



Researching education, improving learning

IEA Hamburg Developments

*64th IEA General Assembly
27 September, Versailles*

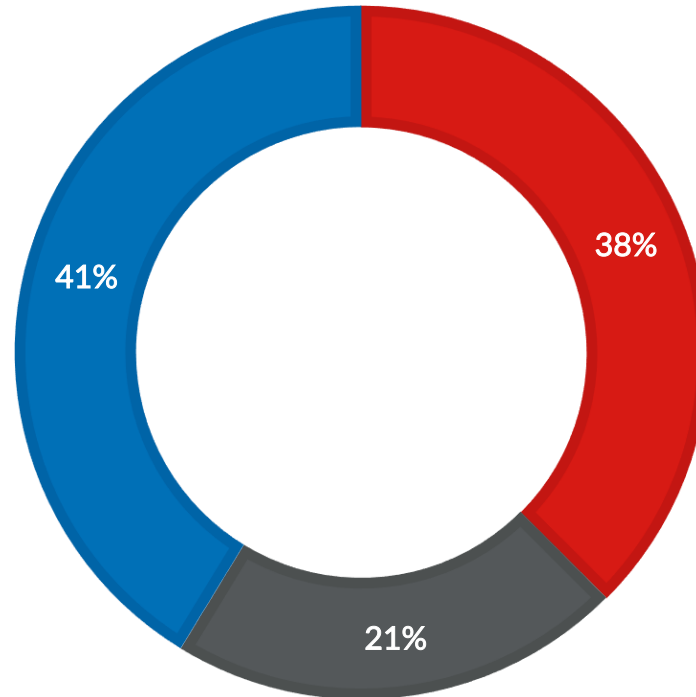
Juliane Hencke, Director of IEA Hamburg

Day-to-Day Business

The implementation of the studies this year was smoother than last year, both nationally and internationally.

Studies in Germany (>14)

- TIMSS-Germany
- ICILS-Germany
- Bildungstrend 2021*
- Bildungstrend 2022*
- PISA-Germany*
- NEPS*
- INSIDE II
- EvIk
- FIPS+
- TALIS Starting Strong Germany
- TOSCAneo
- PerFair
- KWiK
- SchiWa
- ...



International IEA Studies (9)

- PIRLS 2021*
- ICCS 2022
- ICILS 2023*
- TIMSS 2023*
- TIMSS-L
- LaNA
- PIRLS 2026
- ICCS 2027
- ICILS 2028

Additional International Studies (5)

- OECD TALIS 2024*
- OECD PIAAC Cycle 2
- OECD IELTS 2024
- National Evaluation Haiti
- UNICEF LSCE

Day-to-Day Business (cont.)

- Increased attendance of in-person meetings, events, conferences
 - Recruited, hired, and introduced new colleagues
 - Intensified activities around knowledge transfer
 - Continuous review of internal processes to verify suitability of fast changing computer-based assessment (CBA)-world
 - Participated in tendering processes, proposal writing
 - Took care of data protection and information security issues
- ... and much more

A stylized illustration of a tree branch with leaves, rendered in shades of blue and purple. The branch is thick and textured, with many smaller branches and leaves extending from it. The leaves are simple, rounded shapes. The background is a light blue gradient.

**Day-to-Day
Business**

IEA Hamburg Developments

A stylized illustration of a tree branch with leaves, rendered in shades of blue and purple. The branch is thick and textured, with many small leaves attached to it. The background is a light blue gradient.

Study
Expert

IEA StudyExpert

IEA StudyExpert

- Starting three years ago, IEA began development of its own new system to run CBA studies
- Serves as a platform for creating, managing, and implementing digital assessments
- Initiated by the desire to decrease dependencies on external services that host CBA systems
- Having our own system gives IEA better control



IEA StudyExpert: Development Stages

Pilot
(in 2022)

- In one country (Germany)
- TIMSS 2023 Field Test questionnaires used online and offline (via USB sticks)
- Worked out well and will be repeated for the Main Data Collection

TALIS
Field Test
(in 2023)

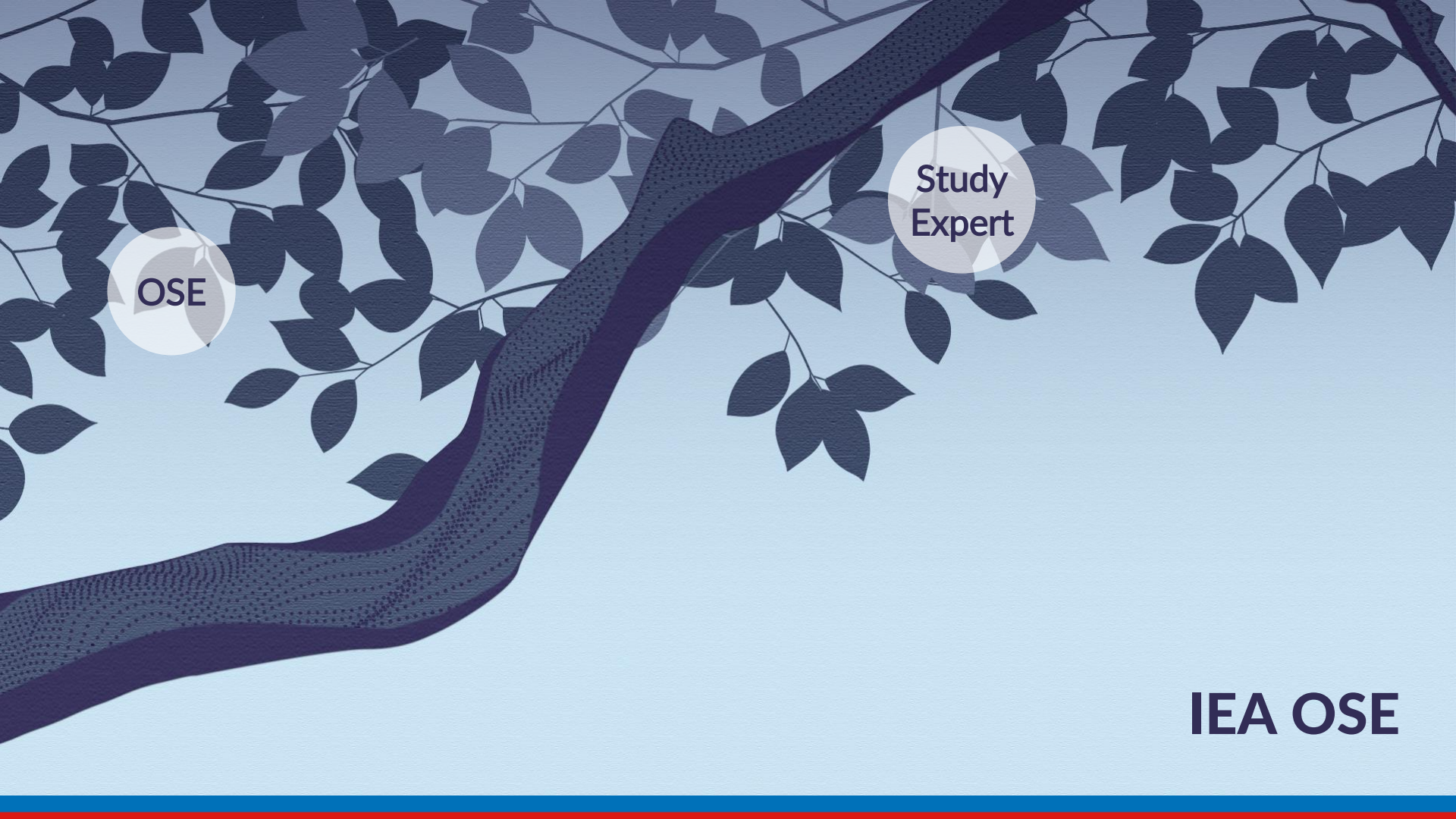
- For all TALIS countries and instruments (various types of questionnaires)
- Demanding period
- Worked well, no outages
- > 38,000 records collected

TALIS 2024
Main Survey
(in 2024)

- For all TALIS countries and instruments (various types of questionnaires)
- Many improvements implemented
- Move to Amazon Cloud

Planning for
ICCS, ICILS
(in 2024, 2025, ...)

- Exchange between development team and Study Directors began
- Requirements gathering started
- Different possibilities under consideration



OSE

Study
Expert

IEA OSE

New IEA OSE

- IEA's Online Survey Expert (OSE) is a web-application used in national studies for listing information and preparing data collection at schools
 - Documents can be shared with persons on all levels in an addressable manner
 - School coordinators can submit information, this information can be retrieved through different interfaces
 - It samples classes, students
 - Linkages between students and teachers can be created via a visual interface using drag and drop
 - Complies with all German data protection regulations
- It is used by project coordinators in all German states
- First OSE was developed in 2013 and has been used in Germany since 2014—it has been completely revised and extended and was technologically updated
- Has a responsive interface, so it can be used on devices with different screen sizes, and user languages can be customized

New IEA OSE – Example Screenshots

Student Listing Form (fake names)

Ziehen Sie eine Spaltenüberschrift hier hinein, um nach der Spalte zu gruppieren

Schüler-ID	Vorname	Nachname	Geburtsmonat
768999 - 0001	Lena	Blümel	8
768999 - 0002	Noah	Dörge	11
768999 - 0003	Karl	Dombusch	6
768999 - 0004	Matteo	Klück	3
768999 - 0005	Fabienne	Marwede	3
768999 - 0006	Marlon	Marwede	2
768999 - 0007	Pauline Lara	Maurischat	11
768999 - 0008	Hauke Alexander	Pöppe	5
768999 - 0009	Nele	Soitendieck	7
768999 - 0010	Fredrik	Uebhoff	6

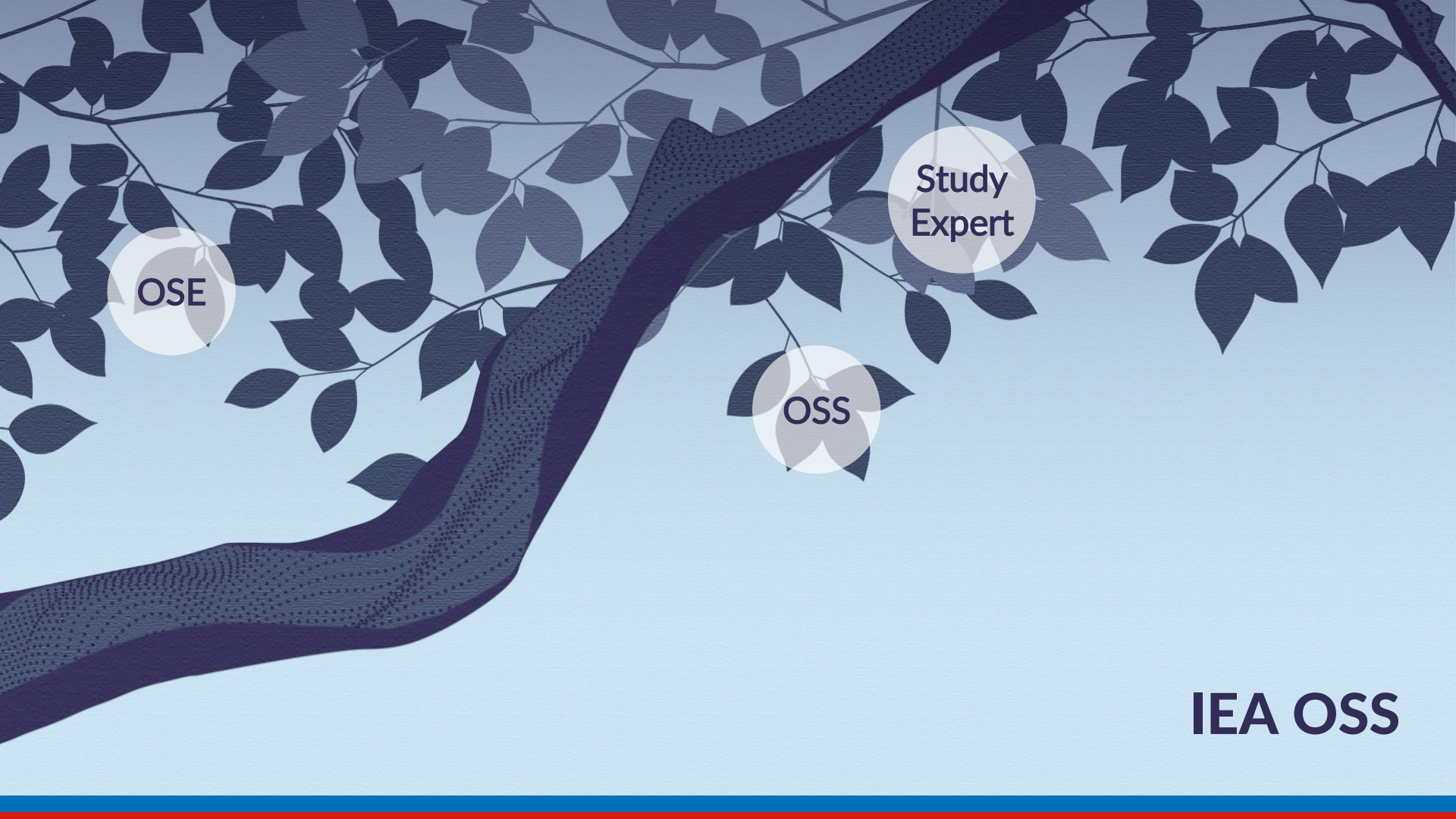
Teacher Listing Form – Validation (fake names, fake validations)

< Validierungsfehler 5 von 9 > Bitte geben Sie einen Wert ein

Ziehen Sie eine Spaltenüberschrift hier hinein, um nach der Spalte zu gruppieren

Lehrer-ID	Vorname*	Nachname*	Klassenleitung im Jahrgang 6
768999 - 8001	Judith	Lehnert	6a,6b
768999 - 8002	Dietmar	Langusch	6a
768999 - 8003	Jürgen	sdf	
768999 - 8004	Babett	Kurzius-Beuster	6a
768999 - 8005	Susanne	Abels-Pintzke	6a
768999 - 8006	Julia	Eckhardt	6a
768999 - 8007	Astrid	Apffelstaedt	

768999 - 0010	***	***	6	2012	m	Wölfe	ja
768999 - 0011	***	***	5	2011	w	Wölfe	ja



OSE

OSS

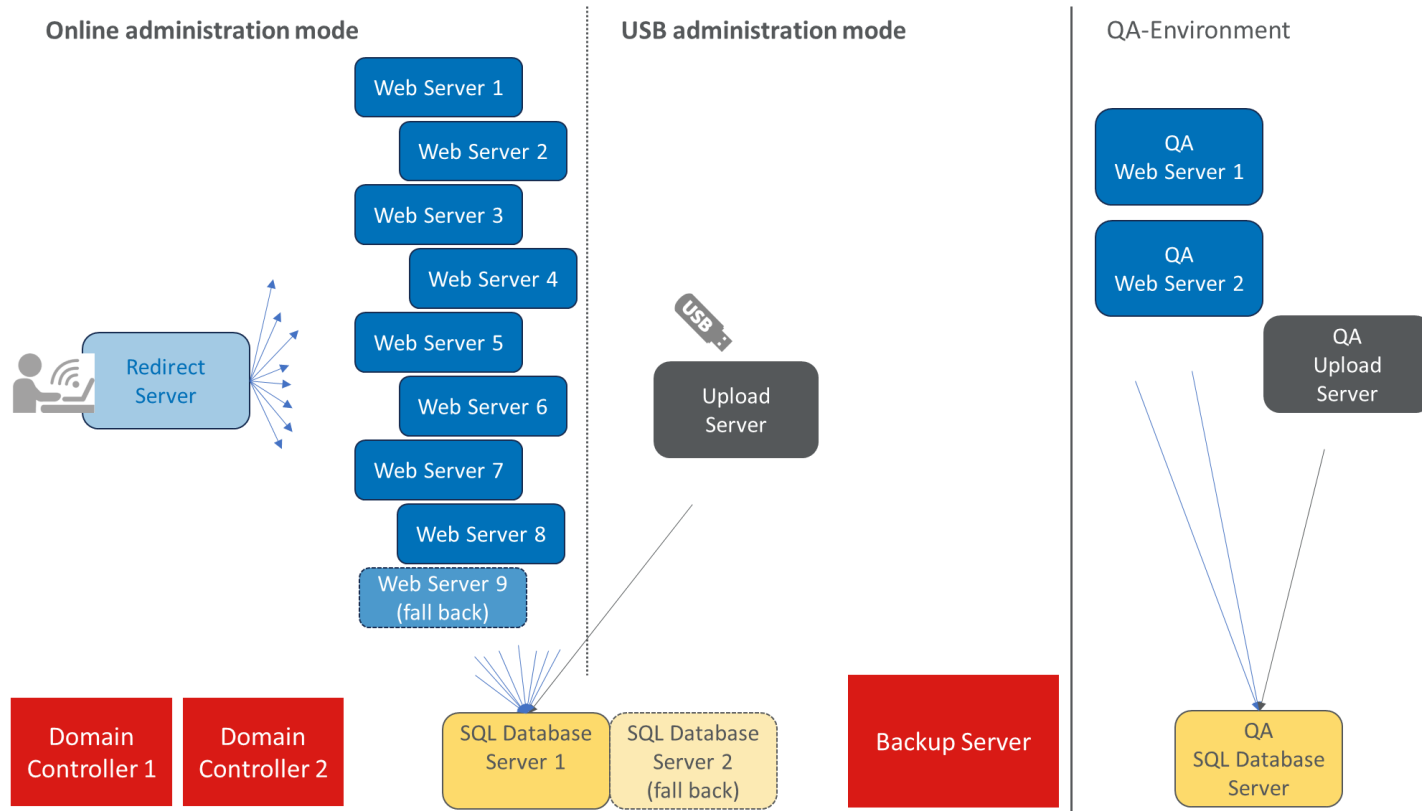
Study
Expert

IEA OSS

IEA OSS

- IEA's Online Survey System (OSS) has been used in the past to administer questionnaires online, but only for adult questionnaires
- To reduce burden on RM, IEA decided to also administer student questionnaires in TIMSS 2023 using OSS
- However, this imposed challenges as a large number of students would be accessing the questionnaire at the same time
- To cope with a significant influx of users at any one time, an extension of the server infrastructure was required

IEA OSS-Server Setups (TIMSS 2023)



2023, Feb-Jun 2023)

Administration

USB administration

Month



(Feb-Jun

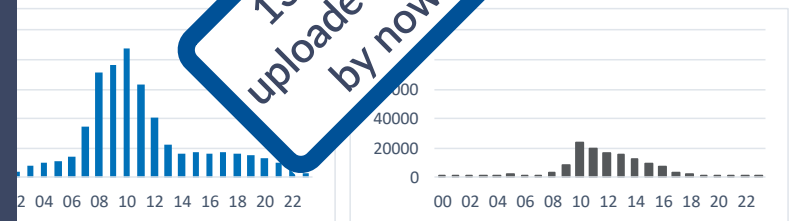
)

576,464 logins

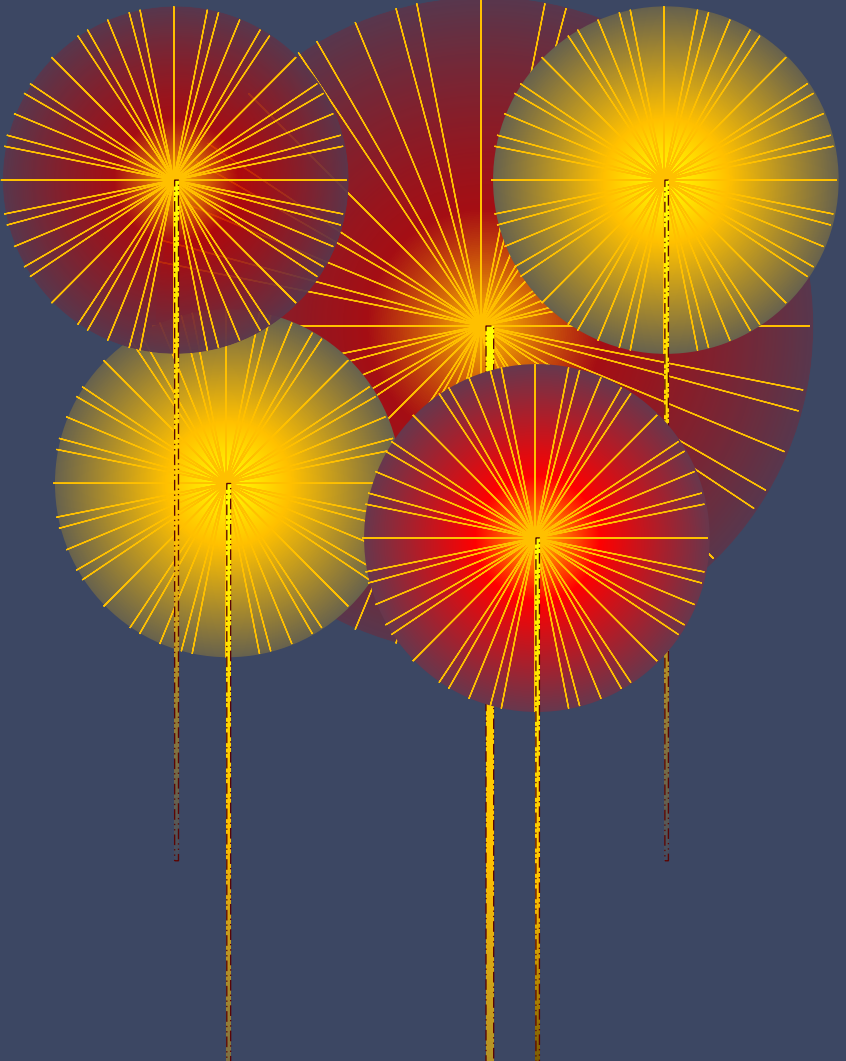


out the day (per hour CET/

ut the day (per hour CET/CEST)



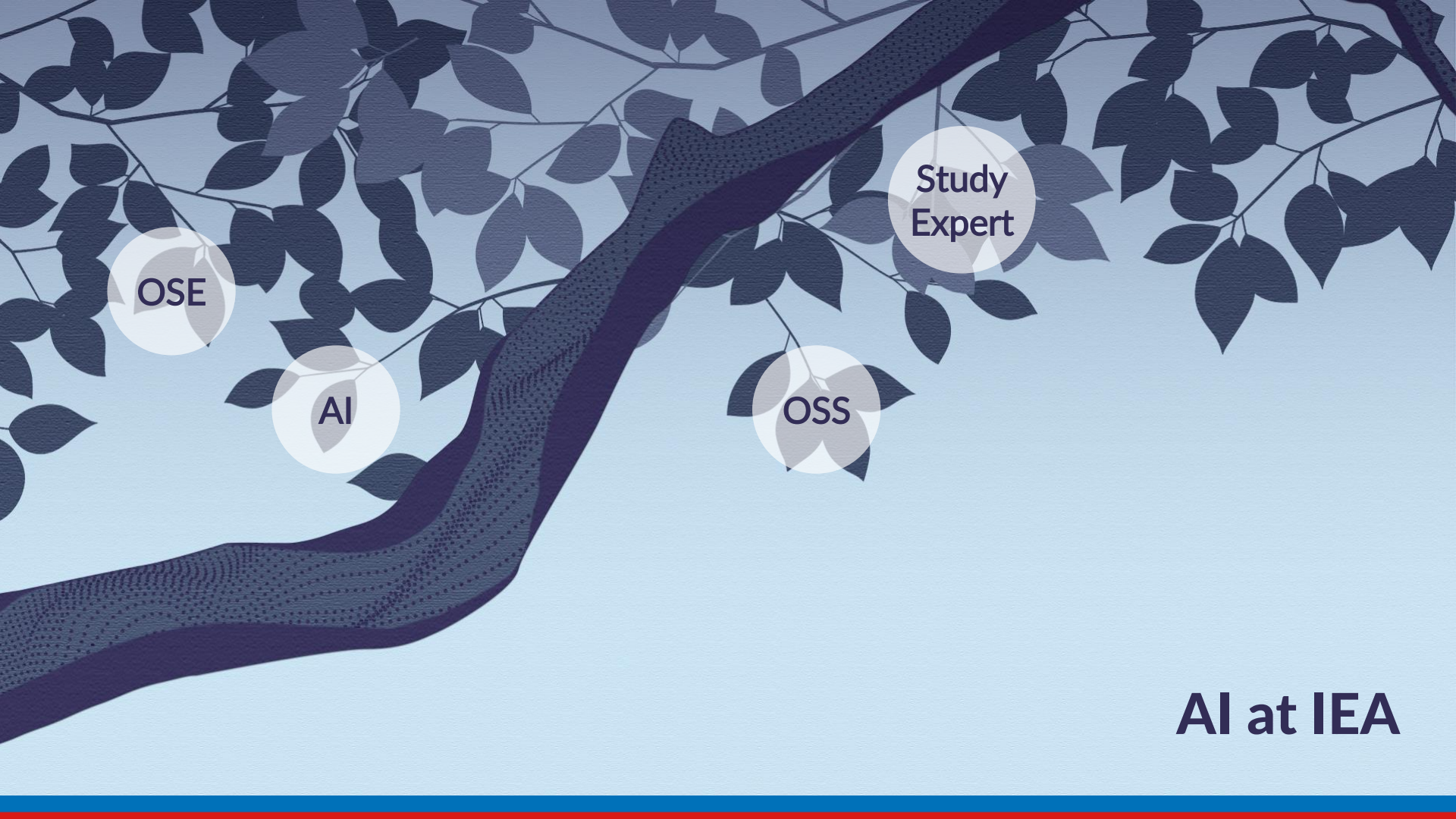
136,711
uploaded USBs
by now



Data Security

- Server attacks are increasing
- IEA Hamburg has been hit
- Re-evaluate all server/ software update procedures
- Agreed on (more) regular maintenance windows
- Plan for external auditing





OSE

AI

OSS

Study
Expert

AI at IEA

AI at IEA (Hamburg & Amsterdam)

Discuss possible fields of applications of AI for IEA



Translations

Improving texts

Data processing

Scoring/
coding

Code for Software,
Scripts,
Macros

Item development

...

Discuss what needs to be considered when using AI at IEA

Copy-
rights

Which apps?
Which providers?

Transparency

Data protection

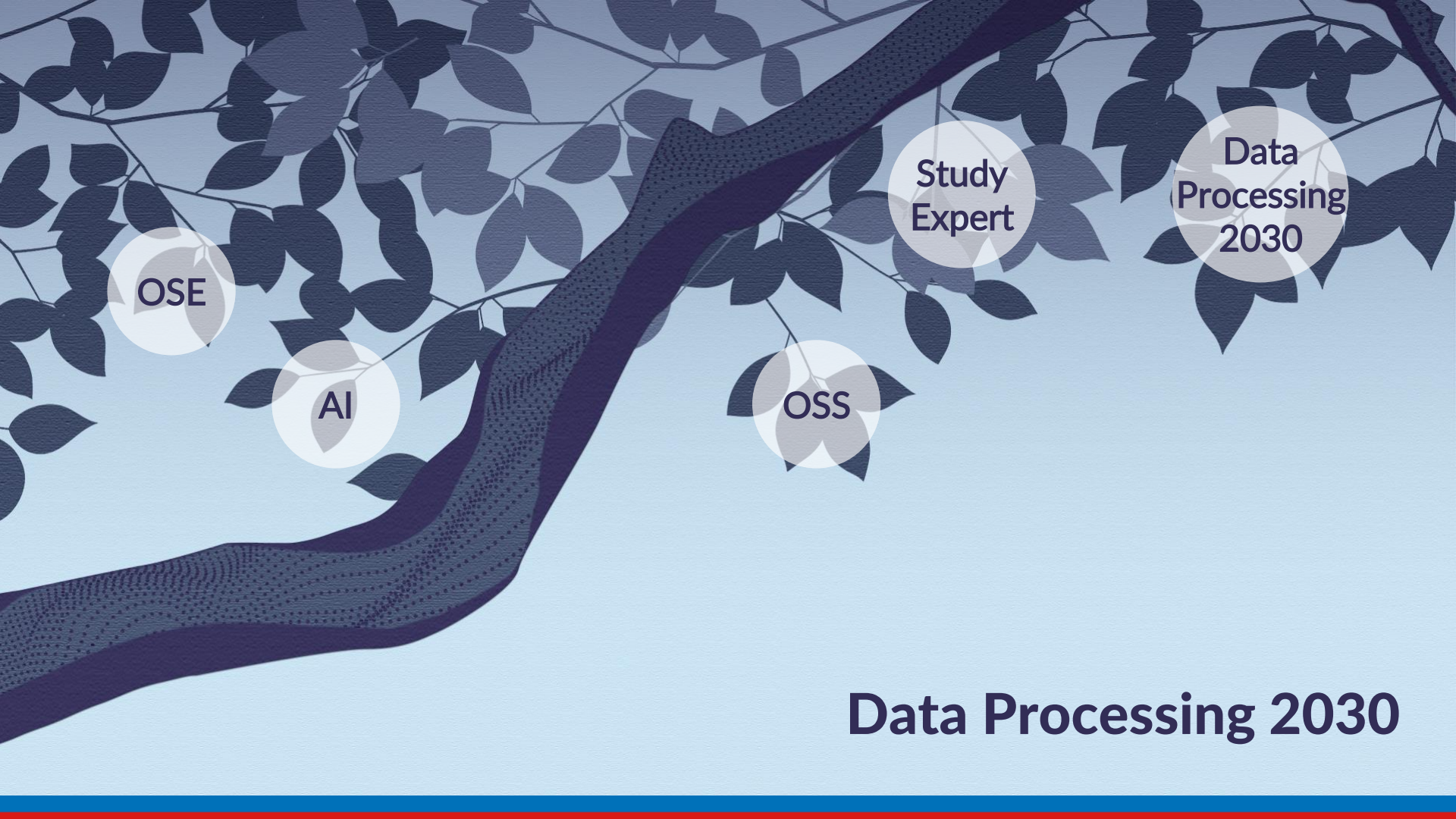
Clear rules

Background knowledge

Information security

...

Guidelines for IEA staff



OSE

AI

OSS

Study
Expert

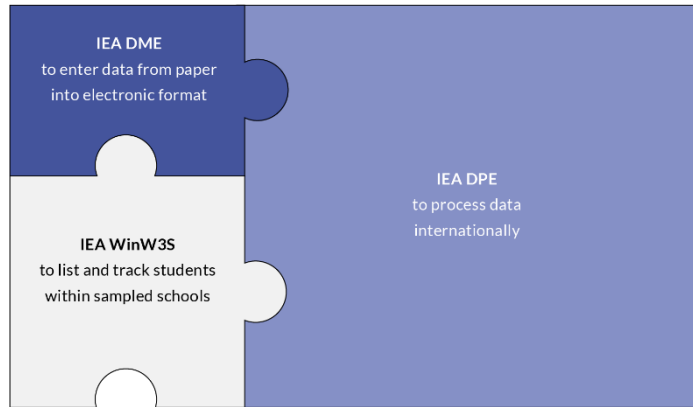
Data
Processing
2030

Data Processing 2030

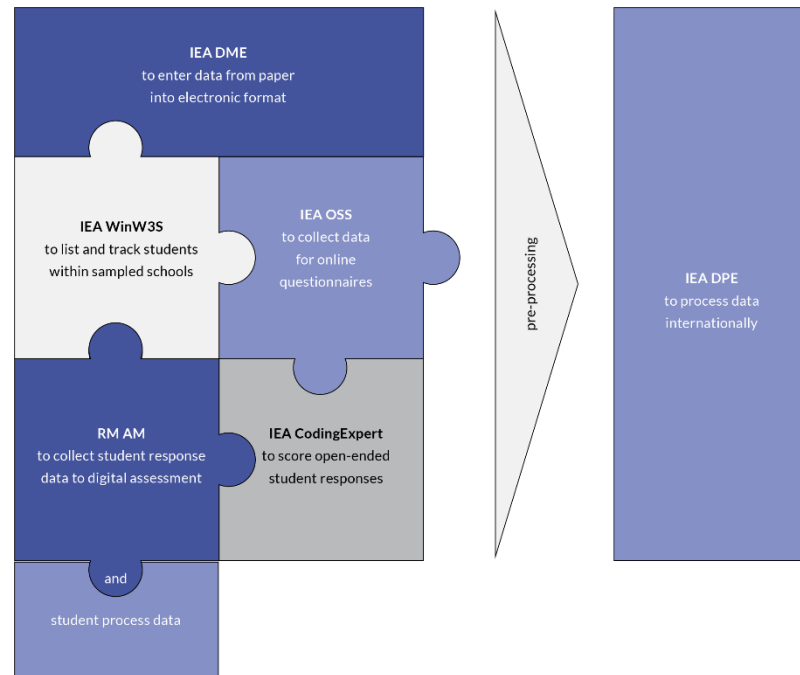
Data Processing 2030

- Number of data sources have increased since paper-times

Data sources in paper and pencil administrations



Data sources during transition from paper to digital assessments



IEA DME = IEA DataManagementExpert

IEA WinW3S = IEA Windows Within-school Sampling Software

IEA OSS = IEA OnlineSurveySystem

IEA DPE = IEA DataProcessingExpert

RM AM= RM Assessment Master

Data Processing 2030

- Types of problems that occurred during and after test administration change

Problem	Paper administration	Digital administration
Incomplete records	Misprints	Technical failure
Swapped records	Wrongly assigned assessment materials	Wrongly assigned assessment materials
Missing records	Instrument lost	Record lost (does not arrive at server, USB stick lost)
Duplicate records	n/a	Student login used twice
	n/a	Student started on one device, continued at another device
	Instrument entered twice	USB stick uploaded twice
Implausible values	Mispunched student answers	n/a
...

- Data processing needs to be adjusted accordingly

Thank you!
Merci!

Juliane Hencke, IEA Hamburg
juliane.hencke@iea-hamburg.de



Researching education, improving learning

