Empowering radiologists to do more in the field of medical image interpretation .

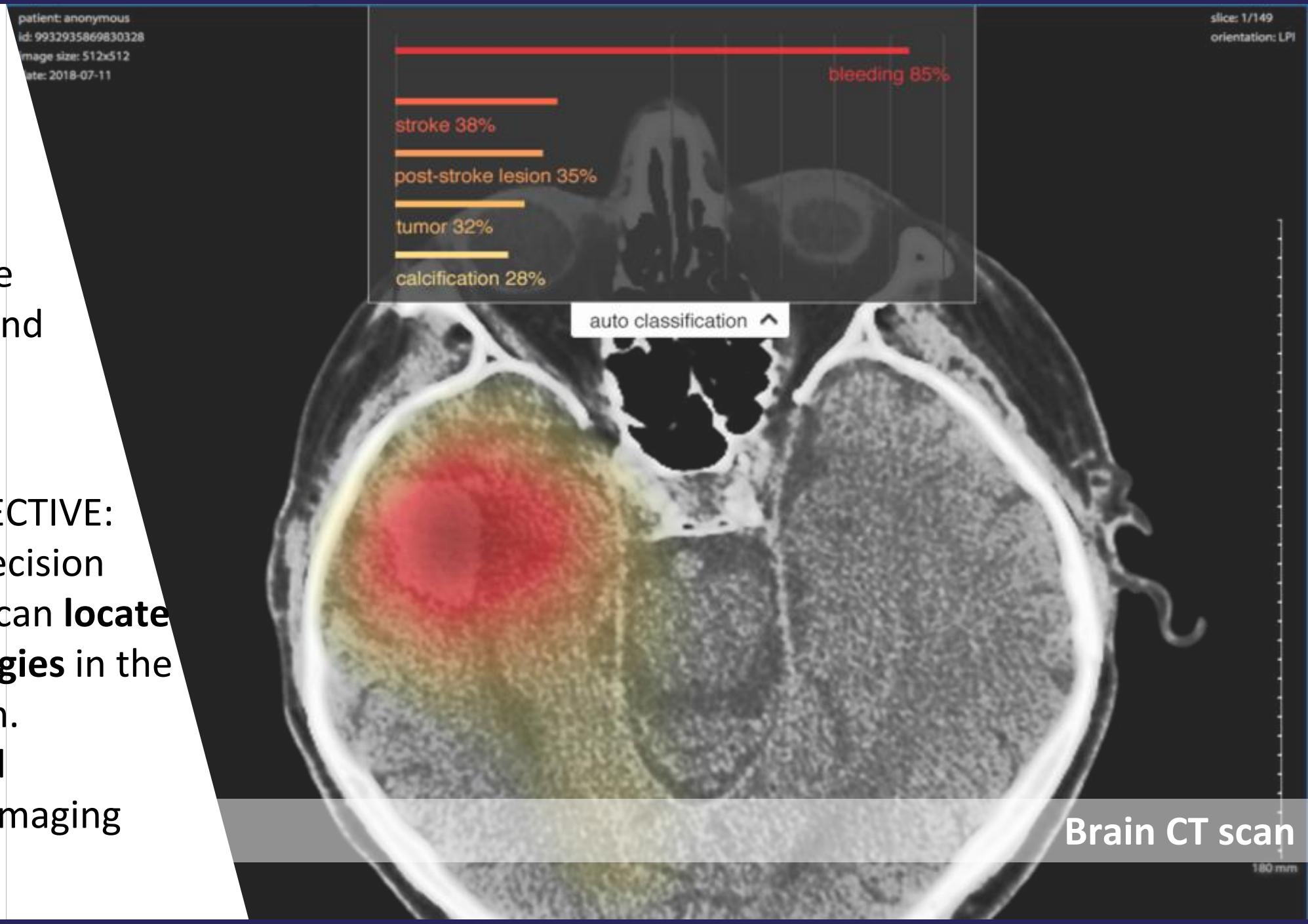
BRAIN SCAN

AI POWERED BRAIN IMAGE INTERPRETATION SOLUTION

Company Purpose

MISSION: To improve accessibility to fast and accurate brain diagnostics

FUNDAMENTAL OBJECTIVE:
To introduce an AI decision support system that can **locate and identify pathologies** in the image from a CT Scan.
A system that can aid radiologists in brain imaging interpretation.

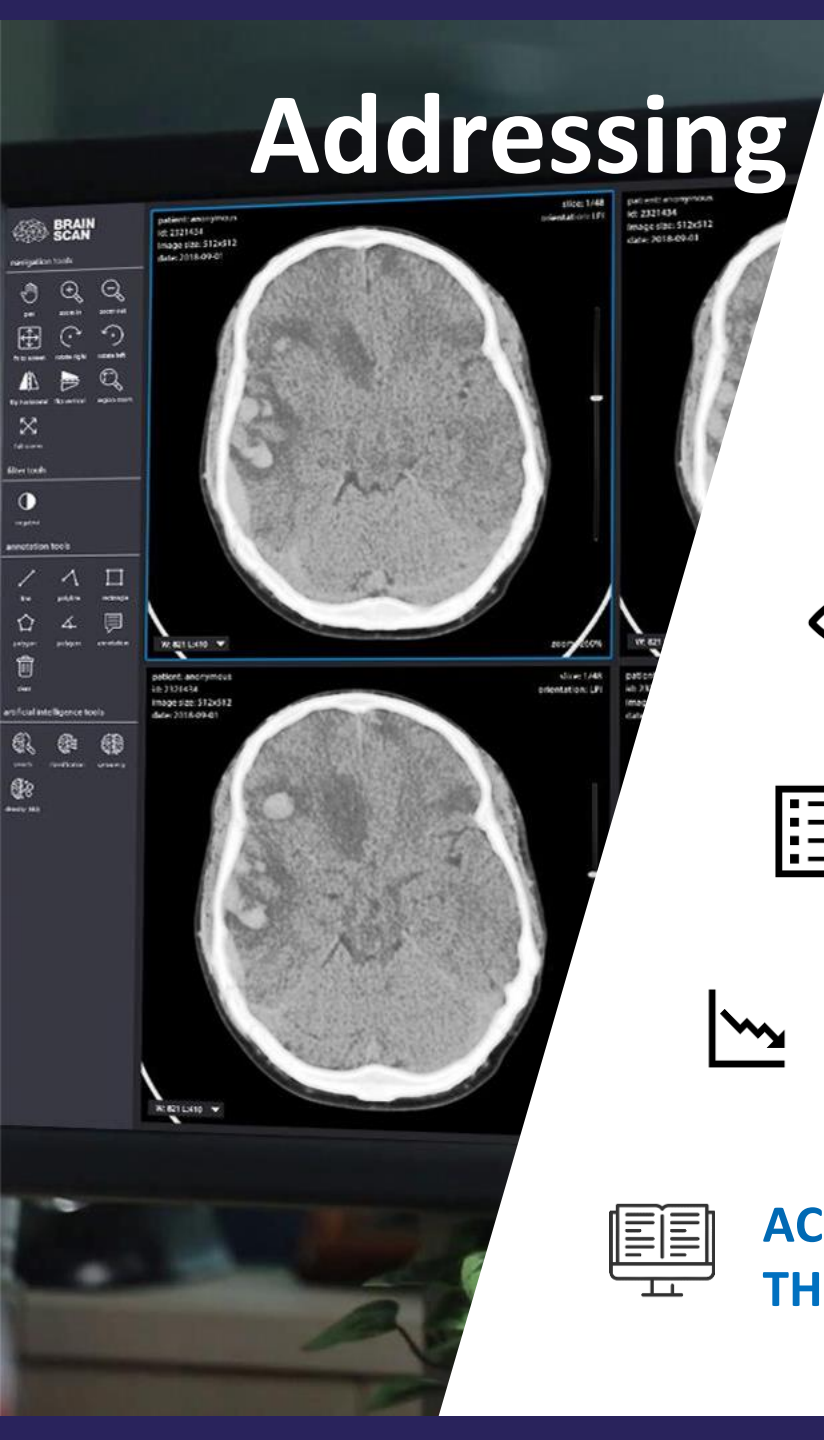


Challenges facing radiology today

BRAIN SCAN

- INCREASING DATA VOLUME – WAITING TIME FOR ANALYSIS FROM 2 WEEKS TO 1 MONTH IN EU AND US
- OVERWHELMING WORKLOAD - UP TO 70 PER PATIENT EXAMINATION
- 30% OF ALL CT SCAN RESULTS ARE MISDIAGNOSED
- DECREASING STAFF - UP TO 16.000 RADIOLOGISTS IN SINGLE EU COUNTRY

Addressing radiology needs



- SUPPORT - FUNCTIONS TO LOCALISE ANOMALIES, MEASURE & CORRECT SYMMETRY
- AUTOMATIC LESION HIGHLIGHT AND DISPLAY - USING A HEATMAP
- AUTOMATIC CLASSIFICATION OF 26 KEY PATHOLOGIES
- INTERPRETATION TIME REDUCTION FROM 15-30 MIN TO 10 MIN
- ACCESS TO A DIGITAL RADIOLOGY ATLAS AND AUTOMATIC SEARCHING THE DATABASE OF ANNOTATED BRAIN CT IMAGES

Value proposition

EUR 2.2 MILLION OF COST SAVINGS TO THE HEALTH SYSTEM

48,500 HOURS A YEAR OF SAVED TIME TO ANALYSE BRAIN CT SCANS

INTELIGENT RADIOLOGICAL CONSULTATION - CAPTURES DETAILS WHICH ARE DIFFICULT TO DETECT BY THE HUMAN EYE

unique product features that are most valuable to radiologists:

classification

automatic symmetry

anomaly localization

search

Technology Rediness Level: stage 7

NEURAL NETWORKS ACCURACY:

a. Bleeding detection (including Hemorrhagic Stroke, Subdural Bleeding)
accuracy improved from 66% to 88% (AUC)

b. Stroke detection (including Ischemic stroke and post-stroke lesions)
accuracy improved from 69% to 85% (AUC).

WE ARE ON THE VERGE OF CREATING TUMOR RECOGNITION FOR THE SYSTEM IN BRAIN CT SCANS.

WE DID THE DATASET ENLARGEMENT FROM 25K TO 50K (PATIENTS CT)

OBTAINED ISO13485 AND CE CERTIFICATION FOR MEDICAL DEVICE (2A).

COMPLETED THE DICOM VIEWER.

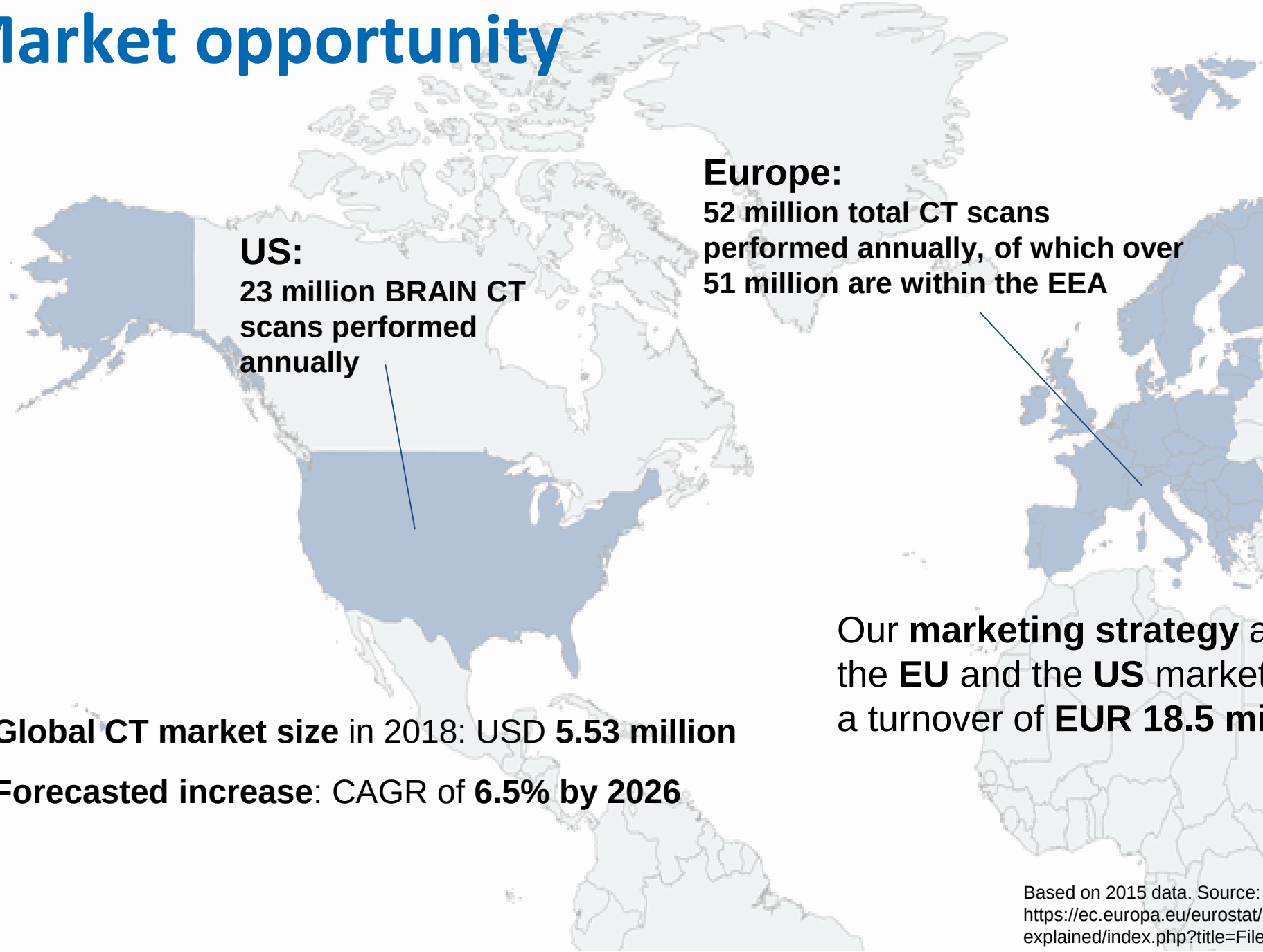
1	Tumor		
2	Hemorrhage / Bleeding		
3		Pericerebral hematoma	
4			Epidural hematoma (EDH)
5			Subdural hematoma (SDH)
6		Subarachnoid hemorrhage (SAH)	
7		Intracerebral hemorrhage (ICH)	
8		Intraventricular hemorrhage (IVH)	
9		Other type of hemorrhage	
10	Lesions of vascular origin / Stroke		
11		Acute ischemic stroke	
12		Chronic ischemic stroke	
13		Age-related	
14		Leukoaraiosis	
15	Malacia		
16	Cavity		
17	Edema		
18	Cyst		
19	Calcification		
20	Abnormality of the meninges		
21	Vascular malformation		
22	Midline shift		
23	Area of cerebral contusion		
24	Hyperdense lesion / area		
25	Hypodense lesion / area		
26	Isodense lesion / area		

The list of the pathological changes that we planned to be tagged automatically by the BrainScan CT system.

Market opportunity

US:
23 million BRAIN CT scans performed annually

Europe:
52 million total CT scans performed annually, of which over 51 million are within the EEA



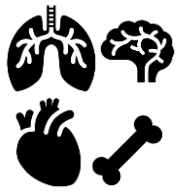
Global CT market size in 2018: USD **5.53 million**

Forecasted increase: CAGR of **6.5% by 2026**

Our **marketing strategy** assumes entering the **EU** and the **US** markets and reaching a turnover of **EUR 18.5 million** in the fourth year

Based on 2015 data. Source: Europa.eu https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Use_of_imaging_equipment,_2015_HLTH17.png

Competition

Company name	Area of Interest	NN architecture	DICOM Viewer	# of detected lesions	Search / Rad Atlas
BRAIN SCAN		3D	✓	26	✓
zebra MEDICAL.VISION		2D	✗	1	✗
qure.ai		2D	✓	10	✗
inferVISION		?	✓	5+	✗

Business Model

PRICE PER CT SCAN

BrainScan's core revenue model is based on Software as a Service (SaaS) business model

Price per examination:
5 EUR in 2020

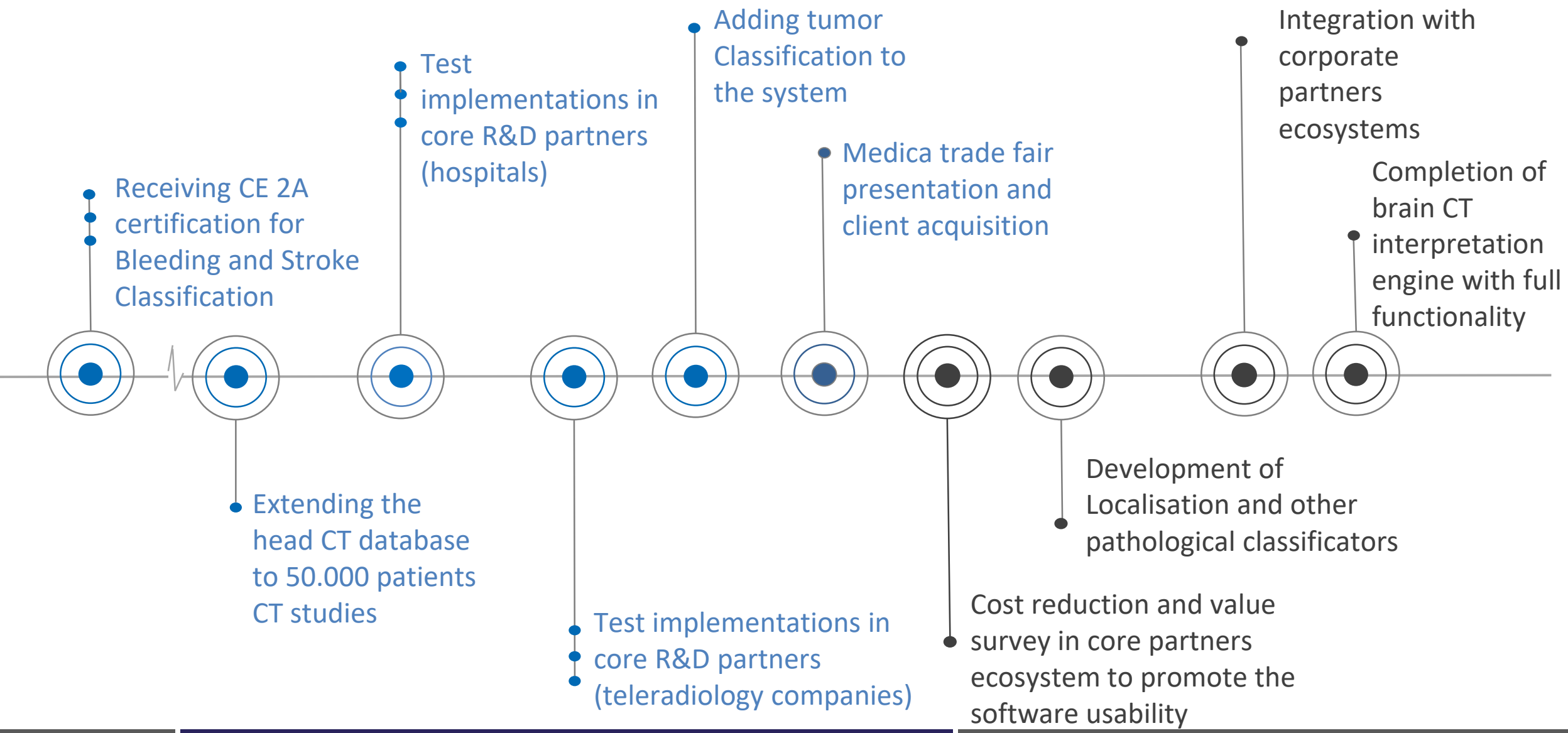
SUBSCRIPTION BASED MODEL

subscription based services with institutions that would use BrainScan extensively in order to provide our comprehensive package at an affordable price, whilst securing long term revenue for our company

Price per year: individual in every case

we assume the option of free access to a facility that provides us with medical data

Commercialisation & Marketing Strategy



The BrainScan Team

Robert Kitłowski

CEO

Entrepreneur with Med-Tech background. Robert has developed 7 start-ups, worked for Toyota and Statoil. He acquired financing from private investors and introduced the companies to Newconnect.

Robert knows the US & EU medical device markets along with certification issues , he is responsible for the investment process.

Natasza Blek

CMO

Neuroradiologist, Organization Manager at Medical Department Dean's Office, MD at the Center of Epilepsy Therapy, Secretary of the Institute of Neuroscience and Cybernetic Medicine, internships at Karolinska Institute and Heidelberg University.

Natasza deals with cooperation with the medical community, scientific publications and validation research.

Marek Trojanowicz

CTO

Experienced entrepreneur with IT background. Co-founder of several softwarehouses and StartUp Hub Poland Foundation. Expert on a field of AI and Machine Learning in computer vision..

He sets the company's development directions, goals and tasks for the BrainScan team. The product we present is his vision.

Dariusz Wiśniewski

COO

He has 9 years of marketing, managerial and business development experience. He was a contractor in many fields of business: Events, Real Estate, IT, StartUp Hub.

Darek implements the company's strategy, data acquisition, secures client and partner facility base, looks for opportunities to raise funds and implements projects.

Adam Brzeski

ML Lead

Senior Machine Learning Engineer for several years has been involved in the development of machine learning in computer vision for gastroscopy (GastroView), Lecturer at Gdansk University of Technology.

The most experienced AI engineer in the team, designs neural networks, optimizes algorithms and supports the rest of the team.

Achievements

TÜV NORD

CERTIFICATE

Management system as per
PN-EN ISO 13485:2016-04
Medical devices - Quality management systems - Requirements for regulatory purposes

In accordance with TÜV NORD Polska Sp. z o.o. procedures, it is hereby certified that

BrainScan Sp. z o.o.
ul. Szkolna 10/1, PL / 81-363 Gdynia
with the location/site
ul. Profesora Zdzisława Kieturakisa 10, PL / 80-742 Gdańsk

applies a management system in line with the above standard for the following scope

Design, development, installation and maintenance
of software supporting interpretation of diagnostic imaging.

Regardless of the fact that TÜV NORD Polska Sp. z o.o. is a notified body No. 2274 in the area of medical devices, this Certificate is not a Certificate of Conformity within the meaning of Directive 93/42/EEC and is not a basis for CE marking.

Certificate Registration No. AC090 MD/1821/4823/2019 Valid from 14-05-2019
Audit Report No. PL4823/2019 Valid until 13-05-2022

Manager of Certification Body
TÜV NORD Polska Sp. z o.o.

Katowice, 14-05-2019

This certification was conducted in accordance with the TÜV NORD Polska Sp. z o.o. auditing and certification procedures and is subject to regular surveillance audits.

TÜV NORD Polska Sp. z o.o. ul. Mickiewicza 29 40-085 Katowice www.tuv-nord.pl

ISO13485 and **CE** certification for Medical Device (2A)

3'rd place in the INNOLABS Final Competition, where we were chosen as one of the best Startups from all the Innolabs Grantees.

We are the **Top Distributors in Healthcare** report, done by the Polish Hospital Federation. We are on the page 38.

RSNA
Radiological Society of North America

CERTIFICATE OF AWARD

Awarded to

BRAINSCAN.AI

For excellence in the

Intracranial Hemorrhage Detection Challenge

Presented during the

RSNA 105th Scientific Assembly and Annual Meeting
CHICAGO, ILLINOIS | DECEMBER 1–6, 2019
In collaboration with
Kaggle, American Society of Neuroradiology and MD.ai

Valerie P. Jackson, MD
RSNA President

RSNA 2019

We've taken **8th** in 1345 place in **Kaggle Intracranial Hemorrhage Detection Challenge** (a very prestigious AI competition), and we were featured at the **RSNA** event in Chicago.

The **New@Poland** award from the Lewiatan (the biggest business conglomerate in Poland - 4100 companies) for the most relevant and most promising technology venture in the country.

We won at **Health Challenges Congress** as one of the best medical projects in Poland!

Partners

We have a LoI from **Siemens Healthineers** Europe to implement the solution into the Open Apps platform, we established the connections with **GE** and later on **Philips**, to implement the solution into their ecosystems as well.

BrainScan takes part in **Nvidia Inception Program** that nurtures exceptional start-ups who are revolutionizing industries with advances in AI and data science. This virtual accelerator program helps start-ups during critical stages of product development, prototyping, and deployment. Within the program BrainScan gets a custom set of benefits, from hardware grants and marketing support to training with deep learning experts.

Medtronic has expressed its interest in the technological developments of BrainScan and declared willingness to continue business discussions provided that the research program carried out by BrainScan is proved successful.

Currently, we're in talks with Technology Development Department from **MAYO Clinic**, the largest network of clinics in both Americas. They are interested in our solution and they are offering us substantive support in several areas:

- clinical validation at the FDA
- co-creation of R & D projects
- Co- creating BrainScan solution for developing countries.

We are doing the first **2 implementations in hospitals** around Poland: **Copernicus, TK Medica**, 2 big teleradiological companies: **Lifetrack Med, Teleradiologia24** and the biggest insurance company in Poland: **PZU Zdrowie**, to implement the solution and do further R&D.