# INEXDA
## The Granular Data Network

# Slide deck

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# Motivation

- **Aggregate datasets** are important for **monitoring macroeconomic developments** and **macroeconomic policy**

- **Granular data** is necessary to understand **global developments** and in particular **differences across countries**

- Combining datasets and looking beyond aggregate statistics into heterogeneous developments require the **transformation** of **"data"** into **"knowledge"**

- **Local constraints** make it difficult, or often impossible, to link micro datasets from different jurisdictions, even for research and financial stability analysis

- **Better accessibility** and **sharing of granular data** would open up **new possibilities** for analysis by providing new **insights into the effect of policies**

What can **we do** from the **statistical side** to support this process?

# INEXDA: The Granular Data Network

On 6th January 2017,

have launched the **I**nternational **N**etwork of **Ex**changing Experiences on Statistical Handling of Granular **Da**ta (INEXDA), an international cooperative project to declare their willingness to further strengthen their cooperation.

Since its foundation, the following institutions have joined INEXDA as members:

# How to become an INEXDA member

Other central banks, national statistical institutes and international organizations are **encouraged to join INEXDA**.

*The following **procedure** has been established to admit new members:*

| | |
|---|---|
| | A representative of the applying institution has to attend at least one INEXDA meeting in person before the formal application process is initiated. |
| | Send an application letter signed by the head of the statistical department of the respective institution (or, in case of national statistical institutes, by the head of the responsible statistical department) to the chair of INEXDA. |
| | All INEXDA members must agree to any application by a new institution. |
| | Sign the MoU*. Congratulations, you are now a member of INEXDA. |

\* The INEXDA Memorandum of Understanding (MoU) can be accessed here.

# INEXDA's general mission

- General mission is to **promote data sharing and data access**

- Promoting the **G20 Data Gaps Initiative II**, in particular recommendation 20, addressing the accessibility of granular data. INEXDA is mentioned in a G20 paper

- Acknowledging and supporting the work on data sharing of the **Irving Fisher Committee** on Central Bank Statistics

- INEXDA is governed by an **MoU**, that every member has to sign

- Sharing of granular data between INEXDA members not part of this MoU

# Working Arrangements

*The members of INEXDA have implemented the following working arrangements:*

**1**   **Key decisions** are made on a **consensual** basis.

**2**   The work within INEXDA will be performed at the **operational level of the member institutions**.

**3**   INEXDA members will convene **twice per year**. **Guests** may be admitted to meetings. A **pre-meeting** will be organized prior to each INEXDA meeting with the purpose to welcoming guests to discuss the progress INEXDA has made so far.

**4**   The **chair of INEXDA** is elected for a two year term on a consensual basis. The current chair is Renaud Lacroix, Banque de France.

**5**   The **eBIS\*** facility operated by the Bank for International Settlements (BIS) provides the centralized location to **exchange documents** and foster collaborative activities.

\* INEXDA members can access eBIS here.

# Chronology of past INEXDA meetings

**1st INEXDA meeting in Lisbon**

- INEXDA members (DE, FR, IT, PT, UK)
- *Guests:* BIS

**2nd INEXDA meeting in London**

- INEXDA members
- *Guests:* BIS, ECB, ES

**3rd INEXDA meeting in Paris**

- INEXDA members (+ECB, ES)
- *Guests:* AT, BIS, CL, MX, TR, UK (NSI)

**4th INEXDA meeting in Basel**

- INEXDA members (+CL, TR)
- *Guests:* AT, CH, BIS, DE (NSI), Eurostat, MX, RU, UK (NSI)

**5th INEXDA meeting in Frankfurt**

- INEXDA members (+Eurostat, Russia)
- *Guests:* AT, BIS, DE (NSI), FR (NSI), GR, NO (NSI), UK (NSI)

| Jan 2017 | Jul 2017 | Jan 2018 | Aug 2018 | Apr 2019 |

**INEXDA** The Granular Data Network

**Memorandum of Understanding**

Signing and publication

**da|ra**

**INEXDA Metadata Tool**

by GESIS

**Working groups**

1. Dissemination
2. Metadata
3. ADRF
4. Modes of accreditation
5. Contracts for research projects/bodies
6. Modes of data provision
7. Output control
8. Risk management for published results
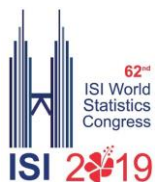
**Data Access**

**Workshop on Data Access**

# Planned INEXDA meetings

**6$^{st}$ INEXDA meeting in Kuala Lumpur**

- INEXDA members
- *Guests:* BIS

**Aug 2019**

**ISI WSC 2019**

Session at ISI and more INEXDA activities planned

## Topics for the next meeting(s)

- *To be completed*

- ...

- ...

- ...

- ...

# Work program for the first two years

| 1 | Comprehensive inventory of **data** in all member institutions |
|---|---|

- Agreement on unified metadata schema
- Setup of a platform to collect and exchange metadata
- Start harmonizing metadata across INEXDA member countries

| 2 | Comprehensive inventory of existing **data access procedures** |
|---|---|

- ECB pilot collection of information on access for researchers
- ADRF for INEXDA proposed by Julia Lane (NYU)
- Setup of working groups

| 3 | Dissemination of INEXDA **results** |
|---|---|

- Prototype of INEXDA webpage by Banque de France.

# INEXDA's metadata schema

| | |
|---|---|
| 1 | Resource Type |
| 2 | Resource Identifier |
| 3 | Name of Dataset |
| 4 | Creator |
| 5 | DOI Proposal |
| 6 | URL |
| 7 | Language of Resource |
| 8 | Publication Date |
| 9 | Availability |
| 10 | Sampled Universe |
| 11 | Sampling |
| 12 | Temporal Coverage |
| 13 | Time Dimension |
| 14 | Collection Mode |
| 15 | Unit Descriptions |
| 16 | Descriptions |
| 17 | Geographical Coverage |
| 18 | Keywords |
| 19 | Alternative Identifiers |
| 20 | Relations |
| 21 | Publications |

- Based on the GESIS DOI registration service da|ra (GESIS is cooperating with DataCite):

  https://www.da-ra.de/en/home

- Name of metadata items closely follows da|ra conventions to enable seamless DOI registration, if desired later in the project.

- Is basis for INEXDA metadata database that was established to store and view metadata from INEXDA members.

# INEXDA's metadata database



*The database serves as …*

1. an information tool for INEXDA members, researchers and analysts

2. the basis for the harmonization activities of INEXDA (e.g. item relation)

*Current contributions to the database come from*

- Deutsche Bundesbank    30    (12)
- European Central Bank    (6)
- Banca d'Italia    26    (6)
- Banco de España    21    (2)
- Banco de Portugal    16    (2)

# The five modules of the ADRF (1|2)

**1**  **ADRF** *Documentation* **Module**

- Provides metadata incl. data catalogue, ownership & access
- Shows missing / distribution values
- Links users, authors, research products, codes and tools and data producers
- Allows researchers to **annotate datasets** and **provide codes** to read in and reuse data

**2**  **ADRF** *Collaboration* **Module**

- **Collaboration** and **resource sharing** via shared project workspaces and **social tools** (e.g. interactive chat, questions and answers, code sharing)
- Supports analysis workflows with self-documenting, sharable code files

**3**  **ADRF** *Security* **Module**

- Security is implemented in **three layers**: Cloud infrastructure, operational security and application layer security (FedRAMP certified)
- Data security and confidentiality is enforced at the level of all **5 Safes:**

| People | Projects | Data | Environment | Results |
|--------|----------|------|-------------|---------|

# The five modules of the ADRF (2|2)

**4**  **ADRF** *Stewardship* **Module**

Management of:

1. dataset **policies**
2. data **access request** and **approval** workflows
3. user **metadata** approval workflow
4. reporting on data **usage**, **projects**, user driven metadata



**5**  **ADRF** *Training* **Module**

1. creates **new product prototypes** central to agency missions
2. develops **skilled practitioners** for new types of data and analysis methods
3. makes a growing **set of linked data** available as an ongoing asset
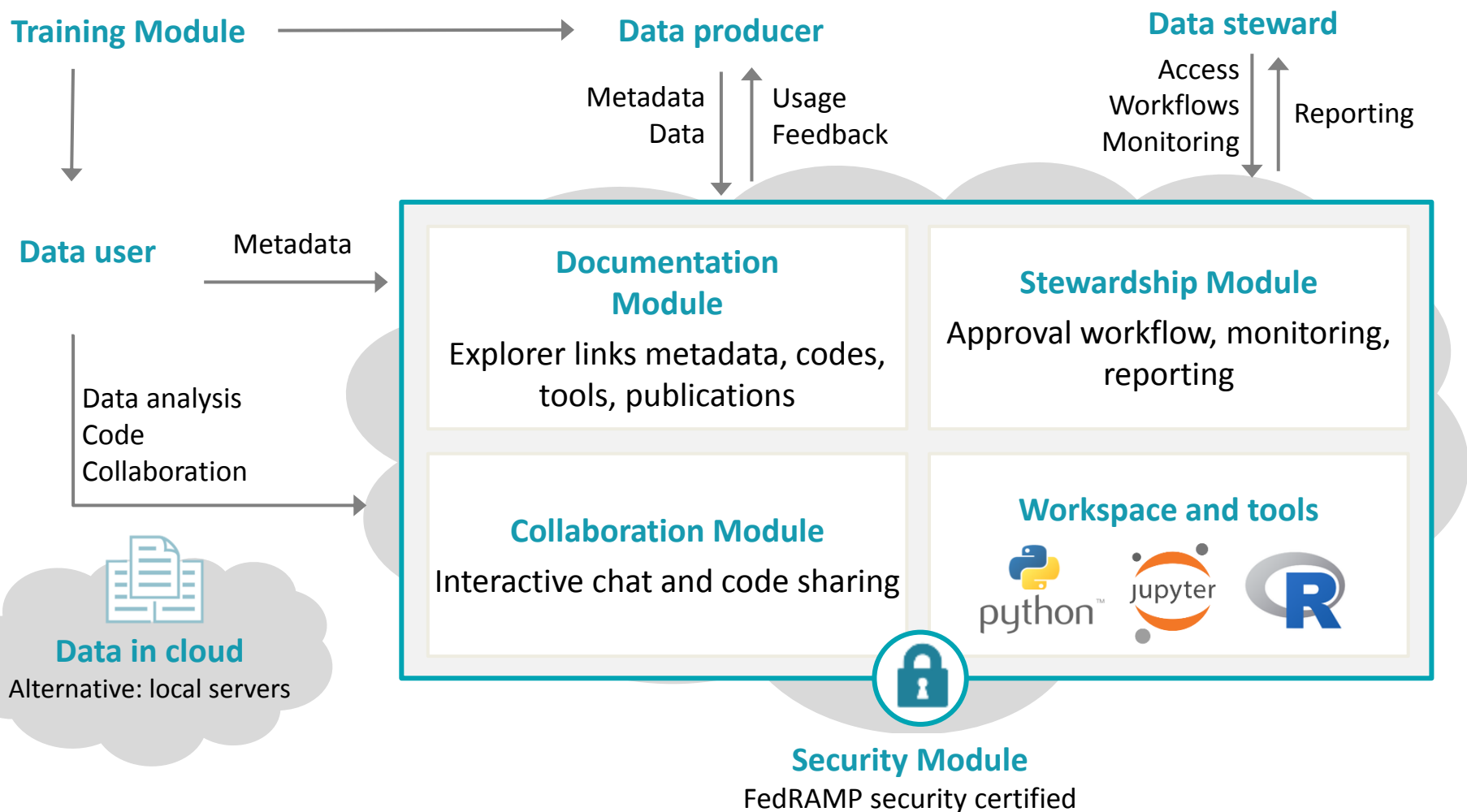
**Four key components**:

| | |
|---|---|
| *Foundations* | *Data Curation* |
| *Data Analysis* | *Presentation, Inference and Ethics* |

# ADRF's holistic user centric approach

**Training Module** → **Data producer**

**Data steward**

Metadata Data | Usage Feedback

Access Workflows Monitoring | Reporting

**Data user** — Metadata →

Data analysis
Code
Collaboration

### Documentation Module

Explorer links metadata, codes, tools, publications

### Stewardship Module

Approval workflow, monitoring, reporting

**Data in cloud**
Alternative: local servers

### Collaboration Module

Interactive chat and code sharing

### Workspace and tools

python™  jupyter  R

**Security Module**
FedRAMP security certified

# Working Group on Data Access

**1** **INEXDA workshop on data access procedures**

- Serve as a kick-off event for the INEXDA work stream on data access
- Utilise current momentum to improve data access procedures for data producers and researchers.

**2** **Define common access procedures**

- Identify similar workflows used by data providers.
- From there define a standard
- Need to be in compliance with internal data policies and external government regulations.
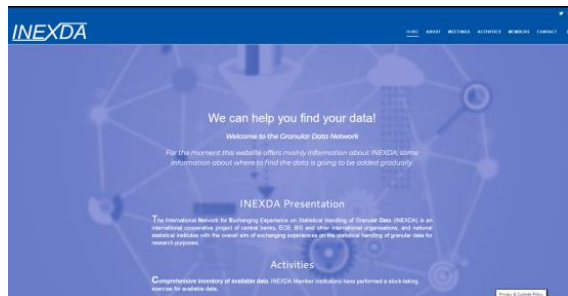
**3** **Development of open software solution**

- Set of common access procedures will define software requirements
- Needs to be flexible enough to accommodate different legal frameworks

# INEXDA's webpage

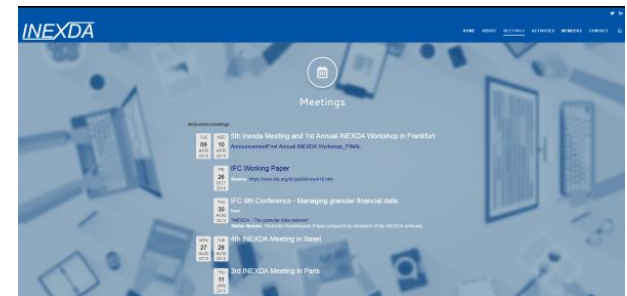*Banque de France has implemented INEXDA's internet platform which is accessible via* https://www.inexda.org/
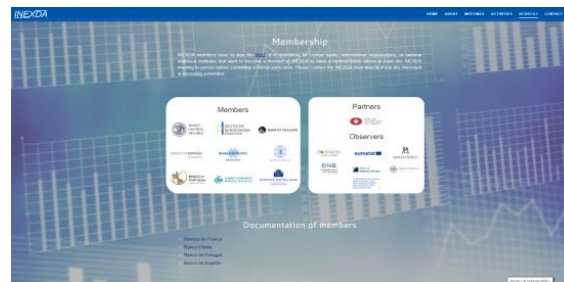
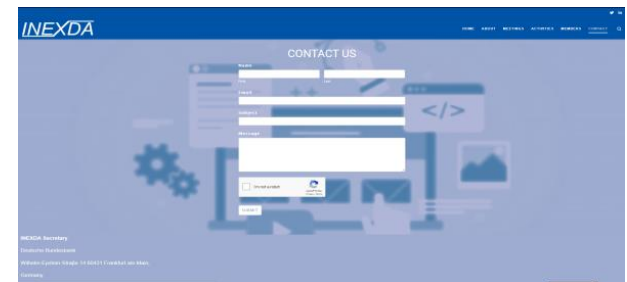### Home



### About



### Meetings



### Activities



### Members



### Contact

# Conclusion

- INEXDA provides a platform for exchanging experiences on statistical handling of granular data for central banks, national statistical institutes and international organizations

- Supports the G20 process, especially the Data Gaps Initiative 2 recommendation aiming to promote the exchange of (granular) data as well as metadata

- So far, focus has been on taking stock which granular data is available in member institutions using a unified metadata schema

- Focus is gradually shifting towards harmonizing metadata and exchanging experiences about data access procedures

**INEXDA**

The Granular Data Network

# Thank you for your attention!

Contact: INEXDA.secretary@bundesbank.de

# Hand-over to Banque de France

# Tasks of the INEXDA chair

- Plan next INEXDA meeting
- Decide who will present INEXDA during the ISI WSC 2019
- Decide on location and tasks of the INEXDA secretariat
- Decide on who will manage the application process for institutions that have already expressed their interest in becoming a member, e.g. OeNB, Banco de Mexico
- Represent INEXDA in international conferences, e.g. CEMLA
- Advertise INEXDA to acquire new members
- Decide on document management in eBIS

# Interested central banks

*Several central banks and other institutions are interested or already in the process of becoming a member:*

| Cn. | Name | Current status |
|-----|------|----------------|
| GR | Bank of Greece | Participation in workshop and wants to be kept in the loop but at this point not ready in becoming a member. |
| - | Bank for International Settlements | Permanent guest. |
| AT | Österreichische Nationalbank | Participation in meetings and interested in initiating the membership process once new director general of statistics assumes office. |
| IN | Reserve Bank of India | Generally interested and wants to be kept in the loop. |
| MX | Banco de México | Participation in meetings, BBk is visiting for presentation of application process. Seems to be interested in becoming a member. |

# Other interested institutions

| Cn. | Name | Current status |
| --- | --- | --- |
| UK | UK Data Archiv | Participated in data access workshop and open for collaboration in the scope of the data access working group. |
| - | Nordic Microdata Access Network | Participated in data access workshop and open for collaboration in the scope of the data access working group. |
| UK | UWE Bristol | Participated in data access workshop and open for collaboration in the scope of the data access working group. |
| DE | GO FAIR (ZBW) | Participated in data access workshop. |
| UK | Office of National Statistics | Participation in meetings and seems to be interested in becoming a member. |
| EU | Consortium of European Social Science Data Archives | Participated in data access workshop and open for collaboration in the scope of the data access working group. |
| FR | Centre d'accès sécurisé aux données | Participated in data access workshop. |
| DE | Destatis | Participation in meetings and seems to be interested in becoming a member. |
| NO | Statistik Sentralbyra | Participated in data access workshop and open for collaboration in the scope of the data access working group. |
| - | International Data Access Network | Participated in data access workshop. |
| SE | Statistiska centralbyrån | Participated in data access workshop and open for collaboration in the scope of the data access working group. |

# Working group 1 - Metadata

**Where we are**

- Metadata schema is completed and metadata base is running
- First workshop in March 2018

**Decide on distribution of future tasks**

- Invite new members to add metadata on their datasets
- Broaden number of available datasets from existing members
- Explore linkages and relations between datasets
- Decide when to go live

**Important documents**

- Link to da|ra metadata tool: https://inexda.da-ra.de/dara/mydara/index?lang=en
- Write-up for metadata schema [Name from eBIS]
- Paper on metadata [Name from eBIS]

# Working group 2 – Data access

**Where we are**

- Workshop with guests to conduct first stock-taking (April 2019)
- Formally started INEXDA working group on data access (chaired by BBk)

**Decide on distribution of future tasks**

- Develop best-practice data access procedures possibly involving guests
- Develop open source software based on best-practice procedures
- Workshop for members of the working group

**Important documents**

- Presentations from workshop [Name from eBIS]

# Working group 3 – Remote access

**Where we are**

- Formally started INEXDA working group on data access (chaired by BdF and BdP)

**Decide on distribution of future tasks**

- To be decided by in working group and especially by BdF and BdP

**Important documents**

- Not yet available