

annual 2020 Report

ACCELERATING ANALYTIC PARTNERSHIPS FOR DEVELOPMENT AND HUMANITARIAN ACTION

Pulse Lab Jakarta is a joint data innovation facility of the United Nations (Global Pulse) and the Government of Indonesia (via the Ministry of National Development Planning). Functioning as an analytic partnerships accelerator, the Lab operates in the problem, solution and identity spaces. As part of its mandate, PLJ is focused on catalysing connections across the United Nations, governments, the private and development sectors, as well as civil society to support policies and action for effective development and humanitarian practice.

Pulse Lab Jakarta is grateful for the generous support from the Australian Government.











annual 2020 Report

ACCELERATING ANALYTIC PARTNERSHIPS FOR DEVELOPMENT AND HUMANITARIAN ACTION

11

Partners and Collaborators







Acronyms

AI Artificial Intelligence

AI4COVID Artificial Intelligence for COVID-19 Response

Bappenas Ministry of National Development Planning

BIT Behavioural Insights Team

CAQM Community Air Quality Monitoring

COVID-19 Coronavirus Disease 2019

CSIRO Commonwealth Scientific Industrial Research Organisation

DFAT Australian Department of Foreign Affairs & Trade

EO Earth Observation

GIZ Society for International Cooperation

HCD Human Centered Design

HTML Hypertext Markup Language

IDRC International Development Research Centre

ITB Bandung Institute of Technology

Islamic Development Bank

KAI Kereta Api Indonesia

KSI Knowledge Sector Initiative LAN National Institute of Public Administration

MoFA Ministry of Foreign Affairs

MSBs Micro and Small Businesses

NGO Non-governmental Organization

NLP Natural Language Processing

PD Positive Deviant

PLJ Pulse Lab Jakarta

PODES Village Potential Statistics Survey

KAI Kereta Api Indonesia

S-DNKI National Council for Financial Inclusion of Indonesia

SEA Southeast Asia

SEPAKAT Integrated Poverty Planning, Budgeting, Analysis & Evaluation System

Sida Swedish International Development Agency

UN United Nations

UNESCAP United Nations Economic and Social Commission for Asia and the Pacific

UNICEF United Nations Children's Fund

Forewords

Resident Coordinator, United Nations in Indonesia Executive Secretary, Indonesian Ministry of National Development Planning

Executive Summary

5-6

CONTENTS

Activity Matrix



Putting the Year into Perspective

The Pandemic Brought Data Innovations to the Fore Strengthening Indonesia's Data Ecosystem People-focused Multidisciplinary Research for Better Decisions Analytic Partnerships for Development and Humanitarian Action



Emerging Impact

Methodological Impact Ecosystemic Impact Operational Impact



17-24

Capacity Building & Knowledge Sharing

List of Annexes

Annex A: Research Activities Annex B: Publications Annex C: Media Coverage Annex D: Personal Data and Protection Principles Annex E: Impact Creation Logic

Foreword



Valerie Julliand

Resident Coordinator, United Nations in Indonesia

the past year, the global community has faced unprecedented challenges brought on by the COVID-19 pandemic that has triggered both an economic and humanitarian crisis. In Indonesia, at the national and subnational levels, the pandemic laid bare the importance of timely data insights to inform government response, as well as to help citizens make informed choices.

Whilst it is commonly said that data is the lifeline of today's increasingly digital society, a wholeof-society approach to building back better also requires ethically-sound and inclusive data innovations. These innovations are necessary tools to boost efficiency across sectors, improve citizens well being, and advance the Sustainable Development Goals. It is particularly important also to ensure that no one is left behind.

Pulse Lab Jakarta, being part of the UN Global Pulse network, has been at the forefront of mainstreaming data innovations for development and humanitarian practice in the region. Their experiential knowledge in applying big data approaches has made them a strategic, go-to partner in designing and fast tracking innovative solutions. This is reflected in the range of partnerships the team has fostered with UN agencies, data providers, government ministries, think tanks, NGOs and other key development actors.

The UN Secretary General's data strategy envisions building a whole-of-UN ecosystem that can unlock our full data potential, and Pulse Lab Jakarta is contributing to this global agenda as a critical thought leader and partner at the country level, advocating for the responsible use of artificial intelligence and data analytics. With the Ministry of National Development Planning as its main government counterpart, the Lab continues to identify underlying conditions constraining the country's broader data ecosystem and provide recommendations to encourage evidence-based decision making and stronger support to citizens in moments that matter most.

As co-chair of Pulse Lab Jakarta's steering committee, I invite you to read the Lab's annual report that chronicles the work they have done utilizing big data analytics and a peoplecentered design approaches applied to COVID-19 responses, as well as their research in other critical focal areas. With Global Pulse's renewed mandate as a cross-pillar hub for experimentation and digital innovation, and its integration into the Executive Office of the Secretary General,

I am confident their contributions will help in bringing m e a n i n g f u I impact to the peoples of Indonesia, the Asia Pacific region and our planet.

Foreword

Dr. Ir. Himawan Hariyoga Djojokusumo, MSc.

Executive Secretary, Ministry of National Development Planning

The covID-19 pandemic is a global crisis that has put a strain on our public health system and has also resulted in immense socio-economic shocks. These shocks highlight the importance of evidence-based planning and budgeting, and even more importantly the value of collaborative action between governments, international organizations, development agencies, civil society and the private sector.

For effective government response, policymakers need accurate, timely, and good quality data, from which insights can be gleaned to inform policies. This annual report captures how Pulse Lab Jakarta has supported the government's response to the COVID-19 crisis, especially by forging strong partnerships with sub-national governments and the private sector to harness both conventional and non-conventional data.



In line with Indonesia's 2020-2024 National Medium-Term Development Plan, Pulse Lab Jakarta has also been supporting the country's digital transformation, through capacity development efforts to help key stakeholders to better manage and utilize their data, while also strengthening their analytical skills and capabilities. As the report details, a range of data innovation projects was undertaken not only with line ministries, but also with a state-owned enterprise and with West Java's provincial government, providing policy-relevant insights and applied knowledge on how to ensure effective adoption and sustainability of data innovation tools and approaches.

I am pleased that in 2020, PLJ implemented a "learning by doing" capacity building approach whilst providing technical advisory on five collaborative analytic projects with the Center for Development of Planning Data and Information (Pusdatinrenbang) and other Government of Indonesia partners. This has been highly appreciated by participating agencies endeavoring to fulfill their respective mandates through more effective use of artificial intelligence, data analytics and data governance.

I would like to acknowledge and thank the Government of Australia for its continued support and commitment to the work of Pulse Lab Jakarta. I believe that analytic partnerships will be increasingly important in strengthening our development ecosystem and I look forward to seeing more innovative and progressive collaboration in the years ahead.





2020 has really tested PLJ's capacity to work cohesively as a team. New ways of working and undertaking projects have had to be configured, and six new team members filling in vacant positions hit the ground running and are fully engaged in the work of the Lab without ever having met other members of the team beyond virtual interactions!

The nature of COVID-19 which has hindered traditional data gathering and analysis approaches due to the risk of infection, has drastically increased interest in the use of big data, leading to many projects and partners now experimenting with data innovations. Aside from supporting key partners such as the provincial government of West Java in combining and analyzing big data with conventional datasets, we saw COVID-19 as a unique opportunity to gain an overview of Indonesia's data ecosystem by assessing how 34 provinces across the archipelago were publicly reporting on the pandemic. This provided a very interesting snapshot of issues in the underlying data ecosystem which need to be addressed if new data innovations are to be effectively adopted.

Old and new partnerships have also emerged during 2020. Building on successful collaboration in 2019, PLJ again teamed up with UN Women and Gojek Indonesia to look at the extent the pandemic has affected women entrepreneurs and women-owned micro and small businesses, providing insights for new and responsive programmes that address gender inequalities further exacerbated by COVID-19. PLJ also took on a new role in providing technical and communication support to Global South institutions applying

artificial intelligence for COVID-19 responses through grants awarded by IDRC and Sida in their Global South AI4COVID Program. This and other experiences have been pivotal for PLJ in reconsidering its role in going beyond its initial function as a data innovations lab, and transitioning into a role as an analytic partnerships accelerator. With so many emerging players prototyping data innovations, PLJ no longer needs to demonstrate what is possible in terms of utilizing new data sources, and so our focus has pivoted towards adoption and uptake of innovations.

To be increasingly impactful, PLJ has adopted an "impact creation logic"¹ that has further defined how the team operates and how we progress analytic partnerships as a deliberate move towards more ecosystemic and operational impacts. We are continuing to contribute to the body of knowledge and the application of data innovations, AI and human centered design for development and humanitarian action through academic papers cited by a range of academicians and development actors. Our emphasis however has been on building solid partnerships and coalitions to collaborate effectively and create effective relationships within Indonesia's broader development ecosystem, which has included international partners such as CSIRO which will extend beyond PLJ's direct involvement. This is where data innovations, analytics and capacity building combine to change the way institutions and/or communities operate and is sustained without PLJ's ongoing inputs.

So despite being an immensely challenging year, this annual report provides an overview of how 2020 has also been a year where PLJ has repositioned to help build back better through data innovations and partnerships resulting in improved analytics for development and humanitarian action.



¹Adapted from the book titled "Innovation and Scaling for Impact: How Effective Social Enterprises Do It" by Christian Seelos and Johanna Mair

Activity Matrix

RESEARCH ACTIVITY	PARTNERS	THEMATIC AREA	UNDERLYING FUNCTION		
			Forge and Leverage Strategic Partnerships	Identify and Combine New Data Sources	Contribute to Regional and Global Research Agendas
Leveraging Digitalization to Cope with COVID-19	© gojek	COVID-19 Response	Í.	H	
Identifying Areas with a Higher Risk for COVID-19 Spread in West Java, Indonesia	JABAR DIGITAL SERVICE Kementerian PPN/ Bappenas	COVID-19 Response	Í.	Í.	Í.
Baseline Assessment of Publicly Reported COVID-19 Data in Indonesia	Sementerian PPN/ Bappenas	COVID-19 Response	Í.	Í.	Í.
Global South AI4COVID Programme	Enc CrDi Canadă	COVID-19 Response	Í.	Í.	Í.
Community-based Air Quality Monitoring in Indonesia		Urban Dynamics	Í.	Í.	Í.
PT KAI Data Analysis: Better Understanding Passenger Travel Behaviour	Kementerian PPN/ Bappenas	Urban Dynamics	Ó B	Í.	Ó B

RESEARCH ACTIVITY	PARTNERS	THEMATIC AREA	UNDERLYING FUNCTION		
			Forge and Leverage Strategic Partnerships	Identify and Combine New Data Sources	Contribute to Regional and Global Research Agendas
Using Ride-hailing Data for Sustainable Transport Systems: Bangkok, Thailand	Grob Grob	Urban Dynamics			
Assessing Potential Risks of COVID-19 Spread Due to Lebaran- related Travel	Kernenterian PPN/ Bappenas	COVID-19 Response	ð B		ð B
Identifying Potential Positive Deviants (PDs) Across Rice Producing Areas in Indonesia	GIZ LAB	Food Security & Agriculture			E
Facilitating the Design of Localized Poverty Alleviation Schemes	Kementerian PPN/ Bappenas	Poverty Alleviation	Í.		Í.
Adapting to Data-Driven Diplomacy with Machine Learning	Kementerian PPN/ Bappenas	Strategic Exploration	Ó B	Ó.	Ó B



Putting the Year into Perspective

2020 was marked by the challenges of the COVID-19 crisis, but was also highlighted by solidarity and what is achievable when working together. For us at Pulse Lab Jakarta, it was heartening to see the team's agility and adaptability -- as we transformed our homes into makeshift offices, traded field research for remote setups, and hosted online get-togethers to welcome new team members joining us in the midst of the pandemic. The Lab, which for many of us has always been our home away from home, was re-imagined as a dynamic virtual space, across communications platforms, virtual meeting rooms and digital collaboration tools that allowed us to continue our work in the New Normal. It's been far from easy, but our spirit of resilience and team camaraderie kept us motivated even in the face of uncertainty. In this section of the report, we reflect on the work we undertook to support government response to the pandemic, and on our emerging identity as an analytic partnerships accelerator.

1.2x

▼ 34.3 °C

36.9

FLIR

7





The Pandemic Brought Data Innovations to the Fore

Before the onset of the pandemic, big data and the application of real time analytics for development and humanitarian action was central to our work. Coaxing access to and analysis of alternative data sets that were never originally meant for public policies, our role also involved advocating to a range of actors to use these alternative datasets in informing decisions as informed and discerning consumers.

The novelty of the pandemic has also emphasized the need to move beyond generalising about data requirements. In responding to a single crisis, contexts and needs of citizens continue to vary, impacting on the applicability of new digital solutions. So far, much of the demand has been to leverage alternative data of high spatial and temporal resolution which cannot be fulfilled by data collected in infrequent and costly traditional official statistics. On the other hand, data innovations also serve to find new uses for official data now combined with new data sources.

Several factors have contributed to the spread of COVID-19, including the movement of people. However mobility by itself (coupled with disease incidence data) is not enough to understand how the disease spreads. For instance, two areas with similar mobility and similar disease incidence might end up with varying outcomes based on other factors such as population density. Teaming up with Jabar Digital Service of the West Java provincial government, in concert with Bappenas and UNICEF Indonesia, we combined Facebook Population Density Maps with PODES (a traditionally collected administrative dataset) to identify areas across West Java province based on their transmission risk and transmission potential for the spread of the disease. Given its large number of cases, as well as its close proximity to the epicentre in the capital city of Jakarta, West Java was one of the provinces in the country implementing soft-lockdown measures. Insights were therefore developed with a view to informing more localised, targeted and dynamic approaches in imposing and lifting the lockdown measures. Similar to the interactive visualization map we developed with the West Java provincial government to show areas in the province that might have a higher risk for COVID-19 spread, several of our fit-for-purpose tools have been adopted and led to further exploration on the utility of the innovations for informing policy and intervention design.

Apart from understanding how the pandemic was evolving in West Java and across the Indonesian archipelago, we were interested in examining the country-wide data ecosystem. In the early weeks of COVID-19 in Indonesia, our team began surveying the availability of publicly reported data on cases across the country. Our baseline assessment in May 2020 revealed that only 20 of the country's 34 provinces had clear reporting sites where data could be obtained. Out of a total of 523 districts and municipalities, only 290 had updated websites reporting on COVID-19. In undertaking this tracking, immediately apparent was the need for more effective country-wide collaboration and a stronger data ecosystem to effectively respond to the crisis. In light of this, together with the Center for Development of Planning Data and Information (Pusdatinrenbang) in the Ministry of National Development Planning and with support from UNICEF Indonesia, our team designed a data analysis and visualization dashboard to monitor how the data was being reported on provincial websites on a daily basis. The public dashboard is accessible through this link **bit.ly/C-19Indonesia**. Particularly in handling the COVID-19 crisis, this was an opportunity to identify and address underlying, systemic conditions within the country-wide data ecosystem to ensure a more effective national response, and tackle misinformation where trust in public data was compromised.

Strengthening Indonesia's Data Ecosystem

As more government agencies and development projects begin foraying into the art of the possible with new data sources, identifying underlying systemic conditions that hamper effective adoption of data innovations is also key. Without data on COVID-19 for instance, it is difficult to understand how the pandemic is spreading through time and to assess whether the policies intended to slow the spread of the virus are actually having an impact. Making data available and accessible enables civil society to hold governments accountable for policy choices and encourages citizens to provide feedback to better adapt and improve policies. However as evidenced in the baselining work we conducted, necessary policy and resource investments are needed to improve Indonesia's data ecosystem.

A vibrant data ecosystem first requires consistency in applying principles of open data (incorporated also into Indonesia's "Satu Data" policy), where fundamental and systemic improvements are needed in the areas of:

Data Standards which refer to standardisation of data, such as concepts, definitions, coverage, classification, size, units and assumptions.

Metadata that underlies structured information related to data that describes, explains, finds, or makes information from data easy to find, use, or manage.

Data Interoperability that describes the readiness of data to be shared between interacting electronic systems.

Human Resources to ensure that sufficient resources are in place to build competent teams with interdisciplinary skills to meet demands and expectations.

These improvements are required to harness the numerous possibilities of using big data for decision making. In addition, these changes are important to progress from simply developing a host of tools for the sake of "innovation", supposedly contributing to efforts in addressing the impact of the pandemic, to processes ensuring their integration into ongoing public decision making processes. Among the many lessons from the pandemic, the situation underlines why a more integrated data ecosystem is needed in Indonesia to accelerate recovery.

People-focused Multidisciplinary Research for Better Decisions

As communities begin to look beyond the immediate response phase of the pandemic, the need for a comprehensive, whole-of-society approach that is geared towards recovery, mitigation/ prevention, and preparedness becomes even clearer. This is where multidisciplinary and people-focused research can play an important role in providing insights on complex, intersectional issues. As part of the UN COVID-19 Response and Recovery Multi-Partner Trust Fund, UN Women partnered with Pulse Lab Jakarta and Gojek Indonesia for a mixed-methods research to understand the extent to which COVID-19 has affected women entrepreneurs and women-owned micro and small businesses (MSBs) in Indonesia, with a focus on those in the food and beverage sector.

With evidence suggesting that women who own and run MSBs are relying more on digital platforms to market their products and services, further understanding this phenomenon is critical for designing responsive programmes and addressing gender inequalities that has been exacerbated by the pandemic. Pulse Lab Jakarta led the qualitative component of the research, conducting digital observation and virtual in-depth interviews with 40 women and men MSB owners living in both urban and peri-urban areas across some of the major cities in Indonesia, namely Jakarta, Medan, Makassar, Semarang and Yogyakarta. We also talked to MSB owners that did not use any digital tools to learn how their perceptions and challenges in adopting technology differed. Read more on the mixed-methods research approach in <u>Annex A</u>.



Outside of Indonesia, Pulse Lab Jakarta is supporting the Global South AI4COVID Program. Funded by Canada's International Development Research Centre (IDRC) and the Swedish International Development Cooperation Agency (Sida), this program provides competitive grants to research consortia and individual organizations that are based in low and middle income countries, working across different contexts with governments in relation to COVID-19 response. PLJs role is in providing technical and communication support to achieve and scale the impact of the program, specifically serving as a technical resource hub for grantees. This includes ensuring timely flows of knowledge and expertise, augmenting global communication efforts and identifying opportunities for policy linkages and facilitating mobilization for action in the Global South. The inaugural cohort consists of nine research grantees, working in 18 countries within the Global South. Ranging from early detection and containment, to mitigation and forecasting, their work will cover a range of components related to harnessing Al and data innovation for COVID-19 responses and recovery. ≥ visit www.COVIDSouth.ai for more information.



Analytic Partnerships for Development and Humanitarian Action

The year 2020 has also been an important milestone for PLJ, as we began to reposition ourselves as an organization that not only promotes new data innovations for development and humanitarian action, but also works to forge collaborative partnerships which ensure our innovations are adopted by counterparts. In short, we are transitioning from an "innovation lab" to an "analytic partnerships accelerator". As we consolidate around this emerging identity, we envisage we will be able to play a more impactful role in policies and action to support effective development and humanitarian practices and outcomes and further catalyse connections across the public and private sectors, as well as civil society.

While this repositioning is deliberate, it can also be seen as a natural progression of PLJ's journey in fostering data innovations in Indonesia and the Asia Pacific region. During PLJ's first foray into data innovation for development and humanitarian work, the main challenge was to "demonstrate the art of the possible" to a new audience. Hence, for the first few years of our operation, we focused on producing a large number of prototypes and analytics, with the intent to showcase the potential of emerging data innovations. We realized, however, that we could not continue to be an innovation mill in perpetuity. At some point, we had to pivot our focus on the adoption and uptake of our innovations. And we decided that 2020 was the time for us to do just that.

This repositioning strategy requires several gradual changes in the way we operate. First, we have adopted a three-pronged approach inspired by the "impact creation logic" developed by Christian Seelos and Johanna Mair 🕑 (detailed in Annex E). The approach revolves around the idea that uptake of our innovations can only be achieved if we work in the "identity space," "problem space," and "solution space." Working in the identity space means that PLJ now seeks to establish clear partnerships based on an understanding of the mandate, roles, functions and incentives of the institutions we are collaborating with. The problem space is where we hone in on pertinent issues and problems to be addressed, which for the most part requires our qualitative research capacity to tease out what our counterparts actually need. With strong partnership and a clear idea on what problem to address, we can effectively work in the solution space, where we continue to develop fit-for-purpose innovations that our counterparts can adopt, as well as catalyze stronger data ecosystems in Indonesia and the Asia Pacific region.

As a consequence of the above strategy, we reduced the breadth of our portfolio so that more resources could be allocated to working closely with partners, understanding their real needs and constraints, and identifying pathways to adoption. Whilst we still continue to churn innovations, the process is now more deliberate -- focusing on a fewer number of projects to ensure that emerging innovations are effectively utilized by our partners to inform decision making processes, design social interventions, and improve humanitarian responses. This more deliberate process in innovating is also reflected in terms of the gradual shifts in the way we achieve impact at scale.

Emerging Impact

For the past several years, PLJ has relied on a results framework that defines impact as **our contributions to change** within the overall objective of leveraging data innovations, AI, and human centered design to improve public policy making, social intervention designs, and humanitarian responses. In that light, the framework lays down three main categories of impact by which our work brings value to our range of stakeholders and partners:

Methodological Impact

Ecosystemic Impact

Operational Impact

SERTIFIKAT

SERTIFIKAT SERAH TERIMA

Formal signing over (March 2020) of a machine learning based tool Pulse Lab Jakarta and Bappenas developed in partnership with the Indonesian Ministry of Foreign Affairs to prioritise issues and highlight trends for diplomatic engagement. (Left to right: Petrarca Karetji, Head of Pulse Lab Jakarta; Listiana Operananta, Director for Information and Media, MoFA; and Randy R. Wrihatnolo, Head of Pusdatinrenbang, Bappenas).

> SERTIFIKAT SEBAH TERIMA



The first impact category focuses on PLJ's contribution to the scholarship of methodologies that utilize data innovations, AI, or human centred design in the development sphere. This is dubbed as **methodological impact**. Under this definition, we capture results gained in introducing new ways of looking at data to our partners or in disseminating innovative methodologies to broaden the overall body of knowledge in data innovations for the development sector. Replication or academic analyses and referencing of new methods we have introduced are also charted as part of our methodological impact.

Ecosystemic impact is the second, which looks at the Lab's contribution to a stronger data innovation ecosystem, both in Indonesia and the Asia Pacific region. We acknowledge that our innovations can only be effectively adopted by our partners if there is a vibrant ecosystem. Our "early-stage" ecosystemic impact therefore looks at how our work builds awareness, interest, and subsequently, demand from our stakeholders for data innovations and human centered design. As interest and demand increases, our "later-stage" impact highlights our effort in building our partners' capacity, as well as connecting and fostering partnerships among different stakeholders in collaborated projects and research.

Third, our **operational impact** is defined as the positive effects our services, analytics, or prototypes have on our partners' or clients' work. This includes, for example, improvements in the effectiveness or efficiency due to the adoption or adaptation of products PLJ

has initiated and/or contributed to. Insights generated from our analyses that subsequently inform policy making processes, intervention designs, or humanitarian responses are also captured as operational impact.

Our utilization of the above impact framework continues to evolve in order to better capture the Lab's results and achievements. When we first used the framework, we asserted that there was no hierarchy among the three types of impact. Now, however, as we implement our repositioning strategy that focuses more on adoption and uptake, we have recognised some level of sequencing in the way we put different emphasis on our impacts. In retrospect, a significant portion of the Lab's impact at the early stage of our operation was methodological, where we introduced the then novel approaches of data innovation and human centered design to our stakeholders. In addition, a priority at that time was generating awareness, interest, and demand, which is defined as our early-stage ecosystemic impact. After a level of awareness and demand for data innovations was reached, we shifted our priority to building the capacity of our partners so that they can better leverage data innovations, AI, and human centered design. Additionally, we started to dedicate more resources to build coalitions and partnerships across different stakeholders. Introducing principles of data security, privacy and ethics also began. A gradual shift towards achieving this later-stage ecosystemic impact started around 2017 and has since become a stronger priority for the Lab.

Finally, PLJ's goal of becoming an analytic partnerships accelerator is reflected in our growing emphasis on operational impact. The year 2020 saw the Lab laying down a strong foundation to ensure uptake of our work. We spent more resources working with our counterparts to build their systems, as well as developing plans to improve data architectures and governance. Furthermore, we started to incorporate more user research to identify pathways of adoption among our counterparts.

Whilst still delivering all three impacts, there is a deliberate shift in the Lab's priorities, with a growing importance on the later-stage ecosystemic impact and even more so on the operational impact. The following section details our impact in 2020.

Methodological Impact

PLJ continues to contribute to the body of knowledge and the application of data innovations, AI, and human centered design in the development and humanitarian sectors by submitting and presenting papers in international publications, workshops, and conferences. Throughout 2020, we presented four accepted conference papers that highlight our innovative use of data and AI, ranging from leveraging big data to identify positive deviants in agriculture in Indonesia to examining adaptive capacity by analysing customer data

from microfinance institutions in Cambodia \bigcirc (see <u>Annex B</u> for a list of publications).

Several pieces of our work have also been cited in research publications. Notably, in 2020 a research paper on Chinese investment in Indonesia's fintech lending and Indonesia's policy response cited PLJ's Banking on Fintech report in its literature review. Furthermore, the principal author of the paper, Angela Tritto of the Hong Kong University of Science and Technology, also used the Banking on Fintech report as a case reading for a course she taught on International Science and Technology Policy. Feedback from her students on the report indicated that they "liked learning more about the human side of tech development in a rapidly developing economy."

PLJ is at the forefront of combining different tools and methods that we have at our disposal to improve our research and data analysis. Partnering with the Behavioural Insights Team (BIT), the Secretariat of the Indonesian National Council for Financial Inclusion (S-DNKI) and a private Indonesian bank, we undertook a year-long research that combined human centered design and behavioural science to advance financial inclusion in Indonesia. The research resulted in the trialling of a behavioural intervention in the form of an 8-week WhatsApp campaign, aptly called #TabunginAja (translated as #JustSavelt). The research report, published in March 2020, was selected by the Secretariat for the National Council for Financial Inclusion as a good-practice case study and presented in its Digital Financial Capability workshop in November 2020. The event disseminated the research findings and methodology to more than 80 practitioners and policy makers focusing on financial inclusion in Indonesia.

Our commitment to implementing mixed-methods approaches can be observed in our collaboration with UN Women and Gojek in which we conducted a case study on how women-owned micro and small



enterprises leverage digitalization to cope with COVID-19. The study utilized an analysis of Gojek's quantitative data, coupled with PLJ's remote qualitative research that relied on innovative ways to conduct interviews when physical distancing was the norm and travel was not an option. A second output, which is a visualization tool for data collected with Gojek, was developed with PLJ's team contribution in the provision of qualitative characteristics and narrative on womenversus men-owned businesses. We also provided a design direction for the visualization of the tool. Both the study and the tool are examples of mixed-methods approaches that utilized both qualitative and quantitative methods.

Our mixed-methods research approach is also reflected in our research collaboration with Kopernik and the Udara Project at Institut Teknologi Bandung geared towards designing a human-centered, air quality information system to help mitigate the impact of poor air quality on local communities. Funded by the Islamic Development Bank (IsDB), the project sought to test, calibrate and install low-cost sensors in Jakarta and Kalimantan. This was coupled with Human-Centered Design, a problem-solving methodology that helps researchers to better understand the needs, desires, pain points and experiences of the users through empathy. Combining these aspects, the air quality information generated is shared via SMS notifications to affected populations, notifying victims when to take measures to protect their health, and providing educational materials related to poor air quality and health.

Another testament of our contribution to proliferating the use of data innovations for development is reflected whenever a methodology we've developed is replicated, modified, or built upon by other actors. In that respect, we were very heartened to discover that our work on identifying positive deviants in agriculture with GIZ Data Lab was used as a basis for the agency to initiate four pilot projects that leveraged the methodology that PLJ developed. That particular project combined official statistics and open-access big data to identify highperforming agricultural villages. Subsequently, we looked at specific practices that might have been the main contributors to the villages'



high productivity and explored ways to scale said practices to other villages. GIZ Data Lab reported that, inspired by the project, "UNDP Accelerator Labs and the GIZ Data Lab with technical support from the University of Manchester kicked off a series of pilots within the Data Powered Positive Deviance (DPPD) initiative." These pilots took place in Niger, Somaliland, Ecuador and Mexico.

Ecosystemic Impact

Realizing that an effective and enabling data innovation ecosystem is necessary to ensure that our impact is sustainable beyond the Lab's lifetime, we continue to invest resources in building the capacity of our partners and work with them to strengthen data infrastructures and data governance. We are also actively seeking out and fostering new partnerships, as well as building strategic coalitions.

To ensure that our capacity building efforts are effective, we shy away from providing one-off training sessions in a vacuum. Instead, we incorporate them in specific data innovation projects with our counterparts. Our brand of capacity building is highlighted in the way we work with the Indonesian Ministry of Foreign Affairs, where our data scientists and engineers work directly with a dedicated team from the Ministry to utilize machine learning to sort and extract insights from internal documents. Likewise, our collaboration with PT KAI, Indonesia's railway company, helped them understand how to leverage advanced data analytics to look at their massive passenger data in order to identify ways to provide more inclusive services. In particular, the state-owned enterprise is able to see potential benefits of disaggregating data by sex and age, for instance to increase the number of women passengers, and to encourage elderly passengers to utilize discounted tickets.

Meanwhile, through the Disaster Preparation Baselining Project with Bappenas' Directorate of Spatial Planning and Disaster Management, the national planning agency has come to a realisation that an ecosystem in disaster data is crucial. PLJ worked closely with Bappenas to examine specific ways to strengthen their data governance and data infrastructure. This has contributed to Bappenas' plan to coordinate with relevant institutions and lead the work towards "Satu Data Kebencanaan." While the implementation of that plan remains to be seen in 2021, PLJ's contribution towards Bappenas' decision to focus on their data innovation ecosystem is nonetheless significant.

PLJ also continued to play an active role in building coalitions in the utilization of data innovations and human centered design in the development and humanitarian sphere. We brought in CSIRO, Australia's premier research institution, to collaborate with the West Java Government in making full use of data analytics to inform COVID-19 response on the ground. Our collaboration with UN Women and Gojek on a research that looks at coping strategies used by women entrepreneurs during the pandemic emphasized our commitment to bring together development agencies and the private sector alike to join forces in using data innovations to draw insights that can potentially improve lives. Finally, we continued to explore potential collaborations with new players, as demonstrated by our early discussions with Indonesia's Ministry of Transportation, Ministry of Finance, and Ministry of Education and Culture, to see how data innovations, AI, or human centered design can help them improve their operations.

Operational Impact

2020 saw PLJ increasing our operational impact by influencing government agencies, subnational governments, and even the private sector to provide better services to the public and respond better to challenges. We collaborated with the West Java government and Bappenas to leverage data innovation in responding to the COVID-19 pandemic in Indonesia. As mentioned above, in Jakarta and West Kalimantan, we worked with Kopernik to empower the community using digital solutions to monitor air quality. Our work with the Ministry of Foreign Affairs made use of machine learning to extract insights for diplomatic engagement.

In response to the early days of the pandemic, PLJ utilized Facebook's population density maps in combination with other available data, including PODES, to identify the level of risk of COVID-19 transmission down to the village level. We reached out to and subsequently collaborated with the Jabar Digital Service (West Java Government's digital unit) to build on the idea and develop a data analytics interactive map, showing West Java overlaid with COVID-19 risk levels for each village. The data analysis and visualization tool is now installed on the provincial Command Center's "main commander," a nickname for the main displays that provide data on the status of COVID-19 in the province. This information feeds into the province's policy and intervention design to respond to the pandemic. We have learned, for instance, that the provincial COVID-19 task force has used the information from the system to coordinate directly with high-risk villages and take concrete actions to reduce the risk of transmission. Jabar Digital Service has since added more information to the tool, including school information, which provides insights on decisions to reopen schools in West Java. All of this demonstrates a success story of how our innovation is fully adopted and integrated by our counterpart, and utilized to make a real impact on the ground with the potential for further replication in other provinces.

While the West Java COVID-19 Project allowed us to assist decision making at the subnational level, a collaborative effort with Bappenas focused on national-level responses. Realizing that provincial governments may have different levels of capacity in responding to the pandemic, we developed a tool that crawls official provincial COVID-19 websites to monitor each province's ability to collect and report pandemic data on the ground in near real-time. Since data collection and reporting is a crucial part in subnational response to the pandemic, the tool provides continuous insights to Bappenas on which provinces are doing well and which may require assistance.

Beyond pandemic response, we continued to collaborate with partners to leverage data innovation to improve the lives of people on

the ground. The Community Air Quality Monitoring (CAQM) Project is a community-based monitoring system to provide real-time air quality and health risk information that we conducted with Kopernik and ITB. The monitoring system uses a network of low-cost sensors that track air quality, which is integrated with an online data platform. The system provides information on air quality that feeds into the heads of villages and district offices, allowing them to be informed about the state of air quality at a given time, which would subsequently inform decisions and interventions to improve air quality. The project has gone live and been utilized by village apparatuses in Kelurahan Galur, DKI Jakarta and Rasau Jaya, West Kalimantan.

Our collaboration with the Ministry of Foreign Affairs, which began in 2019, focused on utilizing machine learning to transform how the ministry carries out diplomacy. PLJ and MoFA developed a machine learning tool to analyze large volumes of texts from diplomatic cables and internal communications to extract meaningful information. The challenge in 2020 was to ensure that MoFA could fully adopt the prototype that we developed. This required us to work very closely with the Ministry's team to build their capacity and identify ways to strengthen their data infrastructure and governance. The year-long effort has led to the embedding of the system onto MoFA's repository and monitoring system.

Meanwhile, our human centered design research on women's safety and urban transportation, "After Dark: Safe Transit for Women Traveling at Night," which was conducted in 2019, continued to deliver impact throughout 2020. The recommendations from that research were taken up by the Department of Transportation of the City of Medan and Gojek, Indonesia's leading multi-service tech platform. Based on those recommendations, Medan set up safe bus stops throughout the city to make night travel for women safer. Gojek, whose platform provides online car and motorbike taxi services, put the research recommendations into action and created safety zones for women at 2 train stations (Bekasi & Sudirman) and 1 MRT station (Lebak Bulus) in Java. Gojek's efforts to improve the safety of women who use their service based on the insights from our research was further acknowledged when they won an award from UN Women Asia Pacific.



The role of Pulse Lab Jakarta

as an analytic partnerships accelerator within the data innovation ecosystem goes beyond connecting players and building synergies. This role also includes equipping partners with skills, knowledge and fit-for-purpose tools to help them perform at a greater capacity. In 2020, as we transitioned from prototyping and building proofs of concept to focus more on a systems-thinking approach to better embed data innovations, emphasis was placed on building our partners' capacity to ensure effective adoption, uptake and sustainability of new tools and approaches.

Acknowledging capacity building as a process encompassing different building blocks, our efforts throughout the year have been on:

- i) offering "learning by doing" project-based training and technical advisory on collaborative data analytics research with partners within the Government of Indonesia;
- ii) putting forward thought leadership on human-centered data innovation for policy making through targeted workshop and focus group discussions; and
- iii) sharing knowledge in diverse government, development and humanitarian fora to raise awareness on the challenges and opportunities of harnessing data innovation.

Across these fronts, our broader goal is to mainstream data innovation into day to day practice, and in ensuring that key actors are truly informed and discerning consumers. This means helping key actors to shift from a "plug and play" mindset to understanding the processes and steps required to ensure that alternative data or new approaches and/or innovations are useful to their work. Also the extent in which they complement, improve, or replace existing practices; and importantly in understanding the limitations of such data and approaches, having "red-teamed" and "practiced" the use of data sets accessed in different situations.

Learning by Doing

In 2020, PLJ worked closely with the Center for Development of Planning Data and Information (Pusdatinrenbang) within Bappenas on five analytics partnership projects. Each undertaken in partnership with a key stakeholder (namely Kereta Api Indonesia, the Indonesian Ministry of Foreign Affairs, West Java Provincial Government, Bappenas Directorate of Spatial Planning and Disaster Management and the National Institute of Public Administration), the Lab's involvement throughout the project cycles included joint ideation sessions, data innovation training, technical advice and support.

Learning by doing was central to our capacity building approach in these projects. This included, facilitation of cocreation space, allowing stakeholders to actively participate, inform, as well as gather learnings from the various processes. For example in one of the projects conducted to gain a baseline understanding of the travel behaviour of passengers using Kereta Api Indonesia, the research encouraged engagement of data analysts within both Bappenas and PT KAI on data validation and preprocessing. Similarly, PLJ worked with the Ministry of Foreign Affairs to develop a machine learning based, data visualization tool that helps to prioritise issues and highlight trends for diplomatic engagement. Whilst undertaking this project, PLJ's team relied on the domain expertise and knowledge of the staff within the Ministry to contribute to the analytics process, which in return provided insights to staff involved on some of the processes required to undertake machine learning. Cases such as these provided a practical learning opportunity to enhance our partners' ability to understand data provenance and get a clearer perspective of what a dataset may or may not be used for, as opposed to a simple transfer of technology. For PT KAI, this translates to further supporting internal capacity development to formulate business strategies using data analytics insights, whilst for the Ministry of Foreign Affairs this research places the Ministry as a potential focal point for the development of machine learning knowledge applied to information flows within the Indonesian Government.

Targeted Workshops and Advisory Requests

In November 2020, PLJ organised a three-day training workshop focused on data innovation for development planning and policy making, which was attended by around 50 representatives from Bappenas Tim Analitika, Jabar Digital Service and the National Institute of Public Administration. Responding to the growing demand for data innovations in Indonesia's public sector, the workshop included a series of sessions on how to integrate new approaches in ways of working, including mapping institutional capabilities, identifying potential data points and brokering partnerships with the various thinkers, enablers and doers.

Looking at how to align data for development initiatives for scaling, in October 2020, PLJ also partnered with the Asia Foundation and Indonesian NGO Saraswati to design a series of workshops to help identify ways to scale up two data innovation projects that were being piloted by Thibi and Renaissance Institute under the auspices of the Asia Foundation in Myanmar. One of the key takeaways highlighted the importance of expanding the definition of "scaling up" when implementing social interventions to also focus on stronger uptake and adoption, as opposed to expansion or replication. It also emphasizes that time and resources need to be allocated to ensure that institutional systems and capacity are at a sufficient level to make optimal use of the proposed solutions.

With the COVID-19 pandemic transforming how we conduct qualitative research, our Social Systems team had an opportunity to collaborate with Empatika in a four-week learning network series to discuss adapting qualitative research for remote settings. In particular, the discussions took into consideration research participants from remote areas and/or people who might have more limited access to technology (or more limited experience in using it). Two guiding principles that emerged from the learning network include: i) prioritising the participants' well-being during the pandemic, and ii) designing accessible research tools to allow us to better reach participants. These principles were applied during the implementation of our joint research with UN Women and Gojek on how MSBs in Indonesia are coping during the pandemic. Our team has published a learning report titled titled 'What We Talked About When We Talked About Remote Qualitative Research that can be accessed here bit.ly/PLJRQR.

Based on our experiential knowledge and trusted relationship with the Indonesian Government, Pulse Lab Jakarta was invited to participate in a number of internal dialogues with line ministries and government units. Being a forerunner of exploring non-traditional datasets to complement official statistics, PLJ shared its lessons learned on building data partnerships and developing proofs of concept as part of an



Data innovation for development planning and policy making virtual workshop

internal sharing session hosted by Statistics Indonesia. PLJ's #JustSavelt research that combines behavioural insights and human centered design was selected by the Secretariat for the National Council for Financial Inclusion as a good practice case study to be presented in its Digital Financial Capability workshop in November 2020, an event involving more than 80 practitioners and policy makers focusing on financial inclusion in Indonesia. Connected with our financial inclusion portfolio, the Lab was also invited to take part in an internal brainstorming session conducted by Bank Indonesia East Java Office to provide recommendations on developing its inclusive economic growth strategy.

Playing an advisory role, our activities have included participation in focused group discussions convened by PROSPERA with the Coordinating Ministry for Economic Affairs to provide technical inputs on the development of strategies and policies linked to the National Digital Economy Framework. Similarly, the Lab was requested to participate in an internal review meeting with the Financial Education and Training Agency of the Ministry of Finance to share knowledge and provide inputs related to the virtual training programme on data driven decision making that is currently developed by the agency. In a forum arranged by The Westminster Foundation for Democracy and the Indonesian House of Representatives to review Indonesia's Green Economy Agenda, PLJ discussed its contribution to the Satu Data initiative and how open data principles can be implemented across government to enhance public access to environmental data to improve government's accountability in achieving sustainable growth and meeting climate change commitments.

Knowledge Sharing

With the COVID-19 crisis underlining the importance of ethical, human-centered data innovation, we have observed an uptick in the demand to share our experiences in various government, development and humanitarian virtual forums in Indonesia and throughout the Asia Pacific region. These provided opportunities to further profile the work of the Lab, as well as network with a mix of attendees convened from the public and private sectors, academia and civil society.

JANUARY

Urban Motion Volume 3 17-19 January 2020 The School of Architecture, Planning and Policy Development at Institut Teknologi Bandung (ITB) organised a panel discussion under the theme "Resilience in the Era of Disruption". Our humanitarian data advisor discussed how real-time sensing from non-traditional data can help governments assist vulnerable populations after natural disasters.

FEBRUARY

Annual Australasian AID Conference 2020 17-19 February 2020 Organised in partnership with the Asia Foundation, the research conference brought together researchers from Australia, the Pacific and Asia who are working in international development and policy. PLJ shared research insights on how it developed MIND, a data analytics and information management system to inform post-disaster logistics planning.

Pindai Daku Kau Kuintai 21 February 2020 With discussions led by Kolektif Agora, an independent community organisation that promotes collective literacy around urban issues, the talk focused on smart cities' adoption of data-driven approaches. Our full stack engineer discussed the importance of data governance in the ongoing data revolution, particularly the need to integrate personal data and protection principles when designing social innovation.



Lab Visit: UNESCAP Delegation 28 February 2020 The Lab hosted a visiting delegation from UNESCAP Asia and the Pacific, headed by its Executive Secretary Armida Alisjahbana. PLJ shared the evolution of its data journey from working mostly with social media data in its early days to now having research partnerships with a diverse range of data providers.



MARCH

Tech Talk: From Research to Product 4 March 2020 The Directorate of Information Systems and Digital Transformation at Institut Pertanian Bogor University invited Pulse Lab Jakarta to share its learnings on bringing together academicians and decision makers working in the policy space. The Lab discussed how it partners with government counterparts to develop fit-for-purpose tools and prototypes through a co-design process.



JUNE

Local Evaluation Week 2020 5 June 2020 The Local Evaluation Week forum is designed for sharing experiences on how global knowledge can shape local evaluation practices, and likewise how local experiences can influence global evaluation thinking. Speaking on a panel chaired by the International Initiative for Impact Evaluation (3ie), PLJ shared its experiences harnessing Big Data to better evaluate progress of the sustainable developmental goals.

CogX 8 June 2020 To address the question: "How do we get the next 10 years right?", this global leadership summit and festival of AI and breakthrough technology convened forward-thinking policy makers, academics and activists. PLJ described how the Lab implements its mixed-methods approaches when designing interventions, by combining human centered design with AI and data analytics.

JULY

RightsCon Online 2020 29 July 2020 RightsCon is described as the world's leading event on human rights in the digital age, PLJ participated in one of its virtual roundtables that addressed the question: Can Global South institutions survive the GovTech onslaught? Highlighting proofs-of-concept from Indonesia and the wider Asia Pacific, our Data Innovation and Policy Lead explained how digital innovations can help to address the COVID-19 crisis with appropriate checks and governance.



AUGUST

Leveraging Data in the "New Normal" 5 August 2020 Organised by the Australia-Indonesia Centre, the webinar discussed learnings from the pandemic, how data has been collected and the role of data in disaster preparedness. PLJ shared insights from its assessment of Indonesia's country-wide data ecosystem in relation to the availability of publicly reported data on COVID-19, as well as some of the underlying conditions that need to be addressed.

Peranan Analitika Data dalam Pembangunan Dashboard Covid-19 10 August 2020 The Center for Development of Planning Data and Information (Pusdatinrenbang) in Bappenas held a public discussion on the role of data analytics in the development of a COVID-19 public information dashboard. PLJ was invited to share findings from its baseline assessment of COVID-19 public reporting in Indonesia, emphasising why investing in a strong data ecosystem comes with long-term advantages.

Asia and the Pacific Transport Forum 24-26th August 2020 The forum provided an opportunity for experts in the Asian transport community to meet and share thoughts on key transport issues that have come about in the "new normal". Speaking on the theme of building resilience to future crises in transport, PLJ highlighted potential benefits of enhancing the role of big data to address changes in urban transport, as well as shape future development of the transport system.



KsiXchange #27: Data-Driven Decision Making in Tackling COVID-19 27 August 2020

Pulse Lab Jakarta participated in a public discussion organised by the Australia-Indonesia Knowledge Sector Initiative on the importance of using data for more effective decision making, particularly to inform government response to the needs of vulnerable groups affected by the pandemic.

SEPTEMBER

Mempertahankan Semangat Kerja di Tengah Pandemi Covid-19 2 September 2020 The Indonesian Ministry of State-Owned Enterprises invited Pulse Lab Jakarta to share its work on COVID-19 response in Indonesia. PLJ underscored why effective response calls for shifting from simply innovating for the sake of innovation, to addressing underlying challenges in the data ecosystem to ensure greater adoption and more sustainable solutions.

OCTOBER

Ministry of Change Innovation CoP Week 9 October 2020 Sharing stories and lessons alongside colleagues from UNDP Philippines Pintig Lab, Head of Pulse Lab Jakarta discussed how the team has evolved from mostly focusing on data innovation, to now embracing its emerging identity as an analytic partnerships accelerator for development and humanitarian action in the region. The event was a collaboration between UNDP and States of Change.

CDAC 2020 Online Annual Public Forum 28 October 2020 Under the theme Accountability in the Age of the Algorithm, the Communicating with Disaster Affected Communities Network organised a public forum to discuss digital inclusivity and issues that constrain it. Pulse Lab Jakarta talked about the importance of designing inclusive solutions that also cater to the world's most vulnerable populations, and shared how local initiatives can offer practical solutions that can be further scaled for social impact.

NOVEMBER

UNESCAP Asia-Pacific Stats Café Series 2 November 2020

Furthering the discourse on integrating big data sources into official statistics, Pulse Lab Jakarta presented its research results on using mobile network data to map population displacement in the Pacific following natural disasters and leveraging real-time sensing from social media data to infer commuting statistics in Jakarta.



Gender Equality & Social Inclusion Conference Call 9 November 2020 As part of Abt Associates' Gender and Social Inclusion Community of Practice regular monthly call, Pulse Lab Jakarta described how the Lab went about embedding gender in its After Dark research on the safety of women travelling at night and discussed how the findings and recommendations are influencing transport outcomes for women and girls in Indonesia.

Indo Data Week 22 November 2020 The week-long knowledge sharing virtual event brought together visionaries, practitioners, decision makers and researchers from the fields of data science and sustainable development. Pulse Lab Jakarta presented in its inaugural session on how Big Data can promote data-driven decision making for effective government response to COVID-19 at the national and subnational levels.

Digital Financial Capability workshop 25 November 2020 The workshop was hosted by the Secretariat of the National Council for Financial Inclusion and Women's World Banking. PLJ's #TabunginAja research, that combines behavioural insights and human centered design to advance financial inclusion in Indonesia, was selected by the workshop organisers as a good-practice case study to be presented.

Digital Agriculture Solutions Forum for Asia and the Pacific 2020 30 November 2020 The Food and Agriculture Organization (FAO) and the International Telecommunication Union (ITU) organised the forum to share ideas on how communities can build back better through sustainable digital interventions for agriculture. Discussing its research on Identifying Potential Positive Deviants (PDs) Across Rice Producing Areas in Indonesia, Pulse Lab Jakarta described some of the enabling conditions that are necessary to ensure that successful innovations are made accessible to broad-based users.



DECEMBER

ITU World Telecommunication/ICT Indicators Symposium 2020 3 December 2020 The symposium gathered government officials, regulators, national statisticians, data producers and researchers to discuss issues related to information society trends and their measurement. Pulse Lab Jakarta shared its experiential learnings on leveraging mobile phone data for disaster response in the Pacific and Indonesia.



Report Launch: Leveraging Digitalization to cope with COVID-19 11 December 2020 In a public forum attended by representatives from the Indonesian Ministry of Women Empowerment and Child Protection, Indonesian Chambers of Commerce, and the Ministry of Cooperatives and Small and Medium Enterprises, Pulse Lab Jakarta and UN Women presented the results from their joint research which examined the difference in outcomes and coping strategies between women and men owned micro and small businesses operating in the pandemic.

2020 Conference on Neural Information Processing Systems 12 December 2020 The conference is one of the largest AI virtual gatherings, where participants from across the globe get to share and explore some of the most cutting-edge AI innovations that are addressing real-world challenges. Three of Pulse Lab Jakarta's papers were accepted and featured during the conference.



List of Annexes

Annex A: Research Activities

Annex B: Publications

Annex C: Media Coverage

Annex D: Personal Data Protection & Privacy Principles

Annex E: Impact Creation Logic



Research Activities

Leveraging Digitalization to Cope with COVID-19

COVID-19 RESPONSE



ANNEX A

As part of the UN COVID-19 Response and Recovery Multi-Partner Trust Fund (COVID-19 MPTF), UN Women partnered with Pulse Lab Jakarta (PLJ) and Gojek Indonesia for a mixed-methods research to understand the extent to which COVID-19 has affected women entrepreneurs and women-owned MSBs in Indonesia, with a focus on those in the food and beverage sector. With evidence suggesting that women who own and run MSBs are relying more on digital platforms to market their products and services, further understanding this phenomenon is critical for designing responsive programmes and addressing gender inequalities that has been exacerbated by the pandemic.

The collaborative research resulted in two main outputs, delivered jointly by PLJ and UN Women:

Leveraging Digitalization to Cope with COVID-19: An Indonesia Case Study on Women-Owned Micro and Small Businesses: the full research report, published and launched on 11 December 2020, which consists of findings from the UN Women-led quantitative component as well as the PLJ-led qualitative research, as well as both agencies' policy recommendations. The report, in English and Bahasa Indonesia, is publicly accessible on blicly bit.ly/MSBsDig

Is Digitization Helping Businesses Like Yours to Cope with the Effects of COVID-19?: an interactive data visualization portal that features data from the survey conducted by UN Women and Gojek, as well as selected insights from the PLJ-led qualitative research. The portal went live on 26 November 2020 and is publicly available in English and Bahasa Indonesia at \bigcirc bit.ly/C19biz

Pulse Lab Jakarta delivered the research design for the qualitative component, which was peer-reviewed by UN Women Statistics Division and Gojek Indonesia. In addition, the team developed a set of research instruments for the qualitative component, consisting of guidelines for virtual interviews and digital observation with 40 MSB owners, 24 of whom are women, spread across urban and peri-urban areas in some of the major cities in Indonesia, namely Jakarta, Medan, Makassar, Semarang and Yogyakarta.

To build on the existing work, UN Women Statistics Division is planning to replicate the survey in other countries in the Asia-Pacific region, using the current research as a case study. PLJ is revisiting the qualitative data collected throughout the study to test the possibility of designing a digital capabilities framework specifically for women necessity MSB owners, which has the potential to inform capacity building initiatives for this cohort.

Identifying Areas with a Higher Risk for COVID-19 Spread in West Java, Indonesia

COVID-19 RESPONSE

With Indonesia reporting one of the highest number of COVID-19 cases among Southeast Asian countries in the early months of the pandemic, parts of the country, including its most populous province - West Java, began implementing a soft-lockdown to slow the spread of the disease. To support government response, Pulse Lab Jakarta has been working with Jabar Digital Service (JDS) of the West Java provincial government, the Ministry of National Development Planning (Bappenas) and UNICEF Indonesia to develop data insights to inform a more localised, targeted and dynamic approach towards imposing and lifting the COVID-19 soft-lockdown in Indonesia. These insights would support the West Java government's decision making in opening up pockets of areas to economic and social activity whenever the conditions merited it.

To have a better understanding of the transmission potential of each area within the province, there is a need for data that has information on transmission factors, preferably at the smallest granular level to support the localised intervention mechanism. Our team used the Village Potential census (PODES) that was last conducted in 2018 to derive two relevant metrics: (i) transmission potential index and (ii) transmission risk. To establish the potential index, the Lab consulted with epidemiologists and determined the baseline index consists of the following factors where the variables are also available in PODES: transportation, slum areas, meeting points and sanitation. The first three factors have a positive sign, which indicates that a higher score from each factor accelerates the transmission. Meanwhile, sanitation has a negative sign in which a higher score means a transmission delay.

However, one crucial data point was not available in the PODES data — population density. In terms of spatial granularity to generate population density for each village, high spatial resolution of those dataset enables aggregation of population density to the village level, which is on par with PODES. Unfortunately, like most countries the population census in Indonesia is conducted every 10 years and at the time the most recent available data was from 2010. Therefore, we needed to find more recent population data, but with similar or more spatial resolution than what is available in PODES.

To come up with the population density score, the Lab used Facebook Population Density Map (FPDM) data accessed through the Humanitarian Data Exchange (HDX) as part of Facebook's Data For Good Programme. FPDM data was last updated in 2018, similar to PODES and it covers the entire Indonesia with 30-meter square resolution. To integrate this data with the PODES data, the Lab reduced the resolution to the village level. To test its validity, our team used population figures from the 2018 SUSENAS (national socioeconomic survey) data, which is another administrative data



collected at the district or city level. The result was quite robust, with a correlation coefficient of 0.98 (which indicates a strong correlation).

After calculating the transmission potential, the next step was to assess the metric that compounds transmission potential and cases data — the transmission risk. Transmission risk related to COVID-19 analysis is basically an ex-post measure, where villages without cases basically have zero risks regardless of their baseline score and villages with cases have positive risks associated with the number of cases and the baseline prospect. Therefore, the nature of transmission risk is dynamic as it follows the number of cases in villages. The static spatial and temporal measures we constructed from PODES, though not being too out-dated, need to be coupled with more up to date dynamic data on a host of important factors, such as mobility and case incidence data when informing decisions that need to be undertaken. There are plans being undertaken to enhance the research approach to inform vaccine prioritization and distribution across the province.

Baseline Assessment of Publicly Reported COVID-19 Data in Indonesia



In the early weeks of COVID-19 in Indonesia, Pulse Lab Jakarta began surveying the availability of publicly reported data on cases across the country. Apart from understanding how the pandemic was evolving across the archipelago, we were interested in examining the country-wide data ecosystem. Our baseline assessment in May 2020 revealed that only 20 of the country's 34 provinces had clear reporting sites where data could be obtained, and of the 523 districts, only 290 had updated websites reporting on COVID-19.

Whilst several provinces share their data on public sites through a common domain-naming format (https://corona.provincename. go.id), others provide data through their regional health offices or use customised links. West Java in particular is one of the provinces that has complete and updated data, with DKI Jakarta detailing data from the district to the village (kelurahan) level. However this is far from being the norm across all provinces, notably with data being publicly unavailable for a few. Ranging from PDFs to images, there are also inconsistencies in the format in which the data is presented, thus presenting challenges for other parties to aggregate and/or make use of the data.

In undertaking this process, it became immediately apparent the need for more effective country-wide collaboration and a stronger data

ecosystem. Together with the Center for Development of Planning Data and Information (Pusdatinrenbang) in the Ministry of National Development Planning and UNICEF Indonesia, our team designed a data analysis and visualization dashboard to monitor how the data was being reported day-to-day on provincial websites. Particularly in handling the COVID-19 crisis, this was an opportunity to identify and address underlying, systemic conditions within the country-wide data ecosystem to ensure a more effective national response, and tackle misinformation where trust in public data is compromised.

In the second phase of our baseline assessment, we further examined the provincial websites' public reporting on COVID-19 to answer: what details are included on each website, how frequently is it updated, and what are the recurring issues in terms of data access and data ingestion? This dashboard is being integrated among the Indonesian Government's COVID-19 monitoring assessment tools.

Assessing the Potential Risks of COVID-19 Spread Due to Lebaran-related Travel

COVID-19 RESPONSE

The Research and Development division within the Indonesian Ministry of Transportation (Kemenhub) conducted an online survey in April 2020 to gain an understanding of citizens' decisions and perceptions towards travelling during the Islamic homecoming holiday of Eid al-Fitr, known locally in Indonesia as Lebaran. Carried out subsequent to the implementation of several COVID-19 related social restrictions in parts of the country, the survey collected responses from more than 100,000 respondents across 34 provinces, with the majority coming from the Greater Jakarta metropolitan area.

In collaboration with the Ministry of Transportation, Pulse Lab Jakarta analysed the responses to develop descriptive statistics pertaining to the profile of the respondents, reasons for travelling home, in addition to assessing the respondents' perception towards the Government of Indonesia's policy discouraging travel during the holiday period.

The analysis revealed that despite social restriction measures in place, a significant number of respondents still intended on travelling home to their villages for the holiday. Their reasons may be described as both finance related (e.g. loss of income due to the impact of COVID-19) and non-finance related (e.g. due to traditional, family practices). The majority of the respondents fell within the 40 and younger age demographic, including high school graduates and online drivers.

Apart from providing data-informed insights to further inform and evaluate the social restriction measures, the analysis also identified information gaps that can be filled by alternative data sources. For instance, whilst the survey provides information on transportation modes, there's a possibility to harness real-time, high resolution mobility data from cellular network and transportation services to better understand population movement with regards to the potential risks of COVID-19 transmission.





Global South AI4COVID Programme

COVID-19 RESPONSE

Funded by Canada's International Development Research Centre (IDRC) and the Swedish International Development Cooperation Agency (Sida), with support from Pulse Lab Jakarta, the Global South AI4COVID Program supports multidisciplinary research focused on evidence-based artificial intelligence (AI) and data science approaches to aid COVID-19 response and recovery in low- and middle-income countries.

In particular, the multi-year program aims to support research that is linked to government responses and policy making in the following areas:

- Forecasting transmissions and reducing spread through policy and public health interventions
- Optimising public health system responses for patient diagnosis, care, and management
- Mobilising AI and data science to understand and support gender inclusive COVID-19 action
- Building trust and combatting mis- and dis-information around COVID-19
- Strengthening data systems and information sharing about COVID-19
- Supporting transparent and responsible AI, data, and digital rights governance around COVID-19 and pandemic responses

The inaugural cohort consists of nine research grantees (including research consortia and individual organizations), working in 18 countries within the Global South. Ranging from early detection and containment, to mitigation and forecasting, their work will cover a range of components related to harnessing AI and data innovation for COVID-19 responses and recovery.

The research undertaken by the inaugural cohort of research grantees falls within two overarching themes:

AI for COVID-19 Policy and Decision Making

Informing policies, both organisationally and nationally, that support and build trust in AI and data science responses to epidemics and that mitigate potential harms; and

Strengthening the capacity of health systems in low- and middleincome developing countries to respond to epidemics using AI and data science techniques.

User-Centric Data Innovation and AI for COVID-19

Deepening understanding of how to develop and scale responsible and evidence-based AI and data science approaches that support COVID-19 response and recovery in developing countries; and

Ensuring that those responses are gender responsive and culturally appropriate, community specific, and based on local needs and contexts.

The Lab is serving as a technical resource hub for grantees for timely flows of knowledge and expertise and is playing a key role in augmenting global communication efforts, identifying opportunities for policy linkages and facilitating mobilization for action in the Global South.

Community-based Air Quality Monitoring in Indonesia

URBAN DYNAMICS

People often perceive air pollution to be a health risk, but many of them do not know the extent to which poor air quality can affect their health and when to take precautions to limit exposure. In some communities across Indonesia, this limited understanding about the issue hinders mitigative action. To address this concern, Pulse Lab Jakarta in collaboration with Kopernik and the Udara Project at Institut Teknologi Bandung designed a human-centered, air quality information system to help mitigate the impact of poor air quality on local communities.

Funded by the Islamic Development Bank (IsDB), the project sought to test, calibrate and install low-cost sensors in Jakarta and Kalimantan. This was coupled with Human-Centered Design, a problem-solving methodology that helps researchers to better understand the needs, desires, pain points and experiences of the users through empathy. Combining these aspects, the air quality information generated is shared via SMS notifications to affected populations, notifying victims when to take measures to protect their health, and providing general educational material related to poor air quality and health.





The system targets two specific profiles: the user and the beneficiaries. Village apparatus, seen as the primary user of the system, are well positioned to operate and maintain the air quality monitoring system. Community members are seen as the beneficiaries, a group that will gain from the system by receiving updated information on air quality in their areas, with educational advice on what actions to take.

The prototype has been handed over to Institut Teknologi Bandung, where considerations are being made for integration within existing air quality monitoring systems at the community level. With the recent requirement for local governments to provide information on air quality, as stated in a recent regulation by the Indonesian Ministry of Environment and Forestry, the system has potential for helping local governments provide better air quality information to their constituents.



PT KAI Data Analysis: Better Understanding Passenger Travel Behaviour

URBAN DYNAMICS

Digitalization (e.g. online ticketing, smart cards, automated fare collection) of transport and big data technologies now allow a detailed, large-scale, and frequently updated view of human mobility as well as the wider transportation sector as a whole. Gaining a better understanding of train passengers' behaviours through data analysis can inform both developmental agendas and business strategies, such as helping train authorities to meet customers' needs, enhance inclusive service delivery and increase ridership.

Partnering with Indonesia's state owned Railway Corporation (Kereta Api Indonesia or KAI) with support from the Ministry of National Development plan, the Lab sought to explore the potential and feasibility of utilising, processing and analysing PT KAI passenger datasets for insights on business strategy and inclusive development, and conduct baseline assessment to better understand PT KAI passengers' travel behaviours, namely passengers segments, demography and movements.

In the past the national railway data has never been disaggregated by gender. Through this process we have shown them the value of disaggregating data not only by gender, but also by age, identifying through this process a large number of women travelling by rail, alone and after dark (between 6PM to 6AM). This highlighted an existing opportunity to further increase women passengers by increasing safety and comfort facilities. This research is an indication of PT KAI taking leadership amongst Indonesian state owned enterprises in effectively disaggregating data to identify vulnerable groups to further understand their needs and design inclusion solutions. Through this project, authorities can make sense of what the data contain and uncover relevant insights. As a baselining research, this project also serves as a capacity building activity that enables train authorities and government officials to better understand and make use of their data before going into more complex analyses.



Using Ride-hailing Data for Sustainable Transport Systems: Bangkok, Thailand

URBAN DYNAMICS

With the growth in digital technologies, there are now emerging opportunities to leverage the data generated to complement existing models and approaches intended to improve transportation systems. Ride-hailing data is a promising example, as its volume and near realtime nature have the potential to inform urban planning as it relates to traffic patterns, as well as social, climate, and environmental concerns.

Pulse Lab Jakarta was initially approached by GIZ Data Lab to explore this research opportunity in Bangkok, Thailand. Given GIZ Data Lab's focus on bringing together thinkers and practitioners to promote the effective, fair, and responsible use of digital data for sustainable development, combined with PLJ's advanced data analytics capacity and urban dynamics focus, the benefits of working together towards our common goals seemed favourable. PLJ was then able to gain Grab's support in this research partnership given it is one of the most popular ride-hailing services in Bangkok. It also helped that PLJ had a prior relationship with Grab as its regional data partner.

We were particularly interested in looking at the dynamics between regular days and special days (such as the Songkran Festival that takes place during the Thai New Year celebrations around mid-April). Therefore, analysing pseudonymised ride-hailing data covering the periods September-December 2018 and March-April 2019, we set out to find preliminary answers to the following questions:

- How might ride-hailing data complement existing transport models, such as road speed profiling and traffic flow models?
- To what extent can ride-hailing data provide real-time insights on traffic patterns?
- Is there an opportunity to use ride-hailing data to shed light on possible exposure to air pollution?

Results of our speed profiling experiment indicated that ride-hailing data can also provide a high frequency proxy estimate of traffic conditions, and overall traffic speeds. Given that speed information is captured continuously, this data set allows transportation specialists to understand the day-to-day traffic and speed patterns for different scenarios, such as during weekday, weekend and special events. Subject to data access, doing so enables profiling for different types of activity that can each be updated in near-real time. This then means near real-time data as in the case of ride-hailing data may be able to facilitate quicker feedback loops for transport agencies to trial and model effects of certain interventions (for instance designating certain roads as one-way or for that matter formulating and trialling congestion pricing for certain routes/areas). In essence, this experiment illustrates that such higher quality alternative data can inform better evidence-based transportation policy.



Of the experiments we conducted, our attempt to infer air quality at a higher spatio-temporal resolution sought to address one of the most important environmental and public health issues affecting countries in South and South-East Asia - air pollution. In the context of Bangkok, our preliminary work explored the application of artificial intelligence techniques to analyse data from multiple sources including, amongst others, satellite imagery and traffic congestion estimates. Our research took into account variance of air quality conditions in Bangkok during different seasons, but with only a dozen official air quality sensors available throughout the city, additional data is needed to validate our findings. The availability of more ground truth data from other sources is critical to better calibrate our model and conduct future research in this area. These improvements could then potentially contribute to a lower cost, long-term solution for improved spatio-temporal coverage to quantify population exposure to air pollution.



Identifying Potential Positive Deviants (PDs) Across Rice Producing Areas in Indonesia

FOOD SECURITY & AGRICULTURE

Contributing to the global Data Powered Positive Deviance initiative, Pulse Lab Jakarta conducted data analytics research by merging traditional statistical data with Earth Observation big data to identify potential rice producing villages across Indonesia that might be faring better than others. This Positive Deviance approach is focused on identification and scaling of strategies undertaken by positive deviants, which refer to individuals or communities that use uncommon practices that enable them to achieve better outcomes than their peers, despite having similar conditions and resources. Although the Positive Deviance approach has had success, the scaling of successes achieved across diverse geographies and large populations has presented numerous challenges, part of which can be attributed to the conventional qualitative and quantitative approaches employed, namely interviews and surveys.

Statistically rigorous, time-tested methods and processes underline the generation of official statistical data. As such, it's reasonable that trialling a new approach such as Positive Deviance that combines official statistical data with big data would undergo similar scrutiny. Our pilot project, was premised on this understanding, wherein the focus was to develop a statistically robust method that can reanalyse exemplar official statistical data (agriculture census and village potential survey), in combination with open access Earth



Observation (EO) big data, using a PD-based framework. For this research, re-analysis entailed leveraging the aforementioned data sets to identify communities of rice farming villages, and then within those communities, to further identify individual villages with relatively high agriculture productivity (high performers). This was then followed by getting a sense of successful practices that might have been responsible for high agriculture productivity, as identified using official statistical data. Lastly, we sought to identify opportunities that may help to eventually scale successful practices across remaining individual villages that have common bioclimatic conditions.

Once the performance measure was established, our next step was to figure out how to determine the high performers based on this measure. We employed distributional cut-offs, partial least squares regression, in combination with a variety of outlier detection methods, to not only identify high performers/PDs, but also structural variables and conditions (derived from official statistical data) associated with the high performers within each homologous environment. We found several high performing villages across a number of homologous environments with relatively younger farmers, lower incidences of flooding events and followed a combination of plantation farming along with rice farming. Also of interest, these villages were dependent on rain-fed systems.

We implemented three different validation approaches, all of which assessed whether the identified outliers are indeed outliers, or artefacts of the method used. Two of the three validation approaches relied on reviewing literature that investigate the relationship between the structural variables significantly associated with outliers and high agriculture productivity. To complement this literature review, we also used the Google time scale tool, and analysed historical satellite imagery by searching for evidence for these successful practices (for instance searching for evidence of plantation farming), on a subset of villages across all homologous environments. While these validation approaches were dependent on finding evidence for successful practices either through literature review or through satellite imagery, we also developed and implemented another validation test, which relied only on time series EO data. These three validation approaches revealed that the outliers identified are not artefacts of the method (not noise); the outlier identification method instead did pick up actual signals and identified "true" outliers (potential positive deviants).

Facilitating the Design of Localized Poverty Alleviation Schemes

POVERTY ALLEVIATION

Whilst national-level poverty alleviation schemes in Indonesia have existed since the 1970s, the poverty reduction rate in Indonesia is falling. This may partly be because universal interventions geared towards poverty reduction typically do not address context-specific issues, particularly in a large country like Indonesia with varying socio-economic conditions. Whilst localising an intervention can lead to effective policies for local populations, it isn't always feasible in such a large country to run a national program that is fully customized to every single local context. Finding the sweet spot in-between a universal approach and a fully-localized approach becomes important. Using data from SEPAKAT (a poverty analysis tool that collates a variety of empirical indicators at the sub-national level), our team set out to investigate whether it would be possible to group

similar sub-national regions (based on the data in SEPAKAT) so as to offer some level of context-specific customization in the design of national poverty alleviation schemes.

The research framework was defined by our partners within the Indonesian Ministry of National Development Planning (Bappenas) and World Bank, who also provided the semi-processed data from SEPAKAT at the province and district level on input and outcome variables. Using primarily model-based clustering with six variations, our research was able to group provinces and districts based on the baseline characteristics on topology, economic structure and fiscal capacity. The results recommended several options that might be ideal for localising interventions, at both the province and district level. However, from the analysis we could not determine the levels of viability of each cluster, as this would require further domain expertise in the respective region, consistent with the complexity of the planned interventions. A comparison of outcome variables on poverty alleviation performance could subsequently be conducted within each cluster. The results could then provide further recommendations to the Government on further work to explore, such as exploring top-performing areas (knowledge hub) and monitoring performance within clusters.



Adapting to Data-Driven Diplomacy with Machine Learning

STRATEGIC EXPLORATION

Following the 2018 International Seminar on Digital Diplomacy coorganised by Pulse Lab Jakarta, the Indonesian Ministry of Foreign Affairs (MoFA) and DiploFoundation, the Lab worked with the Ministry via its Information and Media Department (known as Infomed) and Centre for Information Technology and Communication (known as Pustik KP) to explore possibilities in developing a tool with Natural Language Processing (NLP) capability. This would help shorten the time required for analysing the Ministry's communications from around the world. The Lab initiated a collaborative process of ideation and design, leading to concepts and mockups presented at an early stage of the project to clarify needs, as well as ensure that the proposed solution is usable and will streamline the existing workflow of the staff within the Ministry.

Based on feedback from these mockups, changes were made to the proposed design leading to subsequent prototypes. A machine learning tool was developed, which reliably extracts metadata and text data from declassified documents shared within the Ministry, and automatically classifies new documents from Indonesian embassies and Representative Offices (ROs) around the world using a uniquely contextualised taxonomy. To analyse the documents (as inputs), image mining processes are performed to extract text and information from the document images. This is followed by text preprocessing, which was carried out under the supervision of the Ministry to clean the HTML tags, numbers and punctuations in the text; split sentences into words; and filter out the most frequently used words from declassified documents. Relying on the domain expertise and knowledge of the staff within the Ministry, a set of labels were established relevant for categorising the content of documents. Some of these labels included, economic and political issues, staff-related matters, and socio-cultural affairs. From here, the team at MoFA manually classified more than 5000 documents into these categories based on similarity of keywords, which then became the training dataset to develop the machine learning model. To make sense of the analysis performed by the computational method, the results of the classifications are visualised in the form of easy-to-read maps and graphs, thus improving the staff's ability to synthesise massive amounts of communications and provide more relevant and timely insights.

Following the conclusion of the first phase of the project in March 2020, it was agreed that enhancing the functionalities of the dashboard could lead to greater operational impact Thus the project progressed to a Phase 2, which included changing the input from unstructured documents to more structured documents, automatically fed from a complementary machine; as well as adding timeframe search features and multi-tag classification. Despite being computational in nature, the NLP method relies on human expertise and the collaboration has provided capacity building in the areas of machine learning and advanced data analytics for MoFA during the first phase. The role of MoFA as the domain expert is important going forward to improve better classification results, while also placing the Ministry as a potential focal point for the development of machine learning knowledge within the Indonesian Government.

Publications



ANNEX B

RESEARCH REPORT #JustSavelt - Encouraging Usage of Agent-Based Bank Accounts to Improve Financial Inclusion



RESEARCH REPORT Leveraging Digitalization to Cope with COVID-19



TECHNICAL REPORT Identifying Potential Positive Deviants (PDs) Across Rice Producing Areas in Indonesia



TECHNICAL REPORT Data Innovation: Metropolitan Sustainable Transportation



Annual Report 2019



LEARNING REPORT What We Talked About When We Talked About Remote Qualitative Research

ACCEPTED PAPER





ACCEPTED PAPER

Who is More Ready to Get Back in Shape? Conference on Neural Information Processing Systems



ACCEPTED PAPER Inferring High Spatiotemporal Air Quality Index: A Study in Bangkok Conference on Neural Information Processing Systems

ACCEPTED PAPER

Data Analytic Platform for Logistics Planning and Information Management Following Natural Disasters 2020 Australasian AID Conference

To see a full list of our blogs published in 2020, please visit our Medium page: https://medium.com/@PLJ



ANNUAL REPORT 2020

38

Media Coverage

ANNEX C





Personal Data Protection & Privacy Principles

ANNEX D

Adopted by the UN High-Level Committee on Management (HLCM) at its 36th Meeting on 11 October 2018

Purpose: These principles (the "Principles") set out a basic framework for the processing of "personal data", which is defined as information relating to an identified or identifiable natural person ("data subject"), by, or on behalf of, the United Nations System Organizations in carrying out their mandated activities.

These Principles aim to:

- harmonize standards for the protection of personal data across the United Nations System Organizations;
- (ii) facilitate the accountable processing of personal data for the purposes of implementing the mandates of the United Nations System Organizations; and
- (iii) ensure respect for human rights and fundamental freedoms of individuals, in particular the right to privacy.

Scope: These Principles apply to personal data, contained in any form, and processed in any manner.

The United Nations System Organizations are encouraged to adhere to these Principles and may issue detailed operational policies and guidelines on the processing of personal data in line with these Principles and each Organization's mandate.

Personal data should be processed in a non-discriminatory, gender sensitive manner.

Where appropriate, these Principles may also be used as a benchmark for the processing of non-personal data, in a sensitive context that may put certain individuals or groups of individuals at risk of harm.

United Nations System Organizations should exercise caution when processing any data pertaining to vulnerable or marginalized individuals and groups of individuals, including children.

In adherence with these Principles, the United Nations System Organizations should conduct risk-benefit assessments or equivalent assessments throughout the personal data processing cycle. Implementation of these Principles is without prejudice to the privileges and immunities of the relevant United Nations System Organizations concerned.

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.

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.

Based on these Principles, we proceeded in 2020 to also update our own *UN Global Pulse Principles on Data Protection and Policy*, which we apply whenever we collect, use, share, or otherwise process personal data or sensitive non-personal data as part of our activities.

Data protection and privacy in response to COVID-19 statement

In 2020, we worked through our UN Privacy Policy Group to develop a Joint Statement on Data Protection and Privacy in the COVID-19 response to support the privacy protective use of data and technology in fighting the pandemic. The Statement reinforces that collection, use and processing of data should:

- Be lawful, limited in scope and time, and necessary and proportionate to specified and legitimate purposes in response to the COVID-19 pandemic;
- Ensure appropriate confidentiality, security, time-bound retention and proper destruction or deletion of data in accordance with the aforementioned purposes;
- Ensure that any data exchange adheres to applicable international law, data protection and privacy principles, and is evaluated based on proper due diligence and risks assessments;
- Be subject to any applicable mechanisms and procedures to ensure that measures taken with regard to data use are justified by and in accordance with the aforementioned principles and purposes, and cease as soon as the need for such measures is no longer present; and
- Be transparent in order to build trust in the deployment of current and future efforts alike.

Based on the UN Personal Data Protection and Privacy Principles and recommendations in the Secretary-General's Data Strategy, the Statement was endorsed by the United Nations, IOM, ITU, OCHA, OHCHR, UNDP, UNEP, UNESCO, UNHCR, UNICEF, UNOPS, UPU, UN Volunteers, UN Women, WFP and WHO.



Ethics and Innovation

Can does not imply ought:

"The fact that an action is technically possible does not mean that it should be performed. Technical mastery must be subject to ethical restraint."

The above is an excerpt from a set of principles The Ethics Centre published in January 2020 on ethics and innovation, which came out of discussions during a data innovation clinic Pulse Lab Jakarta previously organised. The clinic focused on addressing the ethical challenges of using big data to monitor and evaluate development outcomes.

The full publication is available for download here: https://ethics.org.au/ethical-by-design-evaluating-outcomes/

Impact Creation Logic

ANNEX E

Adapted from the book titled "Innovation and Scaling for Impact: How Effective Social Enterprises Do It" by Christian Seelos and Johanna Mair, the Impact Creation Framework below illustrates PLJ's team structure and the functions of each unit. During the Lab's first phase, our work was mainly in the "Solution Space", with our data innovations and policy unit creating scores of prototypes which hopefully could inspire potential "stakeholders" to adopt and apply prototypes in their domains. The emergence of the social systems unit in PLJ marked a transition where we began looking more closely in the "Problem Space", utilising qualitative research to understand issues and existing practices which might (or might not) require digital solutions. The latest restructuring of PLJ established a partnerships and advocacy unit which is working in the "identity space". This unit's role is focussed on identifying and developing collaboration with institutions, understanding their mandates, the nature of their systems and their incentives and barriers to change.





Scan here to access the digital version of this report

Pulse Lab Jakarta

Wisma Nusantara 5th Floor Jl. MH Thamrin No. 59 Jakarta 10350 Indonesia +62-21-3983-8473 plj@un.or.id

www.pulselabjakarta.org









