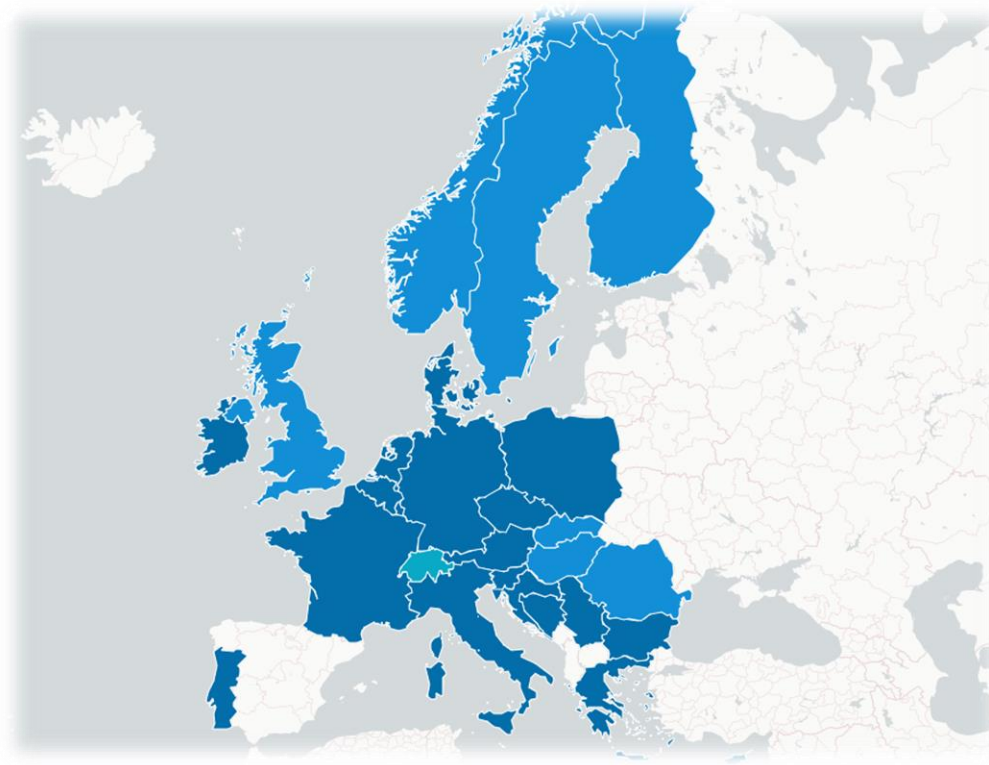# Dariah.lab

DARIAH-PL:

Dariah.lab: towards Polish e-infrastructure for the Arts and humanities

Session: Digital Humanities – digital technology and its applications

Authors: <u>Maciej Głowiak</u> - *presenter*, Cezary Mazurek, Tomasz Parkoła, Ewa Kuśmierek, Dominik Purchała

EaPEC2022 Conference, Baku--- Thu, 29 September 2022, 14:30

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DARIAH ERIC – A network to enhance and support digitally enabled research and teaching across the Arts and Humanities.
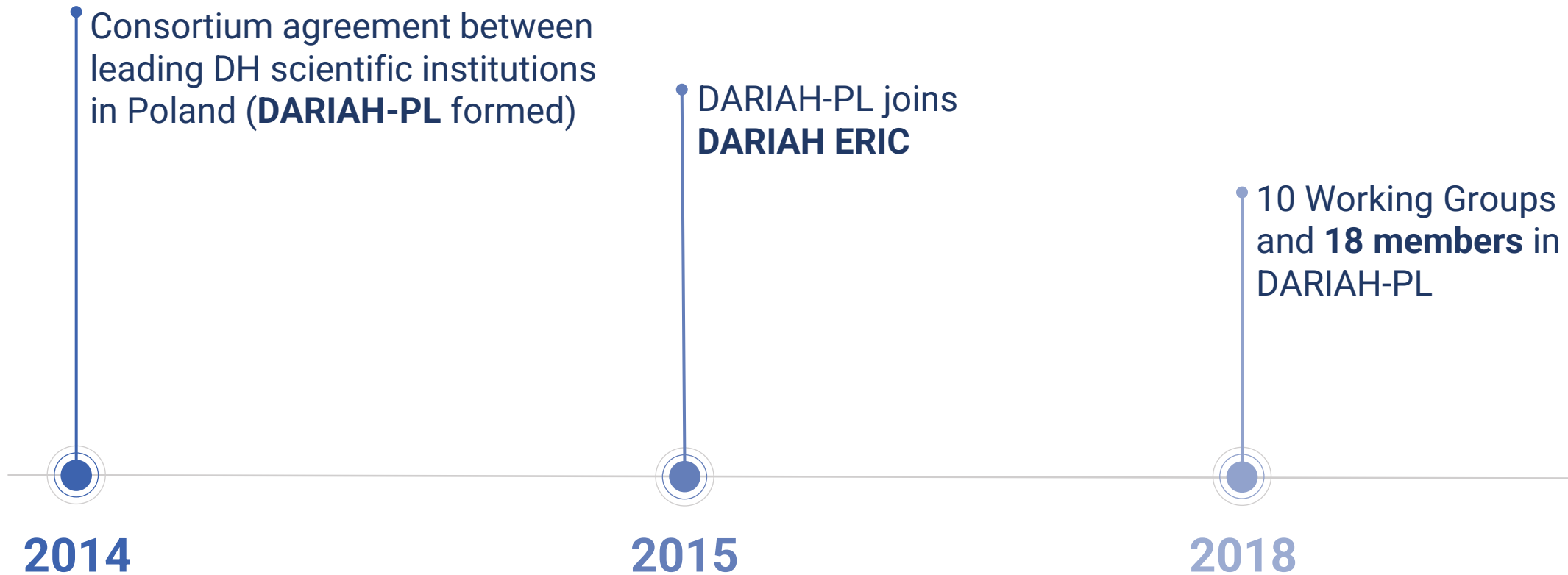
Source: dariah.eu

DARIAH-PL – Polish consortium of 18 institutions to introduce to the European network DARIAH ERIC, deepen cooperation and build infrastructure
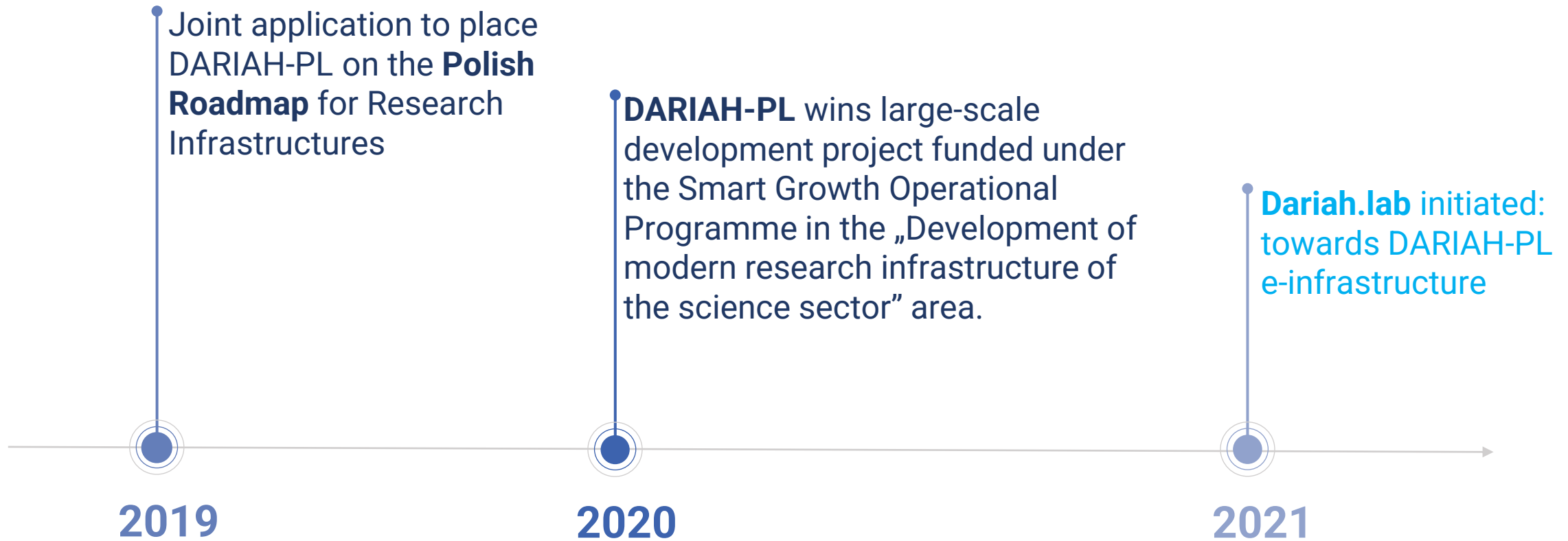
Dariah.lab – „DARIAH-PL" is Polish national large-scale development and infrastructure project started in 2021…

Key milestones for DARIAH-PL

Consortium agreement between
leading DH scientific institutions
in Poland (**DARIAH-PL** formed)

DARIAH-PL joins
DARIAH ERIC

10 Working Groups
and **18 members** in
DARIAH-PL

2014

2015

2018

Dariah.lab

Key milestones for DARIAH-PL

Joint application to place DARIAH-PL on the **Polish Roadmap** for Research Infrastructures

DARIAH-PL wins large-scale development project funded under the Smart Growth Operational Programme in the „Development of modern research infrastructure of the science sector" area.

Dariah.lab initiated: towards DARIAH-PL e-infrastructure

2019

2020

2021

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1. University of Warsaw
2. Academy of Fine Arts in Warsaw
3. Institute of Literary Research PAS
4. **Poznań Supercomputing and Networking Center**
5. Institute of History PAS
6. Institute of Polish Language PAS
7. Institute of Computer Science PAS
8. Institute of Slavic Studies PAS
9. Institute of Arts PAS
10. Wrocław University of Science and Technology
11. Adam Mickiewicz University
12. Jagiellonian University in Kraków
13. Maria Curie-Skłodowska University
14. Nicolaus Copernicus University in Toruń
15. University of Wrocław
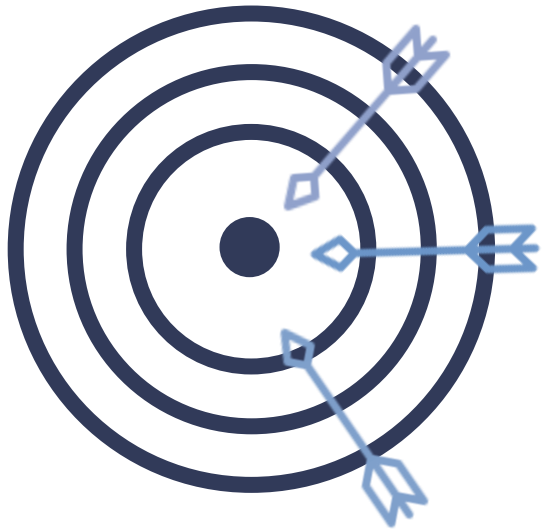16. Poznań University of Technology
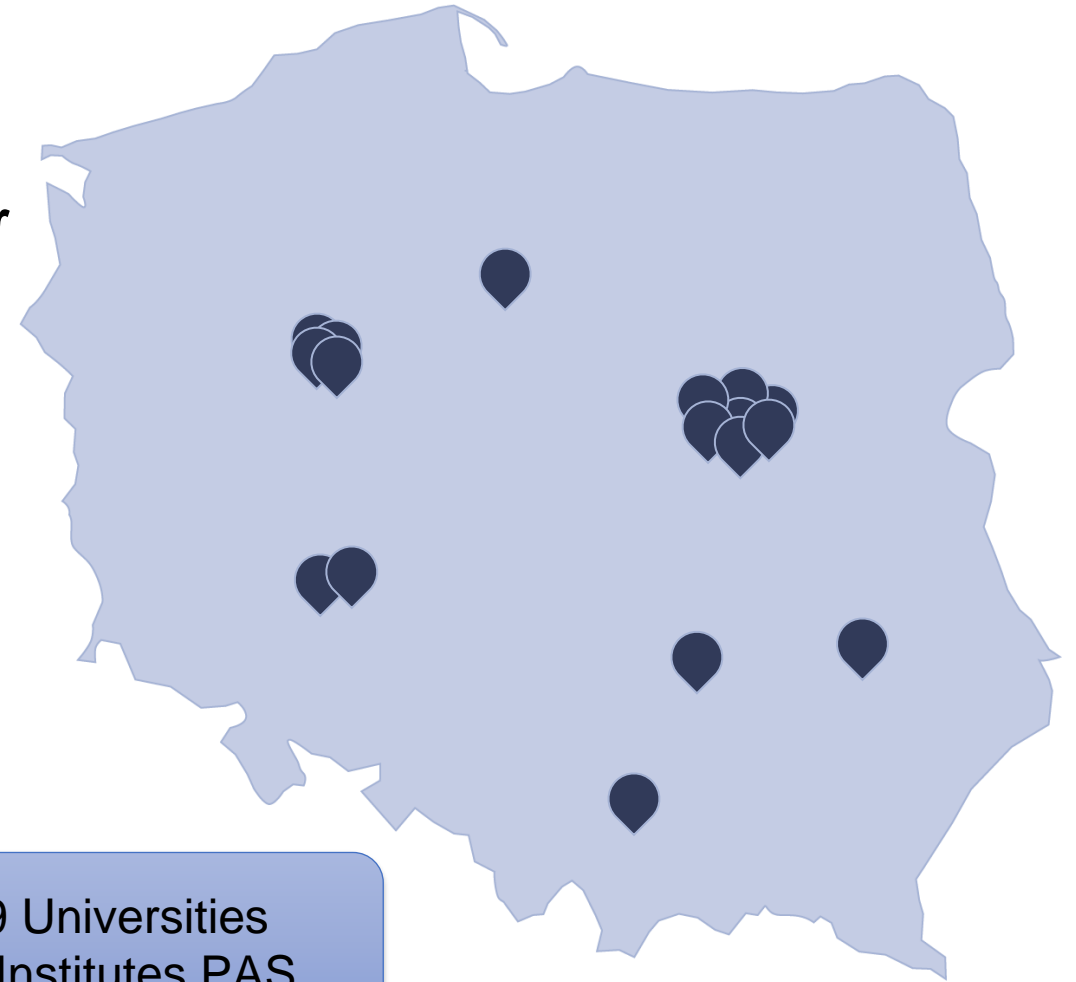
9 Universities
7 Institutes PAS

Dariah.lab

The aim of the project is to **build Dariah.lab infrastructure:**

Laboratory equipment, software tools, integrated digital resources from various fields of art and humanities research
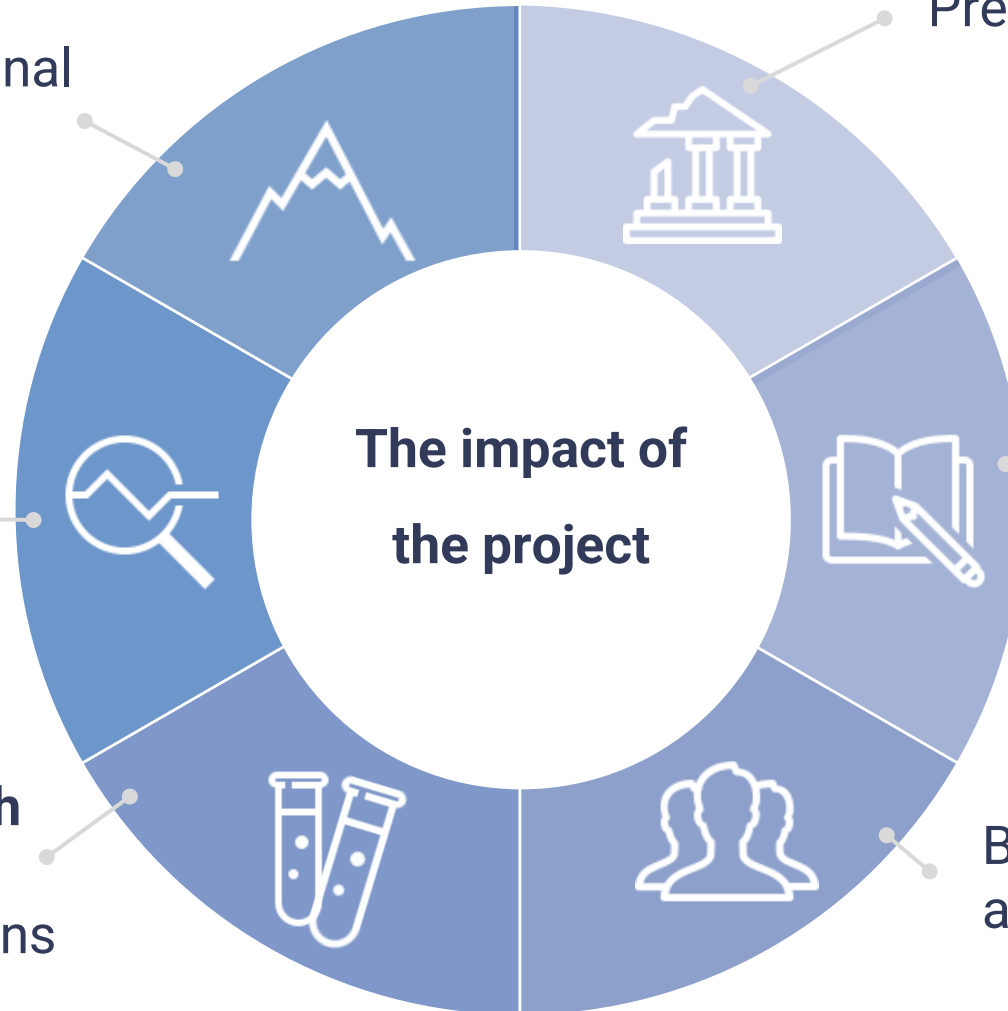
Facts:

- Timeframe: 1 Jan **2021** − 31 Dec **2023**
- Partners: **16**
- Locations: **7** in Poland
- Total budget: **28M€** (21,7M€ EU contribution)
- Strong economic focus − the infrastructure has to **find its use in the commercial sector**
- Access for research & academic communities and projects, organizations, SMEs, companies

Strengthening regional **tourism and virtual tourism**

Preservation of **cultural heritage**

Economic development

Support for broadly understood **education**, especially in less developed regions

The impact of the project

Increased research potential of Polish scientific institutions

Better understanding of social and cultural differences

...but also entertainment, creative industry, gaming
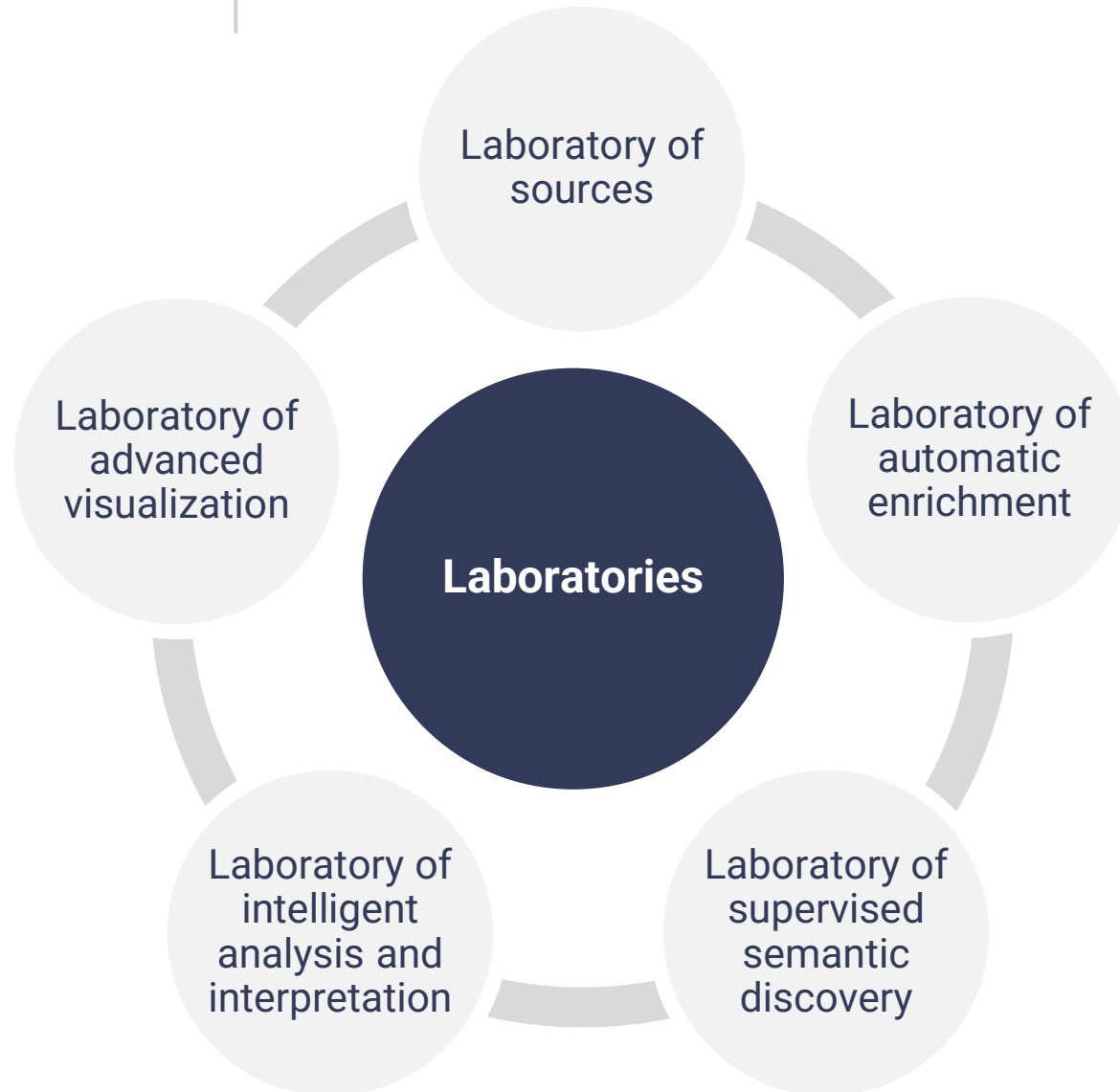
5 distributed and related laboratories:

1. Laboratory of **sources**
2. Laboratory of **automatic enrichment**,
3. Laboratory of **supervised semantic discovery**,
4. Laboratory of intelligent **analysis and interpretation**,
5. Laboratory of advanced **visualization**.

- **Mobile** laboratories

Laboratory of sources

Laboratory of advanced visualization

Laboratories

Laboratory of automatic enrichment

Laboratory of intelligent analysis and interpretation

Laboratory of supervised semantic discovery
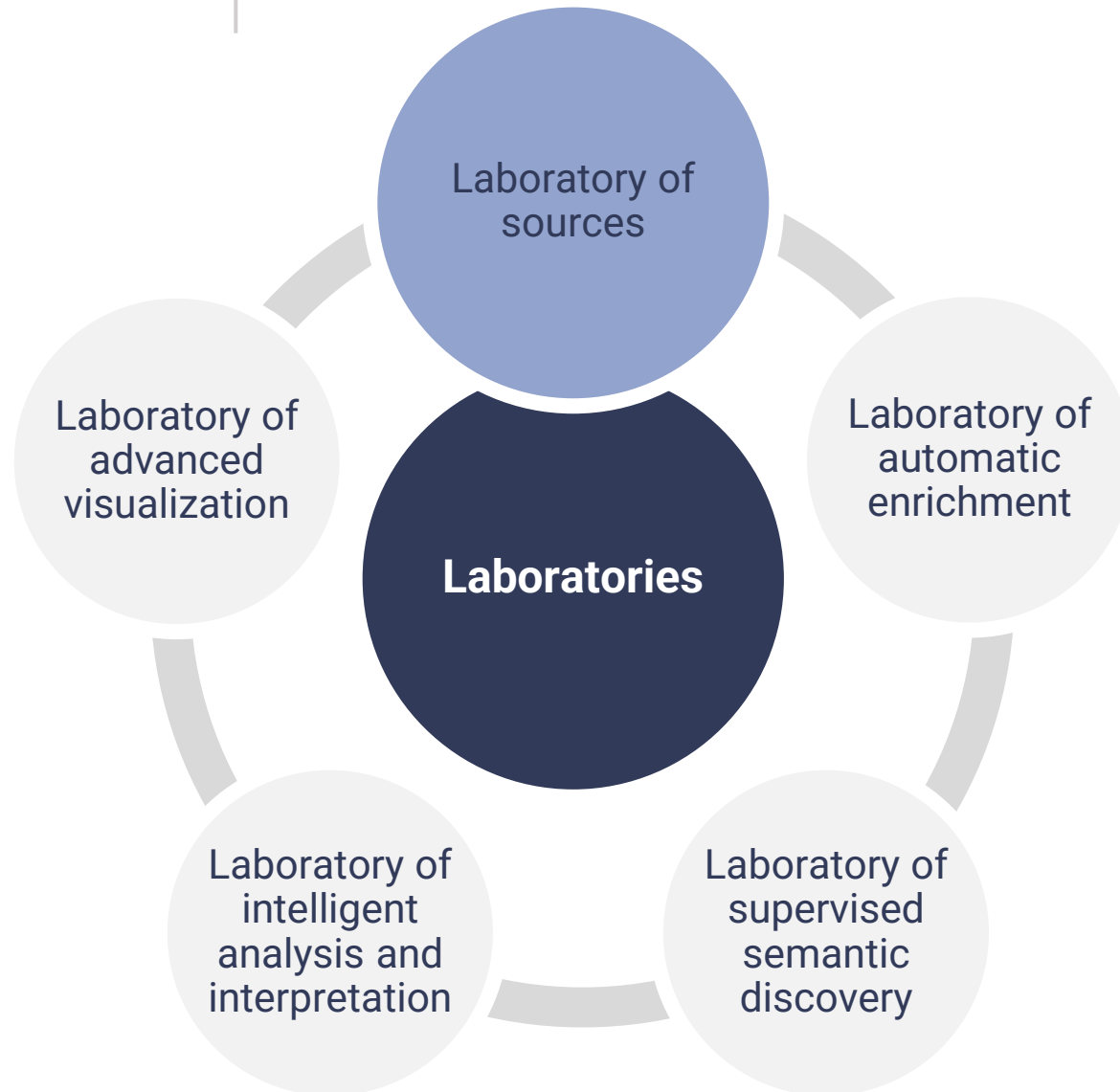
- **Digitization** of various types of content:
  - Documents, scores, paintings, notes
  - Video
  - Audio
  - Motion & gesture
  - 3D objects
  - Terrain

- **Services** for PIDs, object repositories, high-volume data streaming as well as multimodal corpuses

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Laboratories

- Laboratory of sources
- Laboratory of automatic enrichment
- Laboratory of advanced visualization
- Laboratory of intelligent analysis and interpretation
- Laboratory of supervised semantic discovery
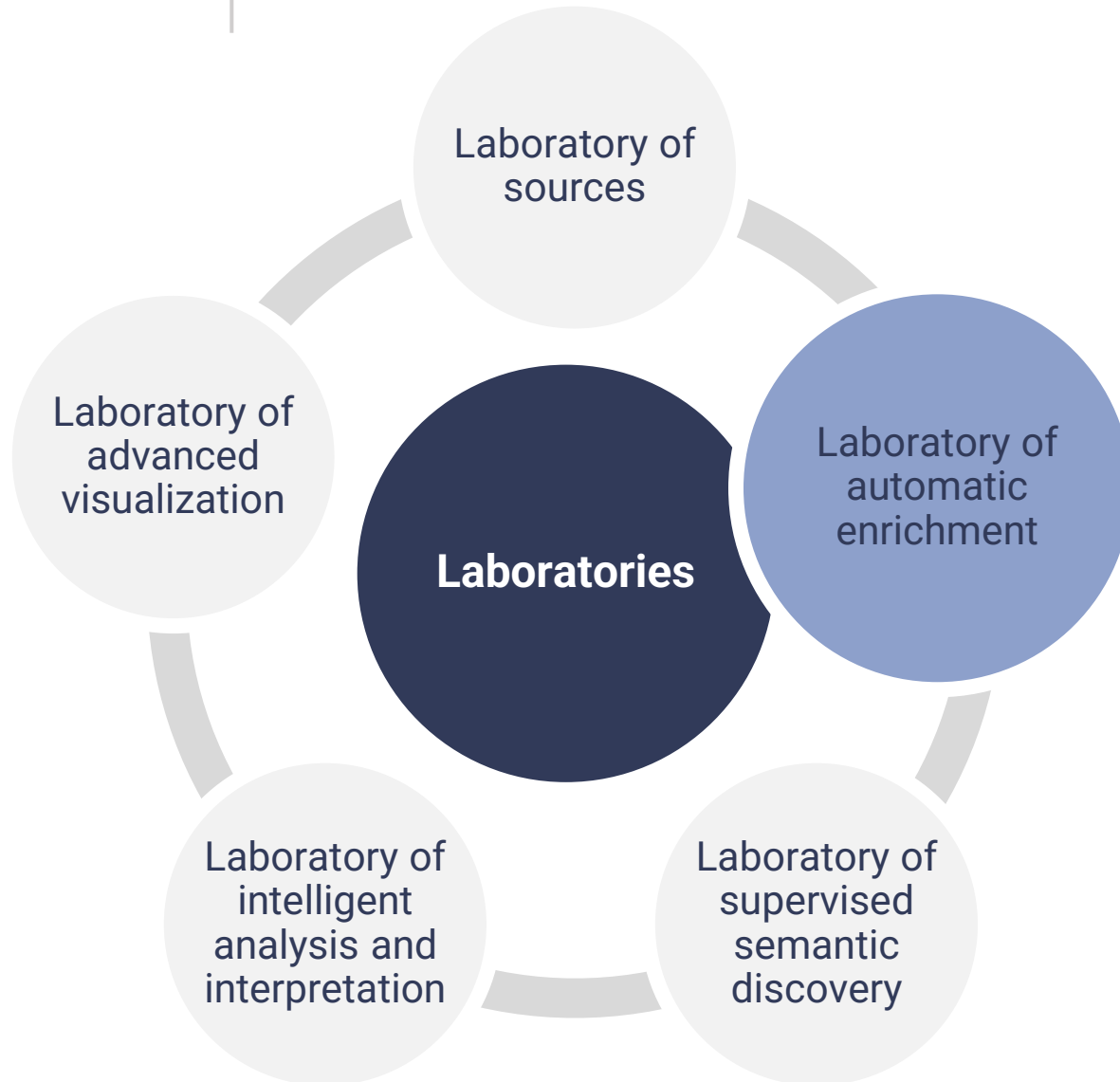
Software/services for:

- Text, voice and music recognition,
- Automated data classification,
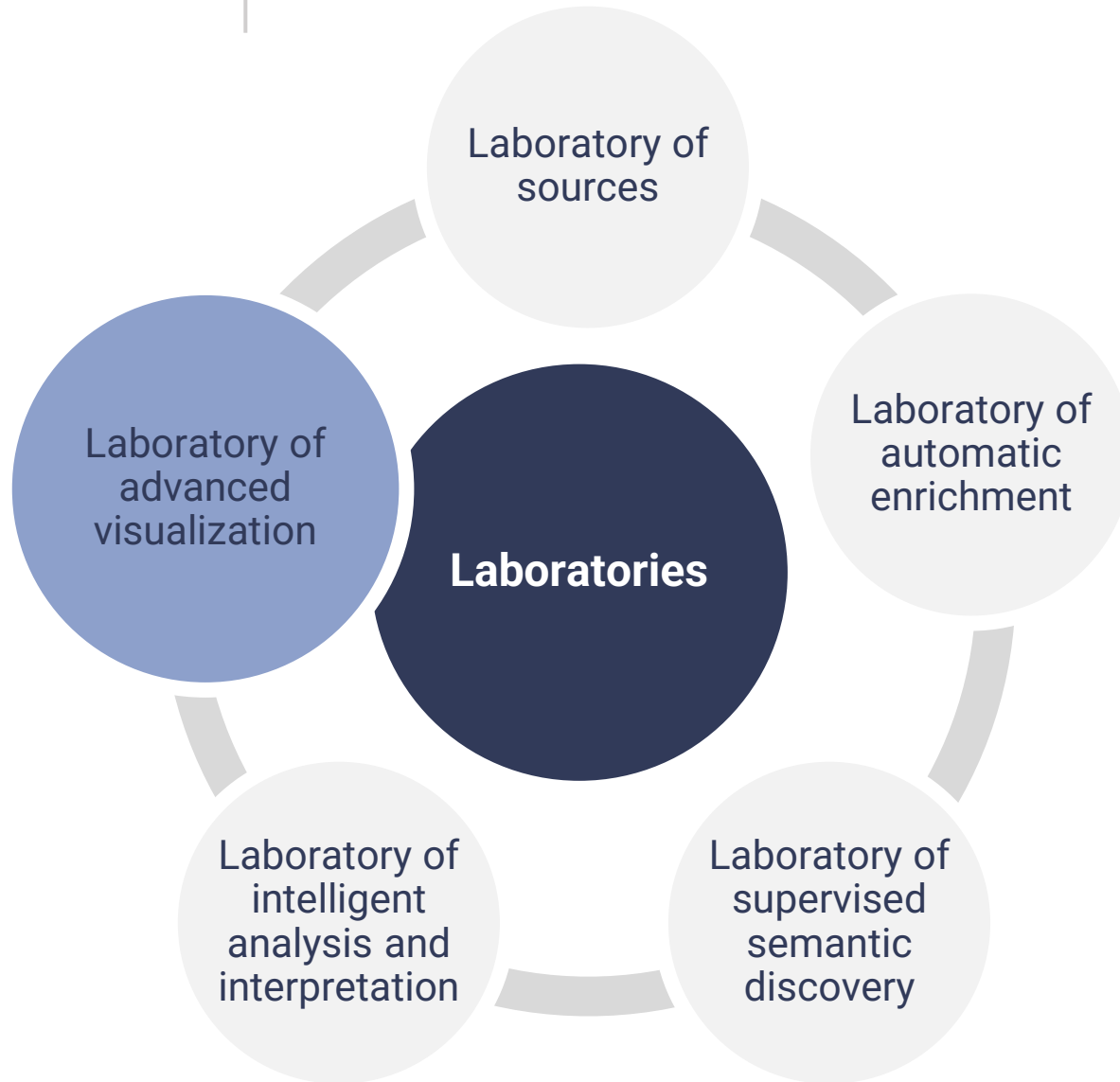- Transcription, transliteration, translation and annotation.

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Laboratory of sources

Laboratory of automatic enrichment

Laboratory of advanced visualization

Laboratories

Laboratory of intelligent analysis and interpretation

Laboratory of supervised semantic discovery
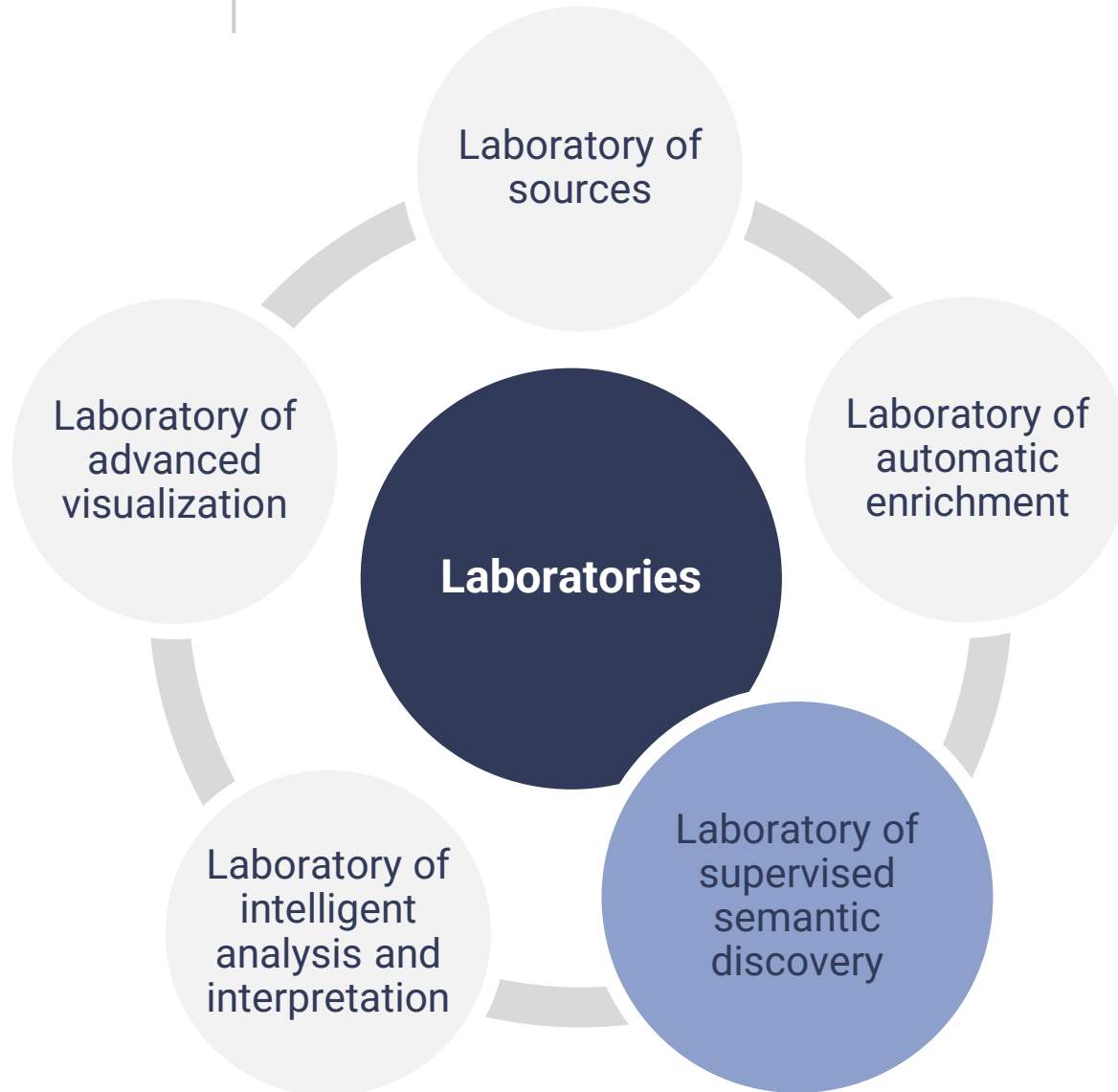
Software/services for:

- Data **aggregation** and **consolidation**,
- Dictionaries and thesauruses,
- Data mapping

Laboratory of sources

Laboratory of automatic enrichment

Laboratory of advanced visualization

Laboratories

Laboratory of intelligent analysis and interpretation

Laboratory of supervised semantic discovery
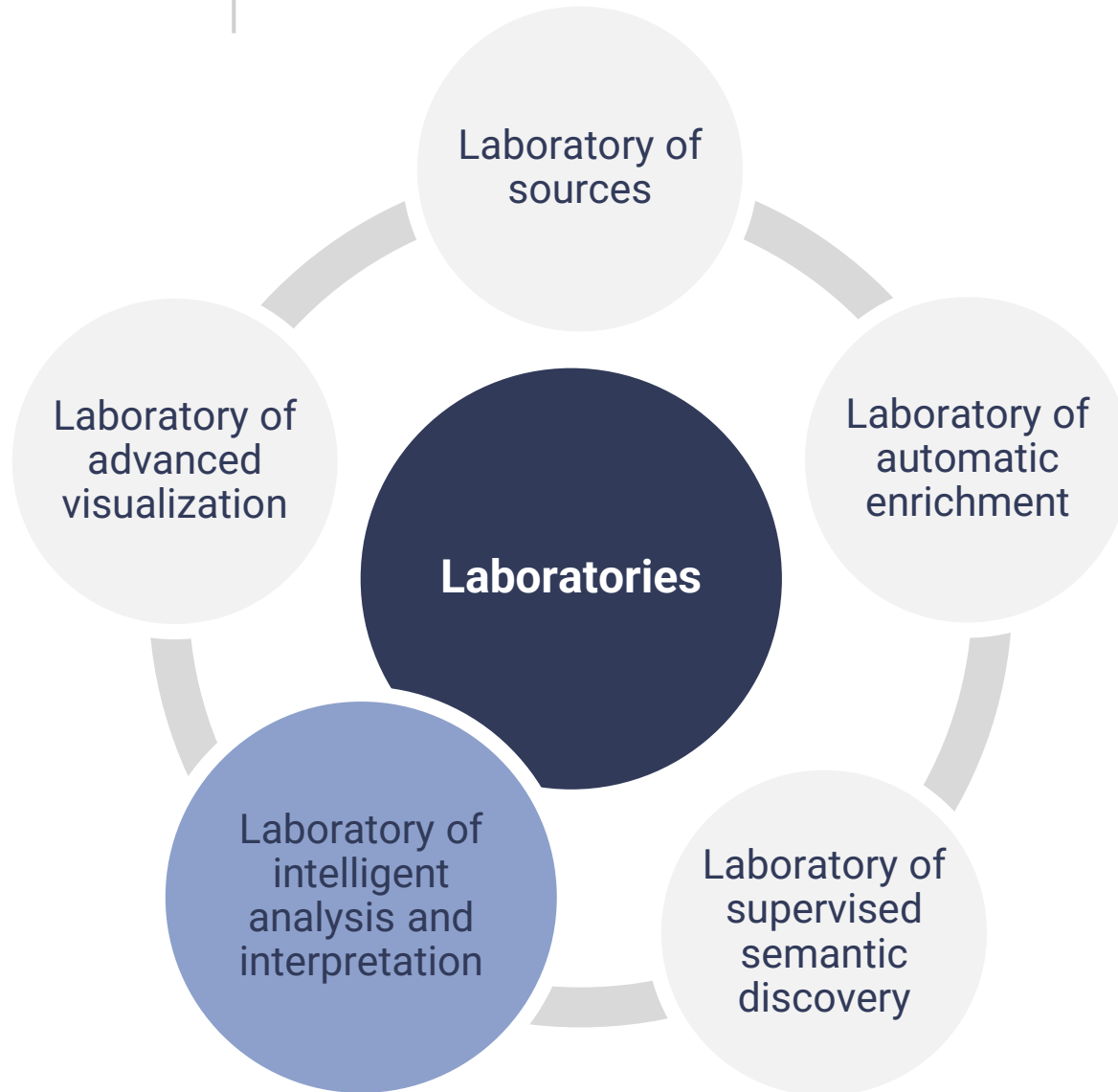
Software/services for:

- Interactive data analytics
- Music, speech and gesture perception

Equipment and software/services for:

- Large-format and 3D visualisation
  - LED walls, projectors
- Virtual galleries and 3D gaming engines (e.g. Unity, Unreal),
- Physical visualisation (e.g. 3D printers)
- Geospatial visualization

The diagram shows:
- Laboratory of sources
- Laboratory of automatic enrichment
- Laboratory of supervised semantic discovery
- Laboratory of intelligent analysis and interpretation
- Laboratory of advanced visualization
- **Laboratories** (center)

- Scenario-based

- A set of interconnected services

- Complex infrastructure with a common single interface

Just a few examples of the infrastructure components from
The Laboratory of sources

Georadar 3D (Raptor) in action, Warsaw

Geology, archeology
- Georadars
- Spectrometers
- Geological mapping, photogrammetry

Photo sources: Univ. of Warsaw

![Dariah.lab logo]

Cultural heritage digitization

- A0+ format scanners
- Digital cameras - photography up to 150MPix, 100x140cm
- Negatives
- Infra-Red photography (e.g.pigment and blemish analysis of historical artefacts)
- 3D photography
- FADGI support

Photo sources: fujifilm-x.com, www.nationalphoto.co.jp, photography.phaseone.com, www.acc.com.pl, www.canon.pl

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Arts, historical photography

- Analog photography laboratory and studio
- Photo cameras (e.g. Chamonix 20x24")
- Darkroom with enlargers (up to 8x10")
- Support for nobles photography techniques (wet collodion, albumen, cyanotype)

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Photo: Olga Ormańczyk, PSNC
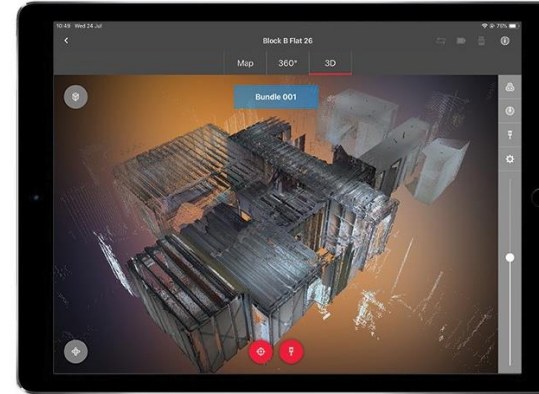
Cultural heritage, archeology

- LIDAR and structured light scanners
- Tripod-mounted and hand scanners
- Software for cleaning and processing 3D point clouds
- Drones for aerial scanning and photos
- Multispectral cameras for drones
- Aerial photogrammetry

Photo sources: www.einscan.com, leica-geosystems.com, www.dji.com
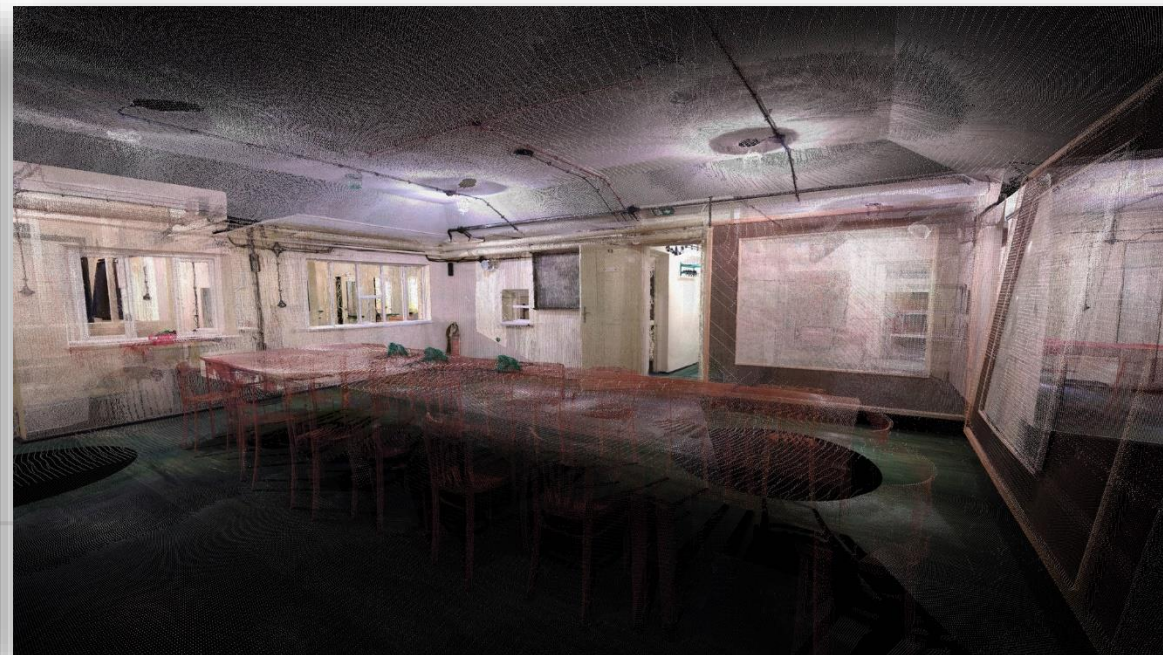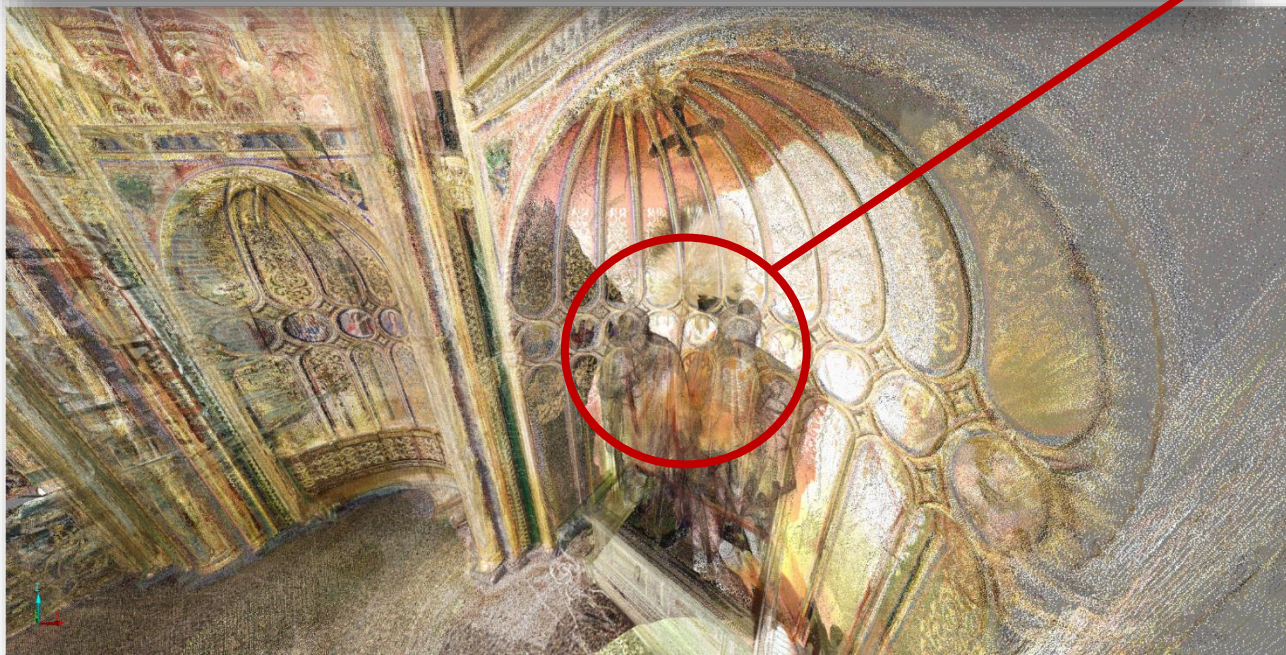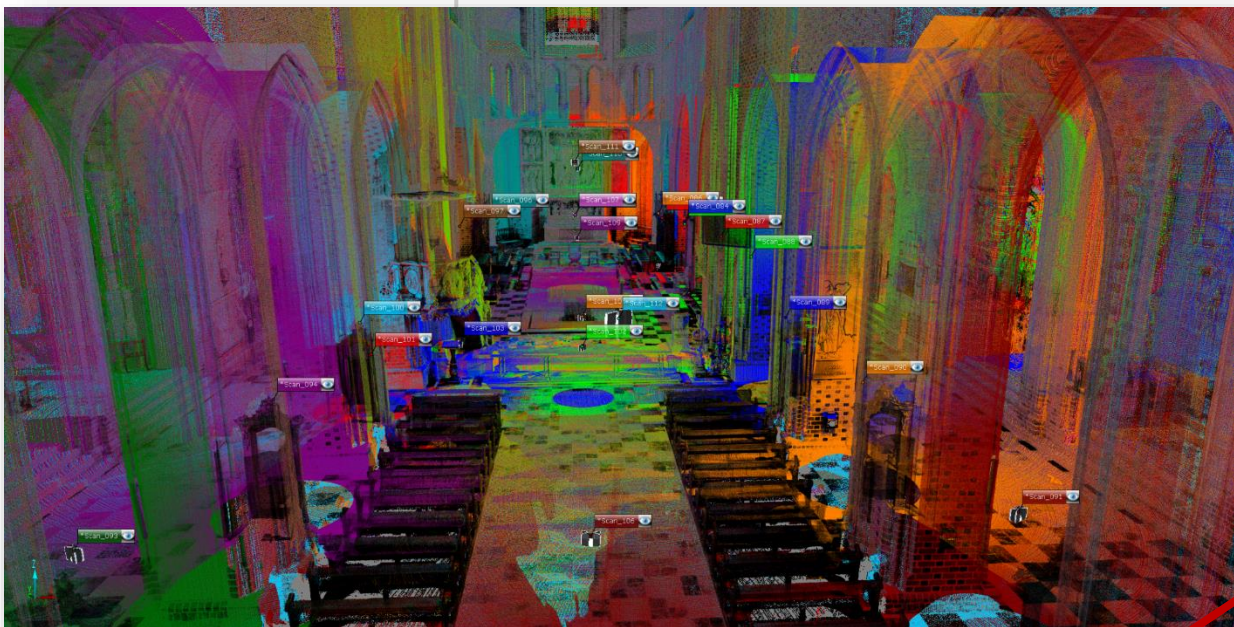
Culture (theatres, operas, events), etnology
- Multiple 12K cameras for fine quality recordings
- Postprocessing including HDR
- Multiple 8K@60p live cameras with live video streaming + mixing

Photo sources: www.blackmagicdesign.com, www.ioindustries.com, blog.frame.io,

Photo sources: PSNC

Culture (concerts), musicology, etnology, linguistics

- Fine quality recordings and playback
- Multichannel sound, ambisonics
- Various physical setups of multiple audio sources
- Low-latency audio streaming (incl. LOLA)

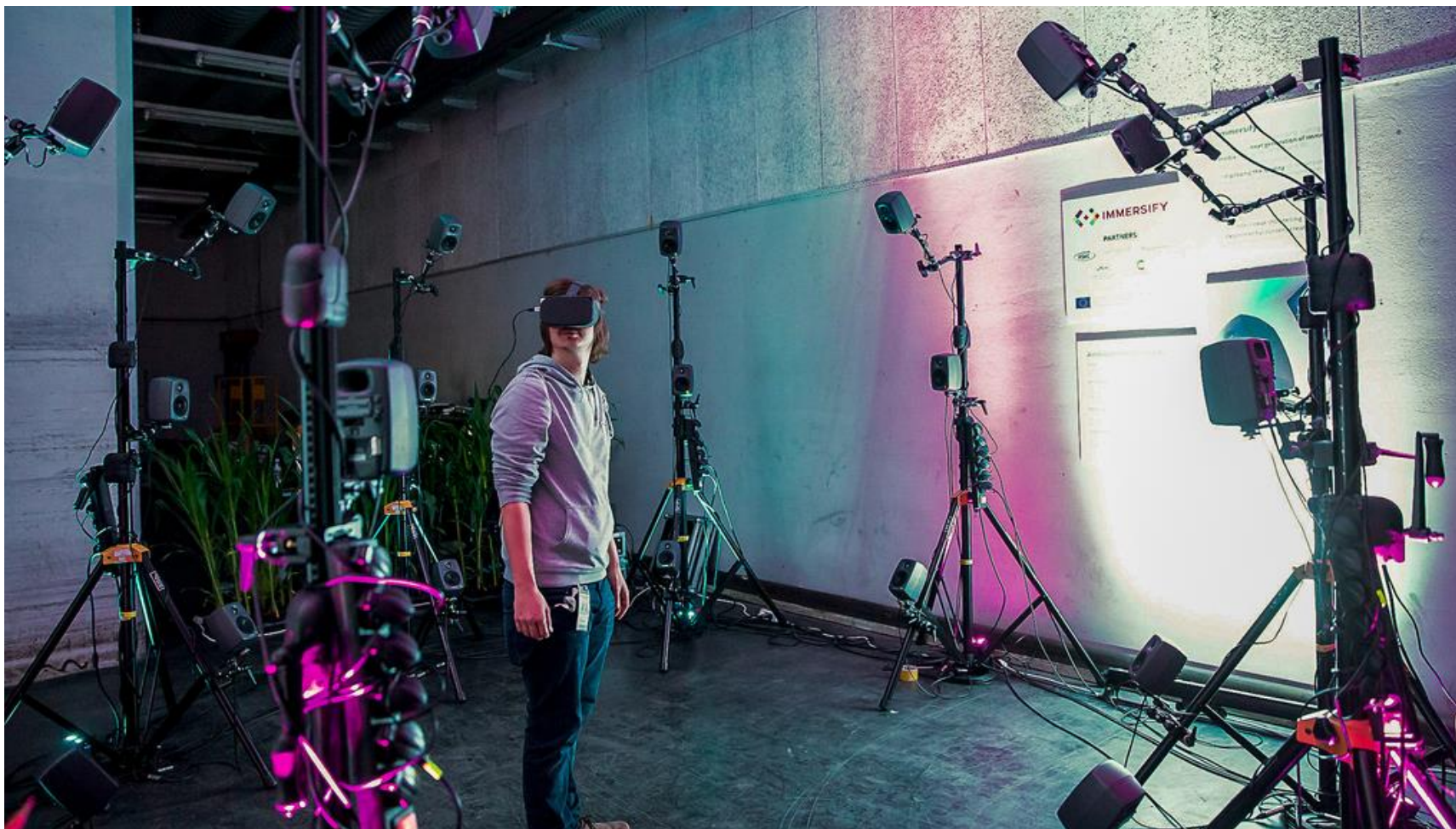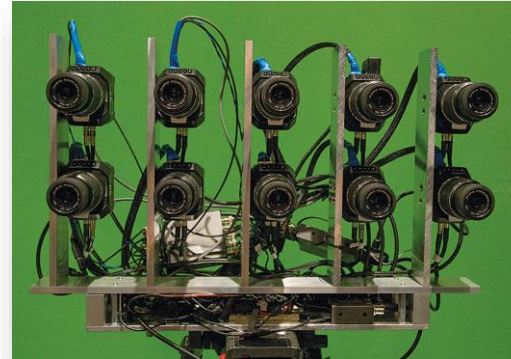Photo sources: PSNC, Adam Mickiewicz Univ. core-sound.com

Photo sources: PSNC

Culture, archeology, architecture, linguistics, ethnology
- Special formats: VR/360° video (up to 30K)
- Stereoscopy
- Plenoptics, and camera arrays for research, 6DoF
- Motion capture
- Sensors (biosensors, haptic, etc.)

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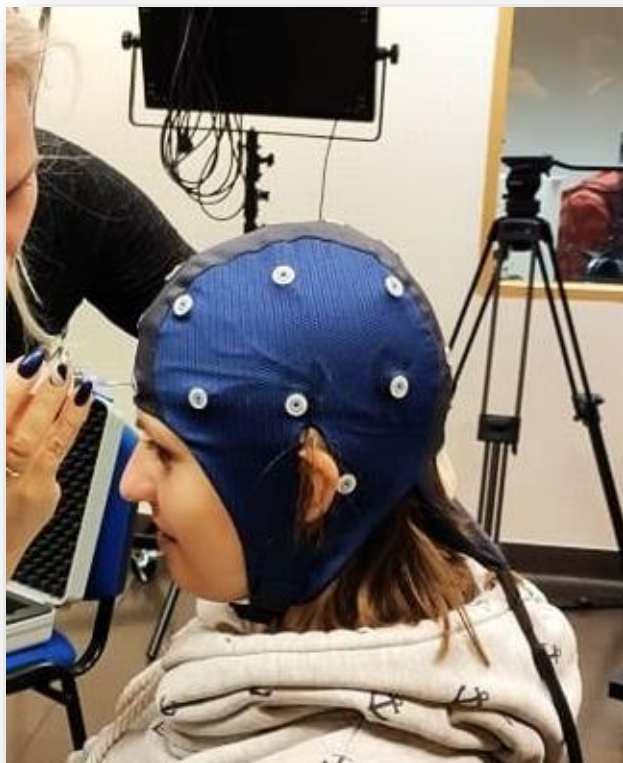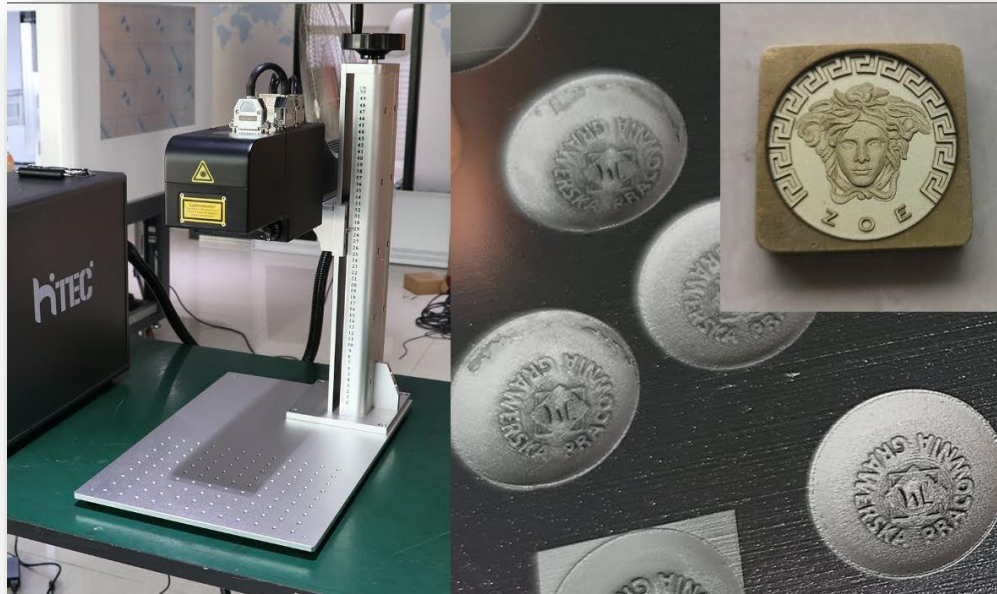European Regional
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Photo sources: Adam Mickiewicz Univ., PSNC

Culture, Arts, Archeology
- Displays: 8K LED HDR walls, TVs,
- High resolution projector (mapping)
- Virtual galleries (renders, point cloud, paintings, VR)

Photo sources: PSNC

Culture, Arts, Archeology

- Physical visualisation: 3D printers, laser

Photo sources: www.etcentric.org, www.creatbot.com, 3dgence.com, www.hiteccnc.com

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Thank you!

e-mail: info@lab.dariah.pl

www: https://lab.dariah.pl/