# MEDICAL DATA CENTER
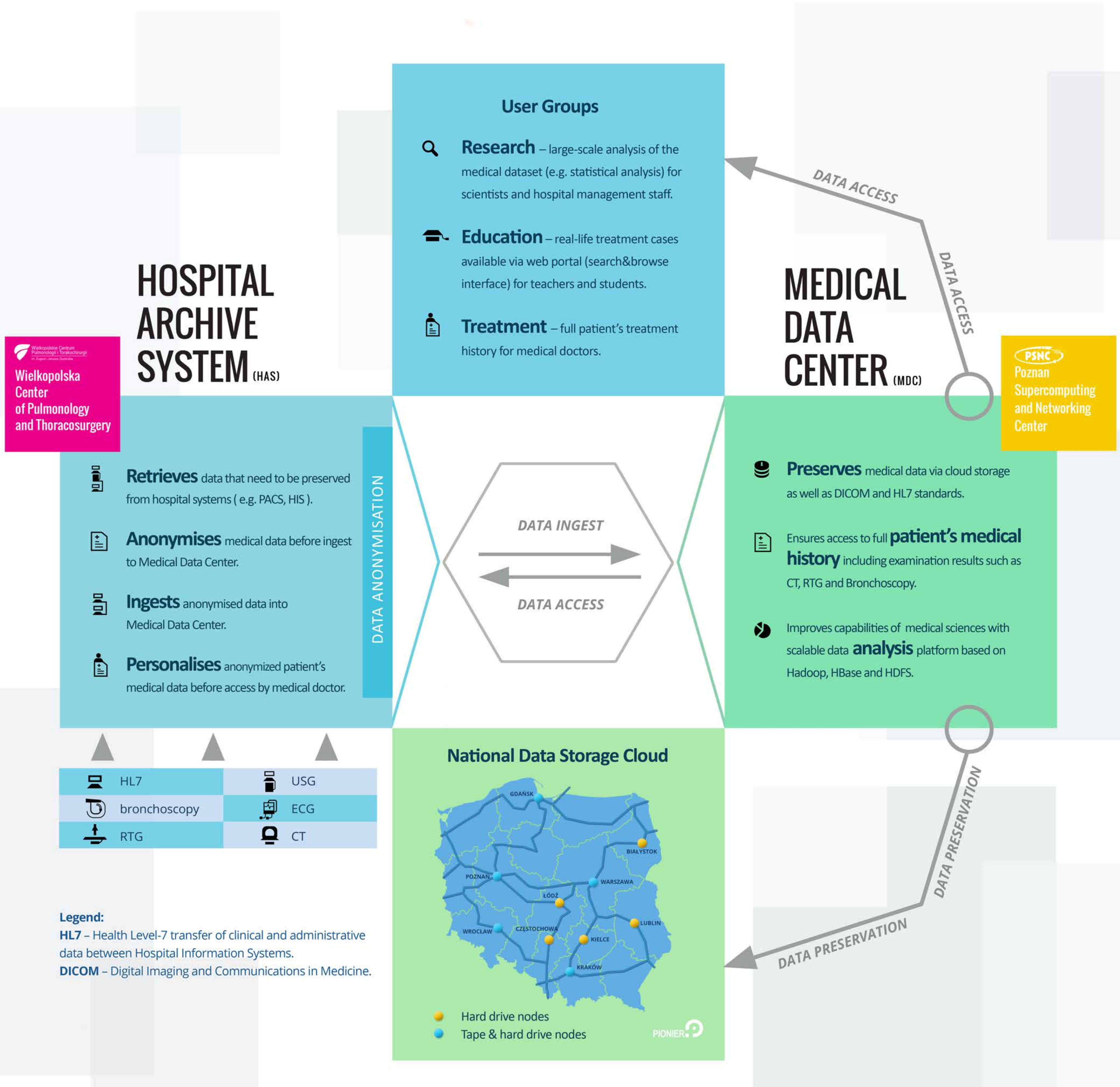
## Improve hospital capabilities by preserving & opening medical data with scalable technologies

Preserve full patient's history ▪ Conduct large scale analysis ▪ Educate on real life treatment scenarios

## User Groups

🔍 **Research** – large-scale analysis of the medical dataset (e.g. statistical analysis) for scientists and hospital management staff.

📠 **Education** – real-life treatment cases available via web portal (search&browse interface) for teachers and students.

🧴 **Treatment** – full patient's treatment history for medical doctors.

## HOSPITAL ARCHIVE SYSTEM (HAS)

**Wielkopolska Center of Pulmonology and Thoracosurgery**

*Wielkopolskie Centrum Pulmonologii i Torakochirurgii*

## MEDICAL DATA CENTER (MDC)

**PSNC Poznan Supercomputing and Networking Center**

DATA ACCESS

DATA ACCESS

**DATA ANONYMISATION**

📇 **Retrieves** data that need to be preserved from hospital systems ( e.g. PACS, HIS ).

📄 **Anonymises** medical data before ingest to Medical Data Center.

📇 **Ingests** anonymised data into Medical Data Center.

🧴 **Personalises** anonymized patient's medical data before access by medical doctor.

*DATA INGEST*

*DATA ACCESS*

🗄 **Preserves** medical data via cloud storage as well as DICOM and HL7 standards.

📄 Ensures access to full **patient's medical history** including examination results such as CT, RTG and Bronchoscopy.

◔ Improves capabilities of medical sciences with scalable data **analysis** platform based on Hadoop, HBase and HDFS.

DATA PRESERVATION

DATA PRESERVATION

| | | | |
|---|---|---|---|
| 🖥 | HL7 | 📱 | USG |
| 🔬 | bronchoscopy | 📠 | ECG |
| ⚕ | RTG | 🔲 | CT |

**Legend:**
**HL7** – Health Level-7 transfer of clinical and administrative data between Hospital Information Systems.
**DICOM** – Digital Imaging and Communications in Medicine.

## National Data Storage Cloud



GDAŃSK
BIAŁYSTOK
POZNAŃ
WARSZAWA
ŁÓDŹ
WROCŁAW
CZĘSTOCHOWA
LUBLIN
KIELCE
KRAKÓW

🟠 Hard drive nodes
🔵 Tape & hard drive nodes

PIONIER.

## FACTS

- MDC is ready to accept up to 30GB of data per day per single access point to the Medical Data Center.
- MDC can scale its access points therefore its ingest capabilities can increase.
- MDC was tested on multiple TB of data including DICOM and HL7 files.
- MDC portal provides access to all anonymized data via web interface including search and browse functionality.
- DICOM anonymization and personalization tool is available at: https://github.com/openplanets/dicom-anonimizer

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**Read more**
http://www.scape-project.eu
http://dl.psnc.pl
http://www.man.poznan.pl
http://storage.pionier.net.pl

**SCAPE**
Scalable Preservation Environments