aiforia®
AI for image analysis

AI-powered image analysis for healthcare: from discovery to diagnosis

PÖRSSIN AVOIMET OVET 30.8.2023

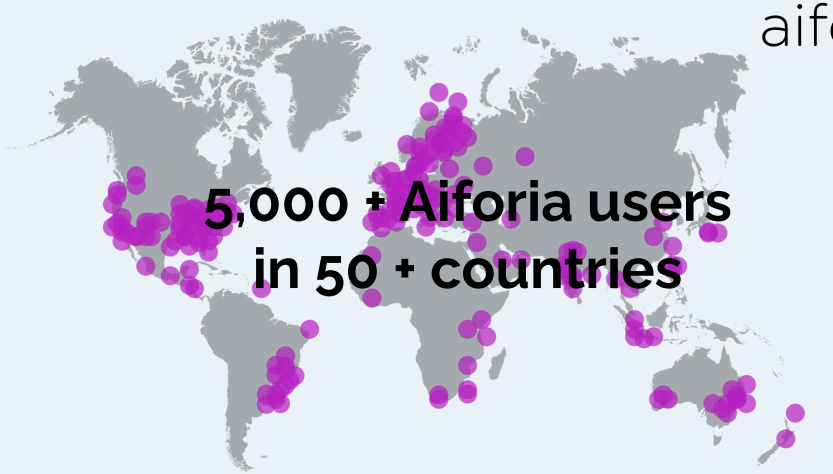
Jukka Tapaninen, CEO

Aiforia Technologies Plc

Overview of Aiforia Technologies

Medtech software company, founded in 2013

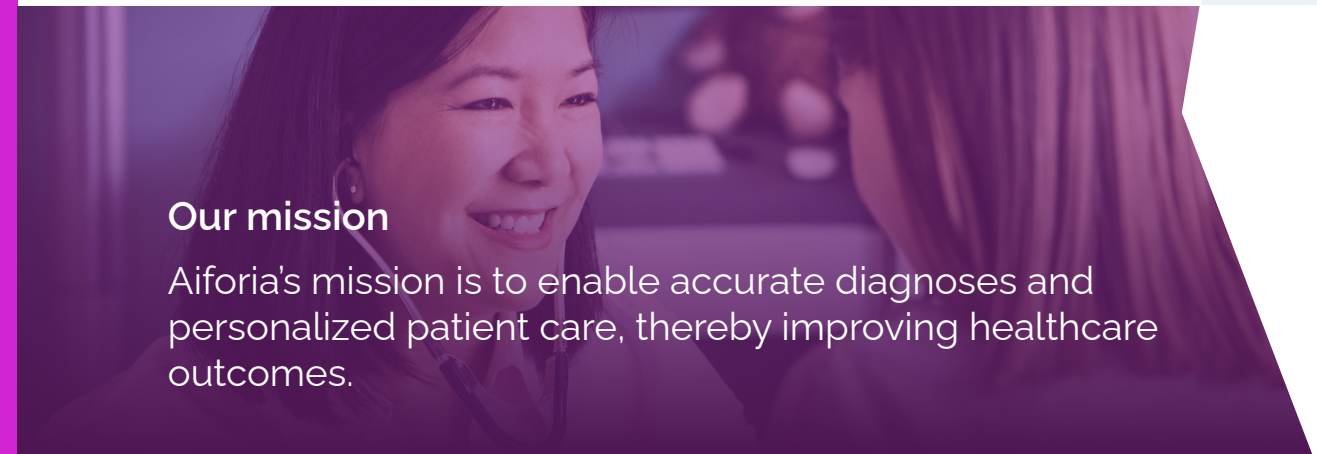
- Equips pathologists and scientists in clinical, pre-clinical, and academic labs with powerful deep learning AI and cloud-based technology
- Aiforia's solutions strive to increase the speed, accuracy and consistency of analysing large and complex medical images especially in the field of pathology
- Strong scientific and regulatory validations:
  - Aiforia's products have been referenced in over 80 scientific articles and posters since 2014
  - Six CE-IVD marked products
  - Certificates (ISO13485, ISO27001, SOC2 type II)



Global organization

- 100+ employees
- HQ Helsinki, Finland
- US Offices in Cambridge, MA and Rochester, MN
- Sales & commercial teams across Europe and the US
- Global distributors

Listed on Nasdaq Helsinki First North Growth Market



Our mission

Aiforia's mission is to enable accurate diagnoses and personalized patient care, thereby improving healthcare outcomes.

Main customer segments

CLINICAL DIAGNOSTICS SECTOR,

including hospitals, health systems and clinical diagnostic companies

PRE-CLINICAL SECTOR,

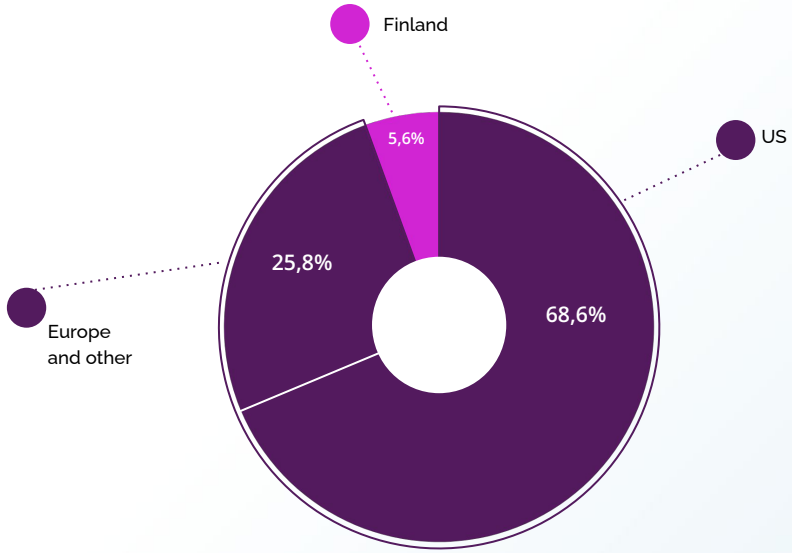
including pharma and biotech companies, contract research organizations, academic research and education

Only certain Aiforia® Clinical AI models and the Aiforia® Clinical Suite Viewer are CE-IVD marked for diagnostic use in EU and EEA countries, see here for the full list: www.aiforia.com/aiforia-clinical-suite. In all other countries, the use is limited to Research Use Only, not for use in diagnostic procedures.

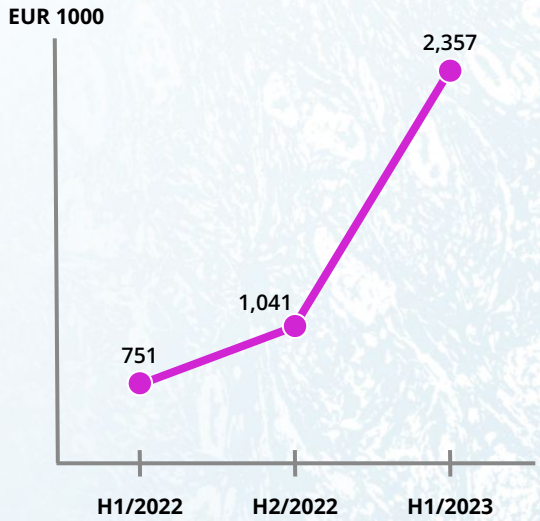
January–June 2023 results in brief

Group revenue increased by **25% to EUR 920 thousand**

94,4% of the revenue came from abroad



Order book was **EUR 2,357 (751) thousand**



EUR 3 million investment in product development

Recent deals and collaborations

MAYO CLINIC

- Major milestone: **the analysis of breast cancer patient tissue samples began**
- +70 pathologists using Aiforia's platform in translational research
- Progressing with joint development

VENETO REGION HEALTH AUTHORITY

- EUR 1.2 million
- 12 hospital units
- 3 year contract
- 200,000 samples
- Breast and prostate cancer diagnostics

PATHLAKE PLUS CONSORTIUM / NHS

- 3 year framework contract for lung and prostate cancer diagnostics
- First deal signed with a NHS Trust for lung cancer diagnostics

Other highlights

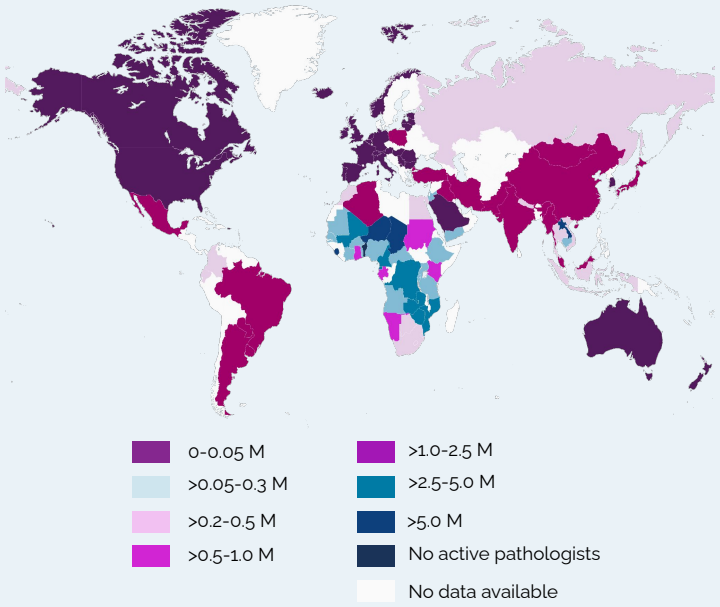
Pharma deals and collaborations to develop AI-based image analysis solutions for preclinical research and product development.

Funding decision of **EUR 7,3 million** from **Business Finland** to accelerate the development of AI-assisted software solutions for clinical pathology and drug development.

Business opportunity

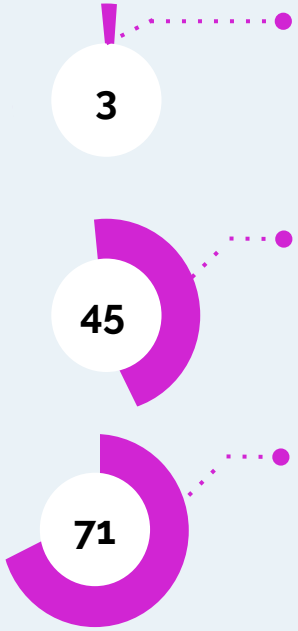
The challenge

Population in relation to the number of pathologists[1]



The shortage of pathologists causes severe problems for patients by delaying, and in worst case, preventing them from receiving appropriate care. The quality and the accuracy of the pathologists' analysis may suffer due to the high amount of analyzed samples.

Pathologists are overloaded...



3% of histopathology departments in the UK have enough staff to meet clinical demand[2]

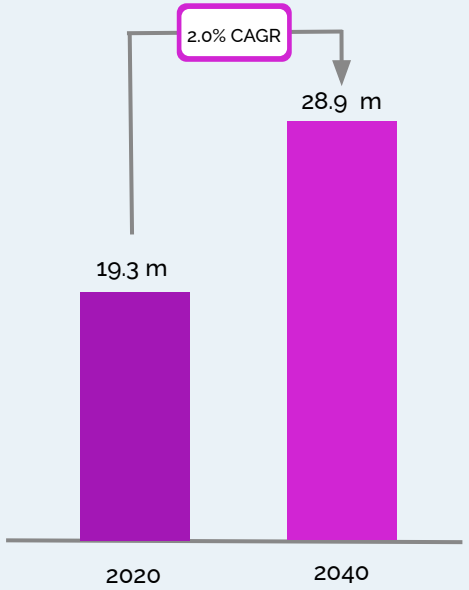
45% of histopathology departments in the UK have to outsource work to cope with demand[2]

71% of respondents in US based study reported having felt burnout as a pathologist[3]

The shortage of pathologists makes the job stressful and require in some cases overtime work frequently. The pathologists retiring early further exaggerates the shortage problem.

... with no reduction of sample volumes in sight

Estimated global cancer increases cases 2020-2040[4]



The growing cancer incidence rates, estimated to increase by 49.7% during 2020-2040, will lead to increasing number of pathology tests. Constantly increasing number of new diagnostic tests increase the workload and require new expertise.

Note: 1) The population in relation to number of pathologists for European countries obtained from: *Number of pathologists in Germany: comparison with European countries, USA, and Canada (2018); Märkl, B. et al.* For other countries: *Access to pathology and laboratory medicine services: a crucial gap (2018) Wilson, M. et al.*; 2) The Royal College of Pathologists: Histopathology workforce census 17/18; 3) The American Society for Clinical Pathology's Job Satisfaction, Well-Being, and Burnout Survey of Laboratory Professionals(2020); Garcia, E. et al.; 4) International Agency for Research on Cancer

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Digital transformation in pathology is becoming mainstream

% pos cells?
5%?
Moderate? ++?
Weak? +?

Descriptive visual

Digitalization + AI

No of cells: 57 673
IHC pos: 13 234
Percentage: 22.9 %

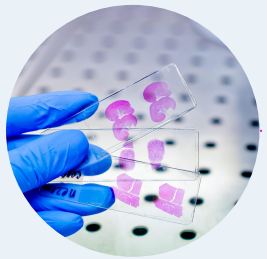
Tissue types:
Epithelium: 34%
Stroma: 60%

Quantitative automated

Adoption of AI in pathology is accelerating

Clinical pathology workflow with AI supported diagnosis

Tissue sample



Any type of biological sample or staining is compatible with Aiforia

Microscope Scanner

Majority of scanner and file formats are supported

Image upload

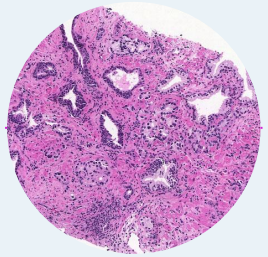
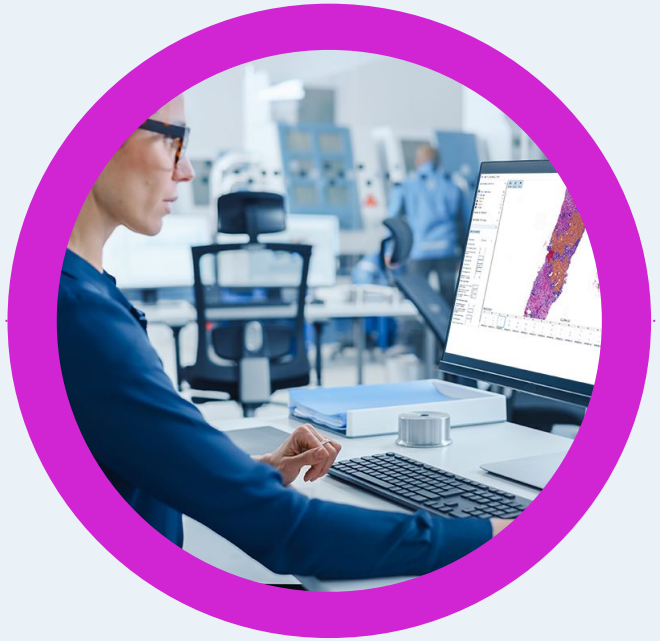


Image is transferred to PACS/IMS and immediately uploaded to Aiforia for automated AI analysis

Use of AI

AI-supported diagnosis



The AI results help pathologists to analyse the samples more objectively, effectively and accurately. Aiforia provides numerical results directly to the pathologist's report.

Report for the clinician treating the patient

Benefits and result:

- Automates manual tasks such as cell counting
- Produces objective and accurate data
- Improves workflow efficiency, brings results faster for the benefit of the patient

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Large and growing TAM for AI supported diagnostics in clinical setting

	2020	2027
No. of pathology slides per year (globally)[1]	~1.2 - 1.4bn	~2.0bn
Digitalisation rate[1]	~14%	~35%
Revenue / slide[2]	~$5	~$5
Total Addressable Market ("TAM")[1]	~$0.9bn	$3.5bn+

Adoption of digital pathology and AI is accelerating

COLLEGE of AMERICAN PATHOLOGISTS
AMA AMERICAN MEDICAL ASSOCIATION

*Jan-23: Established **13 new CPT codes** associated with digitization of glass microscope slides*

*2021: UK Government injects **c.£248m to digitise diagnostic care** across the NHS*

NHS

*2020: Access to **£50m funding** for **AI solutions in pathology***

*~**$1.7bn VC funding** for Digital Pathology companies since 2014[4]*

MAYO CLINIC

Multiple initiatives to digitize tissue slides (c.3m / year) and integrate digital pathology infrastructure

*~**50% of Swedish pathology labs** are already digital[3]*

Note: CPT = Current Procedural Terminology.
(1) Market Intellix and Maia Research: Global Microscope Slide Market Report 2021 (separately targeted version).
(2) Offering Prospectus (Management estimate).
(3) Kepler Cheuvreux, 2022-01-20.
(4) Signify Research

Aiforia's offering

Aiforia uses Deep Learning AI Technology

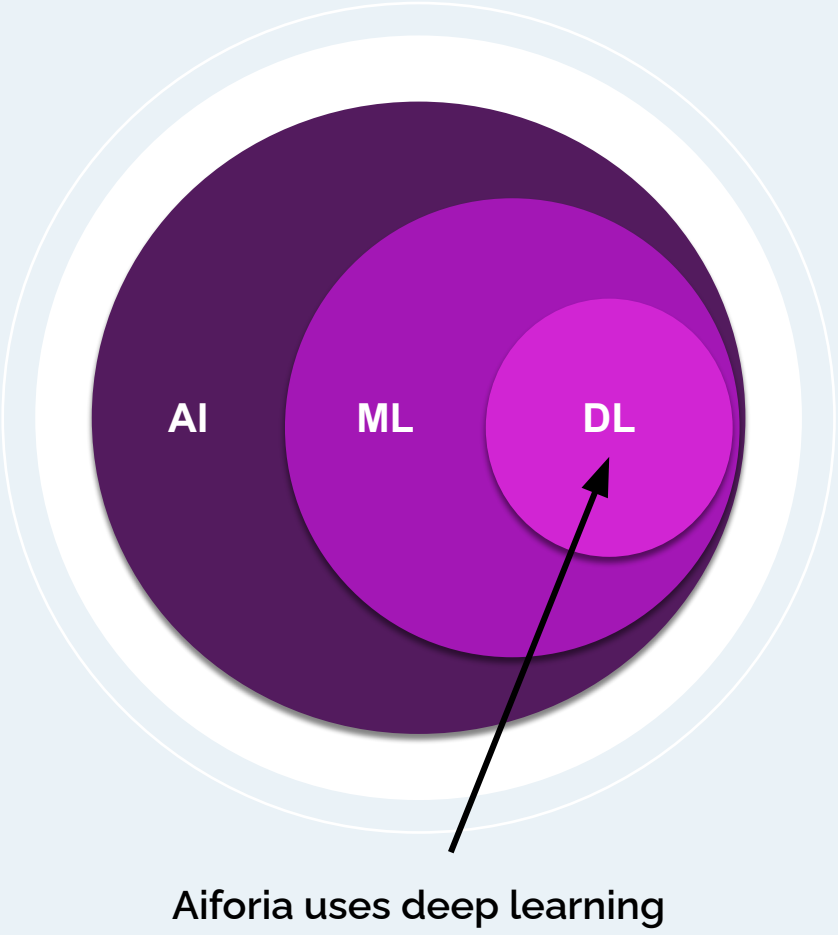
The most powerful AI technology for image based analysis today

Artificial intelligence (AI)
Techniques that enables computers to mimic human intelligence

Machine learning (ML)
Use of data and algorithms to imitate the way that humans learn

Deep learning (DL)
A subset of ML, often referred to as the next-generation of machine learning, as DL learns from data without external feature extraction and thus does not have the bias and limitation of feature extraction

The improved access to cheap neural network processing power (GPU, TPU, NPU) now enables the use of Deep Learning AI in daily practice

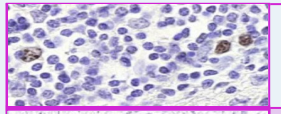
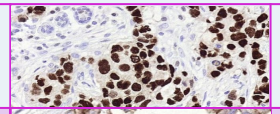
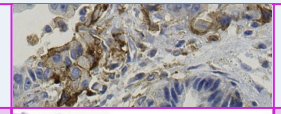
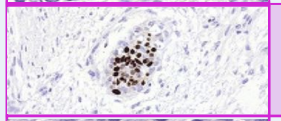
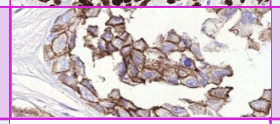
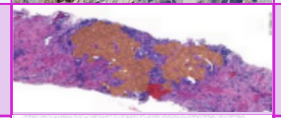
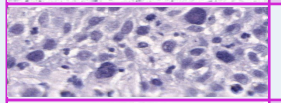
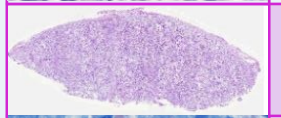
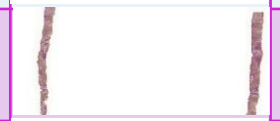
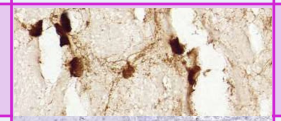
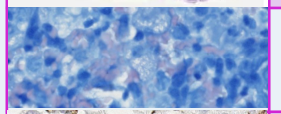
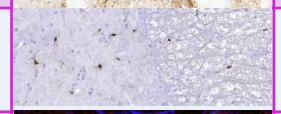
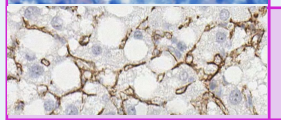
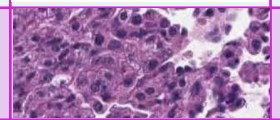
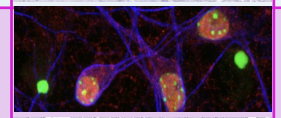
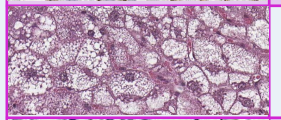
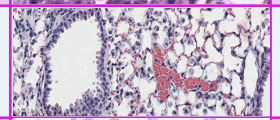
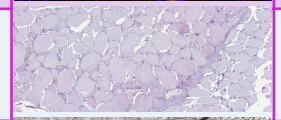
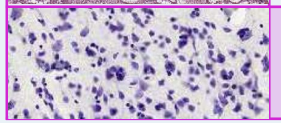
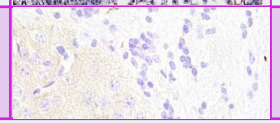


One cloud-based platform for multiple needs

AI model development tool to create, customize and validate proprietary deep-learning AI models to various needs

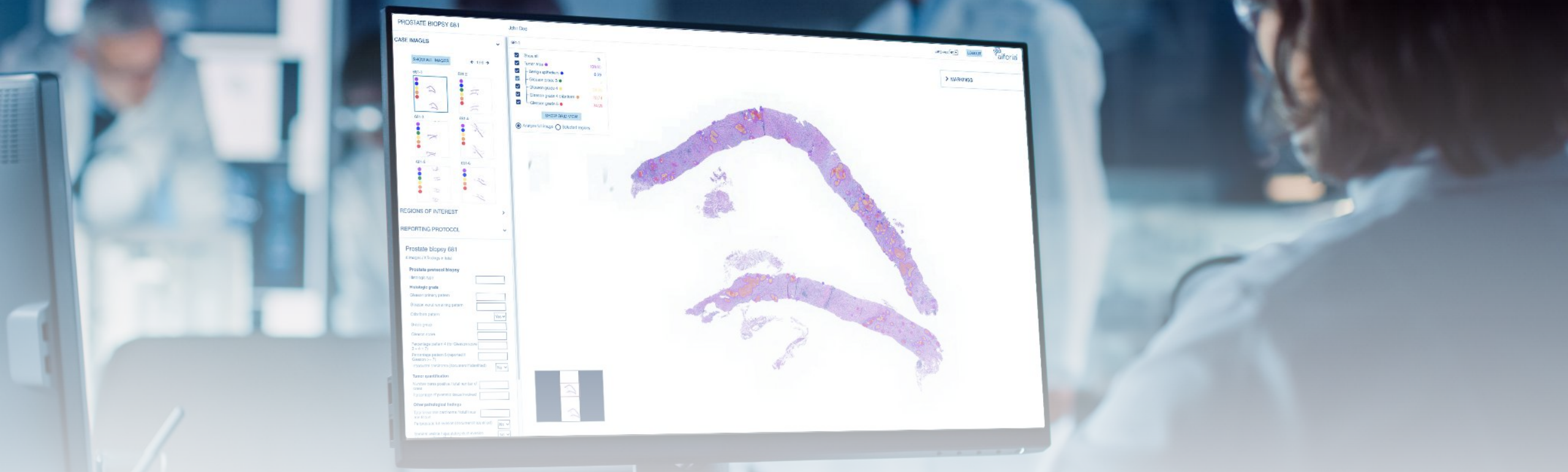
Ready-to-use certified and validated AI models that can be deployed rapidly

Over 400 AI models have been built with Aiforia Create for research and discovery

	**Breast Cancer Ki67**		**Breast Cancer Estrogen Receptor** Detection of positive and negative ER cells		**Lung Cancer PD-L1 Exp Analysis** quantifying pos & neg cells in NSCLC tumor epithelium
	**Breast Cancer Progesterone** Detection of positive and negative PR cells		**Breast Cancer HER2 Analysis** quantify HER2 pos & neg cells and HER2 scoring		**Prostate Cancer Gleason Grading**
	**Breast Cancer Grading -** Mitosis Scoring		**Liver parenchyma & cytokeratin quantification**		**Malaria infected red blood cell analysis** healthy / malaria infected / white blood cell
	**Kidney glomeruli counting** quantify the number of viable and sclerotic glomeruli in kidney biopsy		**Liver non-alcohol related steato-hepatitis & fibrosis scoring**		**Rat motor neurons** detect and quantify motor neurons in rat brain tissue samples
	**Acid Fast Bacteria Myco-** bacterium tuberculosis mZN		**Liver steatosis, inflammation, ballooning & fibrosis classification**		**Rat microglia iba1 analysis** detection & quantification microglia in spinal cord tissue
	**Mouse liver lobular fibrosis** Collagen-I IHC		**Mouse Lung NSCLC tumor grading**		**Multi-Channel IF Neuron Culture** Intensity analysis in the nuclear & somatic compartments
	**Mouse Liver Steatosis** Quantification Classification		**Mouse Lung tuberculous** granulomas detection		**Atlantic salmon skin segmentation** of Connective Tissue/Dermis/Epidermis/Adipose Tissue
	**Human brain thionine** glial cells & neurons counter in a thionine stained human brain		**Mouse alpha-synuclein** detect and count neuron cell bodies with Lewy bodies in a mouse brain		**Rat astrocytes counter GFAP** identify and quantify astrocytes in GFAP stained rat spinal cord sections

Over 80 scientific articles and posters!

& many more



Expanding portfolio of AI-assisted and automated diagnostic tools

Aiforia's 6 CE-IVD marked solutions

Breast Cancer

CE-IVD marked Aiforia® Clinical AI Model for Breast Cancer; Ki67 ✔

CE-IVD marked Aiforia® Clinical AI Model for Breast Cancer; ER ✔

CE-IVD marked Aiforia® Clinical AI Model for Breast Cancer; PR ✔

Lung Cancer

CE-IVD marked Aiforia® Clinical AI Model for Lung Cancer; PD-L1 ✔

Prostate Cancer

CE-IVD marked Aiforia® Clinical AI Model for Prostate Cancer; Gleason Grade Groups ✔

Clinical Suite Viewer

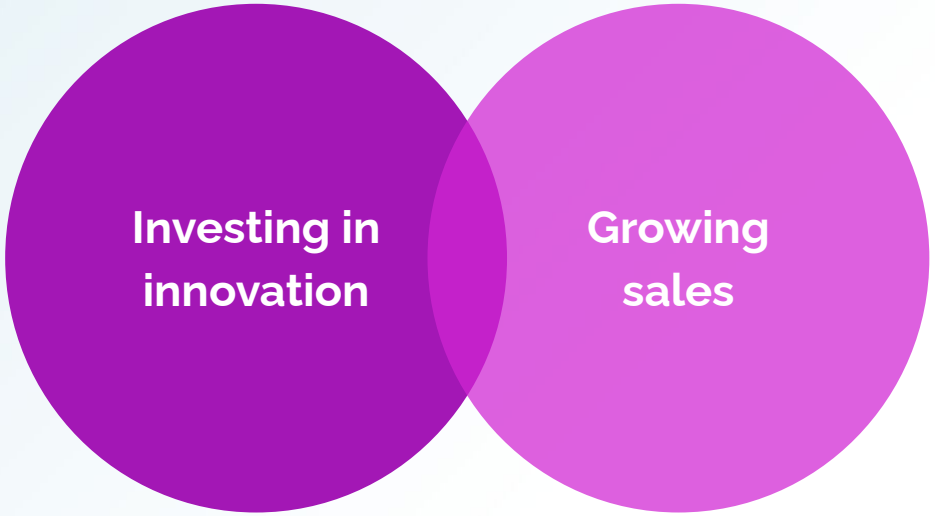
CE-IVD marked Aiforia® Clinical Suite Viewer for cancer diagnostics ✔

Aiforia® Clinical AI Model for Prostate Cancer; Gleason Grade Groups

Growth strategy execution

Key efforts for the rest of 2023 and beyond

- Building comprehensive solutions for the clinical diagnostics market
- Adopting new regulatory frameworks in both EU and the US
- Continue developing features and applications for the preclinical research market



- Acquiring new business with early adopters of digital pathology
- Expanding existing accounts
- Scaling through partner ecosystem
- Securing the position both in the US and Europe

Short-term business targets 2021–2023

6 CE-IVD marked AI models in portfolio

5/6

5 customers in clinical diagnostics

5/5

10 large pharmaceutical customers

10/10

Reach over 5,000 users

> 5,000 users

Mid-term business targets by 2030

- Product offering covers 80% of pathologist's diagnosing workflow
- Achieve a positive cash flow from operating activities by the end of 2025
- Revenue over 100 EURm
- Reach 20,000 users
- 50 key accounts (minimum 250 EUR thousand annual recurring revenue)

Summary of investment highlights

Digital pathology

a $3.5bn+ market opportunity by 2027 with strong unmet need and accelerating adoption

Value adding AI technology

validated, scalable, cloud-based software platform for AI-supported analysis of large medical images

Blue chip customer base

across clinical and preclinical pathology; collaboration with **Mayo Clinic**

Strong management team

with significant experience in healthcare, software and scaling up growth companies

Path to ~€100m sales by 2030

and operating cash flow positive in 2025; scope for acceleration under private ownership

Platform opportunities

beyond current plan: expansion into other medical images (e.g. X-ray, ultrasound) and complementary workflow solutions

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AI for image analysis

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