April 2024
3KBICAS

MAPIS

Brain Vessels AI

Golden Hour
Guarantees Tomorrow!

Table of Contents

01 The Current Issues

02 Approach & Story

03
- The Solution
- The Methodology

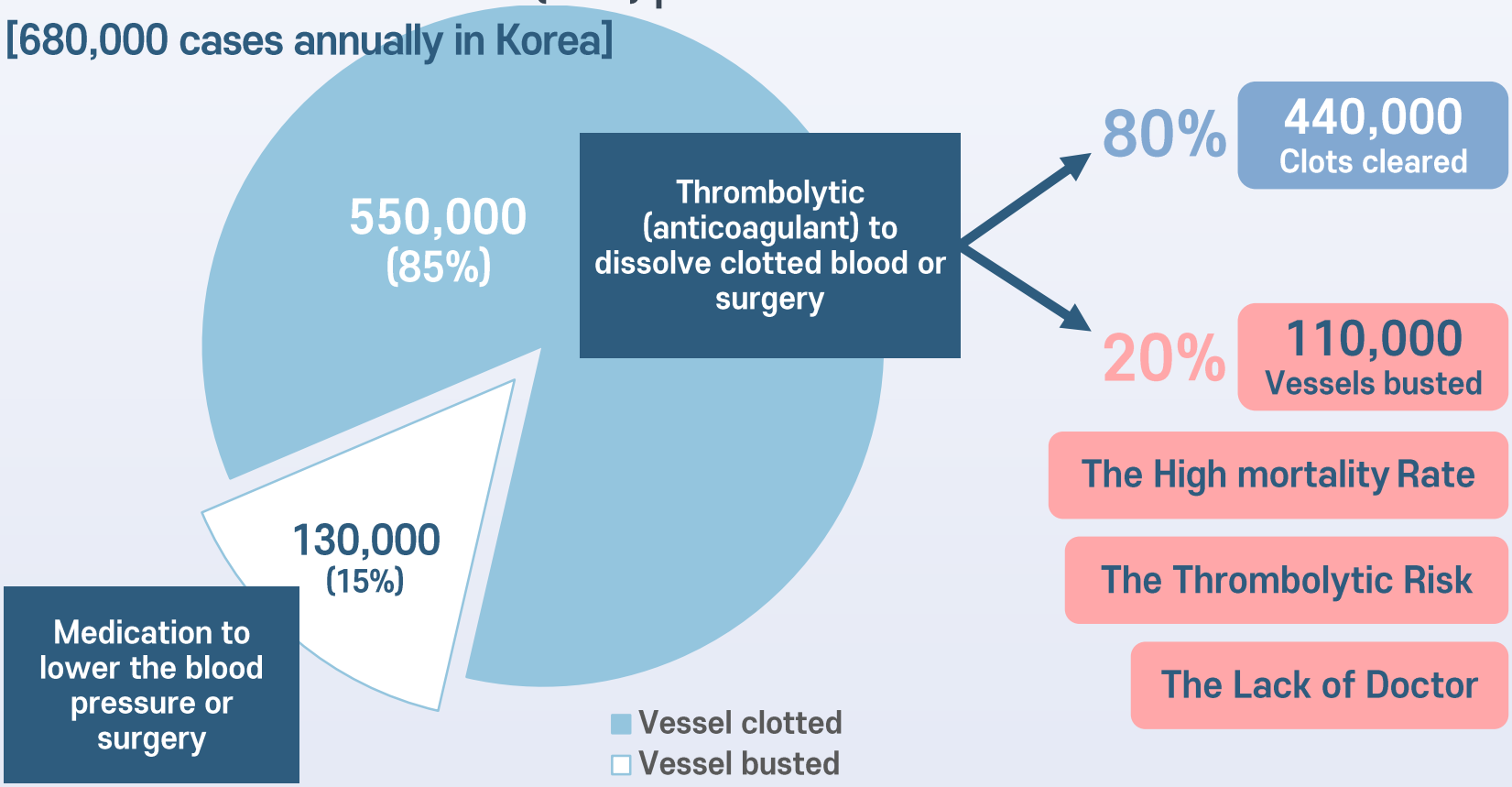
04
- The System
- Development Groups

05
- Competitive Advantages
- Development Progress
- Achievements

06
- Business Model
- Sales Roadmap
- Management
- Advisors

01 The Current Issues

Cerebrovascular Accidents (CVA) patients
[680,000 cases annually in Korea]



The High mortality Rate

The Thrombolytic Risk

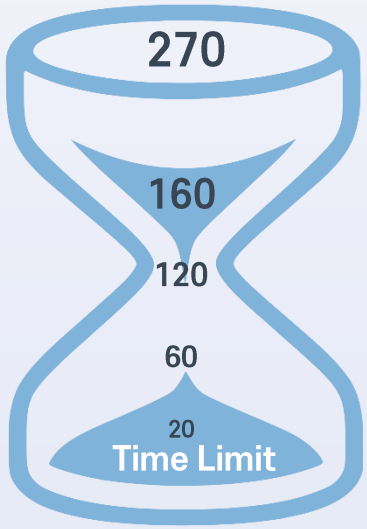
The Lack of Doctor

Source: Ministry of Health and Welfare

02 Approach & Story

Need for robust, immediate, and accessible solutions as patients only have 270 minutes.

Golden Hour

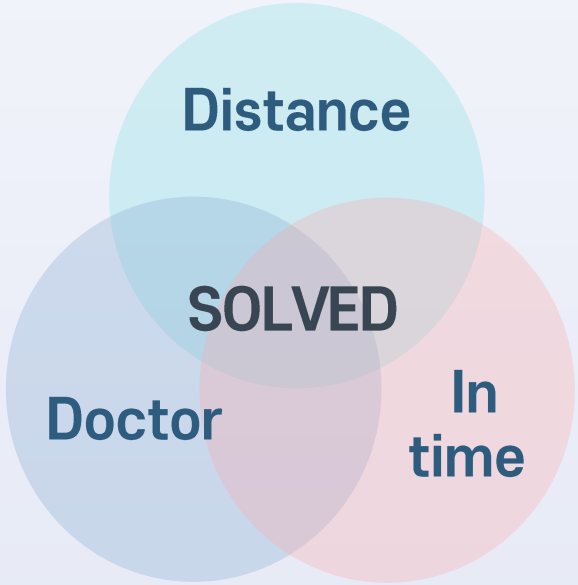


Specialist Deficiency

Lack of specialists in emergency rooms or rural areas increases patient vulnerability.

Thrombolytic Risk

20% of patients receiving thrombolytic drugs face potential hemorrhagic stroke.



using MAPIS

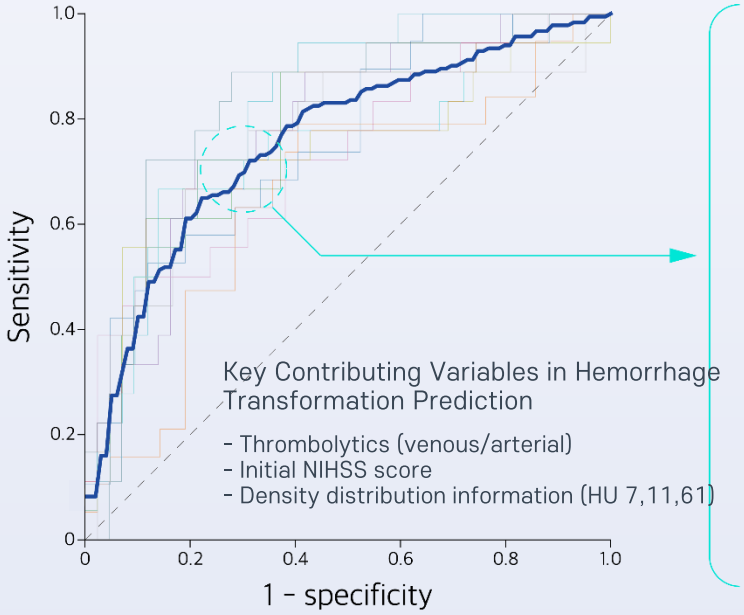
Source: Ministry of Health and Welfare

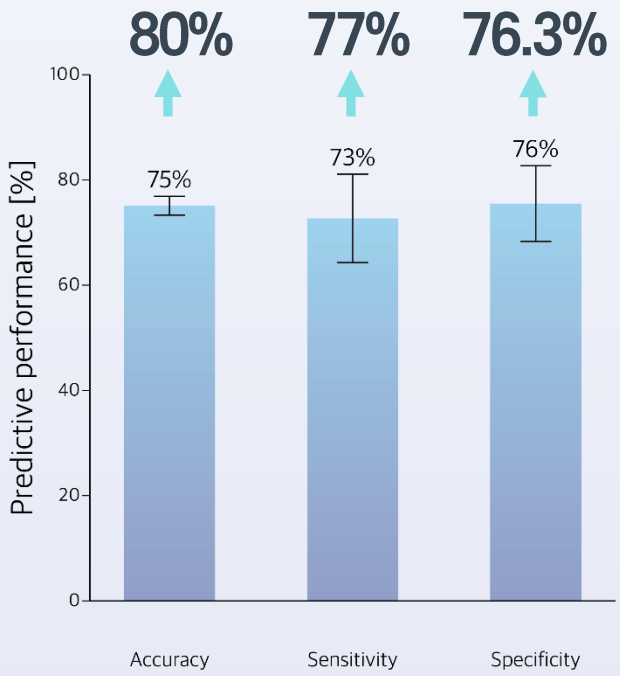
03

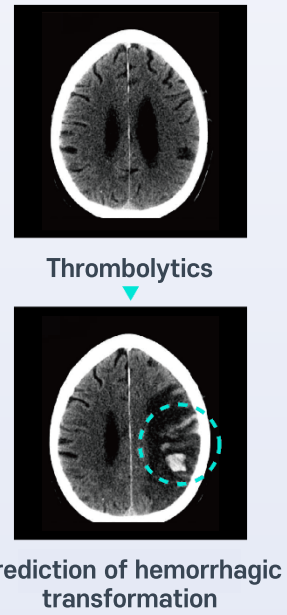
- The Solution
- The Methodology

03 The Solution(MAPIS)

Achieved 80%+ accuracy on 1,275 patients using MAPIS (Medical AI Prediction Image System) by 3KBICAS

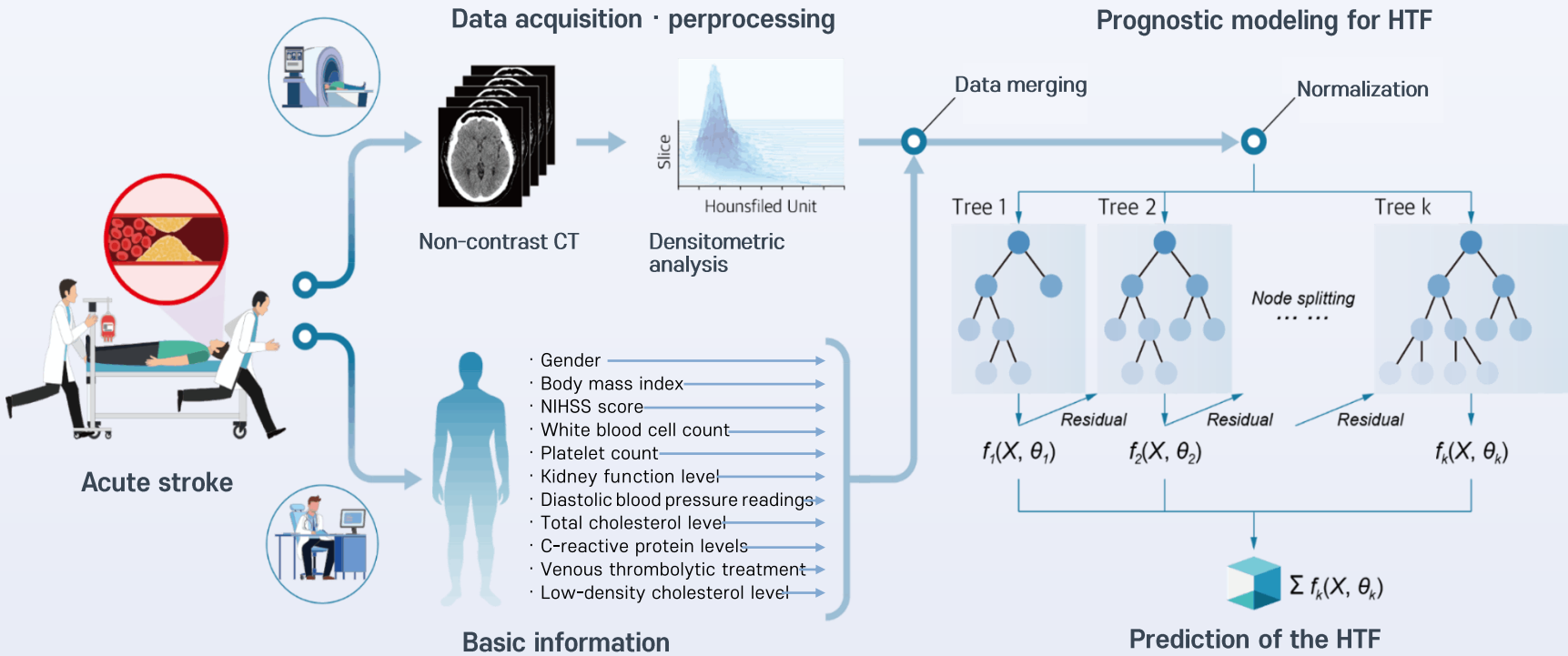






Prediction ROC Curve | **Prediction Accuracy** | **Prediction Case**

03 The Methodology



Hemorrhagic Transformation Prediction

Patient EMR Info.
[Basic info., Medical history etc]

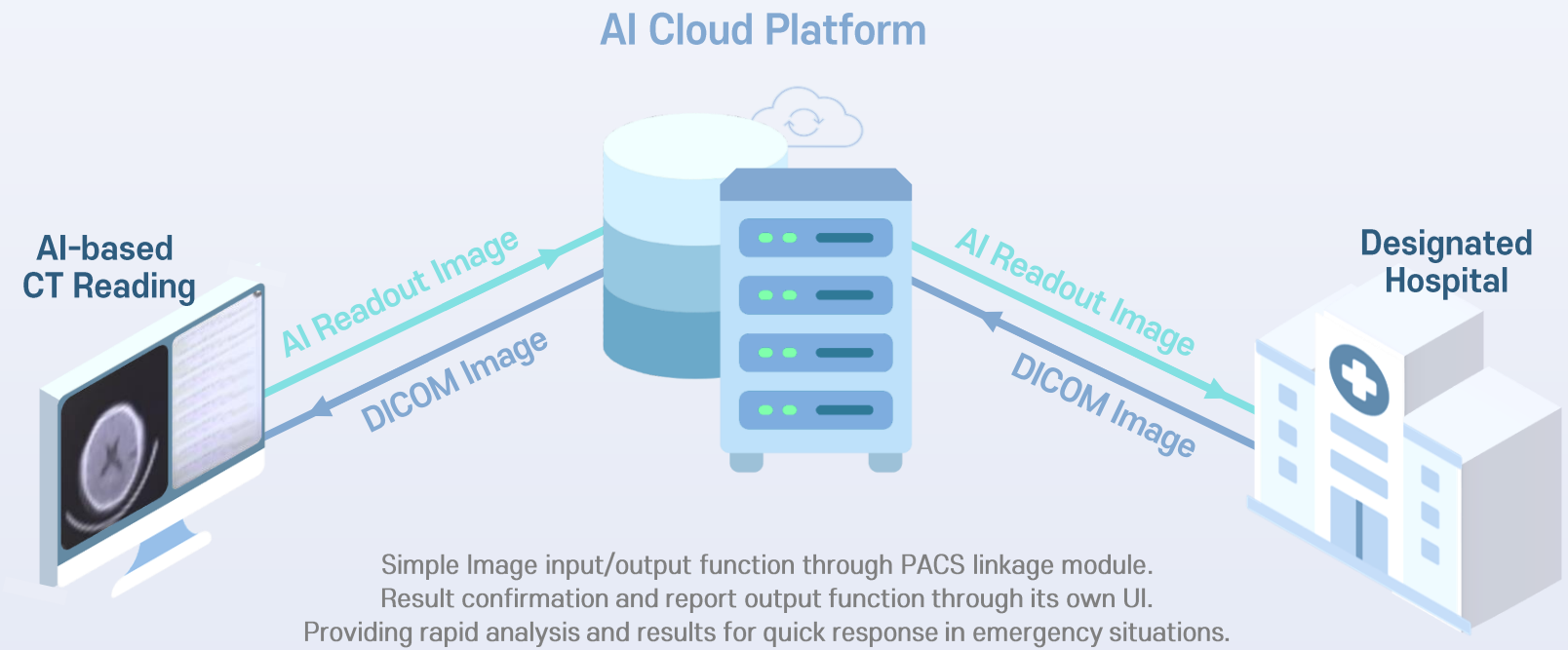
Patient's Brain CT Info. + [CNN, PCA]
[Densitometry feature, Morphological parameters]

Gradient boosting &
K-Fold cross validation

04

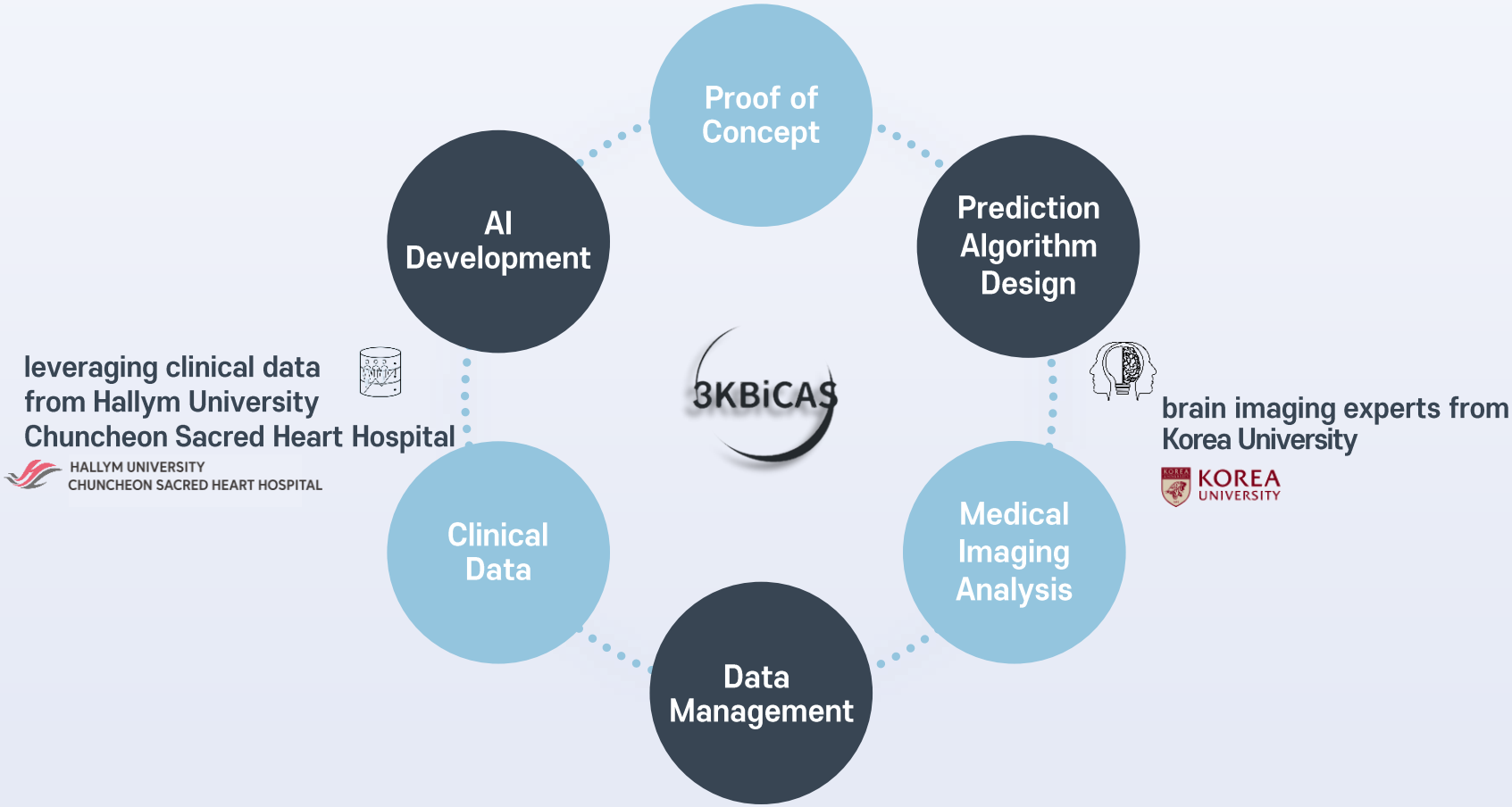
- The System
- Development Groups

Cloud-based AI Medical Imaging Service Platform



Simple Image input/output function through PACS linkage module.
Result confirmation and report output function through its own UI.
Providing rapid analysis and results for quick response in emergency situations.

04 Development Groups



05

- Competitive Advantages
- Development Progress
- Achievements

05 Competitive advantages

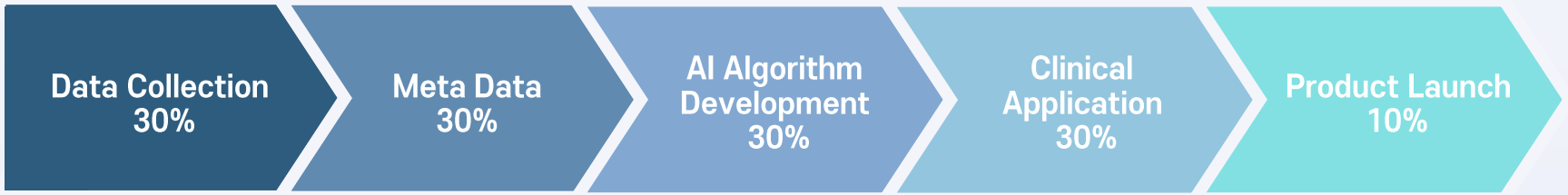
MAPIS is a golden time saver assisting doctors to make a quick and robust decision.

Korea	3KBICAS	SK C&C	Heuron	VUNO	JLK	Lunit
Offering	Cerebral infarction disease Medical AI Solution	IT Service Solutions by Industry	Cranial nerve disease AI	Medical AI	Stroke diagnosis	Diagnosis and prediction based on medical imaging
Brain Technology	Prediction AI for hemorrhagic transformation ※CDSS : Present treatment guidelines	Cerebral hemorrhage readings	Cranial nerve disease (Dementia, Parkinson's, Stroke) cerebral infarction data by CT image	Diagnosing degenerative brain diseases by quantifying the degree of brain atrophy	Severity prediction and stroke area segmentation	N/A
Founded / investment	2018 Angel/Seed (2023: 2Bn)	N/A	2017 Pre-IPO (2021: 34Bn+)	2014 IPO (2021: 59Bn+)	2014 IPO (2019: 54Bn)	2013 IPO (2022: 196Bn+)

Global	Viz	NovaSignal	Zeit Medical	RapidAI	Caption Health
Offering	Brain scan using machine learning / Detecting suspected signs of cerebrovascular and stroke through deep learning algorithms and notifying the attending physician	Diagnosis of real-time cerebrovascular blood circulation in a non-surgical manner, using ultrasound, robotics, and AI	Monitoring cerebral hemorrhage and stroke and transmitting to emergency medical institutions during daily life and sleep, through the head band equipped with ultrasonic technology	Diagnosis and treatment of cerebral hemorrhage and aneurysms	Early screening and diagnosis through ultrasonic solutions

05 Development Progress

Development



Certification

05 Achievements

특허증

CERTIFICATE OF PATENT

특 허 Patent Number 제 10-2294164 호

출원번호 Application Number 제 10-2020-0142795 호

출원일 Filing Date 2020년 10월 30일

등록일 Registration Date 2021년 08월 20일

발명의 명칭 Title of the Invention

출혈성 변환 예측을 위한 뇌전산화단층 영상 데이터 관리 시스템

특허권자 Patentee

주식회사 쓰리케이비카스(110111-*******)

서울특별시 강동구 강동대로 177 , 203호(성내동, 현대코랄)

발명자 Inventor

등록사항란에 기재

위의 발명은 「특허법」에 따라 특허원부에 등록되었음을 증명합니다.

This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.

2021년 08월 20일

특허청장

COMMISSIONER,

KOREAN INTELLECTUAL PROPERTY OFFICE

김 용 래

QR코드로 현재기준 등록사항을 확인하세요

특허청

Korean Intellectual Property Office

제 C-2022-004423 호

저작권 등록증

1. 저작물의 제호(명칭)	뇌졸중 예측 AI 의료영상 분석시스템 (AIMIPS/AI Medical Image stroke Prediction System) Ver.0.1
2. 저작물의 종류	컴퓨터프로그램저작물>응용프로그램>산업용 S/W>의료용 S/W
3. 저작자 성명(법인명)	주식회사 쓰리케이비카스 서울특별시 강동구 강동대로
4. 생년월일(법인등록번호)	110111-6933273
5. 창작연월일	2021년12월01일
6. 공표연월일	-
7. 등록연월일	2022년01월11일
8. 등록사항	저작자 : 주식회사 쓰리케이비카스, 창작 : 2021.12.01

「저작권법」 제53조에 따라 위와 같이 등록되었음을 증명합니다.

2022년 01월 11일

한국저작권위원회

06

- Business Model
- Sales Roadmap
- Management
- Advisors

06 Business Model

CVA patients in Emergency Room → CT Scan → Diagnosis → Administration of thrombolytic drugs

Salaries for AI development and data collection

+

Clinical trials, certification, intellectual property registration

+

Business development for Korea and global

Patients × per usage × Market share = $

06 Sales Roadmap

Korea

2024	2025	2026
· Pilot at 6 Hallym Univ Hospitals · Package at 20 tertiary general and general hospitals	· Package at 200 tertiary and general hospitals · SaaS at 100 hospitals and clinics	· Package at 350 tertiary and general hospitals · SaaS at 1000 hospitals and clinics

Global

2024	2025	2026
· International Conference · Global Partnership	· 1st priority: US, Canada, Japan, and China (16,993 general hospitals: 5,815, 1,200, 1,546, and 8,432, respectively)	· 2nd priority: Southeast Asia Germany, Japan, Italia, England, France, India

Source: Health Insurance Review and Assessment Service 'Statistical Analysis of Health and Medical Resources (2016~2020)'
American Hospital Association, Ministry of Health, Labor and Welfare of Japan, Health Canada of Canada, National Health Commission of China

06 Management

Dr. Lee Sanghyung

Medical

30 years of experience

- Neurosurgery at Seoul National University Boramae Hospital
- Professor of Neurosurgery & Medical Device Industry at Seoul National University
- PhD in Neurosurgery at Seoul National University

SNUH SMG-SNU Boramae Medical Center

SEOUL NATIONAL UNIVERSITY

Dr. Kim Chulho

Research

20 years of experience

- Neurology at Hallym University Chuncheon Sacred Heart Hospital
- Professor of AI Convergence at Hallym University
- PhD in Neurology at Hallym University Medical Center

HALLYM UNIVERSITY CHUNCHEON SACRED HEART HOSPITAL

HALLYM UNIVERSITY

Dongsoo Song

Technology

25 years of experience

- Korea Computer (XML big data)
- INEK (AI for e-library mgmt.)
- Prosecution Service (data mgmt.)
- Computer Officer at Army Logistics Command
- Computer Science at Hongik University

KOREA COMPUTER INC.

HONGIK UNIVERSITY

Juhyung Lee

Business Development

25 years of experience

· Vice President at 3K Soft
· CEO of Geo
· Hallym University

3K SOFTWARE
XML SOLUTION PROVIDER

HALLYM UNIVERSITY

06 Advisors

Sangwon Seo

Brain Neuroscientist

- Dean of Hallym University College of Medicine
- PhD at Texas State University

Dongju Kim

Brain Engineering

- Brain Engineering Department of College of Informatics at Korea University
- Professor of Neurology and AI Studies
- PhD in Engineering at University of Cambridge

Jundong Park

Immunology & Pediatrics

- Chief of Pediatric Emergency Department at Seoul National University Hospital
- Director of Seoul National University Institute of Immunology
- PhD in Pediatrics at Seoul National University

Hyungkyu Kang

Strategy

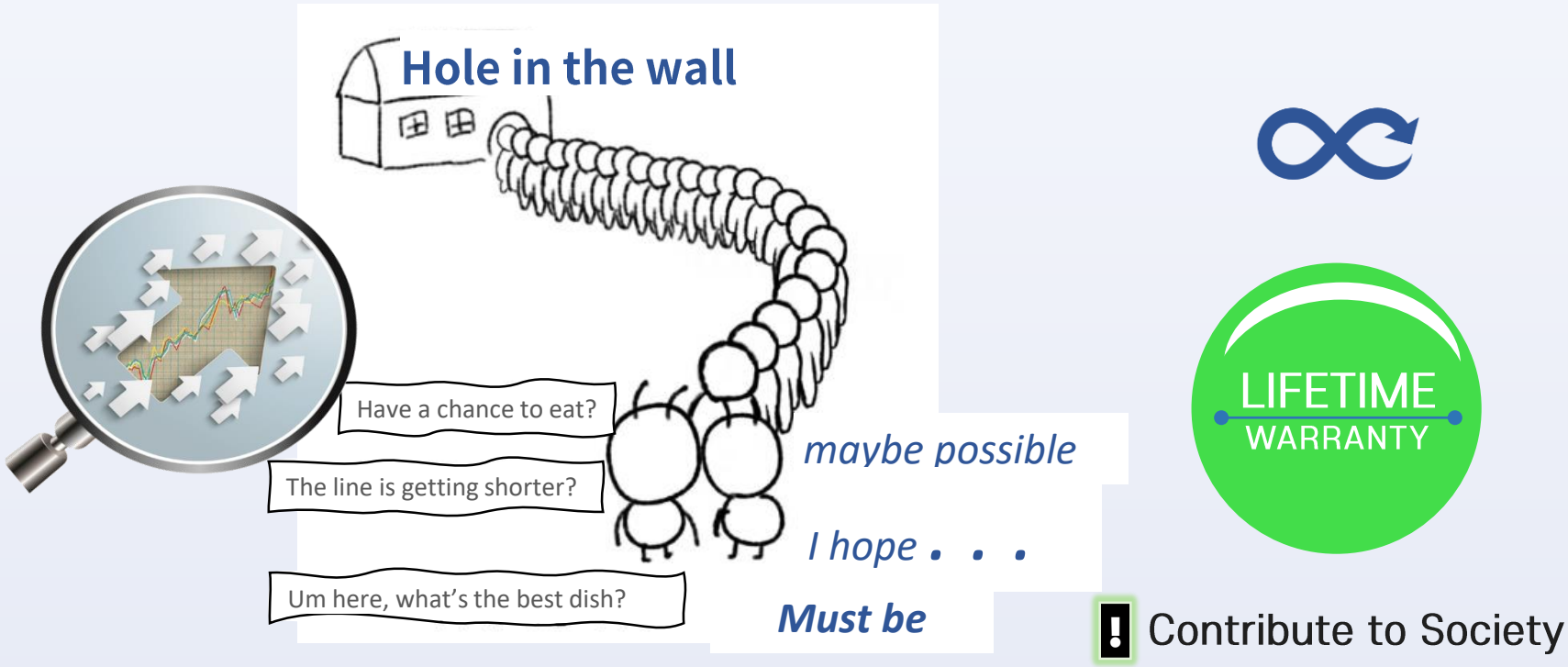
- Commerce One
- Deloitte Consulting
- DKV Korea
- Accounting at Pennsylvania State University

Jun-ho Jeong

Brand Ambassador

- Journalism and Information Studies, Cultural Contents & Department of Theater and Film at Kyung Hee University
- Executive Committee Chairman at Jeonju International Film Festival

Sources & Uses



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270 minutes that doesn't collapse a life. Keep in time!

Thank you.