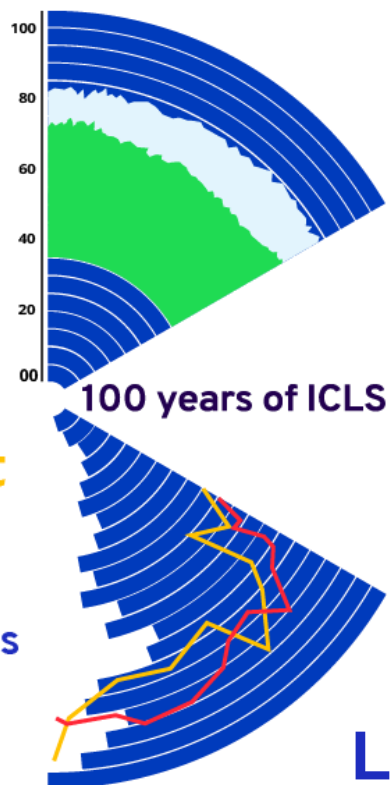




International  
Conference of  
Labour Statisticians

11-20 October 2023



# LABOUR MARKET INFORMATION SYSTEMS

## Labour market information systems

### ► **Systèmes d'information sur le marché du travail**

### **Sistemas de información sobre el mercado de trabajo**

Participants in the Conference are invited to review the room document on LMIS projects and express their views as to: (a) whether the topic is of interest to their country; (b) whether their country already has an LMIS in place and whether it is compatible with ILO recommendations and approaches; and (c) whether they consider that this topic should be discussed in greater depth with a view to defining which mechanisms should be put in place to facilitate the implementation process.

Les participants à la Conférence sont invités à examiner le document de séance relatif aux projets SIMT et à exprimer leur point de vue sur les questions ci-après: *a)* Ce sujet présente-t-il un intérêt pour leur pays?; *b)* Leur pays dispose-t-il déjà d'un SIMT et, si oui, est-il conforme aux recommandations et approches de l'OIT?; *c)* Ce sujet devrait-il faire l'objet d'une discussion plus approfondie qui aurait pour but de définir les mécanismes à mettre en place afin de faciliter le processus de mise en œuvre?

Se invita a los participantes en la Conferencia a que examinen el documento de sala sobre los proyectos SIMT y expresen sus puntos de vista en cuanto a: *a)* si el tema es de interés para su país; *b)* si su país ya tiene establecido un SIMT y si es compatible con las recomendaciones y planteamientos de la OIT, y *c)* si consideran que este tema debería discutirse en mayor profundidad con el fin de definir los mecanismos que deberían establecerse para facilitar el proceso de implantación.

- 
1. Introduction to LMIS
  2. Implementation framework
  3. ILO Support for LMIS
  4. LMIS projects overview
  5. Concluding remarks



# ► 1. Introduction to LMIS



## ► Labour Market Information System

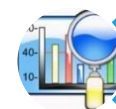
"A network of institutions, persons and information that have mutually recognized roles, agreements and functions with respect to the production, storage, dissemination and use of labour market information and outcomes, so as to maximize the potential for relevant policy application and program formulation and implementation".

## LMIS and Employment Services



# Labour Market Information System

3 functions (F)



Labour Market Analysis

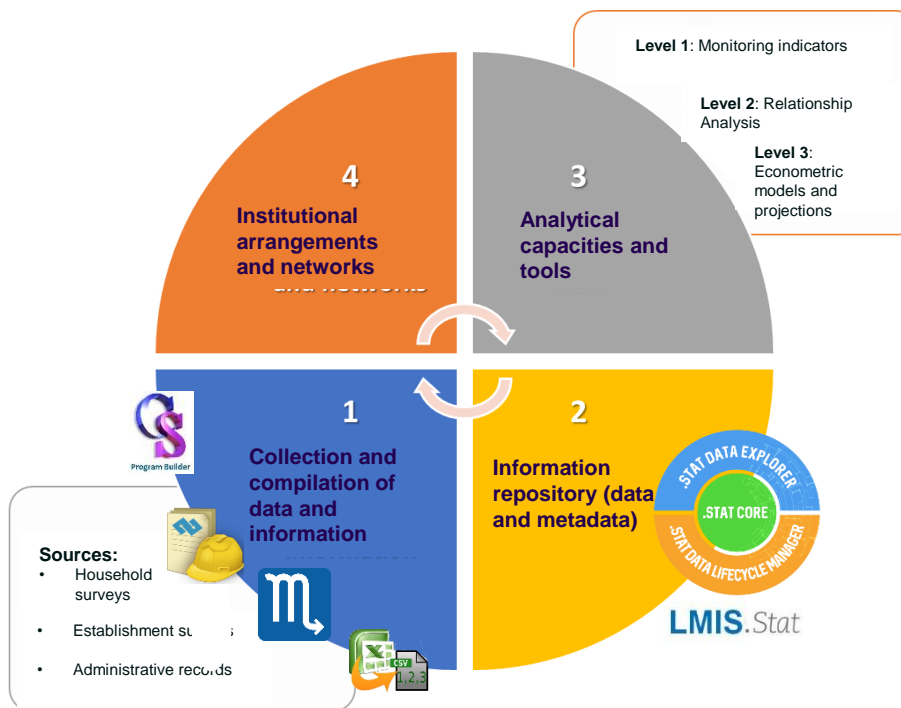


Monitoring and Policy Reporting



Coordination and Information  
Exchange

4 components (C)

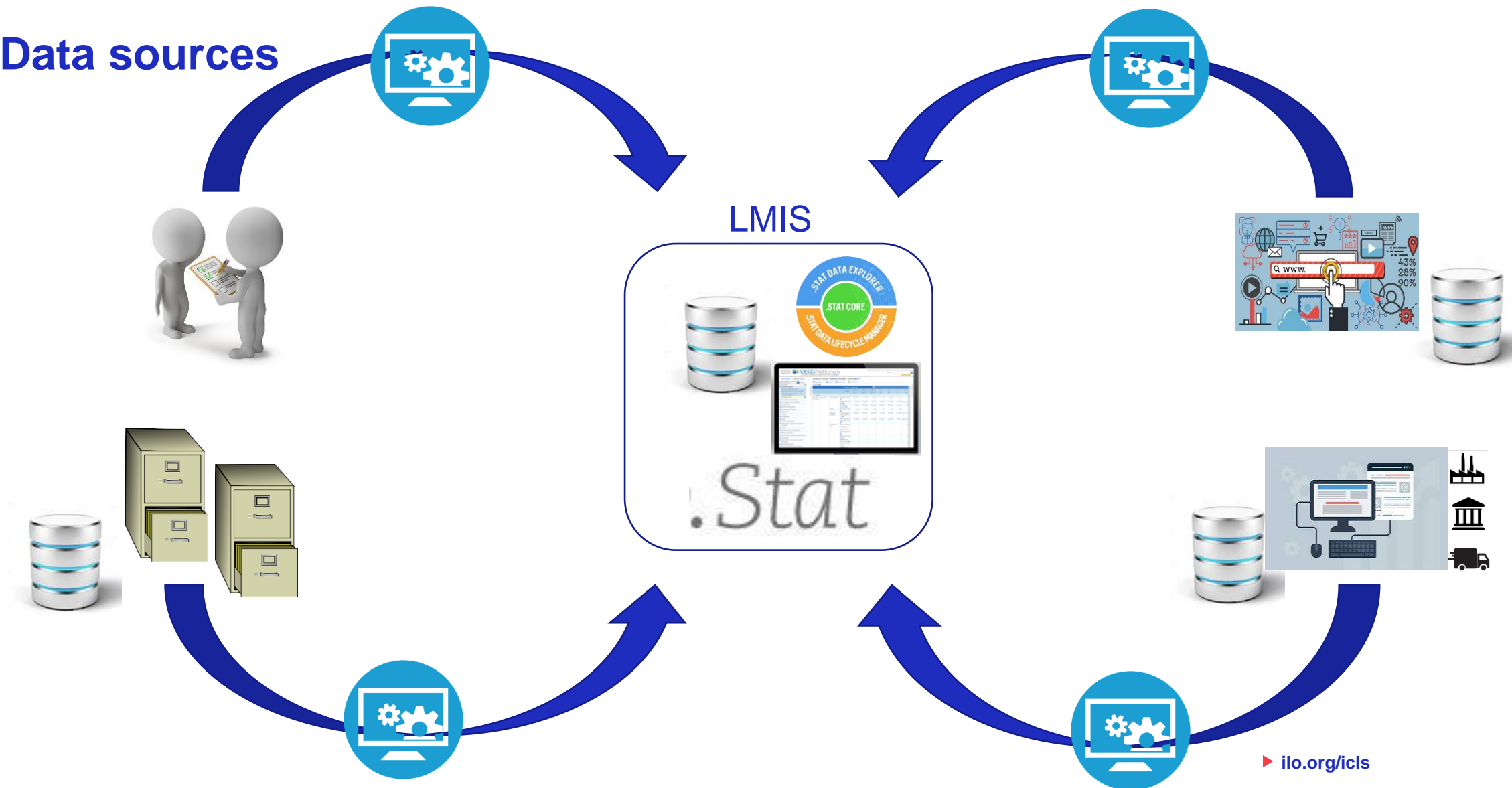


## ► Labour Market Information System uses

- For decision making: provides **policy makers** with up-to-date and forward-looking information for the **formulation and monitoring of policies** and actions that have an impact on the workforce and the labour market
- It is a **system of alerts** about possible gaps between labour supply and demand
- Informs individuals about **employment opportunities** and companies about the **available workforce**
- Informs training institutions of **unmet training needs**



## LMIS Data sources



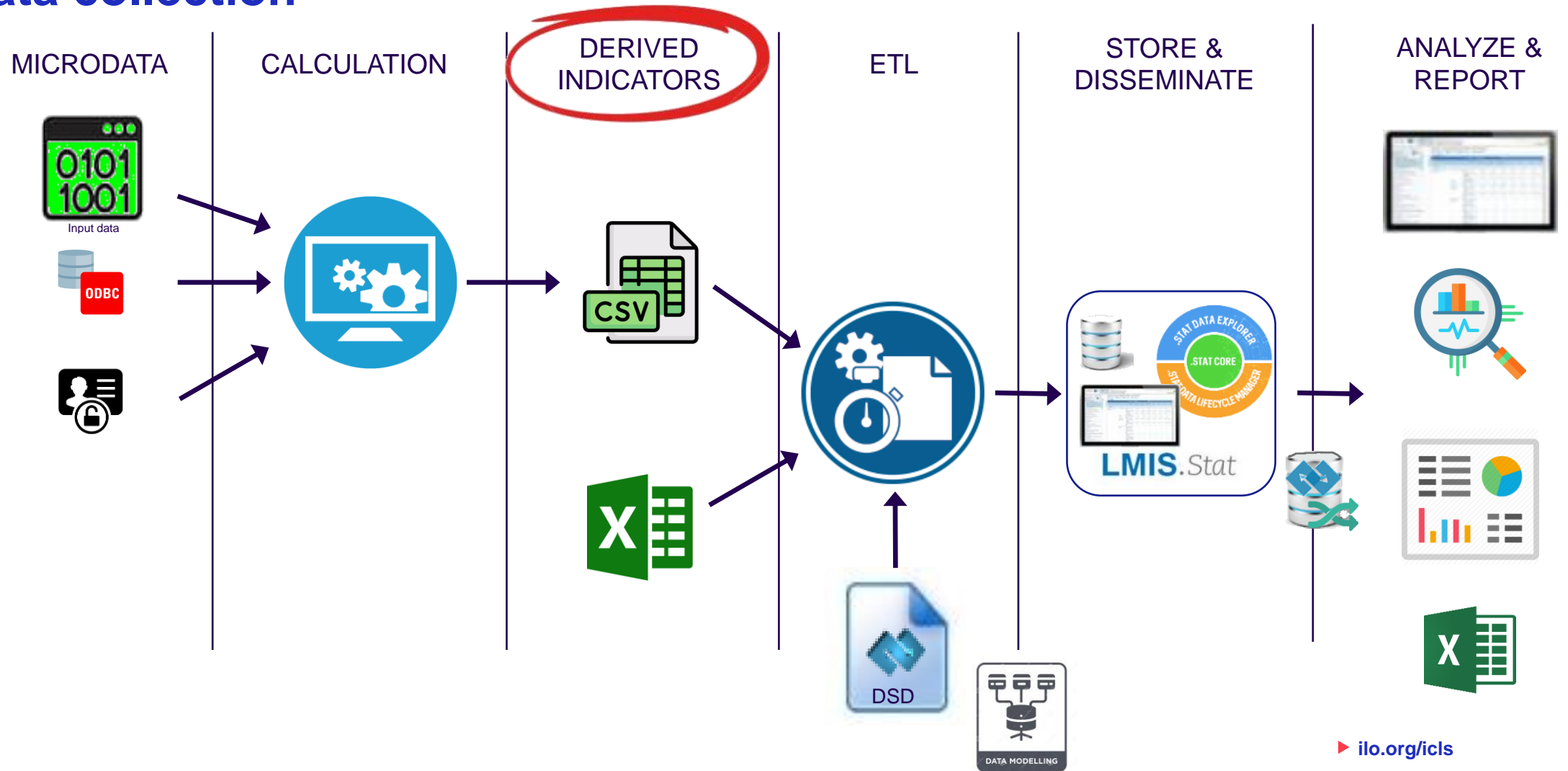
## ▶ C1. Data collection

- ▶ No single data source can satisfy all needs
- ▶ The LMIS uses all available sources... but the strengths and limitations of each must be taken into account
- ▶ The use of labour statistics from different sources over time requires consistency in terms of

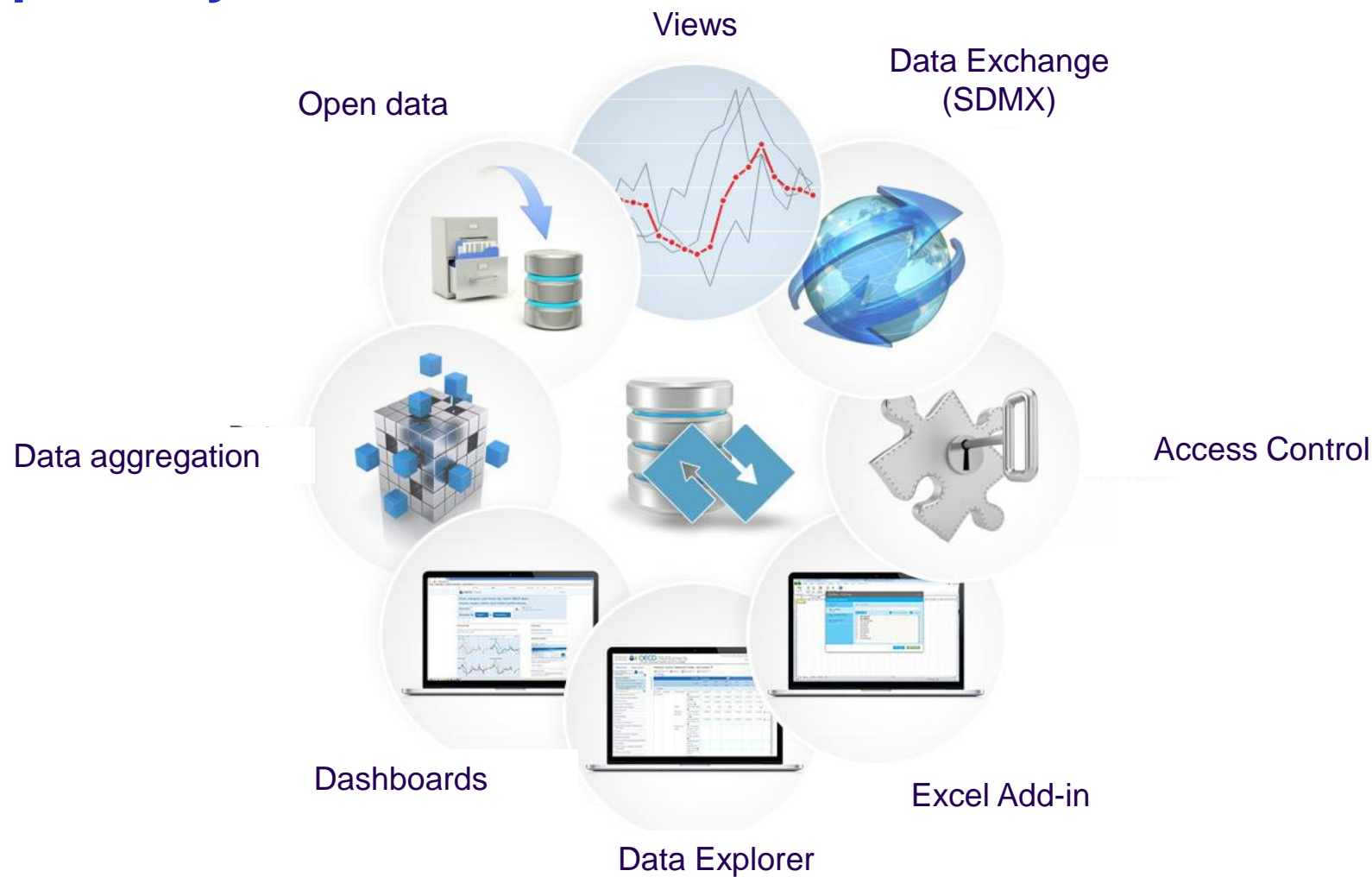
- ▶ Concepts
- ▶ Definitions
- ▶ Classifications
- ▶ Reference periods
- ▶ Methodologies

**Statistical standards**

## C1. Data collection



## C2. Data repository



## C3. Analytical capacity

### THREE LEVELS OF ANALYSIS

#### Basic or first level

It consists of the **monitoring** of a defined set of indicators.

#### Second level

It analyses the **relationships** within the labour market and with the economy in general. It requires both quantitative and qualitative techniques.

#### Third level

It produces detailed and consistent **projections** of the development of the labour market. Requires the development of comprehensive econometric models.

### KEY PROFILES

Statistics  
Computers

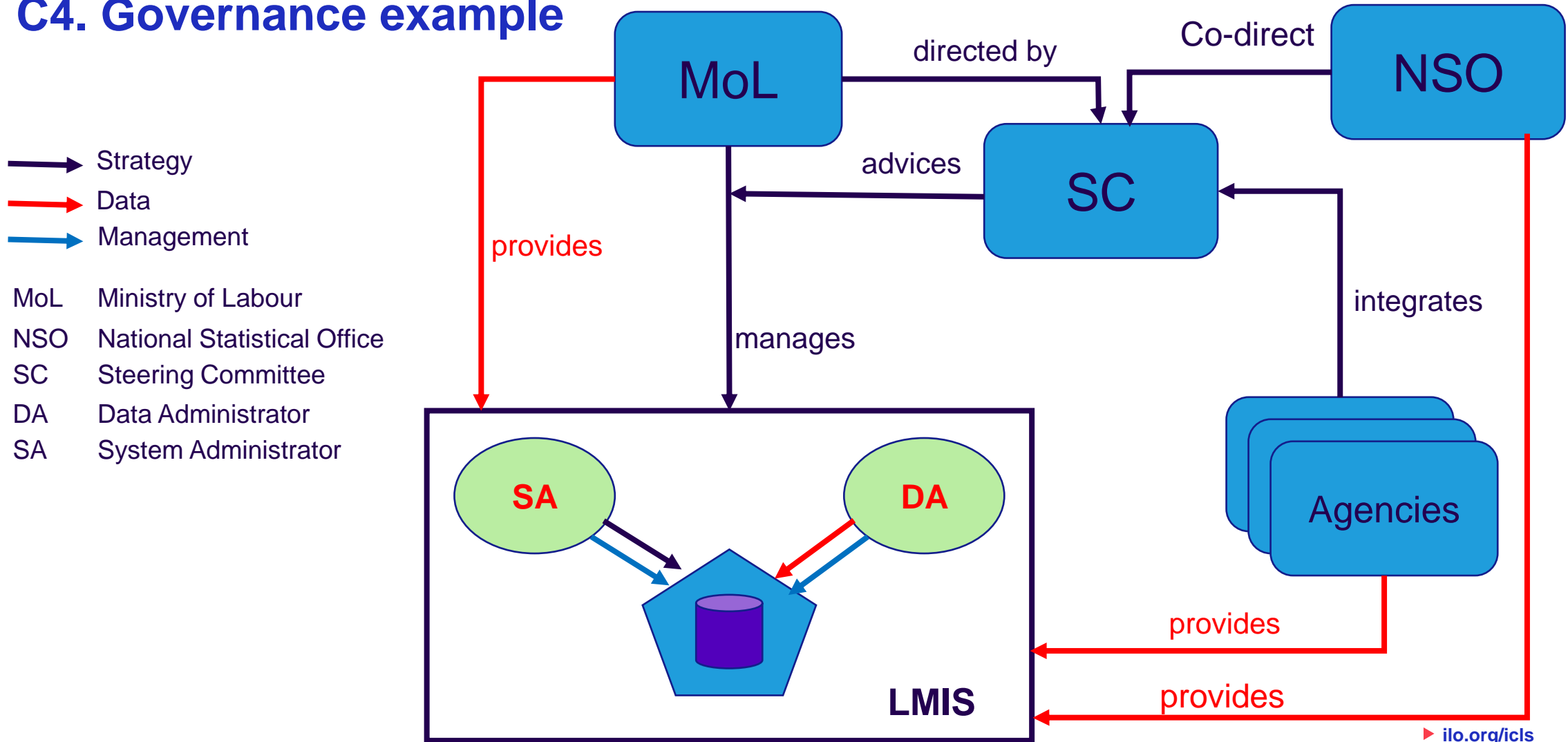
Economists  
Sociologists

Econometrists

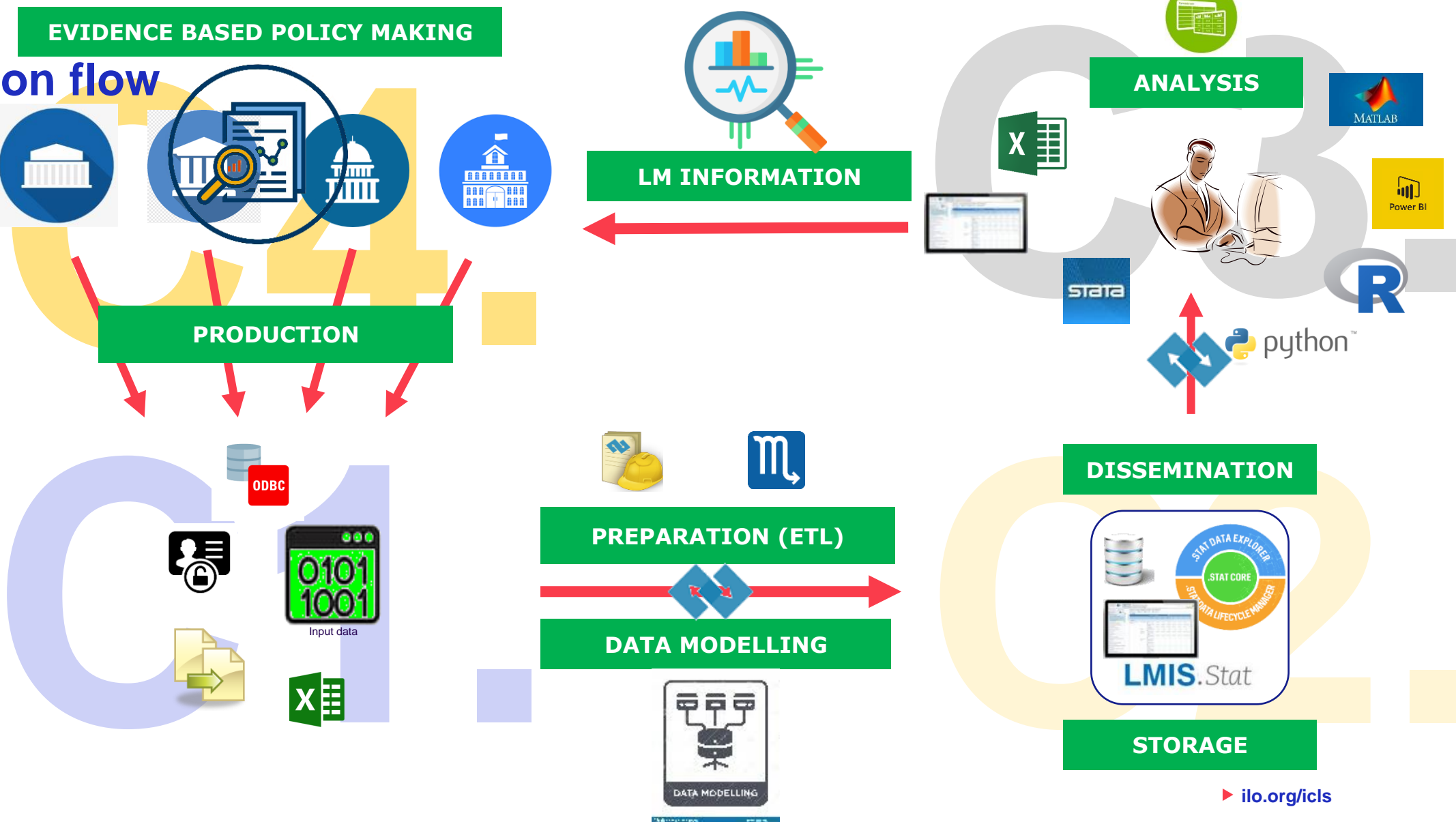
## ▶ C4. Institutional arrangements and networks

- ▶ Necessary to ensure access to data
- ▶ Without data there is no information and no analysis possible
- ▶ Necessary to coordinate a consistent dissemination
- ▶ To facilitate the dialogue between users and producers

## C4. Governance example



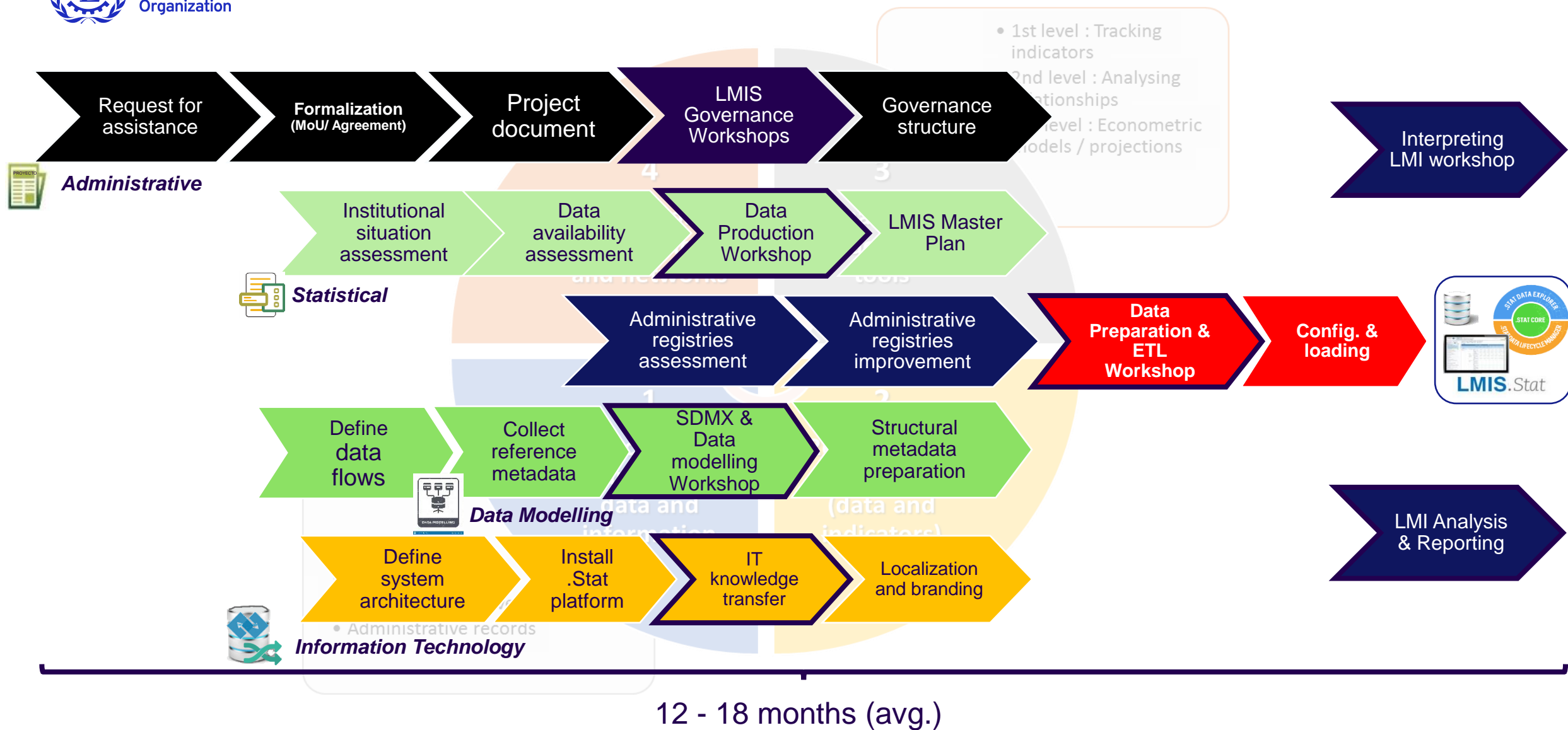
## Information flow





## ► 2. Implementation framework





## ▶ LMIS Project principles

- ▶ This is **YOUR** Project, not ILO's
- ▶ We are here to **assist you**, at your own pace
- ▶ LMIS is **not an IT Project**
- ▶ It is important to upload the stock of indicators, but more important is to ensure their **sustained flow**
- ▶ Output's **quality** fully depends on input's quality
- ▶ SDMX is an enabler for data harmonization,  
...and **data harmonization is essential** for the LMIS

## ► Implementation checklist for a national LMIS

- Submit an **official request** to ILO
- Conduct an assessment of **data availability** and **institutional readiness**
- Sign a **Memorandum of Understanding** (MoU) with ILO
- Prepare and submit the **project document**
- Formulate a **governance structure** and allocate specific **operational roles**
- Initiate a **data warehouse platform**
- Organize targeted **workshops** for data managers and IT focal points to enhance understanding of **data production**, **modelling**, **preparation**, and **platform integration**
- **Compile**, **prepare**, and **upload** existing data to the platform
- Tailor and configure the LMIS platform for **live production**

## ▶ 3. ILO Support for LMIS



## ► **LMIS Support from the ILO Team**

### **Methodological framework**

- Standardized framework in LMIS implementation, aligning with international standards like SDMX
- Ensure consistent, comparable data and adherence to best practices

### **Stakeholder engagement**

- Assist in identifying and engaging key stakeholders for LMIS projects
- Help establish governance structures and operational roles

### **Capacity building**

- Workshops are provided to strengthen the capabilities of the involved stakeholders

### **Collaborative tools and platforms**

- Data toolkits and software solutions have been developed inhouse or shared by other international communities

### **Technical assistance**

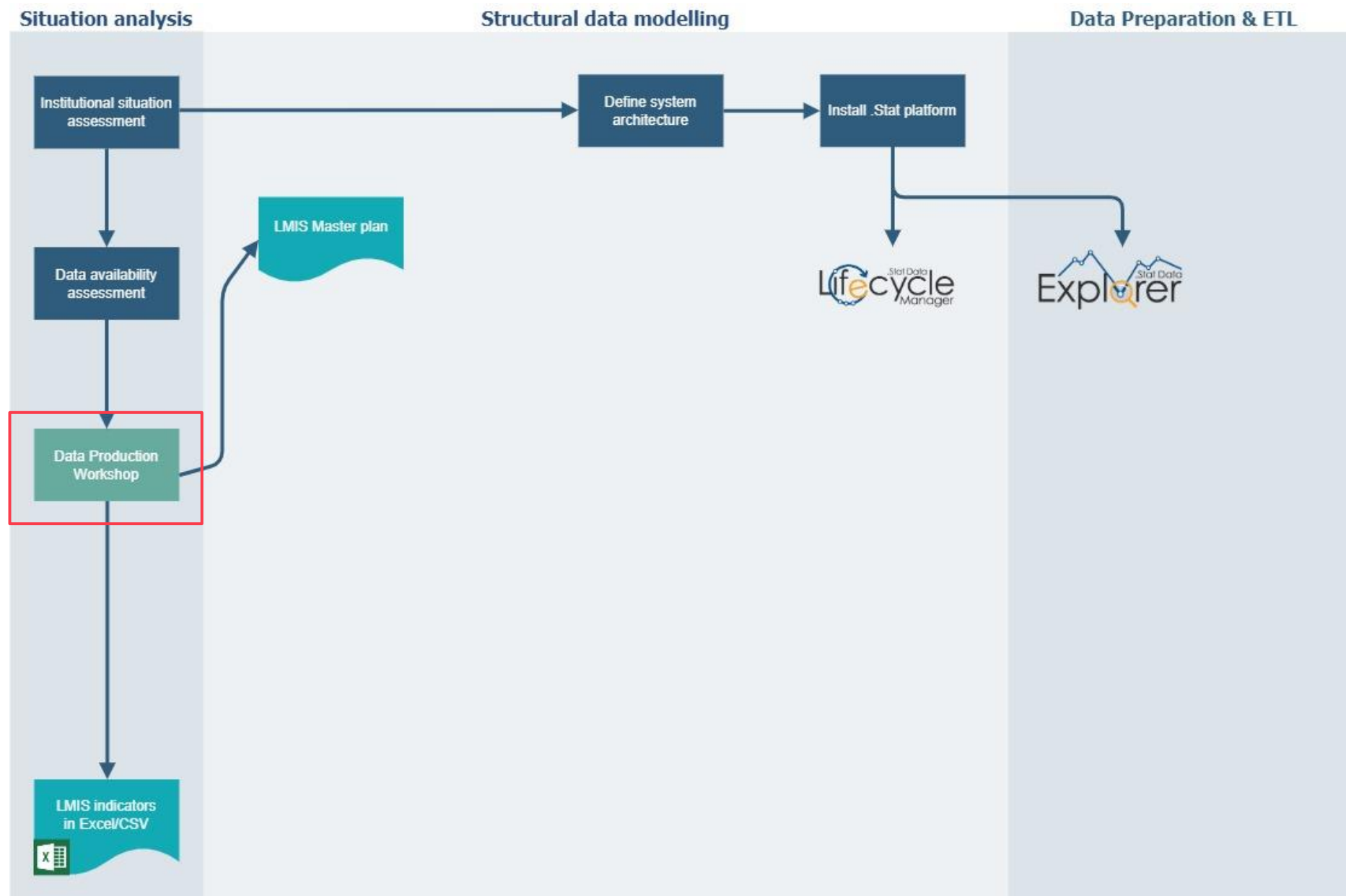
- System architecture, data platform solutions, data availability assessment, and other technical tasks



International  
Labour  
Organization

## ▶ 3.1 Capacity building activities (Data Management)

► **Data Production**  
**SDMX & Data Modeling**  
**Data Preparation & ETL**

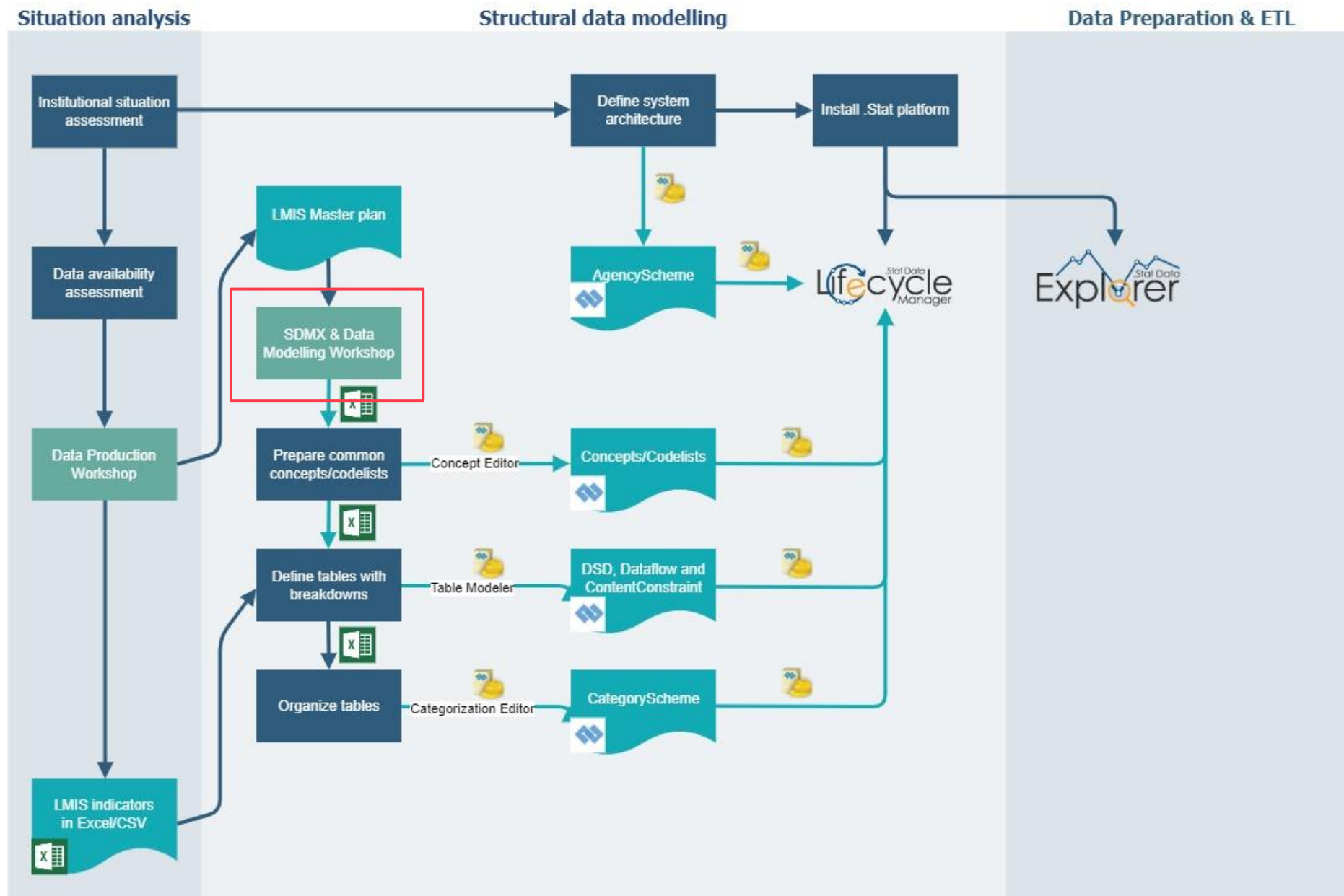




## ▶ Data Production Workshop

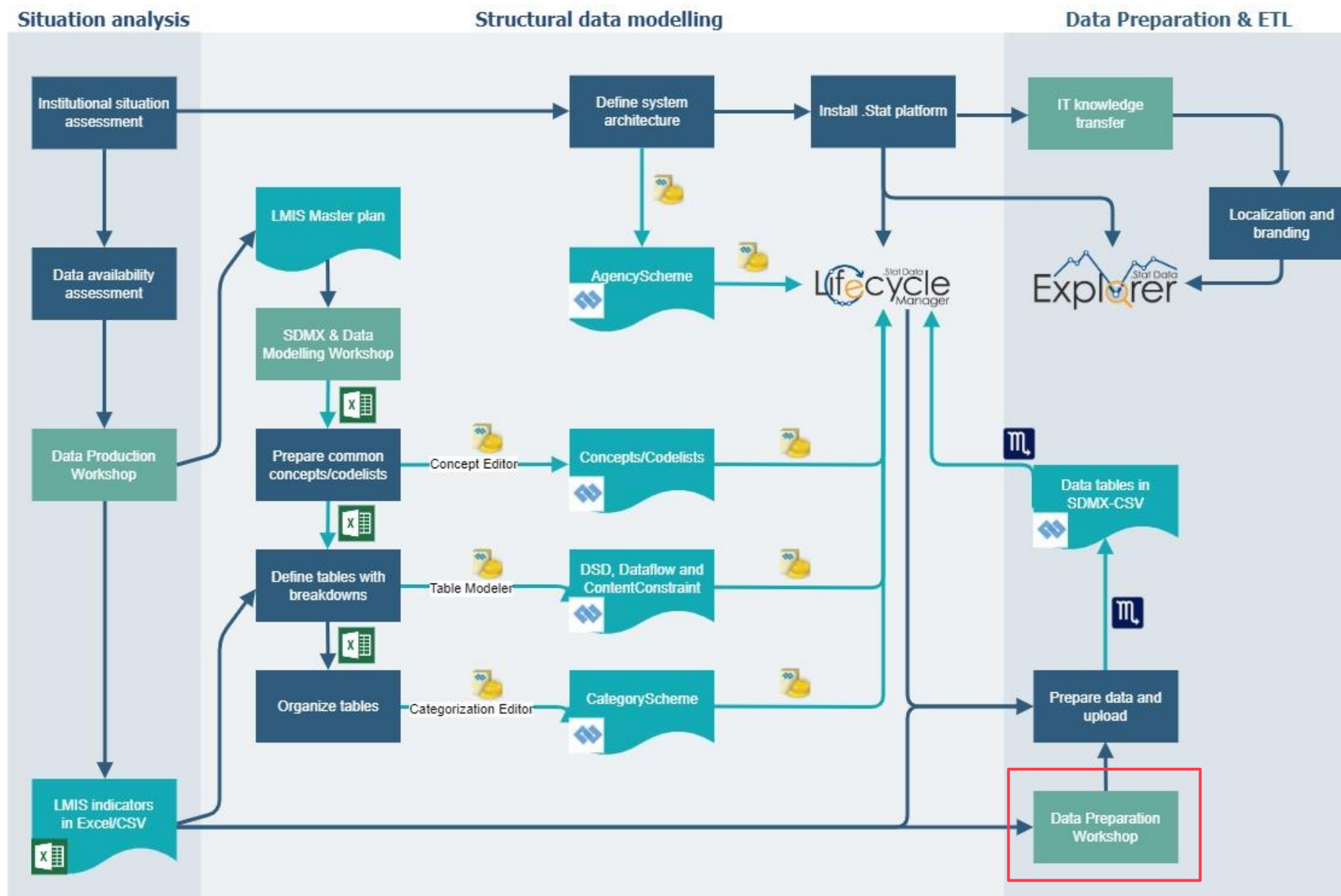
- ▶ **Objective:** Equip data providers and data analysts with skills to produce and consolidate labour market indicators from various sources.
- ▶ **Activities:**
  - ▶ Analysis of the available data sources
  - ▶ Proposed list of Basic (32) and Extended (52) indicators
  - ▶ From raw data to the aggregated indicators
- ▶ **Duration:** 3-5 days, virtual & in-person;
  - ▶ If administrative registries are used, a special consultancy should be carried out
- ▶ **Outcome:** Finalize the Master plan and the aggregated LM indicators in Excel/CSV

► **Data Production**  
**SDMX & Data Modeling**  
**Data Preparation & ETL**



## ▶ SDMX & Data Modeling Workshop

- ▶ **Objective:** Equip data managers and analysts with skills to model labour market indicators in SDMX.
- ▶ **Activities:**
  - ▶ Develop a **harmonized** single concept scheme
  - ▶ Consolidate varied source code lists
  - ▶ Master data table modeling within SDMX
- ▶ **Duration:** 3-5 days, in-person preferred.
- ▶ **Outcome:** Finalize the structural metadata and upload to .Stat platform.



## ► Data Preparation & ETL Workshop

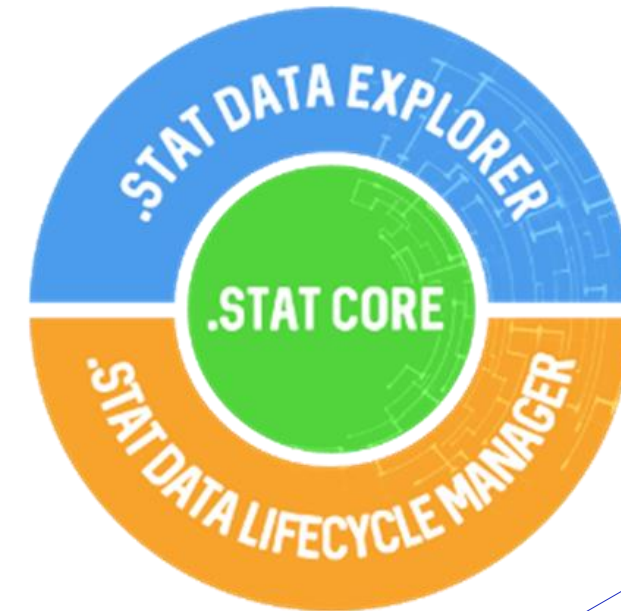
- **Objective:** Equip data managers, system admins, and data providers with skills to prepare data and reference metadata in SDMX format and upload to the central warehouse.
- **Activities:**
  - **Extraction:** Retrieve and stage diverse data, align indicators with master plan, and finalize consistent data format
  - **Transformation:** Centralize data, use SMART tool for SDMX-CSV transformation, archive mapping files, and automate with SMART.cmd tool
  - **Loading:** Channel data to .Stat platform via API, synchronize with reporting frequency, and monitor uploads
- **Duration:** 5 days, with at least 3 days of hands-on exercise.
- **Outcome:** Mastery in data preparation for the LMIS platform, ensuring seamless data uploads.

## ▶ 3.2 LMIS Toolkit

## LMIS Data Platform

As one of the key components of LMIS, .Stat Suite is,

- ▶ A data warehouse
- ▶ A dissemination system
- ▶ A data lifecycle management system
- ▶ Fully SDMX compliant
- ▶ Open-source and SIS-CC community based development
  - ▶ <https://siscc.org/>
  - ▶ <https://sis-cc.gitlab.io/dotstatsuite-documentation/>



## IT Technical Support

During LMIS implementation, ILO provides technical support and training in,

- ▶ System design and assessment
- ▶ Deployment and configuration of LMIS.Stat
- ▶ System and user administration
- ▶ IT and infrastructure management
- ▶ Troubleshooting, maintenance, and upgrade



## ► In-house Developed Applications

### ► **SDMX Constructor**



- Desktop tool for creating and editing SDMX structural metadata elements like DSD, Codelist, and Dataflow.
- It functions during the structural data modeling phase and connects directly with the .Stat DLM via its SDMX API.

### ► **SMART (Statistical Metadata-driven Analysis & Reporting Tool)**



- Desktop tool for data and metadata preparation and compatible with .Stat.
- Users can then map SDMX concepts to variables in input files, whether microdata or aggregate data.

### ► **SDMX Excel Add-in**



- Facilitating the download or upload of data and metadata from any SDMX registry, including the LMIS platform.

## ► 4. LMIS projects overview



## LMIS Project status

### Production

- ▶ Chile <https://stat.ine.cl/?lang=es>  
Phase 2 to be launched in November
- ▶ El Salvador <https://datasimel.mtps.gob.sv/>  
Phase 2 development ongoing
- ▶ Uruguay <https://www.simel.mtss.gub.uy>

### Final stage

- ▶ Botswana
- ▶ Namibia
- ▶ South Africa

3

Production

3

Final stage

## ▶ LMIS Project status

# 13

Work in progress

### Work in progress - Next activity

- ▶ Cape Verde - Data production workshop
- ▶ Djibouti (BRMM2) - MoU and ProDoc
- ▶ Jordan – SDMX & data modelling workshop
- ▶ Malawi - Data production workshop
- ▶ Morocco – Data production workshop / Master plan
- ▶ Mozambique – Master plan
- ▶ Panamá – Master plan
- ▶ Saudi Arabia – Master plan
- ▶ Seychelles – Data preparation & ETL workshop
- ▶ Uganda (BRMM2) – Master plan
- ▶ Zambia – Master plan
- ▶ Zimbabwe – Master plan
- ▶ SADC (SAMM) - MoU and ProDoc

## ▶ LMIS Project status

### Planning (Official request received)

- ▶ Costa Rica
- ▶ Côte d'Ivoire
- ▶ Dominican Republic
- ▶ Ethiopia (BRMM2)
- ▶ Guatemala
- ▶ Lesotho
- ▶ Madagascar
- ▶ Nigeria (SKYE / GIZ)
- ▶ Paraguay

9

Planning

### On hold

- ▶ Montenegro
- ▶ Peru
- ▶ Ukraine
- ▶ CARICOM

4

On hold

## ► 5. Concluding remarks



## Conclusions

- ▶ Labour market information are necessary for the **formulation and monitoring of public policies**
  - ▶ ILO's implementation roadmap focuses on building capacities to ensure the **sustainability** of the project
  - ▶ The tools provided are **open source**, supported by official statistics producers which ensures sustainability.
  - ▶ Data modelling methodology, developed at ILO, leverages SDMX features to facilitate **data harmonization**.
  - ▶ Upgrade to SDMX 3.0 and adopting **semantic versioning** will facilitate structural metadata maintenance.
  - ▶ It is necessary to incorporate new tools and methodologies for **reference metadata** authoring
  - ▶ A **dynamic dashboards generator** based on SDMX will be incorporated into the LMIS toolkit.
- ▶ In summary, it is envisaged that LMIS implementation projects will **continue to grow** in the coming years, while the Office will continue working to **improve the methodology and tools** with the aim of making it easier for the constituents implementing the systems, as well as improving their end-users' experience, and ultimately **enable evidence-based labour policies to be defined and favour transparency**.

► **Thank you!**

