TURKIYE'S SDMX JOURNEY

An End-to-End Implementation for Local Needs

Turkish Statistical Institute (TURKSTAT), SDMX Global Conference 2025

SESSION V: Improving statistical business processes using SDMX – 30 Sep 2025

Cüneyt **KURT**, Ezgi Sena **ERTÜRK**

Key Requirements of a Dissemination System

User Experience

User-friendly interface → everyone should easily find the data they need

Well-designed filters, search options, and visualization tools

System Capacity

Scalable structure to handle high demand

Guarantees for security, performance, and sustainability

International Standards

SDMX compliance → comparability of data

Reliable data sharing with international organizations

Future readiness (e.g., SDMX 3.0)

Initial Situation at TurkStat

❖ Harzemli (since 2012)

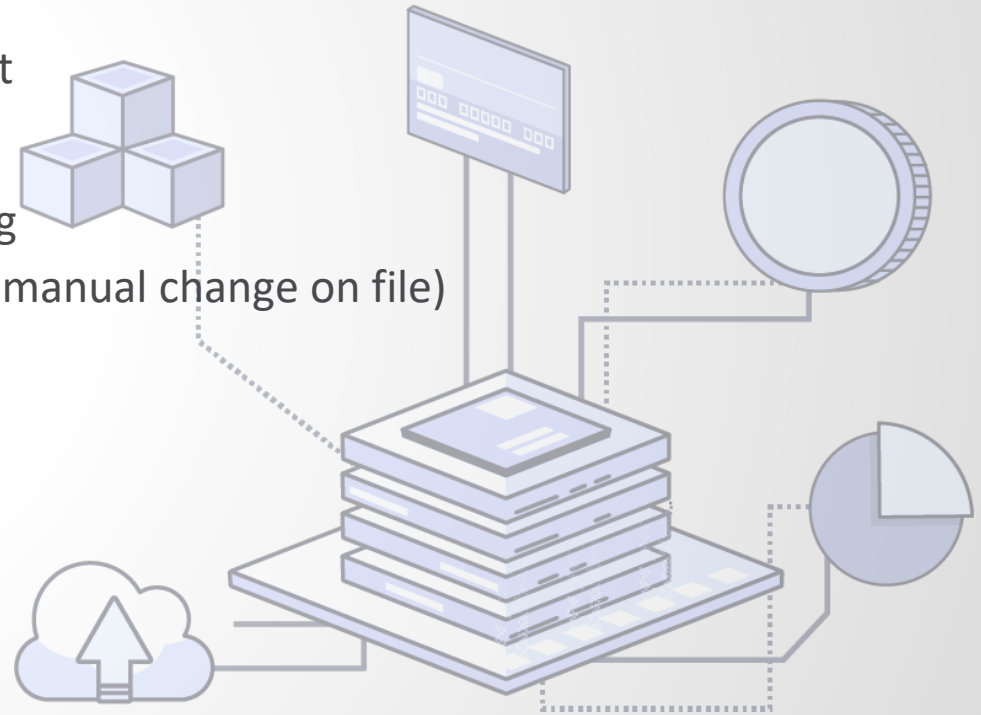
- Brought institutional standardization into data collection
- Provided a consistent framework across surveys
- Served as an internal reference when designing the new project

❖ Unit-based SDMX Use

- Departments produced SDMX mainly for international reporting
- Each unit developed its own solutions (e.g., Metadata Handler, manual change on file)
- Unit-based and uncoordinated, with no central framework

❖ Key Gaps

- No shared approach or institutional visibility
- Repeated efforts across units
- Lack of a centralized dissemination structure



Why Did We Need a New System?

Need for a Common Language

- Different units speaking “different dialects” of SDMX
- Lack of institutional coordination

Transparency and Reliability

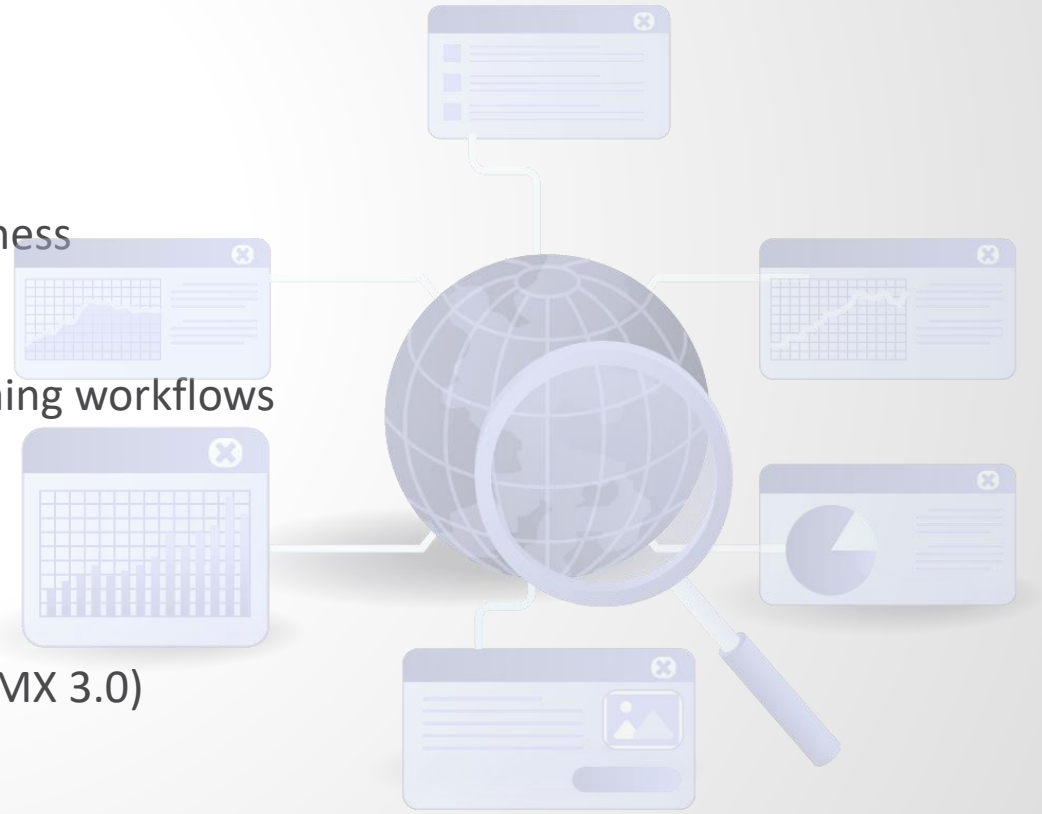
- Data processes not fully traceable
- Users and international partners expect trust and openness

Efficiency and Speed

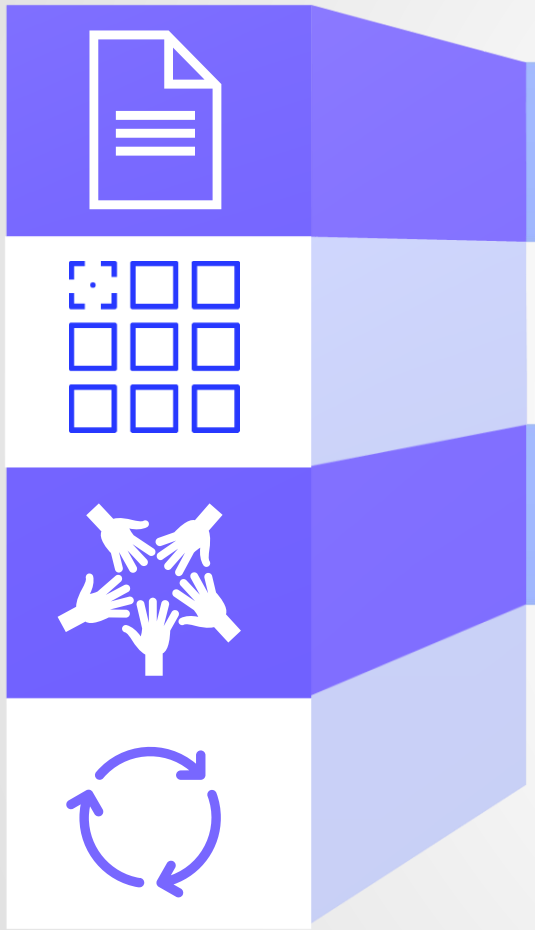
- Manual and repetitive tasks slowing down time-consuming workflows
- Demand for faster dissemination

Global Alignment

- Full compliance with SDMX standards
- Integration with international data exchange (future SDMX 3.0)



Principles Guiding the Project



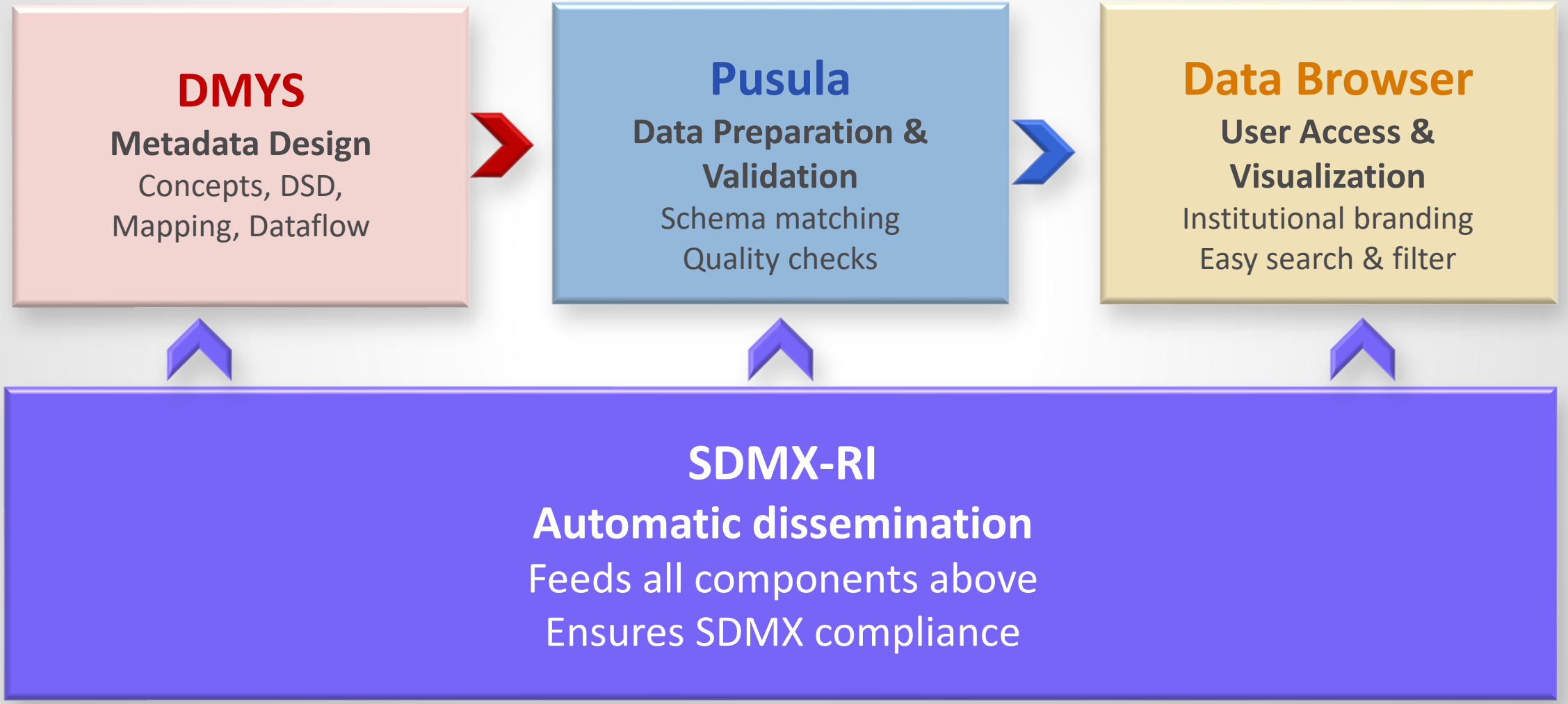
Standards First

Step-by-Step Progress

Institutional Fit

Simplicity & Sustainability

End-to-End SDMX Workflow at TurkStat



DMYS – Metadata Management at TurkStat

Inspired by ISTAT MDM, rebuilt for TurkStat

- Database structure inspired by ISTAT Toolkit
- New user interface and service layer built from scratch
- Fully adapted to institutional needs

Key Functions

- Define **Concept Schemes, DSDs, Mappings, Dataflows**
- Integrated with approval workflows (role-based validation)
- Supports flexible modifications and extensions

Added Value

- Metadata is no longer scattered → all in one system
- User-friendly design aligned with TurkStat standards
- Foundation for the entire SDMX pipeline

Pusula – Data Preparation and Processing

Existing Institutional Tool

- Already used at TurkStat for data analysis and preparation
- Supports procedural workflows (SAS, R, SQL scripts)
- Tracks logs, process history, and quality checks

Extended for SDMX

- Integrated directly with DMYS metadata
- Users map their datasets to SDMX structures
- Automatic validation against codelists and schemes
- Data transferred directly into the SDMX database

Advantages

- Reduced development workload by reusing an existing system
- Provided a familiar environment for staff
- Ensured consistent and automated validation before dissemination

SDMX-RI & Data Browser

SDMX-RI (Backend Engine)

- Core component for automatic dissemination
- Connects directly to the SDMX database
- Ensures full compliance with SDMX standards

.Stat Suite (Test Phase)

- Installed and evaluated in parallel
- Technically compatible, but complex for our institutional needs
- Not adopted for long-term use

Data Browser (User Interface)

- Open-source tool from ISTAT, customized for TurkStat
- Branded with institutional design & colors
- Simplified interface for non-technical users

Main Features

- Filtering and searching options
- Visualization of datasets
- Easy public access to published statistics

Technical Challenges and Solutions

Challenges

- Each component of the system had to be learned almost from scratch
- Trial-and-error consumed time in the early phase
- Metadata definitions required more flexibility for our workflows
- Reliance on Excel uploads limited scalability
- Internal authorization policies created barriers

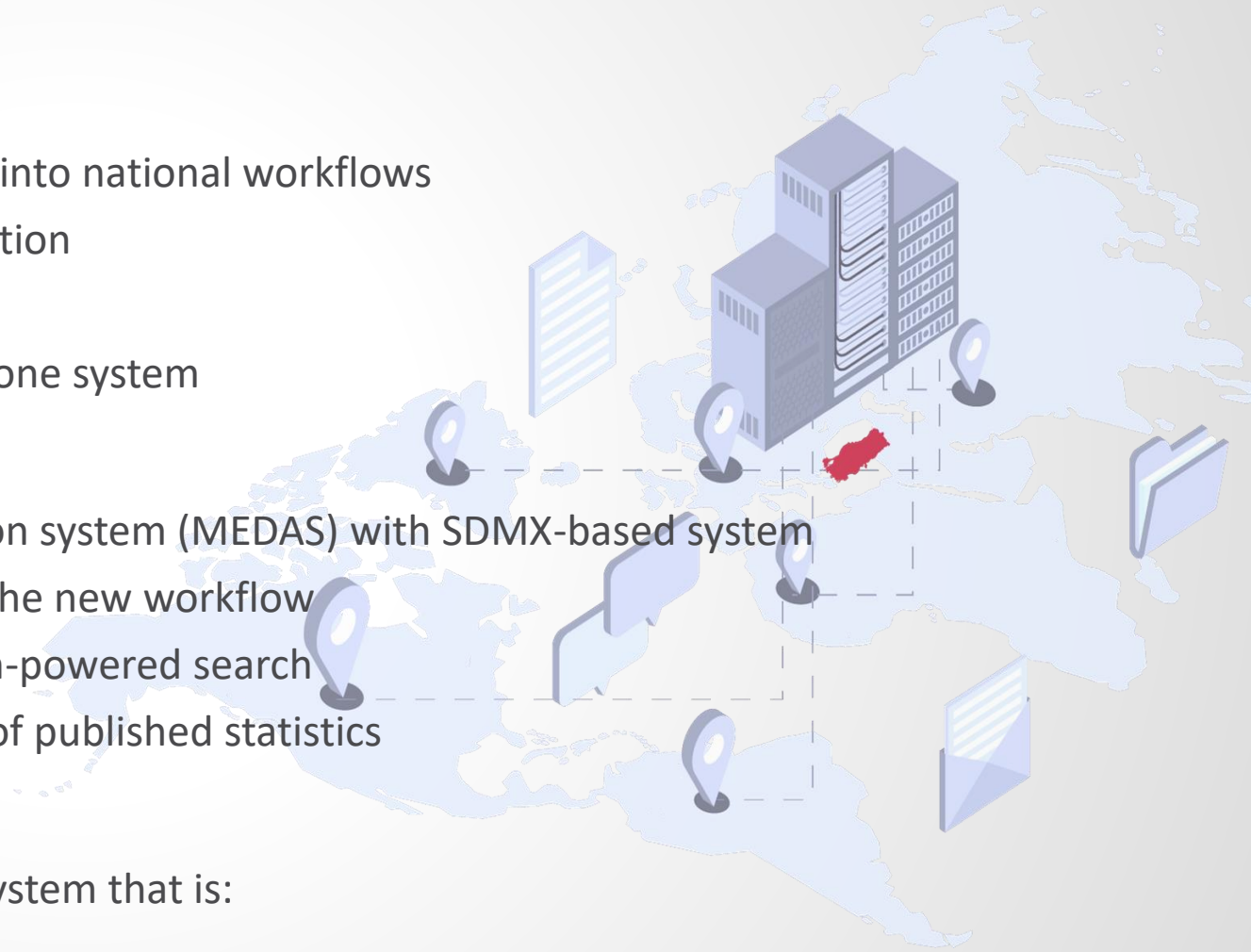
Solutions

- **ISTAT documentation and community support** were critical to progress
- ADB's online SDMX training built common understanding in the team
- Metadata modules redesigned with approval workflows and role-based access
- Developed database-driven integration through Pusula
- Support from ISTAT, ILO, OECD, SDMX Community helped resolve issues
- Adopted **Data Browser** as the dissemination tool after testing alternatives

Results and Next Steps

Results Achieved

- A sustainable SDMX system, fully integrated into national workflows
- Manual steps eliminated → faster dissemination
- Full compliance with international standards
- Metadata and data processes centralized in one system



Next Steps

- Gradual replacement of the old dissemination system (MEDAS) with SDMX-based system
- Encourage producer departments to adopt the new workflow
- Develop a new web portal with Elasticsearch-powered search
- Enable easier access and richer exploration of published statistics

Key Takeaway

- TurkStat now has an end-to-end SDMX ecosystem that is:
  - **Standardized, sustainable, future-proof**
  - A model that can inspire other countries with similar needs

THANK YOU