



SDMX Implementation in GCC -STAT

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GCC-STAT
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Outline

- About GCC STAT*
- SDMX Trip*
- Marsa*
- Statistical Functions*
- Achievements*
- Going Forward*



About GCC STAT

Gulf Corporation Council Statistical Office

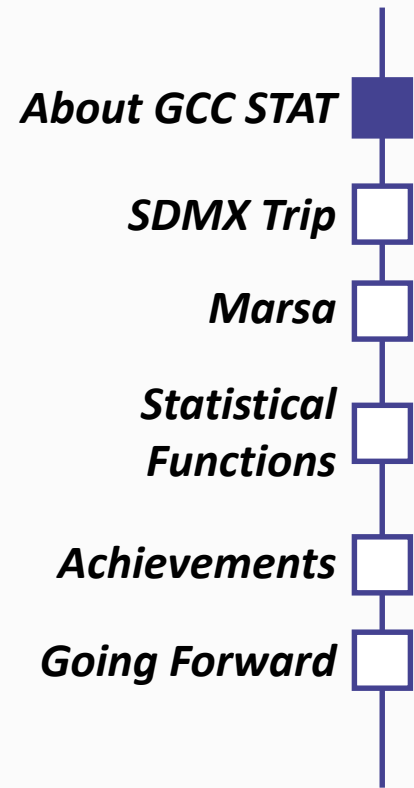


Who We are?

- ✓ The establishment of GCC Stat was approved by the GCC Ministerial Council in September 2011.
- ✓ The Charter was officially endorsed in December 2012 by the GCC Supreme Council (comprised of heads of member states: United Arab Emirates, Kingdom of Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, State of Qatar and State of Kuwait).
- ✓ Located in Muscat, Sultanate of Oman.

- **Develop, coordinate and harmonize statistics** in the member countries, to reach sound GCC aggregates.
- **Provide the high quality** statistical and knowledge products and services necessary to support the ambitious GCC Agenda and development processes in member countries.
- **Support monitoring the implementation of the GCC strategies, laws and agreements.**
- **Highlight the GCC countries** as a unified economic, social and environmental Entity.
- **Provide up-to-date data for GCC citizens and other users.**

A cooperative partnership between the **National Statistical Systems** and **GCC-Stat**, powered by the Standing Committee for Statistical Affairs



GCC Statistical Cooperation and Key Partners



About GCC STAT

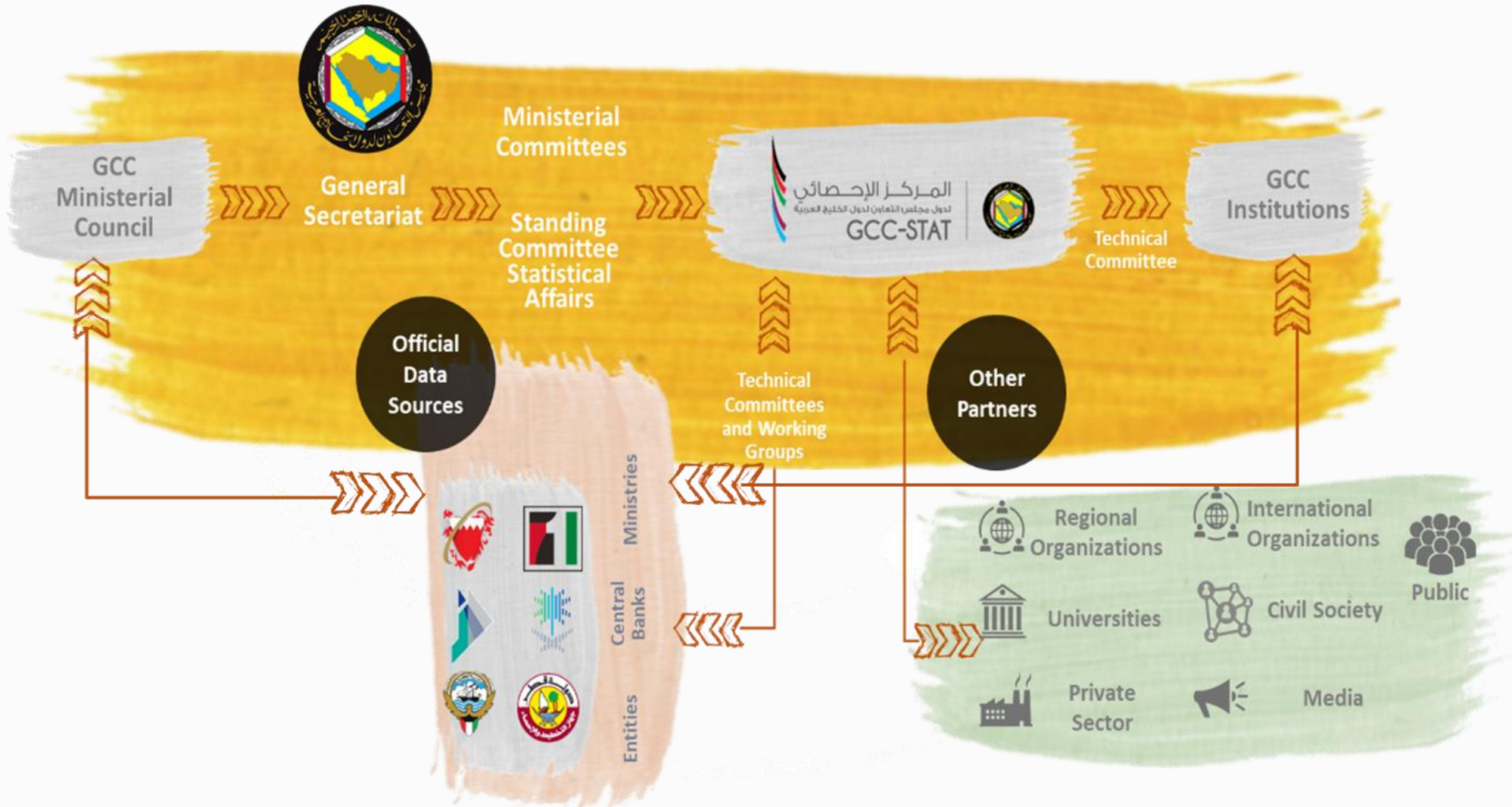
SDMX Trip

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GCC Statistical Strategy 2021-2025

Pillar

2

Data Assembly & Dissemination

3
Statistical analysis and knowledge production

2
Collect data from various sources with various forms

1
Diversify sources
Take advantage of emerging sources

Make statistics available to the academic and research community and the private sector

Thematic Analytical Reports

Integration of statistical data and Geospatial Information Systems (GIS)

Nowcasting Forecasting

Confidentialized Unit Record Files

Electronic links between NSOs and main economic establishments

Operate MARSAs

Push vs. Pull

Electronic links between NSOs and Government entities

Enhance cooperation with international and regional organizations in data collection

Explore alternative data sources

Implement Harmonized Surveys Program

One Platform

Expand use of register data

Dissemination
Governance

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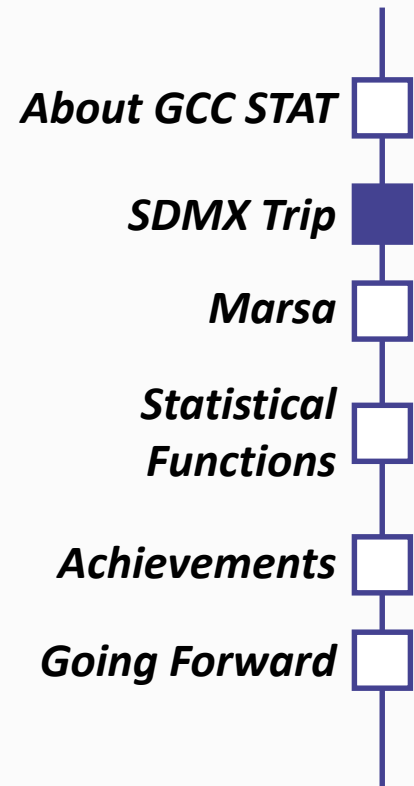
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SDMX Trip in GCCSTAT



2017

- Attend The 6th SDMX Global Conference in Addis Ababa, Ethiopia- (Starting Step)
- Starting of literature review about the SDMX manuals (translate the manual)

2018

- Hosting a training about SDMX and Fusion Registry⁹ Presented by metadata technology 13-15 March 2018

2019

- Review of International organizations that used SDMX for exchange data
- **launching of the new end to end data project (MARSAs Project)**
 - Use SDMX as the tool of data exchange between the GCCSTAT and the data provider.

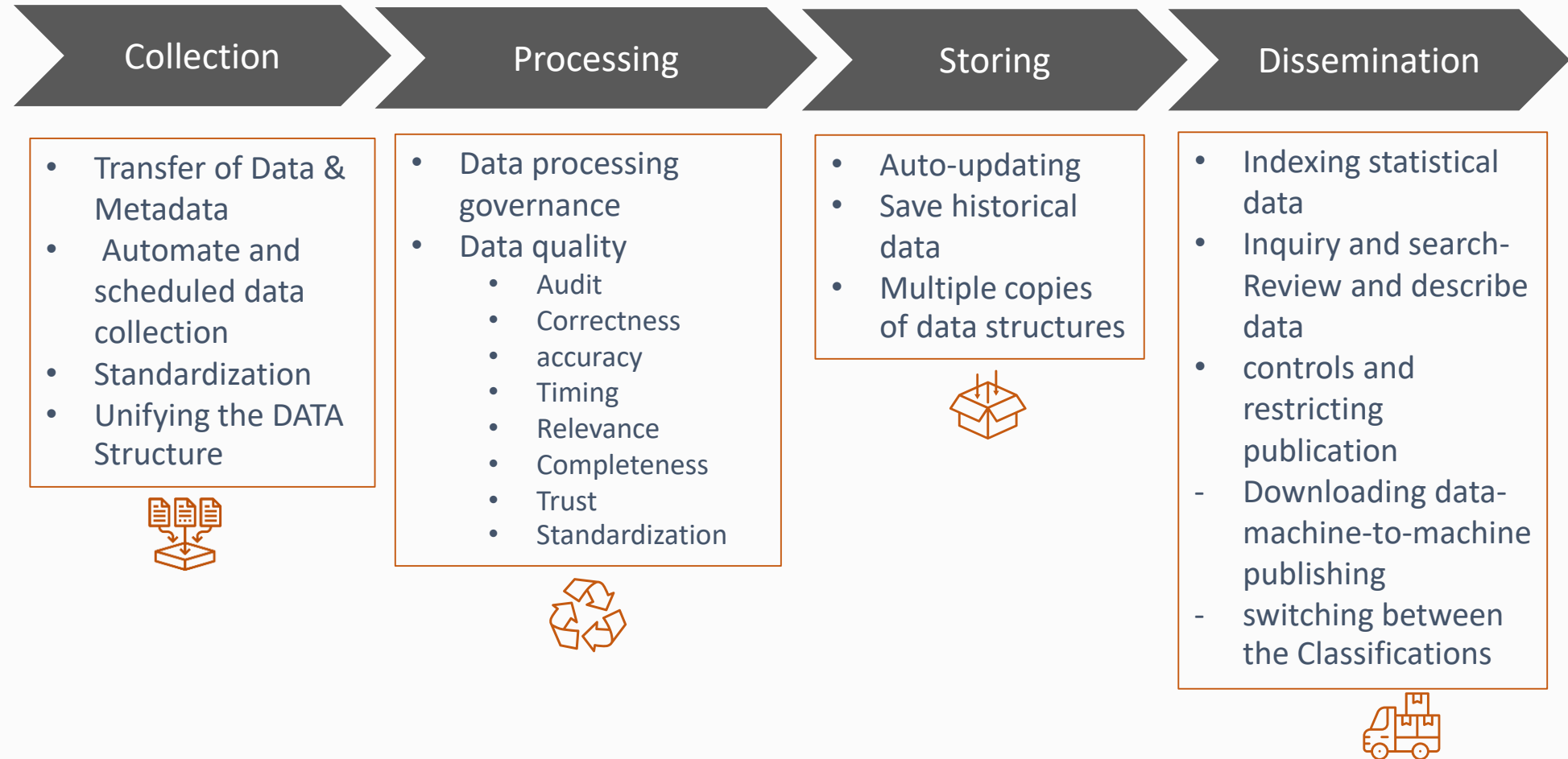
2023

- Starting the End to end automation between the GCC NSOs

Our Benefits

Statistical Data and Metadata eXchange (SDMX)

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Overview about MARSA Project

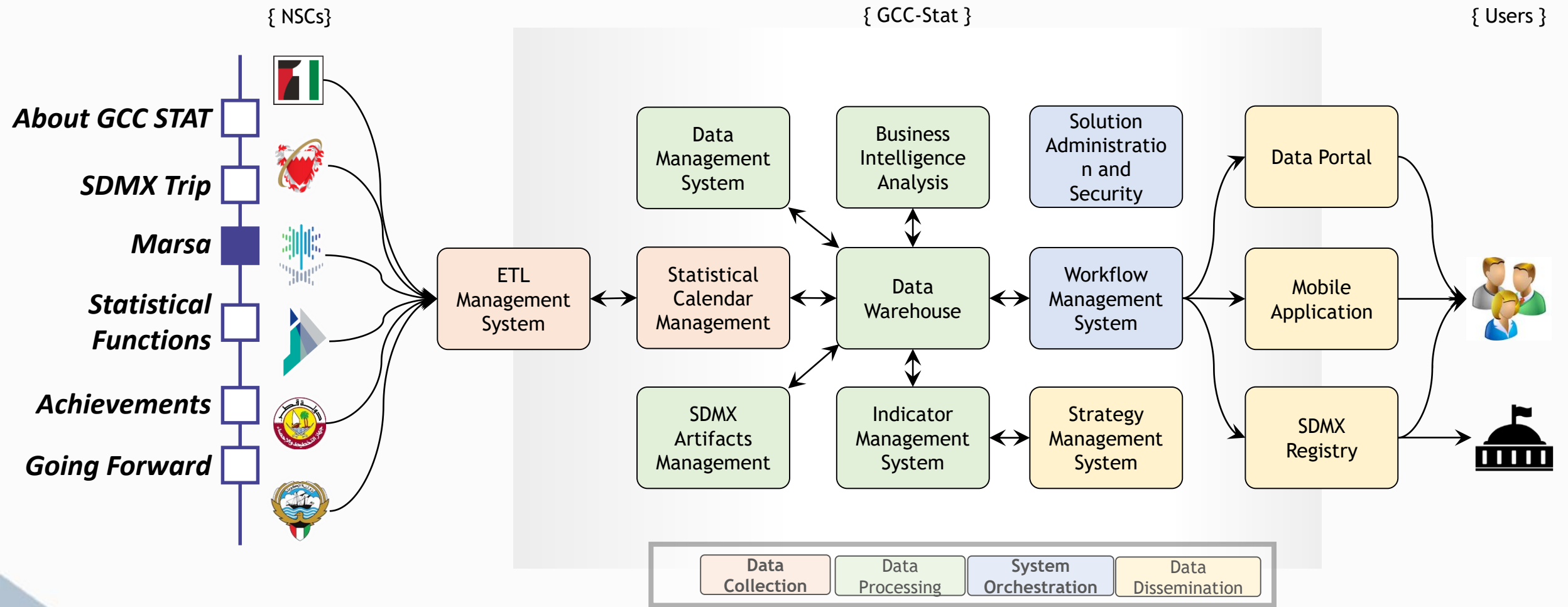


An automated data collection, storage and dissemination system

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- ❑ Platform used by GCCSTAT as the core business solution.
- ❑ Its main functionality to provide “**end-to-end**” official statistics management in response to dynamic internal and external stakeholders needs.
- ❑ Its delivered a variety of services through the deployment of multiple integrated applications and tools.
- ❑ Integrated system between GCCSTAT and the data source

Marsa Platform Components



What is the Impact?



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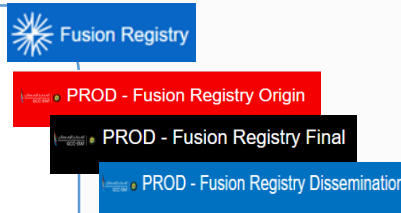
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GCC-STAT

- ✓ Fully Automated Data Project
- ✓ Fast way of exchange data
- ✓ Centralized data warehouse
- ✓ Measure the strategy indicators
- ✓ Filling the data gaps
- ✓ Cover various statistical topics with the Current resources.



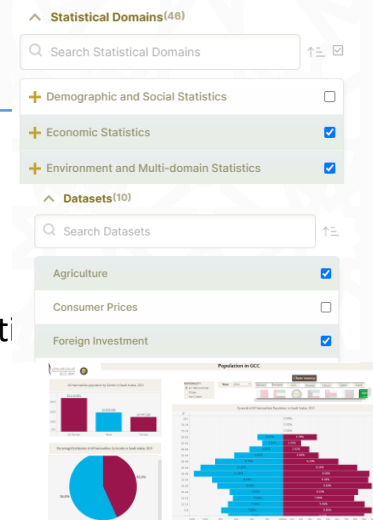
Decision Makers

- ✓ Monitoring Strategy by Create special Dashboard for different topics.



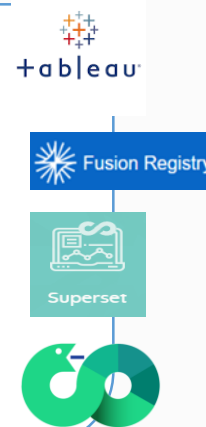
Public

- ✓ Easy to search/store data
- ✓ User friendly data portal
- ✓ Select Multi-Datasets from Multi Domains
- ✓ Interactive Dashboard



Employees

- ✓ Promote a culture of data science
- ✓ Simplify the use of the data warehouse
- ✓ Simplify analysis of the data
- ✓ Creation of the Dashboard
- ✓ Dealing with different parts of the system
- ✓ Save time & effort





Statistical Functions



a. Structures Building

Using as a resource
Transmission tables .xlsx



About GCC STAT



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Statistical Functions



1. Data Preparation

Achievements



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{ Brainstorming to specify: }



- Dimensions
- Attributes
- Measures
- Code lists
- Frequencies

{ Resulting in }



- Cross-section concepts
- Related section concepts
- Some tables need more than one DSD
- Naming ways of all artefacts and related IDs

Structure Modeling

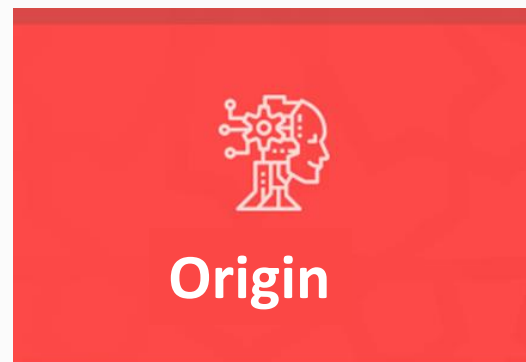
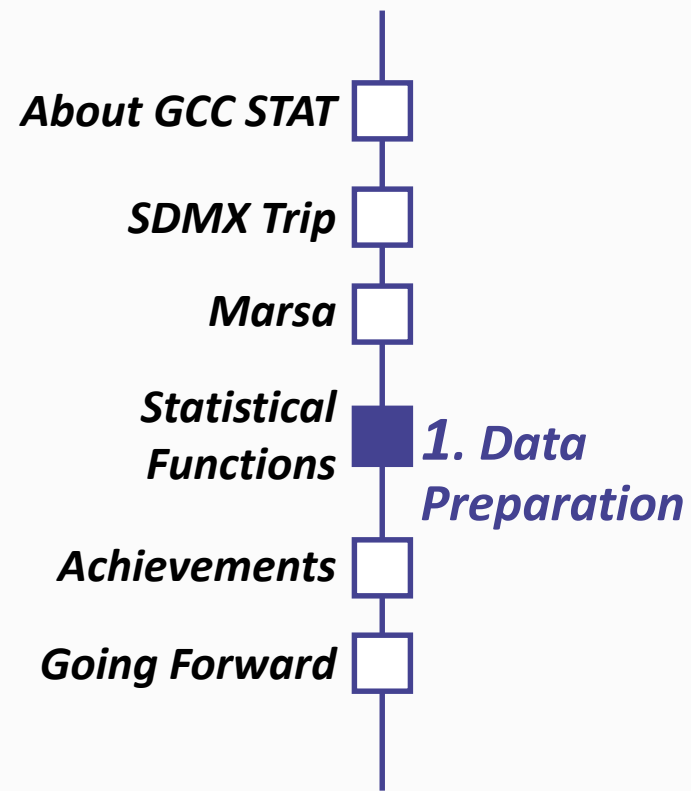
Building **SDMX** artefacts in Fusion Registry

Normalization

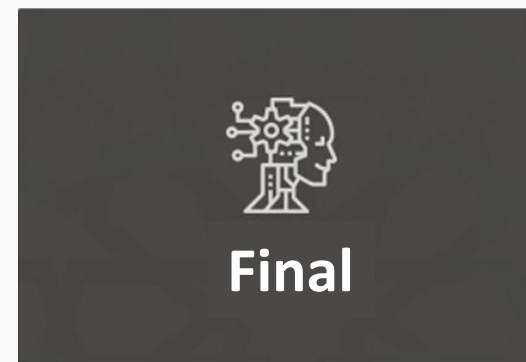
- Common Concepts
- Code-lists
- DSDs
- DFs
- Metadata



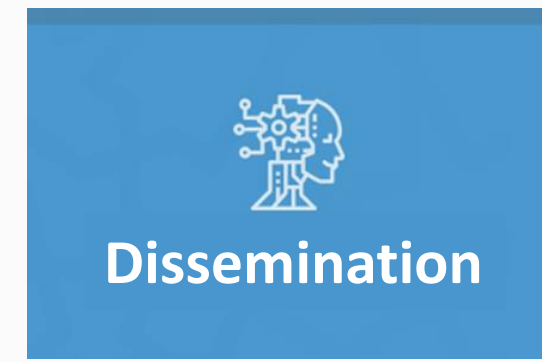
b. Building three registries to match GCCSTAT needs



Store the original data from the data sources



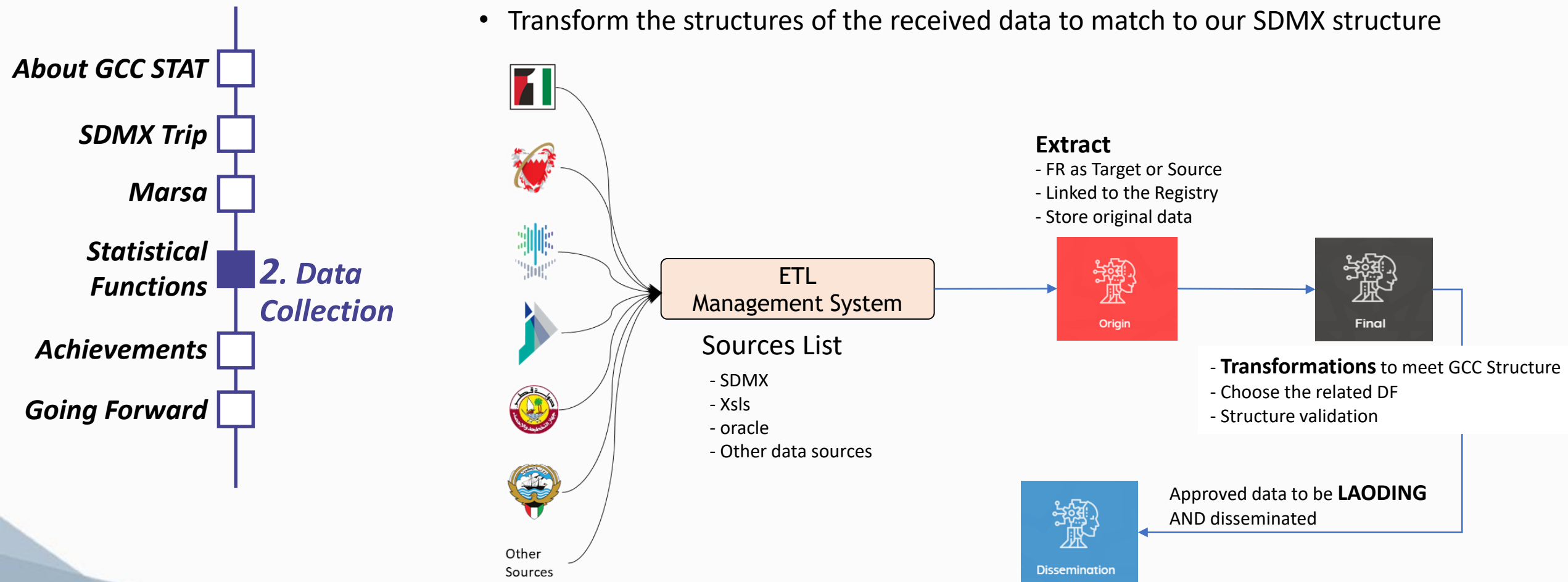
Validated, Transformed to GCC-STAT SDMX Artefacts



Approved data to be disseminated

Extract, Transform and load

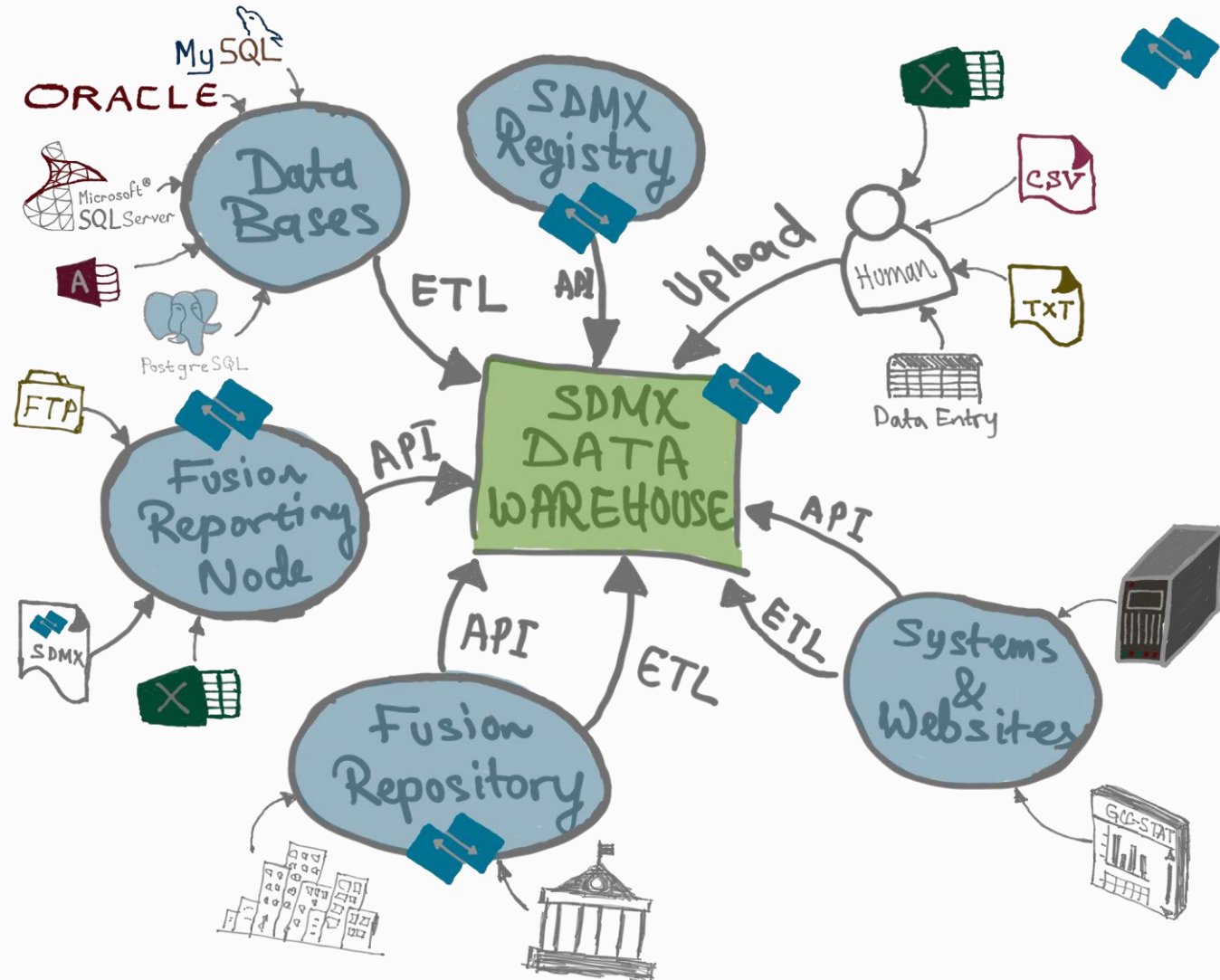
- Building an ETL (Extract, Transform and load) tool help to:
 - Exchange the data between the registries within GCCSTAT
 - Extract data from other sources such as data portals and websites
 - Transform the structures of the received data to match to our SDMX structure



Linking options



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- Statistical Functions **2. Data Collection**
- Achievements
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1 Datasets

linked to dissemination instant (dataset name, description, data, download as different data types).



2 Explorer

Linked Directly to dissemination instant and users can work with data and build their own tables.



3 Dashboards

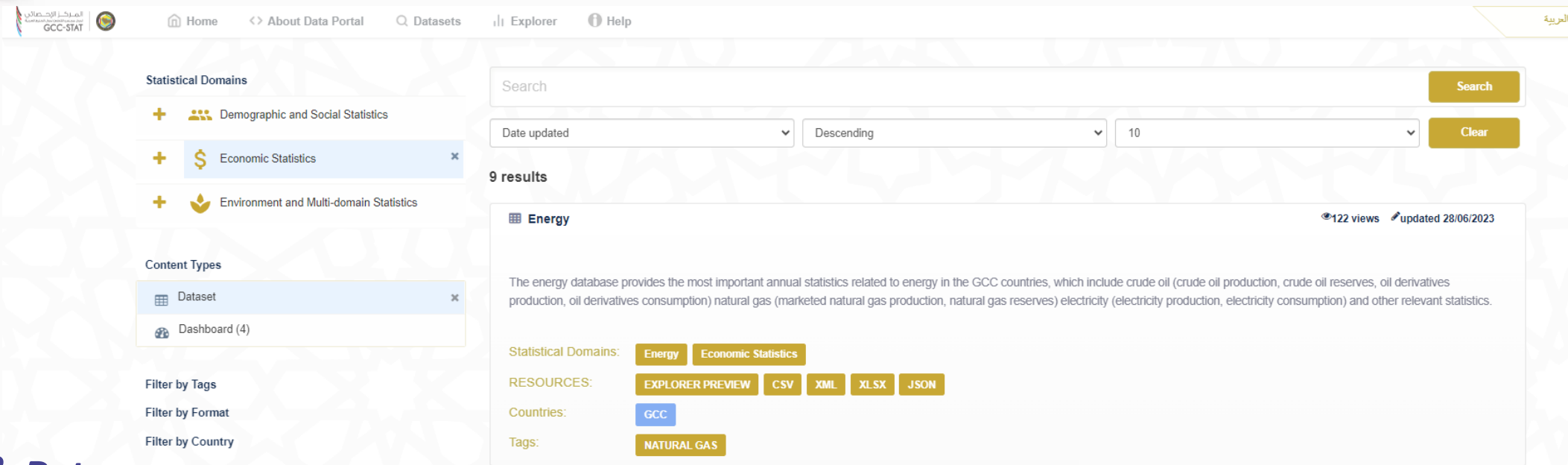
make dashboards ready using Tableau or superset tools and embed them on the data portals as interactive dashboards.



4 Statistical Demand Management

Linked to dissemination and it is a place where we can build strategy and its goals and indicators are read and updated due to any update in the registry.

1. Datasets



The screenshot shows the GCC-STAT website interface. At the top, there is a navigation bar with links for Home, About Data Portal, Datasets, Explorer, and Help. The main content area is divided into several sections:





- Statistical Domains:** Includes Demographic and Social Statistics, Economic Statistics (selected), and Environment and Multi-domain Statistics.
- Content Types:** Includes Dataset (selected) and Dashboard (4).
- Filter by Tags, Format, and Country:** Options for filtering the search results.
- Search Results:** A search bar with filters for 'Date updated' (Descending), '10' results, and a 'Search' button. Below the search bar, there are 9 results, with the first one being 'Energy' (122 views, updated 28/06/2023).

The 'Energy' result card includes a description: "The energy database provides the most important annual statistics related to energy in the GCC countries, which include crude oil (crude oil production, crude oil reserves, oil derivatives production, oil derivatives consumption) natural gas (marketed natural gas production, natural gas reserves) electricity (electricity production, electricity consumption) and other relevant statistics." It also lists filters for Statistical Domains (Energy, Economic Statistics), Resources (EXPLORER PREVIEW, CSV, XML, XLSX, JSON), Countries (GCC), and Tags (NATURAL GAS).

3. Data Dissemination Energy

The energy database provides the most important annual statistics related to energy in the GCC countries, which include crude oil (crude oil production, crude oil reserves, oil derivatives production, oil derivatives consumption) natural gas (marketed natural gas production, natural gas reserves) electricity (electricity production, electricity consumption) and other relevant statistics.

Data and Resources

-  Explorer preview
-  DF_GEETS_ENR.csv
-  DF_GEETS_ENR.xml
-  DF_GEETS_ENR.xlsx
-  DF_GEETS_ENR.json

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2. Explorer



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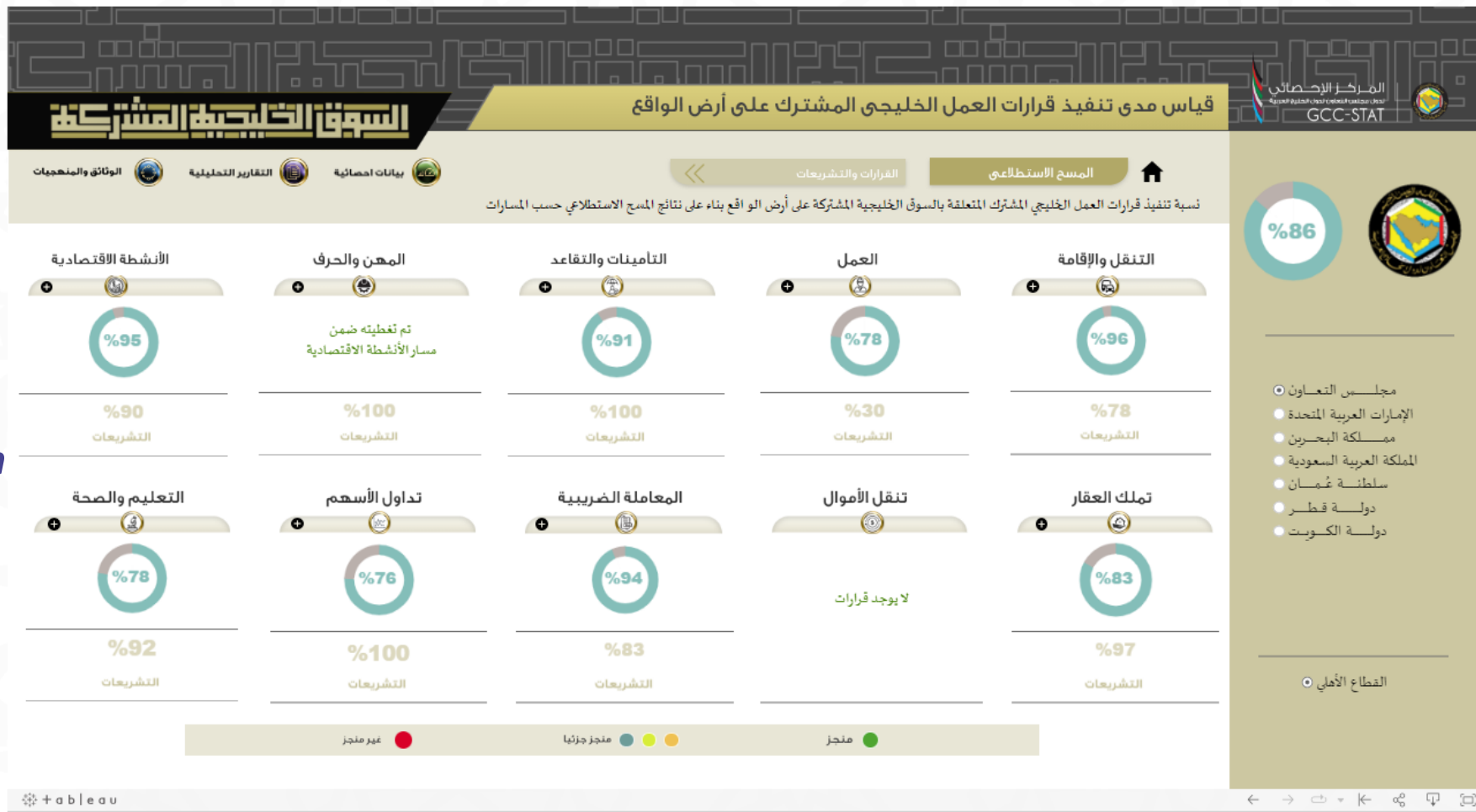
3. Data Dissemination

The screenshot shows the GCC-STAT Explorer interface. On the left, there is a search bar for 'Search Statistical Domains' and a list of domains: Demographic and Social Statistics (checked), Economic Statistics, and Environment and Multi-domain Statistics. Below this is a search bar for 'Search Datasets' and a list of datasets: Culture, Area, Population (checked), Education, Education Facilities, Students, Teachers, Health Facilities, Health Indicators, Health Services, Labour, and Births and Deaths Indicators. The main area shows the 'Configuration' section with filters for AGE and FREQUENCY, rows for COUNTRY, NATIONALITY, and GENDER, and columns for TIME PERIOD. Below this is a 'Selected filters' section showing: NATIONALITY: All Nationalities, GENDER: All Gender, AGE: All Ages, and TIME PERIOD: 2017, 2018, 2019, 2020, 2021. The data table below shows the following data:

COUNTRY	NATIONALITY	GENDER	2017	2018	2019	2020	2021
Bahrain	All Nationalities	All Gender	1,501,116	1,503,091	1,483,756	1,472,204	1,504,365
Emirates	All Nationalities	All Gender	9,304,277	9,366,829	9,503,738	9,282,410	9,282,410
Kuwait	All Nationalities	All Gender	4,226,920	4,420,110	4,464,521	4,336,012	4,216,900
Oman	All Nationalities	All Gender	4,559,963	4,601,706	4,617,927	4,481,042	4,527,446
Qatar	All Nationalities	All Gender	2,724,606	2,760,170	2,799,202	2,833,679	2,748,162
Saudi Arabia	All Nationalities	All Gender	32,612,641	33,413,660	34,218,169	35,013,414	34,110,821
Gulf Cooperation Council	All Nationalities	All Gender	54,929,523	56,065,566	57,087,313	57,418,761	56,390,104

3. Dashboards

GCC Common Market Dashboard



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3. Data Dissemination

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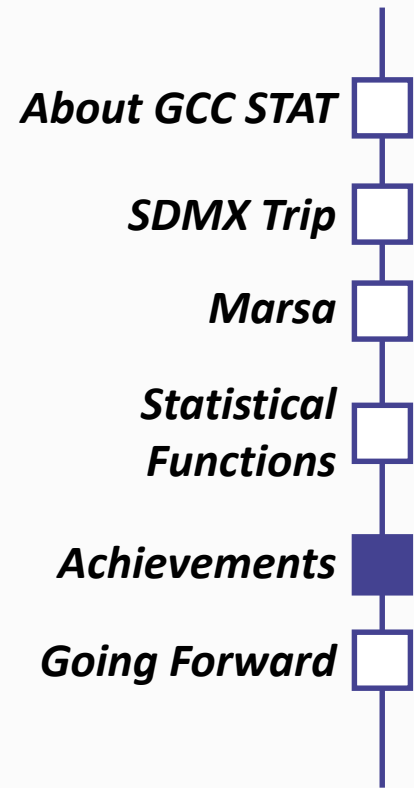
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Achievements



Achievements



- ❑ **Raising the level** of automation of work procedures, controlling governance and powers, and reducing effort, time and cost.

- ❑ **Create a consistent, Auto-updating,** high-quality central database that is a unified and reliable source.

- ❑ **Building a culture of SDMX** within the GCCSTAT statisticians and raising their capabilities.

- ❑ **Promote a culture** of SDMX in GCC NSOs.

- ❑ **Build an integrated solution** that covers the entire statistics functions lifecycle from collection to dissemination.

- ❑ **Ability to transfer data** of large size or different shape and form.

- ❑ **Ease of publishing** which facilitates the process of exchanging data and from machine to machine.

- ❑ **Readiness** to auto connect with any data providers, regardless of their systems or technologies, and to automate and schedule the automatic fetching of statistical and descriptive data.



Going Forward

Going Forward

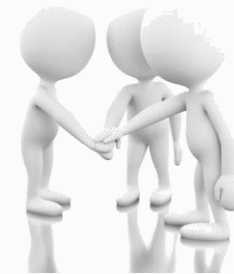


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Strengthening statistical capabilities in GCC NSOs.



Support & assist NSOs in implementing the SDMX.



Completing the Automation collection process in NSOs and covering all the statistical fields.



Continuing using SDMX as a tool in searching for alternative statistical data sources without worrying about their structures.





Thank you



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www.gcc-stat.org