



EUROPEAN CENTRAL BANK

Contributing to quality in statistics through automated statistical data exchange: the case of the European System of Central Banks

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European Central Bank: a multiple role

acting as a...

- supranational statistical organisation
- national statistical agency
- major user institution (policy maker)

Therefore, ...significant data exchange requirements

Data exchange: four quality dimensions addressed

- Timeliness and punctuality;
- Accessibility;
- Clarity;
- Comparability of statistics

Automated statistical data exchange: prerequisites

- Partners to maintain statistical data bases (without this your benefits would be limited)
- A flexible data exchange model
- A standardised message format
- Well structured data to be exchanged
- Secured and reliable telecommunications (ideally, integrated with the message extraction components of the statistical data base systems for maximising efficiency)

Automated statistical data exchange of the ESCB

Benefits enjoyed during the last six years:

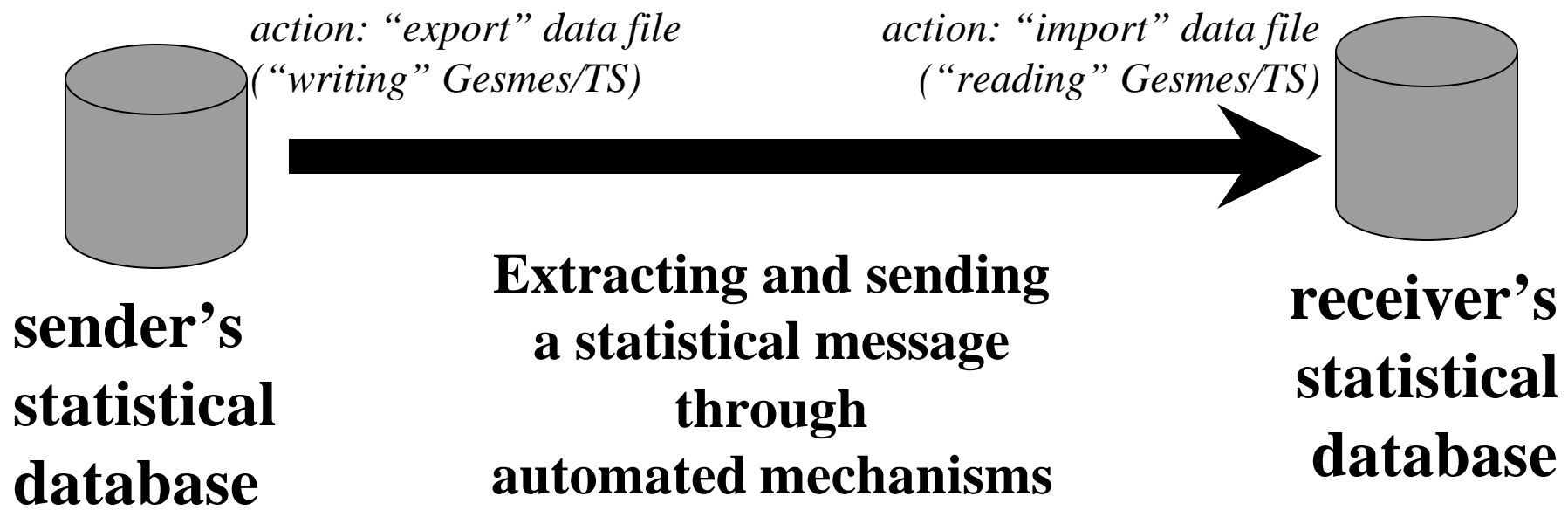
- Zero conversion/exporting/importing costs
- Full automation - no manual intervention, error free processes
- Exploiting advantages of data base systems
- Reporting to international and European organisation at minimum costs
- Metadata discipline (“key families”, concepts, code lists)
- Easy and automated checking and syntactic/semantic validation (free software)
- Coverage of additional or new data exchange needs at minimum costs

GESMES/TS: A data exchange model and message format

GESMES/TS has been the core element for the success

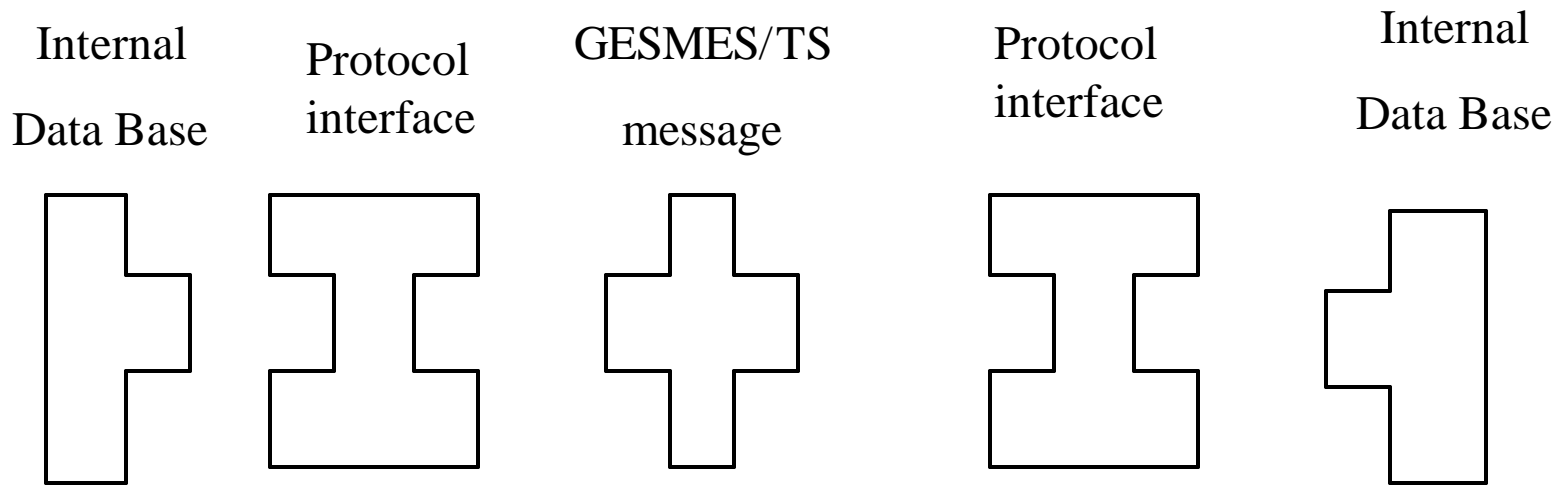
- An international standard (www.sdmx.org), heavily used already by the ECB, Eurostat, BIS (and partly IMF)
- Flexible and adaptable to serve the exchange of any time series data and metadata
- Powerful data model appropriate also for internal use
- Facilitates harmonisation of statistical concepts and related code lists
- Tools (e.g. checking/validation), free software, training, support available

Automated processes



Data exchange components (analysing the “puzzle”)

(slide copied from a presentation by Banca d' Italia, November 2000)

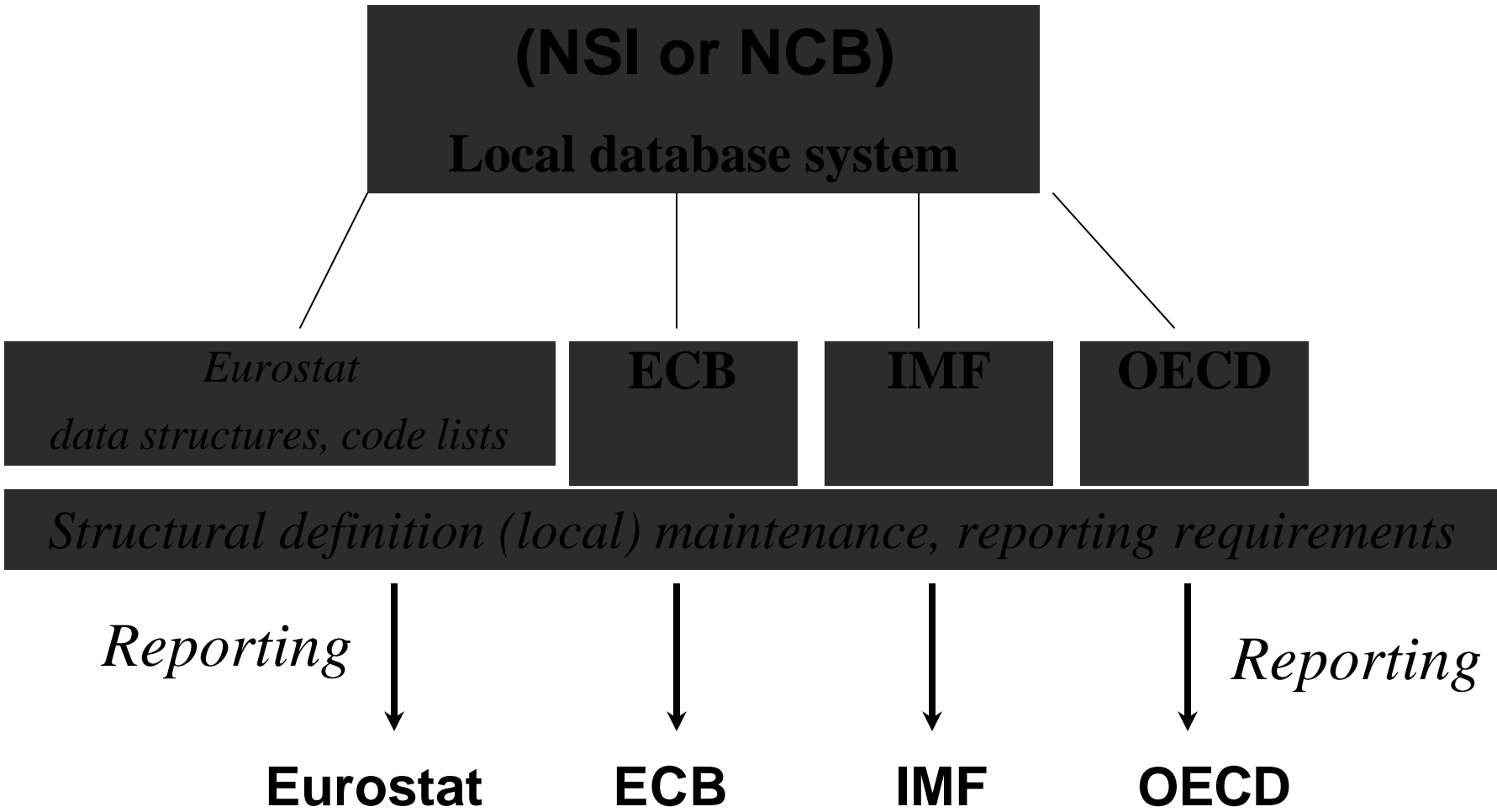


Internal data base free to respect internal technical considerations.

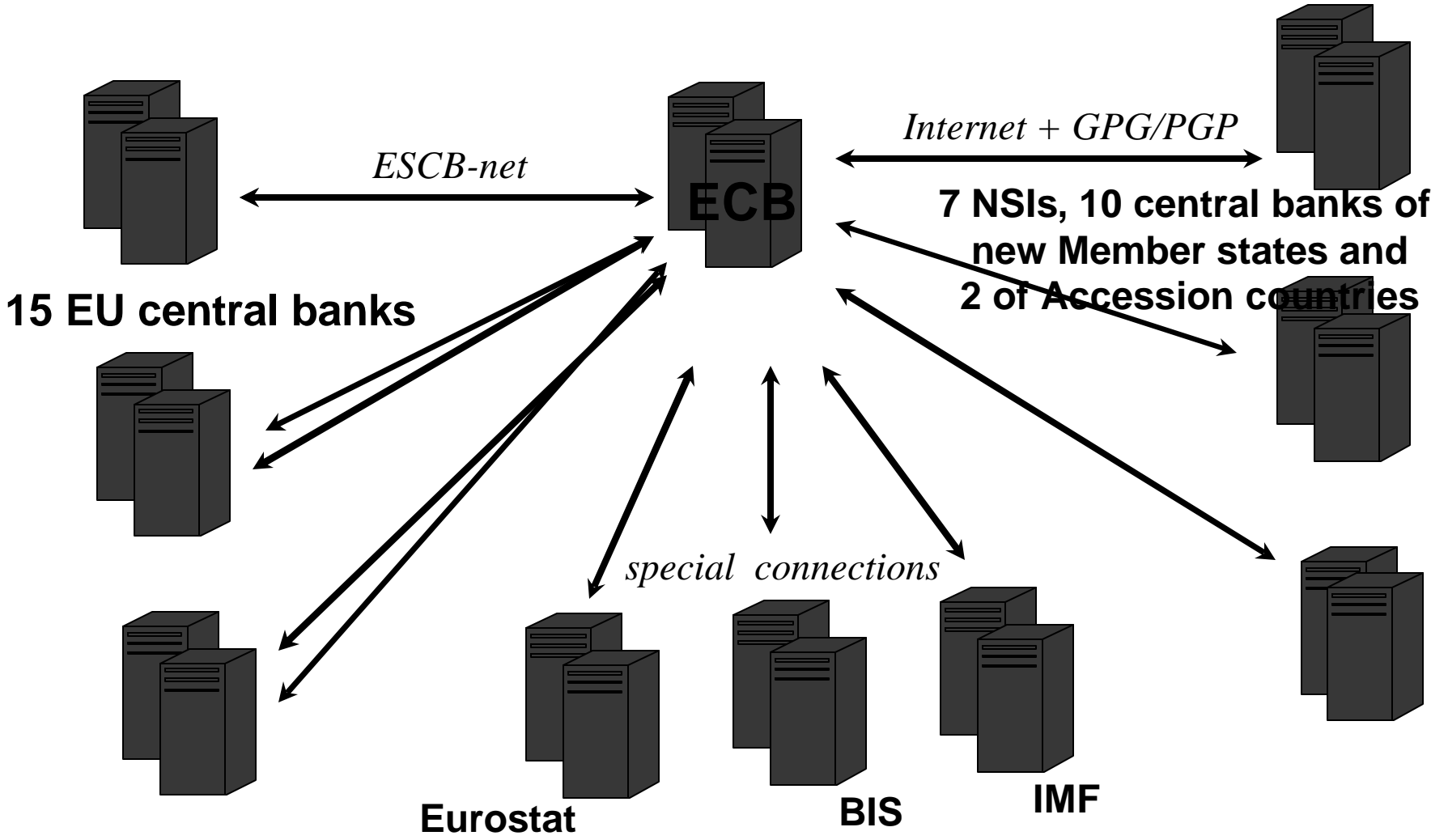
Protocol interface translates internal storage format (and data model) into Gesmes/TS and vice versa.

**Free conversion software (e.g. Java, C),
Eurostat's tools**

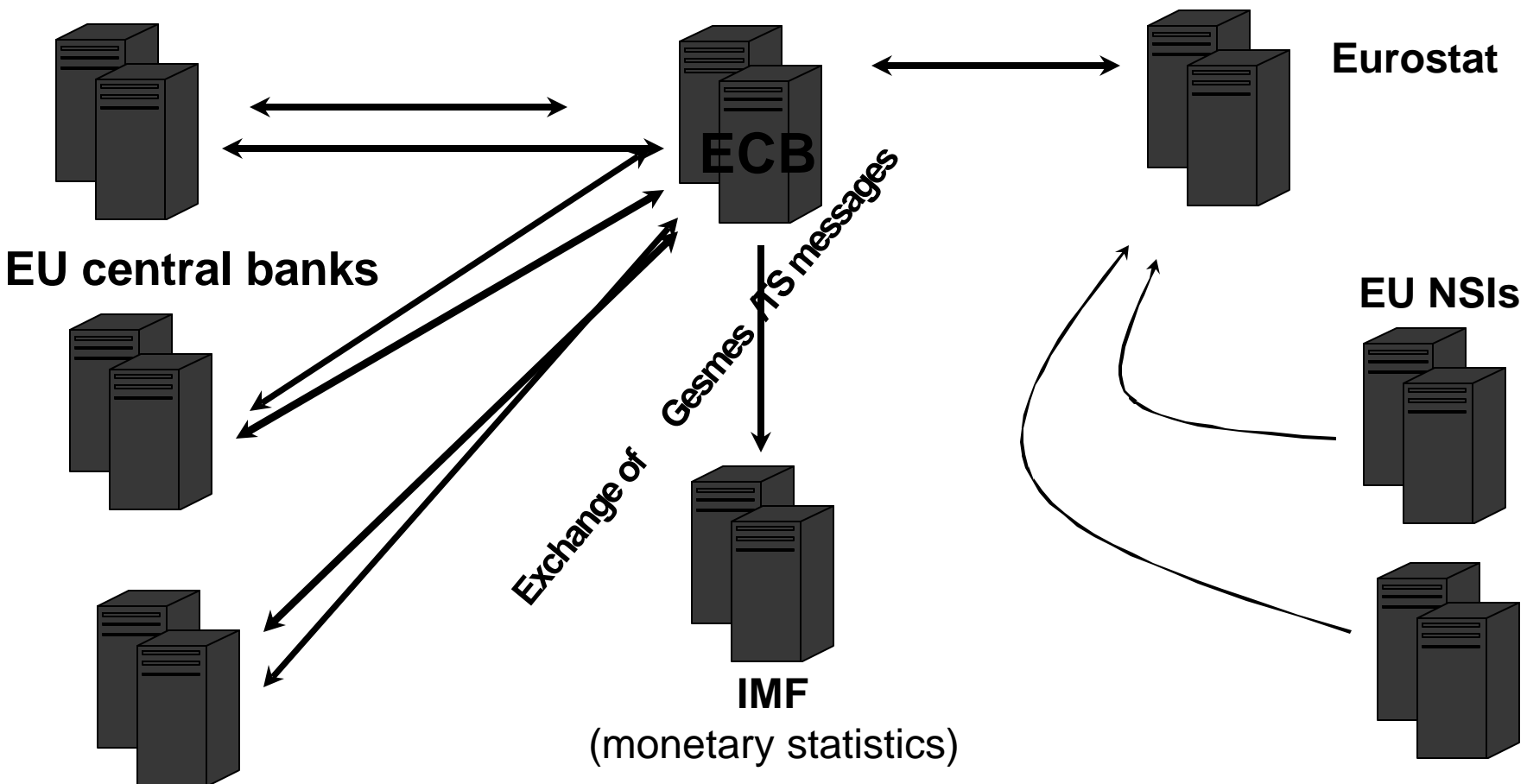
From NSI's perspective: managing multiple structural definitions



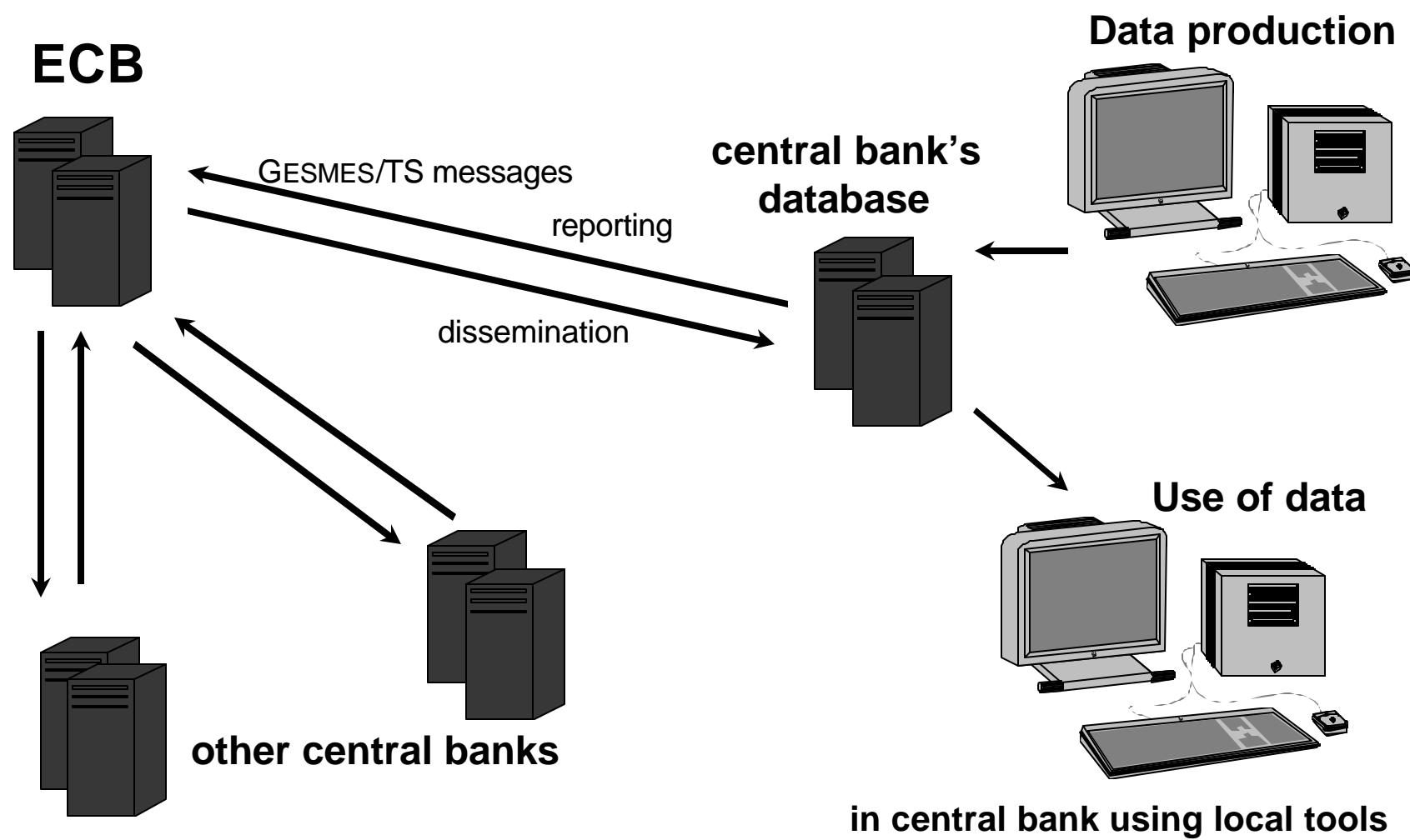
Exchanges of GESMES/TS messages: connectivity



Data sharing through GESMES/TS: already a reality



Data flows of statistical data (and metadata)



Critical success factors (I)

- Proper database infrastructure; and fully automated or a “one button” click for the preparation of the Gesmes/TS files out of the database system (manual preparation of Gesmes/TS does not help to improve efficiency in reporting institution);
- A central database (with unique Gesmes/TS filters) might be preferable than several ones needing additional maintenance per database
- Appropriate organisation (e.g. some support from a kind of more technical (IT) resources initially (at least) to improve automation e.g. adjust existing free source code, etc)
- Proper and well co-ordinated structural definition management at the central institution;

Critical success factors (II)

- Use of the validation software helps to improve timeliness and reduce unnecessary/avoidable errors and problem solving;
- Metadata considerations: not isolated from data management
- Data exchanges with more institutions: it makes the benefits from Gesmes/TS grow faster and become even more transparent;
- Involvement, consultation, commitment;
- *An appropriate and “encouraging” legal framework may be helpful to commit IT resources in the necessary investments;*

ESCB data exchange: four quality dimensions addressed

- Timeliness and punctuality;
- Accessibility;
- Clarity;
- Comparability of statistics

The future

Pursuing...

- More harmonisation
 - structural definitions (“key families”, code lists, statistical concepts)
- More standardisation
 - Data model (e.g. Gesmes/TS in modelling time series data and related metadata); more advanced and broader scope metadata mechanisms to explore; SDMX initiative and emerging SDMX-ML standards
- More integration
 - Broader use of XML/HTML tools in production and by end-users; all processes in data life cycle to come closer to each other;
 - More data sharing, Web dissemination and access by the general public;
 - A fully “interoperable” world

GESMES/TS and SDMX

- <http://www.sdmx.org/>
- <http://www.ecb.int/> (“Statistics”, “Gesmes/TS”)

Also:

- <http://forum.europa.eu.int/Public/irc/dsis/eeg6/library> (“GESMES”)
(including access to Eurostat’s tools)
- Circa “members”:
<http://forum.europa.eu.int/Members/irc/dsis/eeg6/library> (“structural definitions”)
(including access to ECB’s checking/converting tools)
- <http://www.gesmes.org> (*out-of-date*)