IAEA International Nuclear Information System INIS

Managing nuclear information: INIS

Zaven Hakopov

IAEA International Nuclear Information System INIS

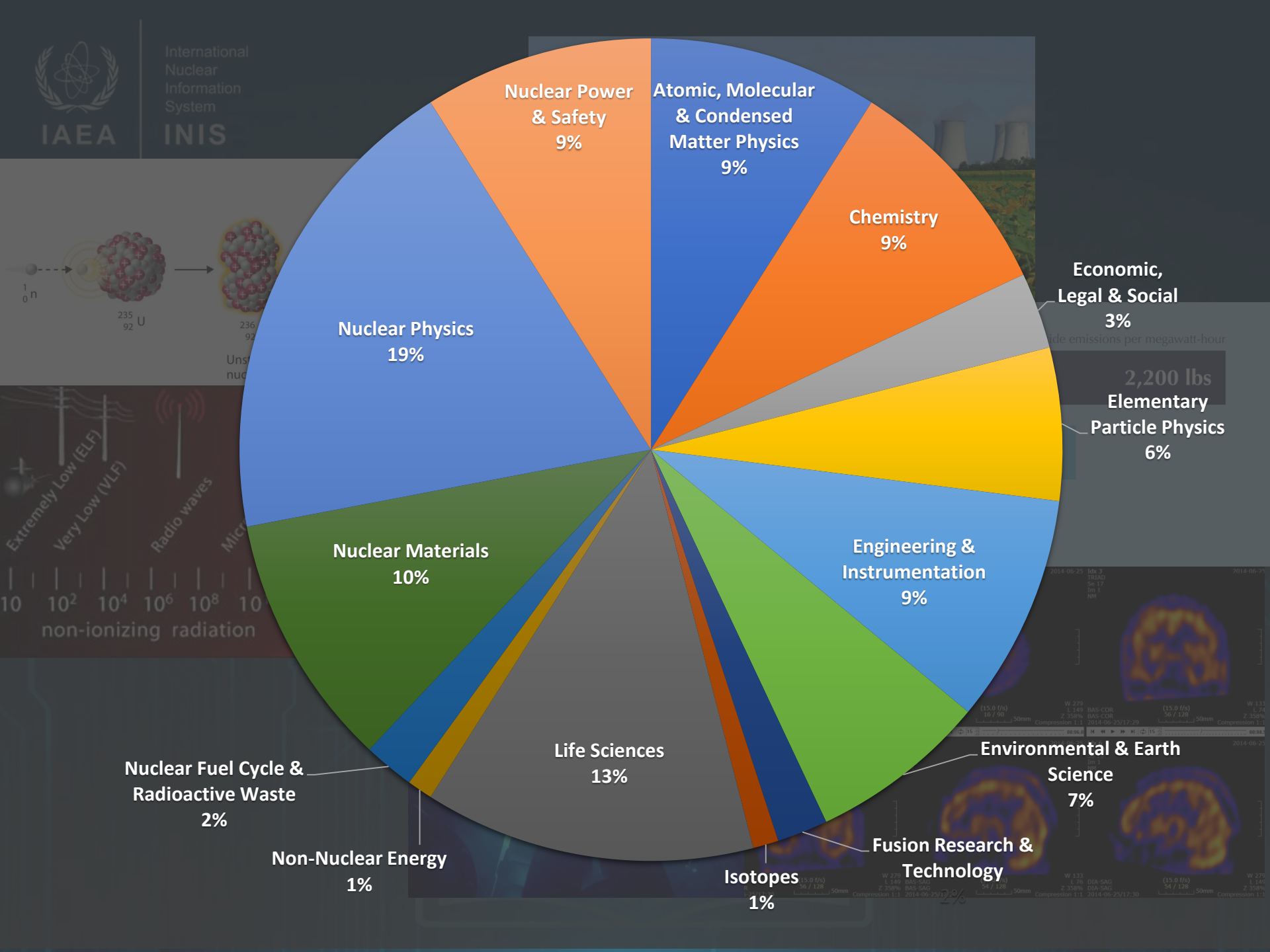
4 objectives

- Acquire, process, preserve literature on peaceful uses of nuclear science and technology
- Provide free and open access to nuclear information
- Develop and maintain a nuclear knowledge organization system
- Assist IAEA Member States in building their scientific information management capacities

155 INIS members

131 Member States

24 international organizations


Nuclear Power & Safety 9%
Atomic, Molecular & Condensed Matter Physics 9%
Chemistry 9%
Economic, Legal & Social 3%
Elementary Particle Physics 6%
Engineering & Instrumentation 9%
Environmental & Earth Science 7%
Fusion Research & Technology 2%
Isotopes 1%
Life Sciences 13%
Non-Nuclear Energy 1%
Nuclear Fuel Cycle & Radioactive Waste 2%
Nuclear Materials 10%
Nuclear Physics 19%

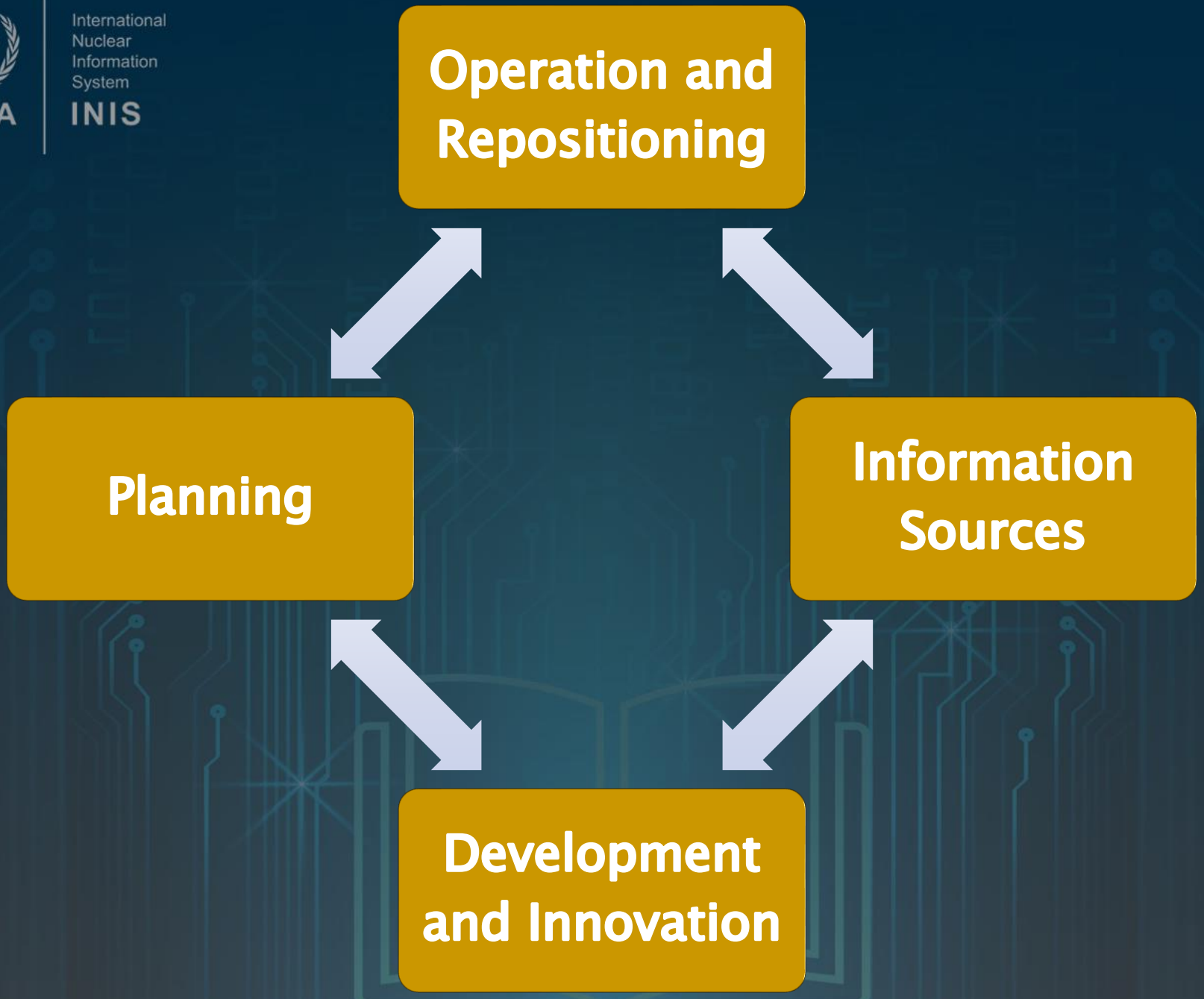
IAEA International Nuclear Information System INIS

Challenges

Doing more with less… in the *"changing world of information"*: industrial and technological progress; mindset change; new methodologies; disruptive technology and approaches.

- Technical: bibliographic systems to support efficient workflows, automation of tasks, interoperability and harvesting; ML for indexing and curation.
- Operational: identify digital sources – instead of manual input; modern metadata format; collaborations with other resources; ML for indexing and curation (mindset).

IAEA International Nuclear Information System INIS



IAEA International Nuclear Information System INIS

Operation

- Identify, index, preserve and make available, but…different data sources, changing formats. I.e. MathML
- Institutional repository: technical meetings, GC side events, *pre-prints*…
- Interoperable INIS Thesaurus.

Operation

IAEA International Nuclear Information System INIS

IAEA International Nuclear Information System INIS

INIS Production Statistics
January – September 2018

INIS Bibliographic records

75 881 new records added ⇨ Total: over 4.17 millions in the INIS Repository

(33 991 national + 41 890 voluntary)

- **54.8 %** from INIS Secretariat
  (1 168 national + 40 446 voluntary)
- **45.2 %** from **50** INIS Members
  (32 823 national + 1 444 voluntary)

39th Consultative Meeting of INIS Liaison Officers, 16-18 October 2018, Vienna, Austria

39th Consultative Meeting of INIS Liaison Officers, 16-18 October 2018, Vienna, Austria

IAEA International Nuclear Information System INIS

Information Sources

- **Grey Literature** – NCL: Member States, national/institutional preservation projects (IAEA, JAEA, JINR, ...), >20%
- **Published information**: Member States, harvesting (PubMed, SCOAP3,DOE PAGES, CERN CDS, arXiv, ...), publisher metadata (Elsevier, Springer, AIP)
- **Highlights:** OA sources - Frontier; arXiv full-texts

Information Sources

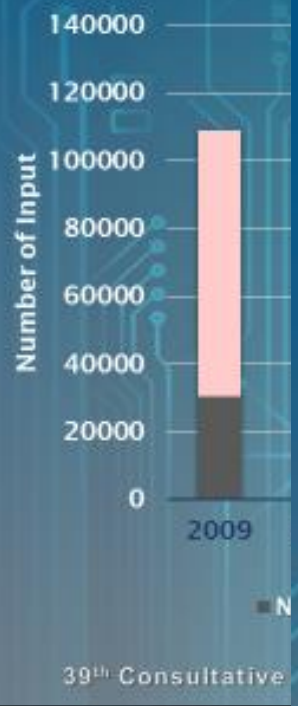
IAEA International Nuclear Information System INIS

IAEA International Nuclear Information System INIS

INIS Annual Production Statistics
2009 – 2018 (Jan – Sep)

Input to the INIS Repository

Non-conventional Literature vs. Conventional Literature



39th Consultative

IAEA International Nuclear Information System INIS

INIS Input Statistics by Literature Type
January – September 2018

Non-conventional Literature vs. Conventional Literature

79.8 % Conventional Literature

- **74.5 %** Journal articles
- **5.3 %** Books

20.2 % Non-Conventional Literature (NCL)

- **2.9 %** Reports
- **17.3 %** Miscellaneous

IAEA International Nuclear Information System INIS

Development and innovation

- Back-end development: improvements of IRS, migration to Elasticsearch, IMGM, MathML
- Bibliometric service, Thesaurus development, integration with KOS's.
- Improvement of CAI algorithm – innovative subject indexing.

IAEA International Nuclear Information System INIS

INIS repository

4.1 million bibliographic records
104 000 in 2017

540 000 full-text documents
8000 in 2017

2.9 million web page views

1.6 million unique searches

1 million unique visitors

INIS thesaurus

A knowledge organization system

8 languages

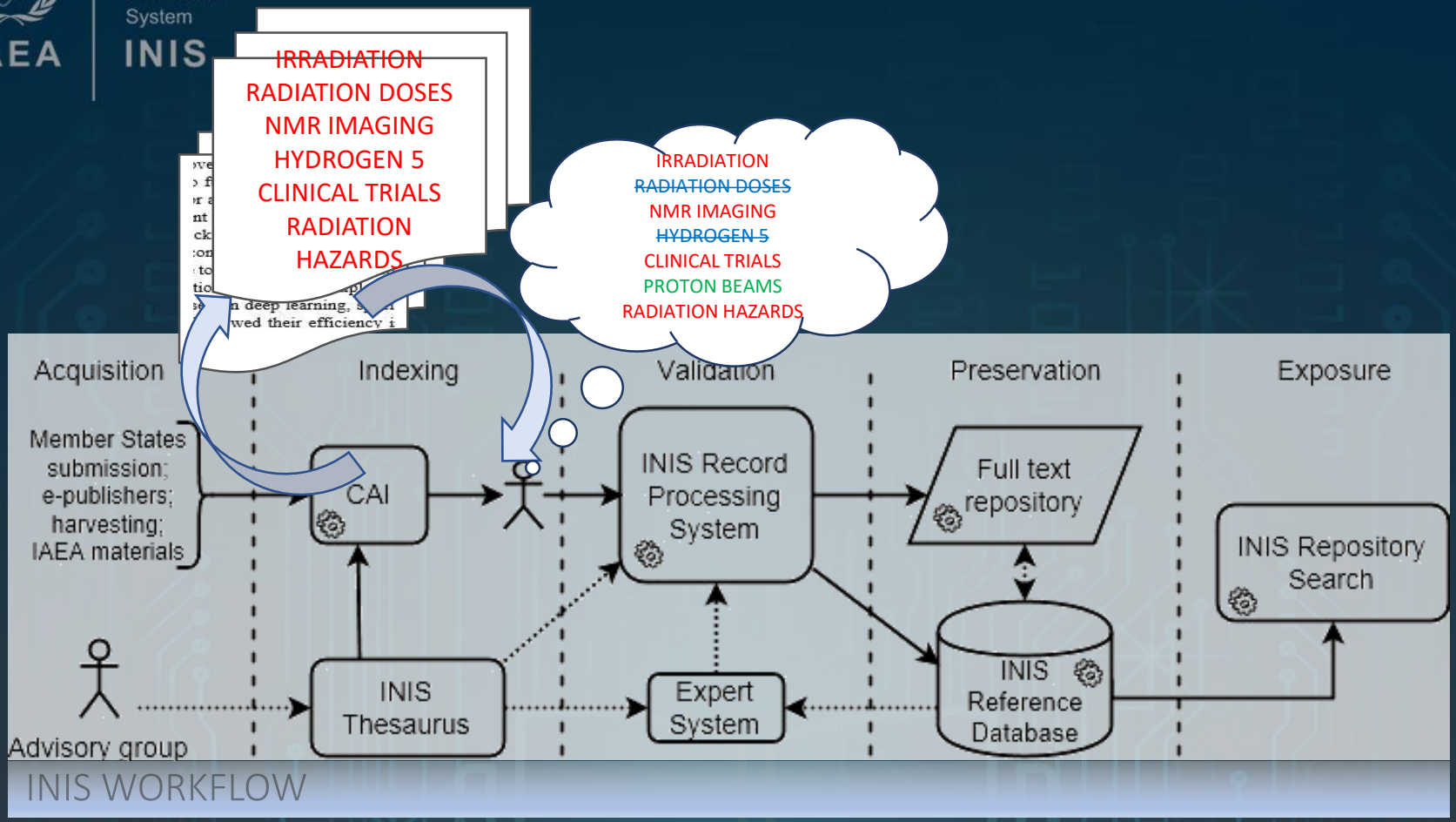
Arabic, Chinese, English, French, German, Japanese, Russian, Spanish

31 158 descriptors

150 in 2017

International Nuclear Information System

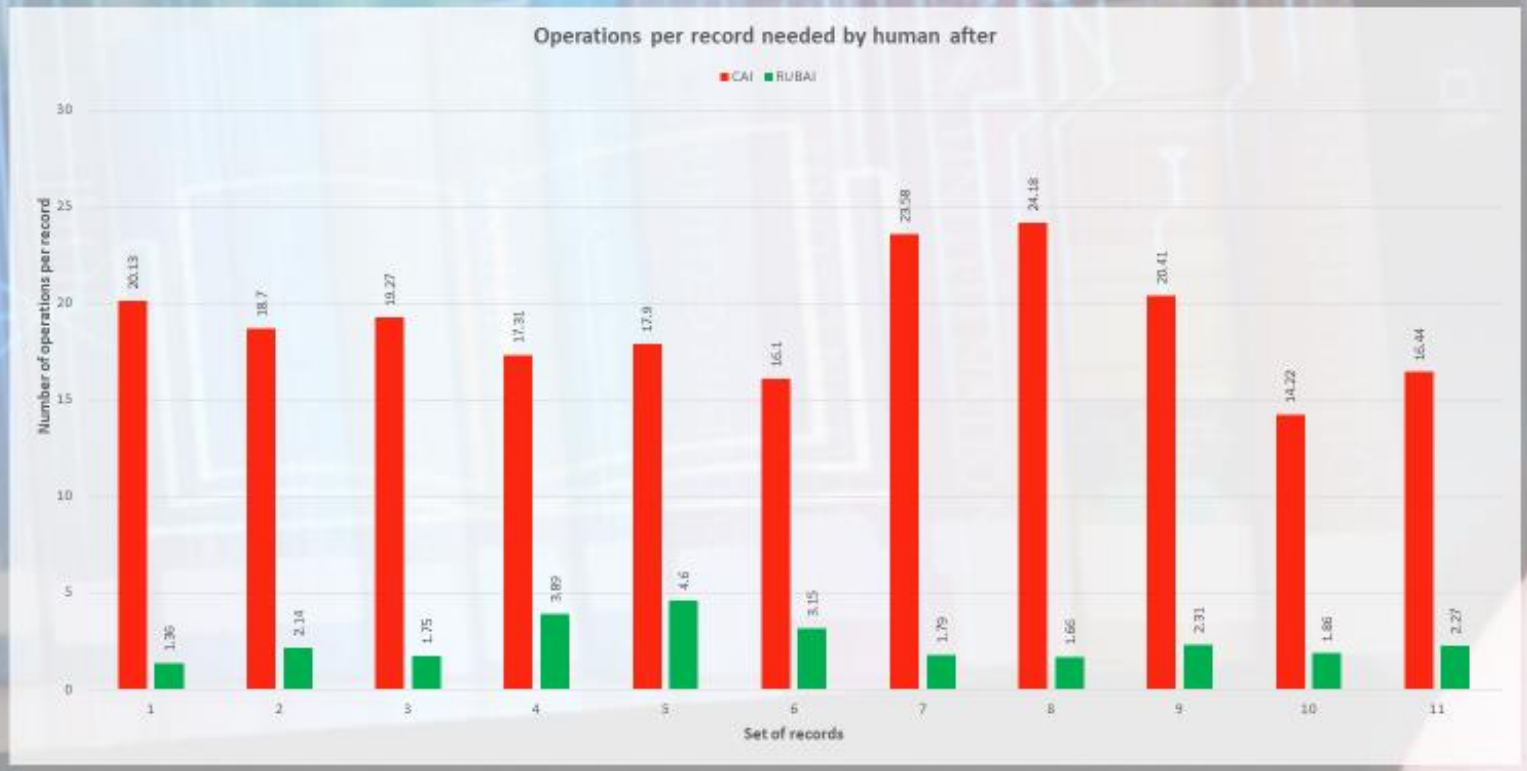
IAEA INIS



INIS WORKFLOW

TWO-PASS INDEXING, TIER I

RUBAI: RESULTS



IAEA International Nuclear Information System INIS

Planning

- Software and engine: next-generation bibliographic system imminent; major changes in the workflows; compatibility with other digital repositories, INIS Thesaurus to SKOS.
- Capacity building: expertise and know-how to develop national and regional digital repositories.
- Machine learning approach to subject indexing: increase efficiency, enable better use of resources.
- Single access point for nuclear information: aggregate resources.
- INIS can do more: continued OA placement and the main driver for OA to nuclear information; preserve more grey literature, increase proportion of institutional preservation projects.

IAEA International Nuclear Information System INIS

Can we do more?

Open Access Week 2018

Designing Equitable Foundations for Open Knowledge

October 22 - 28

- Scientific information should not be locked behind paywalls. Especially so with nuclear information, directly stimulating research and development in areas such as nuclear safety and security.
- OA to results of scientific research – publications or data – is vital for development.
- Grey Literature – unique contribution, and OA by definition. INIS as one of the main sources of GL in nuclear, can be more... {inclusive}GL: papers, data and regular pre-prints, thus...
- ...actively contribute to Open Science.