



CASIS

Cardiac Simulation & Imaging Software

Delivering cutting edge AI-driven cardiovascular imaging technology

INVESTOR PRESENTATION

September 2018

Myocardial Infarct

32.4 million patients / year*

CURRENT SOLUTION:
No ability to predict disease evolution

Heart Failure with preserved Ejection Fraction (HFpEF)

**50 million patients globally
50% mortality after 5 years****

CURRENT SOLUTION:
No method to diagnose – sub-optimal management

Aortic Aneurysm

750,000 patients/year***

CURRENT SOLUTION:
Limited ability to predict the risk of rupture

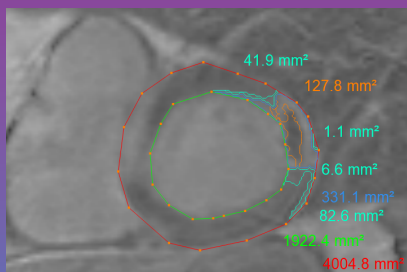
* http://www.who.int/cardiovascular_diseases/priorities/secondary_prevention/country/en/index1.html

** <https://www.ncbi.nlm.nih.gov/pmc/articles//>

*** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5290913/>

Myocardial Infarct

32.4 million
patients / year*



Unique software providing
complete segmentation
and quantification of all
pathological areas

- Allowing for the first time to anticipate the evolution of the myocardial infarct
- **Artificial Intelligence** applied to segment the left ventricle and its pathological areas
- Scientifically validated

HFpEF

50 million patients globally
50% mortality after 5 years**

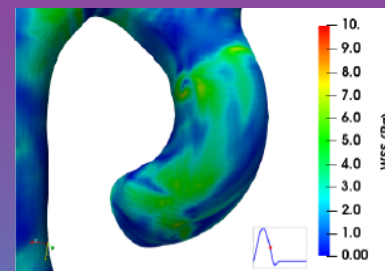


Holistic approach to identify and
quantify anatomical landmarks in
the four chambers and the major
cardiac vessels

- Proper diagnosis of the disease
- **Artificial Intelligence** applied to identify and quantify the anatomical landmarks
- Scientific validation program underway

Aortic Aneurysm

750,000
patients/ year***



Very precise and
thorough method to predict
risk of rupture

- Reduced patient mortality
- **Artificial Intelligence** applied for automatic risk quantification from patient data pool
- Scientific program initiated; enrolment of first 40 patients started

* http://www.who.int/cardiovascular_diseases/priorities/secondary_prevention/country/en/index1.html

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DOCTORS

- More accurate & complete diagnosis
- Risk identification of severe fatal events
- Prediction of disease evolution



- More effective disease management
- Reduction of morbidity & mortality



PATIENTS

- Better care
- Improved quality of life
- Lifes saved

HOSPITALS/PAYERS

- Costs savings
- Reduction in severe events occurrence

Our core identity

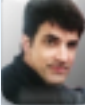





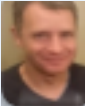










Bringing the best of academic research to improve diagnosis of cardiovascular diseases

Our ambition

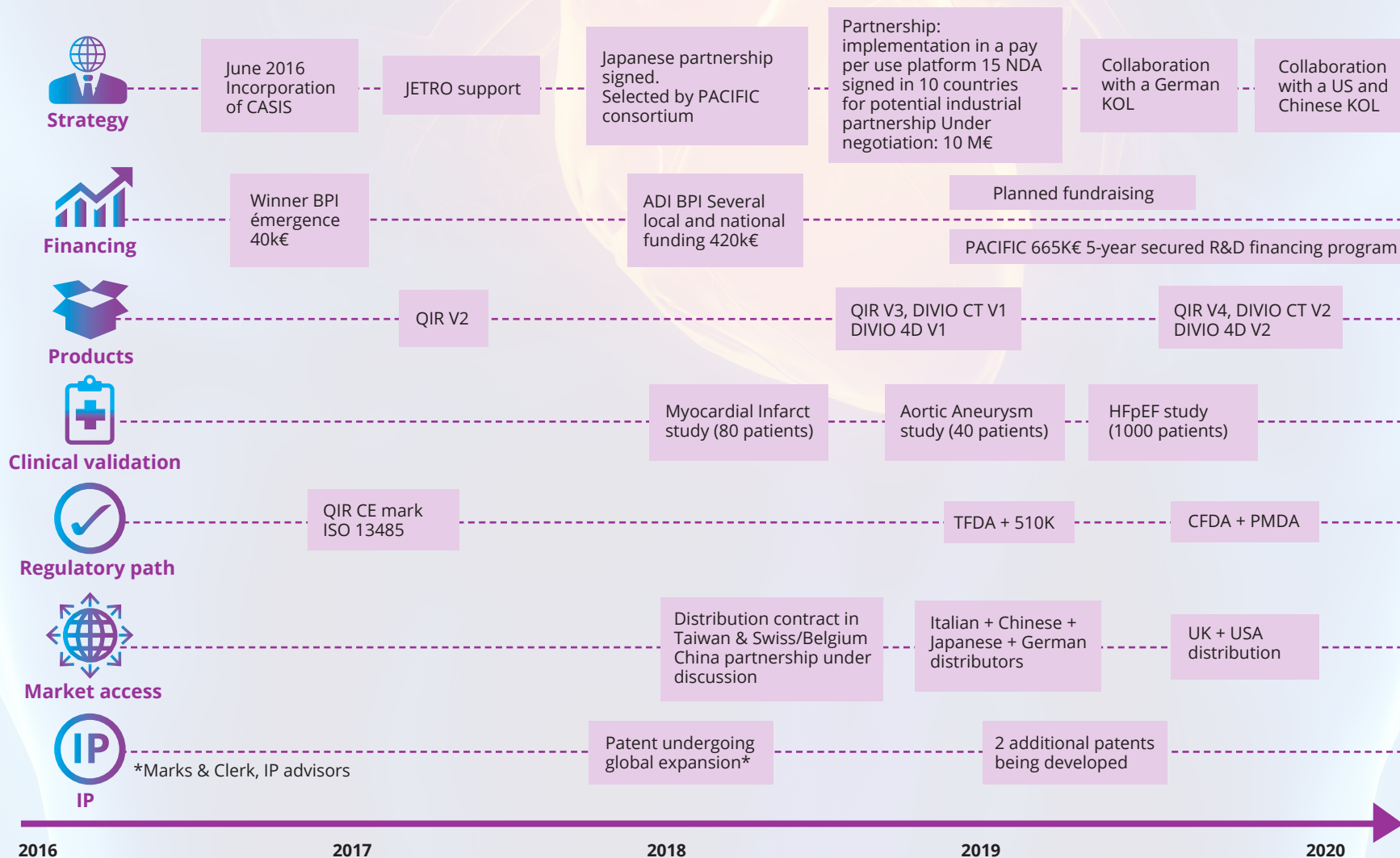


Offering advanced AI-driven cardiovascular imaging software including pre-diagnosis

	Roles	Experience	Academic background
 Jean-Joseph Christophe PhD	CEO	AI research 4 years, Blood flow research 7 years, applied probabilities 1 year, Management 4 years   	Fundamental and applied mathematics (PhD), Biomedical engineering (PhD)  
 Guillaume Lenormand PhD	Expert USA	Biophysics research 13 years, Blood flow research 10 years, Technical sales 7 years, Management 7 years  	Biophysics (PhD), Management (Master)  
 Alain Lalande PhD	CMO	Practitioner in radiology 16 years, research in image post processing 20 years, research direction 5 years 	Medical image postprocessing (PhD) 
 Thomas Decourselle PhD	CTO	Image post processing 12 years  	Image post processing (PhD) 

Clinical advisors	Institutions
Prof. F. Brunotte Prof. O. Bouchot Prof. E. Mousseaux Prof. J-N Dacher Prof. K. Takase Prof. J. S. Hulot	CHU Dijon, France CHU Dijon, France AP-HP, France CHU Rouen, France Tohoku University Hospital, Japan AP-HP, France

Team competencies
AI engineering Image processing engineering System, security & network engineering Technical sales Communication (Staff of 5)



Larger player acquisition:

Example: **Imascap***



Founded: 2009
Products: Shoulder implant planning software
3800 plannings
21 countries
Bought by **Wright Medical** (2018) for: **75M€**

* https://www.lesechos.fr/10/01/2018/lesechos.fr/0301117358565_les-protheses-personnalisees-d-imascap-reprises-par-wright-medical-group.htm

Example: **Olea Medical***



Founded: 2008
Products: MRI analysis software for diagnosis support
Turnover **4M€**
21 countries
Bought by **Toshiba Healthcare** (2015) for: N/A

* <https://www.20minutes.fr/marseille/1717339-20151026-bouches-rhone-toshiba-rachete-start-up-ciotat>

Successful funding and growth:

Example: **Circle CVI***



Founded: 2007
Products: Diagnosis support cardiovascular MRI and CT software
Customers: **800 hospitals**
100 employees worldwide
Last round (2018): **16M\$**

* <https://www.pehub.com/canada/2018/05/kayne-yaletown-invest-16-mln-circle-cardiovascular-imaging/#>

2016 – 2018

610k€ raised to date

- Shareholders+BPI+ local+bank
- Loans+subsidies
- Turnover to date ~120k€

2019 - 2021

2.5M€

- US, Japanese and Chinese markets

S1 2019

700k€

- Recruitment of 1 sales leader + 2 technical sales
- 510K preparation
- Chinese market preparation (CFDA)
- Japanese market preparation

2020

900k€

- Recruitment of 5 technical sales
- US representation
- Distribution all over Europe

2021

900k€

- Japan representation
- Distribution in India, China, Middle East

PACIFIC 665K€ 5-year secured R&D financing program

8 MODULES

developed within < 30 months

Viewer

Cardiac Function

DEMRI

1st pass perfusion

Aortic compliance

Aortic velocity

Strain

T1 Mapping

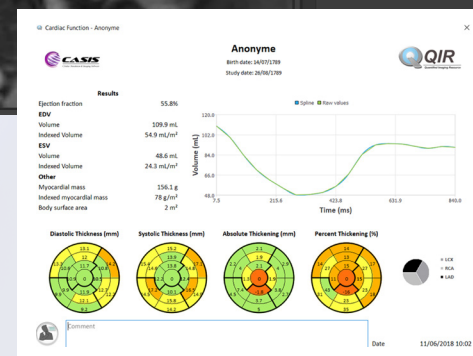
Myocardial Infarct

HFpEF

New software – **Aortic Aneurysm**



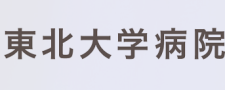
CLASS IIa




Strategic partners




Advisory



Myocardial Infarct

 **QIR V2***
Analysis of the cardiac function, the aorta and myocardium infarct


CE

 **QIR V3, 4****
Analysis of the 1st pass perfusion the T1, T2 mapping and the strain


CE FDA
APPROVED

HFpEF

QIR +

 **DIVIO CT**
Analysis of cardiovascular CT scan

CE

 **DIVIO 4D MRI**
Analysis of 4D flow MRI (aorta)

CE

Aortic Aneurysm

DIVIO 4D +
New software - V1*/V2**

CE

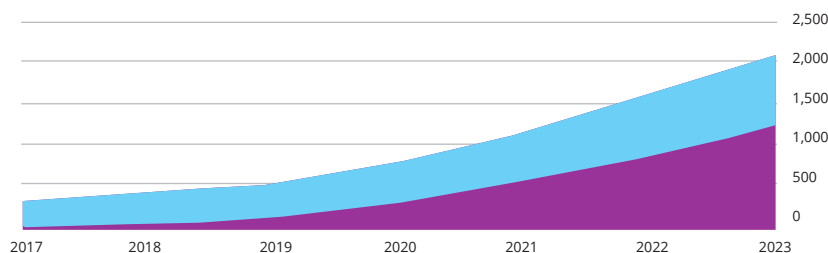
* Without AI; ** with AI



Market launch

World Market for AI-Based Medical Image Software by Algorithm Type

Revenue Forecast (\$m)



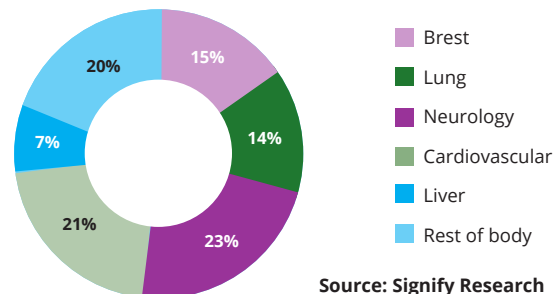
Source: Signify Research Jul-18

■ Deep learning

■ Other types of algorithms AI

World Market for AI-Based Medical Image Software by Clinical Application

Revenue Market Share in 2023



Source: Signify Research Jul-18

Cardiovascular Imaging



MRI, CT

MARKET SIZE

Cardiovascular imaging*:

0,8B\$

(*AI and non AI-driven)

Limited number of competitors (e.g. compared to neuro).
Less than 10 active in MRI.

Estimated MARKET POTENTIAL

HFpEF:

1B\$**

(**PACIFIC consortium source)

KEY MARKETS:

Japan (highest number of MRI/pers)

USA (2nd number of MRI/pers)

China (fast growing market, 800 MRI machine each year, new machine maker players)

Key selection criteria	CASIS	Circle CVI	Medis	Arterys	MedViso
1. Capacity to anticipate MI disease evolution	✓	✗	✗	✗	✗
2. Holistic approach for HFpEF diagnosis	✓	✗	✗	✗	✗
3. Accuracy of AA risk prediction	✓	✗	✗	✗	✗
4. AI algorithm	✓	✓	✗	✓	✗
5. Global ergonomy	✓	✓	✗	✗	✗
6. Cost / effectiveness	✓	~	✗	✗	✓



- Licence and subscription sales
- Plugins sales for medical imaging platforms
- Pay-per-use sales
- Image post-processing consulting sales

Licence pricing	Year 1-3	Year 4-6	Year 7-9
Fixed revenue	20,000€	–	–
Recurrent revenue*	27,000€	27,000€	27,000€

Licence 3-year term, purchase up front

Major software version upgrade every 3 years - free after initial purchase

*Annual value – 9K€ per subscription including hotline and maintenance support

CUSTOMER VALUE


Typical university hospitals usually have 3 to 4 licences; private centres 2 to 3 licences


LICENCE VALUE

Global value per licence on 9-year window **101K€**

Hybrid commercial model - direct sales team and distribution network

		EU	USA	JAPAN	CHINA	OTHER
2018	Direct sales team	1				
2019	Direct sales team	3	1	1	0	1
2020	Direct sales team	4	2	2	1	1
2021	Direct sales team	5	3	3	2	1
Distributors		Alma (Spain, South America), Kisano (Swiss, Belgium), MTS (Italy)		Micron, DVx, CMI, Hibari	Herricane (Taiwan), HuiyiHuiying (China)	Yalles Medical (Algeria), ThunderFire (Morroco)
Sectorial partners		MRSolutions, Olea, IntraSense, EvoluCare, Artificial Insight, Firalis, Canon, Philips, ANSYS				

 Contract signed or in negotiation

 NDA signed

Direct sales team figures do not include sales manager

Sectorial partners integrate QIR in their offer and system (MRI machine, workstation, medical imaging platform, PACS) and can distribute QIR anywhere in the world without geographical restriction

		2018	2019	2020	2021	2022	2023	2024
		Licence	Licence	Licence	Licence	Licence		
EU	France	44	74	106	116	150		
	Other EU countries		30	76	144	230		
JAPAN			8	36	61	92		
USA			8	50	116	167		
CHINA			12	23	58	120		
OTHER			4	28	32	66		
SALES TARGET		119 K€	1,070 K€	3,296 K€	7,615 K€	14,733 K€	19,018 K€	24,000 K€
SALES FORCE		1,5	7	11	15	21	27	32

K€	2018	2019	2020	2021
Revenue	122	1,070	3,296	7,615
Intangible assets (R&D, regulatoryies) + subsidies	208	405	655	715
Global margin	330	1,475	3,951	8,330
General expenses	(272)	(326)	(460)	(584)
Added value	58	1,149	3,490	7,746
Taxes	(3)	(10)	(36)	(110)
Personnel expenses	(233)	(942)	(1,821)	(2,770)
Growth Operating Surplus	(116)	278	1,701	4,928
Depreciation expenses	(44)	(122)	(266)	(481)
Operating result	(160)	156	1,435	4'446
Financial expenses	(5)	(10)	(12)	(8)
Gains / losses transfert				
Current result	(166)	146	1,423	4'438
Extraordinary result				
Corporate tax	77	135	(211)	(1'202)
Financial year result	(89)	281	1,212	3,236
Internal financing capacity	(44)	403	1,479	3,718

P&L structure as per French standard

Scientific partnerships



Key industrial partnerships



Consulting partnership



日本貿易振興機構(ジェトロ)



CASIS

Cardiac Simulation & Imaging Software

**Delivering cutting edge
AI-driven cardiovascular
imaging technology**

THANK YOU

JEAN-JOSEPH CHRISTOPHE

CEO CASIS – *Cardiac Simulation & Imaging Software*

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