



We help doctors to help their patients




CELSUS - AI-SOFTWARE FOR ANALYSIS OF X-RAY AND CT STUDIES




Clinical decision support system (CDSS) based on AI technologies for analysis of the digital medical images, detection of the regions of interests, and automatic interpretation of the results.


OUR SOFTWARE



CELSUS®
Mammography



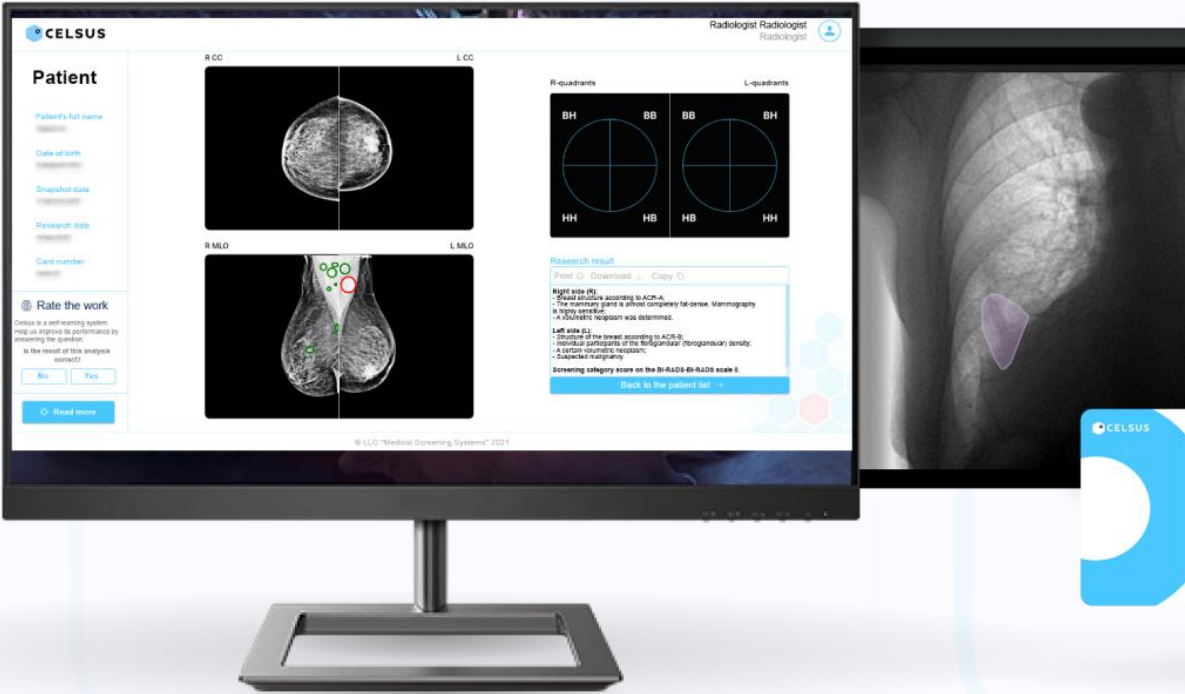
CELSUS®
Brain CT



CELSUS®
CXR and
fluorography



CELSUS®
Chest CT



CELSUS - MEDICAL DEVICE



Confirmed and clinically proven:

- ✓ Efficiency
- ✓ Safety
- ✓ Quality

Celsus® Registration certificate No RZN 2022/18855 submitted to the Unified Register of Russian Computer Software

Celsus® certified in EU.CE Mark SK-CA-001/DVC-SK-21-06-000018

Celsus® meets the requirements of the industry for the production of medical devices according to the ISO 13485:2016



Ref. SK-CA-001/DVC-SK-21-06-000018 MEDICAL DEVICE RE

DATA OWNER

NCA name: Address: Contact person:

REGISTRATION DATA

Version no.: 1 Record creation date: 20

DEVICE DATA

GMDN Term: Full-body CT system

Make: Softvér CELSUS

Class: I Type: CE marking

English description:
The CELSUS® software is a medical decision-making aid system for interpreting radiological examinations, to carry out "double reading" and quality control with subsequent interpretation of the results. The CELSUS® software includes a server part, on which a pre-trained neural network is located, as well as a user part, which can be a desktop application or functionality integrated via API. The CELSUS® software is intended for professional use by health care professionals, specialists in the field of radiology in public and private medical organizations.

ACTOR DATA



CELSUS MAMMOGRAPHY



Celsus® analyzes mammograms, detects and highlights malignant and benign masses, suspicious calcifications, lymph nodes, determines the density of breast tissue according to ACR.

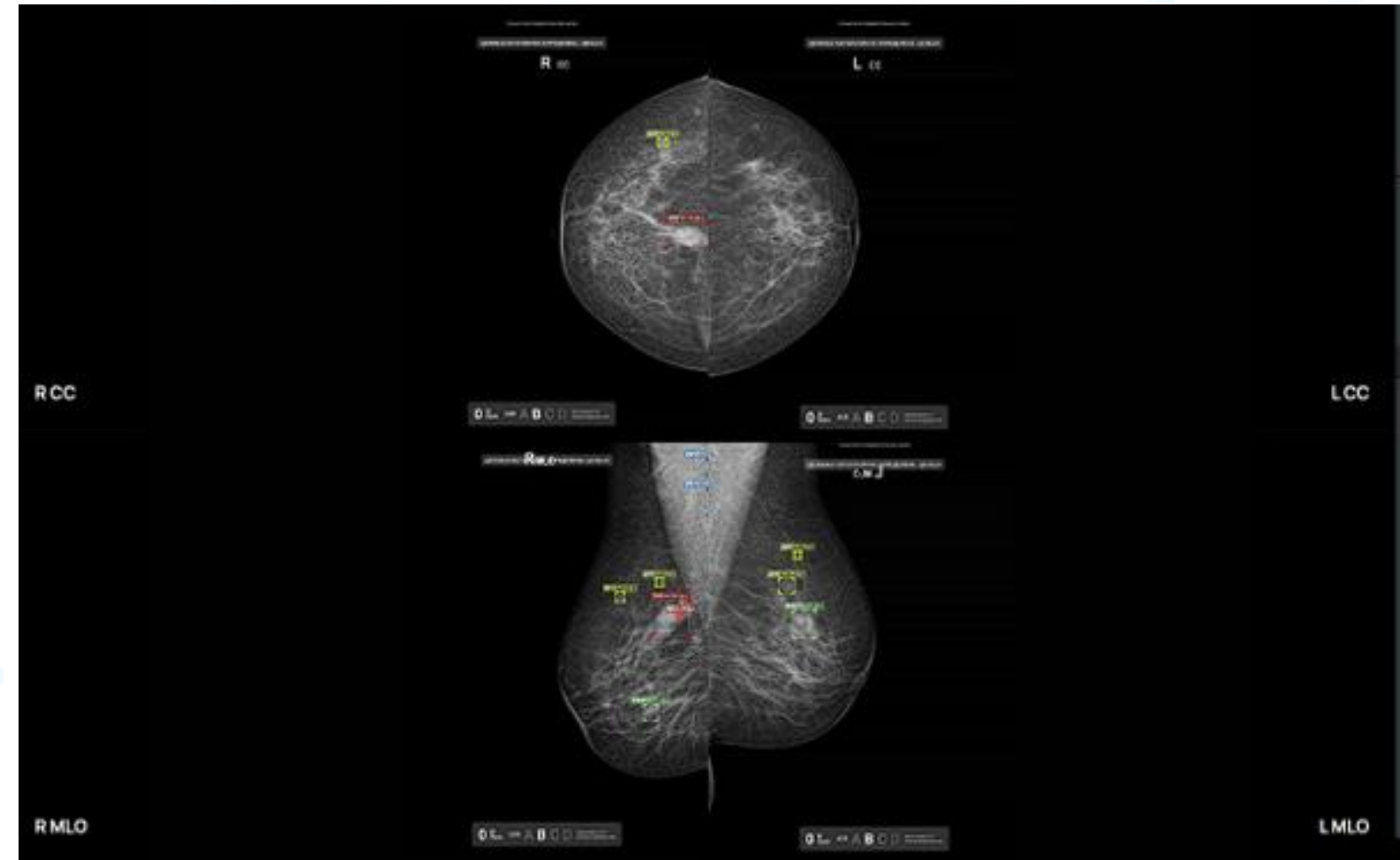
Celsus® forms a preliminary radiology report for the doctor.

AUC = 0.9+

The processing time of
the study less than 1
minute

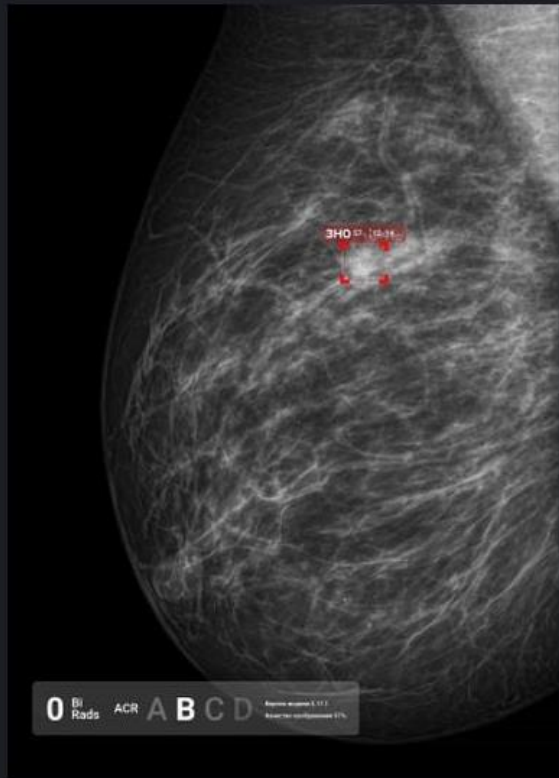
Sensitivity = 0.9+
Specificity = 0.8+

High-sensitivity scenario:
Sensitivity = 0.999+
Specificity = 0.4+



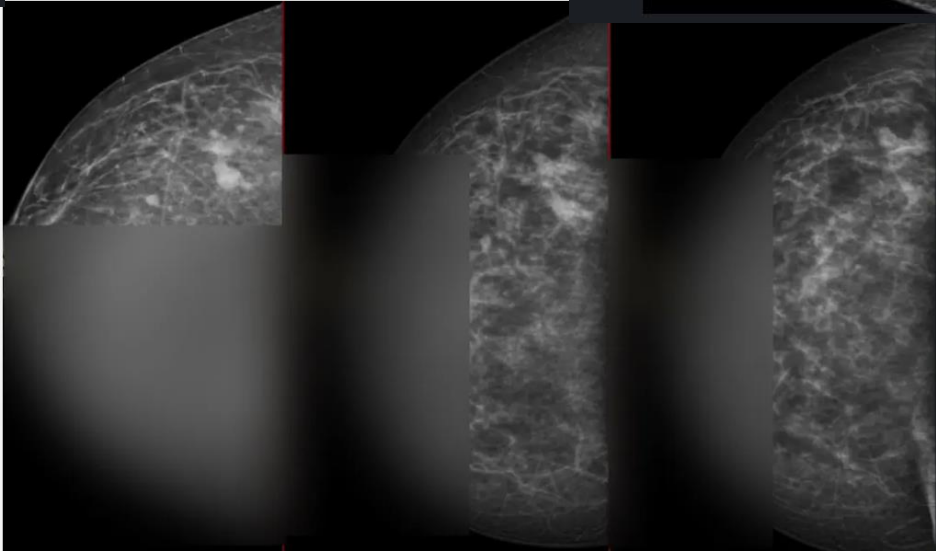
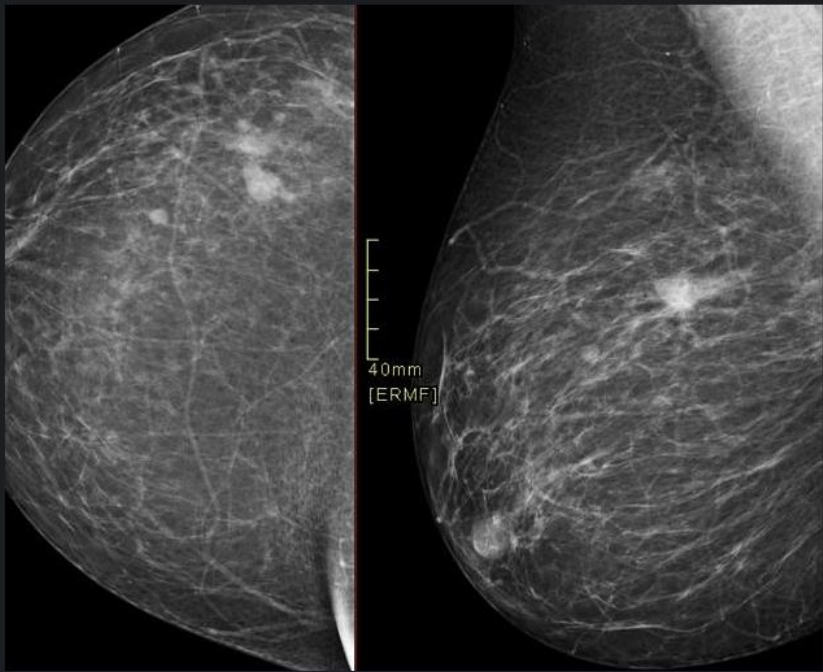
Detection of pathologies over time

Study №1. 2022. Based on the images, it was possible to identify focal asymmetry. However, there is no education as such yet. It cannot be identified and described.



Study №2 2023. There are already negative dynamics. The AI service correctly assigned the category on the BI-RADS scale.

Study №3 2024. We clearly see the formation and obvious negative dynamics. The study was processed by another service



CELSUS CXR and FLUOROGRAPHY

Celsus® analyzes fluorograms and x-rays, detects and highlights pathological changes in the image

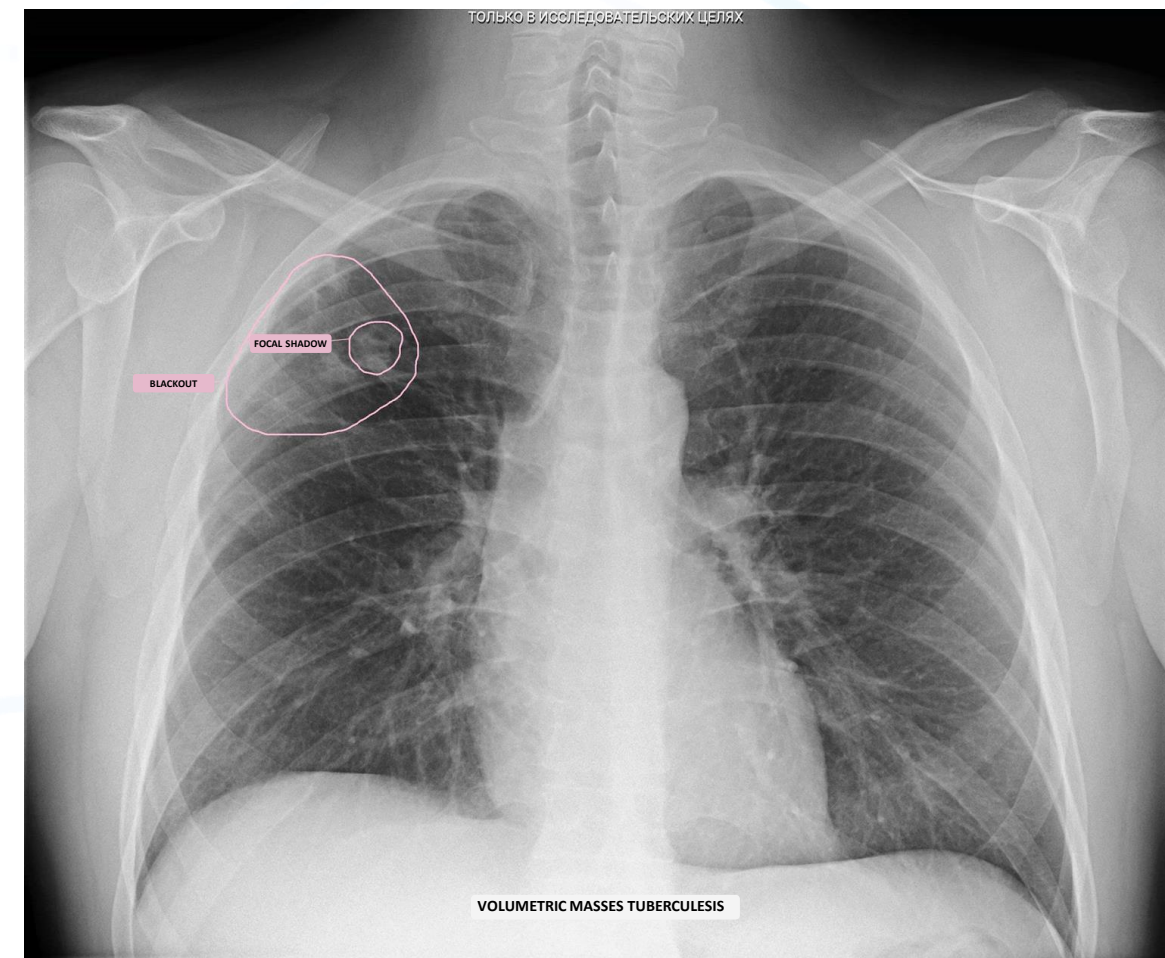
- > Nodule/mass
- > Dissemination
- > Annular shadows
- > Pleural effusion
- > Pneumothorax
- > Rib fractures
- > Enlarged mediastinum
- > Hilar enlargement
- > Infiltration/Consolidation
- > Cardiomegaly
- > Petrifications
- > Atelectasis
- > Fibrosis

AUC = 0.98

The processing time of
the study less than 10
seconds

Sensitivity = 0.98
Specificity = 0.92

High-sensitivity scenario:
Sensitivity = 0.999+
Specificity = 0.65+



CELSUS CHEST CT

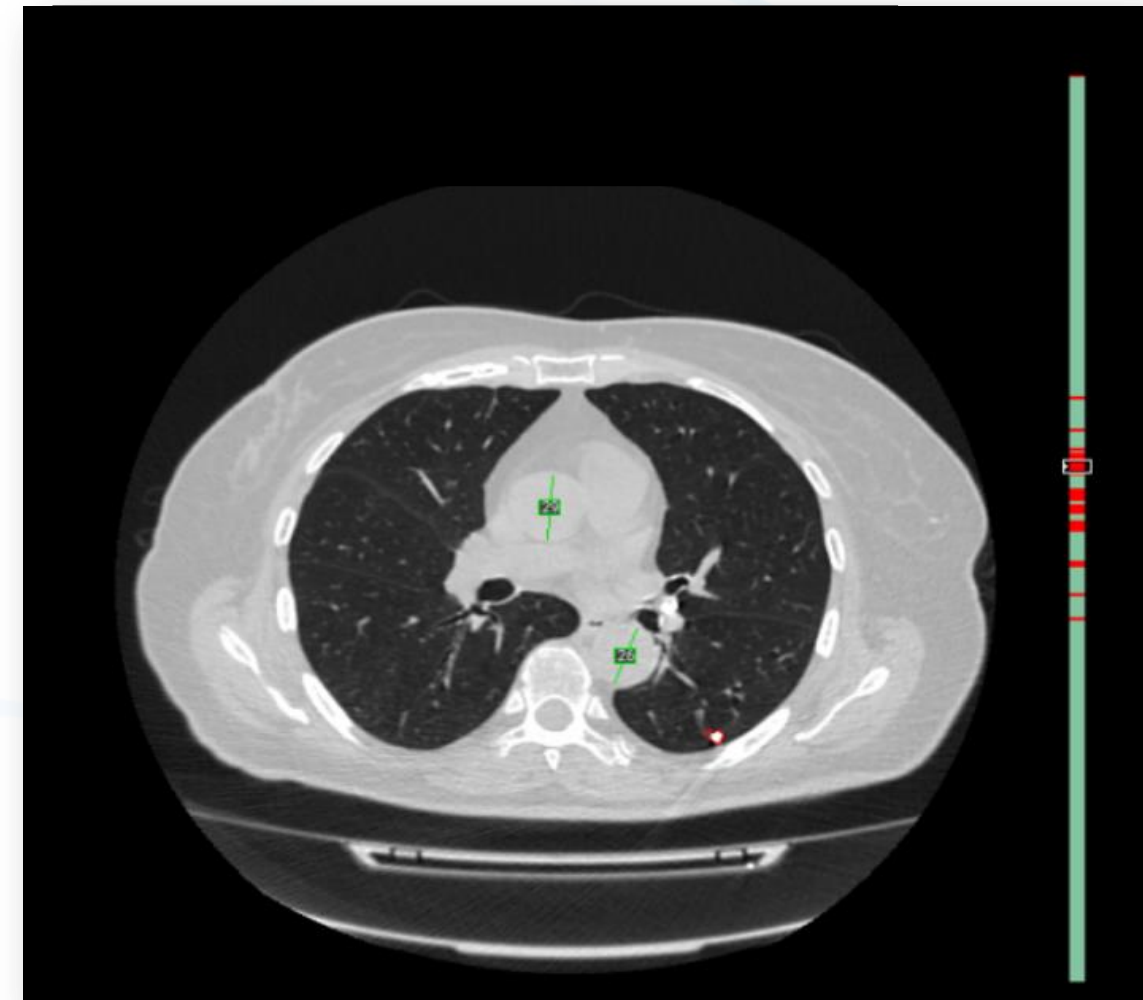
Celsus® analyzes chest CTs, detects and highlights pathological changes in the study, forms a preliminary conclusion for the doctor.

- ✓ Lung cancer
- ✓ Thoracic aortic aneurism
- ✓ Compression fracture
- ✓ Pulmonary trunk dilatation
- ✓ Coronary calcium
- ✓ COVID-19
- ✓ Pneumonia
- ✓ Pleural effusion
- ✓ Pulmonary emphysema
- ✓ Paracardial fat (epicardial + pericardial)

AUC = 0.9+

The processing time of
the study less than 3
minutes

Sensitivity = 0.9+
Specificity = 0.9+



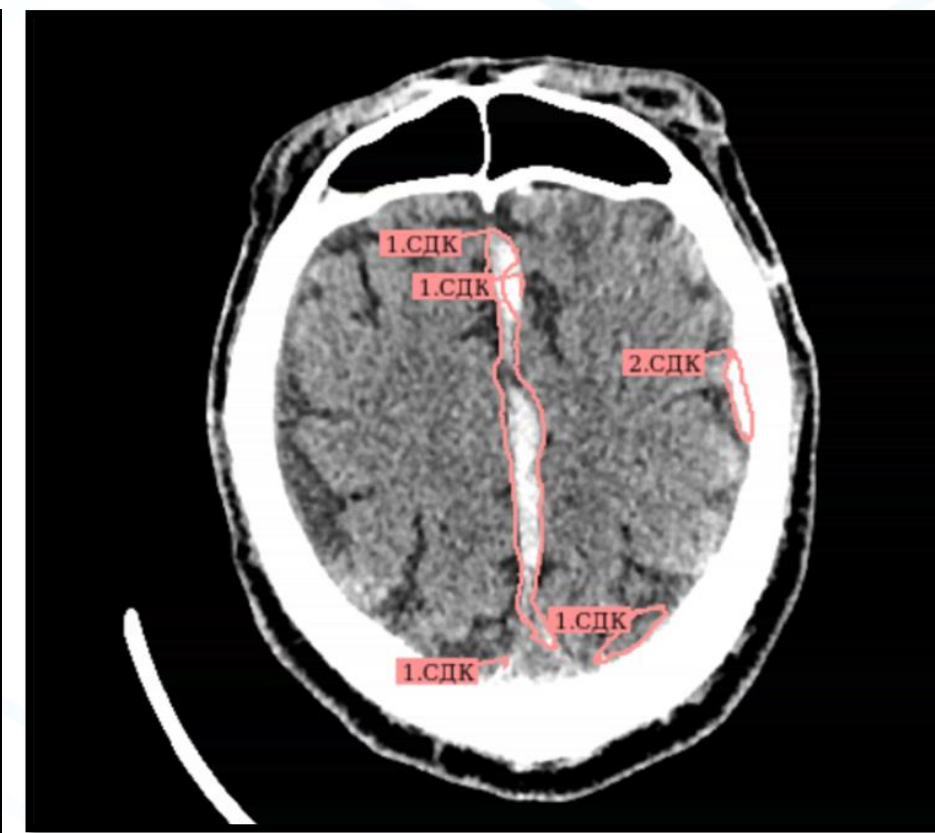
CELSUS BRAIN CT

The software analyzes brain CTs, highlights the contours of pathologies, calculates the hemorrhage volumes and generates preliminary radiology report. The main goal of the service is detection of hemorrhagic and ischemic strokes.

AUC = 0.94

The processing time of
the study less than 2
minutes

Sensitivity = 0.93
Specificity = 0.90



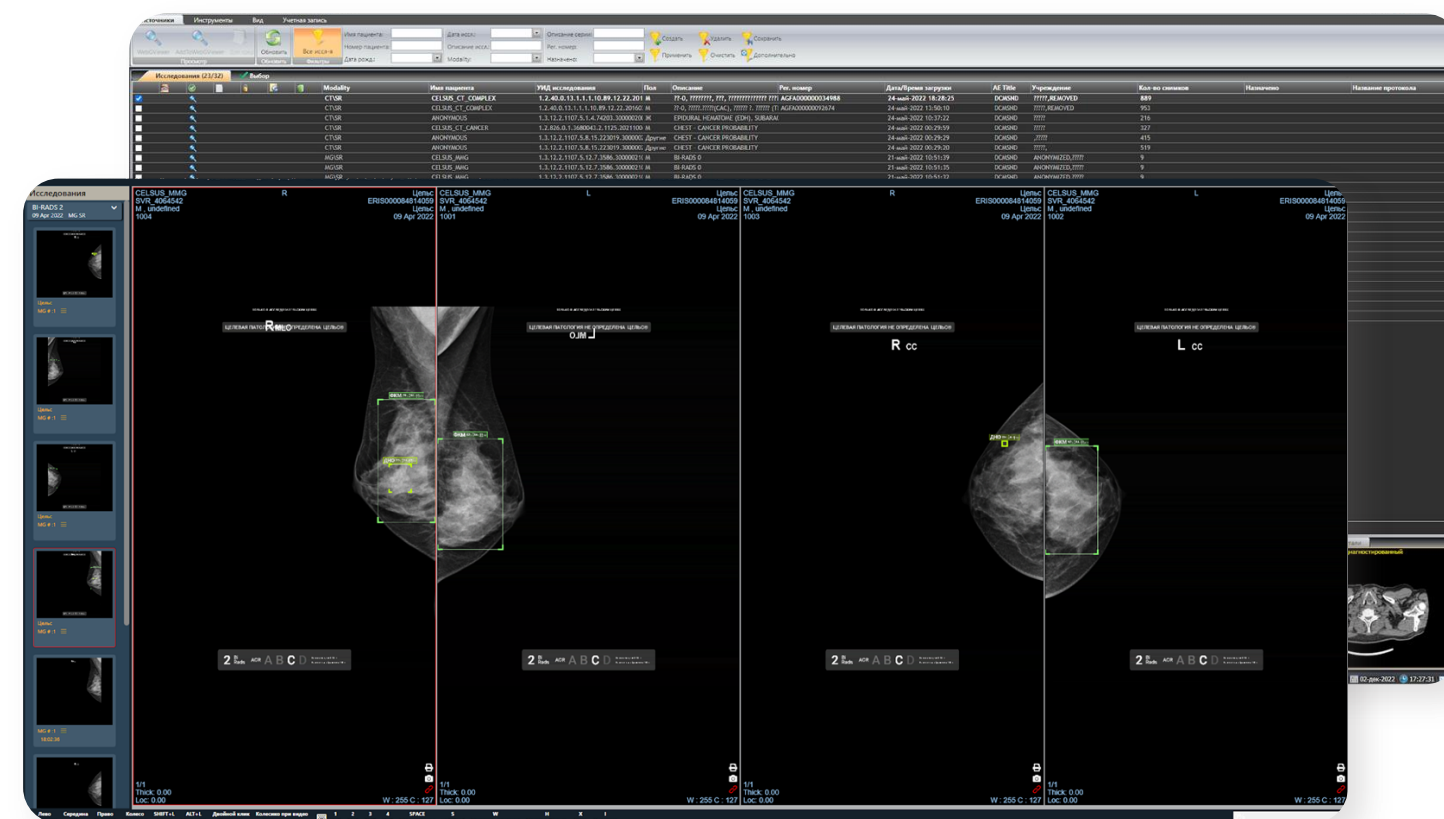
CDK - subdural hemorrhage
BMK - intracerebral hemorrhage

Seamless integration



Celsus® is a professional solution for integrating with the hospital's existing IT infrastructure, ensuring a user-friendly experience.

- ✓ **Maximum convenience and flexibility**
- ✓ **The ability to tailor user scenarios**
- ✓ **No limitations on the quantity of equipment**
- ✓ **Transparent pricing**



DIGI PAX
RADIOLOGY AND PACS SOLUTIONS

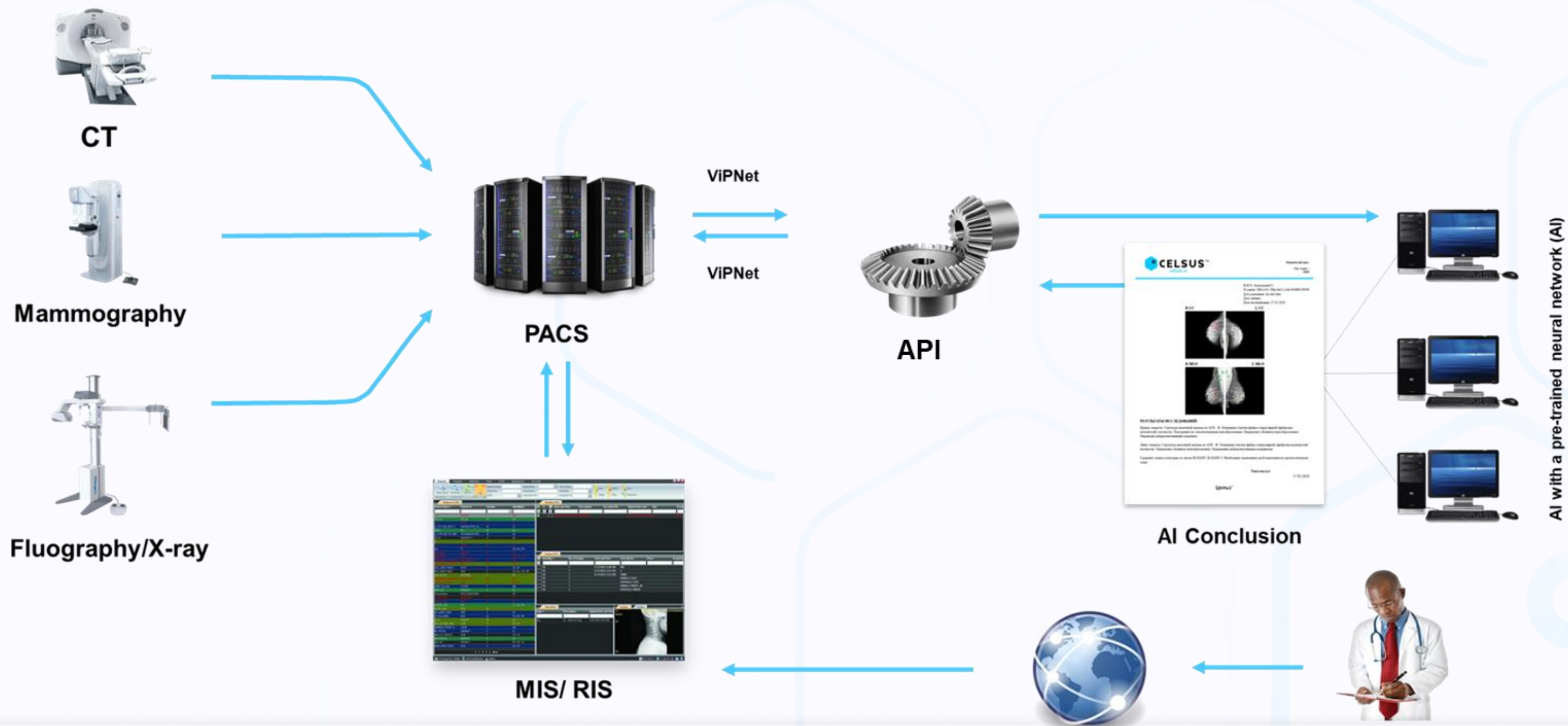


AGFA *Agfa*
HealthCare

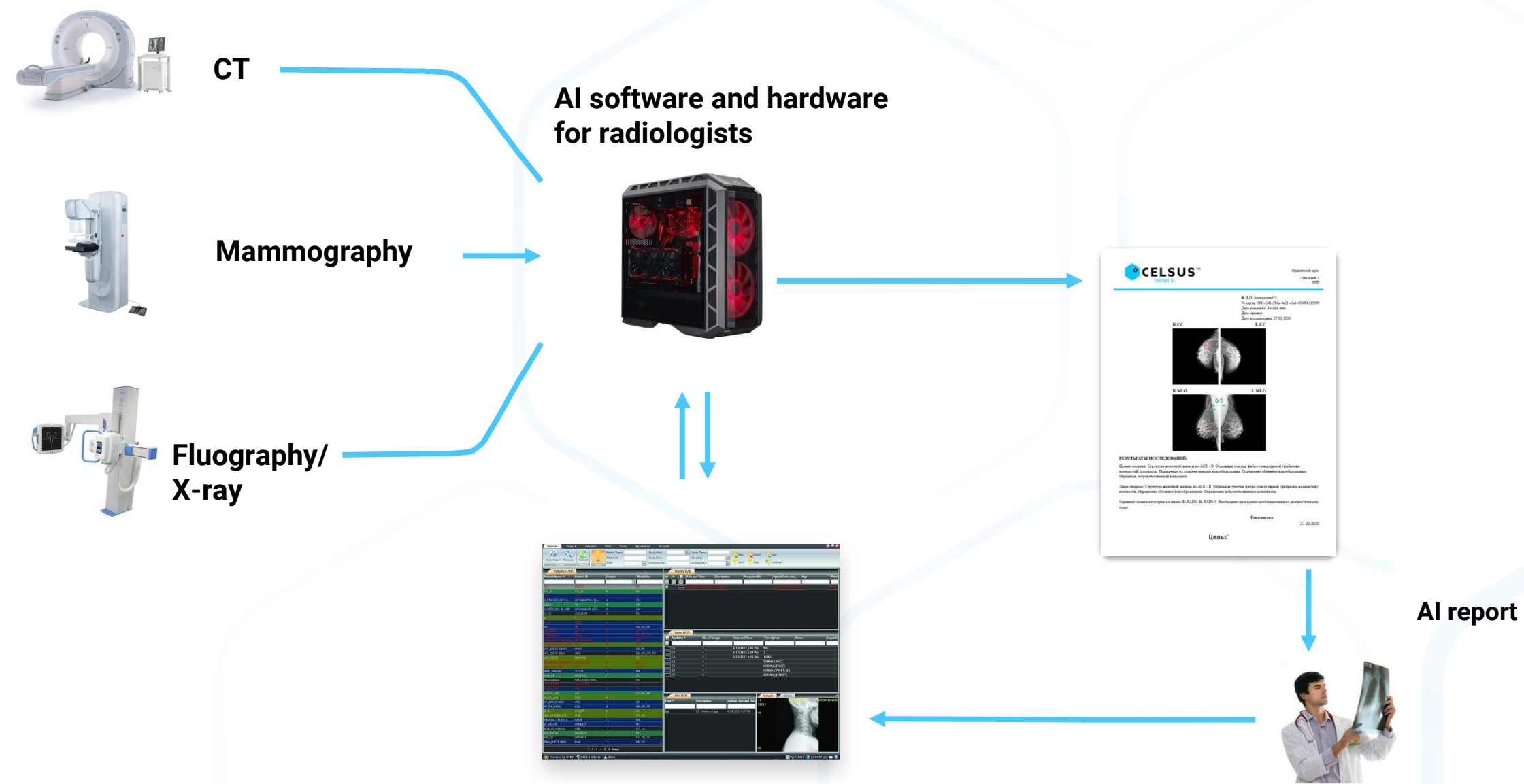
SIEMENS

PHILIPS

Cloud integration scheme



On-premise integration scheme



Centralized regional projects in Russian Federation (18 in 2023).



The part of project sheet.

Region	Service	Deployment method	Deployed	Completed contract	Processed studies in production
<u>Kaluga</u>	Mammography	Cloud	26.12.2022	31.07.2023	5500
<u>Krasnoyarsk</u>	Mammography	Local	03.08.2023	31.08.2023	19300
<u>Tyva</u>	Mammography, CXR/flu	Cloud	23.06.2023	19.09.2023	7800
<u>Tula</u>	Mammography, CXR/flu	Cloud	28.08.2023	27.10.2023	22400
<u>Arkhangelsk</u>	Mammography, CXR/flu	Local	31.08.2023	18.11.2023	90400
<u>Chelyabinsk</u>	Mammography	Cloud	24.10.2023	22.12.2023	9700

Results of use Celsus in the regions



Up to **50%** reduction of time for analysis



Recorded **29 cases**, when artificial intelligence found signs of pathologies that were invisible to the radiologist, additional examinations confirmed the presence of breast cancer in patients, which made it possible to begin the necessary treatment in a timely manner



Up to **15%** increase in indicator detectability cancer in the early stages

Average time to analyze one study:



On one's own
7 min 15 sec



WITH using CELSUS®
4 min 50sec

Geographical presence of Celsus



countries

Celsus ® has gained widespread adoption in hospitals across the world

Separate legal entity in Dubai

More than 4 million studies
have been analysed by Celsus.

More than 300 hospitals are
connected to Celsus



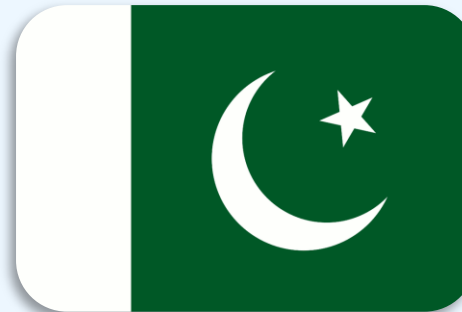
Saudi Arabia



India



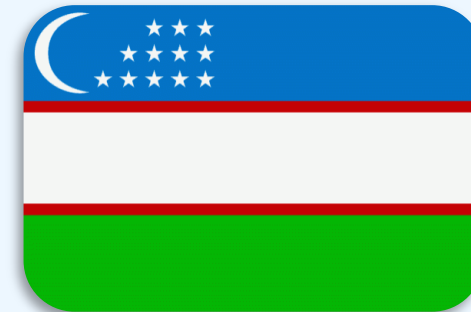
Russia



Pakistan



Belarus



Uzbekistan

Celsus® takes a leading position in the [Mosmed AI](#) (AI in radiology world largest experiment).

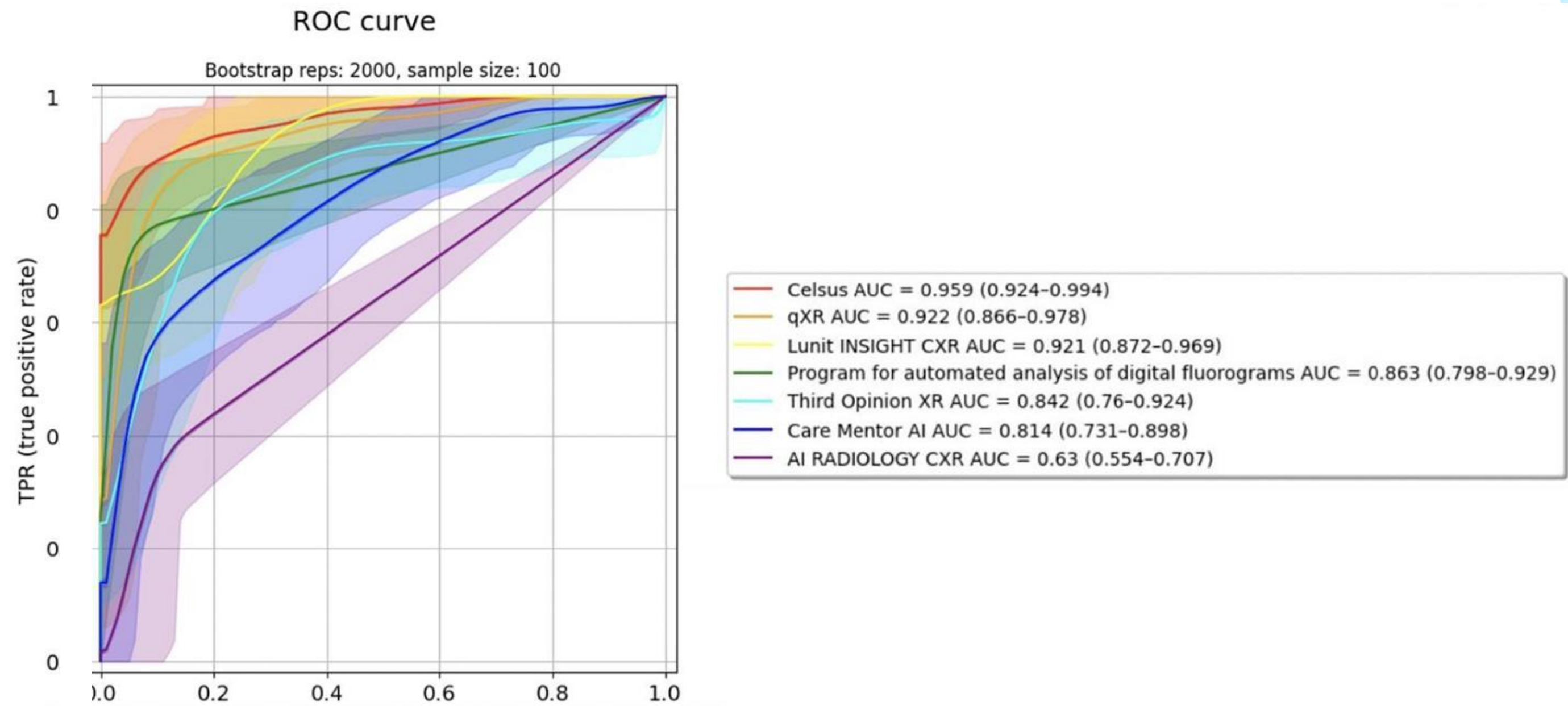
We demonstrated superior metrics in many external tests within Experiment and production use.

Current positions in rankings (prospective ROC-AUC + radiologists’ feedback):

- Mammography - 1st place
- Chest X-ray and fluorography - 1st place
- Brain CT - 1st place
- Chest CT - 2nd place

Modality (MMG)				Modality (Brain CT)			
	Celsus	Competitor1	Competitor2		Celsus	Competitor1	Competitor2
AUC	0.97	0.84	0.90	AUC	0.96	0.87	0.91
Sensitivity	0.96	0.86	0.74	Sensitivity	0.93	0.85	0.82
Specificity	0.97	0.78	0.94	Специфичность	0.90	0.82	0.98
Accuracy	0.97	0.81	0.84	Accuracy	0.92	0.83	0.90
Processing time	0,95 min	1,7 min	2,4 min	Processing time	0,99 min	5 min	1,4 min

External comparison of lung nodule detection on chest X-rays (mosmed.ai)



Automatic interpretation of chest X-rays with no significant findings

Current prospective metrics in Moscow:

- 74.86% of chest X-rays can be automatically reported as normal
- No more than 1 missed pathology for every 10k exams

A horizontal bar chart with two segments. The left segment is green and contains the text "74,86%". The right segment is blue and contains the text "25,14%".

74,86%

25,14%

Contact us



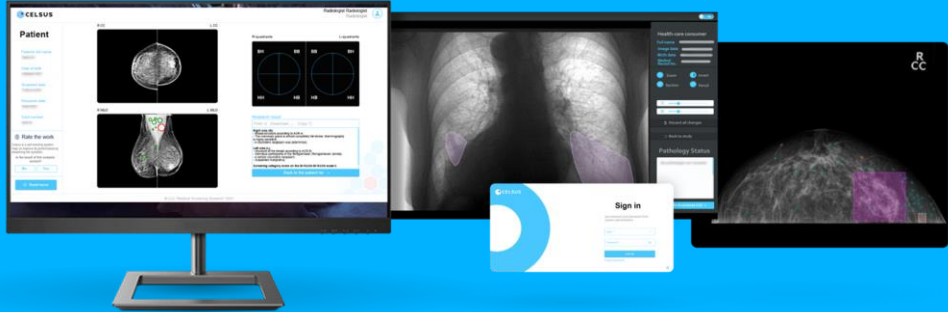
Celsus.ai/en



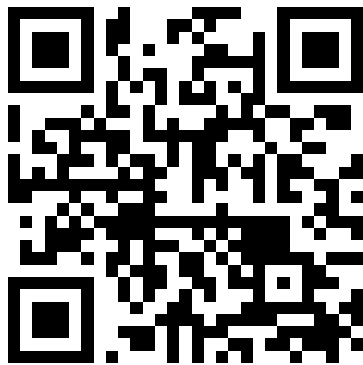
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Online demo

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