

Data4Policy

DIPC

Health data ecosystem mapping

Lima, Peru
17.03.2023

Digital Innovation in Pandemic Control
Data 4 Policy



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German Federal Ministry for Economic Cooperation and Development (BMZ)

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Bonn, Germany
October 2023

The main objective of this report is to provide an overview of the results of the data ecosystem mapping workshop organised by the Ministry of Health of Peru (MINSA), and the GIZ Data4Policy and Digital Innovation in Pandemic Control (DIPC) initiatives in collaboration with the Open Data In-

stitute (ODI) and to offer insights and recommendations for improving vaccine logistics in Peru based on those results.



ABBREVIATIONS:

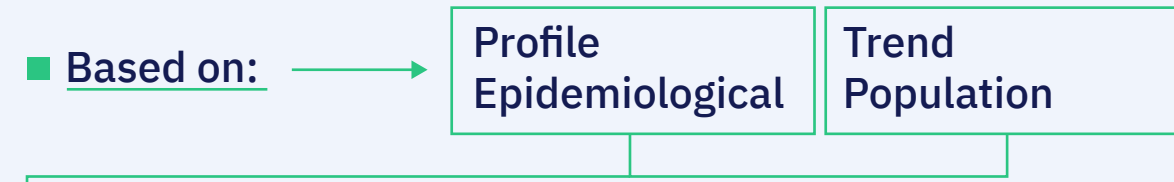
ALAFARPE	National Association of Pharmaceutical Laboratories	INEI	National Institute of Statistics and Informatics
BMZ	Federal Ministry for Economic Cooperation and Development (BMZ)	INS	National Institute of Health
CDC	National Centre for Epidemiology, Disease Prevention and Control	MEF	Ministry of Economy and Finance
CENARES	National Centre for the Provision of Strategic Health Resources	MINSA	Peruvian Ministry of Health
D4P	Data for Policy	ODI	Open Data Institute
DGIESP	Directorate General for Strategic Interventions in Public Health	OGEI	General Office of Statistics and Informatics
DIGEMID	General Directorate of Medicines, Supplies and Drugs	OGTI	General Office of Information Technologies of MINSA
DIPC	Digital Innovation for Pandemic Control	PAHO	Pan American Health Organization
DIRESA	Regional Directorate of Health	PCM	Presidency of the Council of Ministers
DIRIS	Directorate of Integrated Health Networks	PCRIS	Creation of Integrated Health Networks Programme
DMUNI	Directorate of Immunisation	RENIEC	National Registry of Identification and Civil Status
IPR	Directorate for Indigenous Peoples	SIS	Comprehensive Health Insurance
DVMSP	Vice-Ministerial Office of Public Health	SUSALUD	National Superintendence of Health
GERESA	Gerencia Regional de Salud	UNICEF	United Nations Children's Fund



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Vaccine flow map



MACRO FLOW - LOGISTIC OPERATOR

Budget:

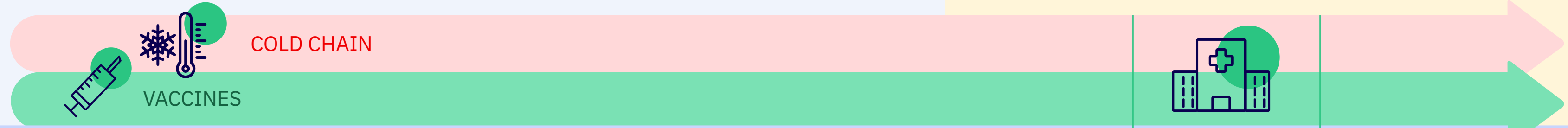
FUND ROTARY
MEF
Specific fund for vaccines

Purchase:

CENARES
Centro Nacional de Abastecimiento de Recursos Estratégicos en Salud



MICRO FLOW - Executing Unit - IPRESS



	01 Programing	02 Acquisition	03 Reception	04 Control and review	05 Warehouse	06 Output and Distribution (1)	07 Reception of regional Gov.	08 Distribution (2)	09 Health facility warehousing	10 Application of vaccines	11 Pharmacy	
DESCRIPTION	The request is made based on historical data from previous years. The information is shared with DIGEMID in collaboration with the health facilities.	Budget coordination with MEF. CENARES purchases vaccines.	CENARES receives vaccinations.	The number of vaccines, their legality, storage, sanitary registration and batch are verified.	Cold storage rooms.	Inmunizaciones coordina- tion of vaccines with DIRESA, GERESA and DIRIS. CENARES carries out the distribu- tion to regional ware- houses in a multimodal manner.	Governments must have warehouses with a capacity of -8°C and -75°C.	The regional immuniza- tion coordinator coordi- nates with DIREMID who carries out the scheduling and require- ment of vaccines. The distribution is done through the NETWORK -> MICRONETWORK -> IPRESS.	Vaccines are distribut- ed and received by the vaccination centers.	Medical care, what is given to the patient is recorded. Application of the vaccine.	Administrative cutting of vaccines, recording and counting of these inputs (losses, applica- tions, etc.).	
INSTITUTIONS	DIGIESP Immunization strategy DMUNI RENIEC	DVMSP General Secretariat of Chancery	CENARES	CENARES	CENARES	CENARES	DIRIS DIRESA GERESA	DIREMID	DIREMID	Health center / health post	OGTI - MINSA	Health center / health post
SOFTWARE	Excel	SIGA / SIAF	SISMED Excell	SISMED	SISMED	SISMED	SISMED Proprietary software	Software specific to each region	SIGA SISMED	HIS	SISMED	SISMED
DOCUMENTATION	Nominal roll	Physical documents	CENARES National Strategic Resource Sourcing System	Registration on paper CENARES		PECOSA (physical)	Redistribution Act (physical)	PECOSA (physical)	Strategy logbook	HIS codes Vaccination Card	SISMED codes	

SISMED
The data are not reused for the follow- ing process

CONSUMPTION DEMAND

01 INTRODUCTION.

The COVID-19 pandemic has highlighted the critical role of data in informing public health decisions and interventions. In many countries, it was clear that the success of COVID-19 vaccine deployment depended on a well-functioning logistics system that could effectively manage and track vaccine distribution.

In this context, the German Federal Ministry for Economic Cooperation and Development (BMZ) allocated EUR 10 million to the global policy initiative Digital Innovation in Pandemic Control (DIPC). The aim of DIPC is to strengthen pandemic prevention and response at national and global level and ultimately to reduce the occurrence, spread and consequences of existing and emerging infectious diseases such as COVID-19 by introducing and integrating digital solutions for vaccine delivery processes. In this regard, DIPC sup-

ports the digital health systems of partner countries. Not only will the healthcare system in each of the implementing countries be strengthened, but also the digital ecosystem, as the implementation of DIPC activities will require the reinforcement and support of new developments and/or the integration of existing technologies into national health systems. This will require collaboration with local partners, including government entities, private sector companies and academic institutions. In this sense, the DIPC will contribute to the development of a stronger digital ecosystem in partner countries, with improved access to digital solutions, increased innovation and technological advancement, and better integration of digital technologies into health systems.

After the peak of the pandemic, it became clear that, in relation to immunisation, outbreak control and pandemic prevention, it is crucial to have a thorough understanding of the assets and data systems that underpin the logistics of vaccination, especially to reach vulnerable and indigenous populations who are most often located in hard-to-reach territories.

Therefore, the Ministry of Health (MOH) and BMZ's DIPC and Data-

4Policy (D4P) initiatives organised a workshop on mapping the data ecosystem around immunisation logistics in the country, facilitated by the Open Data Institute (ODI).

The main objective of this workshop was to bring together different actors from the public and private sectors to jointly identify areas for improvement and possible opportunities for data exchange around the vaccination process in Peru.



02 METHODOLOGY.



The Data Ecosystem Mapping is a methodology designed by the ODI to support organisations in identifying and mapping their data ecosystem. This includes not only the data assets or data systems that exist within the ecosystem, but also the data producers, users and the various functions and interactions that occur within it.

This exercise is particularly useful when organisations know that there are data and information gaps that hinder the appropriate use of information for decision-making or other needs but are unclear where the relevant data is located.

By mapping the data ecosystem around immunisation logistics in Peru, all relevant organisations can identify opportunities to strengthen overall data management, improve data quality and enhance data sharing practices.

The vaccination logistics processes covered in this report include all processes along the supply chain (including side-effect management, vaccination certificates, patient identification and scheduling, planning, execution and documentation of vaccine distribution, including through improved surveillance and outbreak management processes, as well

as information management), as well as health financing, competency development and human resource management processes at the interfaces of vaccination logistics with national and international digital systems.

Workshop participants stated that this exercise improved the overall understanding of the data landscape and can inform strategic decision-making around data collection, analysis and dissemination.

The agenda was as follows:

Time	Session
8:30 - 9:00	Welcome and registration
9:00 - 9:30	Introduction <ul style="list-style-type: none"> • Words from MINSA • Words from GIZ • Presentation: ODI Workshop Methodology
9:30 - 10:00	Context: Data Ecosystem <ul style="list-style-type: none"> • Data spectrum • Data infrastructure • Data ecosystem mapping <ul style="list-style-type: none"> • How to map • Examples (includes Snakebite)
10:00 - 10:15	Coffee Break
10:15 - 11:30	Discussion: Data ecosystem about the healthcare system <ul style="list-style-type: none"> • Interactive session: Mapping the data ecosystem of the main use case
11:30 - 12:30	Information Needs: Presentation of Results and Discussion

Among the participants of this workshop, were actors from over 32 different institutions from the public, private and civil society sectors.

Nr.	Name	Type of Actor	Assistance
1	Directorate of Immunisation (DMUNI)	Government	Full workshop
2	Directorate General for Strategic Public Health Interventions (DGIESP)	Government	Full workshop
3	Ministry of Health (MINSAs)	Government	Full workshop
4	Vice-Ministerial Office of Public Health (DVMSP)	Government	Introduction
5	National Registry of Identification and Civil Status (RENIEC)	Government	Introduction
6	Ministry of Economy and Finance (MEF)	Government	Full workshop
7	National Centre for the Provision of Strategic Health Resources (CENARES)	Government	Full workshop
8	Pan American Health Organization (PAHO)	International Organisation	Full workshop
9	General Directorate of Medicines, Inputs and Drugs (DIGEMID)	Government	Full workshop
10	Regional Health Directorate (DIRESA)	Government	Full workshop
11	Regional Health Management (GERESAS)	Government	Full workshop
12	Integrated Health Network Directorates (DIRIS)	Government	Introduction
13	Governance and Digital Transformation Lab	Government	Introduction
14	National Institute of Statistics and Informatics (INEI)	Government	Introduction
15	National Institute of Health (INS)	Government	Full workshop
16	National Center for Epidemiology, Disease Control and Prevention (CDC)	Government	Full workshop
17	General Office of Information Technologies (OGTI) MINSAs	Government	Full workshop
18	Office for Information Management (OGEI) MINSAs	Government	Full workshop
19	Directorate for Indigenous or Native Peoples (DPI)	Government	Full workshop
20	Presidency of the Council of Ministers (PCM)	Government	Full workshop
21	Programme for the Creation of Integrated Health Networks (PCRIS)	Government	Full workshop
22	Comprehensive Health Insurance (SIS)	Government	Full workshop
23	National Superintendence of Health (SUSALUD)	Government	Full workshop
24	Peruvian College of Physicians	Government	Full workshop
25	Citizen Voices	Civil Society	Full workshop
26	PRISMA Charity Association	Civil Society	Full workshop

Among the participants of this workshop, were actors from over 32 different institutions from the public, private and civil society sectors.

Nr.	Nombre	Tipo de Actor	Asistencia
27	National Association of Pharmaceutical Laboratories ALAFARPE	Private	Full workshop
28	Auna Ideas	Private	Full workshop
29	Aviva Clinic	Private	Full workshop
30	Open Data Institute (ODI)	International Organisation	Full workshop
31	United Nations Children's Fund (UNICEF)	International Organisation	Full workshop
32	German Development Cooperation (GIZ)	International Organisation	Full workshop

03 MAIN RESULTS.

During the workshop, participants from different organisations and sectors discussed their own information systems, data exchange flows and value chains within their own organisations.

This exercise consisted of dividing the participants into **4 teams, in which the following questions were addressed:**

01 WHAT ARE THE RELEVANT ACTORS IN THE VACCINE LOGISTICS PROCESS?

What kind of actors are they (beneficiaries, contributors, users, intermediaries, regulators, creators, or decision-makers)?

02 WHAT ARE THE “FORMAL VALUES” GENERATED AS A RESULT OF DATA EXCHANGE?

Data, reports, documents, physical goods, certificates, services, etc.

03 WHAT ARE THE “INFORMAL VALUES” GENERATED AS A RESULT OF DATA EXCHANGE?

Perspectives, knowledge, feedback, advice, networks, policy, etc.

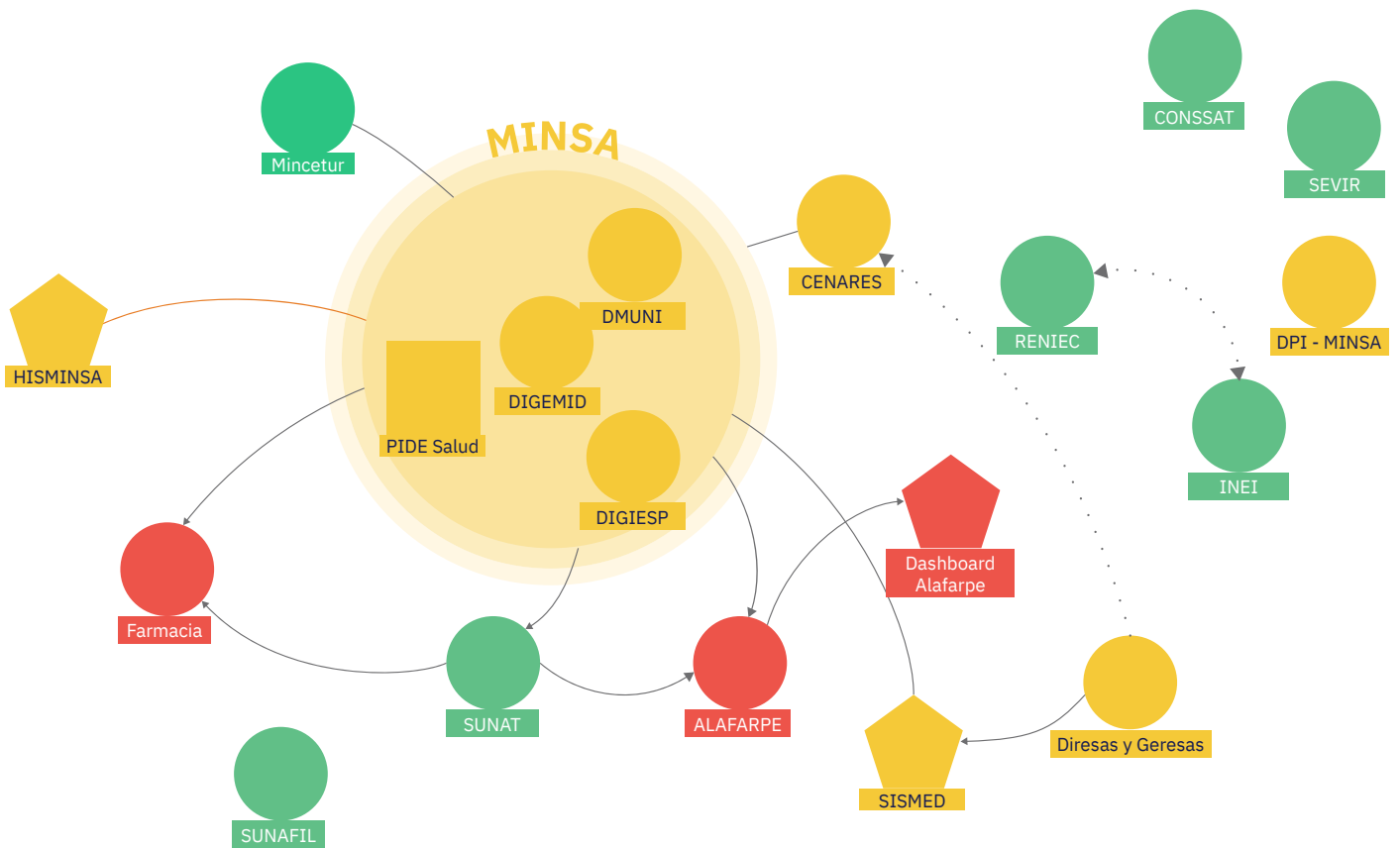
04 WHAT ARE POTENTIAL OPPORTUNITIES WITHIN THE ECOSYSTEM?

Improved data flow, identification of impacts etc.

Figure 1. Team 1. Data Ecosystem Map - Vaccine Logistics in Peru

For example, team 1, as shown in Figure 1, identified as potential opportunities in data flow and exchange better communication between the Regional Health Directorates (DIRESAS) and Regional Health Managers (GERESAS) and the National Centre for Stra-

tegic Health Resources Supply (CENARES) and potential data collaboration between the National Registry of Identification and Civil Status (RENIEC) and the National Institute of Statistics and Informatics (INEI) in order to achieve greater granularity in the data.

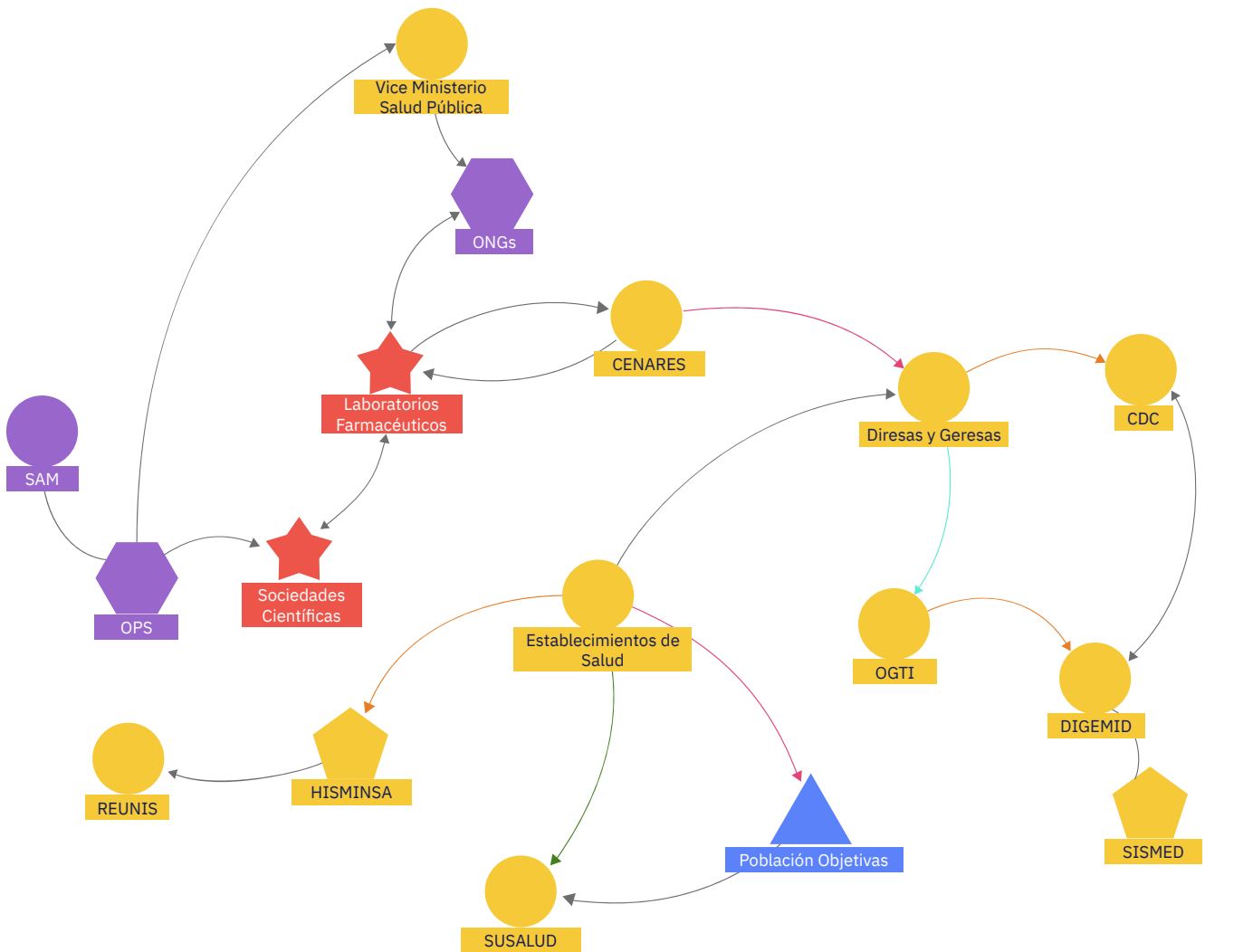


LEYENDA:		
Formas	Colores	Conexiones
● Instituciones	■ Sector público	— Conexiones
⬠ Softwares	■ Sector privado	— Comunicaciones
★ Asociaciones	■ MINSAs	— Vacunas
■ Otros	■ Otros	— Datos
▲ Sociedad Civil	■ ONG u organizaciones internacionales	— Estadísticas
		— Información
		— Compra
		— Autorización
		— Presupuesto
		⋯ Oportunidades de mejora

Figure 2. Team 2. Data Ecosystem Map - Vaccine Logistics in Peru

In an additional perspective, as illustrated in Figure 2, the second analysis team has identified DIR-ESAS and GERESAS as key actors within the immunisation process. These entities play a crucial role in data collection and sharing, generating essential statistics that

support and, ideally, can inform decisions in the Ministry of Health and its different directorates, including DIGEMID.



LEYENDA:		
Formas	Colores	Conexiones
● Instituciones	■ Sector público	— Conexiones
⬠ Softwares	■ Sector privado	— Comunicaciones
★ Asociaciones	■ MINSAs	— Vacunas
■ Otros	■ Otros	— Datos
▲ Sociedad Civil	■ ONG u organizaciones internacionales	— Estadísticas
		— Información
		— Compra
		— Autorización
		— Presupuesto
		⋯ Oportunidades de mejora

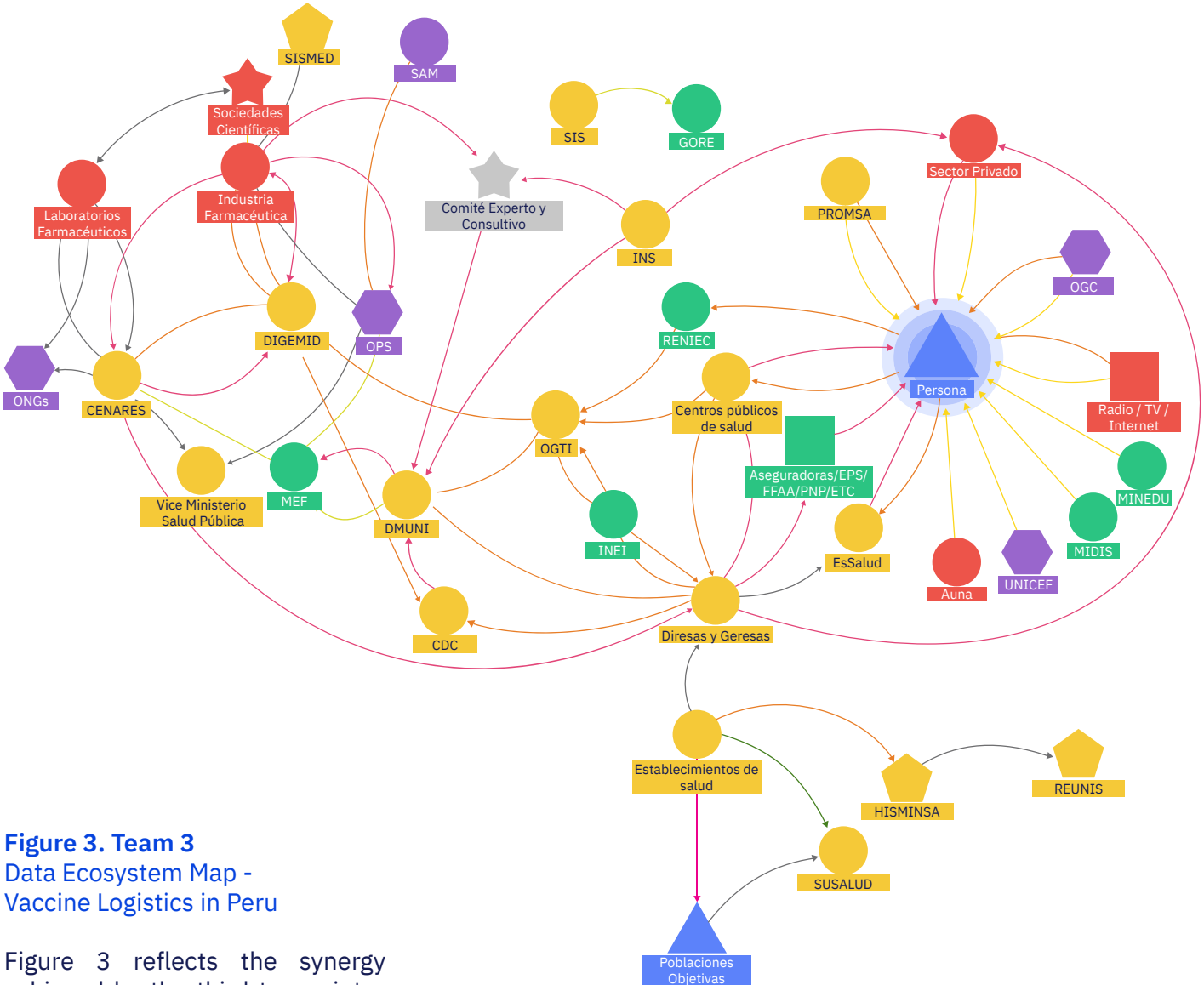


Figure 3. Team 3
Data Ecosystem Map -
Vaccine Logistics in Peru

Figure 3 reflects the synergy achieved by the third team, integrating end-users into this equation. This group, composed of the individuals who receive the vaccine doses, acts as the epicentre of a network of interactions that extends beyond the governmental spheres that historically lead public service delivery.

Moreover, the figure reveals that these interactions extend beyond the realm of vaccine logistics as such, encompassing services intrinsically related to the experience of receiving a dose, such as access to a unique population registry, a competence attributed to the domain of RENIEC. Another notable aspect of this representation lies in the convergence of two spheres: the pharmaceutical in-

dustry, in its role as a private actor, and governmental entities, including the Ministry of Health. Prestigious international organisations, such as the Pan American Health Organisation (PAHO), also emerge in this complex web. These interactions are imperative, given the specific contribution and functions of each actor in their respective fields. However, one of the issues discussed during this working session was the opportunity to improve coordination between these actors, allowing for a fluid exchange of information that fosters better decisions. This is particularly important with regard to the optimal management of tangi-

ble and financial resources in the logistics linked to the distribution and administration of vaccines.

LEYENDA:			
Formas			
●	Instituciones	★	Asociaciones
⬠	Softwares	■	Otros
Colores			
■	Sector público	■	Sector privado
■	MINSAs	■	Otros
▲	Sociedad Civil	⬠	ONG u organizaciones internacionales
Conexiones			
—	Conexiones	—	Compra
—	Comunicaciones	—	Autorización
—	Vacunas	—	Presupuesto
—	Datos	—	Oportunidades de mejora
—	Estadísticas	—	
—	Información	—	

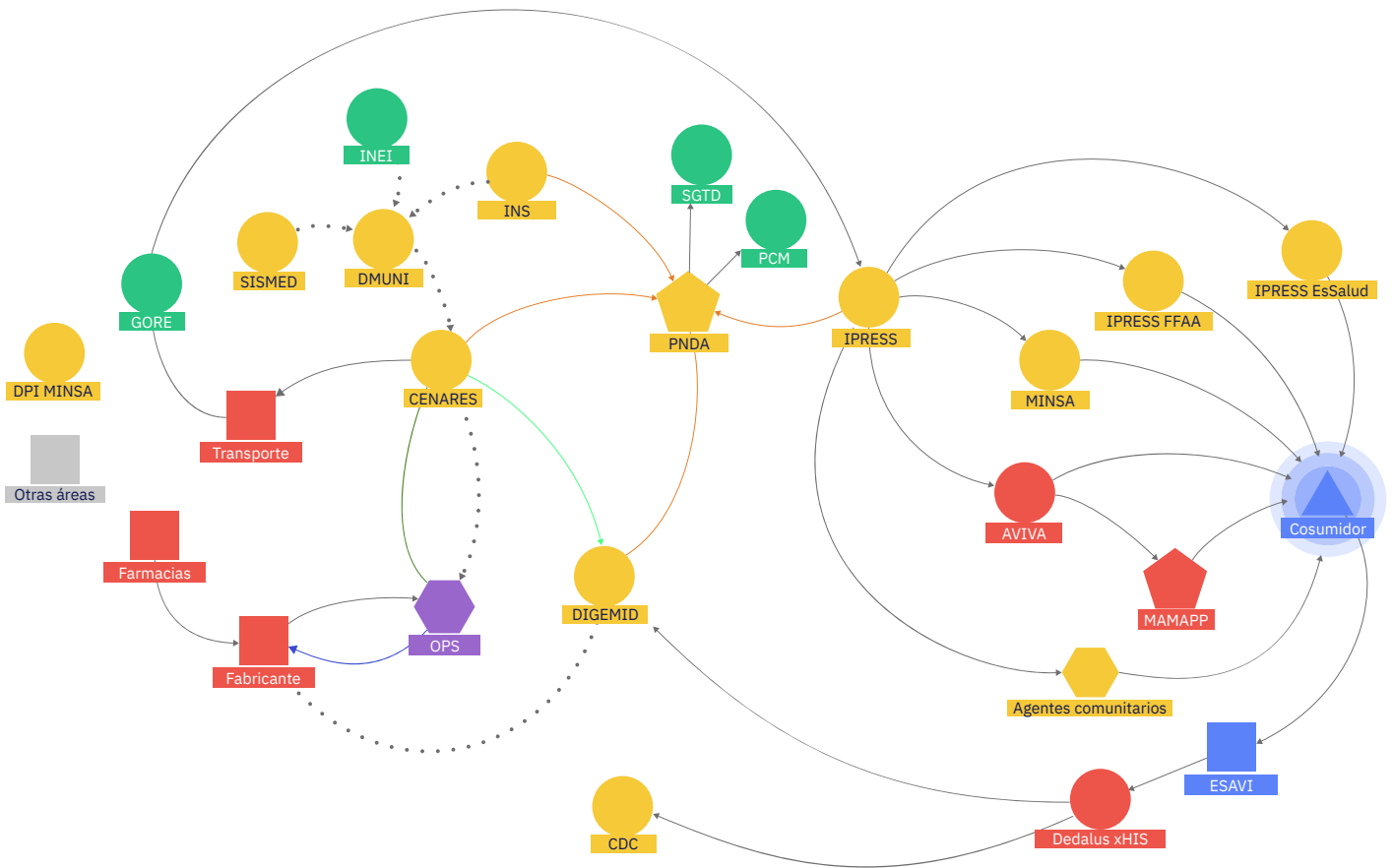


Figure 4. Team 4.
Data Ecosystem Map -
Vaccine Logistics in Peru

Figure 4 shows how the fourth team has identified immunisation centres and related directorates as essential pillars of the immunisation logistics. However, the dotted lines outline latent opportunities to strengthen the interconnections between these various parts of the ecosystem. Participants envisioned that greater collaboration could emerge if the various directorates of the Ministry of Health strengthen their ties with senators and PAHO.

An interesting nuance of this representation is the allusion to the National Open Data Platform (PNDA), conceived as a possible compen-

dium of information sources from multiple actors. However, in the dialogue during the workshop, the observation emerged that, despite the existence of this portal, not all data resources are transferred and made available to the public.

In the context of health, where the sensitivity of certain data is undeniable, the exchange naturally becomes more sensitive. However, the thought of using the portal as a kind of hub for sharing data between different groups that could help make better decisions sounds like something that might be worth investigating in the future.

LEYENDA:			
Formas			
● Instituciones	★ Asociaciones		
⬡ Softwares	■ Otros		
Colores			
Sector público	Sector privado	MINSa	Otros
▲ Sociedad Civil	⬢ ONG u organizaciones internacionales		
Conexiones			
— Conexiones	— Compra		
— Comunicaciones	— Autorización		
— Vacunas	— Presupuesto		
— Datos	⋯ Oportunidades de mejora		
— Estadísticas			
— Información			

04 Analysis and Discussion.



A general analysis of the results of each of the teams yielded the following results, which can be categorized into eight broad categories:

- Lack of interoperability and barriers to data exchange
- Barriers within the same organisation
- Need for interoperability solutions and common standards
- Fragmentation and health information systems
- Implications for health decision-making
- Lack of timely information and obstacles in estimating vaccine needs
- Manual processes and loss of information in remote regions
- Data gaps and loss of efficiency in the vaccine procurement and distribution process

01 LACK OF INTEROPERABILITY AND BARRIERS TO DATA EXCHANGE

During the health data ecosystem mapping workshop, it was identified that one of the most significant challenges is the lack of interoperability and limited data sharing between different actors, both within and across sectors. This lack of interoperability hinders informed decision-making and the implementation of effective health policies. In addition, one of the main barriers identified is the lack of specific regulations that oblige private health service providers to share information with the public health sector.

The absence of such binding regulations impedes the efficient flow of data between different actors and limits the ability of health authorities to obtain a complete and up-to-date picture of vaccination coverage across the country.

02 BARRIERS WITHIN THE SAME ORGANISATION

It was noted that even within the same organisation, there are significant barriers to data sharing. Data is often fragmented across different systems and departments, making it difficult to access and use for decision-making. In addition, differences in data standards and formats used within and between different organisations can hinder the integration and interoperability of information.



03 NEED FOR INTEROPERABILITY SOLUTIONS AND COMMON STANDARDS

The importance of establishing interoperability solutions and common standards to facilitate data exchange in the health sector was highlighted. This would involve the **adoption of technical standards and communication protocols that allow for the seamless transfer of data between different systems and actors, ensuring the integrity and privacy of information.**

04 FRAGMENTATION AND HEALTH INFORMATION SYSTEMS

Fragmentation of the health sector, especially in relation to information systems, was identified as a significant barrier to informed decision-making. It was noted that **both the public and private sectors have their own health information systems, making it difficult to integrate and share data** between them. This lack of synchronisation and collaboration between the different actors in the sector **hinders obtaining a complete and accurate picture of actual vaccination coverage at the national level.**

05 IMPLICATIONS FOR HEALTH DECISION-MAKING

The lack of a complete picture of actual vaccination coverage at the national level has direct implications for health decision-making.

The lack of integrated and up-to-date data makes it difficult to identify **gaps in vaccination coverage**, to **evaluate the effectiveness of implemented strategies** and to **plan resources** appropriately to ensure **equitable and efficient coverage**

06 LACK OF TIMELY INFORMATION AND OBSTACLES IN ESTIMATING VACCINE NEEDS

It was identified that the lack of timely information from the Regional Health Directorates (DIR-ESAS) and the Integrated Health Network Directorates (DIRIS) to the National Centre for Strategic Health Resources Supply (CENARES) represents an **obstacle to accurately estimate the number of vaccines needed in each of the health centres.** This information gap is especially evident in remote communities, where vaccine procurement planning is affected by the lack of up-to-date and accurate data.

This lack of quality and timely availability of data is mainly due to the fact that one of the main inputs for vaccine planning (figures on availability of vaccines in local stores, vaccines used, etc.) are produced in analogue form (paper records). It was observed, both in interviews with key stakeholders and in workshop discussions, that this leads to a loss of efficiency in vaccine planning processes for several reasons. Firstly, paper records are more prone to errors than digital data and can, on several occasions, be lost and create a data gap. In addition, paper records are more difficult to access and analyse than digital data because they must be manually archived and organised, which can take a lot of time and effort, making it difficult not only to share this information, but also to ensure its privacy.

As a result of these factors, paper records generate a loss of efficiency in vaccine planning processes because there is a mismatch not only in time, but also in accuracy in terms of how many vaccines a given health facility will need. This is because, as the data is often not complete, there can be an over- or under-planning of the number of vaccines required.





07 MANUAL PROCESSES AND LOSS OF INFORMATION IN REMOTE REGIONS

Vaccine procurement planning at the national level is based on several factors, including the availability of vaccines in the Diresas and Diris warehouses. However, it was identified that the collection of this information is done manually, both in the offices of the Diresas and Diris and in the records of vaccines administered by health workers. In remote communities, such as those located in the Amazon region, the **loss of physical records during the transportation process leads to biased reporting of actual vaccine stocks** in warehouses and health facilities.

08 DATA GAPS AND LOSS OF EFFICIENCY IN THE VACCINE PROCUREMENT AND DISTRIBUTION PROCESS

This **data gap and loss of information leads to a loss of efficiency at the programmatic level in the process of planning, purchasing, and distributing vaccines. The lack of accurate and up-to-date data makes it difficult to make informed decisions and allocate resources appropriately** to ensure vaccination coverage throughout the country. In addition, the loss of records in remote regions affects the accuracy of vaccine inventory reports, which can result in uneven distribution and lack of supply in areas in need.

Integrating these results with previous findings highlights the importance of addressing the data gap and improving information collection and transfer processes in vaccine procurement and distribution planning. **The implementation of more robust information systems and the adoption of digital technologies can help reduce data loss and improve efficiency in the vaccine procurement and distribution process**

05 Conclusions and Recommendations.



Analysis of the results reveals that fragmentation of the health sector and lack of interoperability between information systems are major obstacles to vaccine logistics in Peru. The existence of separate systems in the public and private sector makes it difficult to share data and obtain a comprehensive view of vaccination coverage. In addition, the lack of timely information from health entities and the loss of physical records creates data gaps that affect the efficient planning and distribution of vaccines, especially in remote communities.

To improve vaccine logistics in Peru, it is crucial to establish efficient and secure information-sharing mechanisms, promote binding regulations that oblige private providers to share data with the public sector, and strengthen data collection and management through the use of digital tech-

nologies. In addition, greater collaboration between government entities, private companies and academic institutions is needed to integrate digital technologies into health systems and ensure equitable immunisation coverage across the country. Overcoming these challenges will improve the planning, procurement and distribution of vaccines, benefiting the Peruvian population at large.

06

Research Limitations and opportunities.



This report and analysis have some important limitations that we need to consider carefully. The digital domain we addressed, especially when it comes to health data, is dispersed and fragmented. While we have conducted this study with thorough research, including a multi-stakeholder workshop, in-depth research and interviews with key figures in the field, it is crucial to recognise that this report does not necessarily capture the full picture of data in the digital health ecosystem in the Peruvian context.

Firstly, this lack of comprehensiveness is due to the existence

of systems and solutions that are not available to the general public, which limits our overall understanding of the ecosystem. In addition, it is important to note that participation in the workshop and interviews was based on a voluntary basis, which may introduce some biases in the collection of information. As a result, we may not have accurately reflected all opportunities, collaborations and benefits in the analytical framework presented in this report.

In addition, a valuable opportunity arises for these exercises: coordination between different entities involved in research and data

generation. A focused effort to systematise the registration and updating of new systems with the appropriate level of detail to identify synergies and avoid duplication becomes crucial.

07 References.

The ODI. 2023. Data Landscape Playbook. Beta. <https://open-data-institute.gitbook.io/data-landscape-playbook/>

Round of Mariana's(author) interviews (Peru mission – March 2023)

Monday 13

Organization	Person
ALAFARPE	<ul style="list-style-type: none"> Ángela Flores Sairah Ocampo Natalia León
DIGEMID	<ul style="list-style-type: none"> Ana Gabriela Silva

Tuesday 14

Organization	Person
IT Direction - MoH	<ul style="list-style-type: none"> Ing. Miguel Gutierrez, IT Director Ing. Luis Valeriano, Executive Director Ing. Francisco Quiñones Ing. Luz Eusebio

Wednesday 15

Organization	Person
SUSALUD	<ul style="list-style-type: none"> Alfonzo Erazo
Indigenous Direction and CDC	<ul style="list-style-type: none"> IPR/DPI: Lic. Ofelia Alencastre CDC: Dr. Cesar Munayco Escate – General Director
CENARES	<ul style="list-style-type: none"> Betyna Zelaya Damian Tulio Perez Damian

Thursday 16

Organization	Person
GIZ	<ul style="list-style-type: none"> Dr. Ana Moreno
PAHO	<ul style="list-style-type: none"> Dr. Carlos Arósquipa Dr. Ana Moreno Tessa Lennemann Karem Salinas Mariana Carrillo
RENIEC	<ul style="list-style-type: none"> Carlos Arce



Friday 17

Organization	Person
UPCH	<ul style="list-style-type: none"> • Fiorella Krapp • Dr. Carlos Zamudio

Tuesday 21

Organization	Person
GIZ	<ul style="list-style-type: none"> • Mariana Carrillo • Tessa Lennemann • Karem Salinas • Flavia Juarez
PAHO	<ul style="list-style-type: none"> • Dr. Carlos Arósquipa
AIDSESP	<ul style="list-style-type: none"> • Juan Reategui • Tabea Casique • Alfredo Rodriguez
Mamás del Río	<ul style="list-style-type: none"> • Magaly Blas • Ángela Alva

08 ANNEXES

Appendices Data Asset Matrix

Nr.	Data Asset	Administrator
1	Vaccine Requirements (Excel Sheet)	MINSA-DMUNI
2	HISMINSA - Health Care Systems	MINSA
3	System e-QHALI	MINSA
4	Integrated Administrative Management System (SIGA)	Ministry of Economy and Finance
5	Integrated Financial Management System (SIAF)	Ministry of Economy and Finance
6	Integrated Supply System for Pharmaceuticals, Medical Devices and Health Care Products (SISMED)	MINSA
7	INFORHUS (CUPS)	MINSA
8	Health Information System (SIS)	MINSA
9	Vaccination Card	MINSA
10	Vaccine Distribution	CENARES
11	Peru in Your Hands	MINSA

Nr.	Data Asset	Administrator
12	Virtual test to rule out coronavirus	Peruvian Medical College (CMP)
13	Smart Doctor	NA
14	Covid-19 Arequipa	Regional Government of Arequipa
15	PAHO Americas Dashboard	PAHO
16	Order Outgoing Receipt (PECOSA)	MINSA
17	Coronavirus APP	NA
18	Epidemiologic Calculator	DataScience Research Peru
19	OpenMRS (HIV/TB)	USAID
20	Peru Country Profile	PAHO
21	Demographic and Family Health Survey - ENDES	INEI
22	Survey of Health Facilities in the Care of Growth and Development Control, Immunizations and Demonstration Sessions in children under 36 months of age.	INEI
23	COVID 19 room	CDC
24	Vaccine Registry	MINSA
25	National Registry of Identification and Civil Status (RENIEC)	
26	Electoral Roll	National Office of Electoral Processes - ONPE
27	PAHO COVID Dashboard	OPS
28	GeoRIS	
29	Vaccination database	MINSA (OGTI)
30	Vaccine scheduling	MINSA (OGTI)
31	Influenza Observatory	
32	COVID Viewer	MINSA

「DIPC」