Data Orchestration: Bringing Together Economics and Data science

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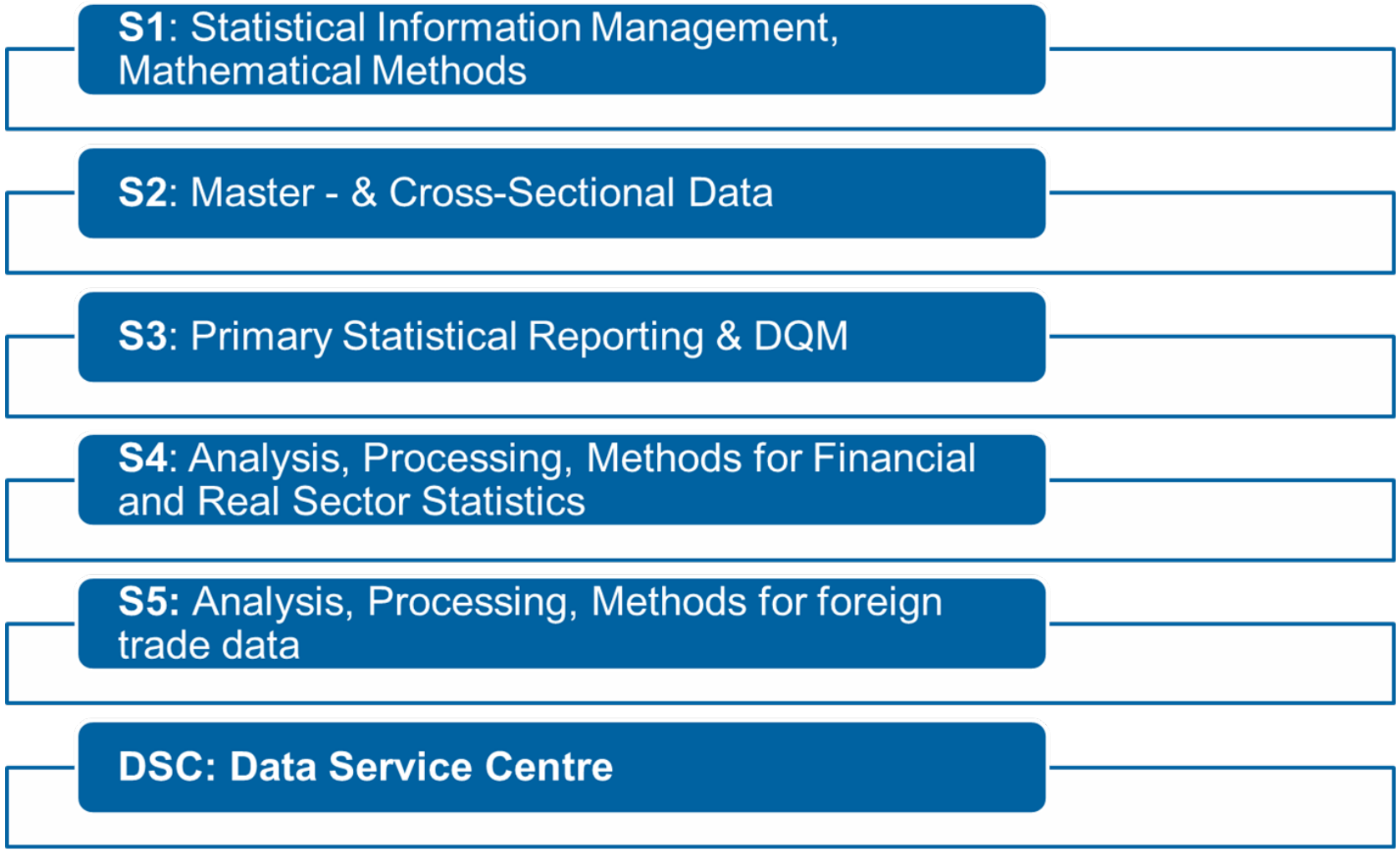
The views expressed here do not necessarily reflect the opinion of the Deutsche Bundesbank or the Eurosystem.

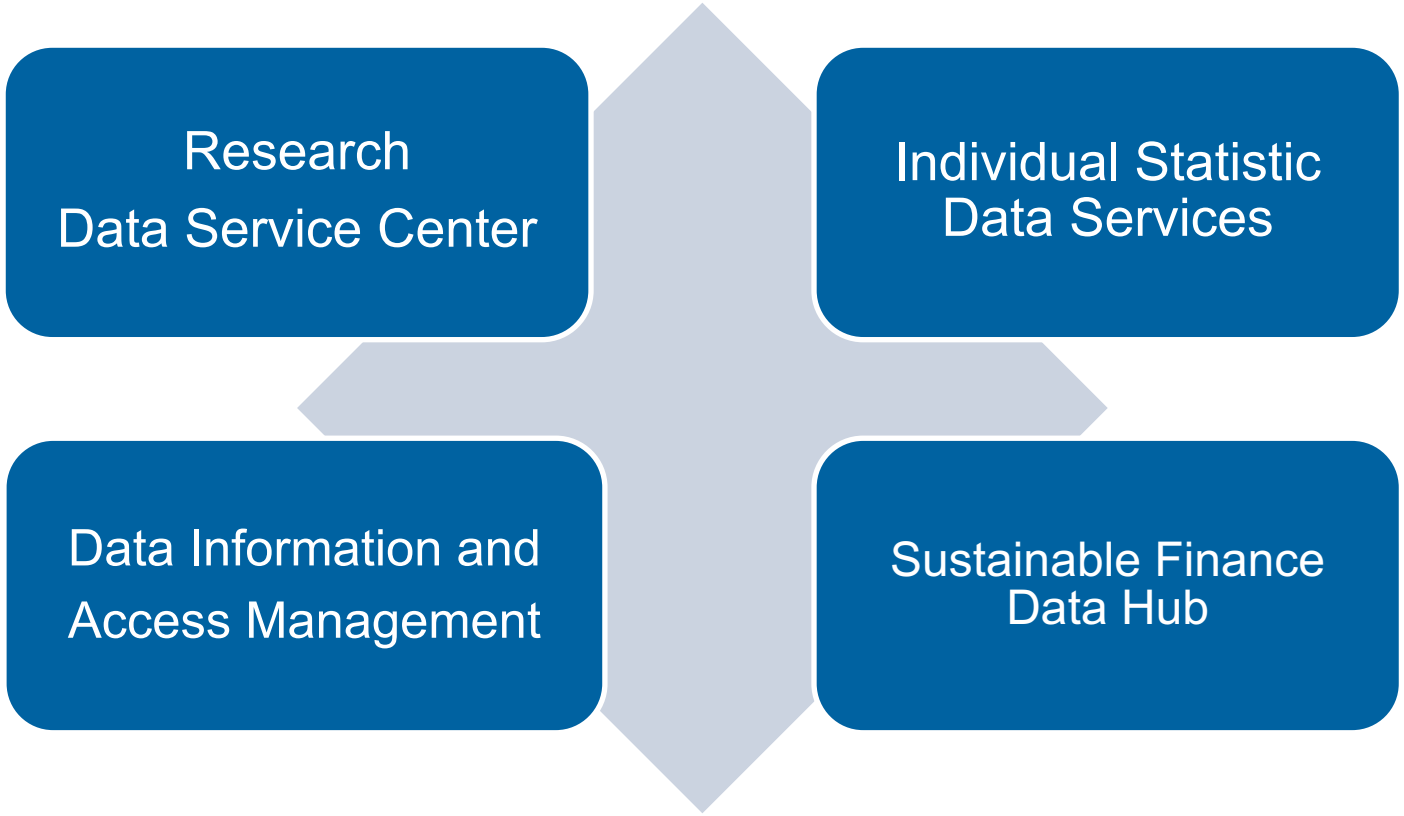
Agenda

1. Data Service Center (DSC) and Sustainable Finance Data Hub
2. Data Landscape for Climate Risks and Selected Projects
3. Conclusion

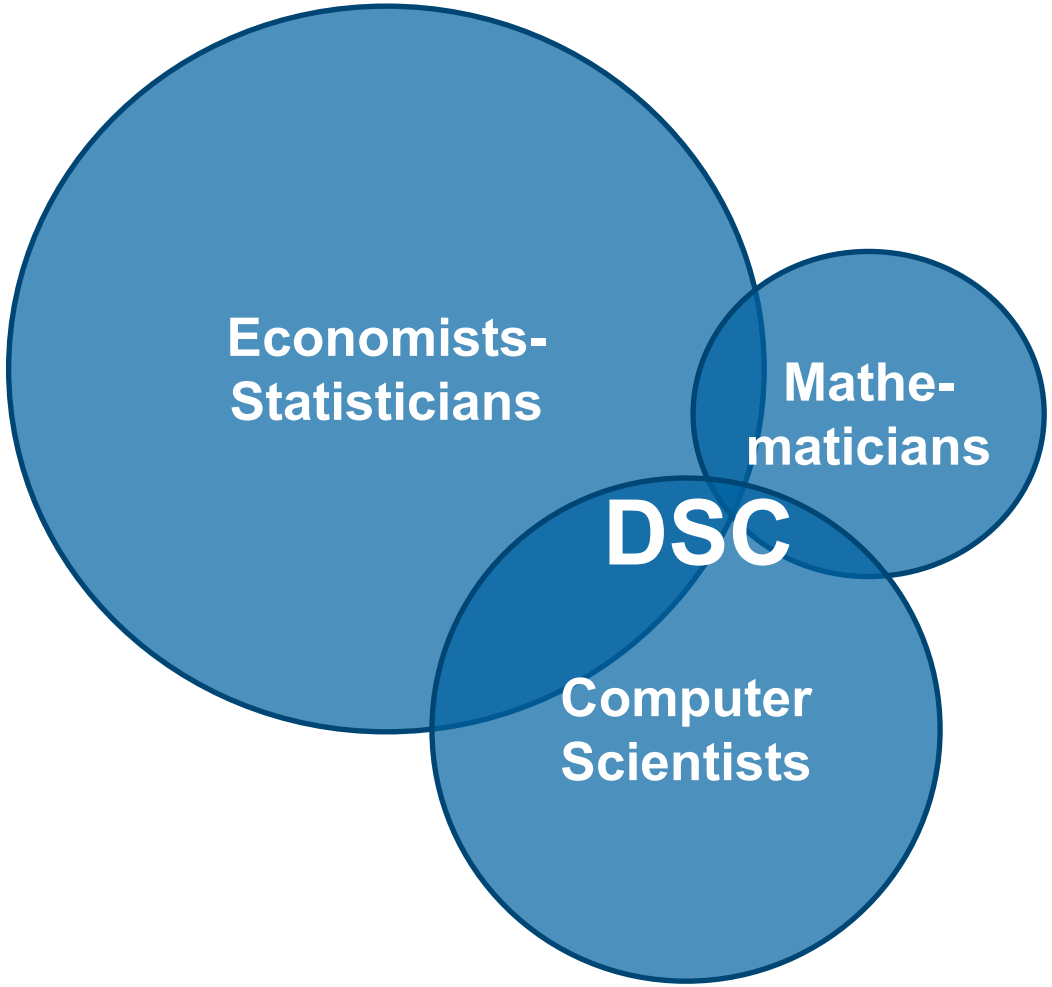
Directorate General Statistics



Data Service Center



DSC: Staff Profile of Higher Service in the DSC



Central banks have an urgent need for high-quality easy-to-use climate data

Climate risks are increasingly important for central banks …

> *Climate risks are a source of considerable financial risks*

Sabine Mauderer,
Bundesbank board member*

> *Climate change and climate policy also affect inflation and growth. [...] This will require, amongst other things, better data, which we should also demand.*

Dr Joachim Nagel,
Bundesbank President**

… yet so far we walked essentially in the dark

- **Reports** e.g. from the Financial Stability Board*** and the Network on Greening the Financial System**** **highlight the need to accelerate progress to make climate data available**
- The **lack of good quality and accessible climate** data poses a challenge for all that rely on informed decision-making (policymakers, analysts, and the private sector alike)
- Global progress is under way, but in the short and medium-term, **leveraging on already available data sources** is essential to fulfil urgent data needs

* Speech available on Bundesbank website here
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*** FSB, 2021 (here)
**** NGFS, 2021 (here)

Bundesbank set up the Sustainable Finance Data Hub as a centre of competence for climate data

MISSION

A **central data hub** was set up in early 2020 as a centre of competence to support climate-related analyses within Bundesbank through climate data

STRUCTURE

The data hub is a **specialized unit** within DG Statistics with 6 FTEs, serving user needs within the whole bank

DATA

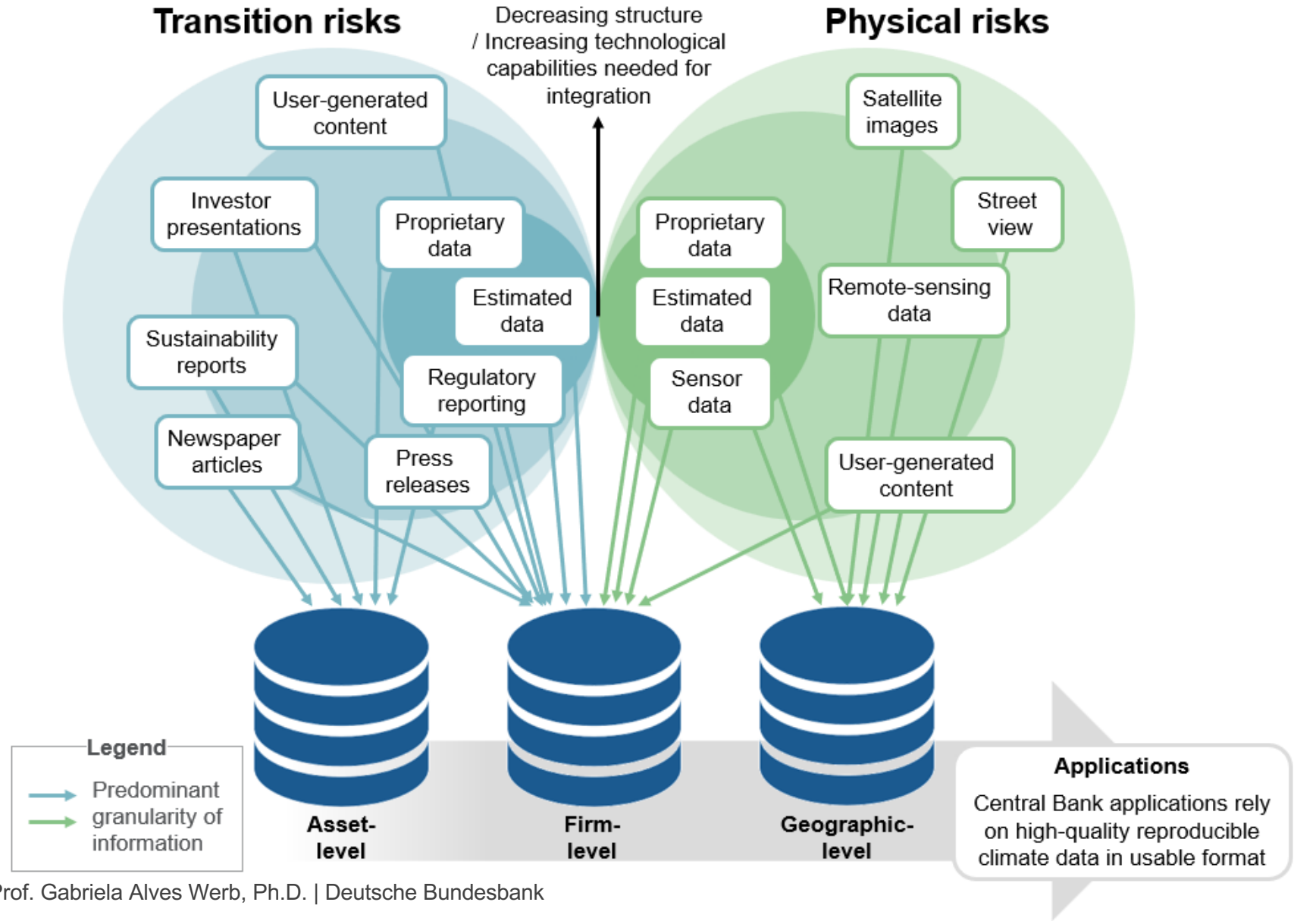
Data is provided for all analysts and researchers. The Hub is also the **first contact point** for any methodological questions

The data hub **enriches and distributes** data and engages in innovative data generation projects

EXCHANGE

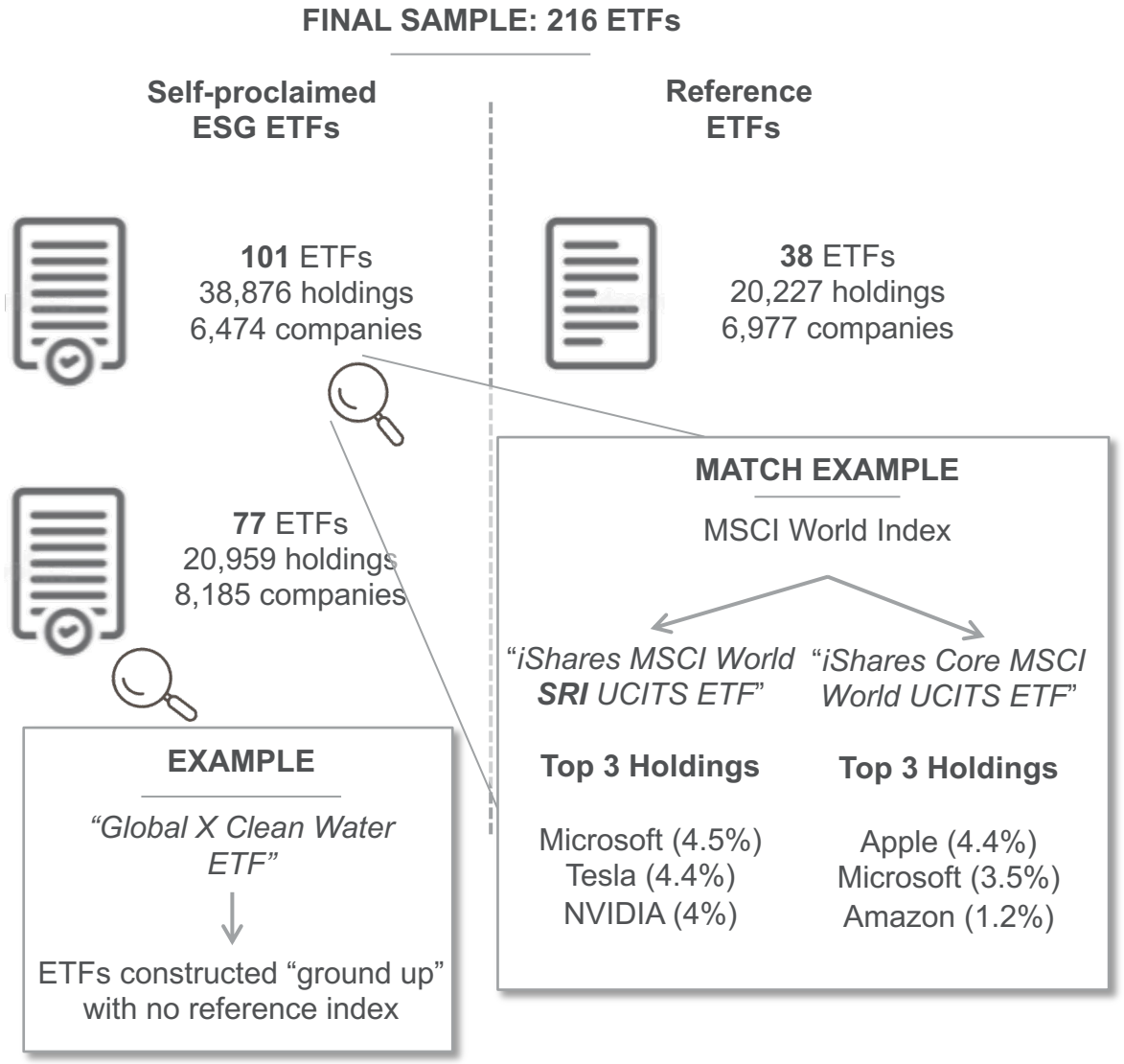
The data hub actively contributes **to international discussions** in working groups and conferences

Data Landscape for Climate Risks



*Alves Werb, Doll (2022), Climate Data Integration for Central Banking and Supervision.

Emissions Profile of Self-Proclaimed Sustainable Funds (Asset and Firm-Level Data)



Application

- How do self-proclaimed "ESG" ETFs[1] differ in terms of **sustainability strategy?**
- How does their strategy reflect on the portfolio's **emission intensity**?

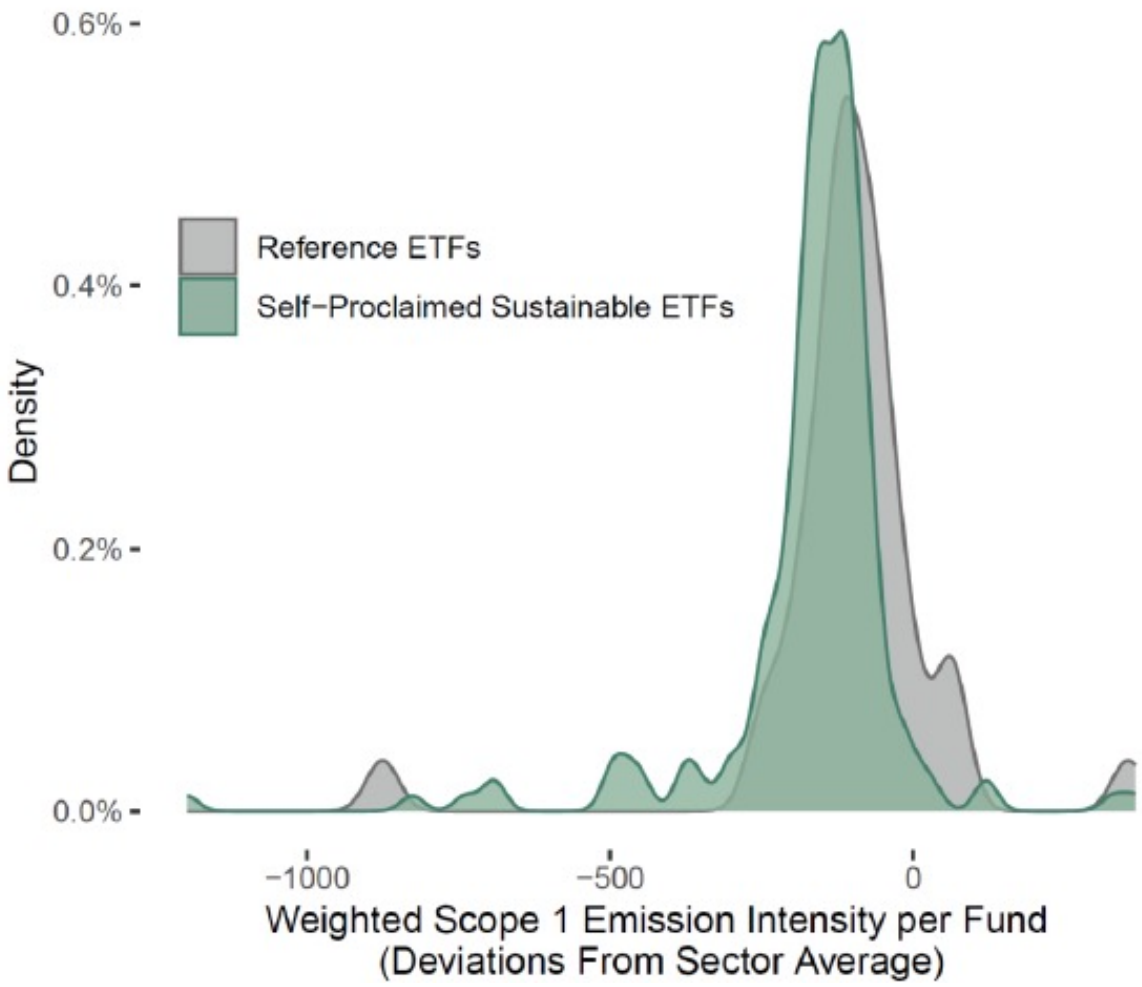
Challenges

- No central public data source for self-proclaimed ESG[2] ETFs (webscraping from each fund issuer)
- Available information is limited, heterogeneous, and in different formats

[1] ETF: Exchange Traded Fund
[2] ESG: Environmental, Social, Governance

Alves Werb, Doll, Fehr, and Yalcin-Order (2022), Measuring the Emissions Profile of Self-Proclaimed Sustainable Exchange-Traded Funds.

Emissions Profile of Self-Proclaimed Sustainable Funds (Asset and Firm-Level Data)



Main Findings

- Most ETFs follow a **negative selection** → shift from energy, mining and quarrying to finance and IT
- **No evidence of a best-in-class** selection within emission-intensive sectors, even though 21% of the analyzed ETFs claim to do so
- 5% of the self-proclaimed sustainable ETFs have **higher average emission intensities** than their reference ETFs

Sustainability Monitor Project (Firm-Level Data)

Challenge: Low Transparency in ESG Indicators

- Most of the reporting is still **voluntary**
- No standard **format** (e.g., text, video, images)
- No standard **terms** (e.g., carbon emissions vs. greenhouse gas emissions)

- Information is spread across **several sources** (e.g., firm's website, sustainability reports, press releases, …)

Sustainability Monitor Project (Firm-Level Data)

Challenge: Low Availability of Structured Data

- Most of **firm self-reported** indicators are in form of **unstructured data**
  - Text
  - Tables in PDF files
  - Images with graphs

- Scores from commercial data providers
  - **Low comparability** across different providers
  - **Proprietary methodology** (frequently not disclosed)
  - Typically **not publicly available**

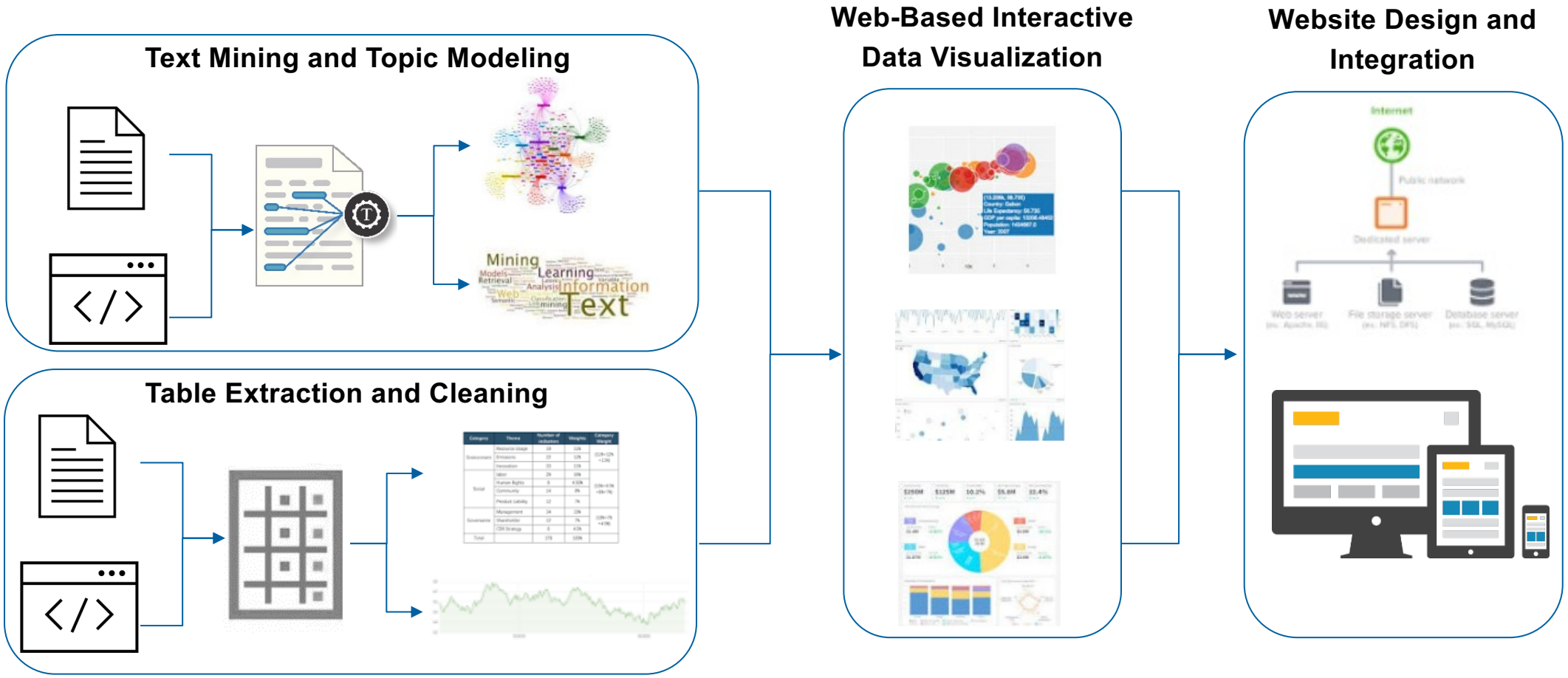
Sustainability Monitor Project (Firm-Level Data)

- Joint development with students at the Frankfurt University of Applied Sciences

- Innovation professorship from the German Ministry of Education and Research

- Expert feedback from the Sustainable Finance Data Hub (Bundesbank)

Sustainability Monitor Project (Firm-Level Data)



Sustainability Monitor Project (Firm-Level Data)

- **Searchable page** with covered firms - DAX and MDAX constituents (as of April 2022), including brief description and analyzed reports
- **Dynamic display** of the covered firms in the main page
- **Searchable repository** of (PDF) sustainability reports
- **Interactive visualization** of selected ESG indicators per firm, industry, and time
- **Relational database** with structured results (cleaned and structured data)

Bringing Together Economics and Data Science

Exploring new sources of data

Enriching administrative data with publicly available unstructured data

Exploring new methods to leverage multimodal data

Thank you

Questions

Recent Developments in the European Union

- **2014-2019:** Non-Financial Reporting Directive (NFRD) ~ 11,000 firms
  - **Large public-interest** firms with **500 employees +** need to report on certain ESG indicators after 2017, followed by additional guidelines
- **2021-2026:** Corporate Sustainability Reporting Directive (CSRD) ~ 50,000 firms
  - Expands the scope and increase the comparability of sustainability reports
  - Applies in January 2024 (reporting year 2023) for firms already subject to the NFRD
  - Extends to large firms not currently covered by the NFRD in 2025 and publicly listed SMEs in 2026
- **Issue:** it takes a **long time** until data is available, **no retroactive reporting**