

DATA REVOLUTION FOR POLICY MAKERS

International Conference



Jakarta, Indonesia
21 - 22 February 2017

CONFERENCE PROCEEDINGS

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ACRONYMS

AIPEG	Australia Indonesia Partnership for Economic Governance
BAPPENAS	Badan Perencanaan Pembangunan Nasional (Ministry of National Development Planning), Indonesia
FAO	Food and Agricultural Organisation
KSI	Knowledge Sector Initiative
MDGs	Millennium Development Goals
NBSAP	National Biodiversity Strategies and Action Plan
NGO	Non-Governmental Organisation
PLJ	Pulse Lab Jakarta
SDGs	Sustainable Development Goals
SHMC	The South Halmahera Malaria Center
UNCDF	The United Nations Capital Development Fund
UNDP	United Nations Development Programme
VAMPIRE	Vulnerability Analysis Monitoring Platform for Impact of Regional Events
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme

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Prof. Bambang Brodjonegoro, Minister of National Development Planning (BAPPENAS), officially opens the two-day conference in Jakarta.

DATA REVOLUTION FOR POLICY MAKERS

Hosted by the Indonesian Ministry of National Development Planning (*Badan Perencanaan Pembangunan Nasional*, Bappenas) in collaboration with Pulse Lab Jakarta and the Knowledge Sector Initiative (KSI), the ‘Data Revolution for Policy Makers’ conference provided a medium to discuss the successes and challenges of harnessing new data sources for policy-making.

The theme of the two-day conference was “Expanding the Evidence Base: Government Demand for Advanced Data Analytics in Indonesia.” The event brought together both Indonesian and international experts and practitioners, including more than 250 researchers, policy makers, activists and data analysts, government representatives, entrepreneurs, UN agencies and civil society organisation members.

Taking the conclusions from the 2014 ‘Data Innovation for Policy Makers’ event as a starting point, the conference featured plenary sessions with senior representatives from government, the UN and public and private entities on seven themes: taking stock of the data landscape; applications of real-time data for decision making; the policy side of data innovation; synchronising and shar-

ing data; forging data partnerships; reconfiguring citizen engagement and making sense of data. It included interactive displays of citizen data collection, data visualisations, big data analysis and hands-on data innovation sessions facilitated by data experts.

In his opening remarks, UN Global Pulse Director Robert Kirkpatrick emphasised how the data revolution represents a culture change that includes changes in organisational processes and changes in skills. “It’s exciting but it’s also disruptive – we’re moving from a world where we use the best data we have to make a plan and take a snapshot every few years, to actually detecting emerging risks and taking actions to keep them from affecting us. It’s a very different way of working.” Subsequent conversations throughout the two-day event highlight how much the data innovation landscape has changed since the last conference in 2014.

One key message that stood out was how much the Government of Indonesia has embraced new approaches to optimising the use of different data sources. This came through strongly in the Minister of National Development Planning’s keynote speech, where he underlined the importance of utilising big data as a complement to tradi-

tional statistics as inputs into policymaking in the midst of rising complexity in an uncertain environment. This emphasis on complementarity denotes a marked shift in the framing of conversations around the use of big data: the discussion has moved from solely extolling the virtues of big data analytics towards how this augments other data assets that policy makers already produce and to which they have access. This theme was echoed in subsequent sessions throughout the conference.

Several panel sessions featured open and honest discussions around the operational challenges in implementing innovative data tools within government units. Representatives of Bappenas and the Executive Office of the President of the Republic of Indonesia (*Kantor Staf Presiden - KSP*), the custodians of Indonesia's Satu Data Initiative, highlighted the issues of scattered data, lack of institutional coordination, unstandardised data and poor data integrity. What was heartening, however, was to see concrete examples of how government units at central and subnational level attempt to overcome these challenges. The Ministry of Education and Culture, for example, went through several phases to integrate data from school level right up to national level. Data for all schools in Indonesia is now publicly accessible on the main ministry website. At the subnational level, the District Government of Sragen in Central Java is making significant efforts to integrate cross-sectoral data. They have successfully built a local area network to synchronise and share population data to support local services.

Equally refreshing was the range of civic data innovation initiatives showcased from Indonesia and more broadly across the region. This included a USSD-based malaria reporting system developed by the South Halmahera Malaria Center (SHMC) that significantly cut down reporting time for malaria cases; Project Agos in the Philippines that combines technology, crowdsourcing and civic action to ensure the flow of critical information to those who need it before, during, and after disasters; and Kota Kita's participatory neighbourhood mapping project in Solo, which provided citizens with a tool that is used by and for people at the grassroots level, helping them to better understand their issues and prioritise planning needs for their own communities. Kota Kita also spoke cogently about some of the challenges with crowdsourcing and community data collection, including social resistance, fear about how the data will be used, and "data collection fatigue".

At the end of the day, the ability to harness new sources of data, new analytical tools, and recombining existing datasets to obtain new inputs for the policymaking process depends on the ability of humans to make sense of data. Fittingly, the conference's final plenary session featured a series of talks exploring this intersection between

“Data does not just emerge from the wild... it is the product of a particular relationship in which we are all actors. The group that gets to talk about this is often the group that does the collecting, not the group that data is being collected from.”

- Mimi Onuoha, Artist and Researcher

data analytics and an understanding of how humans work. This included unpacking some of the assumptions behind data innovation projects, framing data analytics in relation to relevant policy questions, applying visuals that help people digest information contained in analytics, and uncovering the stories behind data points. Also of interest was a discussion around which segments of the population were represented in the data. Artist and researcher Mimi Onuoha

summed this up neatly in her presentation, “Data does not just emerge from the wild... it is the product of a particular relationship in which we are all actors. The group that gets to talk about this is often the group that does the collecting, not the group that data is being collected from.” This particular discourse on the socio-politics of data is one that PLJ intends to explore in greater depth in the future.

Key Takeaways:

To obtain maximum impact from developments in data science, we will need to collaborate: With the proliferation of new data sources and information, collaboration is needed now more than ever. Incorporating a collaborative approach to understanding data is important, and requires relationships and connections with those who provide data, linking consumers and providers.

There is also significant value in combining new tools and big data analytics with other information and data sources that provide decision makers with contextual information on how decisions based on these analytics might impact people's lives. Effective data usage for policymaking requires a multidisciplinary approach and forming partnerships with domain experts is essential.

Big data for social good requires effective, trust-based data partnerships between data producers and data users; these take time to build. These partnerships offer significant benefits to both parties but must be carefully negotiated to ensure that data is shared in a way that protects privacy.

A careful consideration around the politics of data is needed in applying new models of decision-making: Advances in data analytics bring more knowledge and information to decision-makers but it is also about putting tools in the hands of many users, at subnational levels, to improve policymaking. However, new ways of making policies can be destabilising when challenging established approaches, and applications of these must take into account the political dynamics of decision-making. Moreover, good quality evidence provided at the right time can help to inform and improve government policies but we cannot assume that evidence automatically leads to action or that more evidence leads to better decisions.

Another critical dimension to consider in harnessing new sources of data is the protection of personally iden-

tifiable information. Big data is a powerful tool but it also comes with privacy risks; safeguarding privacy and ensuring the responsible use of digital footprints in analyses should be an integral part of applying big data analytics for development.

Data is about people: It is important to reality check the human dimension of the data revolution. There are at least three aspects to consider in this: Whom does the data represent?

Who has access to the data? Who is able to make sense of the data?

By considering these aspects in applying data innovation approaches and using insights from it, it is hoped that practitioners are more cognisant of potential representation bias and of the need to provide citizens access to information so that they can be part of creating solutions, promoting social accountability and improving their own communities.

ORGANISERS

Pulse Lab Jakarta (PLJ) is a joint initiative of the Government of Indonesia, through the Ministry of National Development Planning (Bappenas), and the United Nations, through Global Pulse. It is essentially a data innovation lab, aimed at harnessing the power of new digital data sources and real-time analytics for development.

The Knowledge Sector Initiative (KSI) is a joint programme between the governments of Indonesia and Australia that seeks to improve the lives of the Indonesian people through better quality public policies that make better use of research, analysis and evidence.

The Indonesian **Ministry of National Development Planning (Bappenas)** is responsible for developing high-quality development plans; monitoring, evaluating and analysing the implementation of these plans and providing feedback towards relevant development policies; and coordinating across government in relation to national development planning.

EXHIBITION PARTICIPANTS

1. **Akvo:** Akvo is working on food security in Indonesia. They supported the Indonesian local governments at district, sub-district, and selected villages levels to achieve decent water and sanitation.
2. **Knowledge Sector Initiative (KSI):** KSI displayed their achievements during the phase 1 of the project (2013-2017). They also displayed the photos of milestones events, such as the 2016 Australia Indonesia Science Symposium (AISS), the announcement of the Indonesian Science Fund, and the creation of Indonesia Research Excellence Alliance (ARK Indonesia). The two video presentations provided an overview of KSI's roles and efforts in building a foundation for evidence-based public policies by supporting knowledge producers, creating networks among knowledge producers and intermediaries and increasing demand among policy makers for research and evidence.
3. **MAMPU:** The programme showcased their collaboration with Indonesian partner organisations that advocate for women's empowerment, especially around the five strategic thematic areas of equality for women in employment, labour, health, social protection, and leadership.
4. **RTI:** RTI showcased the work of RTI Asia and their Center for Data Science, including their work on the data revolution for development.
5. **Swandiri Institute:** The Swandiri Institute displayed the drones that had been utilised to monitor the health of crops in a previous project supported through PLJ's Data Innovation Mini Grants.
6. **UN Global Pulse:** The three Pulse Labs in New York, Jakarta and Kampala showcased prototypes and proof-of-concepts of how big data can be harnessed to support sustainable development and humanitarian action.
7. **United Nations Information Center (UNIC):** As the coordinator for communications activities among UN agencies in Indonesia, UNIC showcased innovative projects by United Nations agencies in Indonesia.
8. **Pusat Analisis Kebijakan Bappenas:** Pusat Analisis Kebijakan (PAK) is a recently formed unit in Bappenas that aims to strengthen evidence-based decision making by expanding the variety and means of research that can feed into development policy.



Harnessing the Data Revolution

In his remarks, the Director of UN Global Pulse, Robert Kirkpatrick described the data revolution as “a transformation that allows you to see something that used to be invisible.” He emphasised the importance of using advanced data analytics for policymaking and highlighted the critical importance of data innovation in realising the Sustainable Development Goals (SDGs), noting that “Big data can transform how decision makers view problems and inform strategic decisions. Measuring and achieving progress toward the 2030 Agenda in today’s digitally connected world depends in part on our ability to draw on new sources of real-time data and innovative technologies to inform policymaking.”¹

These are exciting times. Increasing people’s connectivity, particularly in rural areas provides great potential for change. With greater connectivity come more data exchanges, with more data comes more knowledge, informing decision-makers to improve policies that save lives.² This is accompanied by efforts to better use existing datasets, including those owned by government, to yield richer insights. “Traditional ways of collecting data take a long time. Surveys are costly and focus groups are insufficient to capture the diversity of Indonesia,” said the UN Resident Coordinator for Indonesia, Douglas Broderick. He noted that more diverse, integrated, timely and reliable information is needed and can complement traditional sources of data to better inform decision-making processes.

The key to this is tapping into new, digital data sources that reveal behaviour change:

- What people say: online news, social media, retail advertising and postal traffic.
- What people do: online search, mobile phone usage, transaction records and postal traffic.

These new sources of data, which are being constantly produced, can be incredibly powerful and complementary to traditional kinds of data. Combining this constantly produced feedback with more traditional data provides the ability to get real-time feedback on whether policies are working or not and where the strategy needs to be changed to get results. It is a much more dynamic, adaptive and learning-driven approach to policy development, and one that, out of necessity, changes how development actors operate.

More broadly, the data revolution represents a culture change that includes changes in organisational processes and changes in skills. As Mr. Kirkpatrick noted, “It’s exciting but it’s also disruptive – we’re moving from a world where we use the best data we have to make a plan and take a snapshot every few years, to actually detecting emerging risks and taking actions to keep them from affecting us. It’s a very different way of working.”

This also applies to the SDGs – opportunities to use big data are not just about measuring progress on the SDGs but are also about changing how decisions are made so that the goals can be achieved.

Justin Lee, Deputy Head of Mission at the Australian Embassy, emphasised that data for policy has a potential to address challenges of inequalities and development, particularly in an emerging middle-income economy such as Indonesia. Data are available at a greater level than ever and there is an ever-growing need to build capacity in data analytics to make sense of vast amounts of information. The key issue is not only about how we make this information available to policy makers, but also how to make it available to the people that can most benefit from it and empower ordinary citizens to access data and information that they can use for their own purposes.

These new data sources and methods are powerful ways to gain insights but they also come with real privacy risks and corporations are understandably wary of sharing this information. As Global Pulse highlighted, the key question is: “How do we unlock the value of this data safely and responsibly for public good?” Existing privacy laws don’t adequately protect people from the risks of big data. The UN Data Privacy and Data Protection Principles³ currently under review for global adoption help to ensure the rights of individuals are protected in the course of big data research and analytics. It is important to prevent misuse of data while also avoiding “missed use” given the huge potential for new data sources to be used for improved service delivery, disaster response and preventing the spread of infectious diseases.

¹ <http://www.ksi-indonesia.org/en/news/detail/international-conference-on-data-revolution-for-policy-makers>

² <http://www.thejakartapost.com/news/2017/02/22/justice-and-health-data-revolution-delivers.html>

³ <http://www.unglobalpulse.org/privacy-and-data-protection-principles>



BAPPENAS Minister, Prof. Bambang Brodjonegoro, addresses the conference, highlighting the importance of the data revolution for policy-making.

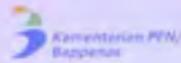


Mr. Douglas Broderick, UN Resident Coordinator in Indonesia, emphasises how better use of existing data could yield richer insights for policy-making.

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There is a continued need for political frameworks that take all of this together to manage risk more comprehensively as well as privacy laws on how to share data in way that is safe, but also allows for rapid innovation.

We know that data is the lifeblood of decision-making, however, it is important to remember that more data does not necessarily mean better decisions. Evidence-based policymaking requires access to high quality data and having the right information on the right things at the right time. It also requires an inherent understanding of how people make sense of data to inform their decisions, and subsequently, how this process can then be used to improve people's lives.

Indonesia's Data Landscape

The Government of Indonesia has embraced the data revolution and is positioned as a global thought leader on data innovation. Due to recent progress in data gathering and analysis, both the quantity and quality of data and information for policymaking has skyrocketed in recent years and the government has emerged as a leader in utilising these new tools and in making the information public and transparent.⁴ The country possesses enormous capacity in this area, particularly given the high uptake of social media and smartphone use, and there are significant opportunities to bring together big data analytics and civic engagement for public good. Through continued commitment to capitalising on the data revolution for development, Indonesia is poised to set a positive example for other countries as it achieves better outcomes for its citizens.

As Mr. Broderick noted, data-empowered communities

are Indonesia's future. "Timely and quality data is essential, it gives government the opportunity to make the right decisions especially in challenging situations. Data can provide insight and should be accessible wherever, whenever it is needed," he said. He also noted opportunities for residents, frontline partners and public servants to access their own data and connect data analysis in situ and in real time.

"They are able to solve problems together and bring data people and community people together to solve problems."

Professor Bambang Brodjonegoro, the Minister of Bappenas, affirmed the Government of Indonesia's recognition of the importance of the data revolution in the policy-making process. "The ability of policymakers to take advantage of various data sources, including digital data, can help the government to make decisions faster and more accurately." The minister added that high quality data helps officials to design, monitor and evaluate policies and emphasised that big data should be used alongside traditional data sources to improve policymaking and development planning. The need to optimise the use of new data sources is particularly pertinent when linked to Indonesia's overall efforts to increase its competitiveness. This requires, however, the engagement of a wider range of stakeholders: "Considering the benefits of using big data for research and analysis, I also encourage other stakeholders -- such as NGOs, academicians, businesses and students -- to utilise big data for decision-making processes or research and development."

Dr. Justin Lee, Deputy Head of Mission at the Australian Embassy, underscores the potential of the data revolution in addressing challenges of inequalities and development in Indonesia.

⁴ <http://www.thejakartapost.com/news/2016/03/21/indonesia-and-data-revolution-development.html>

CONFERENCE THEMES

TAKING STOCK OF THE DATA LANDSCAPE

TAKING THE PULSE: APPLICATION OF REAL-TIME DATA
FOR DECISION-MAKING

THE POLICY SIDE OF DATA INNOVATION

SYNCHRONISING AND SHARING DATA

FORGING DATA PARTNERSHIPS

RECONFIGURING CITIZEN ENGAGEMENT

MAKING SENSE OF THE DATA



First plenary session on "Taking Stock of the Data Landscape" with representatives from BAPPENAS, Knowledge Sector Initiative (KSI), Pulse Lab Jakarta and Gadjah Mada University.

Taking Stock of the Data Landscape

In 2014, Pulse Lab Jakarta partnered with Bappenas, KSI and UNDP to host the Data Innovation for Policy Makers Conference in Bali. The conference was a response to the call made by the Independent Expert Advisory Group on the Data Revolution for Sustainable Development to provide concrete ways of improving data collection and analysis for sustainable development.

The data landscape has changed significantly in the three years since the last conference. The quiet adoption of the data revolution within the Government of Indonesia has been paramount to this shift toward evidence-based policymaking. Throughout the conference, we heard about government champions in all ministries capitalising on and harnessing new and different data sources to improve policies and services for the country's citizens. Where the last conference provided examples of data innovation and practices, this conference highlighted real-life implementation successes and challenges at all levels and illustrated a strong sense of national ownership. This represents a huge shift from where we have come from.

The panel discussion epitomised this shift, with partners from Indonesia government, academia, innovation labs, and other initiatives all leading the charge in their respective areas. In Indonesia there is an increasing push within the ministries to allocate budgets and establish programmes that are based on evidence. Panellists also reflected on the changing mindsets and expectations of citizens and the increasing recognition that data and information can be an important social accountability tool.

Feedback platforms such as LAPOR! -- the national complaint system in Indonesia --



“The government has to make sure that people understand their rights and what they are entitled to receive, or it will be difficult to know if feedback is accurate and policymaking will not be improved.”

- Rudy Prawiradinata, Bappenas Expert Staff for Social Development and Poverty Reduction

and others have made it easier for citizens to share their views and opinions with government in order to improve service delivery; however, discussions emphasised that sometimes the perceptions of government and citizens are not harmonised. This can pose challenges in terms of addressing concerns and meeting expectations. Rudy Prawiradinata, the Bappenas Minister’s Expert Staff for Social Development and Poverty Reduction, commented on how important it was for the government and citizens to have a common understanding on what constitutes good public service, “The government has to make sure that people understand their rights and what they are entitled to receive, or it will be difficult to know if feedback is accurate and policymaking will not be improved.”

The session also highlighted some of the continuing challenges in Indonesia around access to data, protocols for sharing data, redundancy of data (with different ministries and agencies generating similar data), limitations of data, and collection and management of data (defining roles/responsibilities).

Good quality evidence provided at the right time can help to inform and improve government policies. Going forward, it is clear that effective data usage for policymaking requires a multidisciplinary approach and forming partnerships with domain experts is essential. While there are many positive initiatives taking place, such as efforts to synthesise citizen feedback to improve service delivery, panellists noted that it is also important to be cautious: the use of evidence cannot be assumed as a given and feedback platforms do not necessarily represent the interests or views of all groups. These new tools and big data analytics must be combined with other information and data sources that provide decision makers with contextual information on how decisions based on these analytics might impact people’s lives.





Mr. Robert Kirkpatrick, UN Global Pulse Director, delivers a presentation on the data revolution and its potential for measuring the Sustainable Development Goals (SDGs).

Taking the Pulse: Application of Real-time Data for Decision-Making

UN Global Pulse, the United Nation's flagship innovation initiative on big data, envisions a future in which big data is harnessed safely and responsibly as a public good. Its mission is to accelerate discovery, development and scaled adoption of big data innovation for sustainable development and humanitarian action. The initiative was established based on the recognition that digital data offers the opportunity to gain a better understanding of changes in human well-being, and to get real-time feedback on how well policy responses are working. UN Global Pulse and its network of labs in New York, Kampala and Jakarta are implementing data innovation projects that contribute to evidence-based decision-making in a wide variety of contexts. The Prototype Cafe sessions showcased this work and demonstrated how advanced data analytics can capture citizen voices, visualise information and provide new insights on behaviour, livelihoods and economic activity to improve delivery of services.

[Pulse Lab New York](#)

Measuring Economic Resilience to Natural Disasters with Financial Transaction Data: This project explored how financial transaction data can be analysed to better understand the economic resilience of people affected by natural disasters. Global Pulse used the Mexican state of Baja California



Representatives from the United Nations Global Pulse labs in Kampala, New York and Jakarta (left to right) present prototypes based on their respective lab's research projects.

Sur as a case study to assess the impact of Hurricane Odile on livelihoods and economic activities over a period of six months in 2014. The project measured daily Point of Sale transactions and ATM withdrawals at high geospatial resolution to gain insight into the way people prepare for and recover from a disaster. The study revealed that people spent 50% more than usual on items such as food and gasoline in preparation for the hurricane and that recovery time ranged from 2 to 40 days depending on characteristics such as gender or income. Findings suggest that insights from transaction data could be used to target emergency response and to estimate economic loss at local level in the wake of a disaster.

Using Mobile Phone Activity for Disaster Management During Floods: Emergency response efforts depend on the availability of timely information, such as the movement and communication behaviours of affected populations. In this study, Global Pulse combined mobile phone activity data with remote sensing data to understand how people communicated during severe flooding in the Mexican state of Tabasco in 2009, in order to explore ways that mobile data can be used to improve disaster response. By comparing the mobile data with official population census data, the representativeness of the research was validated. The results of the study showed that the patterns of mobile phone activity in affected locations during and after the floods could be used as indicators of: (1) flooding impact on infrastructure and population, and (2) public awareness of the disaster.

Data Visualisation to Improve Wastewater Management in Za'atari Refugee Camp: Global Pulse is collaborating with UNICEF on a project aimed at improving management of wastewater evacuation from the Za'atari refugee camp in northern Jordan. UNICEF employs private trucks to collect accumulated wastewater and empty it in septic tanks outside the camp – collecting 2.1 million litres every day. Global Pulse is working with UNICEF's Water, Sanitation and Hygiene (WASH) team to create interactive visualisations that automatically track the position and time taken between locations by each truck as it collects and discharges effluent. The visualisations were used during the project's mid-year review and served as a basis to refine the goals. Phase two of the project is underway to optimise the wastewater system by: (1) creating predictive models of tank refills to understand how fast each water tank will fill up, and (2) developing an index of access difficulty to help incentivise truck drivers to go more frequently to less accessible tanks.

Pulse Lab Kampala

Public Radio Content Analysis Tool: With 216 radio stations, and over 7 million words spoken each day, radio is a vibrant medium for public discussion in Uganda. Pulse Lab Kampala developed a tool that analyses public radio content to incorporate the voices of the people in Uganda in tracking progress towards the SDGs. The *Radio Content Analysis tool* works by converting public discussions that take place on radio into text using 'speech-to-text' technology. Once converted, the text can be searched by topics of interest related to the SDGs such as health, education or employment. The topics can be further broken down by location and timeline. The new capability afforded by this tool can help policymakers better understand, in real-time, Ugandans' opinions, as voiced publicly on the radio.



Conference participants engage in the Prototypes Cafe sessions hosted by the three UN Global Pulse labs.

Measuring Poverty With Machine Roof Counting: In Uganda, the Bureau of Statistics uses roof material type (e.g. thatch, metal) as a proxy indicator for measuring household poverty. Pulse Lab Kampala is working on a project to use satellite imagery to identify the roofs, and develop image processing software to count the roofs and identify the type of material they are constructed from. Complementing data generated with other methods as household surveys, the new data generated with the automated roof counting can provide timely information on trends on poverty levels and new insights on household economies.

Assessing Spatial Data to Study Biodiversity and Devise Protection Strategies in Zimbabwe: Representing and analysing spatial data is crucial to formulate policies to protect ecosystems. Biodiversity mapping over time can reveal genus distribution, forest loss, extent of fires, as well as interactions between different types of biodiversity. While spatial data is available online from a variety of sources, it is not always easily accessed. Pulse Lab Kampala, in collaboration with the National Biodiversity Strategies and Action Plan (NBSAP) Forum, UNDP and the Government of Zimbabwe, has created a web-based

mapping tool to support the formulation of NBSAPs. The *Zimbabwe Biodiversity, Climate Change and Resilience tool* makes accessible spatial data in a user-friendly way for decision-making.

Pulse Lab Jakarta

Tracking the Impact of Climate Anomalies: Pulse Lab Jakarta collaborated with the World Food Programme (WFP) and the Food and Agricultural Organisation (FAO) to develop an analytics and visualisation platform called *Vulnerability Analysis Monitoring Platform for Impact of Regional Events (VAMPIRE)* which identifies priority areas directly or indirectly affected by the impacts of El Niño, such as droughts and increases in food prices. The platform combines and provides analytics of several layers of data, including integrated map-based visualisations that show the extent of drought affected areas, the impacts on markets, and the coping strategies and resilience of affected populations. The system is designed to integrate additional data sources and features and has been installed in the Executive Office of the President of the Republic of Indonesia. The platform adds value by dramatically reducing the time required to bring this information together and visualise it in high resolution and in near real time.

Haze Crisis Analysis and Visualisation Tool: The forest and peatland fires in Indonesia affect the entire South-east Asian region resulting in extensive environmental destruction and threatening livelihoods. To support the government's effort to track and manage the impact of these events, Pulse Lab Jakarta developed *Haze Gazer*, a crisis analysis and visualisation tool that provides real-time situational information from various data sources to enhance disaster management efforts. *Haze Gazer* uses advanced data analytics and data science to mine open data, such as fire hotspot information from satellites and baseline information on population density and distribution, as well as citizen-generated data, and real-time big data such as text-, image- and video-oriented social media. The prototype enhances disaster management efforts by providing real-time insights on the locations of fire and haze hotspots; the strength of haze in population centres; the locations of the most vulnerable cohorts of the population; and most importantly, the response strategies of affected populations, including in-situ behavioural changes.

Nowcasting Food prices in Indonesia using Social Media Signals: This project explored how Twitter data can be used to 'nowcast' or provide real-time food prices. Pulse Lab Jakarta collaborated with Bappenas and WFP on the study, the outcome of which was a statistical model of daily prices for four food commodities: beef, chicken, onion and chilli. When the modelled prices were compared with official food prices, the figures were closely correlated, demonstrating that near real-time social media signals can function as a proxy for daily food price statistics. This preliminary study paves the way for further research on how social media analytics can complement traditional price data collection by offering a faster, more affordable and efficient way of collecting food prices.



Third plenary session on the “Policy Side of Data Innovation” with representatives from the Ministry of Home Affairs, Ministry of Health, Survey Meter, Jakarta Smart City and Centro De Desarrollo Sostenible.

The Policy Side of Data Innovation

This session focused on how to institutionalise data analytics to inform policy decisions. Panelists shared their experiences and provided examples of the various ways data analytics is informing policymaking.

- Indonesia’s Ministry of Home Affairs elaborated on the complexities of administering the country’s population system and explained how the government is providing open access to the centralised data registry (linked with each citizen’s single identity number) for all ministries and other agencies to improve service delivery.
- Indonesia’s Ministry of Health shared the vaccine adoption process as an example of evidence-based policymaking that integrates data in the documentation and review stages to inform immunisation policy and practice.
- Jakarta Smart City, under the provincial government of Jakarta, provided an example of data utilisation for handling complaints from citizens and highlighted how their data analysis was complemented by efforts to understand issues on the ground through community discussions and follow-up monitoring.
- An example from the Centro De Desarrollo Sostenible in Peru highlighted how efforts to help the Ministry of Health analyse data on dengue prevalence has tremendous value in creating predictive models to undertake risk analysis and early warning for particular diseases. This represents a significant shift from a reactive to proactive approach to disease prediction.

The session highlighted that the quality of data is crucially important in building models to support policies. It is not just about being able to use the data, but also about being able to collect good data. The session also touched on the opportunities and challenges related to using new sources of data and advanced data analytics alongside traditional data / social science research. Panelists emphasised that there is significant value in combining different data sources, such as national statistics, open data, administrative data and big data. “This is something that we can’t avoid and it should be encouraged among those involved in data,” noted Firman Witoelar from Survey Meter, while also acknowledging that “with these new data sources, we shouldn’t lose sight of the fact that the humble household survey is still the workhorse of data collection.” The session also stressed that it can be quite challenging to overcome barriers and change mindsets when moving to an approach that incorporates data analytics.

Discussions also revealed some of the limits and challenges of data analytics for informing policymaking, such as selection issues (populations not covered by new kinds of data), the risk of losing sight of things that are not answerable by data analytics and the continued need for domain expertise to help with modelling and with causal inference. It was noted that engaging in data innovation can be destabilising for institutions and new ways of making policies can challenge established approaches, which requires consideration in how these methods are introduced and applied to different organisational settings.

“...with these new data sources, we shouldn’t lose sight of the fact that the humble household survey is still the workhorse of data collection.”

- Firman Witoelar, Survey Meter

DATA REVOLUTION FOR POLICY MAKERS



Dr. Yanuar Nugroho, Deputy Chief of Staff of Executive Office of the President of the Republic of Indonesia (KSP), gives the keynote speech on the Satu Data initiative.

Synchronising and Sharing Data

In his keynote speech, Yanuar Nugroho of the Executive Office of the President of the Republic of Indonesia (KSP), provided a broad overview of Indonesia's *Satu Data* (One Data) initiative.⁵ *Satu Data* is an initiative of the Government of Indonesia to increase the utilisation and interoperability of government datasets. He noted that “synchronised data is only possible if there is one process for data.” The utilisation of government data should not be limited to internal use between government agencies, but also to meet the data needs of the general public. Through the *Satu Data* initiative, the Indonesian government aims to make data available in a format that is open and easy to use, in order to improve government transparency and accountability, as well as to increase citizen participation in monitoring development initiatives. The government is not only focused on outputs, but also on outcomes and impacts. Dr. Nugroho emphasised that for more meaningful development, data and evidence should be the drivers, which requires links to planning and budgeting to evaluate the outputs and outcomes of development.

To achieve this, the *Satu Data* initiative attempts to address a number of operational challenges, such as scattered data, lack of institutional coordination, unstandardised data and poor data integrity. The current means of obtaining and sharing statistical data are often ad hoc and inefficient – derived from personal relationships, ad hoc working groups, websites, email, etc. Government efforts to standardise, coordinate and regulate this data are focused on creating an integrated system with specific dashboards, including a national dashboard for development.

SATU DATA INDONESIA

Satu Data represents the government's move toward data-driven and evidence-based decision making, building on the recognition that government planning and budgeting should be integrated, consolidated, organised – between sectors, regions, between central and local government. Although the last few years have seen significant progress in Indonesia's data synchronisation initiatives, there are also major challenges that need to be overcome in implementation. These challenges relate both to integration of datasets from different sectors at a particular level of government, and to the integration of data between different levels of government in a particular sector. There are also pertinent issues relating to the protection of sensitive, confidential, or personally identifiable information when sharing data across different government agencies.

The Satu Data initiative aims to 1) improve the quality of data collection but also 2) improve accessibility with one integrated data portal to 3) improve the quality of data analysis.



Fourth plenary session on “Data Sharing Across Government” with representatives from KSP, BAPPENAS, Ministry of Education and Culture, Department of Information and Communication of Kabupaten Sragen and Data61.

The panel discussion highlighted the opportunities and challenges in synchronising and sharing data across different levels of government and across different sectors as well as relevant comparative experiences from Australia. Panellists shared some key lessons in terms of sharing and accessing data across government agencies, and opening up data for public use.

- As one of the pilot ministries for the Satu Data initiative, the Ministry of Education and Culture (Kemendikbud) explained their phased efforts to integrate data from the technical implementation unit (schools) right up to national level. Data for all schools in Indonesia is now published on the ministry website and there is also space for the public to provide feedback and comments.⁶
- The District Government of Sragen in Central Java is making significant efforts to integrate cross-sectoral data and shared their successful experience building a local area network to synchronise and share population data to support local services. They also emphasised the need for forums to share data and improved access to regional and central data.
- In Australia, Data61 is the custodian for data.gov.au, the country's central repository for open data. Their experience has shown that though public servants have a mandate for open data, publishing data is often seen as an extra responsibility, and this should instead be seen as way to improve their services. Incorporating a collaborative approach to understanding data is important, which requires relationships and connections with those who provide data (linking consumers and providers).

The panel discussion also focused on the importance of changing mindsets and bolstering political will around data synchronisation efforts. “Reformers can be found everywhere”, noted Dr. Nugroho. The Ministry of Education and Culture stressed that “mindsets need to be transformed and we have to find ways of doing this,” in order for individuals to understanding their role in the evidence-based planning and policymaking process. For the District Government of Sragen, the most important factor in their successful efforts to synchronise government data was the political will of district leadership. Creating a culture for data synchronisation can be particularly important in the face of changing leadership: “We have to report daily on what we do, submit data on a daily basis. We are used to doing this and have developed a culture. If the leadership changes, the culture is already well established.” Discussions also stressed that data for development planning should be interoperable and that local government initiatives must be linked with regional and national data platforms.

⁶ <http://dapo.dikdasmen.kemdikbud.go.id>



Fifth plenary session on "Forging Data Partnerships" with representatives from Twitter, LIRNEAsia, UNCDF and UN Global Pulse.

Forging Data Partnerships

In trying to harness the potential of the data revolution, we must be aware that most of the digital footprints produced by people as a result of their interaction with electronic platforms are in fact owned by the private sector. The establishment of public-private partnerships is key to optimising this data to address the SDGs and realise development goals.

This panel session provided examples of effective data partnerships that have contributed to policymaking and better public sector decision-making. As the interlocutor between the government and private sector, LIRNEasia shared their remarkable journey from research supply to demand in Sri Lanka. At the time, there was little knowledge about using any kind of private sector data. They first started by working out agreements with operators to get anonymised data and later initiated discussions with government, making the case for how this data could be utilised in different contexts, such as transport, urban planning and official statistics. While a number of political factors also played a part in the transition to research demand, LIRNEasia sought and took advantage of policy windows to establish a successful data sharing partnership between the government and mobile phone operators.

In Indonesia and other countries, Twitter data is being used in various ways to gauge trends and guide market research. Policy makers are able to use this data to extract better information and inform policy decisions. The newly established partnership between the United Nations and Twitter

“It’s an issue of trust as much as regulation. Even with the best regulation you can still make errors. Data privacy is the top priority issue.”

- Robin Gravesteijn, UNCDF

provides a platform for people to express views, opinions and priorities without filters on topics such as health, education, corruption, etc. For some policy makers, however, the noise of social media is still seen as a nuisance rather than a valid feedback mechanism. As Agung Yudha from Twitter noted, there is a need to shift this mentality to better utilise social media platforms and encourage public sector decision-makers to see this as a valid way to gain insights on citizen priorities. Discussions also highlighted the proliferation of new data sources and the need to keep up with this ever-changing landscape.

Private sector data has clear value for the public sector and sharing of data is critical to evidence-based policymaking. These partnerships benefit both sides. For the private sector, the data may not necessarily be used for social good but it can improve their bottom line and private sector partners are able to use anonymised data for commercial purposes. Sriganesh Lokanathan of LIR-NEAsia explained their approach to these types of partnerships: “We as a third party are interested in delivering services for the poor. You are interested in finding out where the rich are to develop services for them. It’s the opposite side of the same coin – we can both do what we want to do.” It is also important to consider that there may be a mismatch between the needs and objectives of partners and that different models of engagement may be required. It is often impossible to know the full value of the data in advance, so this challenge requires consideration when forging new data partnerships.

The private sector often faces similar challenges related to data usage as the public sector. With so much data floating around, it can be difficult to filter this constant flow of information to reduce redundancies and take appropriate actions related to policy decisions or development of products and services. UNCDF highlighted this issue and shared their experience partnering with four financial institutions in Cambodia to build capacity in data analysis and explore whether this data can be used for wider market insights. UNCDF typically collects financial inclusion landscape data every three years, however, this partnership allowed them to dive deeper and get a more timely picture of financial access. Over a relatively short period of time, the savings and loan data is already providing some powerful insights and allowing the partner banks to see things they didn’t see before, which is a key benefit of these type of partnerships.

Panellists also discussed the kind of structures that need to be in place for policy makers to best make use of different kinds of data sources. The discussion highlighted that a good legal framework is critical and that the public sector needs different capacities and regulatory frameworks to make use of private sector data. In many developing countries, for example, there are no clear rules and regulations for the use of data generated by the private sector. Robin Gravesteijn of UNCDF noted that while they are typically more conservative on data management and ensure that data is always anonymised and encrypted, “It’s an issue of trust as much as regulation. Even with the best regulation you can still make errors. Data privacy is the top priority issue.”

Whether it is social media data, call detail records, or financial transactions, data contains information that can be traced back to individuals. In establishing data partnerships, discussions highlighted that safeguarding privacy is critical and this must be understood and integrated into partnership arrangements.

Discussions also emphasised the importance of relationship building when it comes to establishing public-private data partnerships and the fact that this takes time. Part of building a relationship is about understanding incentives, which are often changing along the way. Establishing trust is essential. In some countries, for example, the legal environment is not very robust and codified trust underpins the relationship, which is part of the agreement with private sector operators and institutions.



Sixth plenary session on “Reconfiguring Citizen Engagement” with representatives from Rappler, Department of Population and Civil Registry of Government of Gresik, Lacak Malaria and Kota Kita.

Reconfiguring Citizen Engagement

This session explored how access to technology and new data sources has changed the dynamic of how citizens engage with their governments. With the proliferation of new data sources and information, collaboration is needed now more than ever. Key to this is the understanding that information is not just a government’s responsibility – citizens need access to information so that they can be part of creating solutions and improving their own lives.

Kickstarting this session, H.E. Ambassador Hamdullah Mohib, Afghanistan’s Ambassador to the United States, spoke of the central importance of technology in today’s world, but also of the social isolation it has helped create. He noted that although social media and the Internet have contributed the cultural and social divide between rural and urban populations, technology can bring people together when used in the right way. He also explained that through technology, it is possible to connect Afghans everywhere through online platforms, setting the stage for them to work together on shared projects that encourage empathy and bridge the divide between the dispersed Afghan family. Ambassador Mohib described Afghanistan’s new Citizens’ Charter – the Afghan government’s first attempt after 40 years of war, displacement and violence to “reinvent the social contract ... by promising the people that our government will not be a code for corruption among the elites, violence, and fear, but a partner to the people.”



Special keynote speech from H.E. Hamdullah Mohib, Afghanistan's Ambassador to the United States of America.

The panel discussion subsequently explored examples of innovative ways that local communities are engaging with government. In East Java, for example, the District Government of Gresik is working to reduce the burden of the complicated registry system on citizens by actively reaching out to communities and providing a user-friendly mechanism to update the family card.

The South Halmahera Malaria Center (SHMC) in North Maluku successfully developed and tested its SMS-based LaCaK Malaria reporting system to improve the speed and quality of malaria reporting. The project developed out of a need to overcome geographic, technology and network barriers to efficient malaria reporting. The SMS-based system allows the team to send information fast and significantly reduce the data collection time. As a result, the Center can take a more proactive, rather than reactive approach and ultimately reduce the number of malaria cases. Clinics can respond promptly if receiving incoming cases and patients also receive phone notifications. The application has inspired other programmes to use similar approaches and SHMC has secured local government funds to fully support the implementation of the programme.

In the Philippines, Project Agos⁷ is an example of a collaborative platform that combines top-down government action and bottom up civic engagement to help communities mitigate risks and deal with climate change adaptation and disaster risk reduction. During times of crisis, information is as critical as food and shelter. By bringing together technology, crowdsourcing and civic action the project ensures the flow of critical and actionable information to those who need it before, during, and after disasters. This lifesaving real-time information helps disaster responders to mobilise faster and more efficiently. The Philippines government has adopted the platform, demonstrating the value of this type of civic-government engagement.

Kota Kita's participatory neighbourhood mapping project⁸ in Solo, Indonesia, introduced a bottom-up process as an alternative to top-down centralised governance. It is a tool that is used by and for people at grassroots level, helping them to better understand their issues and prioritise planning needs for their own communities. Having residents collaborate in the collection and discussion of data, with their intimate knowledge of their own needs, is proving a successful way to ensure governments are better serving the interests of their communities. The project also highlighted a number of lessons related to challenges in implementing this type of initiative that can be applied to other projects:

- Challenges of neighborhood data collection: Community members are sometimes reluctant to provide information due to a variety of concerns (data collection fatigue, uncertainty about how data will be used, belief that they should be paid), which can be an important factor to consider when working with communities.
- Consultation to avoid redundancy: When collecting data it is important to avoid redundancy with government efforts, which requires consultation with partners to understand how and at what levels data is collected and what kind of data is missing.
- Constraints of using an SMS-based system: Although this is a more efficient way to gather data, such as monitoring water usage in Malang and Makassar, SMS gateways are not always operational and the process can be slow because community members prefer other means of communication.

⁷ <https://agos.rappler.com/respond>

⁸ <https://solokotakita.org/>



Lightning talks from international experts showcasing different facets of data sense-making.

Making Sense of the Data

When people talk about “data innovation” or “harnessing the data revolution”, more often than not the conversation focuses on advanced data analytics and the potential miracles wrought by having access to a deluge of data on human behaviour. At the end of the day, what may matter most is the ability of humans to make sense of information. The conference’s final plenary session featured a series of talks exploring this intersection between data analytics and an understanding of how humans work. This included unpacking some of the assumptions behind data innovation projects, framing data analytics in relation to relevant policy questions, applying visuals that help people digest information contained in analytics, and uncovering the stories behind data points.

“Good and timely evidence improve policies, and good policies improve lives because they try to solve problems. But it is more complicated – there is not one answer to do that.”

- Arnaldo Pellini, Overseas Development Institute

Unpacking assumptions around data innovation projects

During his lightning talk, Giulio Quaggiotto of Nesta challenged participants to go beyond the #dataforpolicy autopilot and avoid linear assumptions, such as presuming that providing the right information at the right time will automatically lead to the right action, or assuming that big data analytics can replace local knowledge or content. He shared a number of examples that challenge common ideas about data collection and usage. One of these was the increasing use of data obfuscation tools to enable users to become more invisible and protect privacy. He also shared examples of data resistance, where people develop rituals to resist the process of data collection and make it difficult to use data.

Giulio left the audience with key questions to help unpack assumptions around data innovation projects:

1. How do people take decisions – and where?
2. What's the distance between the collection, interpretation and action on data?
3. Who is really using the data – and who really can?
4. How can we empower those closer to the problem to use data to take better decisions over time?
5. What do those who produce data get in exchange?
6. If we do not always act rationally, how can data help?

Contextualising: combining data analytics and policy research

Arnaldo Pellini from the Overseas Development Institute (ODI) highlighted the benefits as well as challenges of combining data analytics with policy research: “Good and timely evidence improve policies, and good policies improve lives because they try to solve problems. But it is more complicated – there is not one answer to do that.” He noted that although there are multiple approaches, we can't assume the use of evidence as a given and there can be many reasons why data innovation and analytics do not make it into policy, such as the demand for quick decision-making, rushed budget allocation, insufficient information, political considerations, poor quality research and constraints on evidence and procurement of research. It is also about communicating evidence at the right time in a way that is understandable and leveraging networks to promote it.

Arnaldo also reflected on the evidence ecosystem and the opportunities for using different types of evidence to inform decisions. Social science researchers, for example, would benefit from becoming more fluent in data science to look at problems from different sides and understand them better. The intermediaries between policy makers and researchers have key roles to play in translating findings into a language that can be understood. Ultimately, this should be supported by clear rules, regulations and accountabilities that enable the different actors to work together.

Complementing big data with thick data

Mimi Onuoha, a Research Resident at Eyebeam, emphasised the idea of “data collection as a relationship” - the projects she shared provided examples of how data is used to explore the stories of how our increasingly networked relationships unfold across on and offline spaces. Mimi also highlighted how the context of offline spaces influences the types of data that are collected. The challenge of collecting certain types of data, for example, may be attributed to the fact that the burden of reporting is greater than the perceived benefit. In many cases, it could also be traced back to fact that the people with resources are not the same as those with the incentive to collect data. These situations lead to what Mimi termed as “blank spaces in otherwise saturated data systems”. The answer to filling these blank spaces, however, lies not in just collecting more data, but in how we conceive of the whole system and understand the underlying reasons for missing data.

Data Visualisation: the nexus between data and design

Jeremy Boy, Data Visualisation Specialist at UN Global Pulse, shared examples of how design can help with data visualisation, and how simple design tweaks can reveal insights that would otherwise invisible. A one-day visualisation of the wastewater removal operation at Za'atari Refugee Camp, for example, enabled decision-makers to not only see daily truck movements, but also quickly pick up unusual activity. He noted that the value of visualisation is that it can bring the data revolution and the information contained in it to people who have experience of what the data is about and discern the relevance of the insights produced. Building on a theme that has been echoed throughout the conference, Jeremy highlighted that data visualisation is a prime example of how the information contained in the data revolution is “...only as valuable as our ability to share it with those who can do something with it.”

DATA CLINIC HIGHLIGHTS

The conference included seven data clinic sessions designed to facilitate direct dialogue between experts and participants on particular topics, as well as to share hands-on skills related to a certain aspect of data innovation. Below are highlights from each data clinic.



Policy brief writing clinic

In this workshop participants learned to create impactful policy briefs. A big part of the process entails packaging and presenting information in a way that triggers a response. In this way, a policy brief is similar to a marketing campaign. Participants learned the basics of what should be included in a policy brief, including how to craft an engaging angle and incorporating different perspectives to better present problem statements. The workshop also focused on the basics of information visualisation. For participants, it was interesting to learn about how policy briefs, while traditionally viewed as “boring, wordy documents,” are now being presented in a more engaging and visually attractive way, such as through the use of infographics. The workshop was led by Tempo Institute, which is dedicated to developing quality journalism in Indonesia.

Innovations and synergies across different data ecosystems

In this session, participants learned about how Pulse Lab Kampala is working with partners to discover new, innovative digital data sources. Examples included the use of speech-to-text technology for radio mining and the use of satellite imagery for automatic roof counting as a proxy for measuring poverty. Participants learned how to identify data gaps, come up with a data wish list and explore potential data sources for which a prototype can be developed. The session also highlighted the importance of protecting individual privacy when analysing digital data sources.



From data to visual stories

Pulse Labs New York and Jakarta joined forces to engage participants in the concept of visual thinking, which helps to amplify the cognitive processes required to understand and derive insights from data. Participants learned about different visual variables and the four data types (geospatial data, temporal data, relational data and multivariate data), as well as their typical representations. Participants then worked in small groups to visualise data with coloured tiles, based on tailored datasets from the Ministry of Trade. The groups adjusted their visualisations to incorporate trends and patterns identified by the organiser and shared their visualisations for group review and feedback.

Bringing data innovation to local government

In this data clinic session, RTI's Ramda Yanurzha took participants through the journey of designing data innovations in service delivery, including showing what is possible using existing data sources. The clinic featured a brainstorming and "data discovery" session to understand the potential and limitation of data sources in Indonesia to deliver not only innovative products and services, but also viable ones. Participants worked together in small groups to design a hypothetical project by identifying a problem, who is affected and what data is needed and then planning a system of innovation to address the issue. The session highlighted why it is valuable to bring innovation to local government: they are closer to the actual users of public services; solutions can be tailored to the local context; and lessons learned can be exchanged across local governments. Ramda's clinic also explored why innovative solutions are not always utilised - issues identified include the probability that the data available doesn't reflect the actual problem; the target market is hard to reach; or the innovation does not take into account the experience of users of a service.



Ensuring data quality with advanced data exchange technology

The success of advanced data analytics is supported by, first and foremost, good quality data. Led by Australia Indonesia Partnership for Economic Governance (AIPEG), this data clinic discussed some of the common fundamental issues of data quality in the context of data transfer and storage. Participants learned about how to ensure data quality for their organisations. Key takeaway messages included:

- Data value is perishable and timeliness is important
- Data steward and custodian functions to manage quality and access are basic functions that are sometimes missing in government bodies.
- Efforts to improve data quality could be focussed on improving the process for future data collection, which is more likely to have a positive impact compared to solely focussing on data cleansing.

Applying the data innovation cookbook

In this clinic, Global Pulse introduced a set of facilitation tools that provide practical guidance on designing a data innovation project. The toolkit, '*A Guide to Data Innovation for Development - From idea to proof-of-concept*,' includes step-by-step guidance for working with new sources of data. After a brief presentation on examples of data innovation projects from around the world, participants explored the framework – beginning with defining the problem, understanding the data gaps, mapping stakeholders, understanding who will use the results and identifying a data wish list. Participants brainstormed potential problems and worked in small groups to practice using the guide for the following themes: health (maternal mortality rate), education (teacher absence) and violence against women (domestic violence and young women).



Privacy protection tools for open data initiative

In this clinic, Data61 showcased a selection of privacy protection tools, technologies and initiatives for open data initiatives and data sharing across government. It was interesting for participants to learn that Data61 generates synthetic sensitive data, for instance date of birth or age, as a way to provide utility for data analysts while still protecting privacy. Some pairs of synthetic and original data have been compared and they conclude that synthetic data can mimic original data well. One of the solutions offered by Data61 to allow data analysts to learn valuable insights from sensitive data across multiple organisations is by doing distributed analytics. The source institutions will process the data separately then send the processed data to the centre system. It means that original data will always remain confidential to the source institution. During the clinic, participants chose from a menu of tools and discussed appropriate use of these tools with Data61 team members.

WHERE TO FROM HERE?

The discussions throughout this conference highlighted how Indonesia's data innovation landscape has changed dramatically over the course of a few short years. Issues raised by representatives of government, private enterprises, and civil society point to a more widespread realisation of how real-time data analytics can complement existing government datasets to yield fresh insights needed to respond to the Indonesia's fast-paced, complex and dynamic development landscape.

Yet, significant challenges remain, and with these come interesting opportunities:

- The session on synchronising and sharing data highlighted complex challenges not only around data access and protocols, but also around **data governance**. Developing robust data governance becomes increasingly important as it is the basis for better institutional coordination, which in turn can help drive improvements in data standardisation, data integrity, and systematic sharing of key datasets. Indonesia's Satu Data initiative is a commendable and large step towards addressing these issues, and it seems to have buy-in across key line ministries at the national level. The test of its success, however, will lie in its implementation across Indonesia's 500+ districts.
- The issue of **agency** was raised across several different sessions, especially in relation to data collected from citizens. Who decides what data is collected by whom? Who decides which groups have access to that data? Who has the power to derive insights from the data? Who gets to make decisions based on those insights? These questions - and many more - will increasingly shape the dynamics of relationships around data. The ability to derive meaningful insights from different data sources was a challenge expressed across the board, but it was heartening to see the rise of civil society movements dedicated towards engaging citizens to address this issue. We look forward to seeing more grassroots-based actors in this space.
- In order to effectively use new data sources and the tools to analyse them, policymakers need to also understand the **limits and challenges of data analytics**. These include issues of selection and representation of segments of the population; the risk of losing sight of crucial issues that are not addressed through data analytics; and the risk of drawing misleading inferences from correlations. This presents an exciting opportunity of using data analytics in complement with other streams of research, especially in understanding the context in which data is generated and the human experiences behind the data points.

We hope future events will explore these opportunity areas in greater detail.

**ANNEX:
CONFERENCE AGENDA**

DATA REVOLUTION FOR POLICY MAKERS

21 - 22 FEBRUARY

International
Conference
2017

Conference Schedule - Day 1

Day 1 – Wednesday, 21th February 2017			
Time	Agenda Item	Resource Person	Place
08.00-09.00	Registration		
09.00-09.05	Opening		
09.05 - 09.35	Opening Remark	<ul style="list-style-type: none"> • Douglas Broderick, UN Resident Coordinator for Indonesia • Justin Lee, Deputy Head of Mission to Indonesia, Australian Embassy 	Grand on Thamrin Ballroom
09.35 - 10.05	Data Revolution and its potential for measuring Sustainable Development Goals (SDGs)	Robert Kirkpatrick , Director, UN Global Pulse	Grand on Thamrin Ballroom
10.00 - 10.30	Coffee, networking and exhibition		
10.30-10.55	Keynote Speech The demand and use for real-time data analytics to inform complex decision-making	<ul style="list-style-type: none"> • Professor Bambang Brodjonegoro, Minister of National Development Planning (Bappenas)* 	Grand on Thamrin Ballroom
10.55-11.00	Opening Ceremony		
Session 1: Taking Stock of the Data Landscape [moderator: Vivi Yulaswati, Director for Social Development and Poverty Reduction, Bappenas]			
11.00 - 12.00	What are the significant changes in Indonesia's data landscape in the last 3 years?	<ul style="list-style-type: none"> • Rudy Soeprihadi Prawiradinata, Minister's Expert Staff for Social Development and Poverty Reduction • Petrarca Karetji, Team Leader, Knowledge Sector Initiative • Diastika Rahwidiati, Deputy Head of Office, Pulse Lab Jakarta • Widyawan, Gadjah Mada University 	Grand on Thamrin Ballroom
Session 2: Taking the Pulse - Application of Real-time Data for Decision-Making			
12.00 - 12.30	Case Study from Pulse Lab Jakarta (PLJ), Pulse Lab New York (PLNY), and Pulse Lab Kampala (PLK)	Miguel Luengo-Oroz , Chief Data Scientist, Pulse Lab New York Paula Hidalgo-Sanchis , Manager, Pulse Lab Kampala Jonggun Lee , Data Scientist and Research Lead, Pulse Lab Jakarta	Grand on Thamrin Ballroom

12.30-13.00	Lunch		
13.00-14.00	Parallel Sessions - Prototype Cafés from PLJ, PLNY, and PLK	<ul style="list-style-type: none"> • Pulse Lab Jakarta • Pulse Lab New York • Pulse Lab Kampala 	PLJ(Grand on Thamrin Ballroom) PLNY (Menteng Room), PLK (Stellar Room) Room 3

Day 1 – Wednesday, 21th February 2017

Time	Agenda Item	Resource Person	Place
Session 3: The Policy Side of Data Innovation			
14.00 - 15.00	How do you institutionalise data analytics for informing policy decisions?	<ul style="list-style-type: none"> • Zudan Arif Fakhrollah, Director General for Population and Civil Registry, Ministry of Home Affairs, Republic of Indonesia * • Firman Witoelar, Director of Research, Survey Meter • Diorys Paulus, Head of Jakarta Smart City • Juan Pane, Chief Innovation Officer, Centro De Desarrollo Sostenible • Elizabeth Jane Soepardi, Director of Surveillance and Health Quarantine, Ministry of Health, Republic of Indonesia 	Grand on Thamrin Ballroom
15.00 - 15.30	Coffee, Networking, & Exhibition		
Data Clinics [Parallel Sessions]			
15.30 - 18.30	Policy brief writing clinic	Mardiyah Chamim and Yosep Suprayogi , Tempo Institute	Stellar Room (2nd Floor)
	Innovations and synergies across different data ecosystems	Paula Hidalgo-Sanchis and Silas Labedo , Pulse Lab Kampala	Hesa Room (3rd Floor)
	From data to visual stories	Lody Adrian and Jeremy Boy , UN Global Pulse	Menteng Room (1st Floor)
	Bringing data innovation to local government	Ramda Yanurzha , RTI International	Thamrin Ballroom (1st Floor)
	Ensuring data quality with advanced data exchange technology	Fei Tony Liu , Australia Indonesia Partnership for Economic Governance (AIPEG)	Azure Room (2nd Floor)
	Applying the data innovation cookbook	George Hodge and Miguel Luengo-Oroz , UN Global Pulse	Aurum Room (2nd Floor)
	Privacy protection tools for open data initiative	Cameron Grant & Chelle Nic Raghnaill , Data61	Studio 2 Room (2nd Floor)
18.30 - 20.00	Dinner and Networking		UNA 15th Floor

Conference Schedule - Day 2

Day 2 — Wednesday, 22th February 2017			
Time	Agenda Item	Resource Person	Place
08.00-09.00	Registration		
Session 4: Synchronising and Sharing Data [moderator: Petrarca Karetji, Team Leader, Knowledge Sector Initiative]			
09.00 - 09.30	Keynote Speech: Synchronising and sharing data - lessons from Satu Data Initiative	<ul style="list-style-type: none"> • Yanuar Nugroho, Deputy Chief of Staff, Executive Office of the President (KSP) 	Grand on Thamrin Ballroom
09.30 - 10.30	Data sharing across government	<ul style="list-style-type: none"> • Bastari, Director of Data & Statistic, Ministry of Education and Culture • Dwiyanto, Head of Communication and Informatics Department, Government of Sragen • Cameron Grant, Data61 	Grand on Thamrin Ballroom
10.30 - 11.00	Coffee, networking & exhibition		
Session 5: Forging Data Partnerships [moderator: Derval Usher, Head of Pulse Lab Jakarta]			
11.00-12.00	How might we make better use the digital data resulting from private sector services?	<ul style="list-style-type: none"> • Agung Yudha, Twitter Indonesia • Sriganesh Lokanathan, Team Leader Big Data Research, LIRNEAsia • Robin Gravesteijn, Data Management Specialist (Analytics and Research), UNCDF 	Grand on Thamrin Ballroom
12.00 - 13.00	Lunch		
13.00 - 13.30	Inspiration Trigger: Reconfiguring citizen digital engagement in Afghanistan	<ul style="list-style-type: none"> • Hamdullah Mohib, Afghanistan's Ambassador to United States of America 	Grand on Thamrin Ballroom
Session 6: Reconfiguring Citizen Engagement [moderator: Mellyana Frederika, Programme Specialist, Pulse Lab Jakarta]			
13.30 - 14.30	How has access to technology and new data sources changed the dynamic of how citizens engage with their government?	<ul style="list-style-type: none"> • Firmansyah, Founder of Lacak Malaria • Hermanto Sianturi, Head of Population and Civil Registry Department, Government of Gresik • Maria Ressa, CEO, Rappler Philippines • Ahmad Rifai, Executive Director, Kota Kita 	Grand on Thamrin Ballroom
14.30 - 15.00	Coffee, networking & exhibition		

Session 7: Making Sense of the Data (Lightning talks)			
15.00-15.15	Unpacking assumption around data innovation project	Giulio Quaggiotto , Innovation professional	Grand on Thamrin Ballroom
15.15-15.30	Contextualising: combining data analytics and policy research	Arnaldo Pellini , Senior Research Fellow, Overseas Development Institute (ODI)	
15.30-15.45	Complementing big data with thick data	Mimi Onuoha , Research Resident, Eyebeam	
15.45-16.00	Data Visualisation: the nexus between data and design	Jeremy Boy , Data Visualization Specialist, UN Global Pulse	
16.00 - 16.30	Final Plenary Session - Closing Remark	Robert Kirkpatrick , Director, UN Global Pulse	Grand on Thamrin Ballroom



Australian Government

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