MIMU Internal Web Application – MIWA
A system for streamlining data management

Presentation for the IM Network

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https://www.themimu.info

MIMU Background

Established in 2007 as a common data and information repository
- Focus on information needs of humanitarian and development actors in the Myanmar
- Gathers and compiles data from various sources on all sectors countrywide.

However - MIMU systems developed organically over time based on product needs and opportunities with no overall data architecture.

Key aspects of MIMU's work – and the large data problems it creates!
- **Promoting use of robust data standards**
  - → multiple versions of large datasets over many years

- **Ensuring availability of baseline statistics and spatial data** for emergency preparedness/response, HDP-related activities
  - → multiple versions of large datasets in different formats (e.g. stats files, shapefiles....)

- **Promoting open availability and interoperability of data**
  - → sharing data in usable forms for various actors

# Reasons for streamlining MIMU systems

- **Large, complex, sometimes sensitive datasets stored separately and in differing formats**
  e.g. MIMU Place Codes/66,300+ settlements, MIMU Baseline Data/270 indicators over 12+ years
  → central drive, archives, individuals' computers....

- **Difficult for multiple people to work on one dataset, unable to automate processes**
  - e.g. MIMU 5W tools produced as data, dashboards, maps and automatically generated reports

- **Higher risk of human error when updating multiple versions of datasets**

- **No routine tracking/documentation of historical changes**
  - who made the what change and when...?

- **Unable to easily retrieve and compare old versions of data**
  - manual operation each time to compare datasets

- **Unable to easily combine different datasets for new tools, or update them with new data**
  - e.g. MIMU webmapping and dashboards

Why do we need it?

Before

- Datasets are scattered
- Duplication of data
- Reprocesses
- Lack of clarity on the final source
- No integration - manual steps (update) for different sites
- Manual reporting process
- Different databases for different products
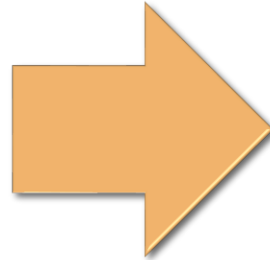
After

- Centralize to effectively management
- Reduce redundancy
- Save time by avoiding reprocess
- Ensure data accuracy
- Easily integration for new, user-friendly, nexus-focused tools
- Automatic and central reporting system
- Efficient archiving system

Development of MIMU internal system

After identifying the problems and risks

- **Process of streamlining MIMU systems** - more effective use of available data and more user-friendly systems

- **Internal inventory** of datasets, their sensitivity and where they were stored

- **Technical consultants** to support development of data models of ideal data architecture
  - Conceptual data model ... current workflows/products vs ideal ones
  - Logical data model ... the ideal info kept for each data element and how they link together
  - Physical data model ... the technical systems for the ideal data architecture and how they work for users
  - Definition of workflows, policies, rules, standards, SoPs

- **MIMU Internal Web Application /** MIWA
  - a centralized database in PostgreSQL with clear definition of how users, products, online tools etc interact

- **Capacity building**

- **Migration of existing data and work processes t**o the new system

MIWA Modeling

Serves as a guide to conceptualize and construct, design and implement the system and the underlining database

- **Conceptual model**
- **Logical model**
- **Physical model**
- **Application development**
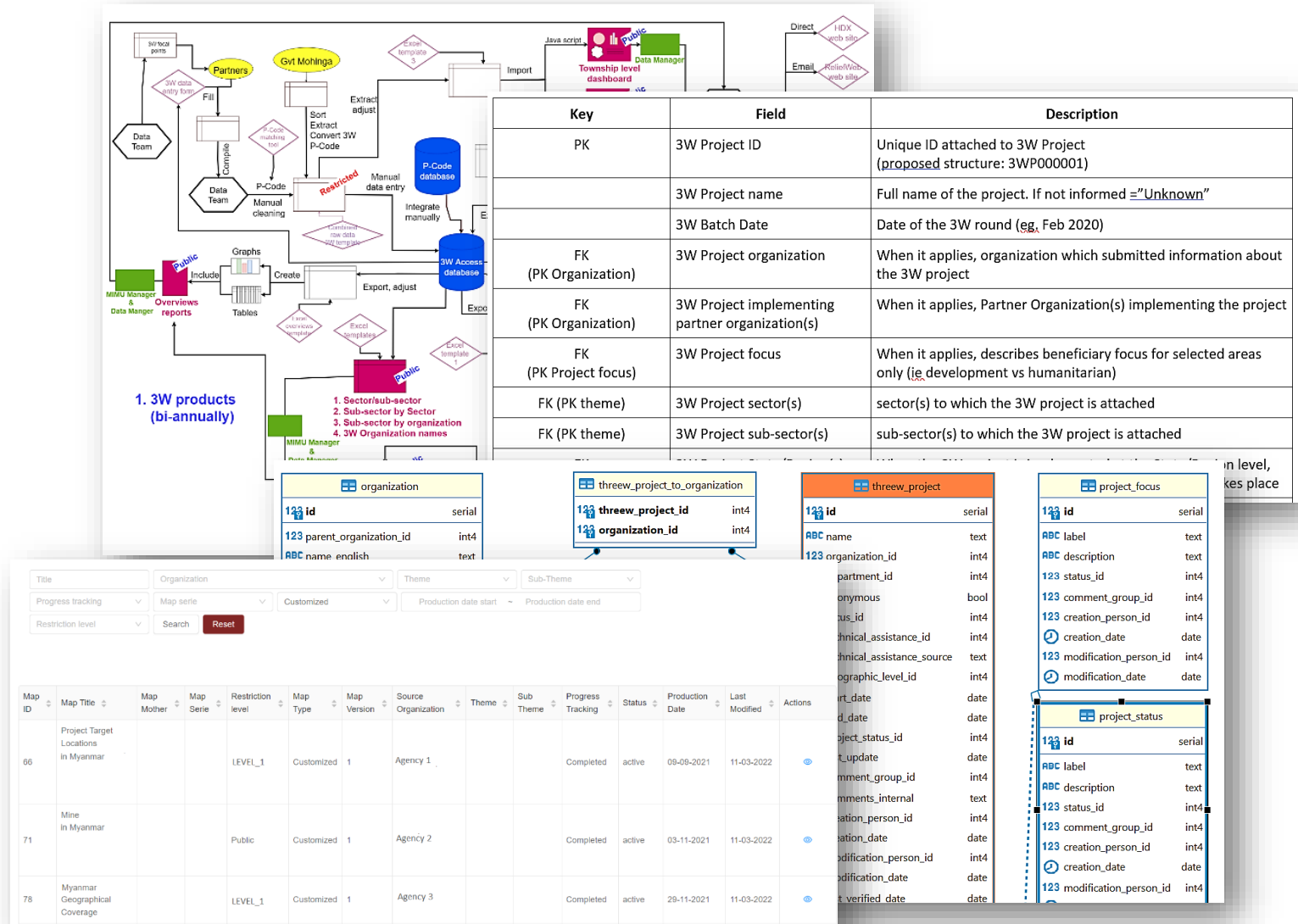
Conceptual Model

Is the representation of the system and consists of concepts used to know, understand, or simulate the model representation

- Co-operate all teams

- Analyse and document each product/service

- Define entities and system workflow

- 22 workflow for all MIMU products and services
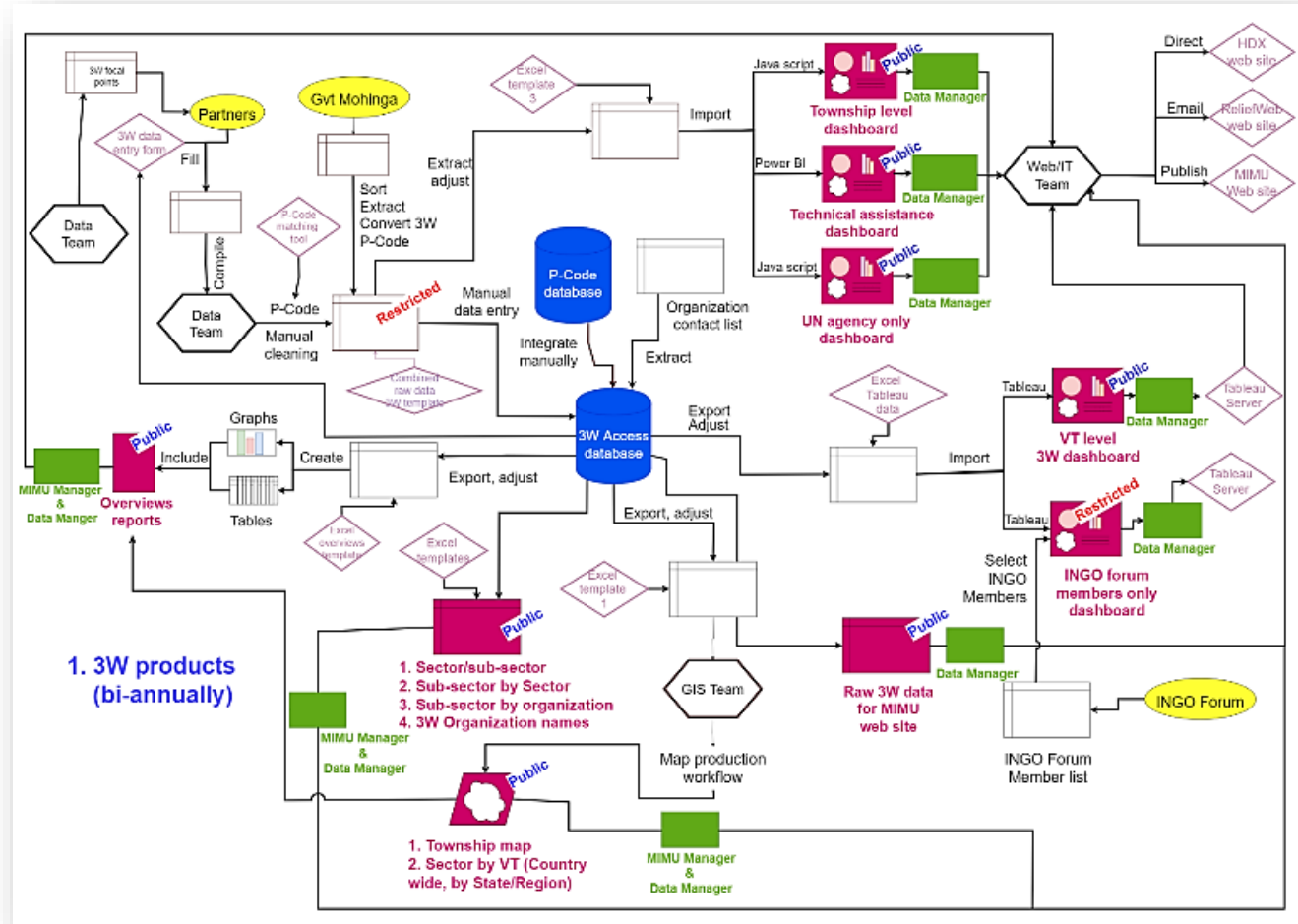
Logical Model

A "mapping" of the contents of the system which defines each data type (entity), its unique identifiers, attributes, relationships, data types and limitations.

Examples of entities – document 3W, organisations, villages, states/regions, indicators,...

MIMU system includes

- 100 entities (60 main entities and 40 classification entities)

- 230 tables for entity classification

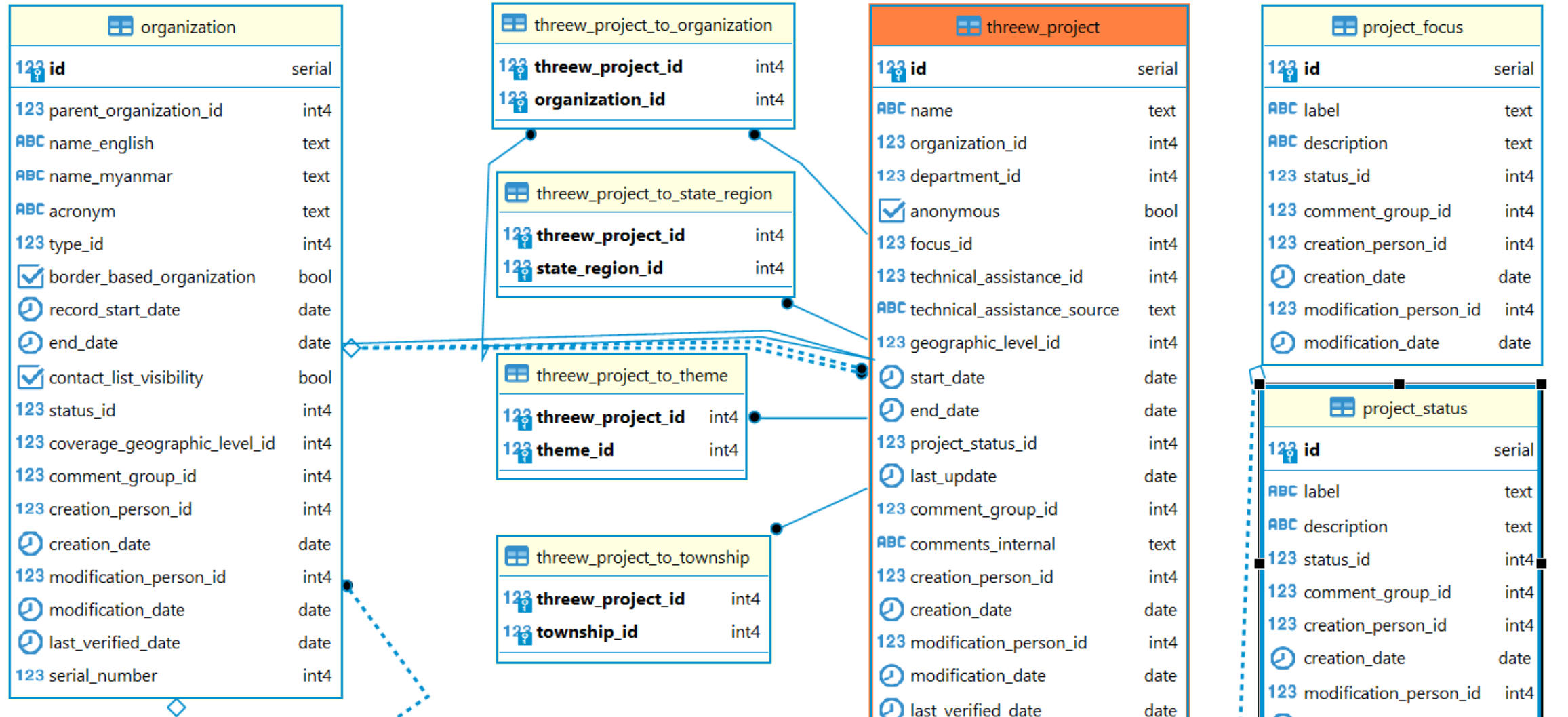| Key	Field	Description
PK	3W Project ID	Unique ID attached to 3W Project (proposed structure: 3WP000001)
	3W Project name	Full name of the project. If not informed ="Unknown"
	3W Batch Date	Date of the 3W round (eg. Feb 2020)
FK (PK Organization)	3W Project organization	When it applies, organization which submitted information about the 3W project
FK (PK Organization)	3W Project implementing partner organization(s)	When it applies, Partner Organization(s) implementing the project
FK (PK Project focus)	3W Project focus	When it applies, describes beneficiary focus for selected areas only (ie development vs humanitarian)
FK (PK theme)	3W Project sector(s)	sector(s) to which the 3W project is attached
FK (PK theme)	3W Project sub-sector(s)	sub-sector(s) to which the 3W project is attached
FK (PK State/Region P-code)	3W Project State/Region(s)	When the 3W project is implemented at the State/Region level, list of States/Region(s) in which such implementation takes place
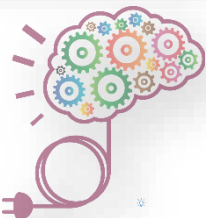
Physical Model

Converts logical model to a physical database and clarifies the relationships between entities, data sensitivity, users etc and how these will work in the final system.

- MIMU's Internal Web application uses a PostgreSQL database software linked to a user-friendly interface

- Application developed by a Thai-based company with extensive support from the MIMU team

Physical Model

Application development

This process translates the modeled system and requirements into the design of a user friendly and agile environment

- Develop Standard Operative Procedures (SOP) for each product / service

- Convert SOP to web application

- Symfony PHP framework (back-end API)

- Vue.JS (front-end app development)

Features of the system

- **28 modules** for all MIMU products and services

- Different **user role** for each module

- **Restriction level** for each record

- **Versioning**, as a chain record, to ensure the latest dataset

Modules	CRUD	Read

Document	- Web and ICT (CRUD for All documents),
	- Other users:
	    CREATE and READ for All users,
	    UPDATE and DELETE for Own record	

Partner Dataset	GIS and Data	Other users

Blank	Public
LEVEL_0	Requires classification - DO NOT SHARE
LEVEL_1	MIMU Internal and few agreed external people
LEVEL_2	MIMU Internal Only
LEVEL_3	Restricted in MIMU (1-2 persons within MIMU only)

Features of the system

Map ID	Map Title	Map Mother	Map Serie	Restriction level	Map Type	Map Version	Source Organization	Theme	Sub Theme	Progress Tracking	Status	Production Date	Last Modified	Actions
66	Project Target Locations in Myanmar	👁		LEVEL_1	Customized	1	Agency 1			Completed	active	09-09-2021	11-03-2022	👁
71	Mine in Myanmar	👁		Public	Customized	1	Agency 2			Completed	active	03-11-2021	11-03-2022	👁
78	Myanmar Geographical Coverage			LEVEL_1	Customized	1	Agency 3			Completed	active	29-11-2021	11-03-2022	👁

Search fields: Title, Organization, Theme, Sub-Theme, Progress tracking, Map serie, Customized, Production date start ~ Production date end, Restriction level, Search, Reset
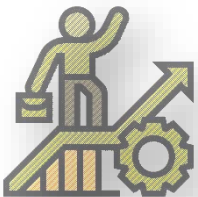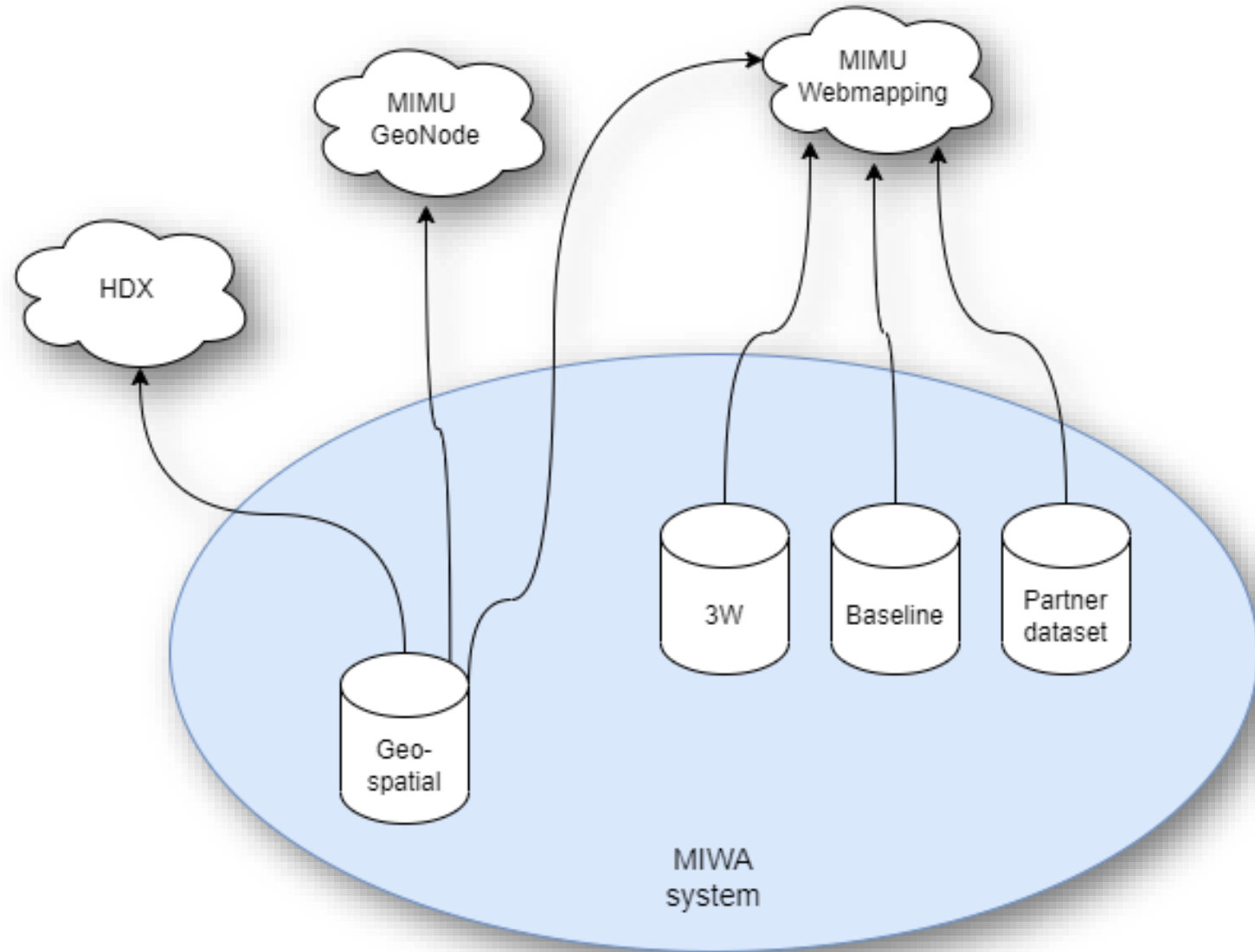
Next step

- Synchronization with external platforms

Challenges & Lessons Learned

For MIMU's complex system / MIWA

- Bottle-neck issue in connection speed during work from home period

- Need to use technical consultancy support to develop or maintain the system

- Decide which previous information to include – some may not be complete

- Still a challenge to roll out across teams – used to our own systems/computers

Lessons for others

- Never too late to develop systems to bring datasets together, but it needs
    - marriage of technical and programme capacity to decide what is needed
    - a cut-off point for data that will be included
    - Basis in data standards (for MIMU = location, organization and data codes)
    - careful attention to data restrictions/sensitivities – an internal system in place
    - adequate protection of systems holding data – whether you centralise or not!
    - ongoing capacity/capacity-building for staff who will use new systems
- A centralized system requires central data storage - choose the simplest possible technology, like ready-made cloud-based system (such as Office 365 Suite, Caspio, AirTable)
- The process helps to consider what data is really needed – gather only what you will store and use

Thanks for your attention!!

Questions?