Irving Fisher Committee on
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

IFC Satellite meeting at the ISI Regional Statistics Conference on *"Is the household sector in Asia overleveraged: what do the data say?"*

Kuala Lumpur, Malaysia, 15 November 2014

The information model at Bank of Portugal – using micro data to face challenges for central banks[1]

João Cadete de Matos, Bank of Portugal

[1] This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS or the central banks and other institutions represented at the meeting.

The information model at *Banco de Portugal*: using micro-data to face central banks' challenges

BANCO DE PORTUGAL
EUROSYSTEM

João Cadete de Matos • Director, Statistics Department

17 November 2014

ISI Regional Statistics Conference
Kuala Lumpur

Outline

1. Introduction
2. Integrated management of information
3. New responsibilities of the Statistics Department
4. Micro-databases for statistical purposes
5. The relevance of micro-data for users and for analytical purposes

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1. **Introduction**
2. Integrated management of information
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Data acquisition model for statistical purposes typically relied on traditional aggregated reporting schemes

- Forms were designed to answer pre-defined requirements
- Lengthy preparation time
- Zero flexibility
- Heavy transformation rules imposed to respondents
- Classifications are “black boxes”
- Difficult to perform a reliable and efficient data quality management

Over the last 15 years significant changes were introduced in the statistical compilation processes at BdP

- Item-by-item reporting
- Approaching the granularity of the internal and external data at the respondents' level
- Multi-purpose reporting ("data reported only once")
- Use of administrative data
- Micro-databases
- Integration of data

A new paradigm

Integrated management of micro-databases

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2. **Integrated management of information**

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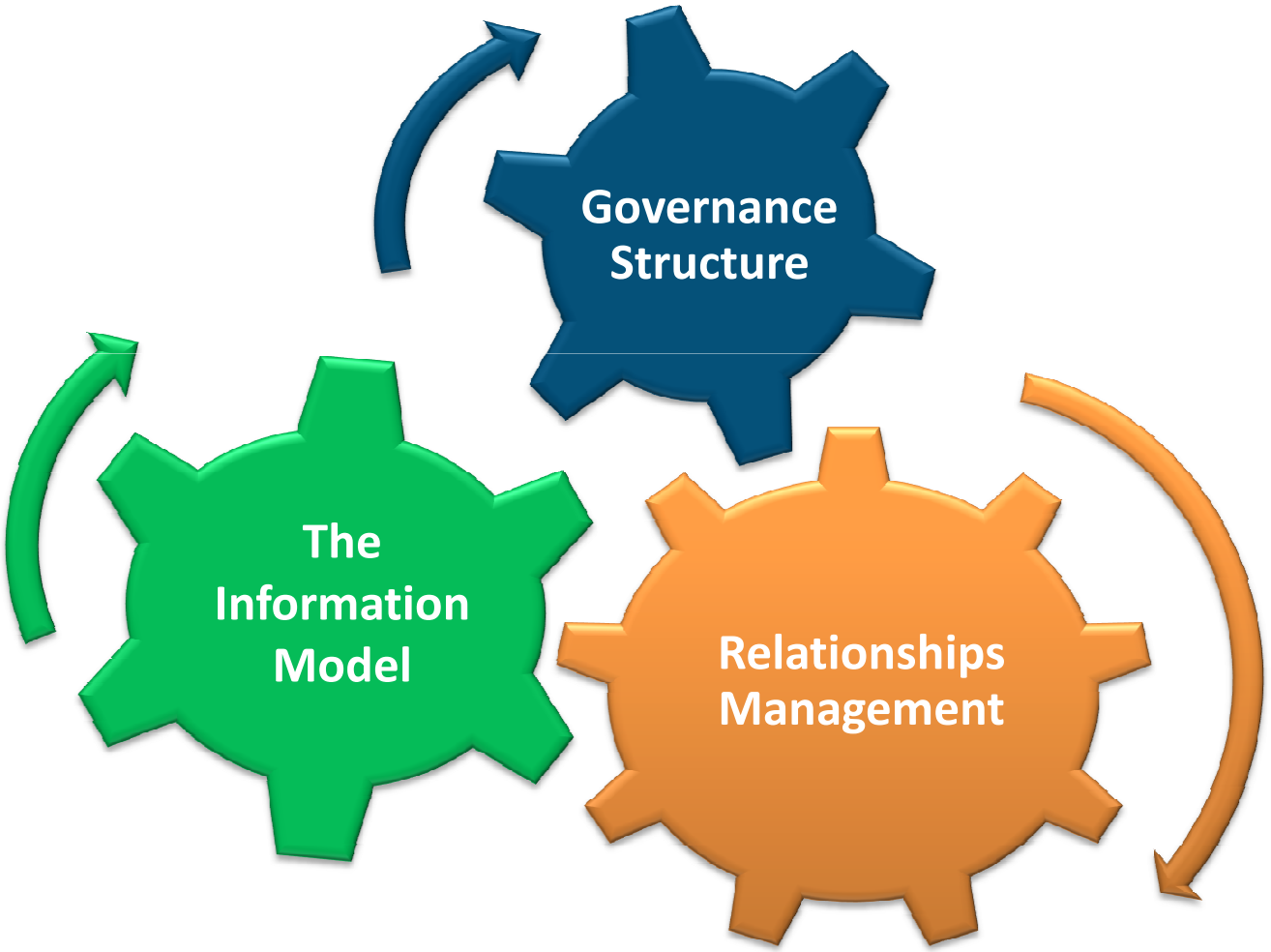
The three dimensions of the model



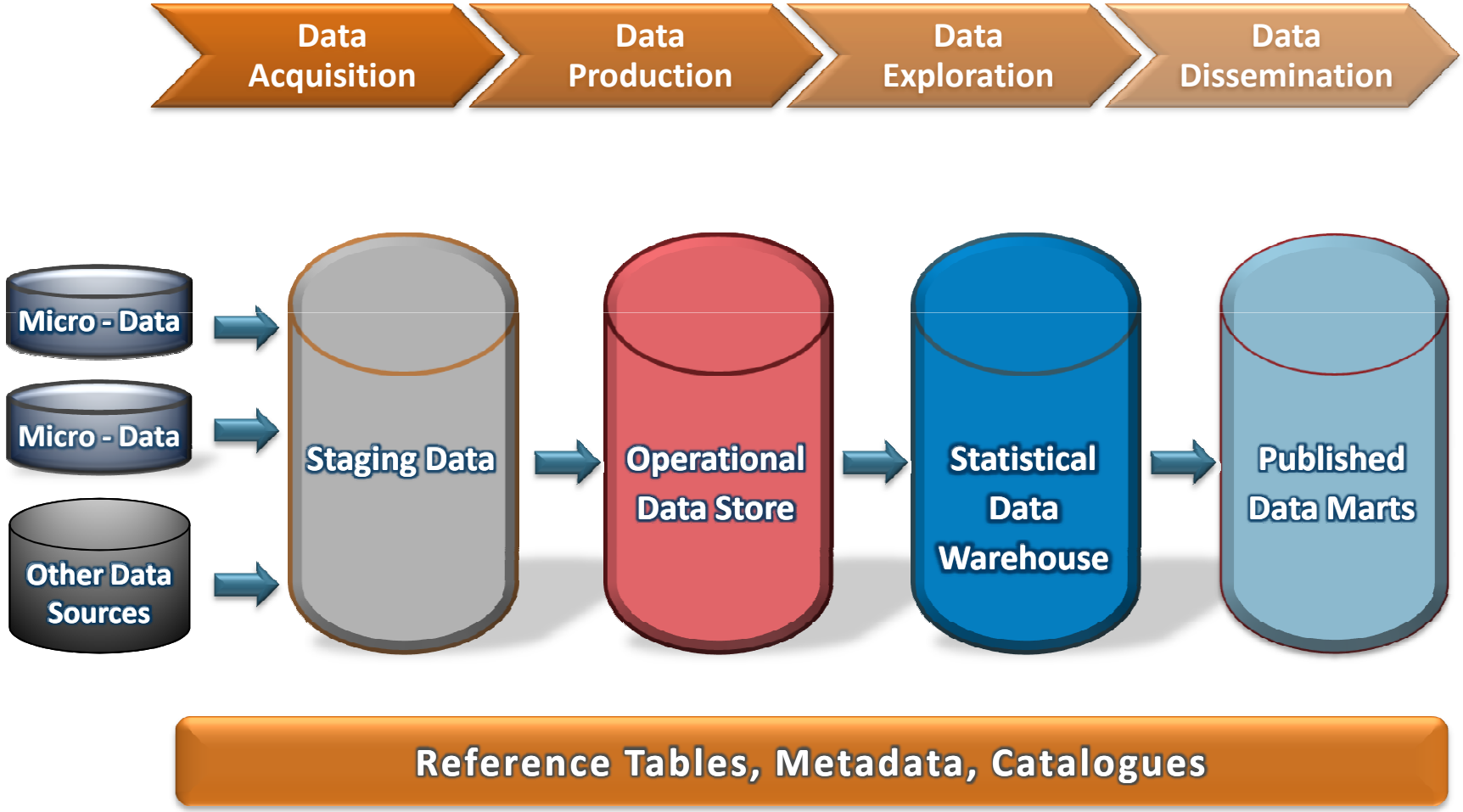
A governance structure to ensure a proper alignment between the strategic and operational levels of decision, which are mediated by the information management level

The relationships management to introduce greater efficiency in the internal communication process. Based on two principles:

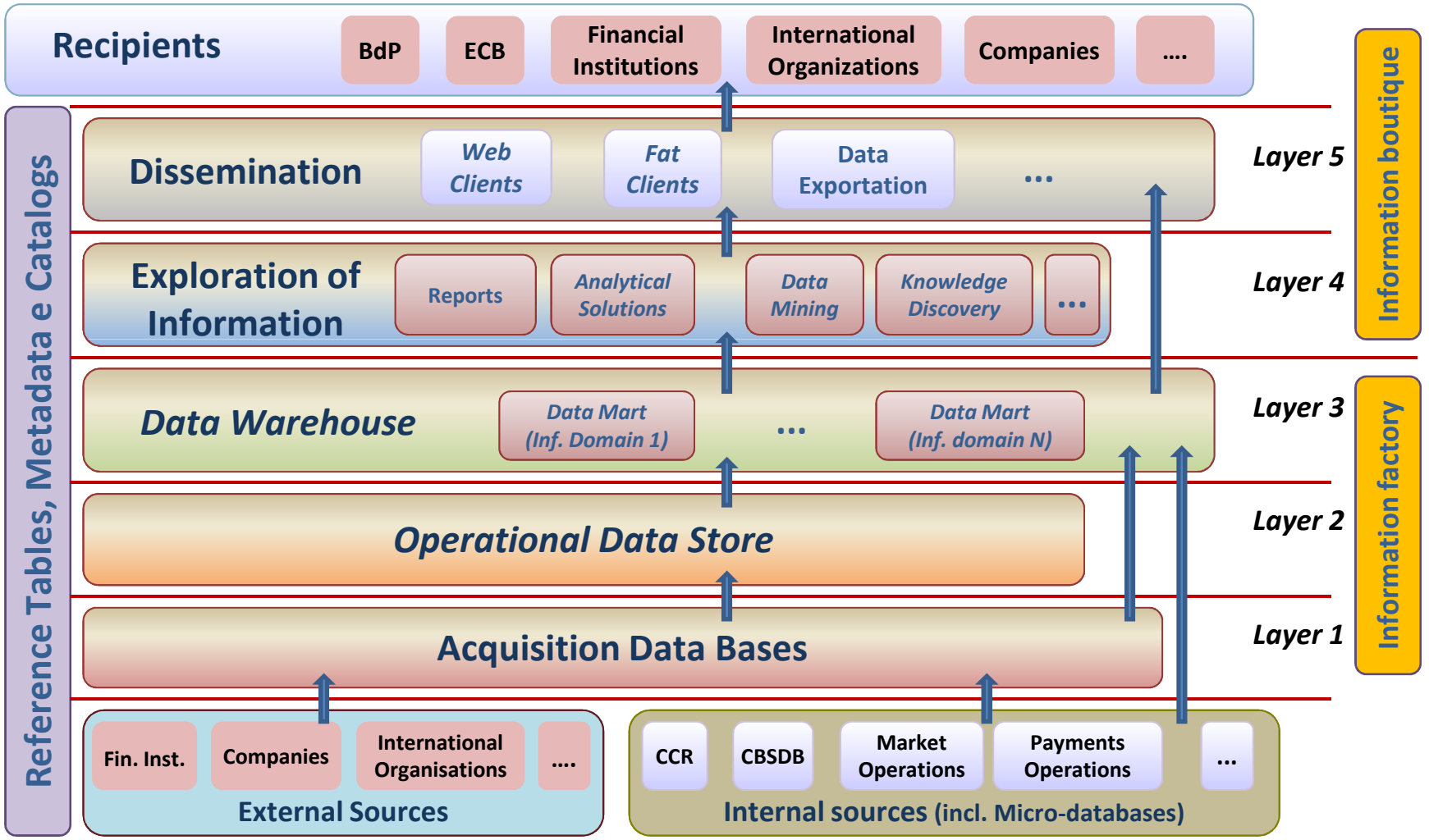
- Information is a fundamental asset of the Bank so it must be managed in an integrated way
- The exploration and analysis of data are distributed activities, typically related with the needs and tasks of each department

An information model based on the BI architecture for statistics

The Information Model



The Information Model



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The Statistics Department will be in charge of the operational management of information

Expertise in managing data efficiently and performing reliable DQM

The Statistics Department will become a provider of information services to the Bank

A multi-step approach will be followed

The first phase will be integration of the regular reporting for Banking Supervision purposes

Operational management issues

- Coordinating and monitoring the process of collecting quantitative information from external entities
- Ensuring the central point of contact of the Bank with external entities on the reporting of quantitative information
- Monitoring the interaction and timely reporting of information to and from external entities
- Analysing the changing needs of quantitative information identified by other departments

3. New responsibilities of the Statistics Department

Ensuring the quality of information, defining indicators of their use and ensuring its relevance and auditability

Promoting, in conjunction with the IT Department and the user departments:

- **The organisation of information architectures, namely by identifying objects, features and respective relationships and configuring the domains of integration to manage**
- **The definition of concepts and creation of metadata associated with different information objects in order to avoid duplication and facilitate the understanding/utilization of information**
- **The creation of catalogues / dictionaries / repositories of information available on particular operating systems**

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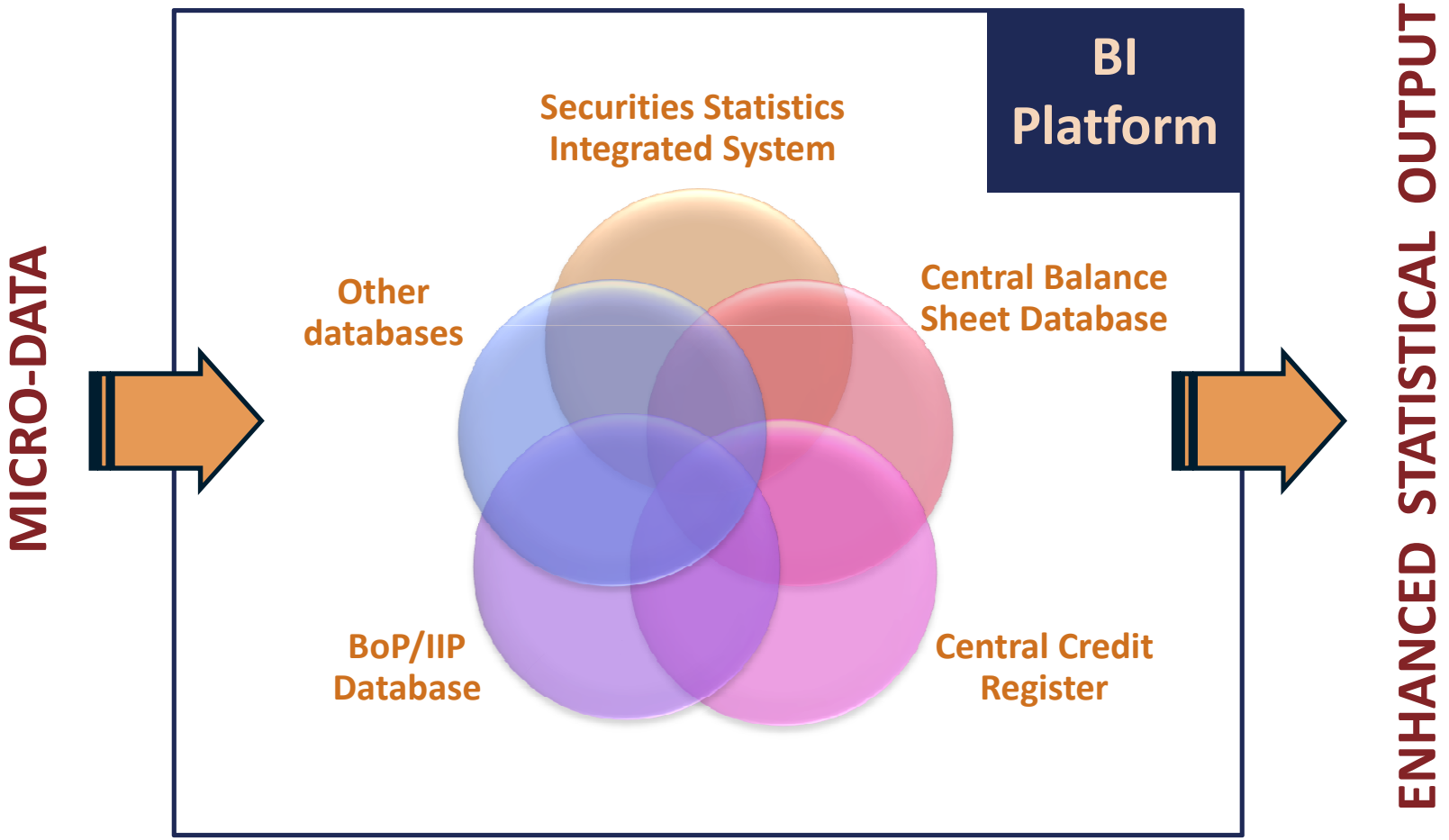
Statistics and IT Departments worked together to define a Business Intelligence (BI) architecture for statistics

- The BI architecture implied:
  - Defining the different layers of data according to the different levels of its usage
  - Building a robust ground layer with common reference data, metadata and catalogues
  - Choosing the appropriate tools to explore the data efficiently

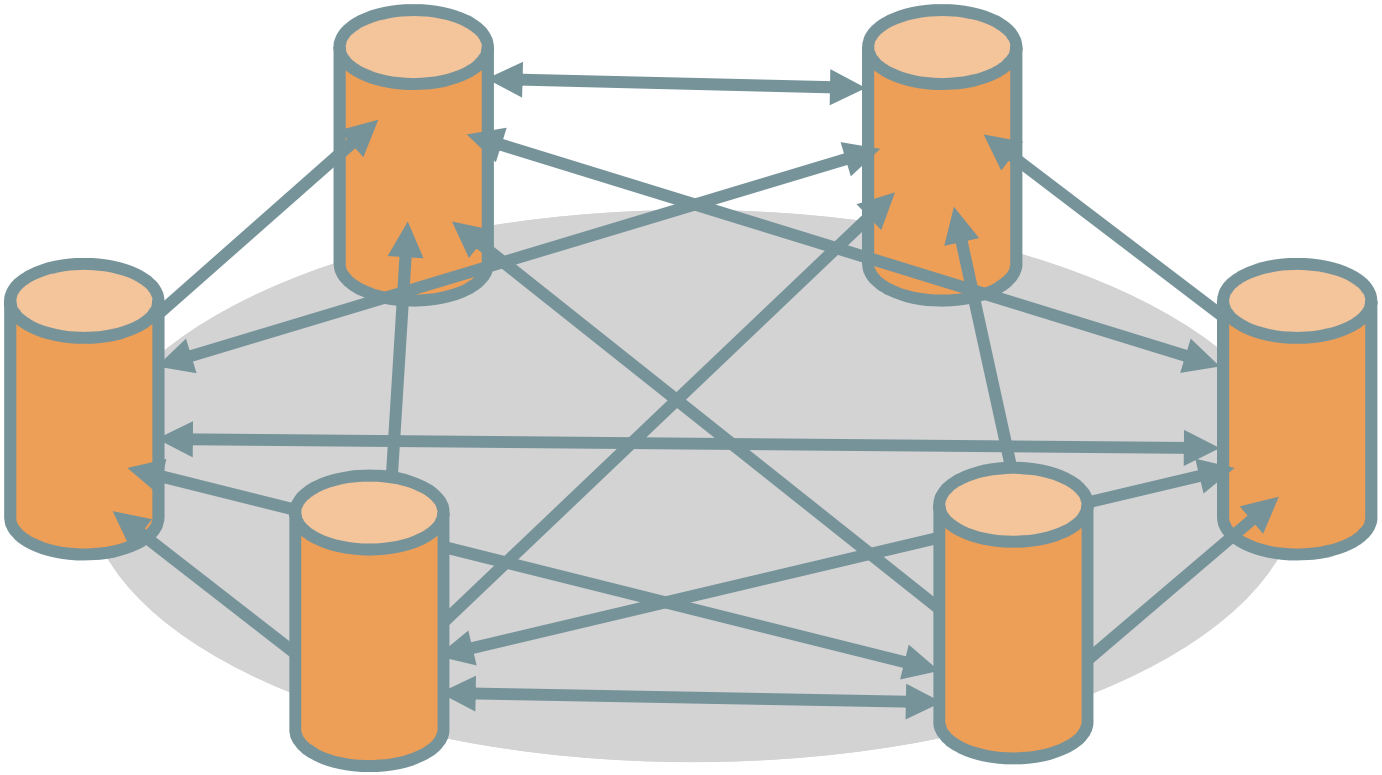
The BI architecture should be adopted by all statistical domains using an incremental approach


MICRO-DATA
BI Platform
Securities Statistics Integrated System
Other databases
Central Balance Sheet Database
BoP/IIP Database
Central Credit Register
ENHANCED STATISTICAL OUTPUT

Micro-data integration

Where do we come from?

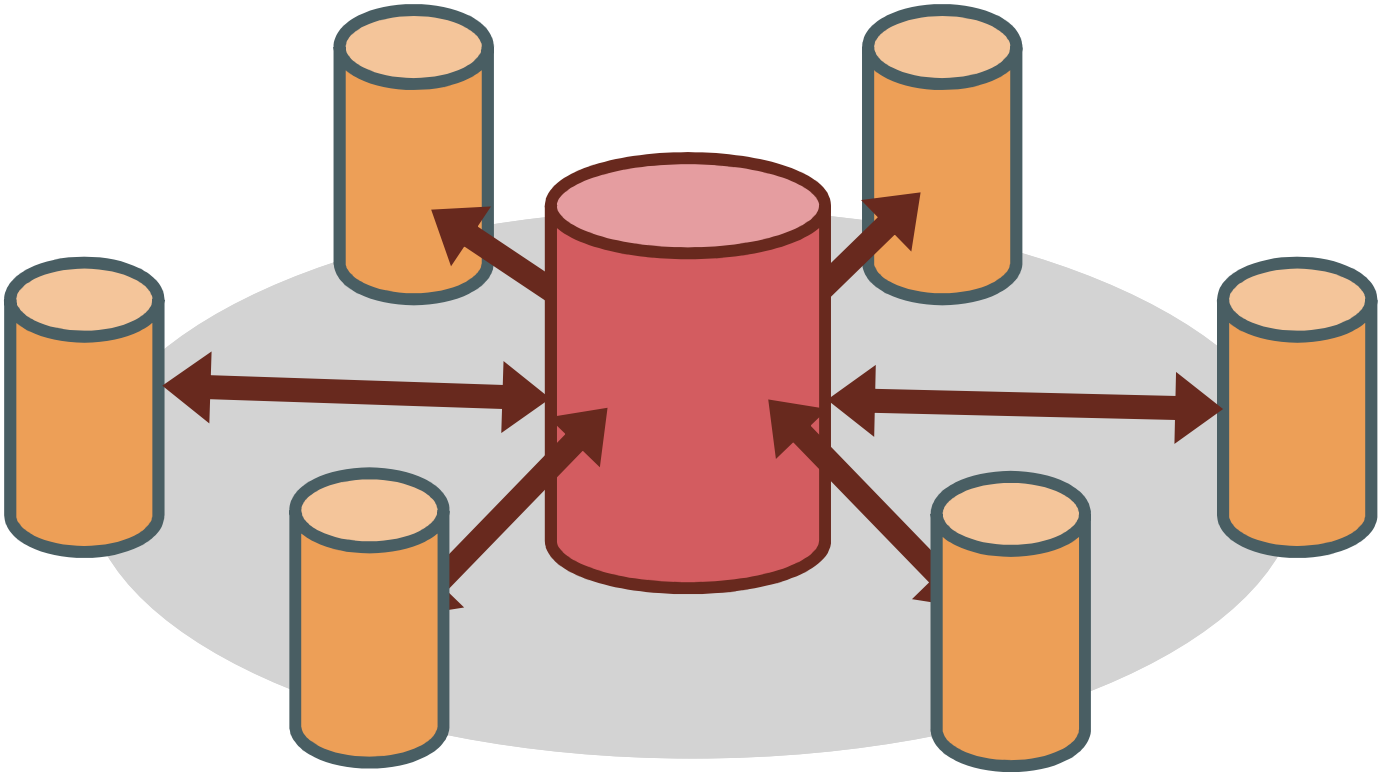
Direct data integration



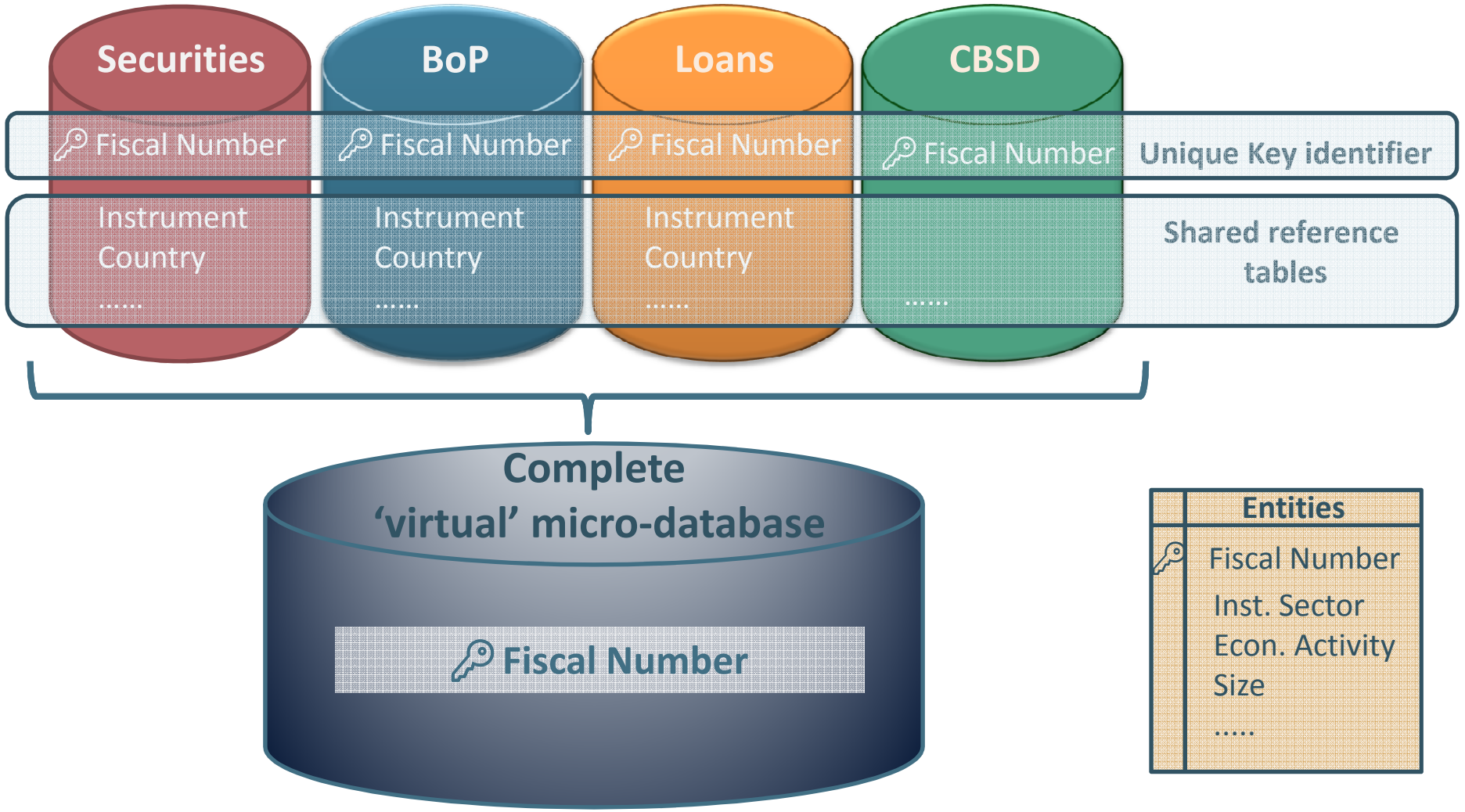
Micro-data integration

Where do we want to arrive at?

Fully integrated data warehouse



Pre-requisites

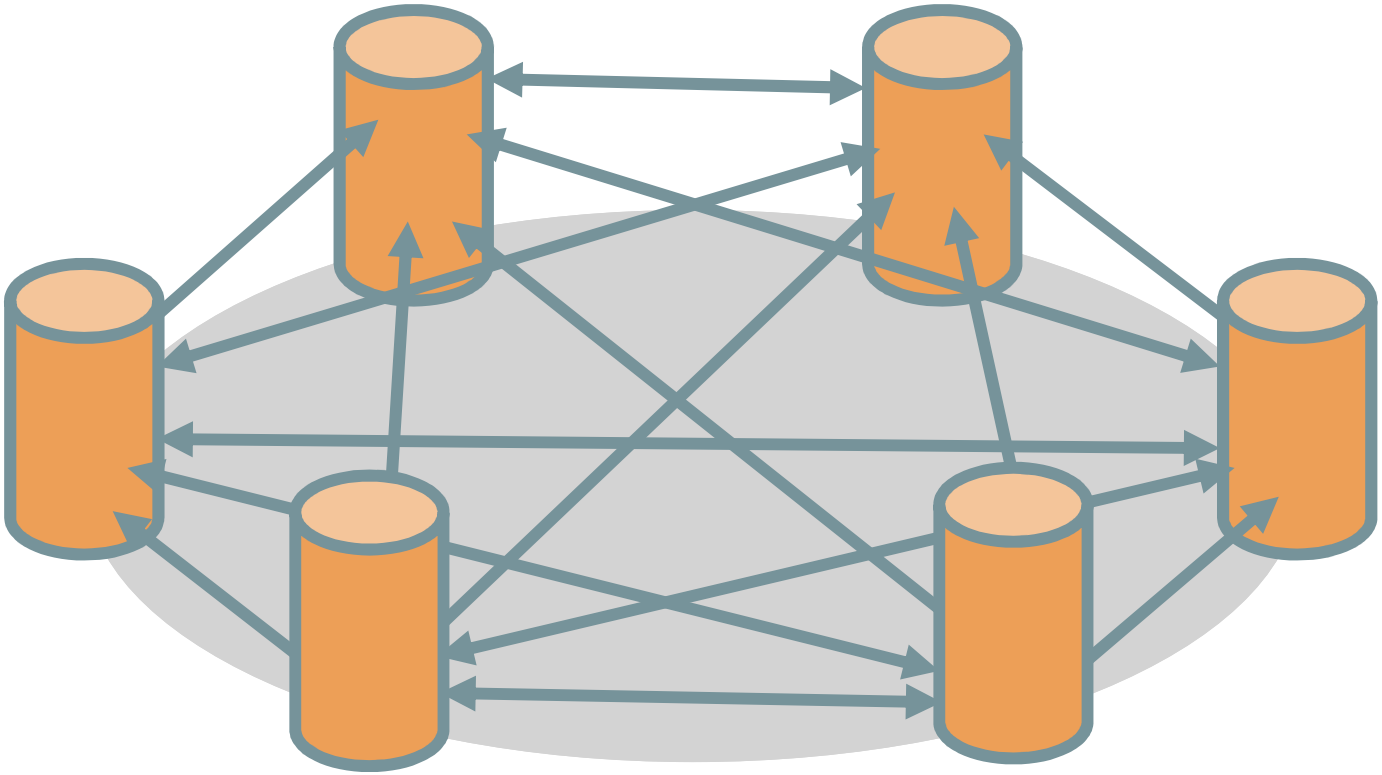


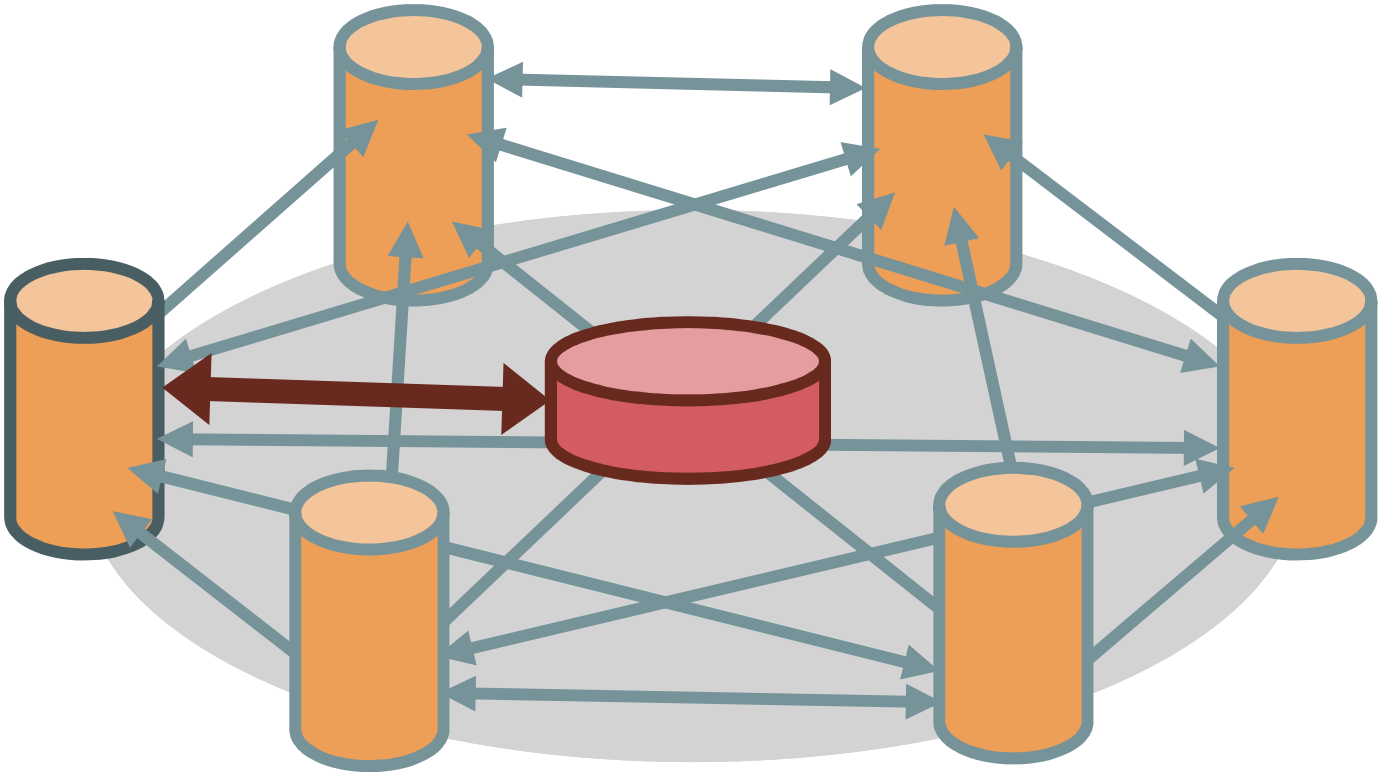
Micro-data integration

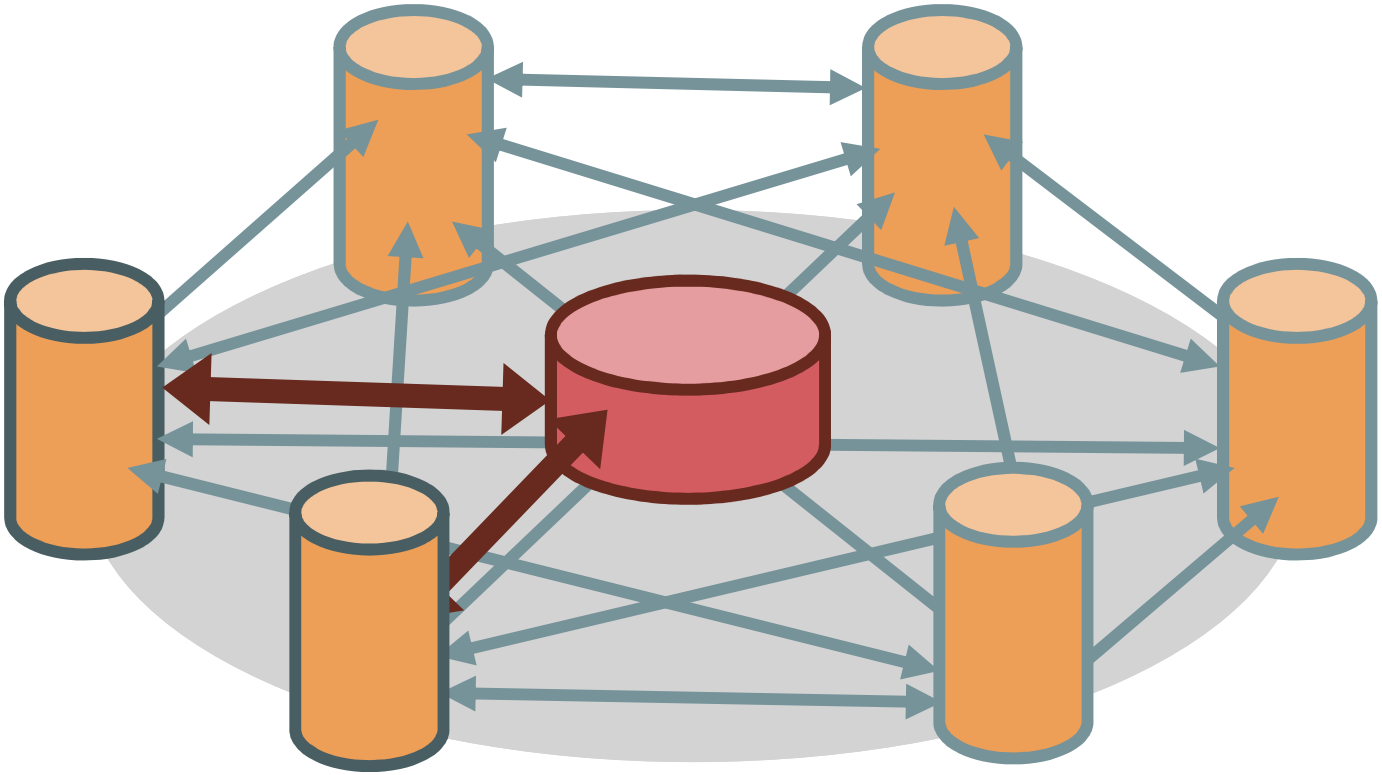
How to proceed?

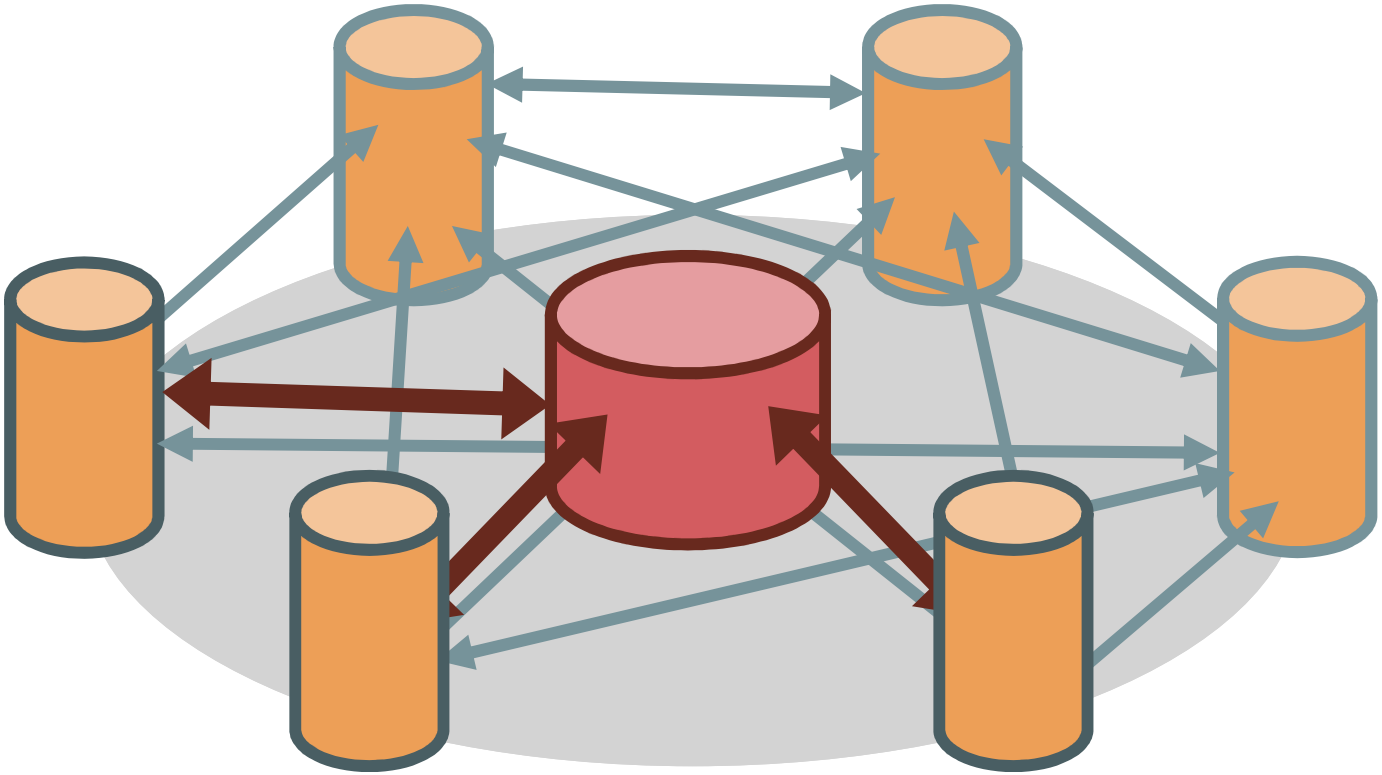
Incremental approach

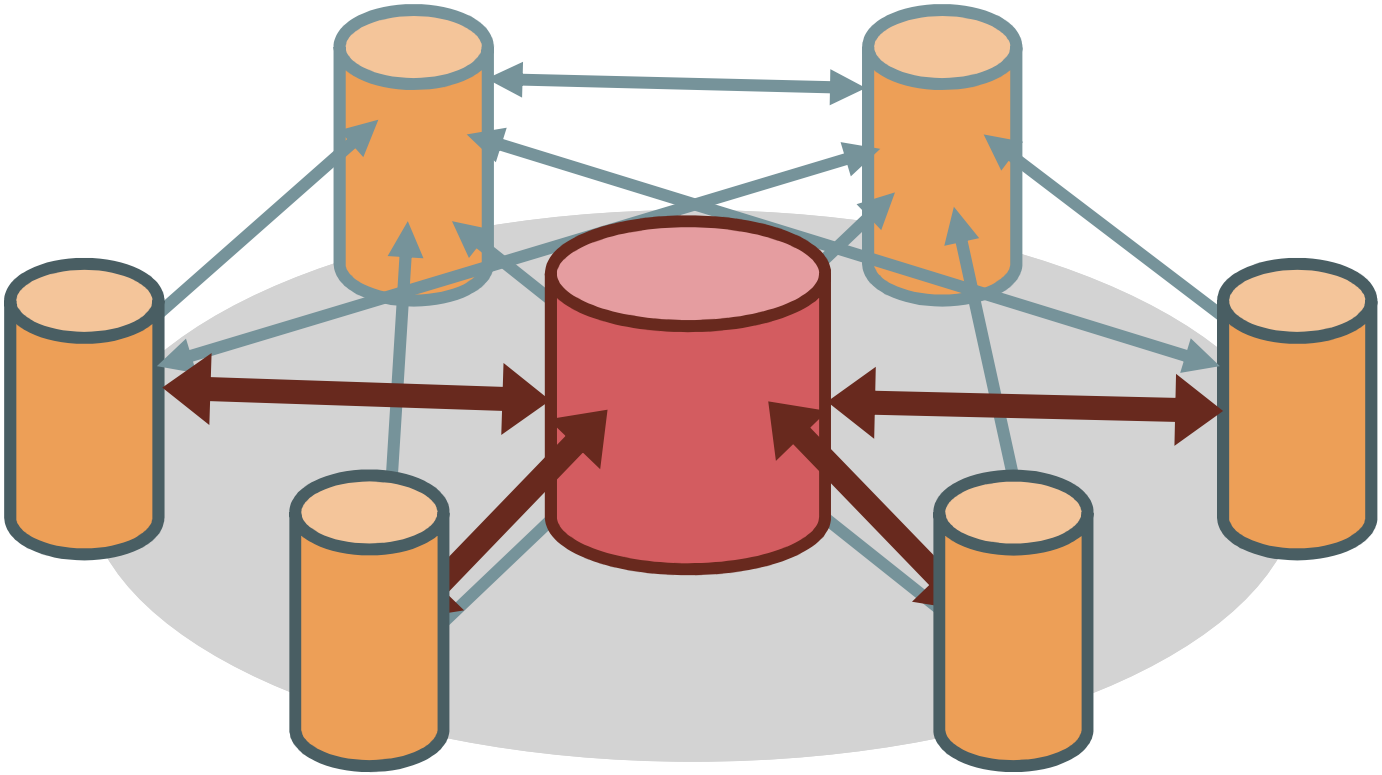
From direct data integration ...

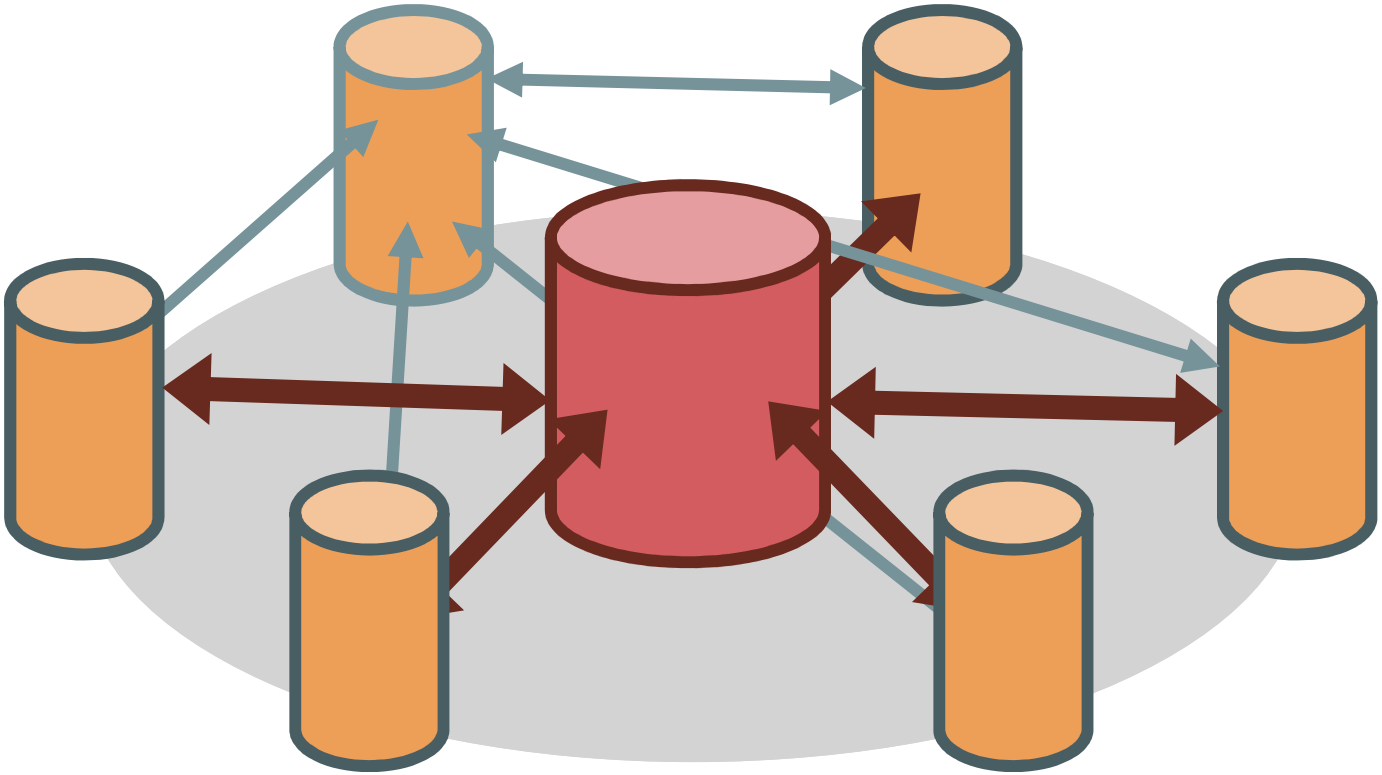




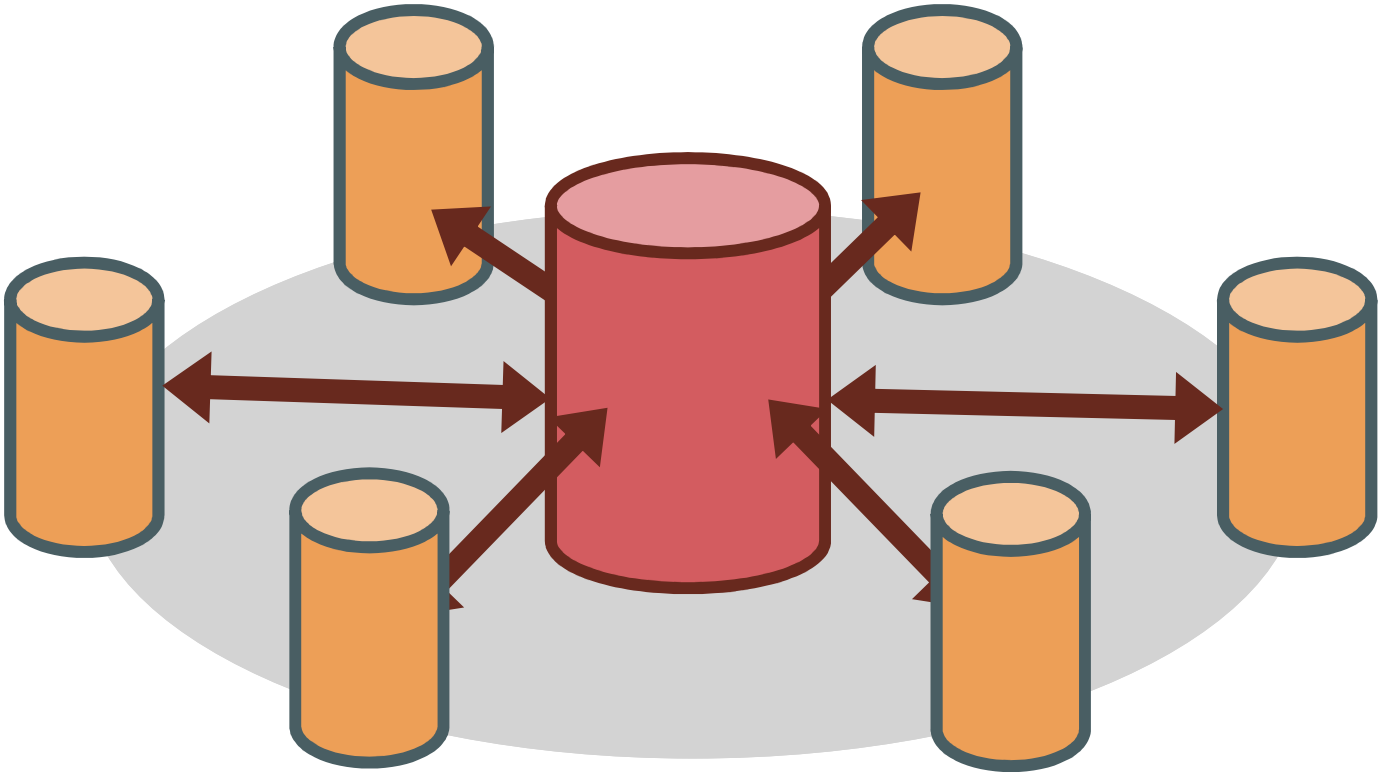




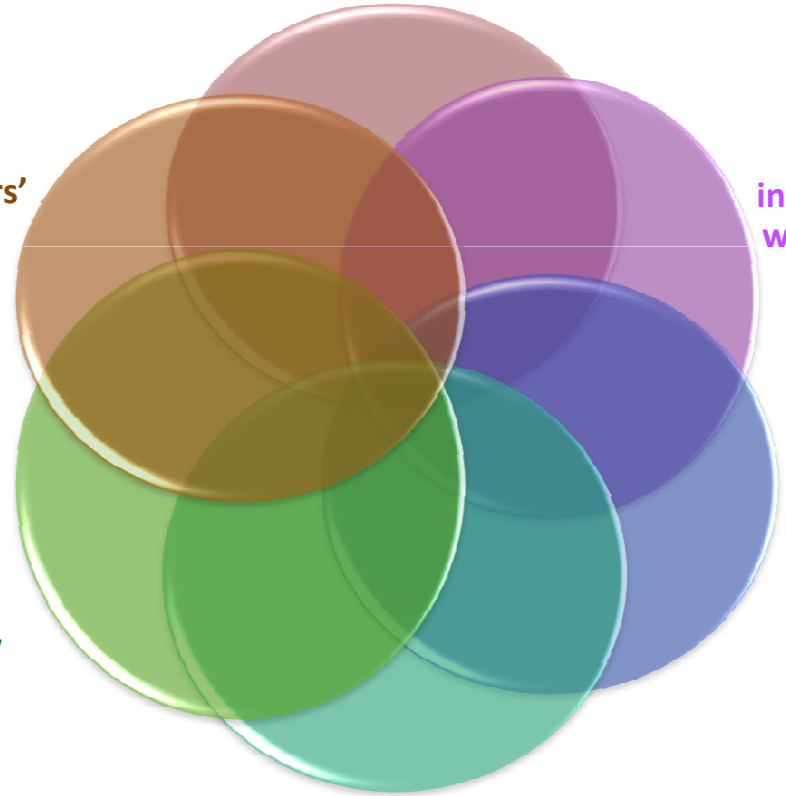




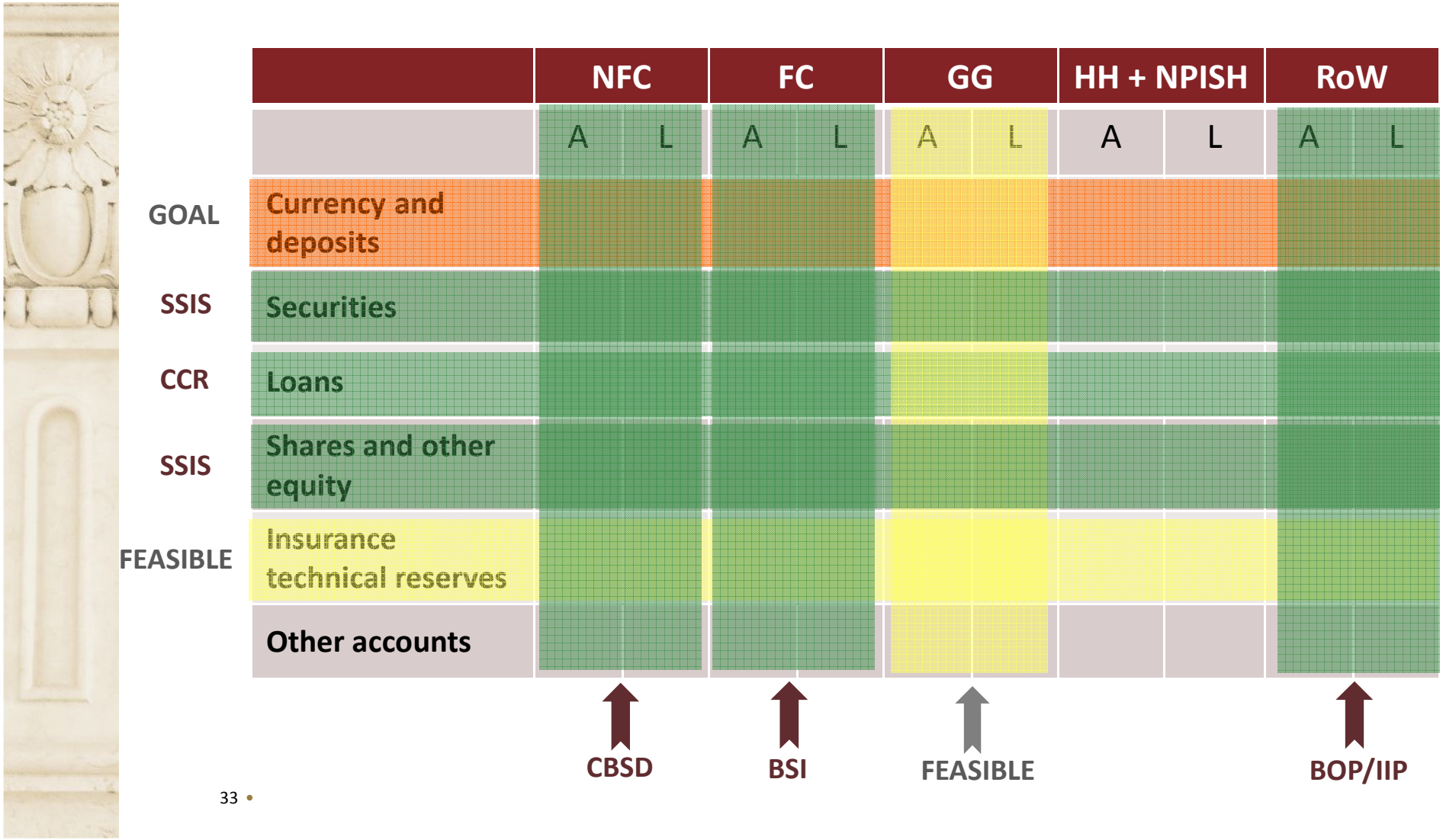
... to integration via a central repository of coherent and consistent information.



Micro-data – Strengths and Opportunities



FINANCIAL ASSETS AND LIABILITIES, INSTITUTIONAL SECTOR AND INSTRUMENT



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A micro-data application: The Statistical Bulletin's table on...

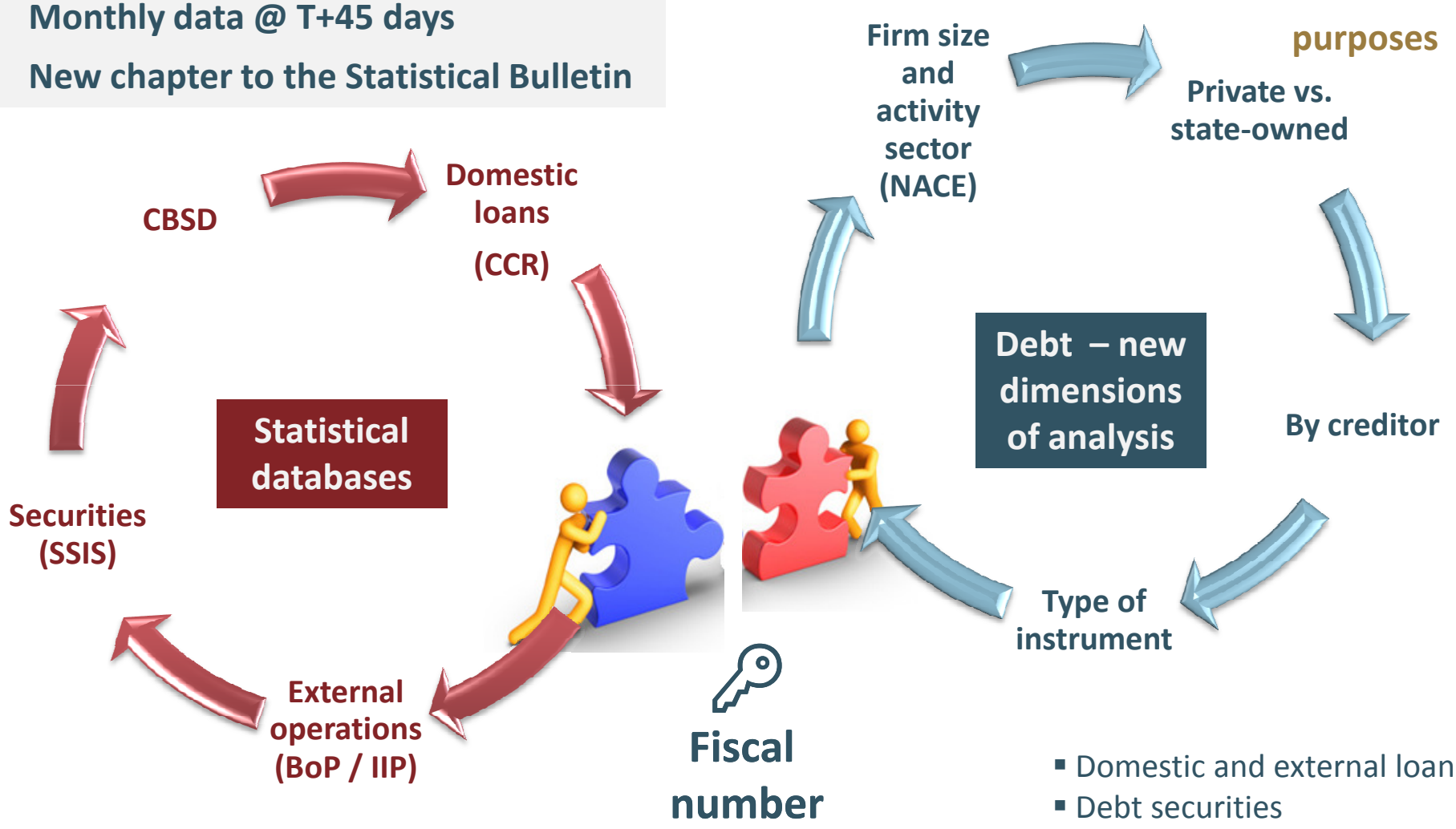
Non-financial Sector Indebtedness

It provides **information about the indebtedness of the non-financial sector, combining several different dimensions of analysis**, namely:

- **Debtor and creditor sector**
- **Size of the company**
- **Type of financial instrument**
- **Economic activity**
- **Original maturity**

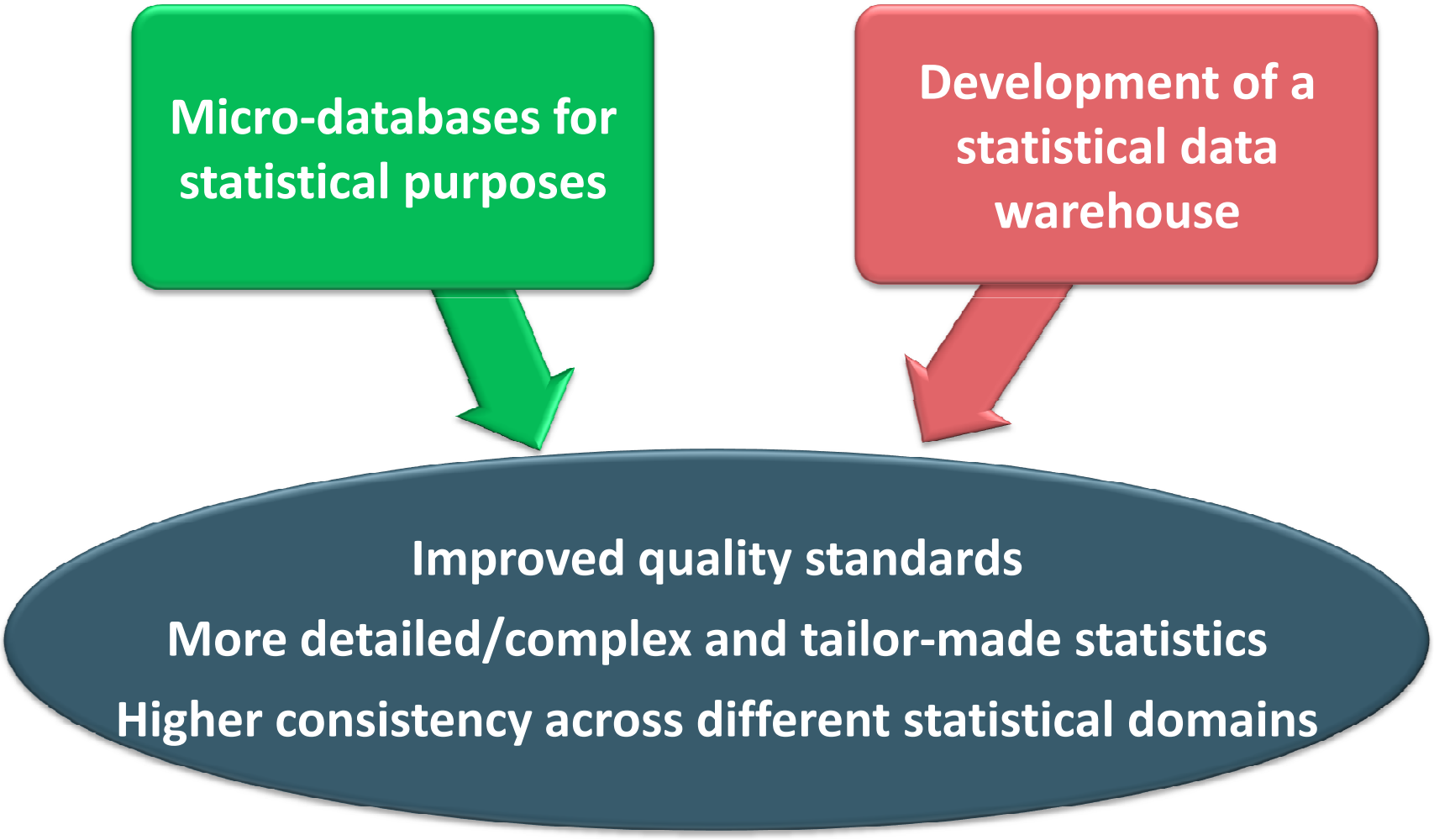
5. The relevance of micro-data for users and for analytical

- Monthly data @ T+45 days
- New chapter to the Statistical Bulletin



- Domestic and external loans
- Debt securities
- Trade credits

Concluding…Innovative and flexible data solutions



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Thank you for your attention