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AU – Digital One Health Platform

National Training of Trainers workshop on AUDigital One Health Platform (AU-DOHP) –
1–5 September 2025

Agenda – day 1

Dr. Mary Mbole-Kariuki

- 1 AU-DOHP Presentation Objectives
- 2 AU-DOHP: Challenges and Solution
- 3 AU-DOHP: Architecture & Data Mesh Integration
- 4 AU-DOHP: Core Modules
- 5 Governance in AU-DOHP
- 6 Groups creation & use cases definition (All)
- 7 Feedback Session



Presentation Objectives

- AU-DOHP within a regional context.
- Understand the technical needs for AU-DOHP
- Present core components of AU-DOHP
- Have deeper understanding of the AU-DOHP

Icebreaker discussion

1. What do you think are the key features for the African Union – Digital One Health platform?
2. If you had magical powers, what would your data sharing, transformation, and visualization processes look like?





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AU-DOHP

Key Challenges in Digital One Health



AU-DOHP

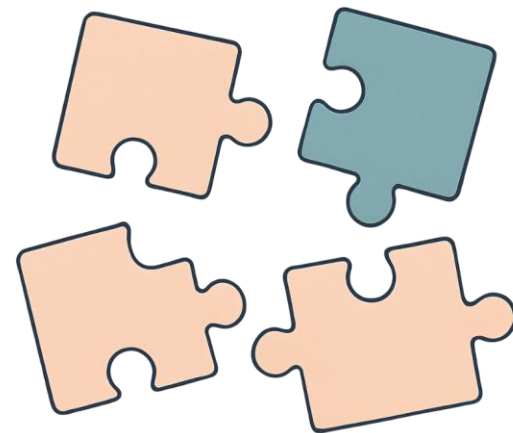
Key Challenges

- **Siloes and fragmentation**
- **Evidence gaps**
- **Inefficient planning**
- **Slow detection and response**
- **Digital skills gaps**

AU-DOHP

Challenge 1: Siloes and Fragmentation

- Actors in One Health operate in isolation.
- Separate databases with little communication.
- Fragmented systems weaken coordination.





AU-DOHP

Challenge 2: Evidence Gaps

- Sector-specific analysis dominates.
- Lack of cross-sector data integration.
- Limits understanding of One Health risks.



AU-DOHP

Challenge 3: Inefficient Planning

- Limited use of predictive analytics.
- Weak simulations due to fragmented data.
- Difficult to coordinate actions effectively.

AU-DOHP

Challenge 5: Digital Skills Gaps

- Many stakeholders lack digital competencies.
- Gaps especially high among women and marginalised groups.
- Limits ability to use digital One Health solutions.





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AU-DOHP

DOHP Solution



AU-DOHP

Legitimacy of the Platform

Why Trusting the AU Digital One Health Platform

- **Backed and owned** by African Union (AU) / AU-IBAR.
- Part of AU **Data Policy Framework**.
- Integrated with Africa **CDC Digital Transformation Strategy**.
- Hosted and governed on **African Union servers** → **full sovereignty**.
- Recognized at **continental & global levels** (WHO, FAO, WOA, UNEP).



AU-DOHP

Governance and Security

Built-in Governance & Security by Design

- **User Management:** role-based access, groups, permissions.
- **Authentication & Password Protection** → secure logins.
- **Data Sovereignty:** your data stays in your domain, shared only when needed.
- **Audit Trails:** every document has history, traceability, transparency.
- **Federated Governance:** balance of local autonomy + continental standards.



AU-DOHP

Breaking Data Silos

AU-DOHP (Digital One Health Platform) helps different sectors work together by **securely sharing** data while keeping **control** over their own information:

- **Data silos are a problem:** Public institutions collect valuable data, but it often stays locked within their own departments.
- **AU-DOHP breaks these silos:** It allows sectors like environment, health, and agriculture to share data in a structured way for better collaboration.
- **Sovereignty stays intact:** Each sector keeps control of its own data but gains insights from shared access to other departments' information.



AU-DOHP

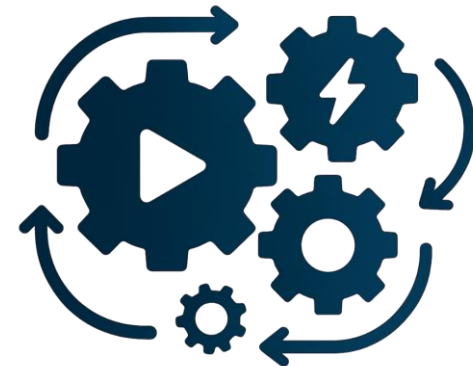
Enabling cross border
collaboration

- **Empowering Regional Integration:**
 - countries across Africa collaborate using federated data nodes.
 - Each node integrates local data sources while supporting regional visualization and insights
- **Facilitating Secure, Sovereign Data Sharing:**
 - Each country retains control of its own data through decentralized governance
 - nodes share only relevant insights for decision-making across borders

AU-DOHP

Self-Serve Platform

- **Non-technical teams** can manage and use data without relying on specialized IT support, thanks to intuitive tools
- For example, a public health department can **easily create dashboards** to track disease trends without waiting for IT to configure the system
- This **reduces bottlenecks**, as each domain can operate independently, making innovation and collaboration faster





AU-DOHP

before vs. after

From Email Chaos to Trusted Platform

Before:

- Data/documents shared by email → lost control, no traceability.
- No transparency on access or changes.
- Fragmented systems with silos.

Now with AU-DOHP:

- Transparent, traceable document & data history.
- Secure, governed, and auditable platform.
- Confidence for decision-makers at national, regional, continental levels.



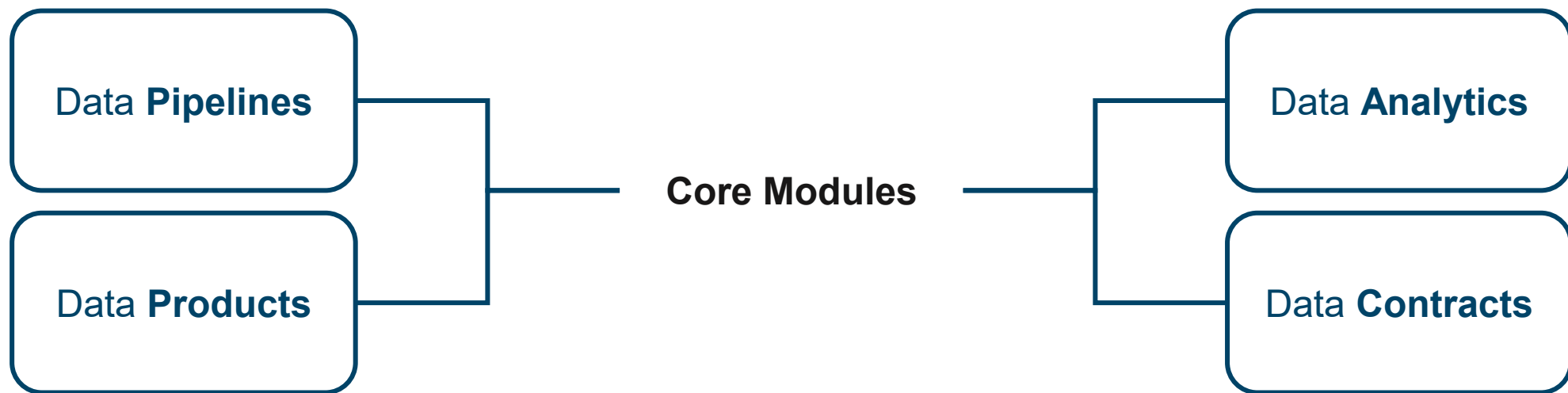
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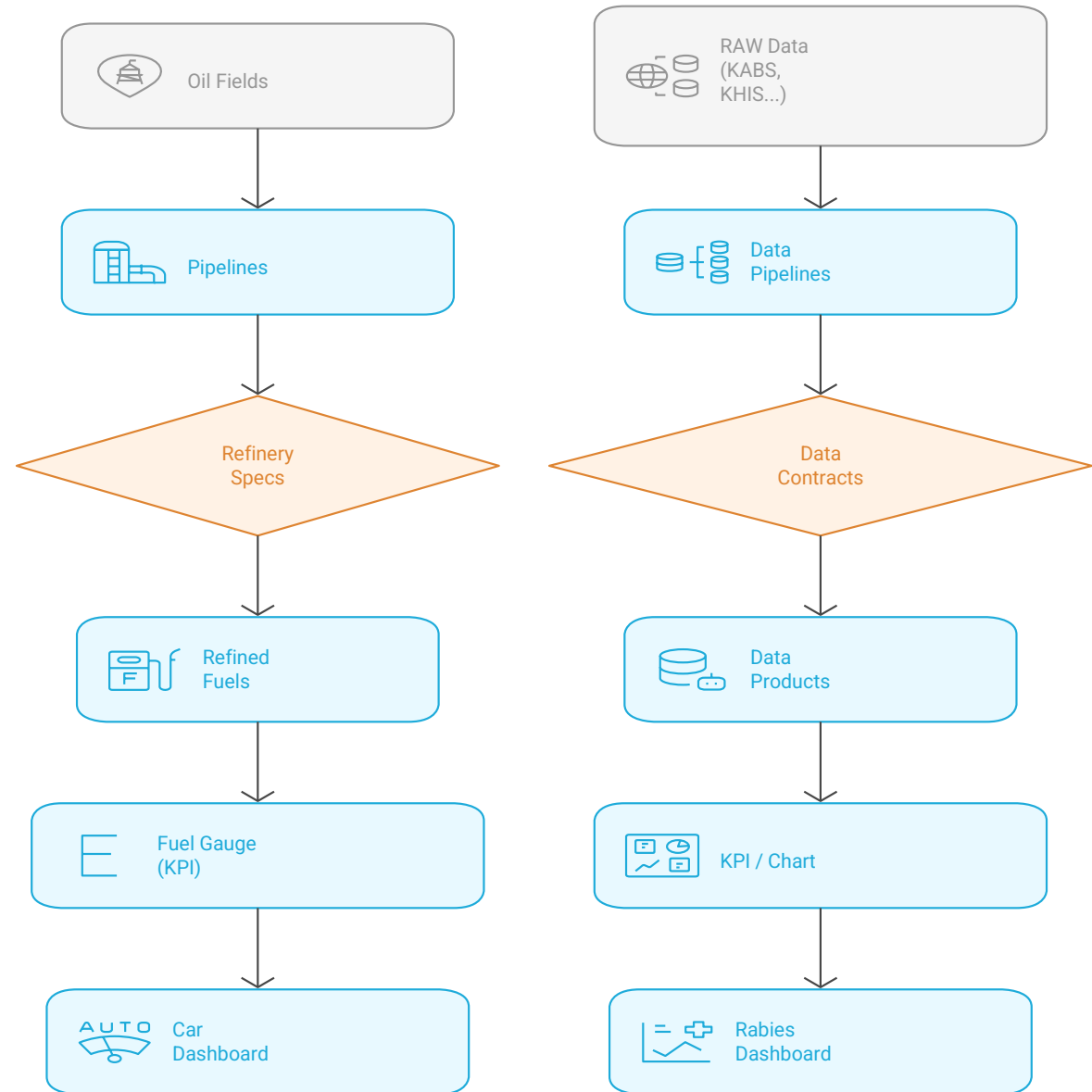
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AU-DOHP

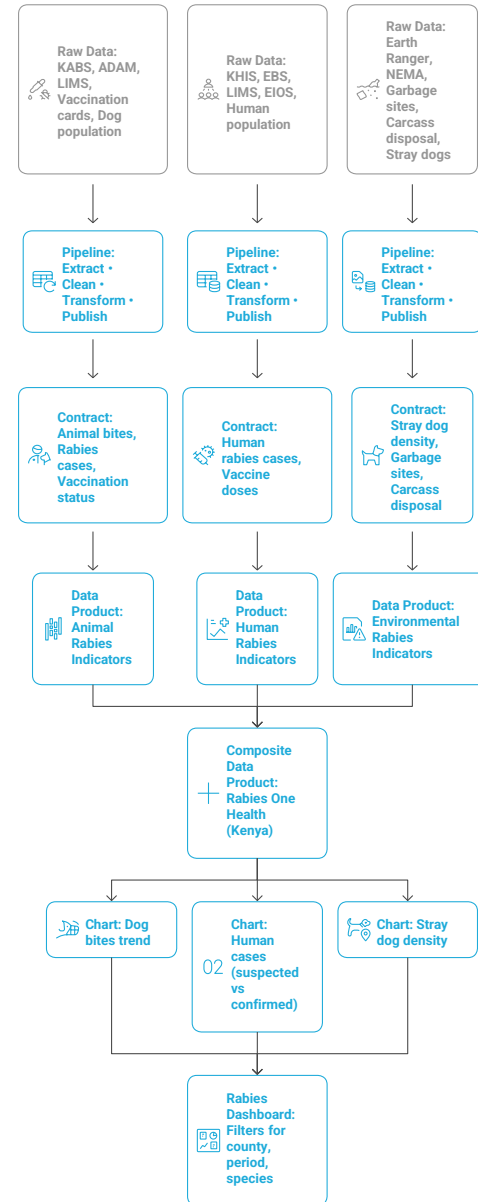
Core Modules



Data <-> The new oil

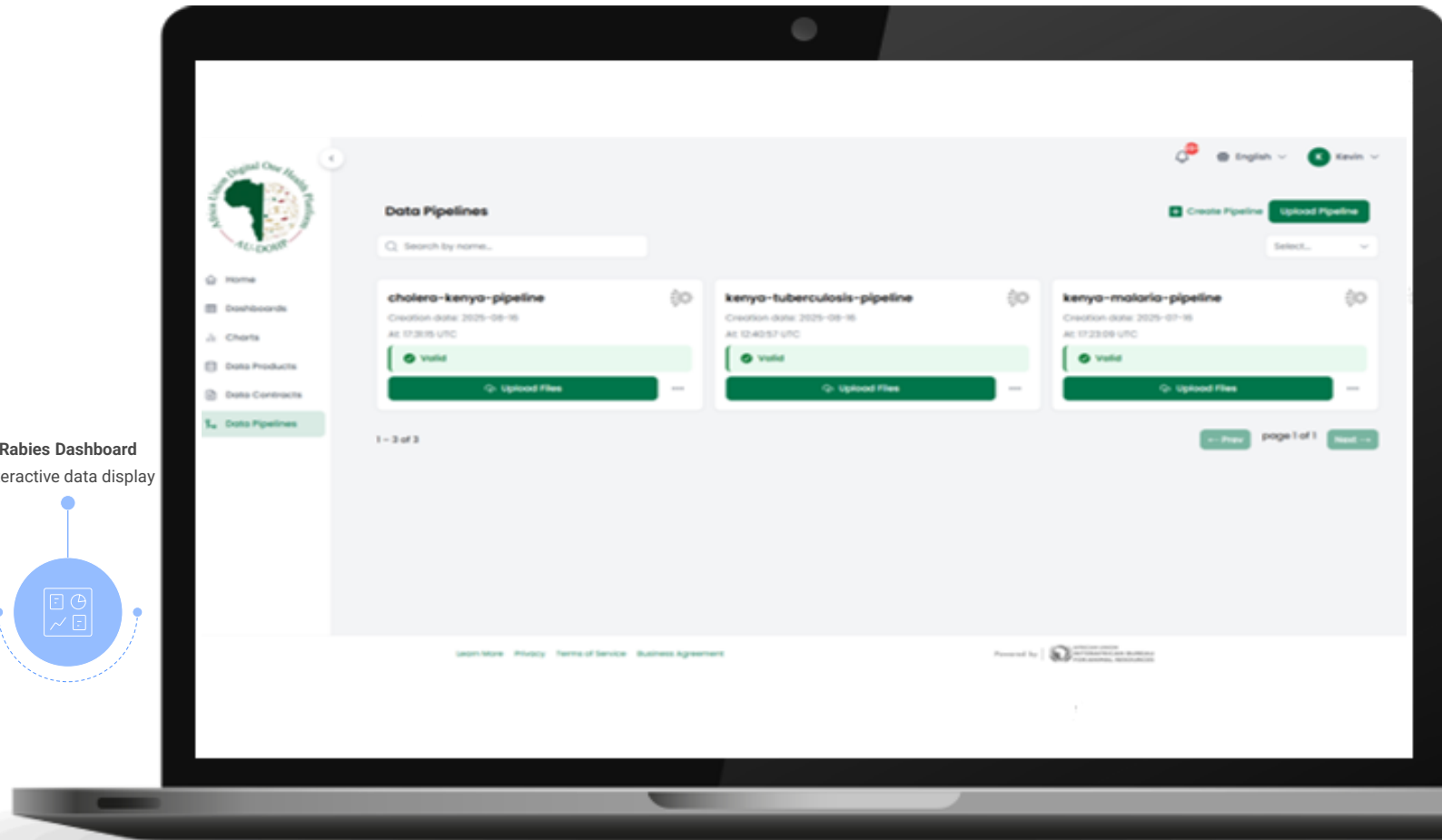
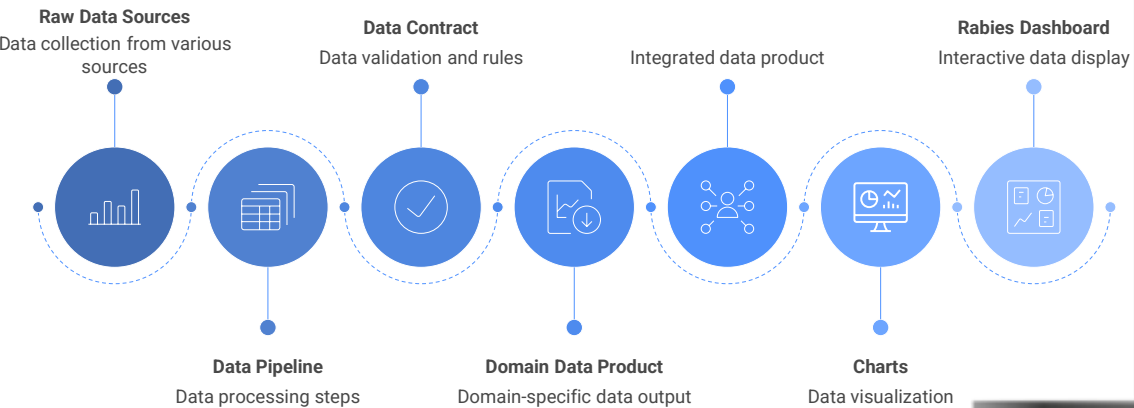


Data <-> The new oil



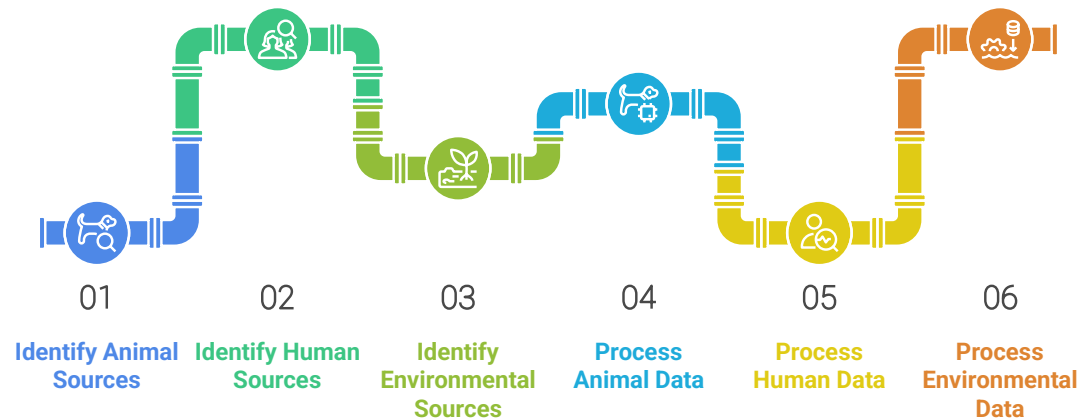
AU-DOHP Core Modules

Data Pipelines



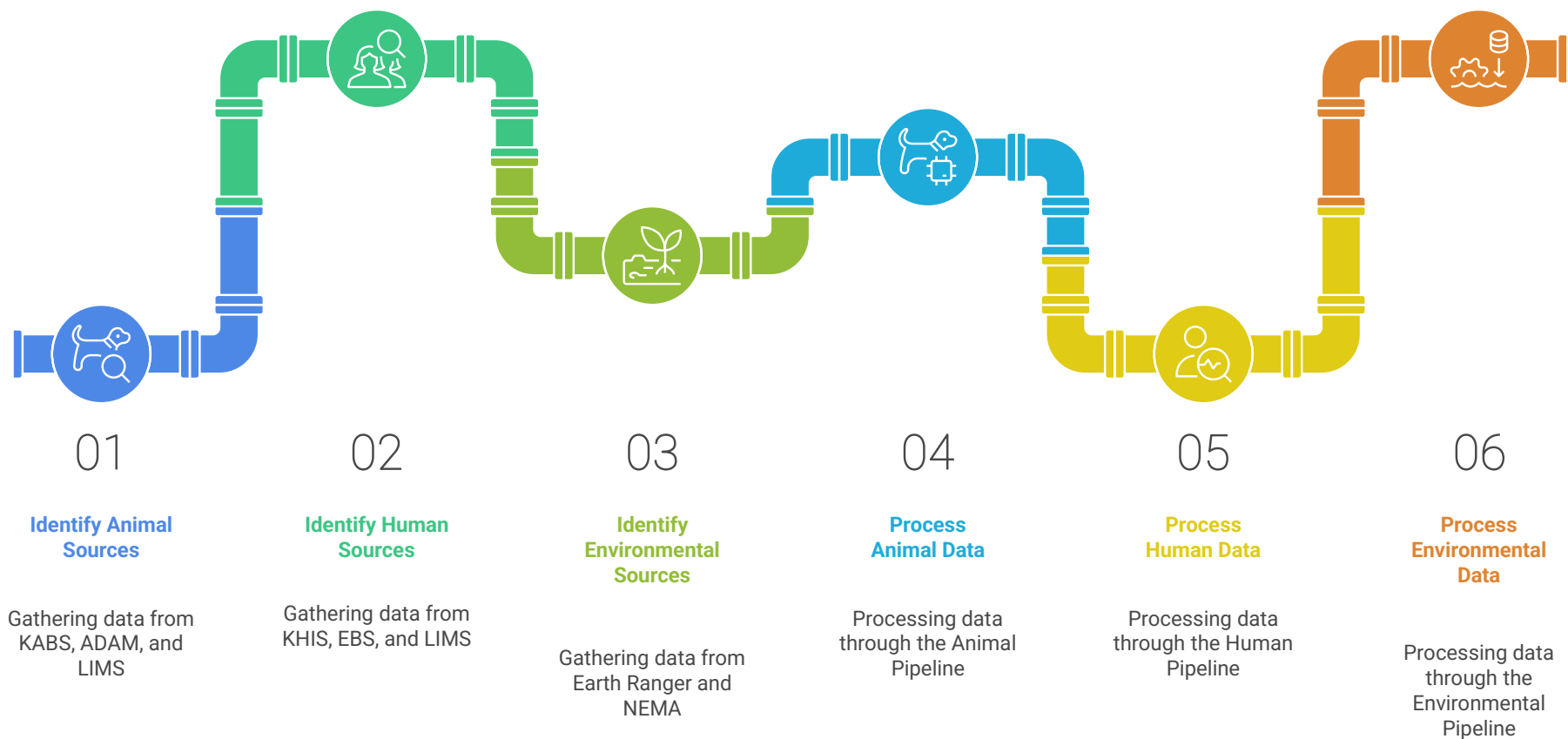
AU-DOHP Core Modules

Data Pipelines



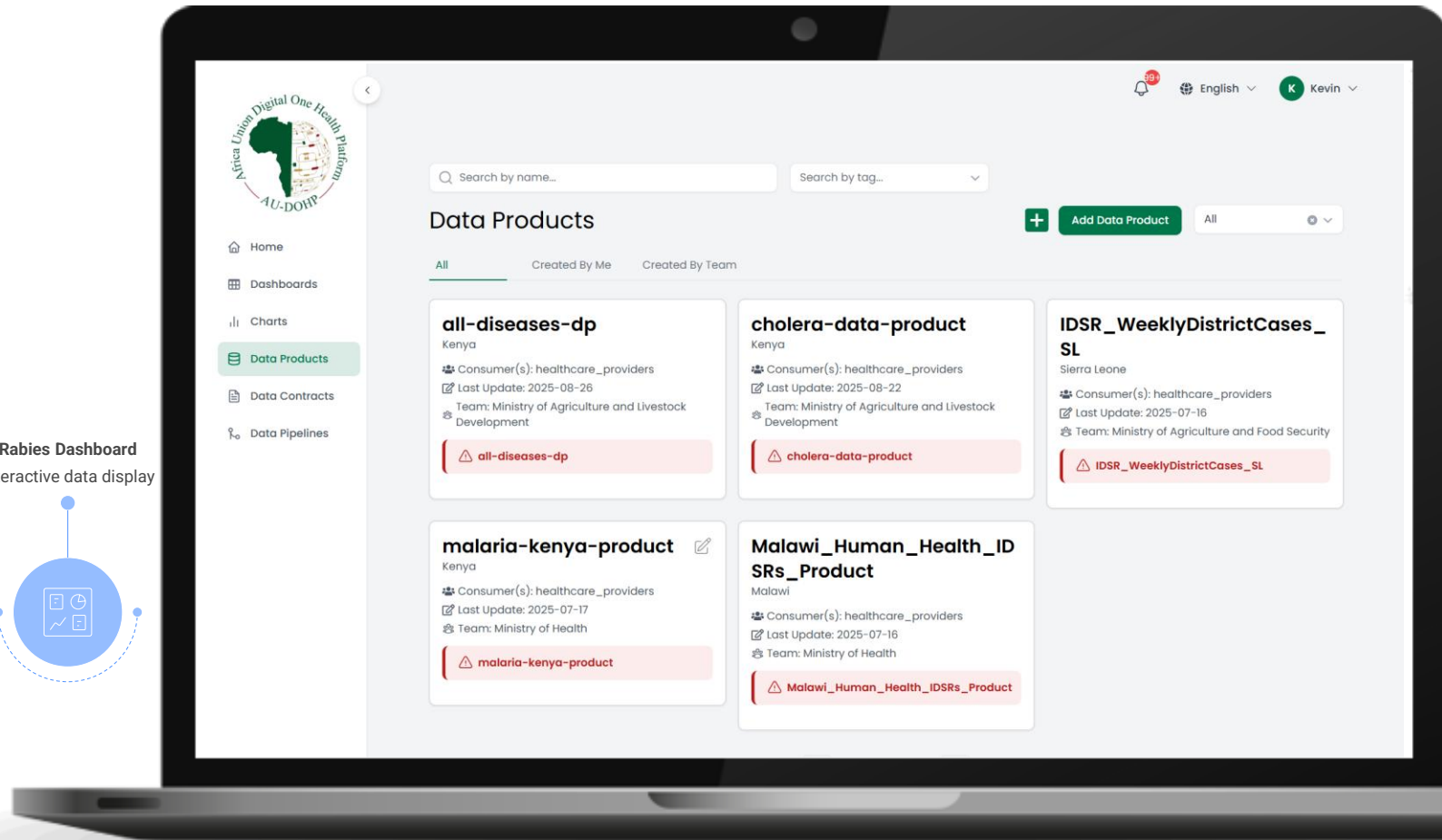
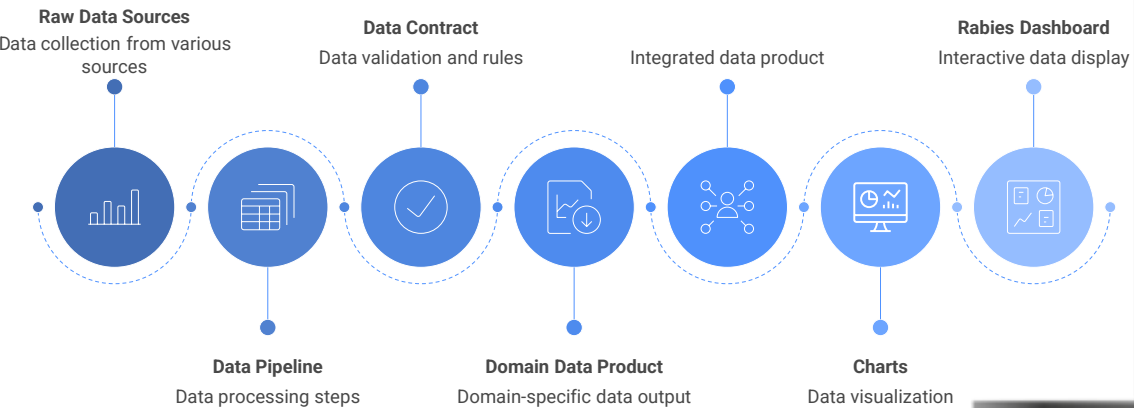
- Formatting data required to generating key indicators in supported formats
- Automated data import from different source systems to the AU-DOHP
- Interface the MS etc. (One) Health databases with AU-DOHP

Interfacing – Formatting – Automating



AU-DOHP Core Modules

Data Product





AU-DOHP Core Modules

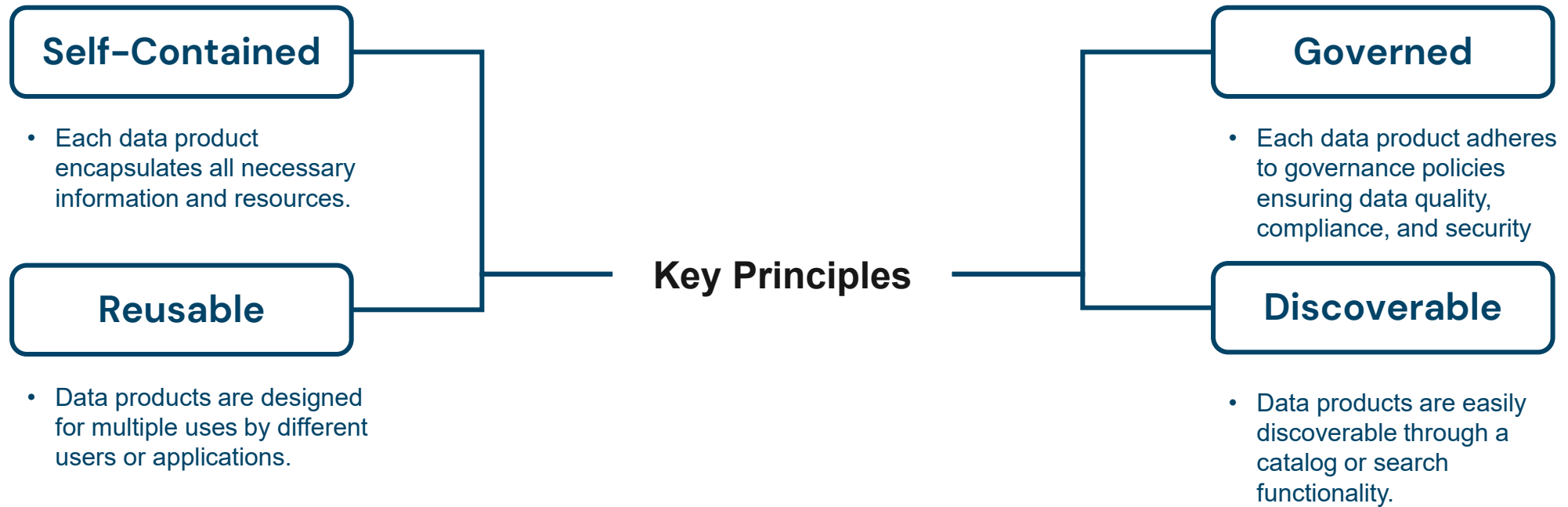
Data Product

Data products are central to the **AU-DOHP (Digital One Health Platform)**, representing the packaged, consumable **units of data** that users interact with.

These products **enable data democratization**, allowing various users to derive insights and drive decision-making.

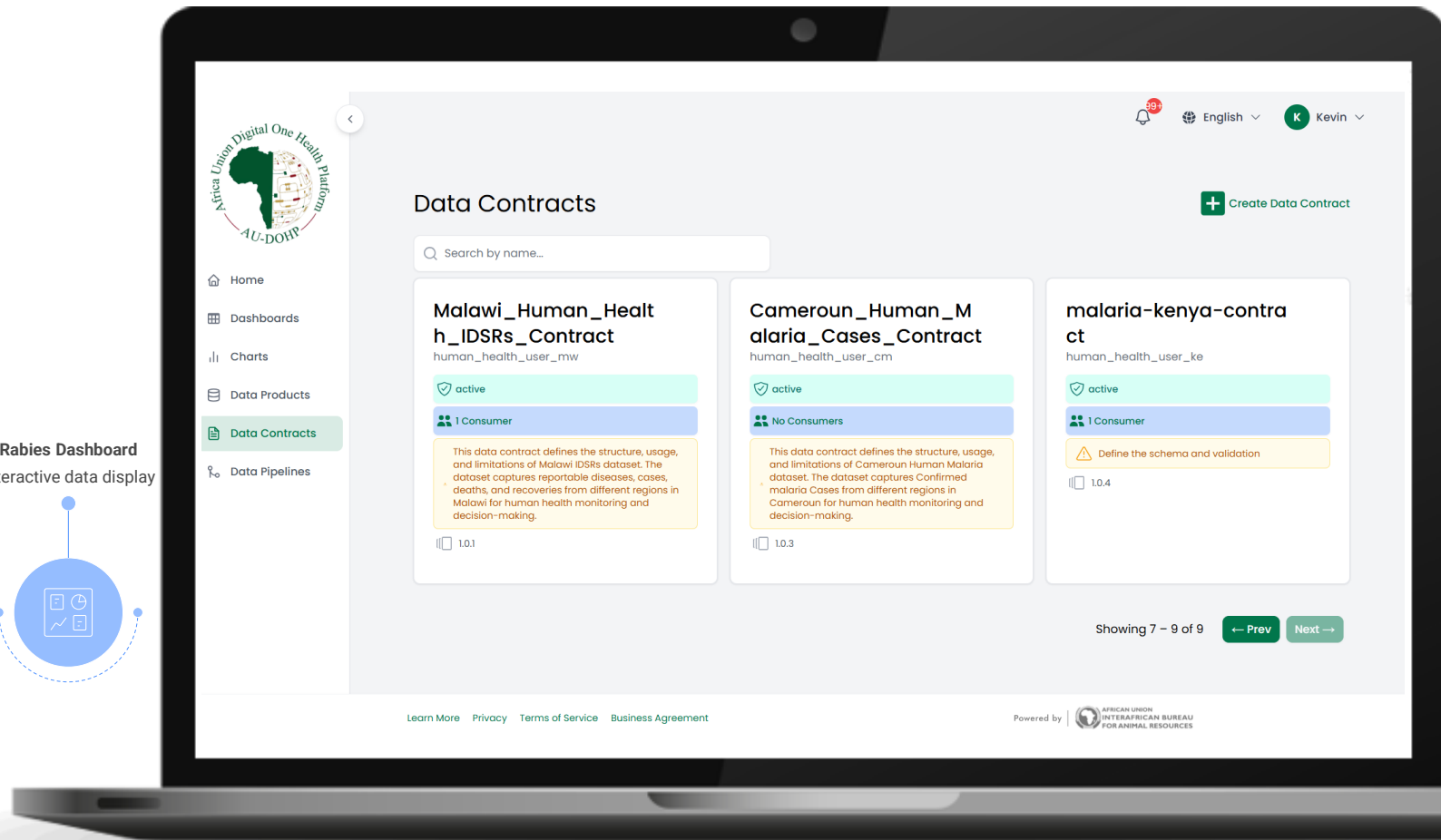
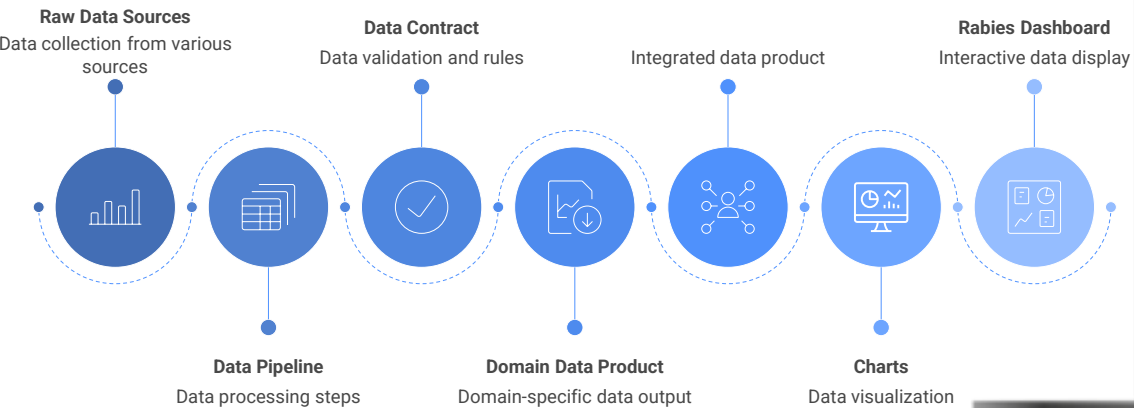
AU-DOHP Core Modules

Data Product



AU-DOHP Core Modules

Data Contract



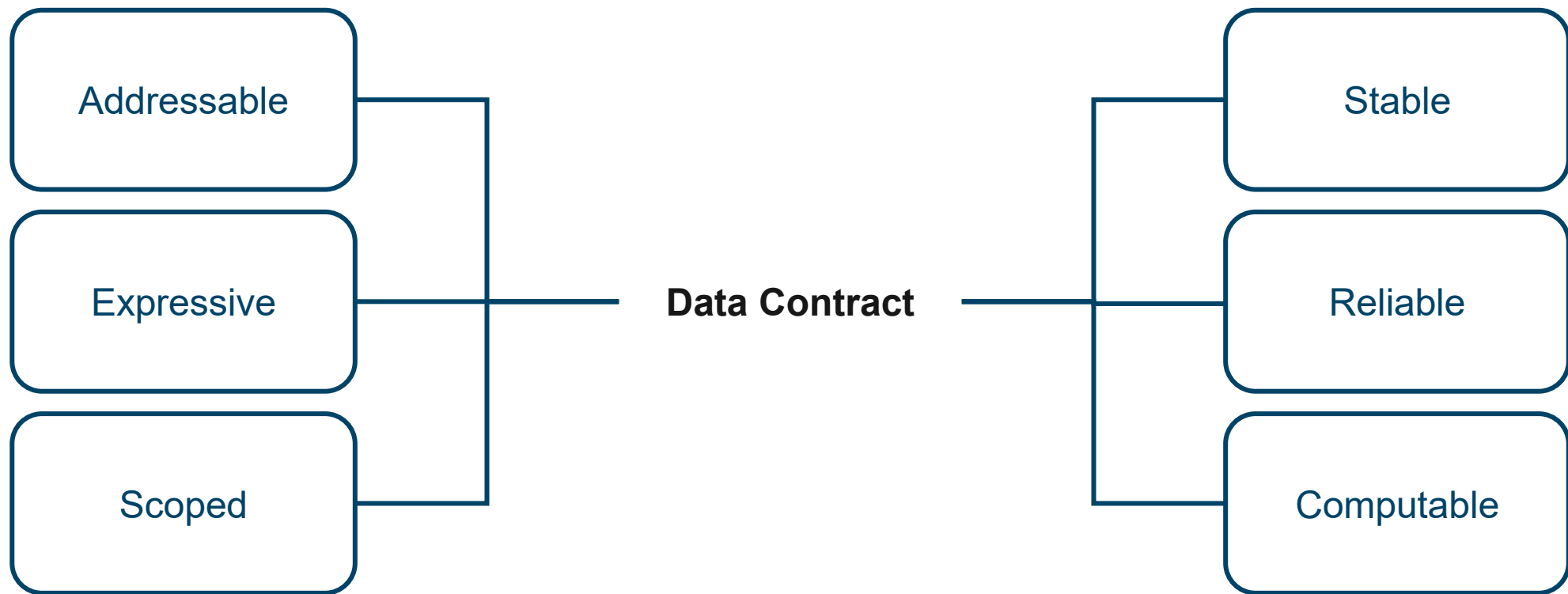


AU-DOHP Core Modules

Data Contract

- Defines the **structure, format, semantics, and terms of use** for data exchange
- Implemented by a **data product**
- specify **expectations for data products** to **verify data dependencies**

AU-DOHP Core Modules





AU-DOHP Core Modules

Data Contract

Benefits for AU-DOHP

- 01 Data Consistency
- 02 Interoperability
- 03 Documentation and Clarity
- 04 Collaboration and Communication



AU-DOHP Core Modules

Data Contract Benefits

1- Data Consistency

- Standardized **formats** and **structures** for data ensure consistency in how data is **collected**, **processed**, and **used**.
- Less risk of **data errors** and **discrepancies**, freeing up time from manual corrections.



AU-DOHP Core Modules

Data Contract Benefits

2 – Interoperability

- Standardized **formats** and **structures** guarantees interoperability between **different** data systems and sources.
- **Reduced time** and **effort** required for data integration tasks from different data sources.



AU-DOHP Core Modules

Data Contract Benefits

3 – Documentation and Clarity

- Data contracts serve as **documentation** that defines the **meaning** and **usage** of data elements.
- Data contracts helps understand **data semantics** and **reduces the ambiguity** often associated with data, leading to more effective data analysis and decision-making.



AU-DOHP Core Modules

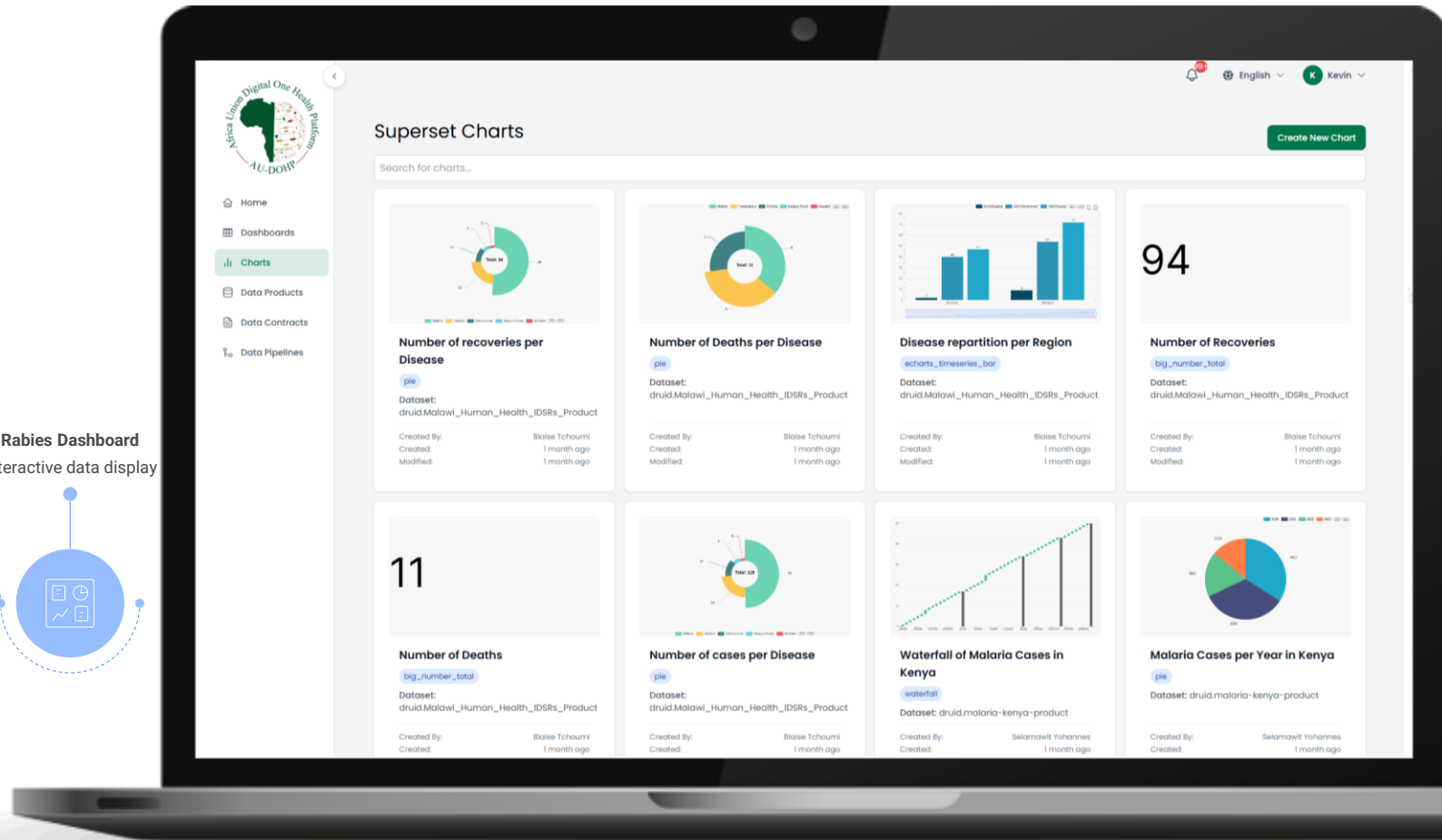
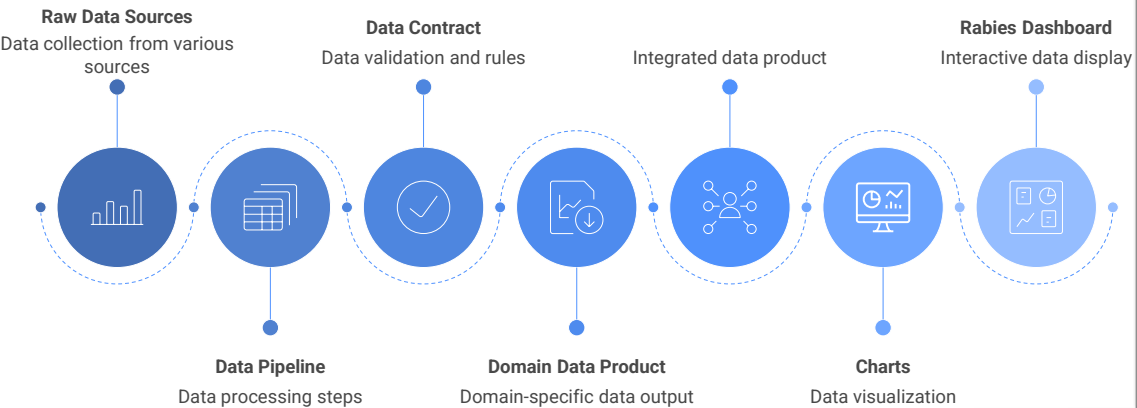
Data Contract Benefits

5 – Collaboration and communication

- Data contracts promote **effective communication** and **collaboration** among data experts by **streamlining** discussions, negotiations, and data exchange processes.
- Enhanced **teamwork** and **productivity** among member states and AU-IBAR.



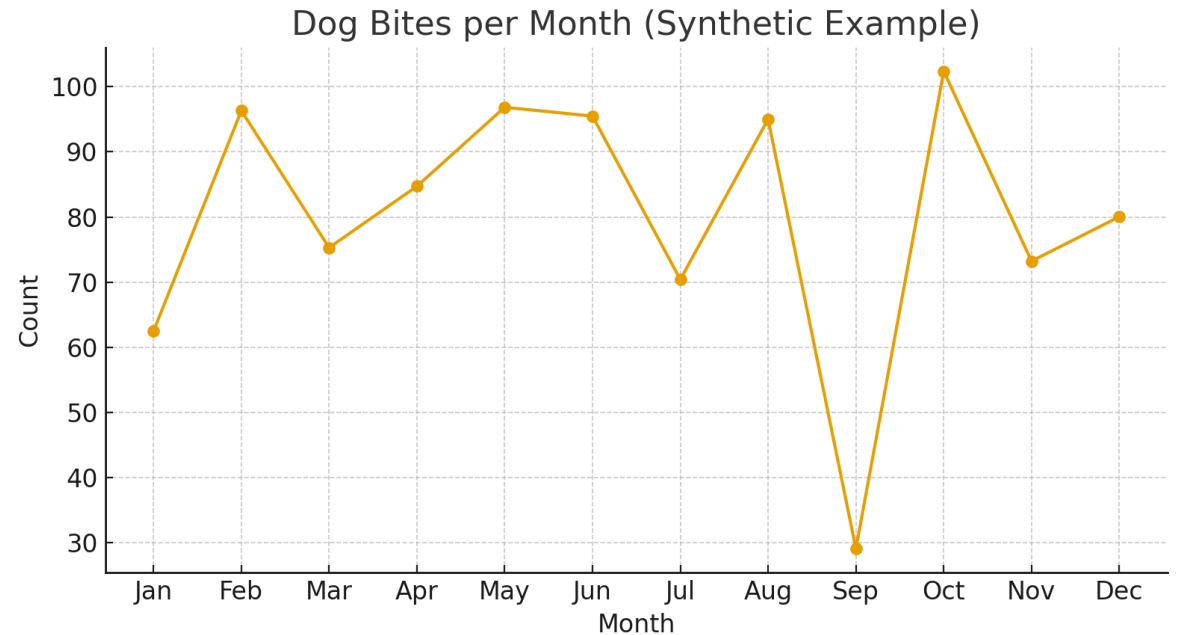
AU-DOHP Core Modules Data Analytics



Sample Chart — “Monthly Dog Bite Incidents”

Source: Animal Rabies
Indicators (domain product)

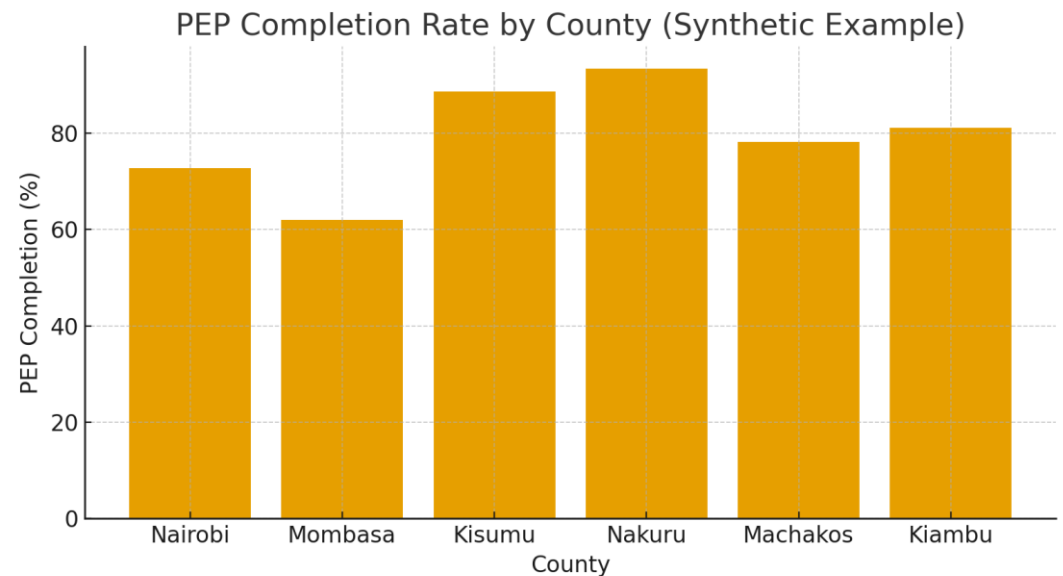
Utilise a line chart that can be
filtered by county and time
period



Example Chart — “PEP completion %” by county

Source: Human Rabies
Indicators (domain product)

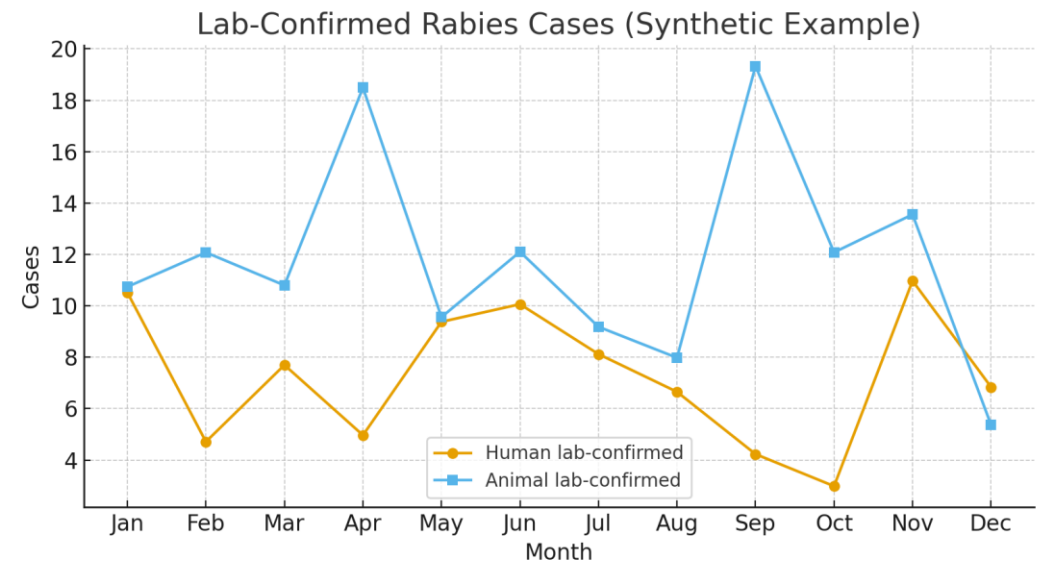
bar chart; annotate low-
coverage counties



Example Chart — “Lab confirmed (human vs animal)”

Source: Composite product
(joined)

line chart with legend; filter
by county/period



Governance in AU-DOHP

Governance in AU-DOHP refers to the set of practices, principles, and frameworks that ensure the effective, secure, and compliant management of data across a distributed architecture containing the domains.

1

Interoperability policy

2

Documentation policy

3

Security Policy

4

Privacy and compliance



Governance in AU-DOHP

1. Interoperability policy

- Ensures that different data products can **seamlessly integrate** and **communicate**.
- Defines **common** data formats, schemas, metadata standards, and APIs for consistent data exchange.
- Encourages the use of **open standards** (Parquet files).
- Promotes **semantic consistency** across domains, so data can be understood and reused across members countries and teams.



Governance in AU-DOHP

2. Documentation policy

- Requires each data contract to have clear, **machine-readable** and **human-readable** documentation.
- Covers data lineage, business context, ownership details and data contracts.
- Helps data consumers understand how to use, access, and interpret the data.



Governance in AU-DOHP

3. Security policy

- Defines how data is protected against unauthorized access, breaches, and cyber threats.
- Enforces role-based access control (RBAC) and least privilege access.
- Ensures data only accessed by authorized users.



Governance in AU-DOHP

4. Privacy & Compliance

- Ensures that data products comply with legal and regulatory requirements in each member states or defined by the AU-IBAR.
- Defines rules for data retention, anonymization, pseudonymization, and consent management.



Governance in AU-DOHP

Access Control

- **Resource visibility:** Having the ability to keep a resource private or share it with other organization or entities.
- **Data Access Permissions:** Determine which organizations are allowed to view or use my data products or dashboards.
- **Access Requests management:** Allowing or Denying access requests from other entities to my resources.



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AU-DOHP

Working Groups formation

Group Formation

Working Groups for Hands-On Exercises

- Participants will be divided into small groups (3–5)
- Each group collaborates to design and implement one use case.
- Mix expertise levels to encourage peer learning.

Use Case Definition

Defining a Use Case with KPIs:

- **Step 1:** Define the business question (what do we want to measure/monitor?).
- **Step 2:** Select Key Performance Indicators (KPIs) to answer this question.
- **Step 3:** Identify the visualizations (dashboards/graphs) to represent the KPIs.
- **Step 4:** Trace back to data sources & transformations needed in the system.

Use Case Definition

Example : Avian Influenza (AI)

Business Question: How can we monitor Avian Influenza (AI) trends in real time?

- **KPIs:**
 - Number of new cases per week.
 - Average time from detection to reporting.
 - Case fatality rate.
- **Dashboards/Visuals:** Epidemic curve, geographic heatmap.
- **Data Sources:** Health facility reports, lab results, DHIS2.
- **Transformations:** Cleaning inconsistent case data, aggregating by district.

AU-DOHP

Feedback Session – day 1



[ADD MENTIMETER LINK]

Agenda – day 2

Speedykom Consultants

- 1 Actual structure of AU-DOHP architecture
- 2 Training : AU- DOHP Data integration Module
- 3 Group work : Excel Pipeline
- 4 Training : DHIS2 Example
- 5 Group work : use case Pipeline
- 6 Feedback Session



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AU-DOHP

Architecture



AU-DOHP

Mesh Integration

By adopting modern data architecture principles, such as **Data Mesh**, it ensures that **data** is easily **accessible, high-quality, and governed.**

How does AU-DOHP implement the Data Mesh architecture ?



Data Mesh Architecture

A Data Mesh is a **decentralized** data architecture that **organizes** data by a **specific domain** to provide **more ownership** to the **producers** of a given **data set** and thus ensure its **traceability**.

The key principles of AU-DOHP data mesh are :

1. **Domain-oriented** decentralized data **ownership**.
2. **Data** as a **Product**.
3. **Federated** computational governance.



Data Mesh Architecture

1. Domain-Oriented Data Ownership

- Each team or department that work with data take **ownership** of their data.
- For example, the Ministry of Health would manage and update its health data, such as tracking disease outbreaks, while the Ministry of Agriculture would oversee data on livestock health
- Instead of relying on a **central IT team**, these domain experts ensure their data is accurate and relevant



Data Mesh Architecture

2. Data as a Product

- Raw data is **transformed** into a **polished, usable** product tailored to meet specific needs. For example, raw vaccination records are cleaned, organized, and turned into a dataset that policymakers can use to track vaccination rates and identify gaps.
- **Each dataset comes with clear documentation**—like definitions, schemas, and usage guidelines—so it's easy to understand and trust
- **The team responsible tracks quality metrics**, like accuracy and timeliness, to ensure the data remains reliable and valuable



Data Mesh Architecture

3. Federated Computational Governance

- Establishes **overarching policies** (like security standards and naming conventions) while giving each team the flexibility to manage their own data
- For example, a regional health agency follows standard security rules but can decide how to structure and analyze its own disease tracking data
- This approach enables **distributed decision-making**, allowing teams to balance **innovation** with **compliance**
- Different organizations can **trust** and **collaborate** while keeping **control** over their own data

AU-DOHP

Data Integration Module

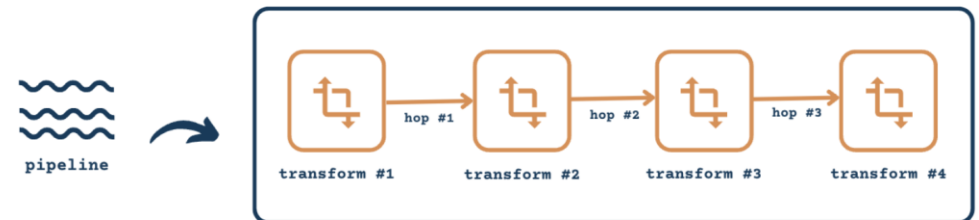
What is Data Integration?



- The process of combining data from various sources and transforming it into a unified format.
- Involves extracting data from different sources, such as databases, files, and application, and integrating it into a single repository or data warehouse
- Crucial to ensure the data accuracy and consistency to better decision-making, improved efficiency, and increased profitability
- Involves data cleansing, mapping, and validation
- Includes the use of tools and technologies to automate and streamline the process

Main Concepts (Pipelines)

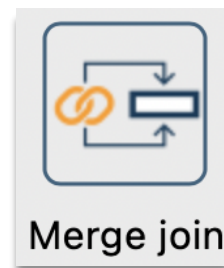
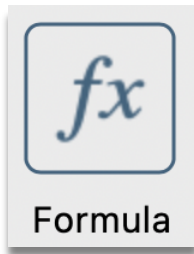
- Pipelines are used to process data. They take or read data from one or more sources, process it using different operations (joins, lookups, filter, etc), and then publish or write the finished result.
- A pipeline contains Transforms and hops
- A pipeline is a network of transforms connected by hops



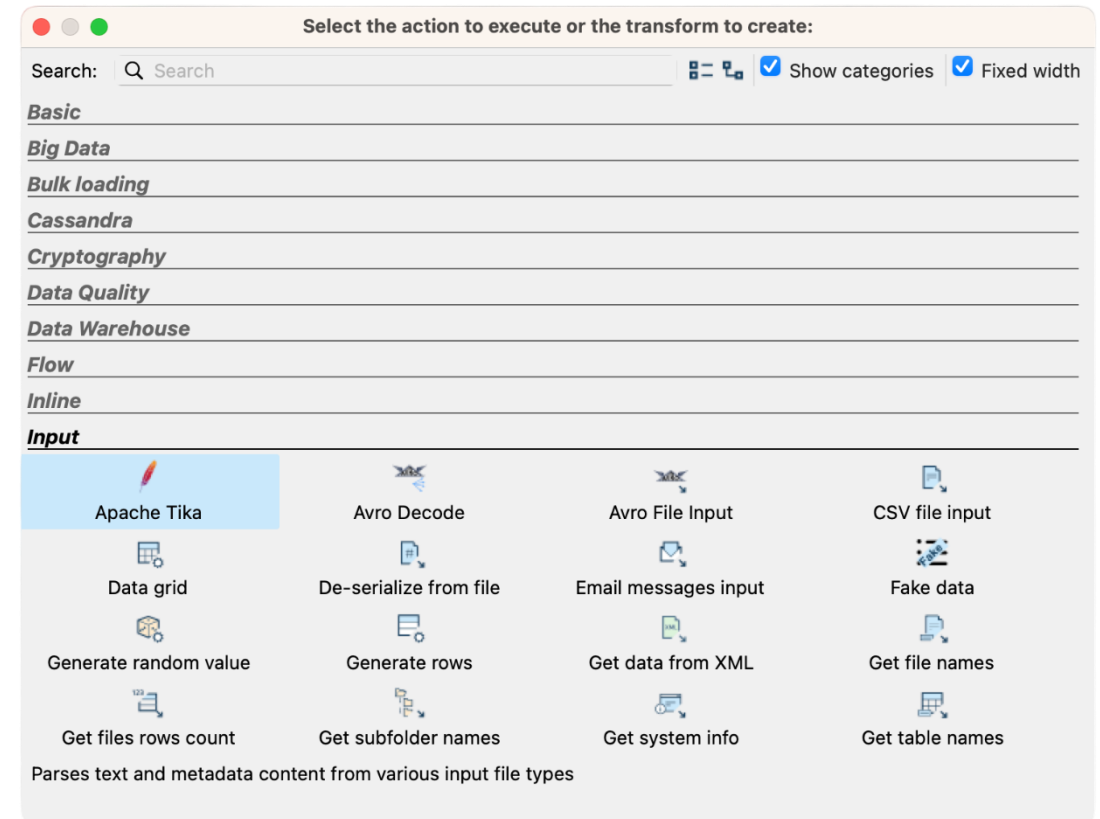
- Data flows in parallel within a pipeline and data processing is initiated across all transforms at once



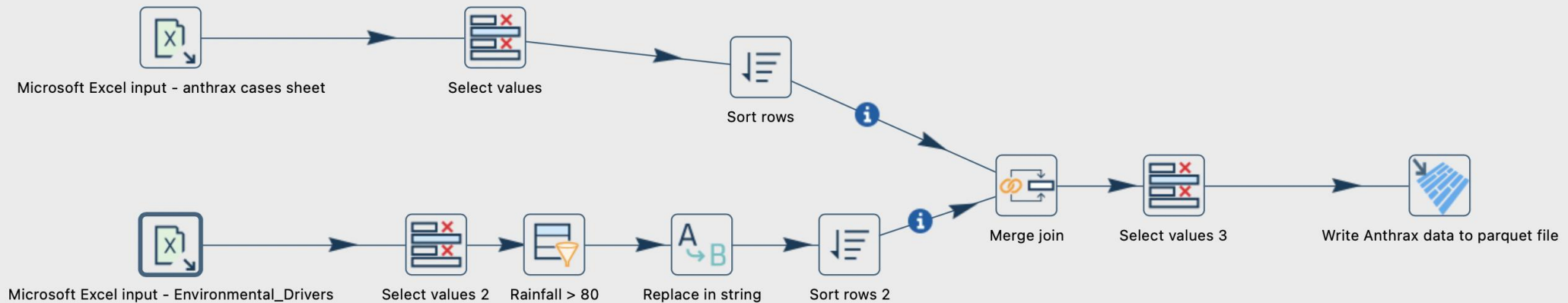
Hop Main Concepts (Transforms)



- Transforms are the building blocks used to create a pipeline
- Transforms include different categories such as Input, Output, Transform, etc.



Data Pipeline Example





Data Pipelines



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts
- Data Pipelines**



English



Kevin

Data Pipelines

Search by name...

+ Create Pipeline

Upload Pipeline

Select...

cholera-kenya-pipeline



Creation date: 2025-08-16

At: 17:31:15 UTC

Valid

Upload Files



kenya-tuberculosis-pipeline



Creation date: 2025-08-16

At: 12:40:57 UTC

Valid

Upload Files



kenya-malaria-pipeline



Creation date: 2025-07-16

At: 17:23:09 UTC

Valid

Upload Files



1 - 3 of 3

← Prev

page 1 of 1

Next →



Create a pipeline

Click on Create Pipeline button



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts
- Data Pipelines**



Data Pipelines

Select...

cholera-kenya-pipeline

Creation date: 2025-08-16
At: 17:31:15 UTC

 Valid

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kenya-tuberculosis-pipeline

Creation date: 2025-08-16
At: 12:40:57 UTC

 Valid

 Upload Files 

kenya-malaria-pipeline

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 Upload Files 

1 – 3 of 3

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page 1 of 1

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English 

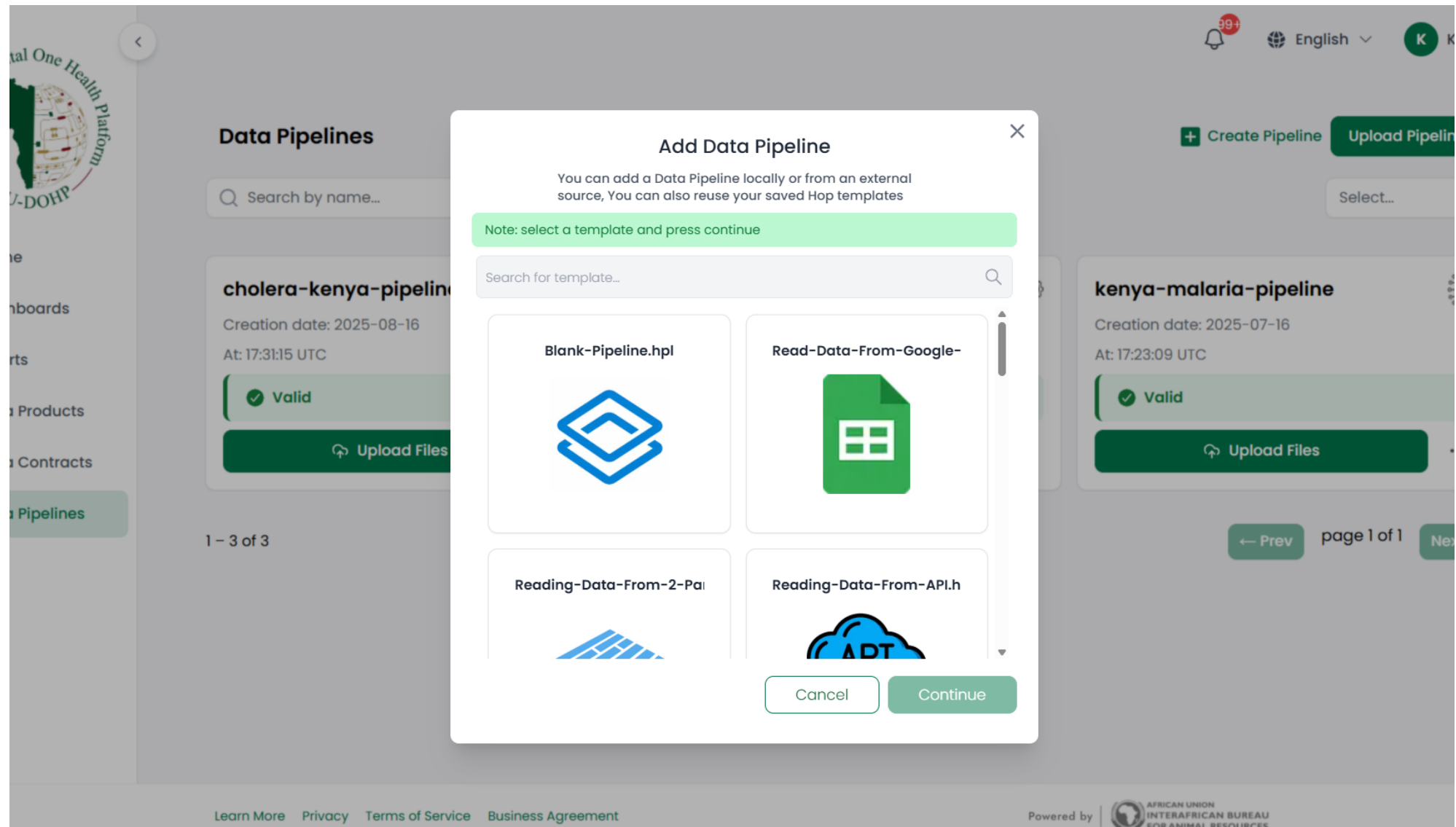
K Kevin 

+ Create Pipeline

Upload Pipeline

Create a pipeline

1. Enter a name for the pipeline
2. Add a description
3. Click on "submit"

The screenshot shows the AU-DOHP web interface. In the background, there's a sidebar with navigation links like "Dashboards", "Reports", "Products", "Contracts", and "Pipelines". The main area displays a list of pipelines, including "cholera-kenya-pipeline" and "kenya-malaria-pipeline", each with a "Valid" status and an "Upload Files" button. Overlaid on this is a modal titled "Add Data Pipeline". The modal contains a search bar "Search for template...", a note "Note: select a template and press continue", and four template options: "Blank-Pipeline.hpl" (with a blue geometric icon), "Read-Data-From-Google-" (with a green Google Sheets icon), "Reading-Data-From-2-Pai" (with a blue geometric icon), and "Reading-Data-From-API.h" (with a blue cloud icon). At the bottom of the modal are "Cancel" and "Continue" buttons. The footer of the page includes links for "Learn More", "Privacy", "Terms of Service", and "Business Agreement", along with the "Powered by" logo for the African Union Inter-African Bureau for Animal Resources.



Create a pipeline



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts
- Data Pipelines**

The pipeline is now displayed in the pipeline list.

You have the possibility to:

1. Save the pipeline as a template
2. Upload pipeline source files
3. Download the pipeline file
4. Delete the pipeline

Data Pipelines

Search by name...

+ Create Pipeline Upload Pipeline

Select...

pipeline-presentation

Creation date: 2025-08-27
At: 10:01:07 UTC

Valid

Upload Files

cholera-kenya-pipeline

Creation date: 2025-08-16
At: 17:31:15 UTC

Valid

Upload Files

kenya-tuberculosis-pipeline

Creation date: 2025-08-16
At: 12:40:57 UTC

Valid

Upload Files

kenya-tuberculosis-pipeline

Creation date: 2025-08-16
At: 17:23:09 UTC

Valid

Upload Files

Save as Template

Download

Delete

1 - 4 of 4

← Prev page 1 of 1 Next →



Upload a pipeline

Click on “Upload Pipeline” button



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts
- Data Pipelines**

Data Pipelines

Search by name...

+ Create Pipeline

Upload Pipeline

Select...

cholera-kenya-pipeline

Creation date: 2025-08-16

At: 17:31:15 UTC

Valid

Upload Files



kenya-tuberculosis-pipeline

Creation date: 2025-08-16

At: 12:40:57 UTC

Valid

Upload Files



kenya-malaria-pipeline

Creation date: 2025-07-16

At: 17:23:09 UTC

Valid

Upload Files



1 – 3 of 3

← Prev

page 1 of 1

Next →



Upload a pipeline

1. Enter a name for the pipeline
2. Add a description
3. Drag and drop the pipeline file (*.hpl) or browser your local files by clicking on the box
4. Click on "upload"

The screenshot displays the 'Data Pipelines' section of the AU-DOHP platform. The left sidebar contains navigation links: Home, Dashboards, Charts, Data Products, Data Contracts, and Data Pipelines (which is highlighted). The main content area shows a list of pipelines, including 'cholera-kenya-pipeline' and 'kenya-tuberculosis-pipeline', each with a 'Valid' status and an 'Upload Files' button. A modal window titled 'Upload Pipeline' is open on the right, featuring a search bar, a description field, and a file upload area. The file upload area includes a dashed box with the text 'Drag 'n' drop .hpl pipeline file here, or click to select a file' and a 'Selected Files' section showing 'pipeline-presentation.hpl'. At the bottom of the modal, there are 'Upload' and 'Cancel' buttons. A large green hand icon is pointing towards the 'Upload' button.

Data Pipelines

Search by name...

cholera-kenya-pipeline
Creation date: 2025-08-16
At: 17:31:15 UTC
Valid
Upload Files

kenya-tuberculosis-pipeline
Creation date: 2025-08-16
At: 12:40:57 UTC
Valid
Upload Files

1 - 3 of 3

Upload Pipeline

Pipeline Name*
uploaded-pipeline-presentation

Description*
A pipeline is a sequence of steps or stages that a proc

Drag 'n' drop .hpl pipeline file here, or click to select a file

Selected Files:
pipeline-presentation.hpl

Upload Cancel



View & edit a pipeline

To view a pipeline, click on the pipeline box and you will be redirected to this page

The screenshot shows the 'Data Pipelines' page of the Africa Union Digital One Health Platform (AU-DOHP). A hand icon points to the 'cholera-kenya-pipeline' box, indicating the action to click on a pipeline box to view it.

Data Pipelines

Search by name...

cholera-kenya-pipeline
Creation date: 2025-08-16
At: 17:31:15 UTC
Valid
Upload Files

kenya-tuberculosis-pipeline
Creation date: 2025-08-16
At: 12:40:57 UTC
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Upload Files

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Creation date: 2025-07-16
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Valid
Upload Files

1 - 3 of 3

← Prev page 1 of 1 Next →

AU-DOHP

Group Assignment : Integrating data from an excel file



Data integration

Anthrax Cases Analysis

- This example was designed as a training use case to make the Kenya zoonotic disease prioritization (2015) more concrete.
- The idea is to simulate how **environmental drivers** (like rainfall, soil moisture, drought) interact with **disease data** (like anthrax cases in livestock and humans) so trainees can practice building **scenario-based data pipelines**.



Data integration

Anthrax Cases Analysis

- Motivation
 - Anthrax was ranked among the top priority zoonoses in Kenya.
 - Its outbreaks are strongly influenced by environmental conditions:
 - Heavy rains/flooding can bring spores to the surface.
 - Drought forces animals to graze closer to soil, increasing exposure.

By combining epidemiological data (cases, deaths) with environmental indicators, participants can learn to:

- Detect patterns (e.g., spikes after rainy season).
- Practice integrating human and veterinary data in a One Health approach.

Data integration

Antrax Cases Analysis

	A	B	C	D	E	F	G	H	I	J	
1	Country	Report_Month	County_Name	Region_Name	Livestock_Cases	Livestock_Deaths	Human_Cases	Human_Deaths	Report_Source	Outbreak_Flag	
2	Kenya	2024-01-31	Nairobi	Nairobi	6	0	0	0	Community	False	
3	Kenya	2024-02-29	Nairobi	Nairobi	7	0	5	0	Hospital	True	
4	Kenya	2024-03-31	Nairobi	Nairobi	12	1	6	0	Veterinary	True	
5	Kenya	2024-04-30	Nairobi	Nairobi	10	0	3	0	Hospital	True	
6	Kenya	2024-05-31	Nairobi	Nairobi	18	2	4	0	Community	False	
7	Kenya	2024-06-30	Nairobi	Nairobi	9	1	1	0	Community	False	
8	Kenya	2024-07-31	Nairobi	Nairobi	11	0	5	0	Community	False	
9	Kenya	2024-08-31	Nairobi	Nairobi	13	0	3	0	Hospital	False	
10	Kenya	2024-09-30	Nairobi	Nairobi	11	0	2	1	Hospital	False	
11	Kenya	2024-10-31	Nairobi	Nairobi	14	0	4	0	Veterinary	False	
12	Kenya	2024-11-30	Nairobi	Nairobi	8	2	1	0	Hospital	False	
13	Kenya	2024-12-31	Nairobi	Nairobi	16	0	6	0	Hospital	False	
14	Kenya	2024-01-31	Mombasa	Coast	7	1	2	0	Veterinary	False	

Data integration

Antrax Cases Analysis

- **Environmental Drivers:**
 - **Rainfall_mm** → total monthly rainfall in mm (synthetic but realistic patterns with rainy seasons Mar–May and Oct–Dec).
 - **Soil_Moisture_Index** → normalized index (0 dry → 1 saturated) representing soil water availability. High values increase risk of spores surfacing.
 - **Drought_Index** → inverse indicator of rainfall (0 = no drought, 1 = extreme drought). High values increase risk due to grazing stress.

Data integration

Antrax Cases Analysis

1	Country	Report_Month	ounty_Name	egion_Nam	Rainfall_mm	Soil_Moisture_Index_0_1	Drought_Index_0_1	
2	KE	2024-01-31	Nairobi	Nairobi	135	0,43	0,68	
3	KE	2024-02-29	Nairobi	Nairobi	73	0,18	0,93	
4	KE	2024-03-31	Nairobi	Nairobi	165	0,69	0,45	
5	KE	2024-04-30	Nairobi	Nairobi	243	1	0	
6	KE	2024-05-31	Nairobi	Nairobi	101	0,37	0,82	
7	KE	2024-06-30	Nairobi	Nairobi	110	0,37	0,64	
8	KE	2024-07-31	Nairobi	Nairobi	170	0,64	0,34	
9	KE	2024-08-31	Nairobi	Nairobi	95	0,37	0,84	
10	KE	2024-09-30	Nairobi	Nairobi	102	0,27	0,88	
11	KE	2024-10-31	Nairobi	Nairobi	182	0,71	0,35	
12	KE	2024-11-30	Nairobi	Nairobi	238	0,82	0,03	



AU-DOHP

Survival kit

Shared Folder



Documentation



Test data / pipelines :

- Folder: [AU-DOHP Shared Folder](#) (QR code)
- Password: AU-DOHP

Platform URL : <https://home.au-dohp.de/>

Documentation:

- <https://speedykom-1.gitbook.io/dohp> (QR code)

Data Set : [Training Example/Kenya_Anthrax_Environment.xlsx](#)

Shared Resources

Shared Folder



Documentation



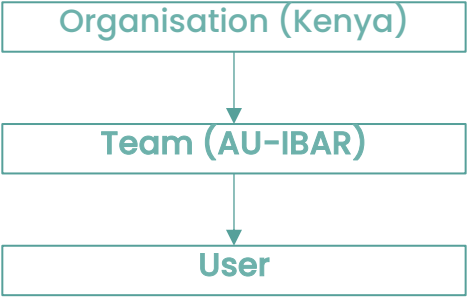


DOHP User Management

Organization Management

[Create Organization](#)

Organization	Status	Admin	Number of teams		
Cameroon	• Active	Jean-Marc Ndongo jeanmarc.ndongo@au-dohp.de	2	View	Edit
Ethiopia	• Active	Mekdes Abebe mekdes.abebe@au-dohp.de	2	View	Edit
Kenya	• Active	Daniel Mwangi daniel.mwangi@au-dohp.de	3	View	Edit
Malawi	• Active	Grace Otieno grace.otieno@au-ibar.test	2	View	Edit
Rwanda	• Active	Eric Nshuti eric.nshuti@au-dohp.de	2	View	Edit



DOHP Test Users

Kenya 🇰🇪

Organization Admin: Daniel Mwangi (org_admin_ke)

- **Ministry of Health**
 - **Team Admin:** Amina Njoroge (human_health_admin_ke)
 - **Standard User:** Kevin Wanjiru (human_health_user_ke)
- **Ministry of Agriculture and Livestock Development**
 - **Team Admin:** Joseph Otieno (animal_health_admin_ke)
 - **Standard User:** Grace Mutua (animal_health_user_ke)

Ethiopia 🇪🇹

Organization Admin: Mekdes Abebe (org_admin_et)

- **Ministry of Health**
 - **Team Admin:** Tewodros Bekele (human_health_admin_et)
 - **Standard User:** Selamawit Yohannes (human_health_user_et)
- **Ministry of Agriculture**
 - **Team Admin:** Hana Tesfaye (animal_health_admin_et)
 - **Standard User:** Samuel Alemu (animal_health_user_et)

Malawi 🇲🇼

Organization Admin: Chisomo Banda (org_admin_mw)

- **Ministry of Health**
 - **Team Admin:** Tadala Phiri (human_health_admin_mw)
 - **Standard User:** Linda Mbeve (human_health_user_mw)
- **Ministry of Agriculture**
 - **Team Admin:** Bright Mpinganjira (animal_health_admin_mw)
 - **Standard User:** John Chirwa (animal_health_user_mw)

Cameroon 🇨🇲

Organization Admin: Jean-Marc Ndongo (org_admin_cm)

- **Ministry of Public Health**
 - **Team Admin:** Clarisse Ngono (human_health_admin_cm)
 - **Standard User:** Blaise Tchoumi (human_health_user_cm)
- **Ministry of Livestock, Fisheries and Animal Industries**
 - **Team Admin:** François Mbassi (animal_health_admin_cm)
 - **Standard User:** Sylvie Etoundi (animal_health_user_cm)

Rwanda 🇷🇼

Organization Admin: Eric Nshuti (org_admin_rw)

- **Ministry of Health**
 - **Team Admin:** Aline Mukamana (human_health_admin_rw)
 - **Standard User:** Jean-Claude Bizimana (human_health_user_rw)
- **Ministry of Agriculture and Animal Resources**
 - **Team Admin:** Jean-Paul Mugisha (animal_health_admin_rw)
 - **Standard User:** Diane Uwase (animal_health_user_rw)

Sierra Leone 🇸🇱

Organization Admin: Mohamed Kamara (org_admin_sl)

- **Ministry of Health and Sanitation**
 - **Team Admin:** Fatmata Bangura (human_health_admin_sl)
 - **Standard User:** Musa Conteh (human_health_user_sl)
- **Ministry of Agriculture and Food Security**
 - **Team Admin:** Alhaji Koroma (animal_health_admin_sl)
 - **Standard User:** Mariama Jalloh (animal_health_user_sl)



DOHP User Management

[← Previous Page](#)

Organization Details

Organization Admin
Daniel Mwangi

Organization Name
Kenya

Active Teams
3

[Add Team](#)

Team ↓	Team Admin	
AU-IBAR	teamuser9 teamuser9 teamuser9@test.test	Delete View Edit
Ministry of Agriculture and Livestock Development	Joseph Otieno joseph.otieno@dohp.de	Delete View Edit
Ministry of Health	Amina Njoroge amina.njoroge@dohp.de	Delete View Edit

Kenya Organisation manager :
org_admin_ke



DOHP User Management

[← Previous Page](#)

Team Members Management

Team Details

[Add Member](#)

Team Admin
Amina Njoroge

Team Name
Ministry of Health

Active Members
3

Team Members 3 Users

Name	Status ↓	Role ?	Email Address	Creation Date	
Amina Njoroge @human_health_admin_ke	• Active	team_admin	amina.njoroge@dohp.de	07/10/2025 16:13:25	
Kevin Wanjiru @human_health_user_ke	• Active	standard_user	kevin.wanjiru@dohp.de	07/10/2025 16:14:31	
Jean Oumarou @human_health_volunteer_ke	• Active	standard_user	jean.oumarou@dohp.de	08/16/2025 15:18:16	



Create a pipeline

Click on Create Pipeline button

The screenshot shows the 'Data Pipelines' dashboard. On the left is a sidebar with navigation links: Home, Dashboards, Charts, Data Products, Data Contracts, and Data Pipelines (which is highlighted). The main content area is titled 'Data Pipelines' and includes a search bar labeled 'Search by name...'. In the top right corner of the main area, there are two buttons: '+ Create Pipeline' and 'Upload Pipeline'. A large green hand icon is pointing directly at the '+ Create Pipeline' button. Below the buttons, there are three pipeline cards. Each card has a title, a creation date, a timestamp, a 'Valid' status bar with a green checkmark, and an 'Upload Files' button. The cards are: 'cholera-kenya-pipeline' (created 2025-08-16 at 17:31:15 UTC), 'kenya-tuberculosis-pipeline' (created 2025-08-16 at 12:40:57 UTC), and 'kenya-malaria-pipeline' (created 2025-07-16 at 17:23:09 UTC). At the bottom right of the dashboard, there are navigation buttons: '← Prev', 'page 1 of 1', and 'Next →'.

Data Pipelines

Search by name...

Select...

cholera-kenya-pipeline
Creation date: 2025-08-16
At: 17:31:15 UTC
Valid
Upload Files

kenya-tuberculosis-pipeline
Creation date: 2025-08-16
At: 12:40:57 UTC
Valid
Upload Files

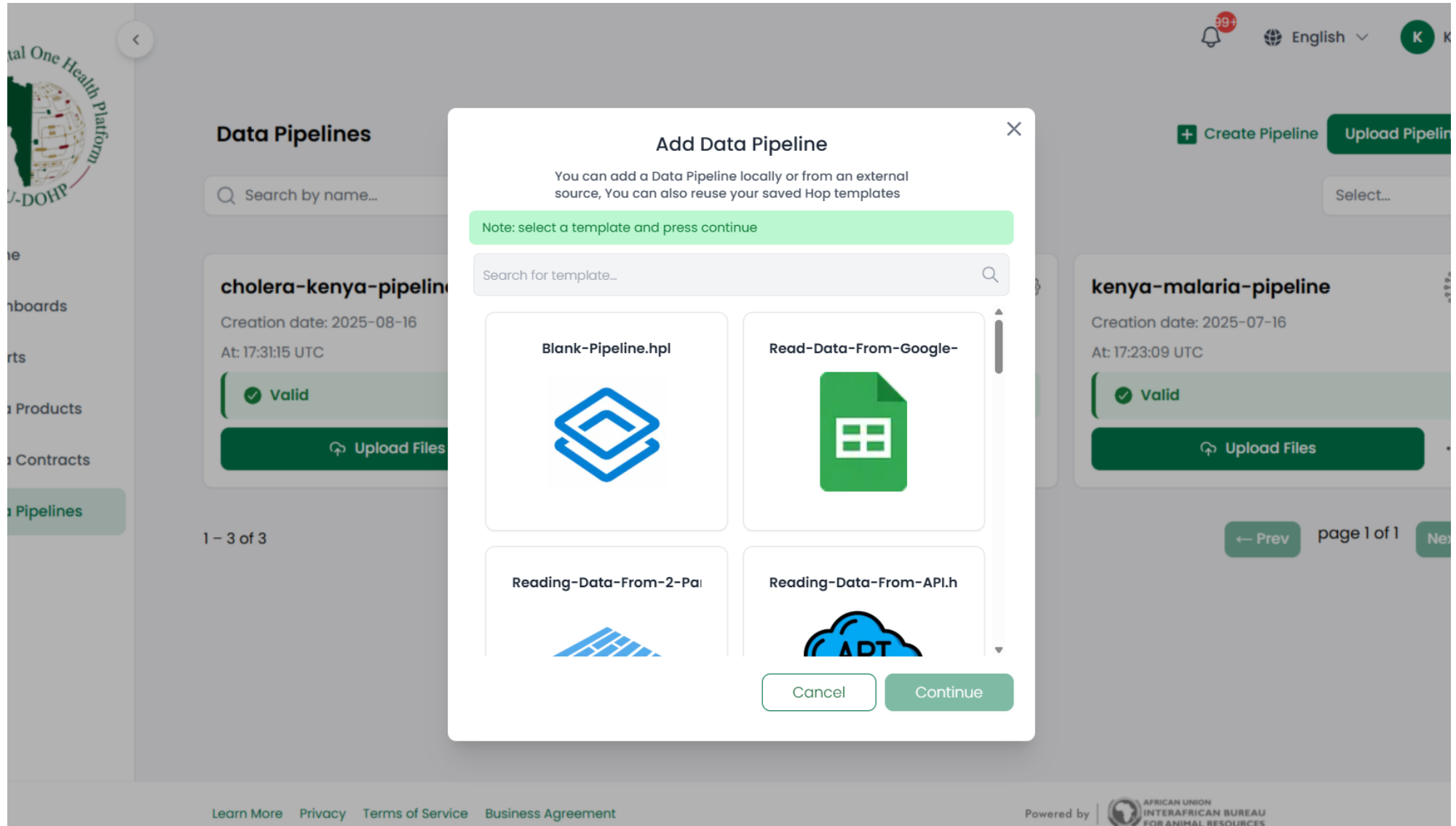
kenya-malaria-pipeline
Creation date: 2025-07-16
At: 17:23:09 UTC
Valid
Upload Files

1 – 3 of 3

← Prev page 1 of 1 Next →

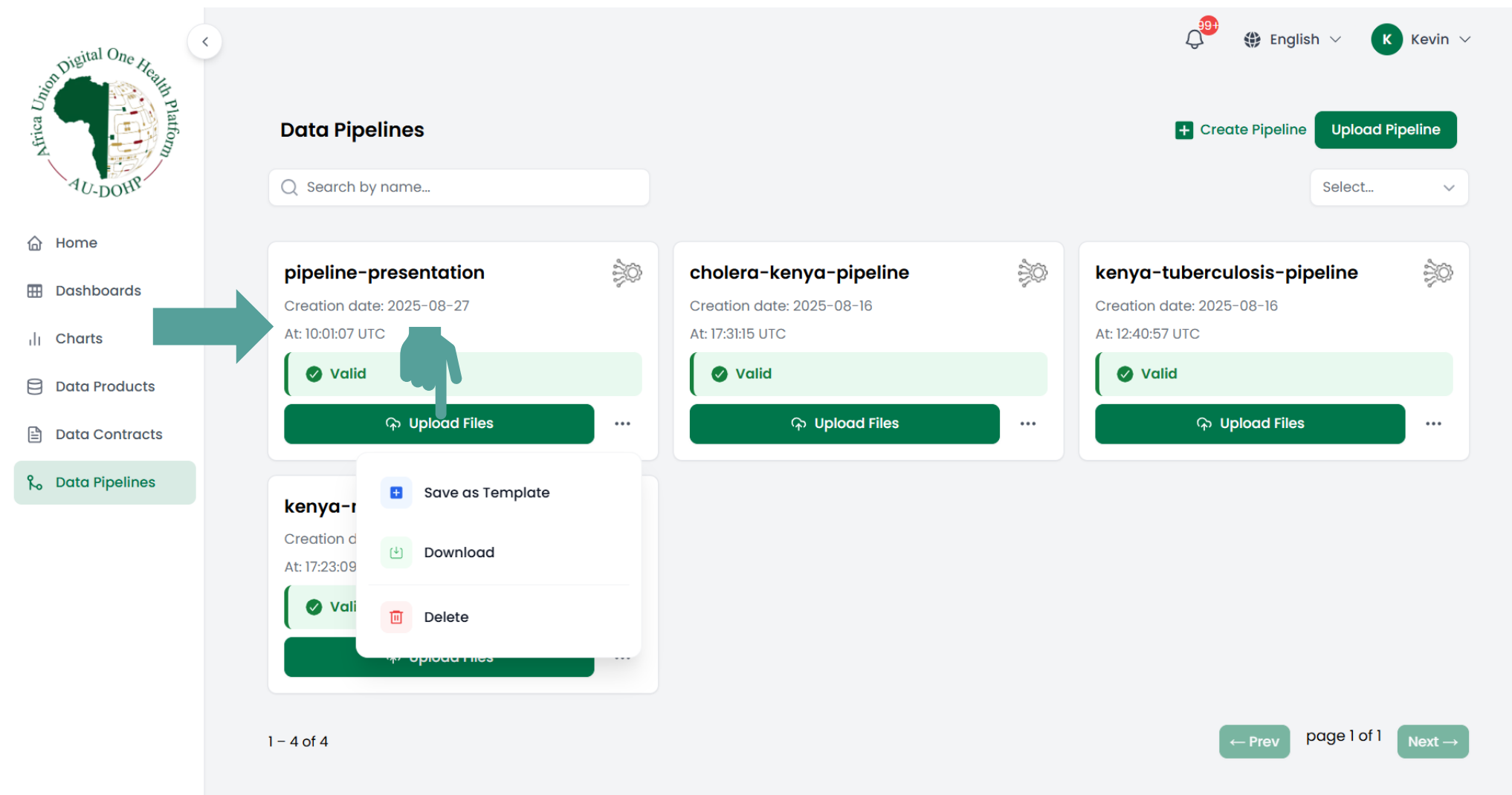
Create a pipeline

1. Enter a name for the pipeline
2. Add a description
3. Click on "submit"

The screenshot shows the AU-DOHP web interface. In the background, there's a sidebar with navigation links like "Dashboards", "Reports", "Products", "Contracts", and "Pipelines". The main area displays a list of data pipelines, including "cholera-kenya-pipeline" and "kenya-malaria-pipeline", each with a "Valid" status and an "Upload Files" button. Overlaid on this is a modal titled "Add Data Pipeline". The modal contains a search bar for templates, a list of four template options: "Blank-Pipeline.hpl", "Read-Data-From-Google-", "Reading-Data-From-2-Pai", and "Reading-Data-From-API.h", and "Cancel" and "Continue" buttons at the bottom. The footer of the page includes links for "Learn More", "Privacy", "Terms of Service", and "Business Agreement", along with the "Powered by" logo for the African Union Inter-African Bureau for Animal Resources.

Create a pipeline

Select your pipeline, upload the excel file containing the data to the server.



Data Pipelines

Search by name...

+ Create Pipeline Upload Pipeline

Select...

pipeline-presentation
Creation date: 2025-08-27
At: 10:01:07 UTC
Valid
Upload Files

cholera-kenya-pipeline
Creation date: 2025-08-16
At: 17:31:15 UTC
Valid
Upload Files

kenya-tuberculosis-pipeline
Creation date: 2025-08-16
At: 12:40:57 UTC
Valid
Upload Files

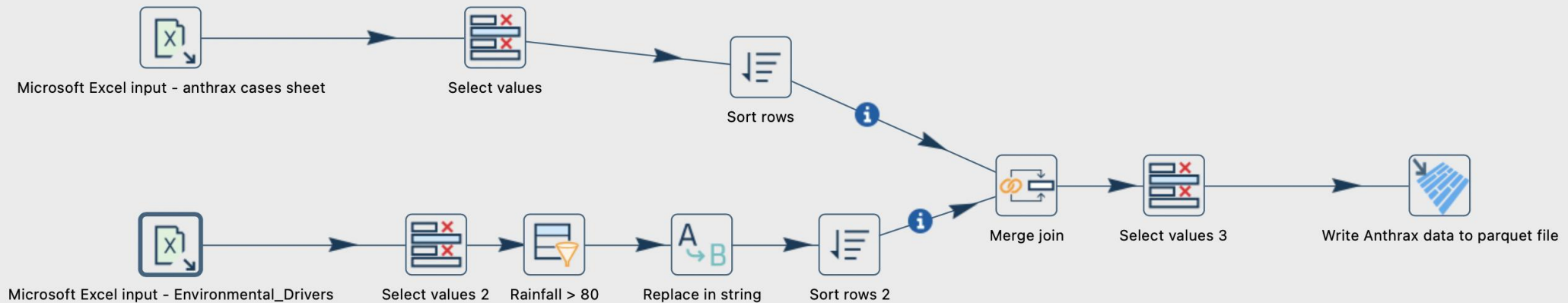
kenya-r
Creation d
At: 17:23:09
Valid
Upload Files

Save as Template
Download
Delete

1 - 4 of 4

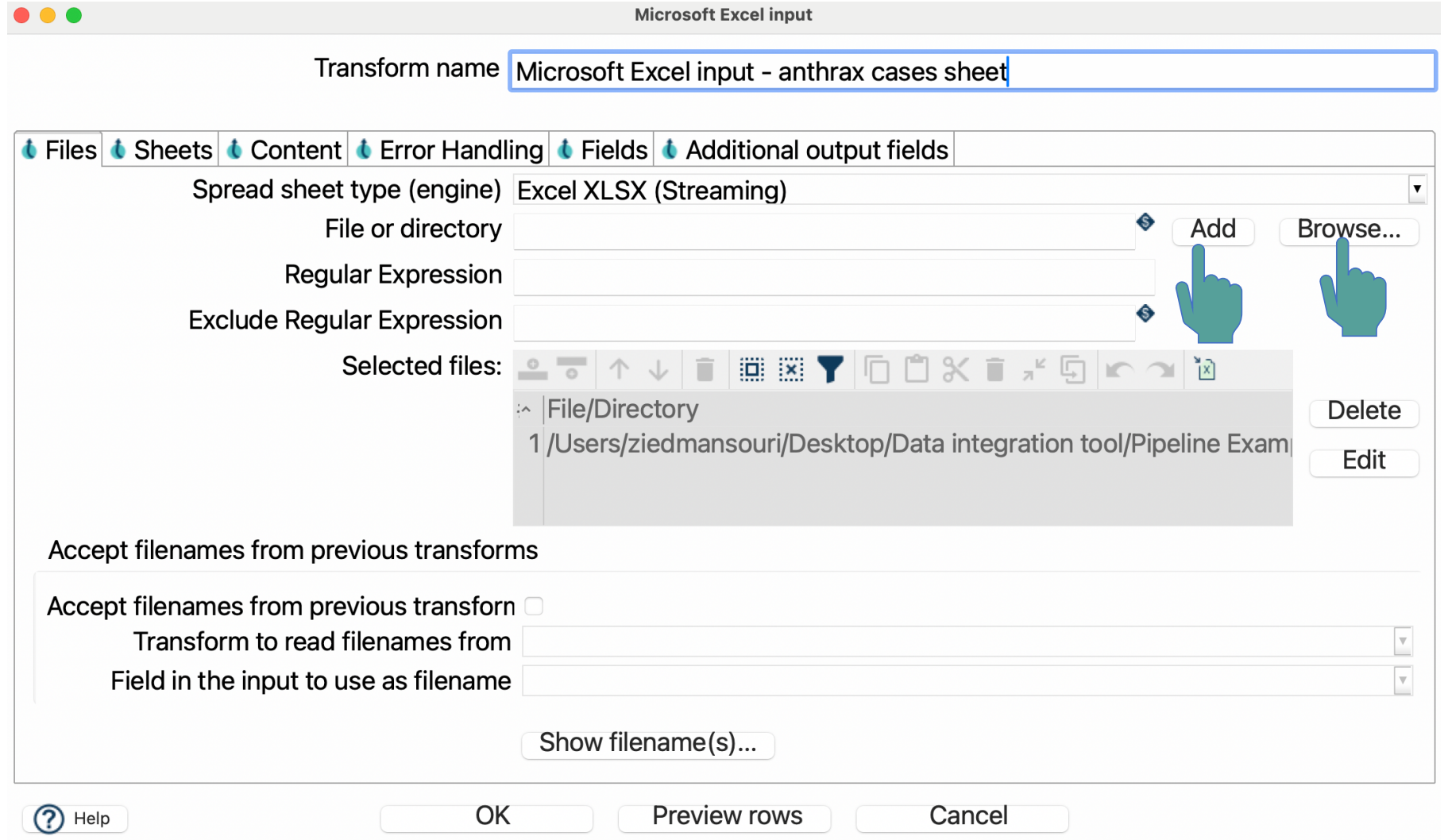
← Prev page 1 of 1 Next →

Data Pipeline Anthrax Analysis



Read the excel file from the pipeline

1. Select the spread sheet type as "Excel XLSX, XLS".
2. Click on Browse to read the file in the external_files folder
3. Click on Add to add the file



Microsoft Excel input

Transform name

Files Sheets Content Error Handling Fields Additional output fields

Spread sheet type (engine) Excel XLSX (Streaming)

File or directory Add Browse...

Regular Expression

Exclude Regular Expression

Selected files:

File/Directory
1 /Users/ziedmansouri/Desktop/Data integration tool/Pipeline Exam

Accept filenames from previous transforms

Accept filenames from previous transform ☐

Transform to read filenames from

Field in the input to use as filename

Show filename(s)...

Help OK Preview rows Cancel

Select the specific sheet in the sheet tab

Microsoft Excel input

Transform name

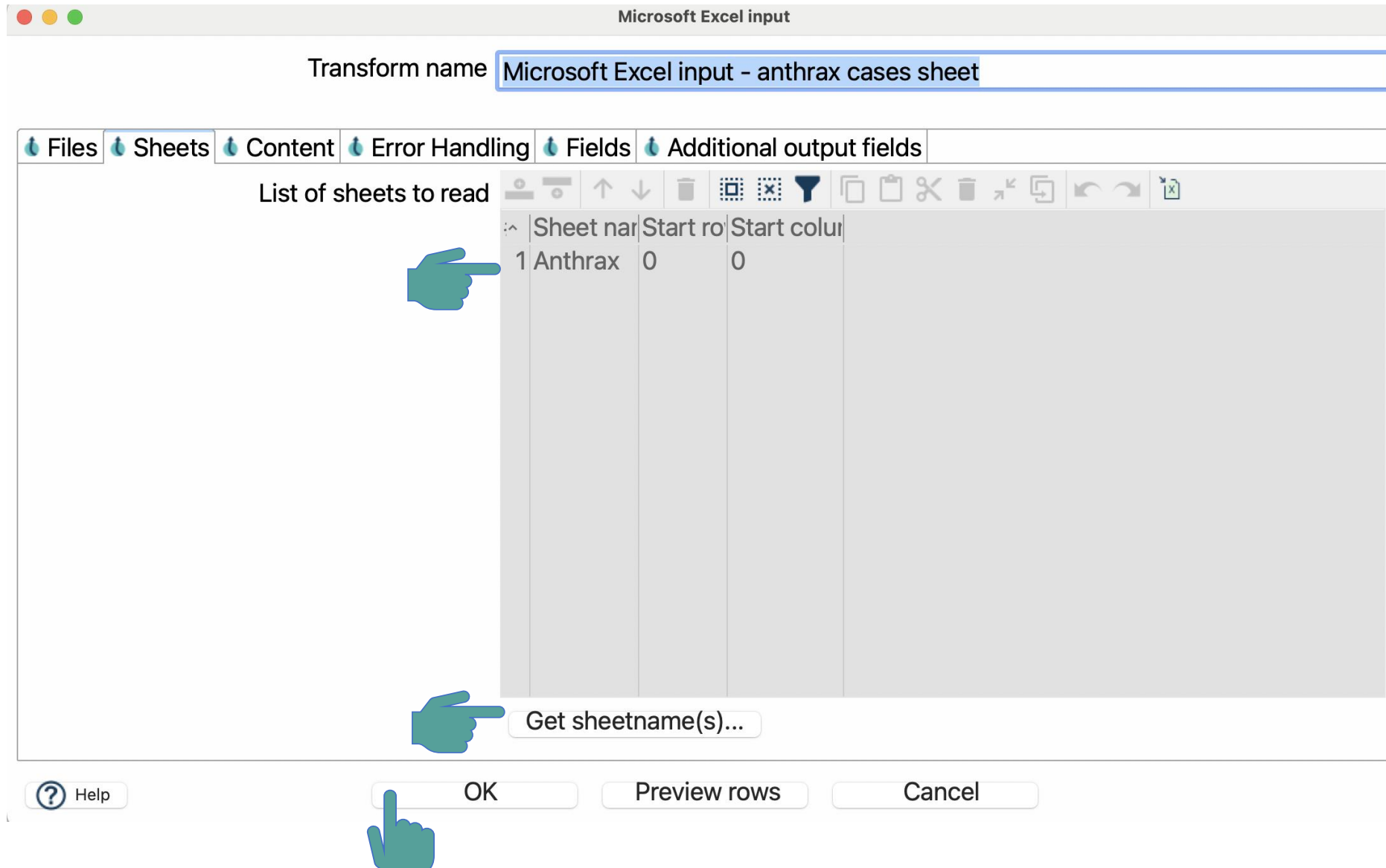
Files Sheets Content Error Handling Fields Additional output fields

List of sheets to read

Sheet name	Start row	Start column
1 Anthrax	0	0

Get sheetname(s)...

Help OK Preview rows Cancel

The screenshot shows a software interface for selecting an Excel sheet. At the top, there's a title bar "Microsoft Excel input". Below it, a "Transform name" field contains "Microsoft Excel input - anthrax cases sheet". A tabbed interface has "Files", "Sheets", "Content", "Error Handling", "Fields", and "Additional output fields". The "Sheets" tab is active, showing a "List of sheets to read" table with one entry: "1 Anthrax" with start row 0 and start column 0. A hand icon points to this entry. Below the table is a "Get sheetname(s)..." button, also pointed to by a hand icon. At the bottom are buttons for "Help", "OK", "Preview rows", and "Cancel". A hand icon points to the "OK" button.

Select columns and column types

Microsoft Excel input

Transform name:

Files | Sheets | Content | Error Handling | Fields | Additional output fields

Schema definition

Define fields schema:

	Name	Type	Length	Precision	Trim type	Repeat	Format	Currency	Decimal	Grouping
1	Country	String	-1	-1	none	N				
2	Report_Month	Date	-1	-1	none	N				
3	County_Name	String	-1	-1	none	N				
4	Region_Name	String	-1	-1	none	N				
5	Livestock_Cases	Integer	-1	-1	none	N				
6	Livestock_Deaths	Integer	-1	-1	none	N				
7	Human_Cases	Integer	-1	-1	none	N				
8	Human_Deaths	Integer	-1	-1	none	N				
9	Report_Source	String	-1	-1	none	N				
10	Outbreak_Flag	String	-1	-1	none	N				





 Help

Transformation: Renaming & Formatting

Select values

Transform name

Select & Alter Remove Meta-data

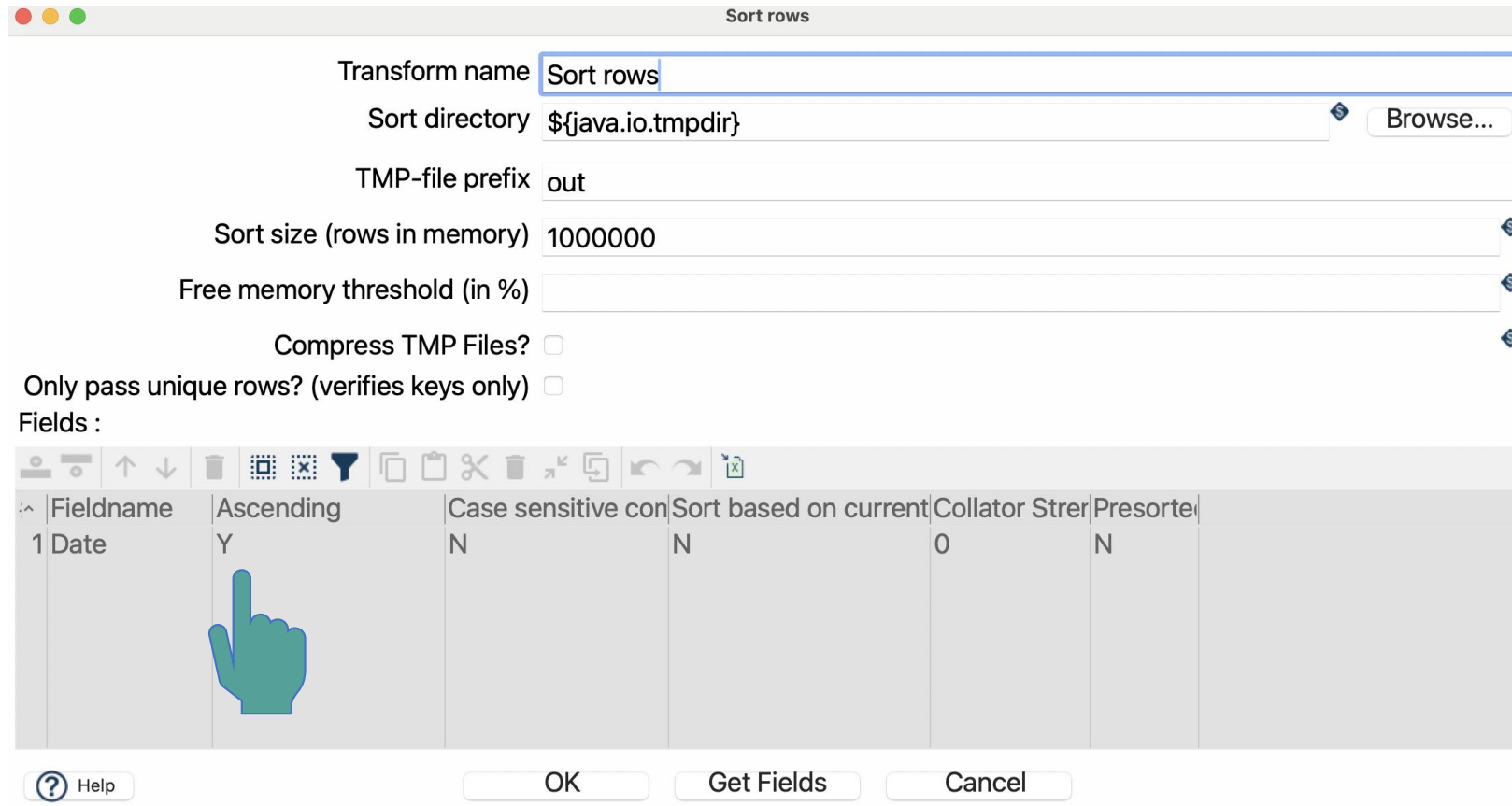
Fields to alter the meta-data for :

	Fieldname	Rename	Type	Length	Precision	Binary to Normal	Format	Date Format	Length	Date
1	Country		String			N		N		
2	Report_Month	Date	Date			N	dd-MM-yyyy	N		
3	County_Name		String			N		N		
4	Region_Name		String			N		N		
5	Livestock_Cases		Integer		0	N		N		
6	Livestock_Deaths		Integer		0	N		N		
7	Human_Cases		Integer		0	N		N		
8	Human_Deaths		Integer		0	N		N		
9	Report_Source		String			N		N		
10	Outbreak_Flag		String			N		N		

Get fields to change

Help OK Cancel

Transformation: Data sorting

A screenshot of a "Sort rows" dialog box. The dialog has a title bar with standard window controls. It contains several input fields: "Transform name" (set to "Sort rows"), "Sort directory" (set to "\${java.io.tmpdir}" with a "Browse..." button), "TMP-file prefix" (set to "out"), "Sort size (rows in memory)" (set to "1000000"), and "Free memory threshold (in %)" (empty). There are two checkboxes: "Compress TMP Files?" and "Only pass unique rows? (verifies keys only)", both of which are unchecked. Below these is a section labeled "Fields :" with a toolbar containing icons for field selection and manipulation. A table lists the fields to be sorted. The first row is "1 Date". The "Ascending" column for "1 Date" is highlighted with a green hand icon. At the bottom are buttons for "Help", "OK", "Get Fields", and "Cancel".

Sort rows

Transform name

Sort directory

TMP-file prefix

Sort size (rows in memory)

Free memory threshold (in %)

Compress TMP Files? ☐

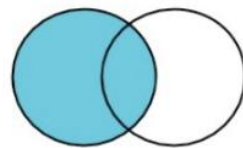
Only pass unique rows? (verifies keys only) ☐

Fields :

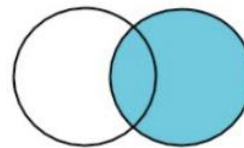
Fieldname	Ascending	Case sensitive con	Sort based on current	Collator Strer	Presorted
1 Date	Y	N	N	0	N

Transformation: Merge join

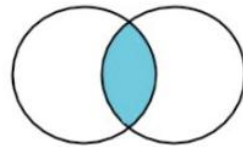
- The Merge Join transform performs a classic merge join between data sets with data coming from two different input transforms.
- This transform assumes your data is sorted on the join keys. Use Sort Rows transforms on the incoming streams to enforce sorting if necessary.
- Join options include INNER, LEFT, RIGHT , and FULL OUTER.



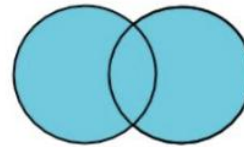
Left Join



Right Join



Inner Join



**Full Outer
Join**

Transformation: Merge join

Merge join

Transform name: Merge join

First transform: Sort rows

Second transform: Sort rows 2

Join Type: INNER

Keys for 1st transform:

Keys for 2nd transform:

Get key fields

Get key fields

Help OK Cancel

Transformation: Filtering

Filter rows

Transform name:

Send 'true' data to transform:

Send 'false' data to transform:

The condition:

(Integer)





Parquet file configuration

1. Configure pipeline output as a parquet file
2. Click on "Get Fields" to update the columns in the parquet file, the pipeline output.

Parquet File Output

Transform name

Filename

Base file name

Extension

Include date? ☐

Include time? ☐

Include date-time format? ☐

Date time format

Include transform copy number? ☐

Split into parts and include number? ☐

Split size

Create parent folders? ☒

Compression codec

Version

Row group size

Data page size

Dictionary page size

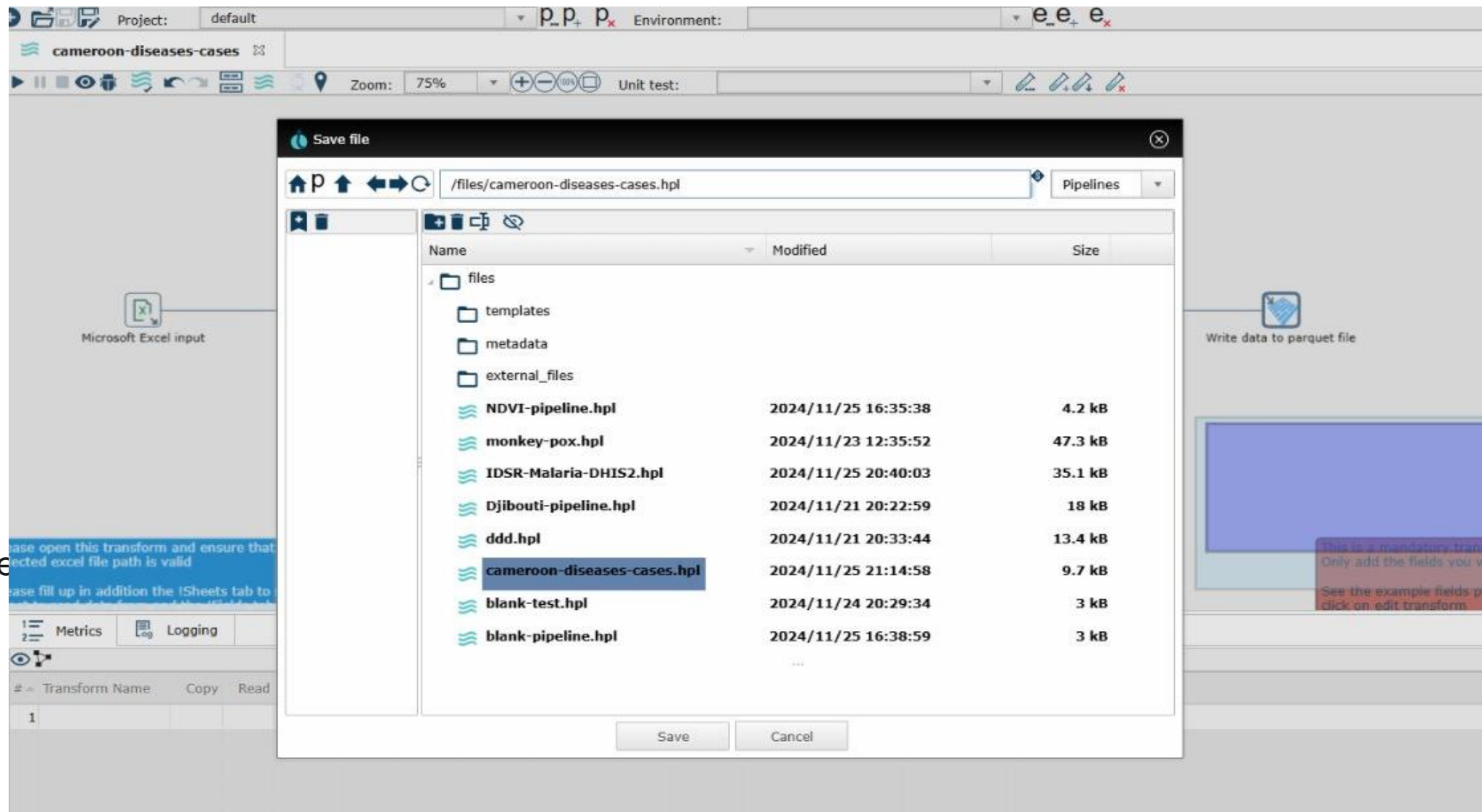
Fields

Source field	Target field
1 Country	Country
2 Date	Date
3 County_Name	County_Name
4 Region_Name	Region_Name
5 Livestock_Cases	Livestock_Cases
6 Livestock_Deaths	Livestock_Deaths
7 Human_Cases	Human_Cases
8 Human_Deaths	Human_Deaths
9 Report_Source	Report_Source

Help OK Get Fields Cancel

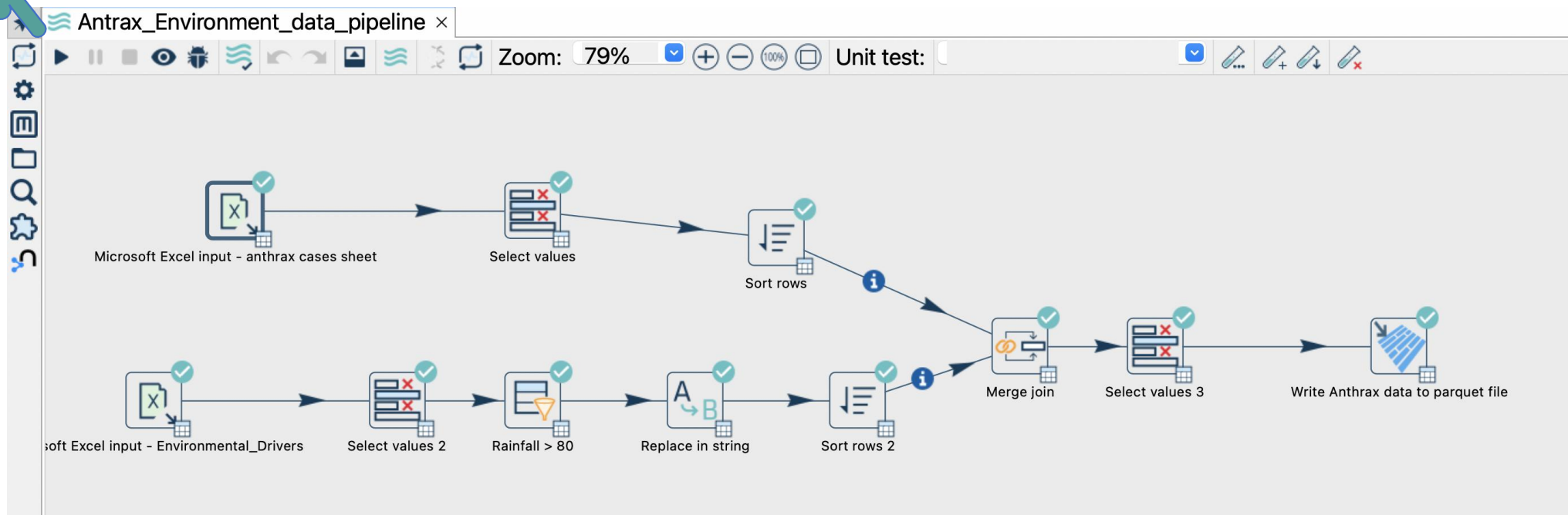
Save pipeline

1. save the HOP UI pipeline
2. save from the platform's "save" button to validate pipeline



Start the pipeline

Start the pipeline from the HOP start button



Logging & Debugging



1 Metrics2 Log Logging



2025/09/02 23:53:36 - Microsoft Excel input - anthrax cases sheet.0 - Finished processing (I=120, O=0, R=0, W=120, U=0, E=0)

2025/09/02 23:53:36 - Rainfall > 80.0 - Finished processing (I=0, O=0, R=120, W=101, U=0, E=0)

2025/09/02 23:53:36 - Select values.0 - Finished processing (I=0, O=0, R=120, W=120, U=0, E=0)

2025/09/02 23:53:36 - Replace in string.0 - Finished processing (I=0, O=0, R=101, W=101, U=0, E=0)

2025/09/02 23:53:36 - Sort rows.0 - Finished processing (I=0, O=0, R=120, W=120, U=0, E=0)

2025/09/02 23:53:36 - Sort rows 2.0 - Finished processing (I=0, O=0, R=101, W=101, U=0, E=0)

2025/09/02 23:53:36 - Merge join.0 - Finished processing (I=0, O=0, R=221, W=1010, U=0, E=0)

2025/09/02 23:53:36 - Select values 3.0 - Finished processing (I=0, O=0, R=1010, W=1010, U=0, E=0)

2025/09/02 23:53:36 - Write Anthrax data to parquet file.0 - Finished processing (I=0, O=1010, R=1010, W=1010, U=0, E=0)

2025/09/02 23:53:36 - Anthrax_Environment_data_pipeline - Pipeline duration : 0.573 seconds [0.573"]

2025/09/02 23:53:36 - Anthrax_Environment_data_pipeline - Execution finished on a local pipeline engine with run configuration 'local'

Demo 2 : Pipeline DHIS 2



What is DHIS2

- DHIS2 (District Health Information System 2) is an open-source platform.
- Used for collecting, analyzing, visualizing, and sharing health data.
- Widely adopted for health information systems in over 100 countries.
- Supports decision-making in healthcare programs and resource allocation.



Querying Health Data

- DHIS2 provides a RESTful API for data extraction.
- Common query endpoints:
 - ``/api/dataElements``: Retrieve data element definitions.
 - ``/api/analytics``: Perform analytical queries.
 - ``/api/organisationUnits``: Fetch organization hierarchy.
- Supports filters and aggregation for specific queries.



Example: Query IDSR Malaria Data

Objective:

- Retrieve Malaria Data for the last 5 years.
- API Endpoint: `/api/analytics`

Example Query:

- `https://play.im.dhis2.org/stable-2-41-2/api/analytics?dimension=pe:LAST_5_YEARS&dimension=ou:LEVEL-2&dimension=dx:vq2qO3eTrNi`

Parameters:

- ``pe``: Period (e.g., 202401 for January 2024).
- ``ou``: Organization Unit ID.
- ``dx``: Data Element/Indicator ID.

Group Assignment : Reading data from DHIS2

Group Assignment : custom pipeline

Build custom Data Pipeline

Each group translates their use case into a data pipeline within the system or use the test use cases

Steps:

1. Connect to the identified data sources.
2. Apply necessary transformations (cleaning, aggregation, calculations).
3. Define the output dataset for KPIs.
4. Test and validate the pipeline results against the defined KPIs



AU-DOHP

Training Dataset

- **Purpose:** Practical exercise in data transformation
- **Source:** Simulated (dummy) animal disease monitoring data
- **Focus:** Kenya, 3 major diseases
 - Foot-and-Mouth Disease (FMD)
 - Avian Influenza (AI)
 - African Swine Fever (ASF)



AU-DOHP

Training Dataset

- **Purpose:** Practical exercise in data transformation and analytics
- **Source:** Simulated (dummy) animal disease monitoring data
- **Focus:** Kenya, 3 major diseases
 - Foot-and-Mouth Disease (FMD)
 - Avian Influenza (AI)
 - African Swine Fever (ASF)



AU-DOHP

Training Dataset

Why These 3 Diseases?

- **Foot-and-Mouth Disease (FMD)** → Highly contagious, major economic impact on livestock trade
- **Avian Influenza (AI)** → Threat to poultry sector, zoonotic risk
- **African Swine Fever (ASF)** → Fatal for pigs, no vaccine, huge pork industry losses



AU-DOHP

Training Dataset

Data Scope

- **Geographic focus:** Kenya
- **Regions covered:** Nairobi, Mombasa, Kisumu
- **Timeframe:** January – December 2024 (1 year)
- **Granularity:**
 - Daily records (per disease, per region)
 - Monthly aggregated summaries



AU-DOHP

Group Tasks

- **Extract:**
 - Load Excel sheets into the AU-DOHP
- **Transform:**
 - Clean and filter data
 - Create new indicators (e.g., mortality rate = $\text{deaths} \div \text{cases}$)
 - Harmonize across regions/diseases



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AU-DOHP

Feedback Session - day 2



[ADD MENTIMETER LINK]

Agenda – day 3

- 1 **Group work** : Custom Pipeline
- 2 **Training**: Data Contract & Data Products
- 3 **Group work** : Data Contract & Data Products
- 4 **Feedback Session**

Group Assignment : custom pipeline



Presentation of Group Work – Custom pipeline

Presenting Custom Data Pipelines

- Each group presents their use case.
- Showcase the custom data pipeline created:
 - Defined KPIs to be produced.
 - Identified data sources.
 - Applied transformations (cleaning, aggregation, calculations).
 - Output dataset prepared for next step (visualization).
- Discuss challenges faced and how they were solved.
- Capture feedback and insights from peers.



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AU-DOHP

Data Contract & Data Products



Data Contracts in AU-DOHP

- Data contracts establish **standardized** formats and **structures** for data, ensuring **consistency** in how data is **collected, processed**, and **used** across members states and also AU-IBAR.
- Data contracts ensure **data sovereignty, interoperability**, and **compliance** while maintaining **trust** between members states.



Data Contracts



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts**
- Data Pipelines

Data Contracts

Search by name...

Malawi_Human_Health_IDSRS_Contract

human_health_user_mw

active

1 Consumer

This data contract defines the structure, usage, and limitations of Malawi IDSRS dataset. The dataset captures reportable diseases, cases, deaths, and recoveries from different regions in Malawi for human health monitoring and decision-making.

1.0.1

Cameroun_Human_Malaria_Cases_Contract

human_health_user_cm

active

No Consumers

This data contract defines the structure, usage, and limitations of Cameroun Human Malaria dataset. The dataset captures Confirmed malaria Cases from different regions in Cameroun for human health monitoring and decision-making.

1.0.3

malaria-kenya-contract

human_health_user_ke

active

1 Consumer

Define the schema and validation

1.0.4

Create Data Contract

Showing 7 – 9 of 9

← Prev

Next →



Create a Data Contract

Click on "Create Data Contract" button



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts**
- Data Pipelines

Data Contracts

Malawi_Human_Health_IDSRs_Contract

human_health_user_mw

active

1 Consumer

This data contract defines the structure, usage, and limitations of Malawi IDSRs dataset. The dataset captures reportable diseases, cases, deaths, and recoveries from different regions in Malawi for human health monitoring and decision-making.

1.0.1

Cameroun_Human_Malaria_Cases_Contract

human_health_user_cm

active

No Consumers

This data contract defines the structure, usage, and limitations of Cameroun Human Malaria dataset. The dataset captures Confirmed malaria Cases from different regions in Cameroun for human health monitoring and decision-making.

1.0.3

malaria-kenya-contract

human_health_user_ke

active

1 Consumer

Define the schema and validation

1.0.4

Showing 7 – 9 of 9



Create a Data Contract

Please fill out the following fields:

1. name of the contract
2. Purpose
3. Limitations
4. Usage
5. status
(active/inactive/pending)

The screenshot displays the 'Data Contracts' page of the Africa Union Digital One Health Platform (AU-DOHP). The page features a sidebar with navigation links: Home, Dashboards, Charts, Data Products, Data Contracts (selected), and Data Pipelines. The main content area shows two data contracts: 'Malawi_Human_Health_IDSRs_Contract' and 'Cameroun_Human_Malaria_Cases_Contract'. Both contracts are active and have a version of 1.0.1 and 1.0.3 respectively. The 'Add Data Contract' form is open on the right, with the following fields:

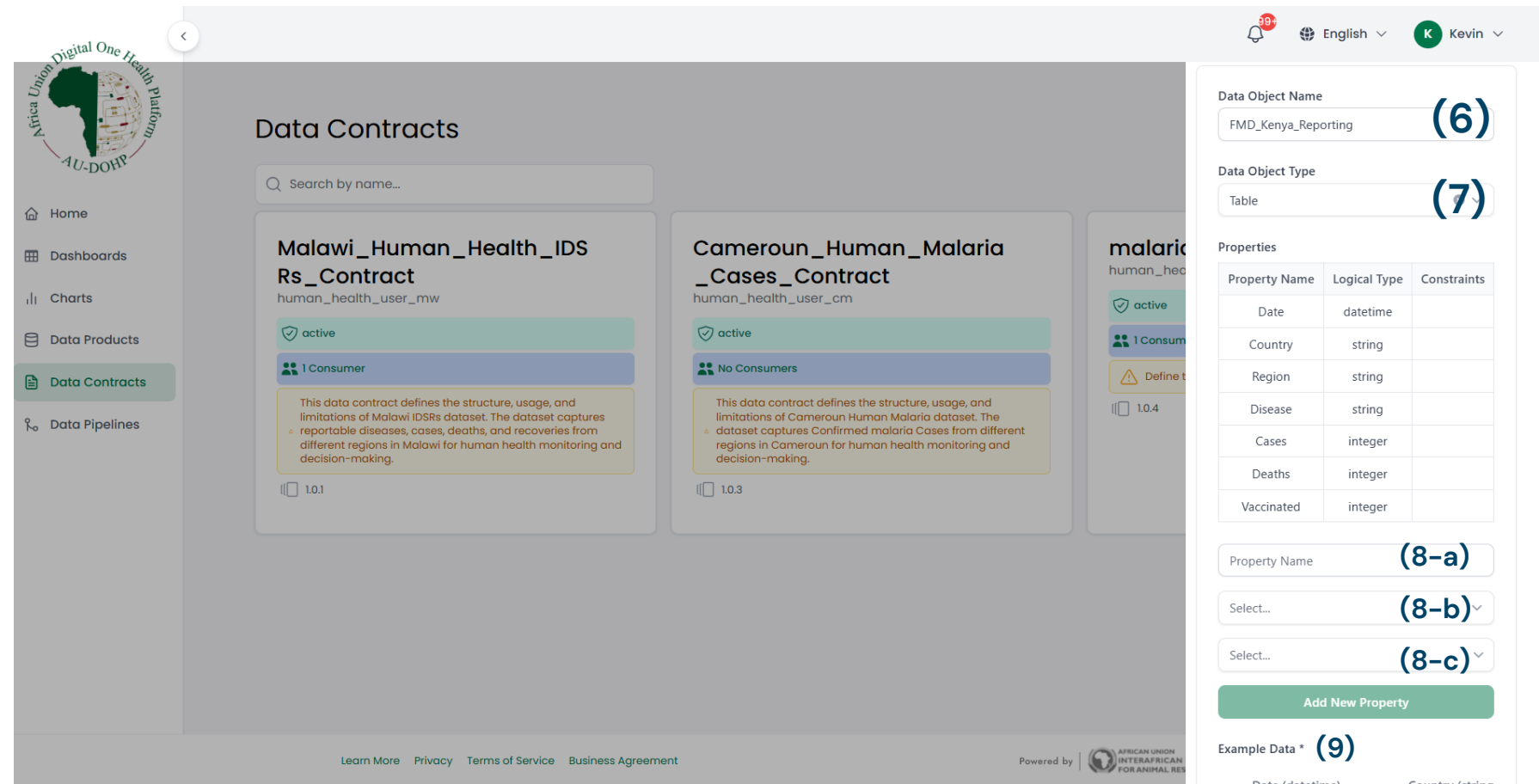
- Data Contract Name ***: A text input field labeled (1).
- Data Contract Description ***: A text area with a label 'Purpose' and a description 'Describe the purpose of this data contract...' labeled (2).
- Limitations**: A text area with a label 'List any limitations or restrictions...' labeled (3).
- Usage**: A text area with a label 'Explain how this data contract will be used...' labeled (4).
- Data Contract Status ***: A dropdown menu labeled (5) with a 'Select...' option.
- Schema ***: A text input field labeled 'Data Object Name'.

The footer of the page includes links for 'Learn More', 'Privacy', 'Terms of Service', and 'Business Agreement', along with a 'Powered by' logo.

Create a Data Contract

Please fill out the following fields:

6. Data Object Name
7. Data Object Type (default : Table)
8. Schema Properties
 - a) enter a column name
 - b) Define its type
 - c) Define a constraint on the column (optional)
 - d) Click "Add new property"



The screenshot shows the 'Data Contracts' page in the AU-DOHP interface. The left sidebar contains navigation links: Home, Dashboards, Charts, Data Products, Data Contracts (selected), and Data Pipelines. The main content area displays two data contracts: 'Malawi_Human_Health_IDS Rs_Contract' and 'Cameroun_Human_Malaria_Cases_Contract'. Each contract card shows its name, a search bar, a status (active), and a list of consumers. The right sidebar shows the 'Properties' section for a selected data object, with fields for 'Data Object Name' (FMD_Kenya_Reporting), 'Data Object Type' (Table), and a table of properties (Date, Country, Region, Disease, Cases, Deaths, Vaccinated) with their logical types and constraints. The bottom of the interface includes a footer with links to Learn More, Privacy, Terms of Service, and Business Agreement, and a 'Powered by' section for the African Union and the African Union Inter-African Forum for Animal Research.

Data Contracts

Search by name...

Malawi_Human_Health_IDS Rs_Contract
human_health_user_mw

active

1 Consumer

This data contract defines the structure, usage, and limitations of Malawi IDSRs dataset. The dataset captures reportable diseases, cases, deaths, and recoveries from different regions in Malawi for human health monitoring and decision-making.

1.0.1

Cameroun_Human_Malaria_Cases_Contract
human_health_user_cm

active

No Consumers

This data contract defines the structure, usage, and limitations of Cameroun Human Malaria dataset. The dataset captures Confirmed malaria Cases from different regions in Cameroun for human health monitoring and decision-making.

1.0.3

Properties

Property Name	Logical Type	Constraints
Date	datetime	
Country	string	
Region	string	
Disease	string	
Cases	integer	
Deaths	integer	
Vaccinated	integer	

Property Name (8-a)

Select... (8-b)

Select... (8-c)

Add New Property

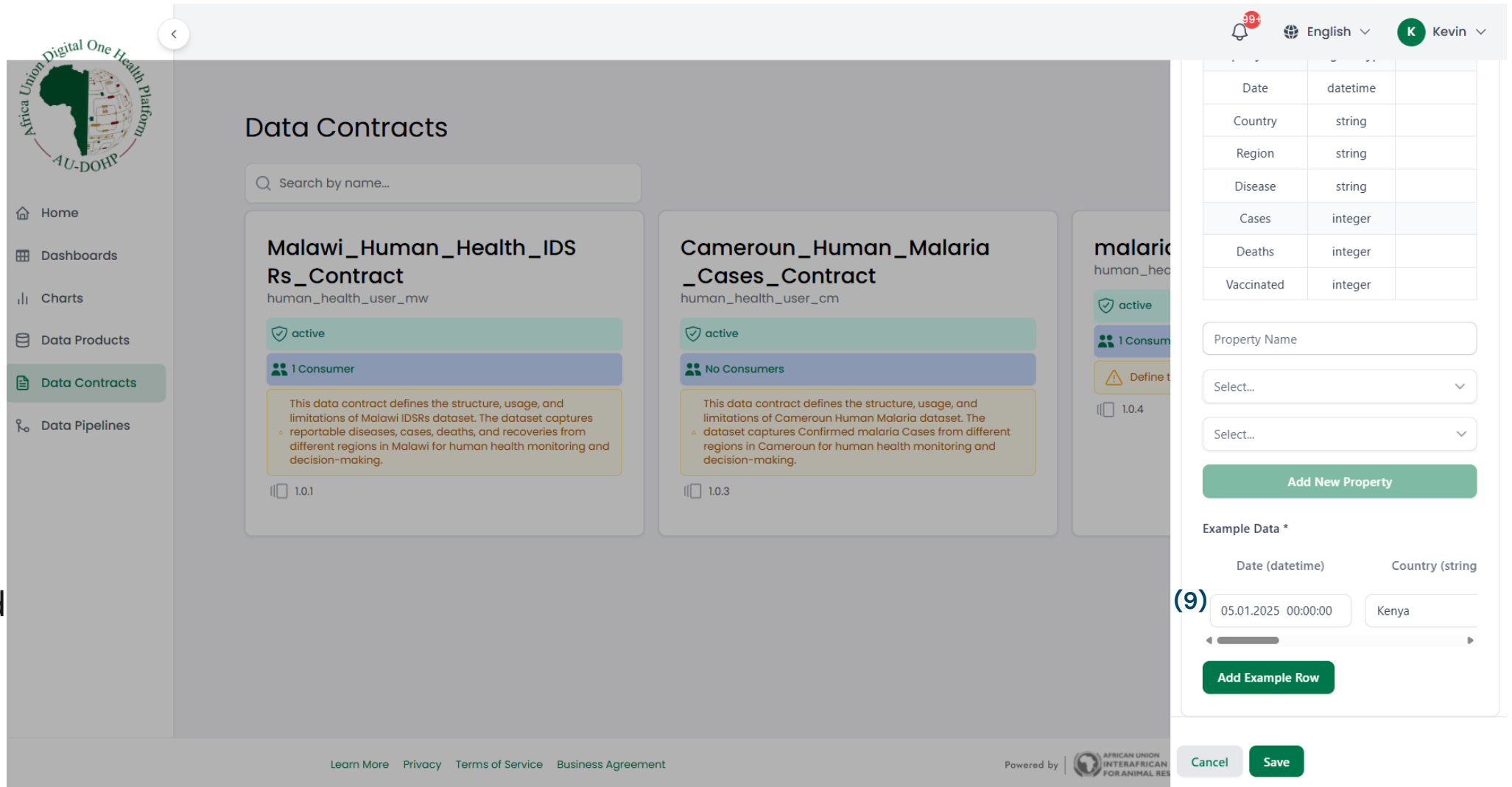
Example Data * (9)

Date (datetime) Country (string)

Create a Data Contract

Please fill out the following fields:

9. Example data
 - a) enter a value for each column
 - b) Click "Add example Row"



The screenshot displays the AU-DOHP interface. The main content area shows a list of Data Contracts, including "Malawi_Human_Health_IDS Rs_Contract" and "Cameroun_Human_Malaria_Cases_Contract". A modal is open on the right, titled "Add New Property", which contains a table for defining data properties and a section for adding example data.

Data Contracts Table:

Property Name	Type	Value
Date	datetime	
Country	string	
Region	string	
Disease	string	
Cases	integer	
Deaths	integer	
Vaccinated	integer	

Example Data Section:

Example Data *

Date (datetime)	Country (string)
05.01.2025 00:00:00	Kenya

Buttons: Add New Property, Add Example Row, Cancel, Save.

Click "Save"



- Home
- Dashboards
- Charts
- Data Products
- Data Contracts**
- Data Pipelines

Data Contracts

Search by name...

Malawi_Human_Health_IDS_Rs_Contract

human_health_user_mw

active

1 Consumer

This data contract defines the structure, usage, and limitations of Malawi IDSRs dataset. The dataset captures reportable diseases, cases, deaths, and recoveries from different regions in Malawi for human health monitoring and decision-making.

1.0.1

Cameroun_Human_Malaria_Cases_Contract

human_health_user_cm

active

No Consumers

This data contract defines the structure, usage, and limitations of Cameroun Human Malaria dataset. The dataset captures Confirmed malaria Cases from different regions in Cameroun for human health monitoring and decision-making.

1.0.3

malaria

human_he

active

1 Consum

Define t

1.0.4

Date	datetime	
Country	string	
Region	string	
Disease	string	
Cases	integer	
Deaths	integer	
Vaccinated	integer	

Property Name

Select...

Select...

Add New Property

Example Data *

Date (datetime)

Country (string)

05.01.2025 00:00:00

Kenya

Example Row

Cancel

Save

Learn More

Privacy

Terms of Service

Business Agreement

Powered by 



Create a Data Contract

The data contract could be found now in the contracts list

The screenshot displays the 'Data Contracts' section of the Africa Union Digital One Health Platform. The interface includes a sidebar with navigation options: Home, Dashboard, Charts, Data Products, **Data Contracts** (highlighted with a green bar and a hand icon), and Data Pipelines. The main content area shows a list of data contracts, each with a title, user, status, consumer count, and a description. A green button labeled 'Create Data Contract' is located in the top right corner of the main area.

Data Contracts

Search by name...

FMD_Kenya_Reporting_Contract
human_health_user_ke
active
No Consumers
Defines the structure, usage, and limitations of FMD data in Kenya. The dataset captures daily and monthly reports of cases, deaths, and vaccination activities.
1.0.0

dhis2-data-contract
animal_health_admin_ke
active
No Consumers
dhis2 data contract
1.0.0

test-data-contract
human_health_admin_ke
active
No Consumers
test data contract
1.0.0

cholera_data_contract
animal_health_user_ke
active
2 Consumers
cholera data contract
1.0.0

Ethopia_Aids_Cases_Contract
human_health_user_et
active
No Consumers
This data contract ensures the standardized delivery of weekly Aids case reports from Ethiopia's Central health care ministry system, covering the last 12 weeks and grouped by

testing
animal_health_user_mw
draft
No Consumers
ojp
1.0.0

[+ Create Data Contract](#)



Data Product in AU-DOHP

- Data products are central to AU-DOHP representing the **packaged, consumable units** of data.
- Data products enable **data democratization**, allowing strengthened **secure cross-border** health **collaboration** and **drive decision-making** across member states.



Data Products



Home

Dashboards

Charts

Data Products

Data Contracts

Data Pipelines



English

Kevin

Search by name...

Search by tag...

Data Products



Add Data Product

All

All

Created By Me

Created By Team

all-diseases-dp

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-08-26

Team: Ministry of Agriculture and Livestock Development

all-diseases-dp

cholera-data-product

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-08-22

Team: Ministry of Agriculture and Livestock Development

cholera-data-product

IDSR_WeeklyDistrictCases_SL

Sierra Leone

Consumer(s): healthcare_providers

Last Update: 2025-07-16

Team: Ministry of Agriculture and Food Security

IDSR_WeeklyDistrictCases_SL

malaria-kenya-product

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-07-17

Team: Ministry of Health

malaria-kenya-product

Malawi_Human_Health_IDSRs_Product

Malawi

Consumer(s): healthcare_providers

Last Update: 2025-07-16

Team: Ministry of Health

Malawi_Human_Health_IDSRs_Product



Create a Data Product

Click on "Add Data Product" button



- Home
- Dashboards
- Charts
- Data Products**
- Data Contracts
- Data Pipelines

99+

English

K Kevin

+

Add Data Product

All

All

Created By Me

Created By Team

all-diseases-dp

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-08-26

Team: Ministry of Agriculture and Livestock Development

⚠

all-diseases-dp

cholera-data-product

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-08-22

Team: Ministry of Agriculture and Livestock Development

⚠

cholera-data-product

IDSR_WeeklyDistrictCases_SL

Sierra Leone

Consumer(s): healthcare_providers

Last Update: 2025-07-16

Team: Ministry of Agriculture and Food Security

⚠

IDSR_WeeklyDistrictCases_SL

malaria-kenya-product

Kenya

Consumer(s): healthcare_providers

Last Update: 2025-07-17

Team: Ministry of Health

⚠

malaria-kenya-product

Malawi_Human_Health_IDSRs_Product

Malawi

Consumer(s): healthcare_providers

Last Update: 2025-07-16

Team: Ministry of Health

⚠

Malawi_Human_Health_IDSRs_Product



Create a Data Product

Enter Data product fields:

1. name
2. first scheduled execution
3. Pipeline Execution interval
4. Data pipeline (input data)
5. access Type and visibility
6. responsible team
7. product description
8. product Tags

And click "Next"

The screenshot displays the AU-DOHP Data Products interface. On the left is a sidebar with navigation links: Home, Dashboards, Charts, Data Products (selected), Data Contracts, and Data Pipelines. The main area shows a list of data products with filters and a 'Merge Data Products' button. The products listed are:

- FMD_Kenya_Reporting_P roduct** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-08-27, Team: Ministry of Health.
- all-diseases-dp** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-08-26, Team: Ministry of Agriculture and Livestock Development.
- IDSR_WeeklyDistrictCases_ SL** (Sierra Leone): Consumer(s): healthcare_providers, Last Update: 2025-07-16, Team: Ministry of Agriculture and Food Security.
- malaria-kenya-product** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-07-17, Team: Ministry of Health.

On the right, the 'Add Data Product' modal is open, showing the following fields and values:

- Name ***: FMD_Kenya_Reporting_Product (1)
- Schedule Date ***: Aug 27, 2025 (2)
- Schedule Interval ***: @once (3)
- Input Data (Pipelines) ***: FMD-Kenya-Pipeline (4)
- Access Type ***: public (5)
- Team ***: Ministry of Health (6)
- Description ***: Provides structured reporting of Foot-and-Mouth Disease in Kenyan regions with daily detail and (7)
- Tags ***: healthcare (8)



Create a Data Product

Search or select the created data contract from the suggestion list

And click „Submit“

The screenshot shows the 'Data Products' page of the Africa Union Digital One Health Platform. The page has a sidebar with navigation links: Home, Dashboards, Charts, Data Products (selected), Data Contracts, and Data Pipelines. The main content area displays a list of data products under the 'All' tab. The products listed are:

- all-diseases-dp** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-08-26, Team: Ministry of Agriculture and Livestock Development.
- cholera-data-product** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-08-22, Team: Ministry of Agriculture and Livestock Development.
- malaria-kenya-product** (Kenya): Consumer(s): healthcare_providers, Last Update: 2025-07-17, Team: Ministry of Health.
- Malawi_Human_Health_IDSRs_Product** (Malawi): Consumer(s): healthcare_providers, Last Update: 2025-07-16, Team: Ministry of Health.

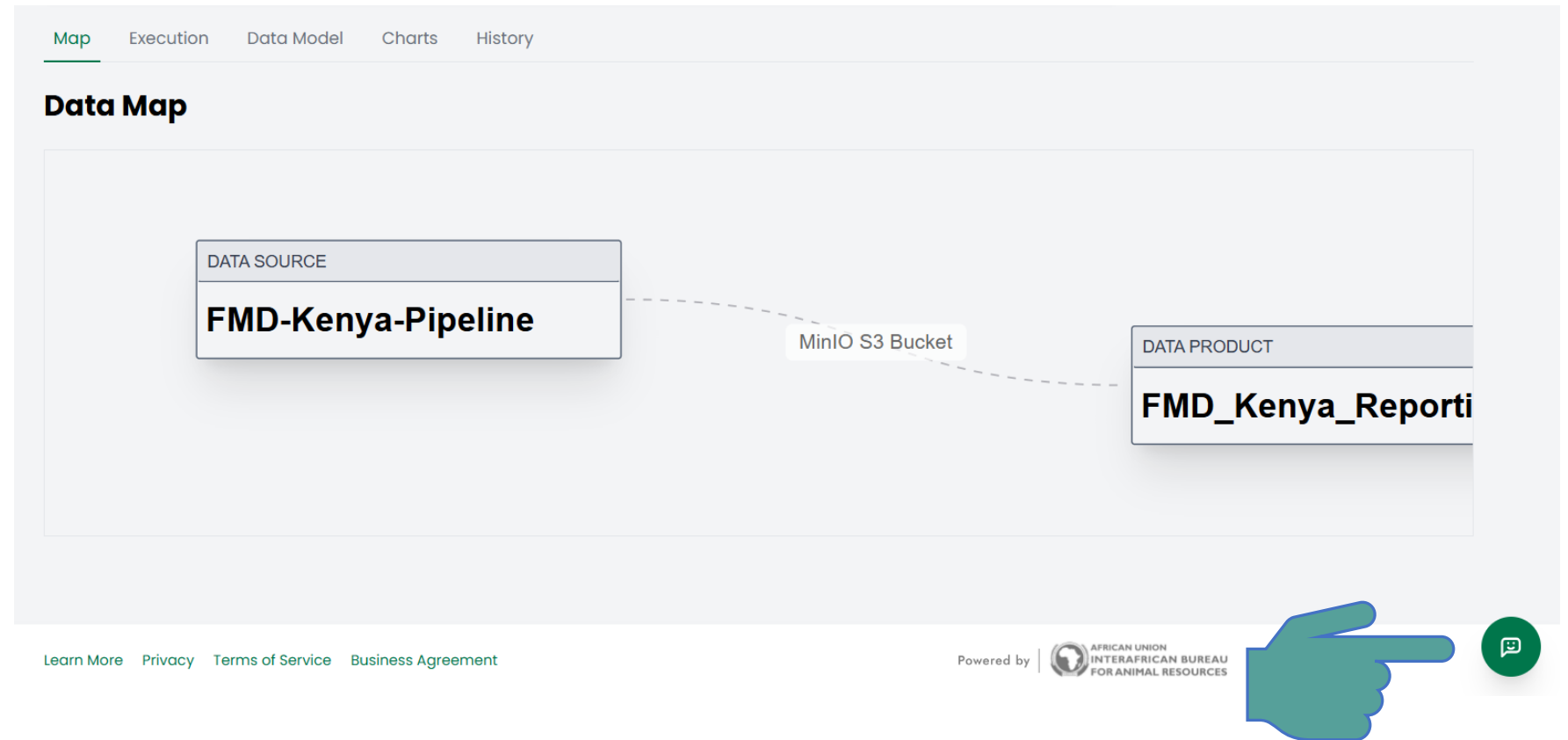
An 'Add Data Product' modal is open on the right side of the screen. It contains a search bar and a 'Suggestions' section. The suggestions listed are:

- FMD_Kenya_Reporting_Contract (checked)
- dhis2-data-contract
- test-data-contract
- cholera_data_contract
- Ethopia_Aids_Cases_Contract

At the bottom of the modal, there are 'Previous' and 'Submit' buttons. A green hand icon points to the 'Submit' button.

Chat with a Data Product

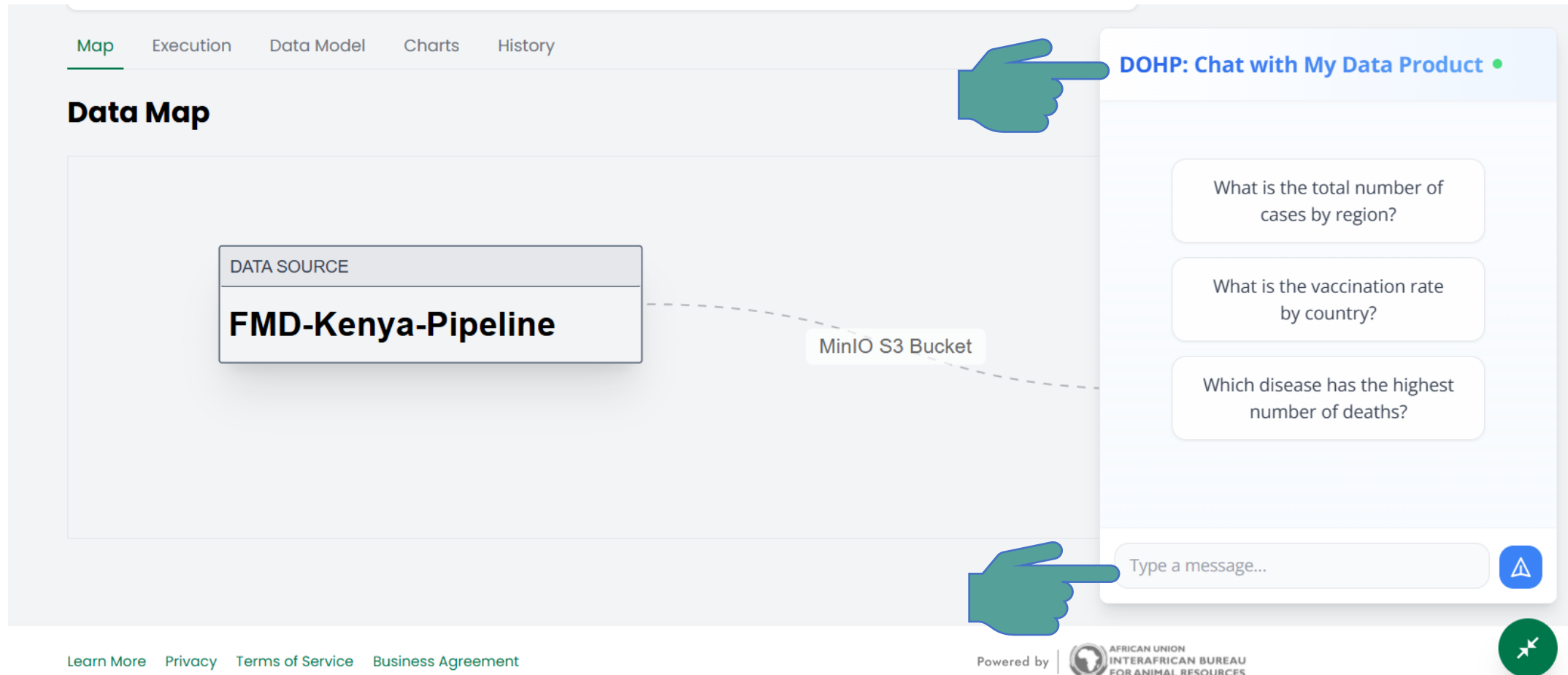
The embedded chatbot is designed to assist users with information related to a specific data product, answer questions, and provide support efficiently.



Chat with a Data Product

Type your message in the input

field and press "Enter" or select one of the suggested questions.



The screenshot displays the 'DOHP: Chat with My Data Product' interface. At the top, a navigation bar includes 'Map' (highlighted), 'Execution', 'Data Model', 'Charts', and 'History'. Below this, the 'Data Map' section shows a 'DATA SOURCE' box labeled 'FMD-Kenya-Pipeline' connected by a dashed line to a 'MinIO S3 Bucket'. On the right, a chat window titled 'DOHP: Chat with My Data Product' contains three suggested questions: 'What is the total number of cases by region?', 'What is the vaccination rate by country?', and 'Which disease has the highest number of deaths?'. At the bottom of the chat window is a text input field labeled 'Type a message...' and a blue send button. The footer includes links for 'Learn More', 'Privacy', 'Terms of Service', and 'Business Agreement', along with the text 'Powered by' and the logo of the 'AFRICAN UNION INTERAFRICAN BUREAU FOR ANIMAL RESOURCES'.

Map Execution Data Model Charts History

Data Map

DATA SOURCE

FMD-Kenya-Pipeline

MinIO S3 Bucket

DOHP: Chat with My Data Product

- What is the total number of cases by region?
- What is the vaccination rate by country?
- Which disease has the highest number of deaths?

Type a message...

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Access control in AU-DOHP

- DHOP employs a robust **role-based access control** (RBAC) that ensures users collaborate effectively while maintaining **strict control** over data products access and operations



Access control in AU-DOHP

Roles

- **Organization Member** (ex: AU-IBAR Data Analyst)
 - View data assets, data usage agreements, and global policies within AU-IBAR.
- **Organization Owner** (ex: AU-IBAR Project Lead)
 - View and edit all resources within AU-IBAR.
 - Manage organization members, including inviting new members, removing members, and changing roles.
 - Create and delete teams within AU-IBAR.



Access control in AU-DOHP

Roles

Team Member (ex: Member State Public Health Official)

- Edit data products and data usage agreements specific to their team's domain.
- Request access to other data product as a data consumer within DHOP.
- Approve, reject, or cancel data usage agreements for their team's data products as a data provider.



Access control in AU-DOHP

- Member states can control access to their data, deciding who can access it and when
- Each organization/member state can manage its data **independently** while enabling **collaboration** through controlled data sharing agreements



Access control in AU-DOHP

Data Product Access Requests



Home

Dashboards

Charts

Data Products

Data Contracts

Data Pipelines



English

K Kevin

Back malaria-kenya-product public

Delete

General Input Ports Output Ports Audit Trail Governance Access Request History

Access Management

Name	Access Right	Teams	Organizations
 animal_health_admin_cm	viewer	Ministry of Livestock, Fisheries and Animal Industries	Cameroon
 animal_health_admin_et	viewer	Ministry of Agriculture	Ethiopia
 animal_health_admin_ke	owner	Ministry of Agriculture and Livestock Development	Kenya
 animal_health_admin_mw	viewer	Ministry of Agriculture	Malawi

Access Requests

Name	Team	Visibility
Hana Tesfaye	Ministry of Agriculture	TEAM

Approve

Deny



Group Assignment : Create a custom data contract & product

AU-DOHP

Feedback Session – day 3



[ADD MENTIMETER LINK]

Agenda – day 4

- 1 **Training:** data analysis and visualization
- 2 **Group work :** data analysis and visualization
- 3 **Presentation of group work:** data analysis and visualization
- 4 **Feedback Session**



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AU-DOHP

Data analysis and
visualization

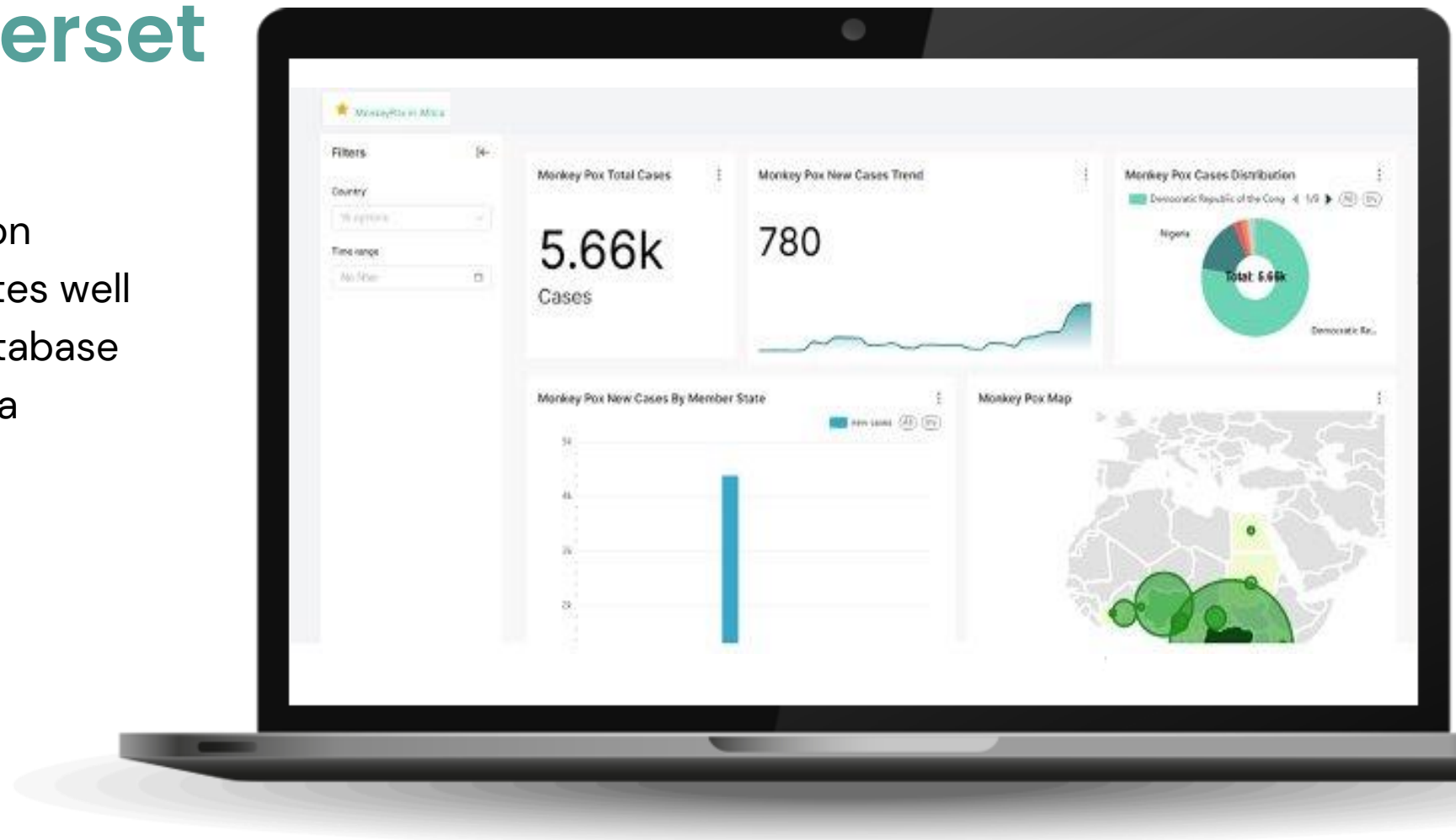


Data analysis and visualization

- **AU-DOHP users**, with the integrated data, can utilize **predictive** analytics Dashboard in Superset within DHOP to **analyse** Data.
- These insights and Dashboard could be shared with other users, teams, **member states** and **regional partners**.
- Cooperation Partners can also access shared data to plan **intervention strategies**, aligning them with AU-IBAR's **regional health policies**.

Apache Superset

Superset is a modern data exploration and visualization platform. Superset integrates well with any SQL-speaking database (or data engine), featuring a Python DB-API driver and SQLAlchemy dialect.



Superset utilities

1

No-code interface

for fast graphics creation

2

Lightweight semantic layer

to quickly define custom dimensions
and metrics

3

Web-based SQL editor

for advanced queries

4

A wide range of visualizations

to present your data, from simple graphs
to geospatial visualizations



Superset utilities

Dataset

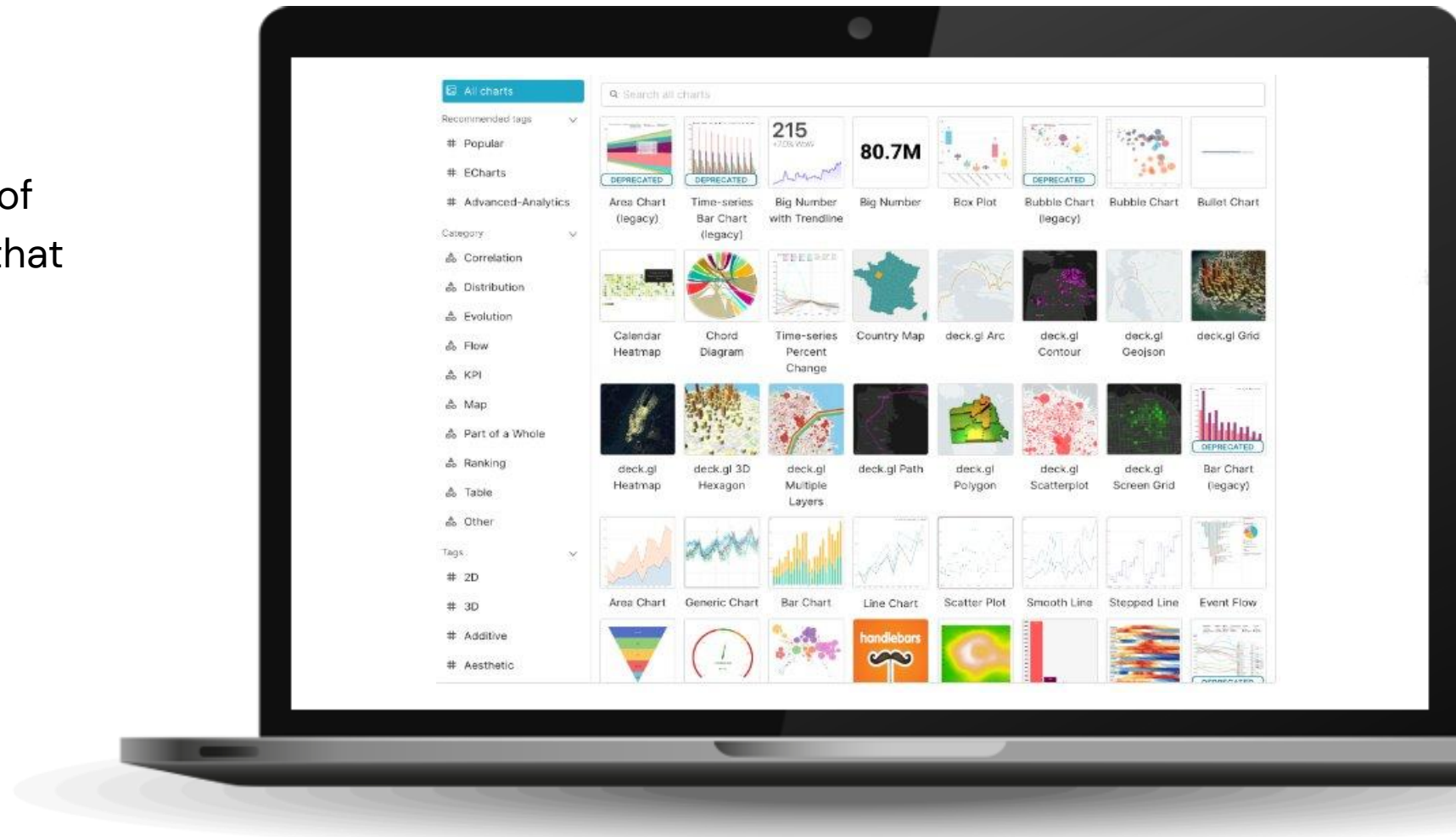
A dataset in Superset is an abstraction of a table or SQL query from a connected database. It is a semantic layer that enables :

- Simplify data access without having to write complex SQL every time
- Define dimensions (columns) and measures (aggregated columns)
- Create reusable filters and custom relationships for analysis.

Superset components

Graphs

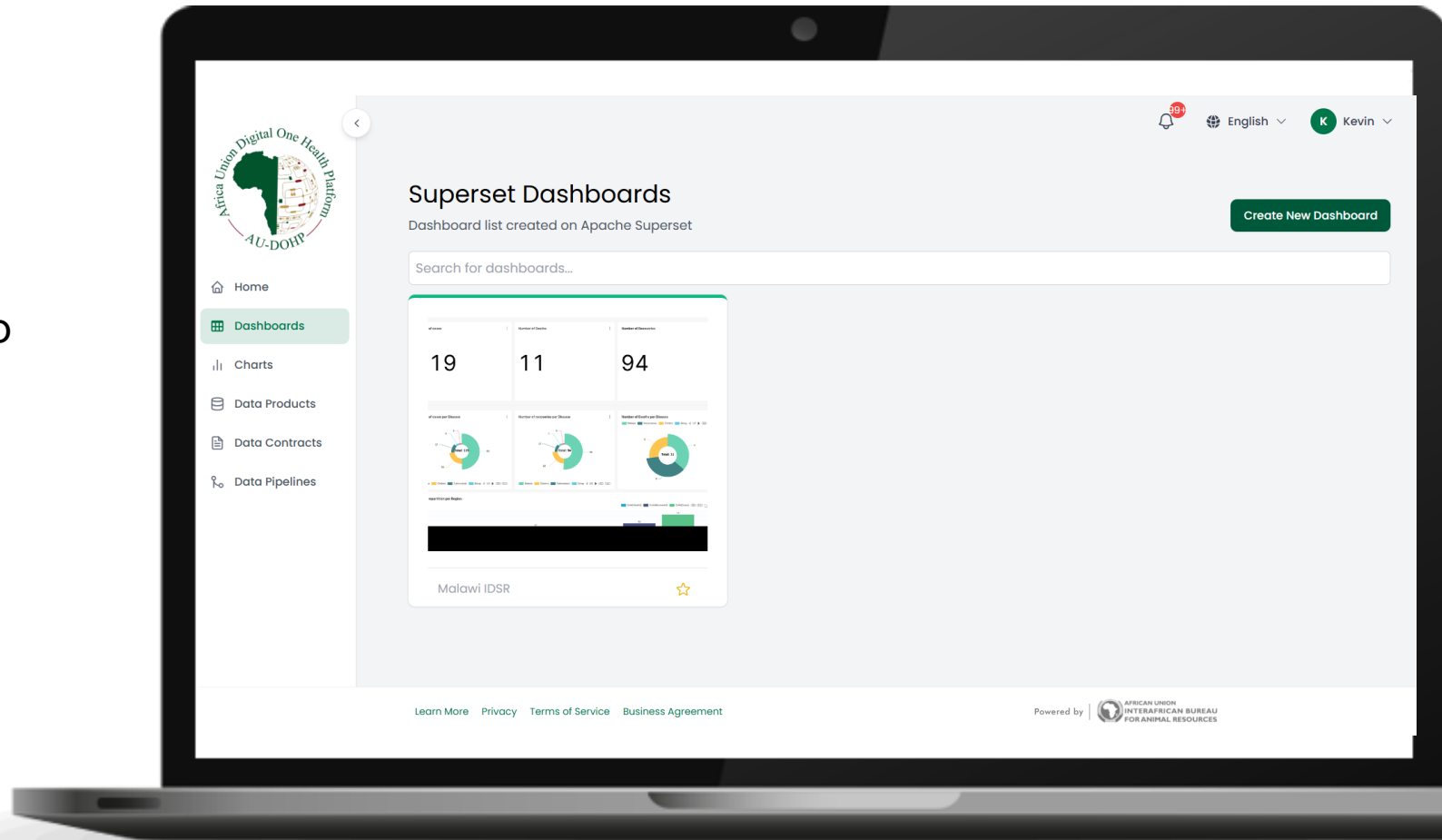
Graphs are visualizations of data in a specific format that the user can select as required.



Superset components

Dashboards

The dashboard can be used to group together a set of a graphs selected by the user, so that the dimensions of the graphs can be manipulated automatically



Demo

Visualization and dashboard creation

Graphs

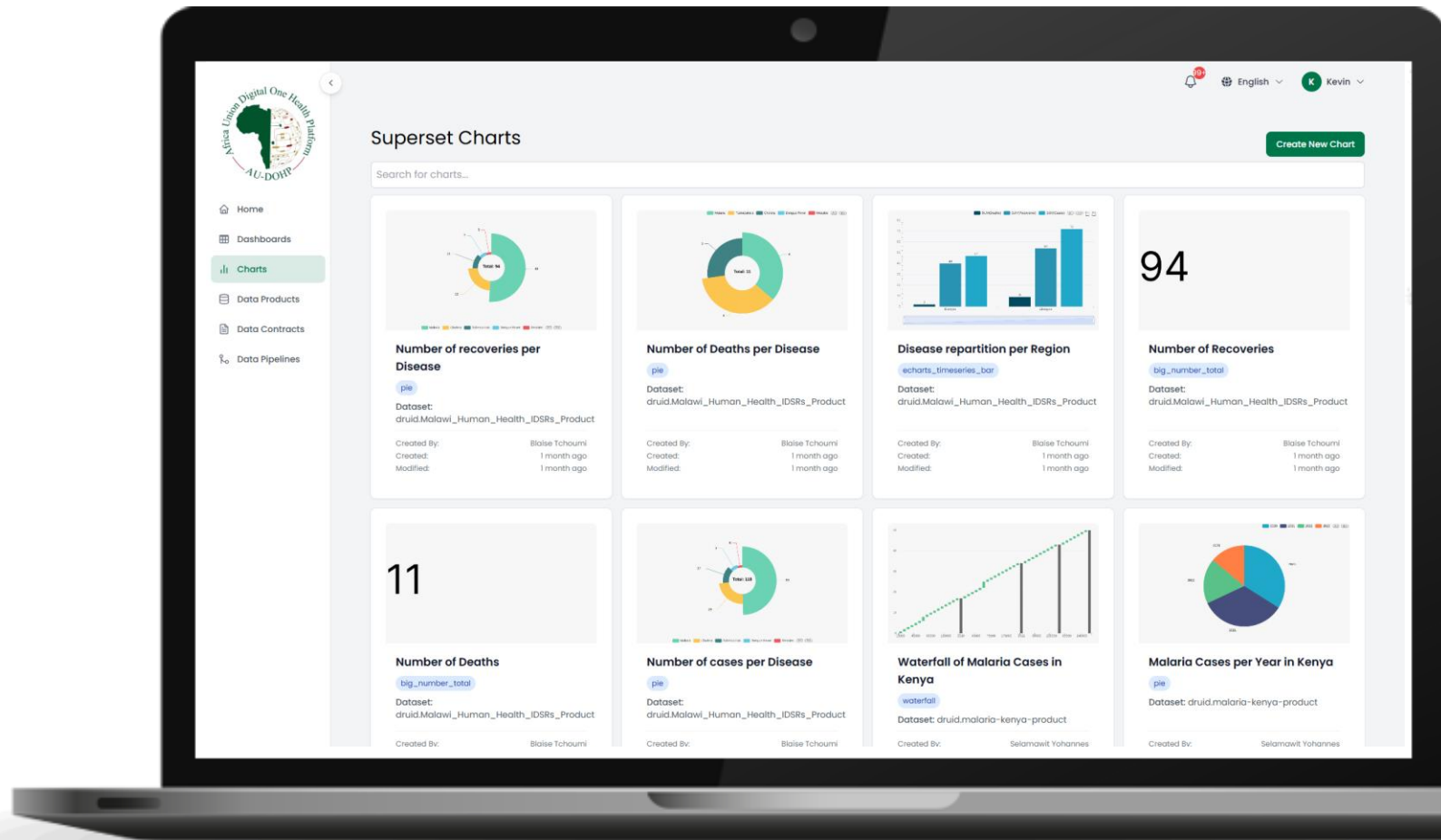
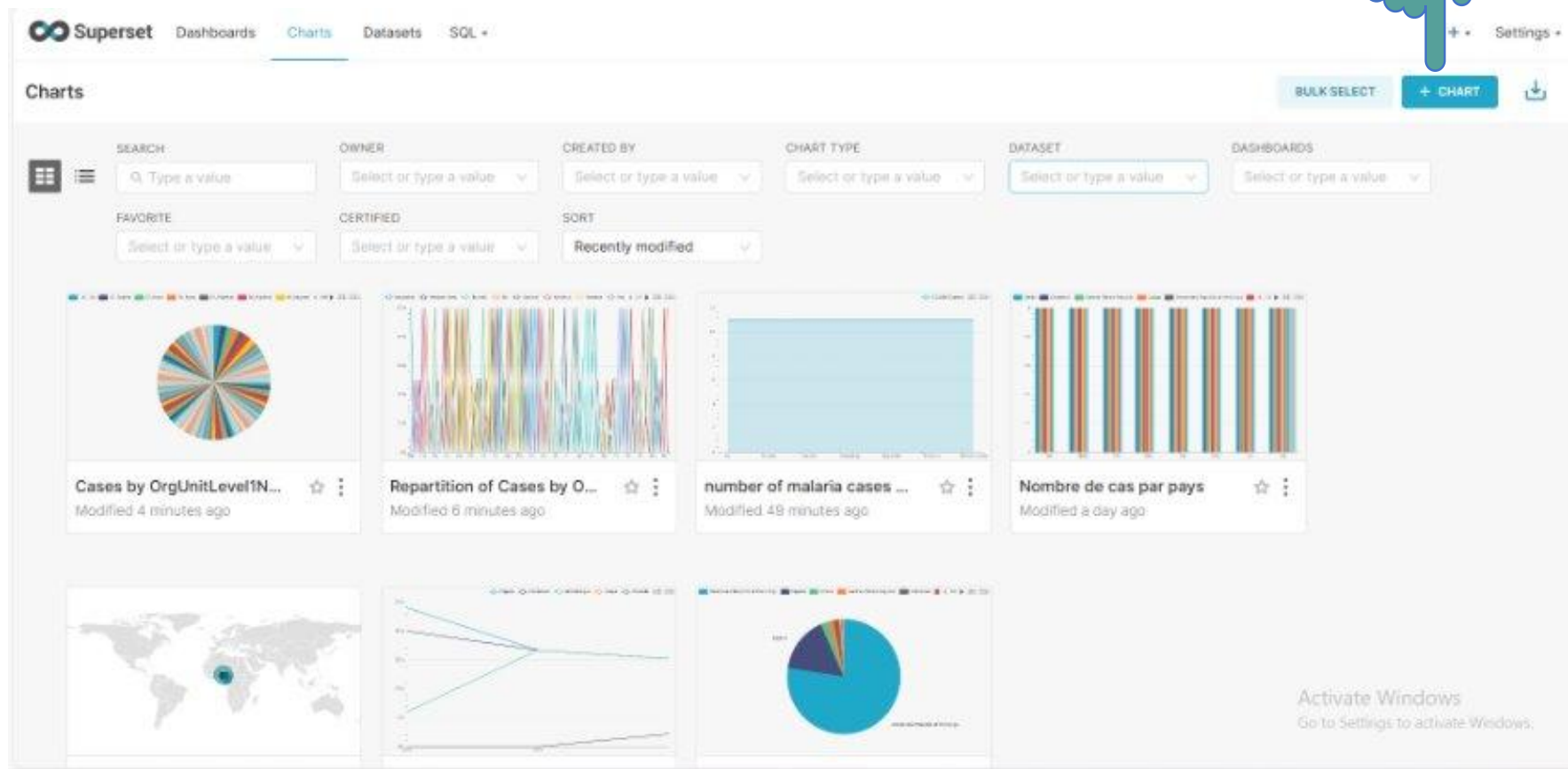


Chart creation



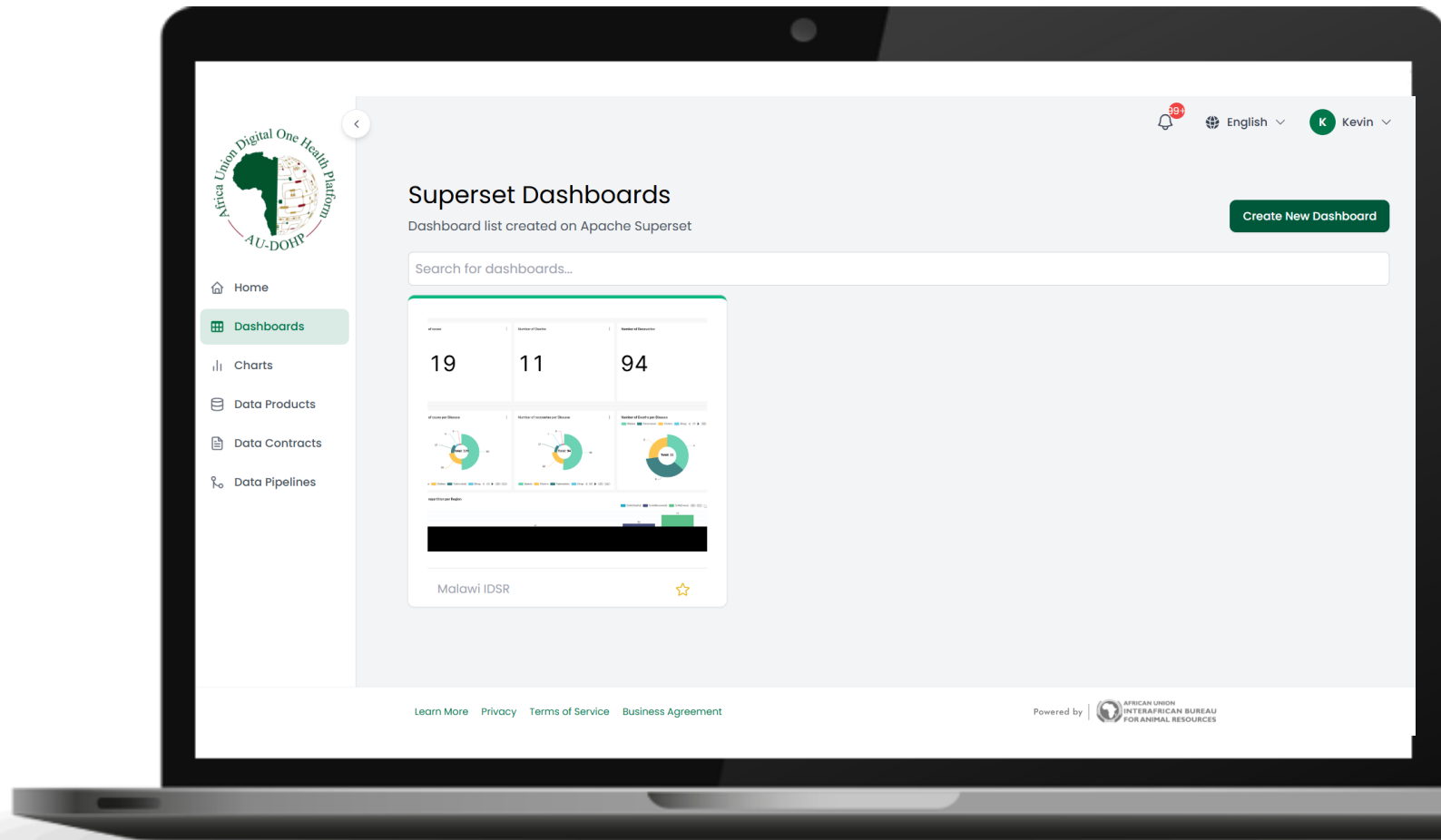
1. Click on + Chart in the main menu.
2. Select the dataset you wish to work on.
3. Choose a chart type (bar, line, pie, etc.).
4. Set metrics, dimensions and other parameters.
5. Click on Save and give the chart a name.

Repeat this step for each chart you want to include in your dashboard.



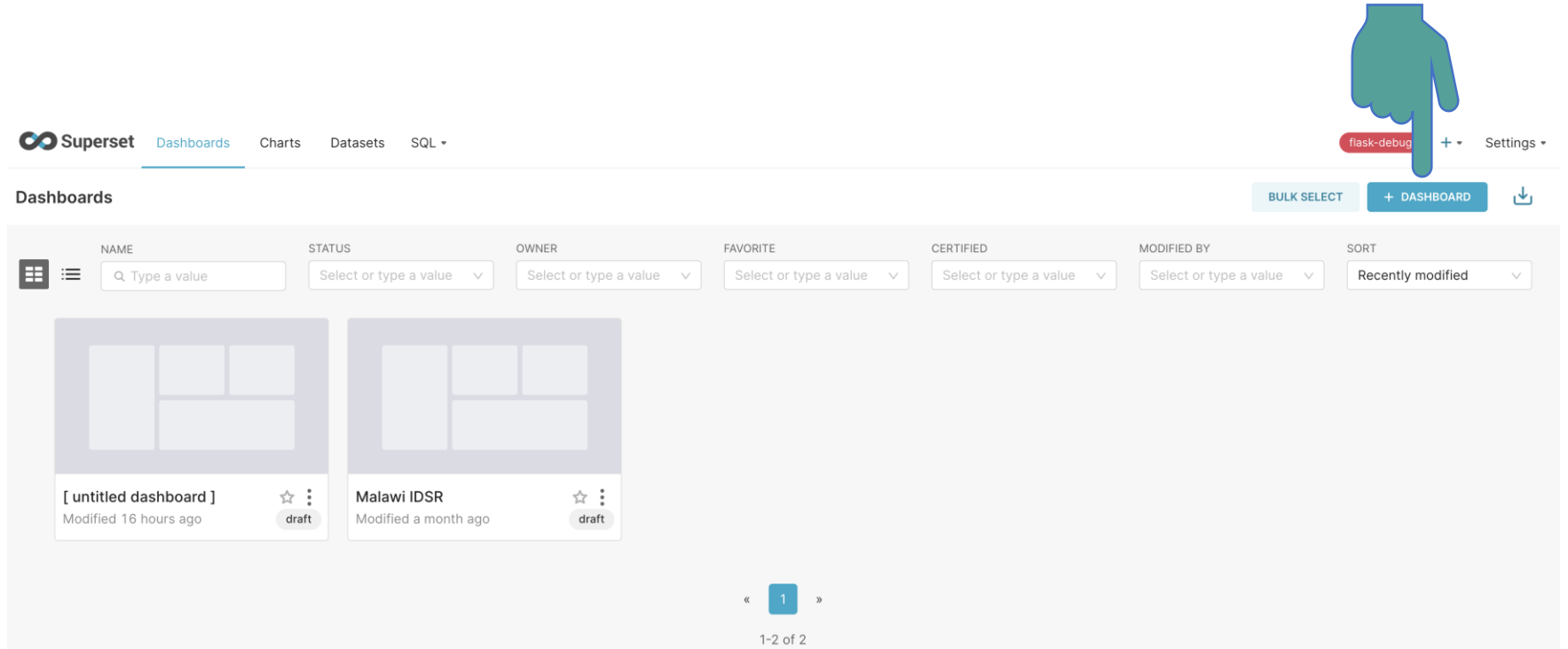


Dashboards



Creation of dashboards from charts

1. Go to the Dashboard section :
 1. Click on Dashboards in the main menu.
 2. Click on the + Dashboard button to create a new one.
2. Configure your dashboard:
 1. Give your dashboard a name.
 2. Add a description (optional).
 3. Click on Save.

A screenshot of the Apache Superset web interface. The top navigation bar includes the Superset logo and links for Dashboards, Charts, Datasets, and SQL. A red "flask-debug" button and a "+ Settings" link are on the right. A green hand icon points to the "+ DASHBOARD" button. Below the navigation bar, the "Dashboards" section is active. It features a table with columns: NAME, STATUS, OWNER, FAVORITE, CERTIFIED, MODIFIED BY, and SORT. Two dashboard cards are visible: "[untitled dashboard]" (draft, modified 16 hours ago) and "Malawi IDSR" (draft, modified a month ago). The bottom right shows a pagination indicator "1-2 of 2".

Group Assignment

Create custom dashboard



Presentation of Group Work

Dashboard Creation & Visualization

- Each group presents the dashboard(s) created from their data product.
- Showcase:
 - Selected **KPIs** represented.
 - Graphs/visuals chosen (charts, maps, gauges, tables).
 - Filters and interactivity added for exploration.
- Explain how the visualizations answer the use case.
- Discuss insights gained and possible improvements.

AU-DOHP

Feedback Session – day 4

Acknowledgements

BMZ and GIZ for Financial and Technical support

The SpeedyKom Group led by the Managing Director Mr. Hamza Zbidi

The AU One Health Data Alliance Africa (AU-OHDAA) project

Others?



[ADD MENTIMETER LINK]



thank you

FOR LISTENING!