



Integrated Cross-Functional Automation Initiative

Within the framework of the Base Year Change (BYC)

Directorate of Synthesis and National Accounts (DSCN)

January 2025



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Base Year Change Project of the National Accounts



What is the Base Year Change?



It is the **updating of the national accounting reference framework, aimed mainly at economic, environmental and sociodemographic measurement**, through the incorporation of **new concepts, definitions and classifications**, derived from the most recent international standards; as well as the use of **new sources of information, optimization of methods and techniques of synthesis, automation and dissemination** applicable to the System of National Accounts of Colombia.



Background of the Base Year Change

First Base of National Accounts

Prepared by the Bank of the Republic

1958

1970

First update of the National Accounts Base

Prepared by the Bank of the Republic

With the institutional reforms of the second half of the 1960s, **DANE assumed responsibility for preparing Colombia's National Accounts (real accounts)**. The Bank of the Republic is in charge of the financial part.

1975

1994

2000

2005

2015

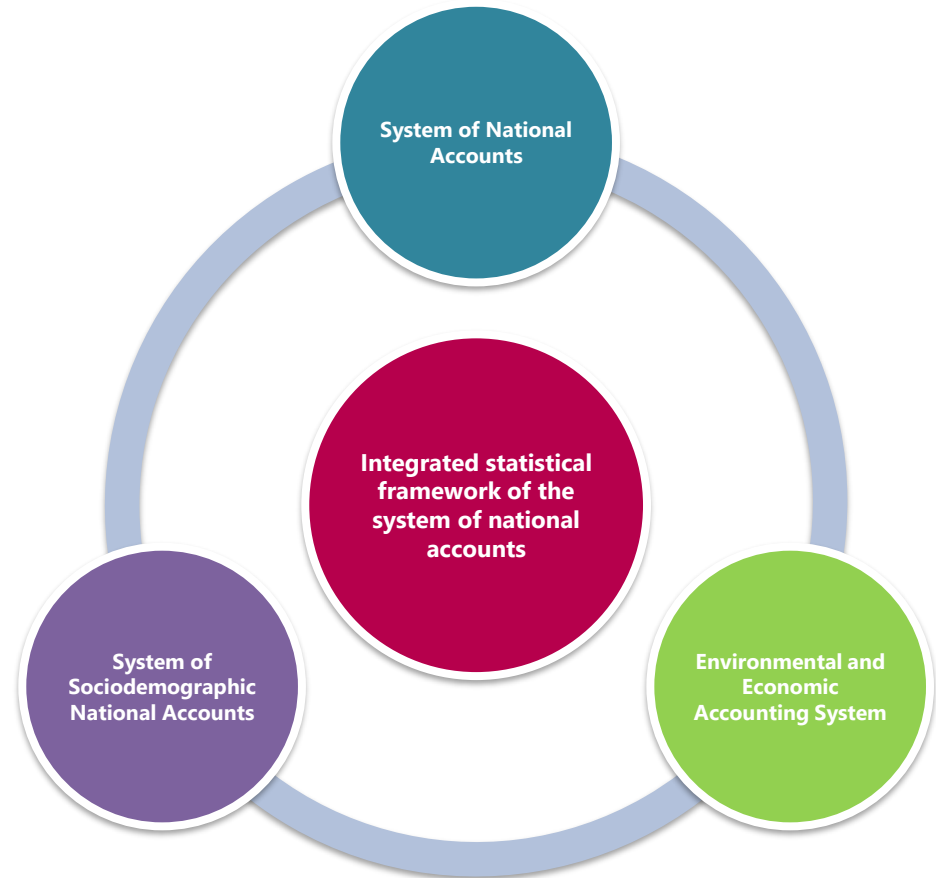
2024

Preparation of the project for the **sixth update of the National Accounts Base**, under the reference of the generic model of statistical production **GSBPM**

Functional model 2023 - Integrated statistical framework of the system of national accounts

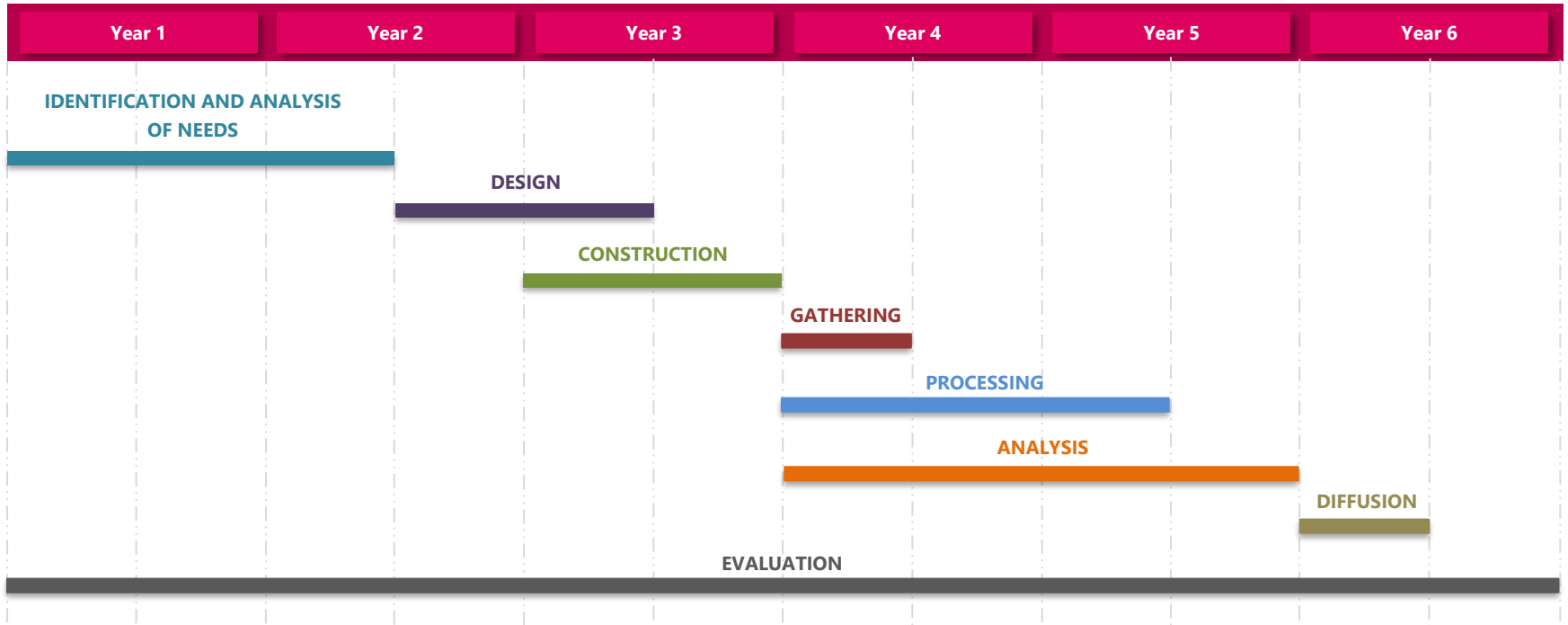
According to **resolution No. 2331 of 2023 in the DSCN**, three groups of accounts are established as fundamental pillars to make up the Integrated Statistical Framework of the System of National Accounts¹.

An efficient and flexible framework that overcomes the limitations of GDP as a single measure of progress and considers social, economic and environmental aspects in the measurement of well-being.



1. Based on the Network Beyond GDP proposal and the 2025 SNA.

GSBPM Timeline





Milestones for the Base Year Change

Use and update of existing and developing manuals:

- System of National Accounts (SNA) 2025
- System of Environmental and Economic Accounting (SEEA)
- System of Demographic and Social Statistics
- BPM6 Balance of Payments Manual
- International Standard Industrial Classification of Economic Activities - CIU A.C - Central Product Classification - CPC A.C.
- Other nomenclatures statistical classifications

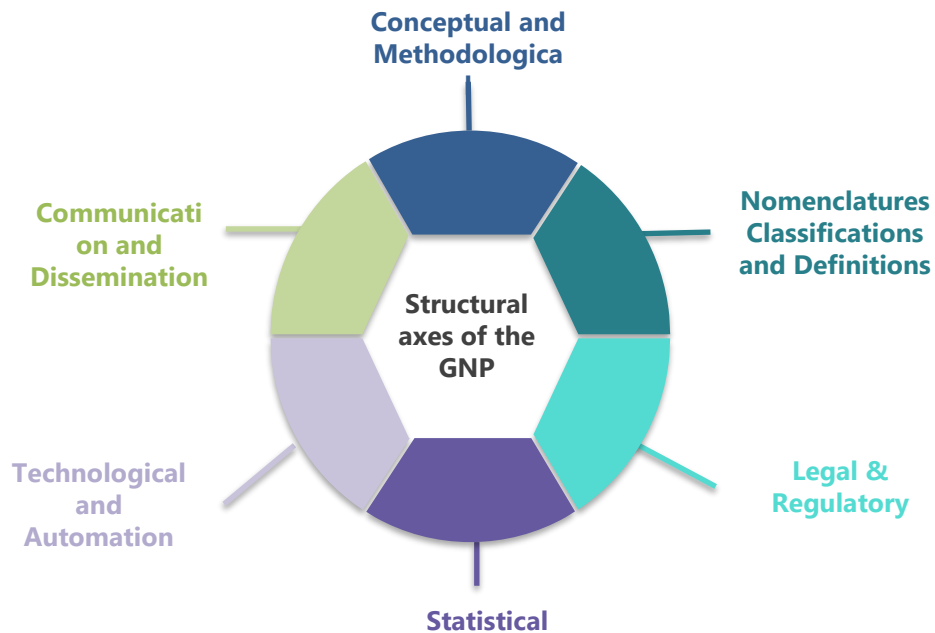
Sources of national statistical production:

- National Urban Economic Census 2024
- National Agricultural Census - to be defined
- Redesign of structural surveys
- National Household Budget Survey (ENPH) to be defined
- Update of the bases of the Consumer Price and Cost Indices (CPI)
- Updating and leveraging administrative records

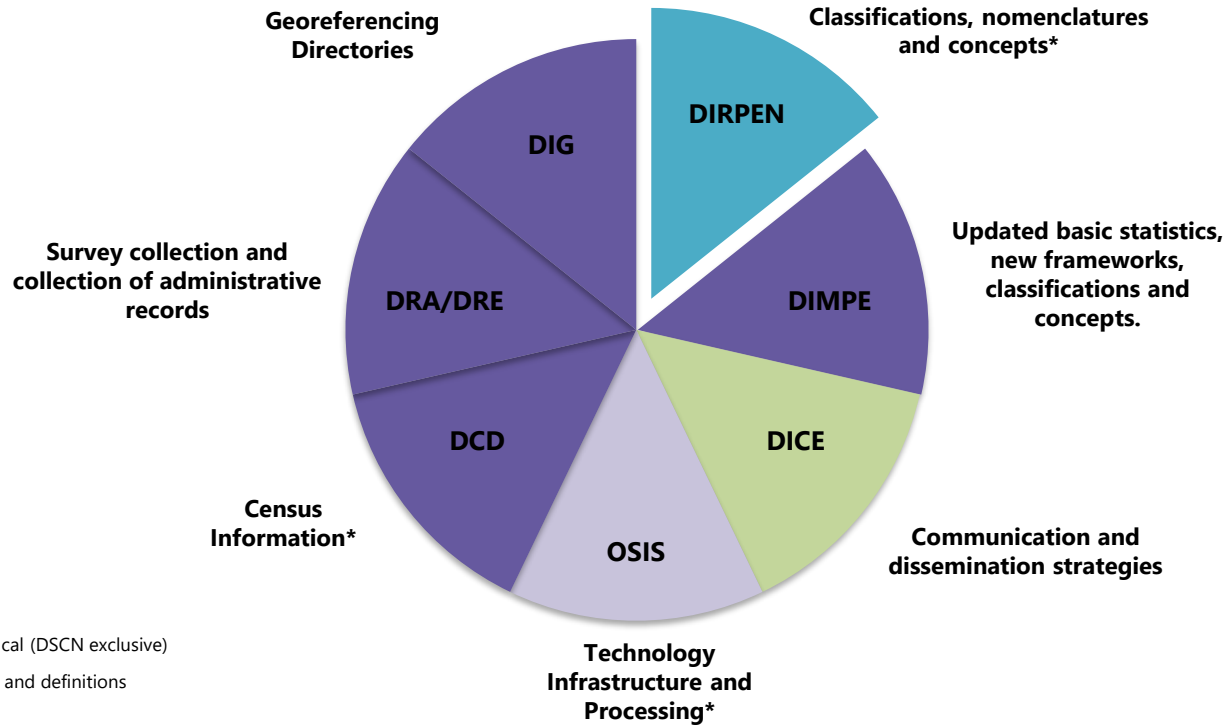
Structural Pillars for the Base Year Change



In the design and articulation of the **project for the new national accounting base**, **six fundamental structural axes** have been defined that ensure a panoramic, coherent, integrated and flexible vision of the country's statistical information.



Integration of DANE Technical Areas – Structural Axes



- Conceptual and methodological (DSCN exclusive)
- Nomenclature, classifications and definitions
- Legal and Regulatory
- Statistical
- Technology and automation
- Communication and dissemination

Structural axes of the New Base Project

Conceptual and methodological

It includes methodological, theoretical and practical guidelines, as well as national and international references and recommendations that provide technical support.

Together, these elements provide a solid foundation, ensuring a comprehensive and well-founded understanding of the phenomenon in question.

Nomenclature, classifications and definitions

It includes the technical instruments that allow identifying, categorizing and ordering the aspects of economic, social and environmental measurement.

It ensures the comparability of information through principles of normalization and standardization, and clearly defines variables, transactions, and other elements necessary for accurate estimates.

Legal and Regulatory

It details the regulations that provide legal and juridical support, including the Constitution, laws, decrees, national plans, resolutions, jurisprudence, conventions and agreements.

It consists of the chronological compilation of all the rules related to the statistical production process.

Statistical

It is responsible for renewing the inventory of available sources of statistical, financial and accounting information, including both basic statistics and administrative records.

Through the comprehensive analysis of these sources, the macroeconomic consistency of the results is ensured and the measurements made are solidly supported.

Technology and automation

It defines the computer tools to prepare, validate, standardize and process and generate results with the information, ensuring that they are integrated, efficient, secure and advanced.

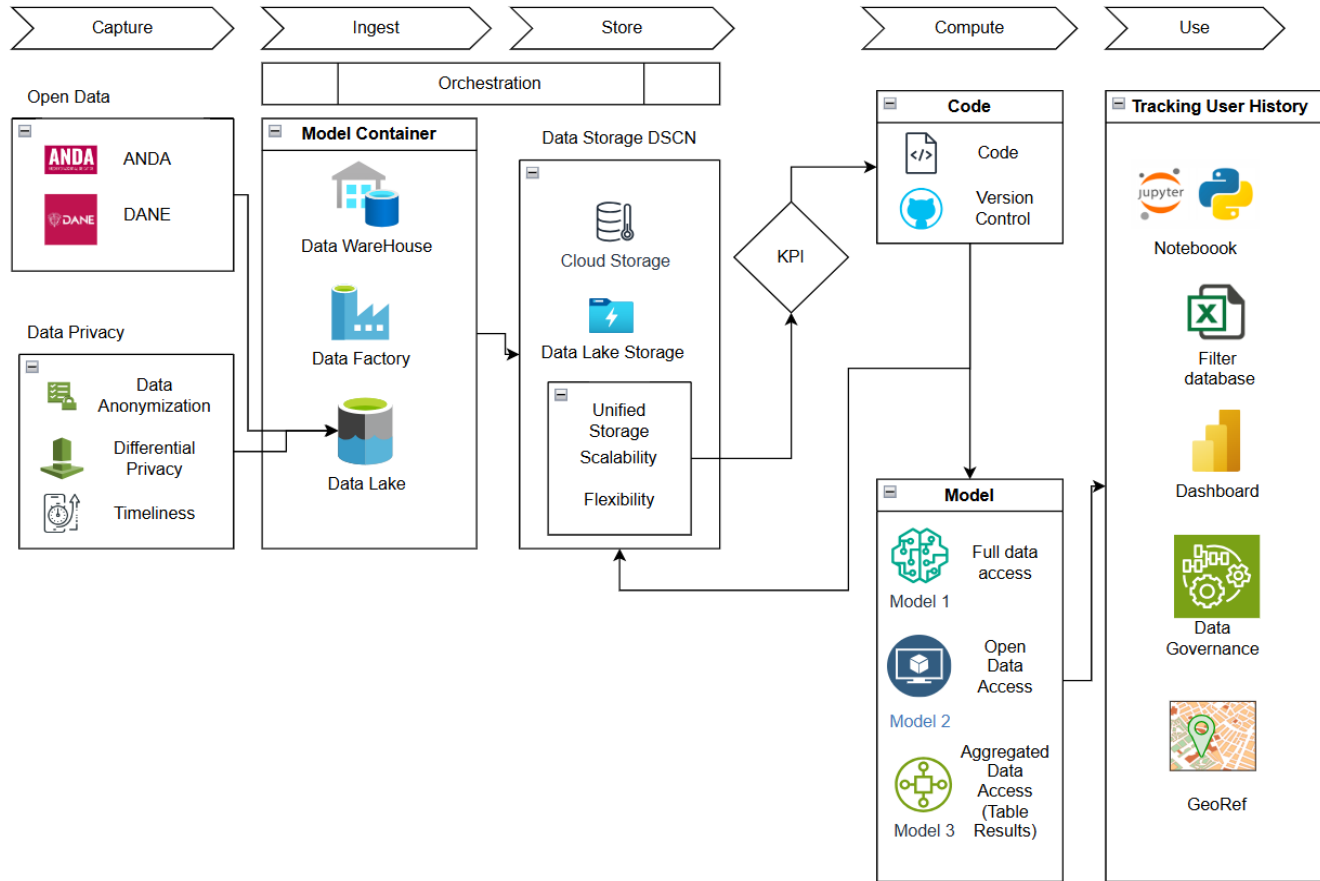
Communication and dissemination

It establishes policies to communicate and disseminate the results of the new base project, focusing on transmitting statistical culture to improve the understanding of national accounts.

High-level model



Architecture



Objective:

Efficiently manage the data lifecycle from capture to insights generation.

Key Components:

Capture, Ingestion, Storage, Computation, and Use.

Benefits:

Scalability, flexibility, governance, integration, and visualization.

Technical Features





Technologies:

Cloud Storage,
Jupyter Notebook,
Python, R ,Git Hub

Highlights:

Ability to handle large volumes of data, integration of diverse sources.

This architecture focuses on the complete management of the data lifecycle, from capture to use, with a particular emphasis on data scalability, flexibility, and governance. Robust integration for DANE, where data collection, analysis, and dissemination are core activities.

Functions:

Open Data: Open data is collected from various sources (ANDA, DANE, etc.) to enrich the analysis.

Tracking User History: The history of data usage is recorded for auditing and behavioral analysis purposes.

Ingestión: Model Container: Se utiliza un contenedor para gestionar y ejecutar modelos de análisis.

Orchestration: The flow of data through the different components is coordinated.

Storage: Data Lake Storage: Data is stored in a variety of forms to facilitate different types of analysis. The Data Lake allows large volumes of data to be stored in its original format, while Data Lake Storage stores structured data for more traditional analysis.

Unified Storage: A unification of storage is sought to facilitate management. Computing: Code is used to process and analyze data.

Version Control: Code versions are managed to ensure traceability.

KPI: Key performance indicators are calculated to measure the success of initiatives.

Technical Details

General conceptual overview



Technologies:

Cloud Storage,
Jupyter Notebook,
Python, R ,Git Hub

Highlights:

Ability to handle
large volumes of
data, integration of
diverse sources.

Use:

- Filter database:** Data is filtered for specific subsets.
- Dashboard:** The results of the analyses are visualized in a clear and concise manner.
- Model:** Machine learning and predictive models are created to extract insights from the data.
- Data Governance:** Policies and procedures are established to ensure data quality, security, and privacy.
- GeoRef:** The geographical dimension is incorporated into the analyses.

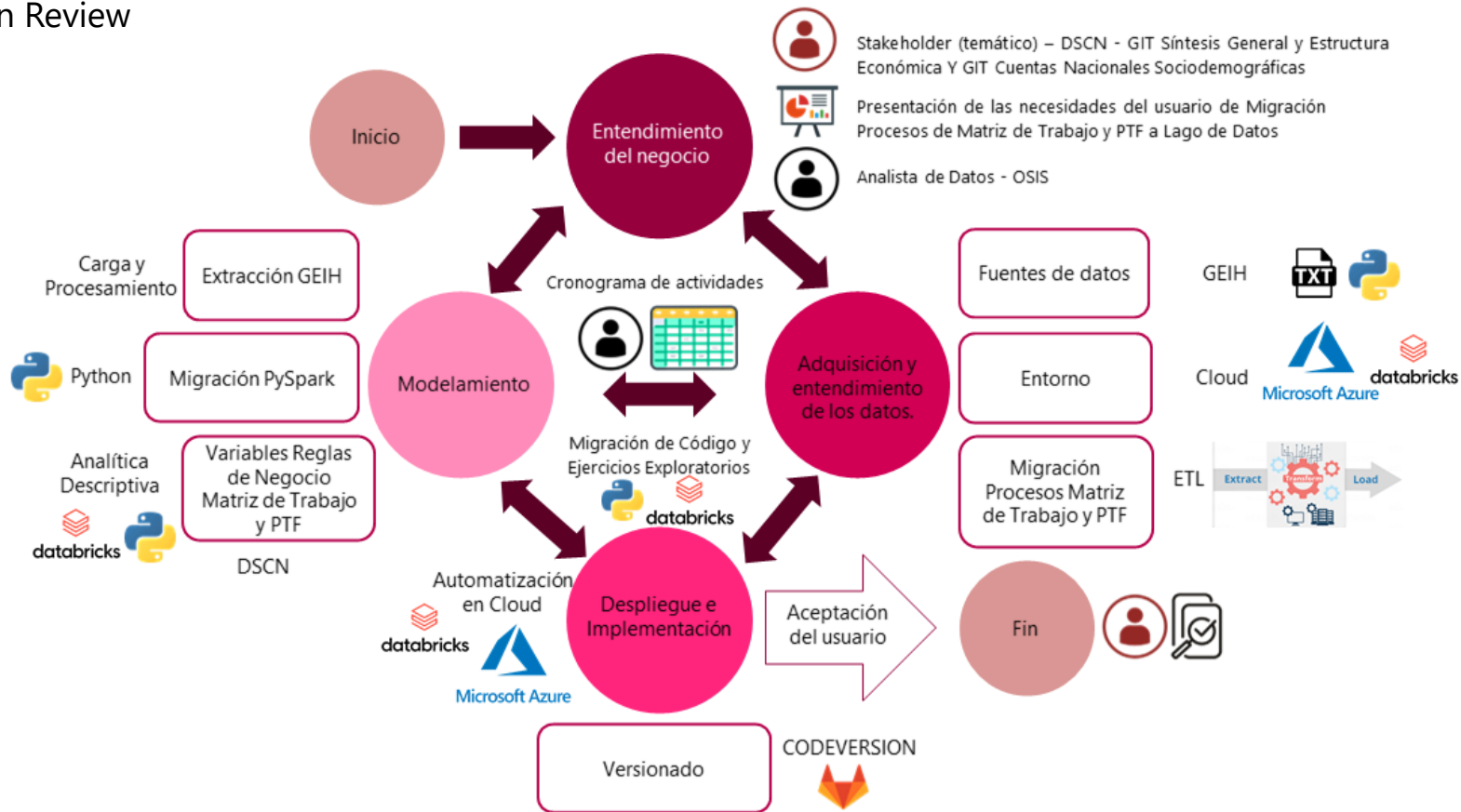
Benefits for DSCN and DANE:

- Scalability:** The architecture allows you to handle large volumes of data and scale resources as needed.
- Flexibility:** It adapts to different types of analysis and data sources.
- Governance:** Ensure data quality, security, and privacy.
- Integration:** Combine data from a variety of sources for a more complete view.
- Reproducibility:** Version control and notebooks allow you to reproduce the analyses.

Production scheme and workflows Pilot exercise



Stage Flow In Review

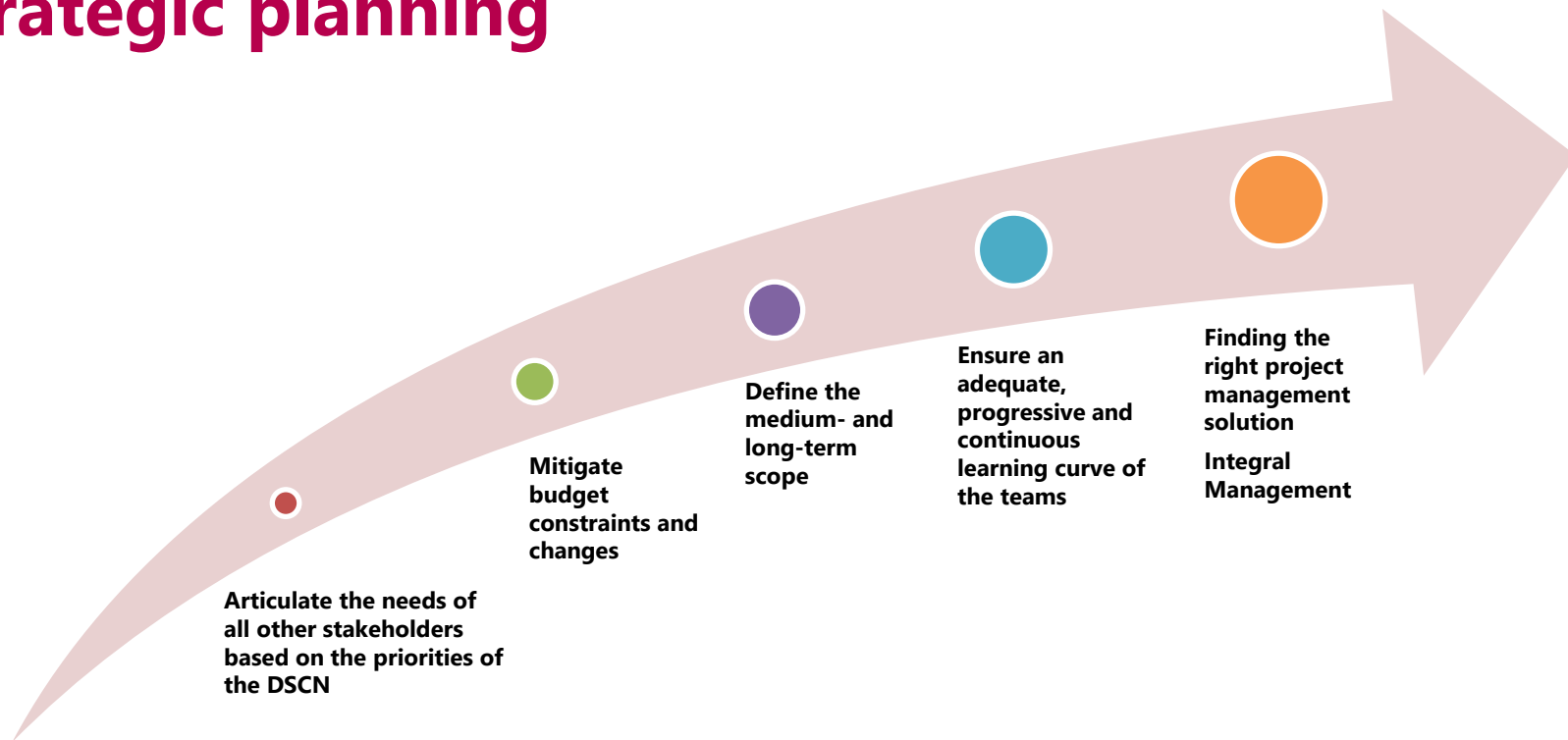


Challenges



What's next...

Strategic planning





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