



CARDIOTM

SAVING LIVES IS AN OBLIGATION

The worldwide arrhythmia problem

High Cost Per Year in Lives and Finances: 20.5 Million Deaths Globally from Cardiovascular Diseases and €120 Billion in Just Six European Countries, Exhausting Health Systems.



High hospital cost of each intervention to provide diagnosis. Spain alone conducts 18k catheter ablations annually (avg. 25k€ for each intervention)



Cardiac Mapping Systems require technical expertise, are difficult to interpret, time-consuming for initial diagnoses, and costly.

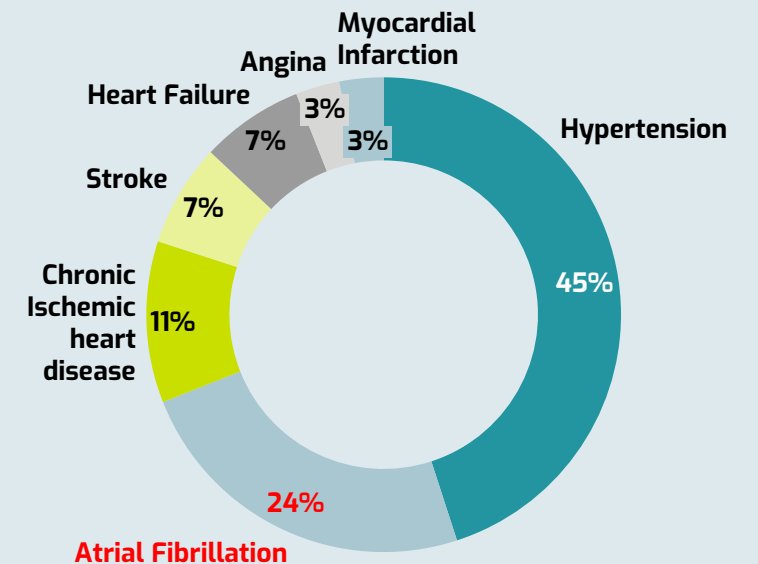


Catheter ablation procedures, a primary method for treating arrhythmia using Cardiac Mapping Systems, takes between 3 to 6 hours to complete.



The invasive nature of these treatments introduces unnecessary risks for patients.

Worldwide cardiovascular death rate and percentage of Atrial Fibrillation



Source: IQVIA Forecast Link: Disease

Solution



**Three-Dimensional
Stereoscopic and Holographic** (360°)



Non-invasive ECGi
(Electrocardiographic Imaging)
Mapping + Machine Learning



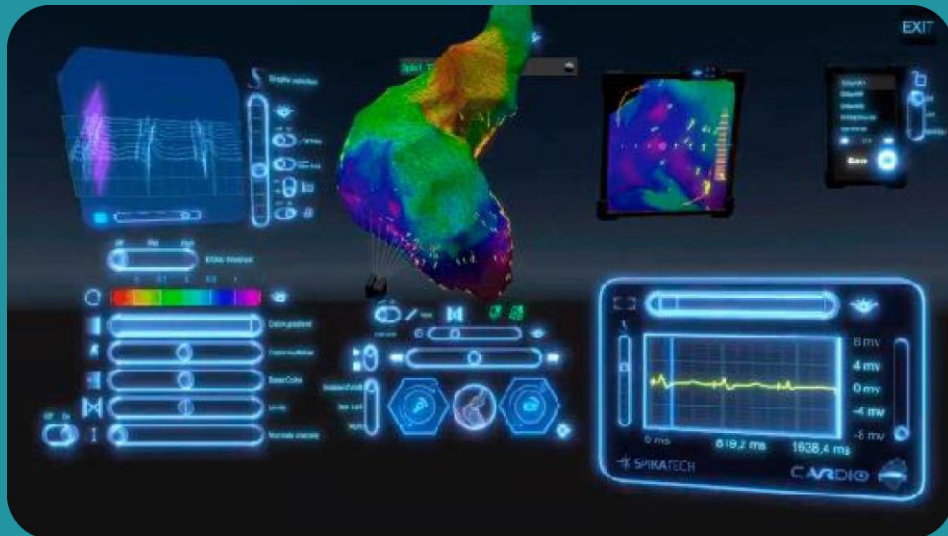
90% Cost Reduction
(catheterisation, intervention expenses...)

- **VR-CARDIO:** A groundbreaking, cost-effective tool that offers 3D-360° stereoscopic and holographic visualization in virtual and extended reality, revolutionizing the diagnosis and treatment of arrhythmia.
- **Innovative Non-Invasive Technology:** Utilizes a unique mechanism to capture cardiac electrical signals, creating a detailed electro-anatomical map of the heart without invasive procedures.
- **Enhanced Arrhythmia Detection:** Provides reliable precision in detecting arrhythmias, reducing patient risks, and cutting down time and costs by identifying when catheterization isn't required due to false positives.
- **Machine Learning Integration:** Captures and processes cardiac signals to analyze the entirety of electrical impulses, spotting arrhythmia origins, and employs self-learning algorithms for continual software refinement, ensuring electrophysiologists receive accurate diagnoses.

Product



- **Medical Device:** An eco-sustainable, multi-purpose textile Data Acquisition System (DAS) designed with specialized textile fabric, embedded with 34 electrodes to capture precise cardiac signals.
- **Intelligent Software:** Using advanced algorithms for collecting, analyzing, interpreting and visualizing cardiac signals. This system generates intra-cavity heart visualizations using cutting-edge AI and machine learning techniques, further enhanced by AR and VR capabilities.

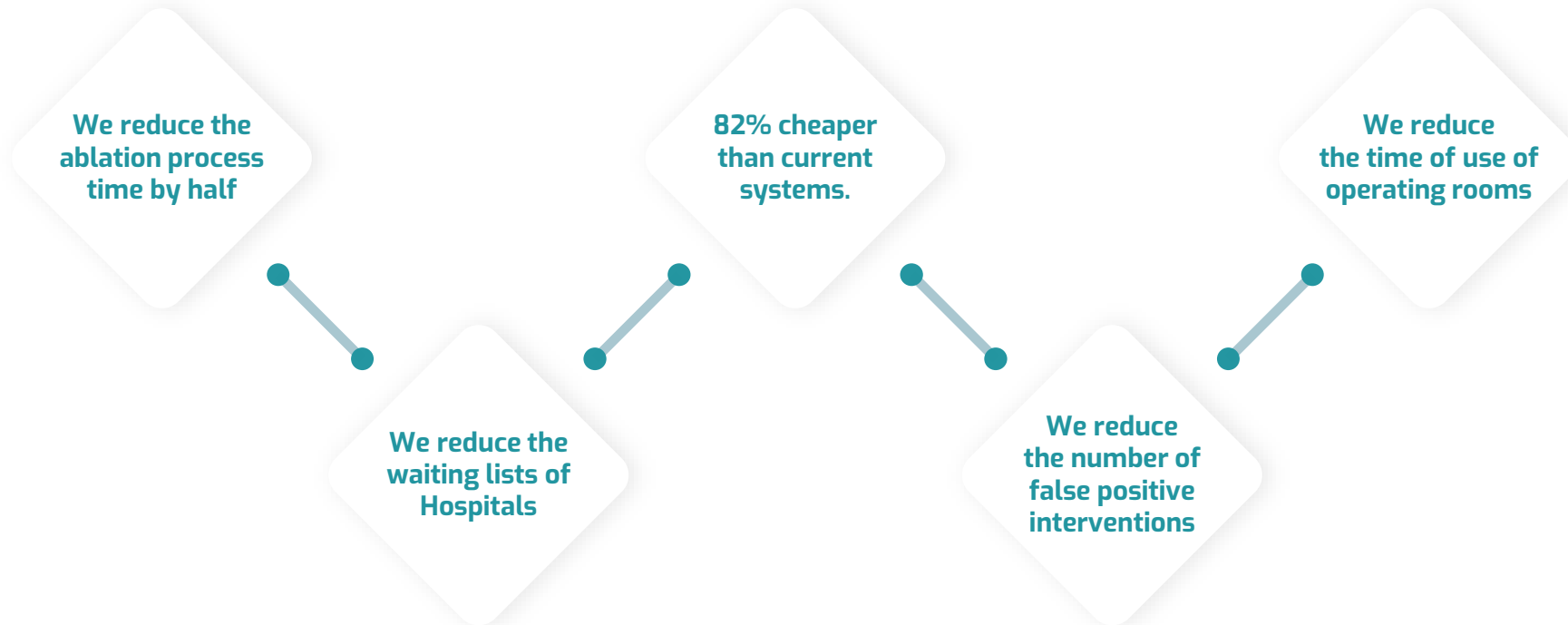


Value Proposal

VR-CARDIO
offers 10,000 points represented in THS (Three-dimensional Holographic Spacetime) while current cardiac navigations represent 2,000 signals.

VR-CARDIO
avoids the need for invasive tests

VR-CARDIO
doesn't need ionic radiation



VR-CARDIO
Model prevention through anytime, anywhere monitoring of potential cardiovascular problems (Police, Sports, Firefighters...).

VR-CARDIO
offers safer and more accurate cardiac navigation

Competition

PRODUCT NAME	VR-CARDIO	RHYTHMIA HDx™	CARTO® 3 System	EnSite NavX
Company	SPIKATECH	BOSTON SCIENTIFIC	JOHNSON & JOHNSON	ABBOTT
Measuring points	1500-25000	1500-25000	1500-25000	1500-2500
Represented points	Up to 10000	2000	2000	300
Voltage maps	✓	✓	✓	✓
Activation maps	✓	✓	✓	✓
Fragmented potential maps	✓	✓	✗	✗
Overlapping representation	✓	✗	✗	✗
Technology	Electro cardiograms and action potentials	Only Electro cardiograms	Only Electro cardiograms	Only Electro cardiograms
User friendly	✓	✗	✗	✗
A medical image is required	NO	YES	YES	YES

Traction and Milestones



Technology Property

- VR-CARDIO **owns the Intellectual property registration 16/2020/4524**
- VR-CARDIO IP: Intracardiac Electrical Signal Navigation Software in 3D 360° Stereoscopic Holographic solution through VR and AR
- * **European Patent Application** No. 23382800.3: "SYSTEM AND METHOD OF 360° THREE-DIMENSIONAL STEREOSCOPIC HOLOGRAPHIC VISUALIZATION FOR THE ELECTRICAL SIGNALS OF THE HEART"



Awards

- **QIA (Quality Innovation Award)** 2022, in the Potential Innovation category at both National (Spain) and International levels
- **Women Entrepreneurs 2021 Award**
- **Oracle Technology Challenge Award for Startups 2021**



Clinical Partnerships

- Hospital Universitario Quirónsalud / Ruber J. Bravo
- Hospital Universitario Son Espases
- Hospital Cruz Roja Palma de Mallorca



Raised Funds

- **541k€** CDTI
- **149k€** Enisa
- **100k€** BBVA
- **70k€** CaixaBank
- **261k€** FFF



Letters of Intentions



Road Map

Q3 2024

Market Authorization for commercialization in Europe

2022

2023

2024

Q3 2022

**TRL 6 – Prototype Demo
Successfully Completed**

Q2 2023

**TRL 7 – Real env Demo
Successfully Completed**

- **Software:**
 - Finalize software production design.
 - Validate VR & AR visualization module in both laboratory and real environments.
 - Introduce new analysis module for atrial fibrillation patients.
 - Improve potential transmembrane estimates and VR/AR module evolution.
- **Hardware:**
 - Manufacture 20 wearables for testing and pilot phases.

Q4 2023

TRL 8 - Clinical Tests

- **Software:**
 - Finalize wearable production design.
 - Complete system validation.
- **Hardware:**
 - Produce an additional 20 vests for testing with 40 patients in diverse settings.
- **Management and Certification:**
 - Streamline product processes.
 - Enhance technical management.
 - Obtain extended system certification and market qualification.
 - Adapt vests for varied patient demographics.

Q2 2024

TRL 9 - Complete Tech Validation

- **Software:**
 - Ensure the technology is usable in any real environment.
- **Market Engagement:**
 - Finalize market qualification and business model.
 - Disseminate project developments through various channels: press releases, blogs, social media, etc.
 - Implement the marketing and go-to-market strategies.
- **Intellectual Property:**
 - Develop and implement an IP rights protection strategy.

Founding Team



Alicia Zúñiga Arnaiz

Sales Manager & Co-founder.

Naval and Oceanographic engineer. Experience in international consulting firms like Rodriser, Studec or Airbus.



Cristina Zúñiga Arnaiz

CEO & Co-founder.

Industrial Engineer. Specialized in Automation and Electronics with 10 years of experience at Honeywell.



Maria Esther Arnaiz Lozano

Co-founder.

40-year experience as head Physics and Chemistry Department at Tirso de Molina high school.

Scientific Advisory Board



Isaac Martín de Diego, PhD

Full Professor at the URJC. Coordinator of the Research Group in Fundamentals and Applications of Data Science. Coordinator of the teaching innovation group DSLAB-TI.



José Ángel Cabrera, MD PhD

Professor of Cardiology Chairman at Universidad Europea Head of Department of Cardiology at Hospital Quirón-Madrid.



Xim Torrebella Seguí , MD

General Manager at Creu Roja Hospitals Palma. Assistant Physician in the ICU of Policlínica Miramar since 1991.

Core Team Members



Julio Ruiz

Sales executive with more than 20 years of experience in IT (consulting and market development), working for major multinationals such as Hitachi, Microsoft and SUN Microsystems.



Javier Martínez Moguerza, PhD

Full Professor of Statistics and Operations Research, Director of the Institutional Chair at URJC



Fernando Pozo, PhD

Chief Operating Officer at Spika Tech. PhD in Bioinformatics and Machine Learning at CNIO.

Team Members FTEs



28

Business model

Our business model shifts from hardware-based revenue (one-time sale) to a SaaS (Software as a Service) recurring services-based model.



36-Month lease program

(Final cost of 72,000€)

Below the price supported by hospitals

(around 120k€/month x 36 Months = 4.43 Mill € electrophysiology operating rooms)



Monthly price of 2,000€

Increased of recurring revenues



VR- CARDIO sold as a SaaS

(through AWS, ORACLE and Azure clouds)

Increased profitability for vendor



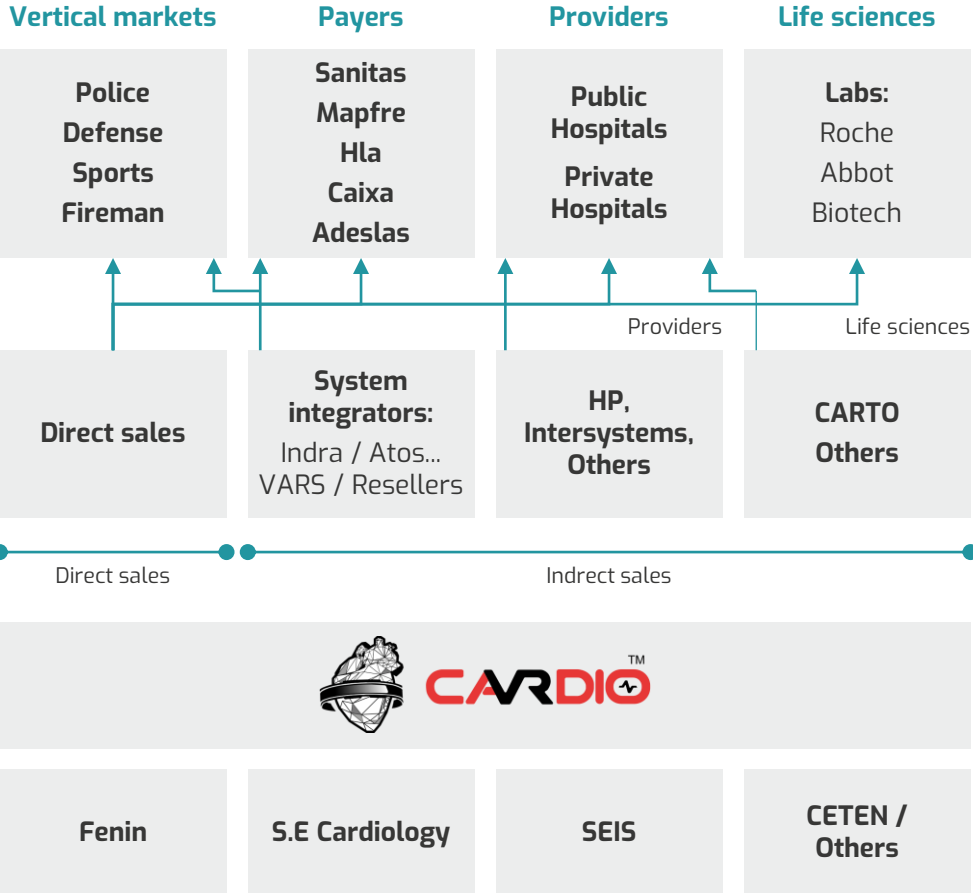
VR- CARDIO including a full license + wearable

Increase of data availability through the use of licenses

Financial Projections & Go-To-Market Model



go-to-Market model (Europe)



Foundation National and Internationals Organizations



2,000
Education Centers teaching Cardiology



17,000
Hospitals



P&L	PRESENT	FORECAST			
	2022	2023	2024	2025	2026
Revenues	139.430,00	165.000,00	3.650.000,00	7.300.000,00	14.600.000,00
Capitalization of R&D expenses Intangible fixed assets	720.000,00	870.000,00	65.000,00	45.000,00	25.000,00
Transfer to income of grants			323.000,00	323.000,00	323.000,00
GROSS MARGIN	859.430,00	1.035.000,00	4.038.000,00	7.668.000,00	14.948.000,00
Selling, general and administrative expenses			-1.825.000,00	-3.650.000,00	-7.300.000,00
R&D Expenses	-720.000,00	-870.000,00	-65.000,00	-45.000,00	-25.000,00
Other operating expenses	-20.514,00		-35.000,00	-43.750,00	-54.687,50
Depreciation and amortization			-323.000,00	-323.000,00	-323.000,00
EBITDA	118.916,00	165.000,00	1.790.000,00	3.606.250,00	7.245.312,50
Interest	-19.300,00	-25.600,00	-30.720,00	-36.864,00	-44.236,80
Other expenses and income (including grants)					
EBT	99.616,00	139.400,00	1.759.280,00	3.569.386,00	7.201.075,70
Taxes	-24.904,00	-34.850,00	-439.820,00	-892.346,50	-1.800.268,93
NET PROFIT	74.712,00	104.550,00	1.319.460,00	2.677.039,50	5.400.806,78

Total investment required

We are looking for **3,50 M€** in funds to reach the market.



5,984,863M €

Total investment required

TRL 7 **1,124,999 € Grant Assigned**

Functionalities of the new software simulated and tested in real scenarios

TRL 8 **1,375,001 € Grant Assigned**

Technology fully available and usable in any real environment

TRL 9 **3,500,000 € Equity Demanded**

Go-to-Market

Sept
2022

March
2024



Thank You

Fernando Pozo



fernando.pozo@Spikatech.com

Spika Tech



www.spikatech.com



[@SpikaTech](https://twitter.com/SpikaTech)



[@SpikaTech](https://www.instagram.com/SpikaTech)



youtube.com/@spikatech3778