sustainable development and humanitarian action.

#SDGDataLK

Colombo, Sri Lanka

Pulse Lab Jakarta presented its work at the symposium to highlight the benefits of using big data for evidence-based policymaking. Gathering over 300 participants, this first national symposium on data for the SDGs was organized by the Government of Sri Lanka and the United Nations.

APRIL

How Gender Data is Informing Policies to Alleviate Gender Inequality

Washington D.C., USA

UN Global Pulse presented a selection of its gender-related data innovation projects and discussed the potential of integrating various sources of big data to inform SDG5 during the Spring Meetings of the International Monetary Fund (IMF) and the World Bank.



International Girls in ICT Day

New York, USA

Women data privacy experts and data scientists part of the UN Global Pulse team met with students from schools in New York City to share their experience working in the technology field at the United Nations. They answered questions and gave students advice on pursuing a career in data for good.

Makassar Innovation Lab Design Thinking Workshop

Makassar, Indonesia

Pulse Lab Jakarta helped organise a design workshop for government officials involved in establishing the Makassar Innovation Lab.



MAY

UNLEASH Singapore

Singapore, Malaysia

The 2018 UNLEASH Sustainable Development Goals Innovation Lab convened 1,000 cross-sectoral leaders under the age of 35 from around the world to design and deploy scalable solutions for the SDGs. Pulse Lab Jakarta facilitated various design sessions aimed at transforming ideas into solutions related to SDG11 - make cities and human settlements inclusive, safe, resilient and sustainable.

JUNE

WFP's Innovation Accelerator Bootcamp

Munich, Germany

Pulse Lab Jakarta joined other innovators for a week bootcamp where it presented VAMPIRE, a drought monitoring prototype tool it developed together with WFP. The week culminated in a pitch to an audience of investors who can help accelerate the scaling up of the prototype.



JULY

Harnessing Big Data and AI for the SDGs: Getting to Scale In Africa and Asia

New York, USA

Pulse Lab Jakarta and Pulse Lab Kampala co-hosted a session for colleagues at the UN Headquarters in New York to examine examples of data innovation projects and tools that were institutionalized in Africa and Asia. They discussed recommendations for expanding the scope of the research for on-the-ground implementation.

European Data Protection Supervisor and International Organizations Workshop

Copenhagen, Denmark

EDPS regularly partners with an international organization to organize a workshop for all interested international organizations to discuss critical data protection issues in a unique international law context. Global Pulse attended a workshop co-organized by EDPS and UNHCR that discussed the implications of the EU General Data Protection Regulation (GDPR) in the context of international organizations' privileges and immunities.

Shaping a Digital Future For All: Our Voice, Our Data, Our Privacy

Berlin, Germany

UN Global Pulse joined renowned speakers in discussing the



UN Innovation Bootcamp

Beirut, Lebanon

Un Global Pulse shared its experience in privacy protective data innovation during a session on Frontier Norms: Great Innovations come with great responsibilities. Participants were

introduced to the use of the risks, benefits and harms assessment tool and other strategies for implementing the UNDG Guidance Note on Data Privacy, Ethics and Protection in data innovation projects.

Data for Good: Towards a Rights-Based Approach to Research and Innovation

Stanford, USA

Global Pulse presented its data innovation work at the AAAI Conference on Web and Social Media, the premier venue for computational social science. The session discussed opportunities and open challenges for the research community to ensure that academic work can be translated into social impact.

AUGUST

International Conference Series on Advances in Social Network Analysis and Mining (ASONAM)

Barcelona, Spain

Pulse Lab Jakarta was selected to present the results of its nowcasting air quality research using social media images. Every year, hundreds of researchers and practitioners from different disciplines

submit their work, the best of which are presented during the Conference.

Big Data for Good

Kampala, Uganda

Pulse Lab Kampala and the Uganda Communications Commission hosted a dialogue breakfast to help foster increased data collaboration

between telecommunication companies in Uganda and development partners. Examples of projects using mobile phone data to support the SDGs were showcased and participants discussed ways to leverage data held by private companies for the public good.

SEPTEMBER

Data Playground

New York, USA

UN Global Pulse, UNDP and Microsoft hosted the Data Playground during the UN General Assembly, under the theme Accelerating the SDGs Through Digital Innovation. Hosted at Microsoft's creative spaces, the event aimed to spur ideation between and among innovators with discussions

and real-world examples of data, technology and innovative approaches to data privacy and ethics



Future on a Plate: Tech and the End of Hunger

New York, USA

UN Global Pulse joined WFP and GPSDD in setting up an interactive exhibit at the U.N. General Assembly showcasing how new sources of data and technologies are improving humanitarian aid.



Uganda Urban Expo

Kampala, Uganda

At the expo Pulse Lab Kampala hosted a panel session on applications of big data technologies for urban planning and management. The panelists included experts in the field of data science and urban planning.



OCTOBER

2018 UPU Conference on Data Protection and Data Privacy

Bern, Switzerland

Senior officials from Government, Posts, and International Organizations gathered to discuss the critical regulatory issues on data protection and privacy in the digital economy. Global Pulse presented the newly adopted UN Principles on Personal Data Protection and Privacy and talked about the data protection and privacy frameworks that guide the work of the Pulse Labs.



BBVA Open Summit

Madrid, Spain

UN Global Pulse presented its work using big data analytics and artificial intelligence, and discussed opportunities for collaborating with the financial sector through data philanthropy to utilize financial transaction data to inform sustainable development and disaster response.

UN Data Literacy Workshop

New Delhi, India

Pulse Lab Jakarta facilitated discussions about emerging big data sources and the implications for the SDGs.

NOVEMBER

Data Literacy Workshop for Resident Coordinators in Asia-Pacific region

Bangkok, Thailand

Pulse Lab Jakarta together with the UN Development Operations Coordination Office conducted two data literacy workshops for senior UN leaders from across

the Asia Pacific region. Topics included data protection, privacy and ethics. Participants were introduced to Global Pulse's risks, benefits and harms assessment tool and other strategies for implementing the undg Guidance Note on Data Privacy, Ethics and Protection in data innovation projects.

Artificial Intelligence for Human Rights and SDGs: Fostering Multi-Stakeholder, Inclusive and Open Approaches

Paris, France

Global Pulse contributed remarks during an event organized by UNESCO at the 13th annual meeting of the Internet Governance Forum. The talk focused on ethical challenges that can arise from the use of big data and artificial intelligence and how they might be mitigated.



DECEMBER

German National Digital Summit (Digital - Gipfel)

Nuremberg, Germany
UN Global Pulse and the Federal Ministry for Economic Cooperation and Development (BMZ) of Germany announced a new collaboration to support efforts to create a blueprint for national AI strategies in Africa.



EC Business to Government Data Sharing Expert Meeting

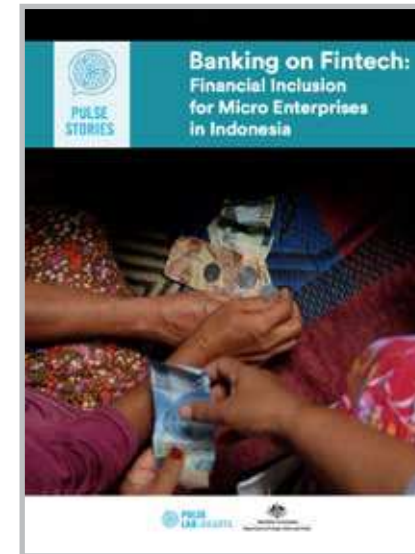
Brussels, Belgium and New York, USA
UN Global Pulse joined the meetings of the European Commission's Expert Group on Business to Government Data Sharing, to contribute to the discussions of the EC report and frameworks for data sharing for social good.



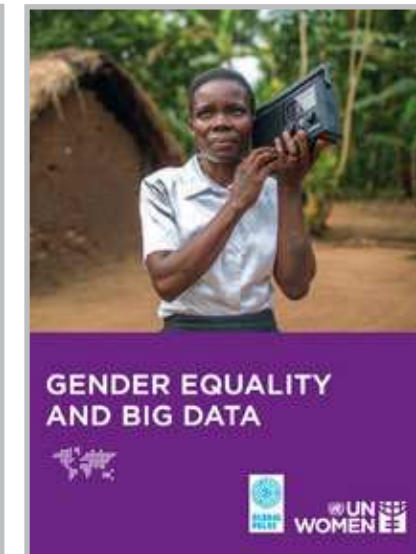
After Dark: Co-Design Workshop

Jakarta, Indonesia
To complement insights gathered from the After Dark field research, Pulse Lab Jakarta invited individuals across different sectors to offer inputs to support the synthesis phase of the research.

REPORTS



Banking on Fintech: Financial Inclusion for Micro Enterprises in Indonesia



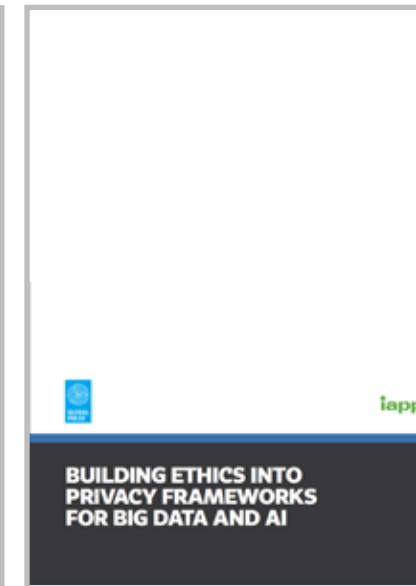
Gender Equality and Big Data: Making gender data visible



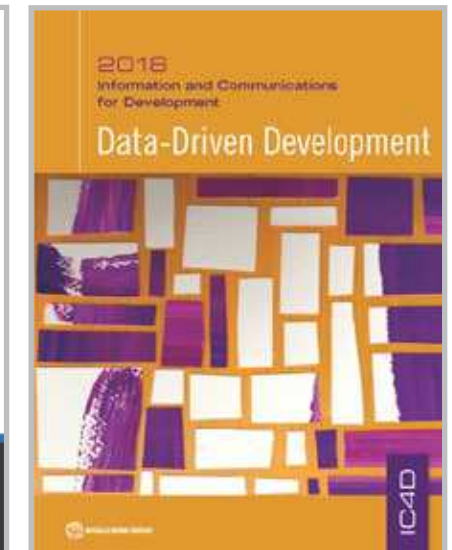
Examining Customer Journeys at Financial Institutions in Cambodia



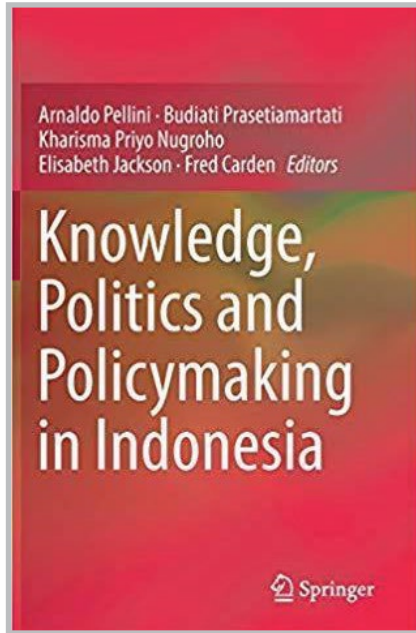
Experimenting with Big Data and Artificial Intelligence to Support Peace and Security in Africa



Building Ethics into Privacy Frameworks for Big Data and AI



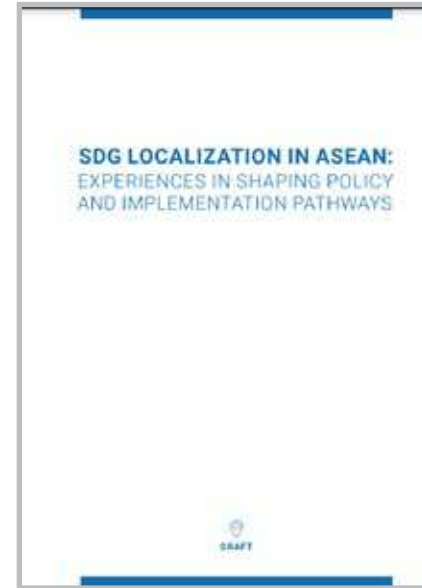
Chapter contributed in Information and Communications for Development 2018 : Data-Driven Development
The World Bank Group



Chapter contributed in Knowledge, Politics and Policymaking in Indonesia



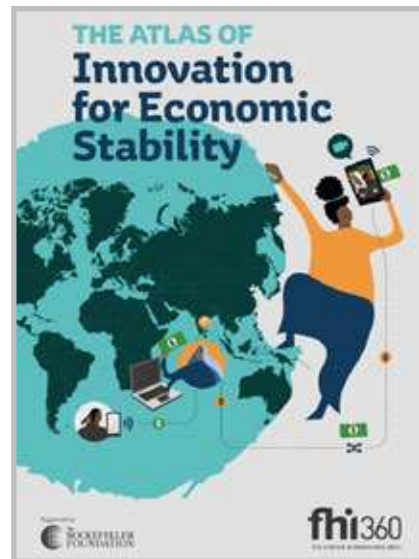
Chapter contributed in New Technologies: Where To? UN Chronicles



Chapter contributed in SDG Localization in ASEAN-UNDP



Stories of Change: Vampire and Haze Gazer



Chapter contributed in The Atlas of Innovation for Economic stability

PARTNERS AND COLLABORATORS

UN Global Pulse works with a large network of partners and collaborators from government, the UN, academia, think-tanks, companies and grassroots expert networks from around the world. Partnerships include scoping out and developing data innovation mechanisms to support achievement of the SDGs as well as engagement to create frameworks and standards for the privacy protective and ethical use of big data. UN Global Pulse and partners also organize workshops and training sessions and produce knowledge sharing products to enable broader public adoption of data innovation for public good.

UN INNOVATION PARTNERS



GOVERNMENT PARTNERS

Pulse Lab Kampala:



Pulse Lab Jakarta:



PRIVATE SECTOR COMPANIES AND NETWORKS



ACADEMIA AND NON-PROFIT ORGANIZATIONS

- African University of Science and Technology in Nigeria
- Airlangga University in Indonesia
- Andalas University in Indonesia
- Bandung Institute of Technology (ITB) in Indonesia
- Bina Nusantara University in Indonesia
- Center for Data Science and Public Policy, University of Chicago
- Clalit Research Institute
- Dedan Kimathi University of Technology in Kenya
- Development Cafe
- DiploFoundation
- Durham University
- Gadjah Mada University (UGM) in Indonesia
- Hivos
- Institute for Economic and Social Research Universitas Indonesia (LPEM UI)
- ISI Global Science Foundation
- Kalimantan Institute of Technology
- Knowledge Sector Initiative
- Makerere University in Uganda
- Massachusetts Institute of Technology (MIT)
- Multimedia Nusantara University in Indonesia
- Muhammadiyah University of Gorontalo in Indonesia
- National Democratic Institute
- Nelson Mandela African Institute of Science and Technology in Tanzania
- New York University (NYU)
- Open Data Lab
- Padjadjaran University in Indonesia
- Parahyangan Catholic University in Indonesia
- Pertamina University
- Plan International
- Technical University of Madrid (UPM)
- Sam Ratulangi University
- Sepuluh Nopember Institute of Technology (ITS) in Indonesia
- School of Statistics - Sekolah Tinggi Ilmu Statistik (STIS)
- STMIK Pelita Nusantara Medan in Indonesia
- Tanjungpura University (UNTAN) in Indonesia
- Telkom University
- Udayana University
- University of Brawijaya
- University of Edinburgh in England
- University of Oxford in England
- University of Pompeu Fabra in Spain
- University of Sheffield in England
- University of Stellenbosch in South Africa
- Wahid Hasyim University in Indonesia
- Women's World Banking

DONORS

UN Global Pulse is funded entirely through voluntary contributions from UN member states, foundations and the private sector.



Australian Government

Australian Department of Foreign Affairs and Trade



Bill and Melinda Gates Foundation



Government of the Kingdom of Belgium



Government of the Netherlands

Government of The Netherlands



대한민국정부

Government of the Republic of Korea



EMBASSY OF SWEDEN

Government of Sweden



Government of Indonesia



United Nations Development Operations Coordination Office



United Nations Peacebuilding Support Office



William and Flora Hewlett Foundation



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