

A person wearing a white lab coat, hairnet, and face mask is holding a large, circular silicon wafer with both hands. The wafer has a grid of small, square chips on its surface. The background is a clean, white laboratory setting.

# WELCOME

# SENSIRION

## Sensirion Capital Markets Day 2024

5th November 2024

**SENSIRION**



Please note that this event  
will be recorded.



LIVE



18:42 / 40:93



SENSIRION



# Disclaimer

Certain statements in this document are forward-looking statements, including, but not limited to, those using words such as "believe", "assume", "expect" and other similar expressions. Such forward-looking statements are based on assumptions and expectations and, by their nature, involve known and unknown risks, uncertainties and other factors that could cause actual results, performance or achievements to differ materially from those expressed or implied by the forward-looking statements. Such factors include, but are not limited to, future global economic conditions, changed market conditions, competition from other companies, effects and risks of new technologies, costs of compliance with applicable laws, regulations and standards, diverse political, legal, economic and other conditions affecting markets in which Sensirion operates, and other factors beyond the control of Sensirion. In view of these uncertainties, you should not place undue reliance on forward-looking statements. Sensirion disclaims any intention or obligation to update any forward-looking statements, or to adapt them to future events or developments.

Sensirion uses certain key figures to measure its performance that are not defined by Swiss GAAP FER. These alternative performance measures may not be comparable to similarly titled measures presented by other companies. Additional information on these key figures can be found at [www.sensirion.com/additional-performance-measures](http://www.sensirion.com/additional-performance-measures).

This document is not an offer to sell, or a solicitation of offers to purchase, any securities.



# Today's presenters 1 of 2

Years at Sensirion



**Moritz Lechner**  
Co-Chairman of the Board

- Co-Founder of Sensirion and Co-CEO until 2016
  - PhD at ETH Zurich in Microelectronics and Detector Technology
- 26 years



**Felix Mayer**  
Co-Chairman of the Board

- Co-Founder of Sensirion and Co-CEO until 2016
  - PhD at ETH Zurich in Microtechnology
- 26 years



**Marc von Waldkirch**  
Chief Executive Officer

- CEO since 2016
  - VP R&D 2011-2016
  - PhD at ETH Zurich in Electrical Engineering
- 19 years



**Matthias Gantner**  
Chief Financial Officer

- CFO since 2012
  - Dipl.-Betriebswirt. Pforzheim
- 12 years

Management team represents combined >100 years at Sensirion



# Today's presenters 2 of 2

## Years at Sensirion



**Franziska Brem**  
Vice President Operations

- VP Operations since 2023
- PhD at ETH Zurich in Material Sciences

11 years



**Johannes Schumm**  
Vice President R&D

- VP R&D since 2016
- PhD at ETH Zurich in Electrical Engineering

14 years



**Lukas Bürgi**  
Director R&D Sensor Innovation

- Director R&D Sensor Innovation since 2012
- PhD at EPFL in Physics

17 years



**Lars Dünnhaupt**  
Director Investor Relations

- Director IR since 2023
- Diplom-Kaufmann at University of Mannheim

1 year

Management team represents combined >100 years at Sensirion



# Today's agenda

Indicative Time (CET)	Time	Topic	Speaker
11:00 – 11:05	5 min	Welcome remarks	Lars Dünnhaupt
11:05 – 11:20	15 min	Keynote of the Founders	Moritz Lechner / Felix Mayer
11:20 – 11:40	20 min	Sensirion at a glance	Franziska Brem
11:40 – 11:50	10 min	Strategic achievements since last Capital Market Day	Marc von Waldkirch
11:50 – 12:20	30 min	Strategy Update	Marc von Waldkirch
		Strategic focus 1	Johannes Schumm
12:20 – 12:40	20 min	Q&A part 1	All
<b>12:40 – 13:40</b>	<b>60 min</b>	<b>Lunchbreak with option to visit Product demo &amp; Q&amp;A</b>	<b>All</b>
13:40 – 14:00	20 min	Strategic focus 2	Marc von Waldkirch
14:00 – 14:15	15 min	Strategic focus 3	Lukas Bürgi
14:15 – 14:30	15 min	Our sustainability journey & business	Lars Dünnhaupt
14:30 – 14:40	10 min	Finance Strategy	Matthias Gantner
14:40 – 14:45	5 min	Wrap up & Mid-term guidance	Marc von Waldkirch
14:45 – 15:15	30 min	Q&A part 2	All
15:45 – 16:30	45 min	Optional, Production tour	Registered participants only



# KEYNOTE of the founders

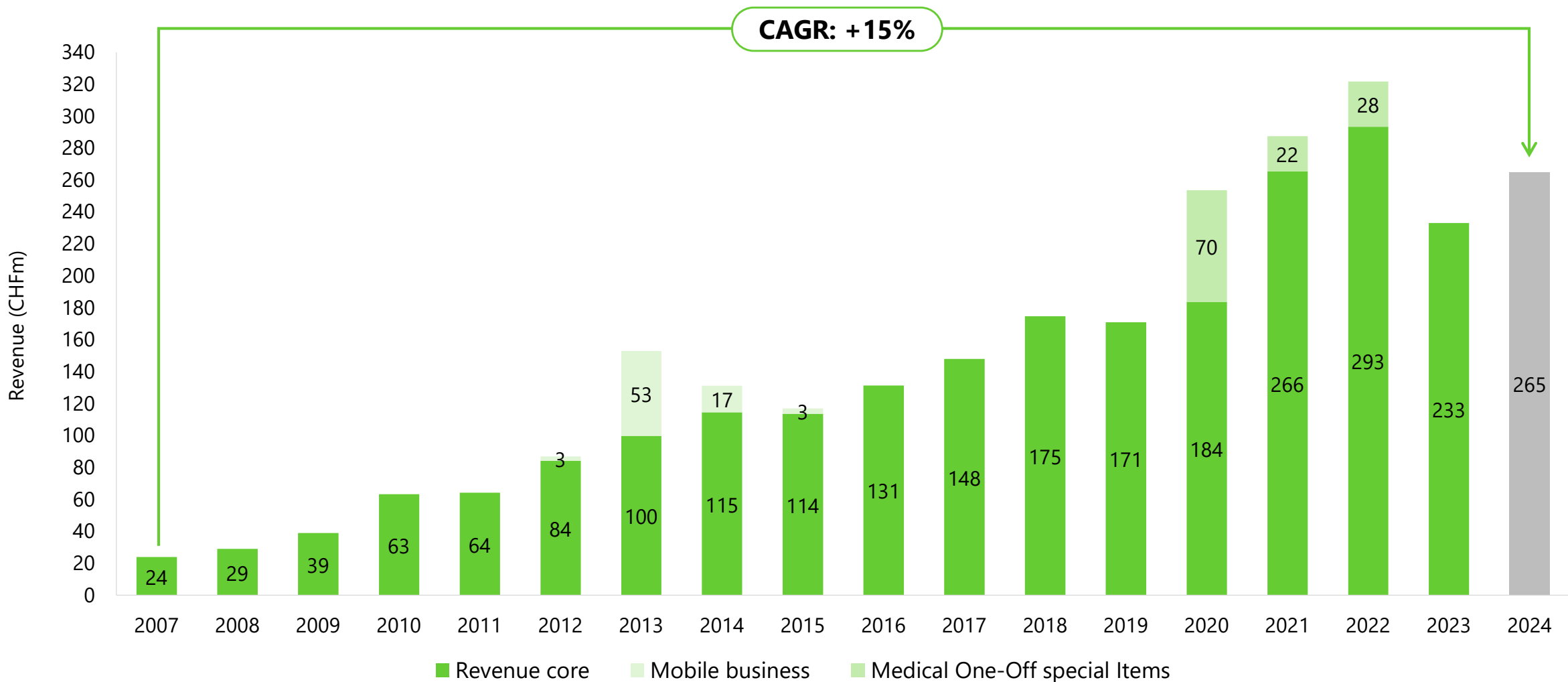


SENSIRION



# Sensirion continuous growth is based on innovation

CAGR of 15% over 17 years



1 Figures for FY 2024 according to mid-point of guidance



# SENSIRION at a glance



SENSIRION



A woman with long brown hair, wearing a green ribbed sweater, stands with her arms raised in a desert landscape. She is looking up at a bright blue sky filled with white, fluffy clouds. The background shows rolling sand dunes under the same sky.

“

We make the difference in sensing  
for a better world

Our Mission Statement

---



# We make the difference



“

We combine the “sensor world” with the scalable Semicon production world.

We want to be the leading provider of sensor components and want to further integrate these components into modules and sensor solutions in order to create clear added value for our OEM customers, with a sustainable competitive advantage.

”



# Sensirion at a glance



A **pure-play sensor** company, driven by mega trends for long-term growth



A deeply anchored **mindset of innovation**: it's in our DNA to continuously seek new challenges and to drive disruptive innovation



**SensiSpirit**: our dedicated and award-winning entrepreneurial culture to attract and retain best talents



Leading position in **environmental & flow sensors** as well as entering the **leak detection** market



**Highly diversified** in end markets; long-standing customer relationship with top players in all fields



~200 million sensors produced per year  
~1.5 billion sensors sold worldwide

## Sensirion's favorable position



Environmental sensing solutions



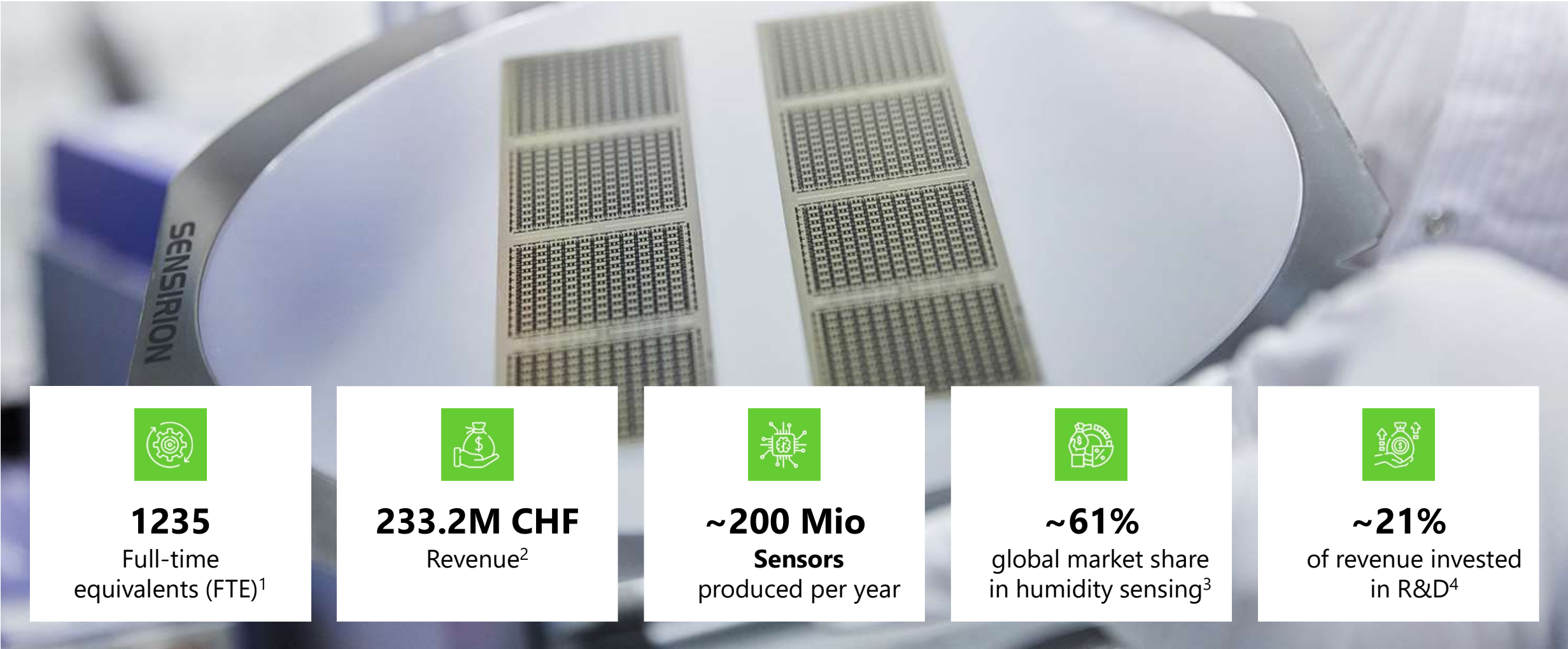
Flow sensing solutions



Leak detection



# Sensirion at a glance



<sup>1</sup> As of June 30, 2024      <sup>2</sup> FY 2023      <sup>3</sup> Based on internal estimates      <sup>4</sup> Average 2018 – 2023

13      © Copyright Sensirion, Switzerland



**1998**



1 humidity sensor  
(~11 cm)

---

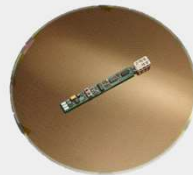
**CMOSens®**



1 humidity sensor  
( $< 1\text{mm}$ )

---

**CMOSens®**



up to 75'000 sensors  
per wafer

---

**PIONEER**  
in sensor  
miniaturization





Differential Pressure



Particulate matter



CO<sub>2</sub> Sensing


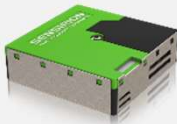
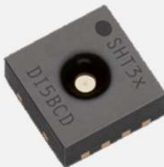



Environmental combo for  
PM, RH/T, VOC, NO<sub>x</sub>

**RINSE**  
and repeat



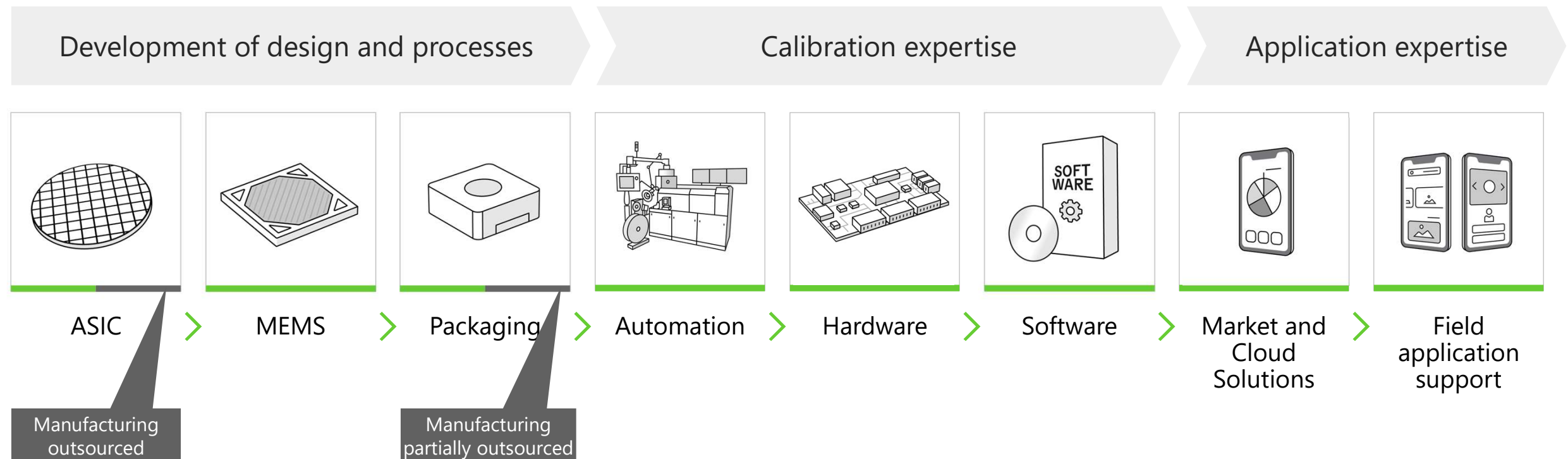
# Sensirion drives innovation along multiple layers

R&D spending	Innovation		Monetization			Example
	~30%	Applications and market solutions	0-2 years	Applications and solutions derived from existing platform technologies	Customer engagement, profitability and cash flow	Gas meter 
	~60%	Platform development	2-6 years	Building the foundation for specific applications and solutions	Scalability and operating leverage	PM2.5 sensor  RHT sensor 
	~10%	Industry firsts	After 6 years	Technological innovations and disruptive concepts	Long-term market leadership	Miniaturized CO <sub>2</sub> sensor 



## OUR COMPETENCES

# ... for innovation





# Sensirion supports you through the day

6 am



7 am



10 am



6 pm



11 pm

## Breakfast at home



Energy optimization in the refrigerator



## Commuting



Car cabin air monitoring & car emission optimization



## Work



Optimized ventilation & Indoor Air Quality (CO<sub>2</sub>)



## Family time



Air Purifier Heating system



## Sleeping






























CPAP-devices for sleep apnoe patients



**SENSIRION**



# Wide range of solutions across diverse end markets

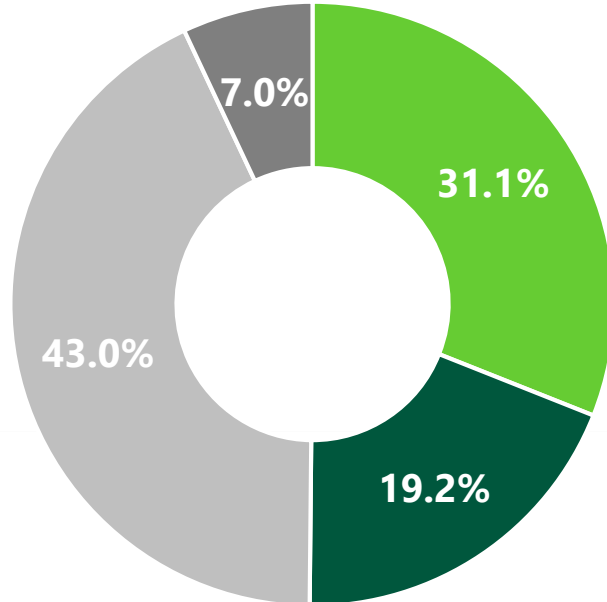
		Innovation	Automotive	Medical	Industry	Consumer
		% of FY 2023 revenue	31%	19%	43%	7%
<div>  <b>Environmental sensing solutions</b> </div>	Humidity / temperature					
	Gas (VOC, Formaldehyde)					
	Carbone dioxide (CO <sub>2</sub> )					
	Particulate matter					
	Gas chromatography					
	Automotive Module					
<div>  <b>Flow sensing solutions</b> </div>	Differential pressure					
	Mass flow					
	Gas metering					
	Liquid flow					
<div>  <b>Leakage detection solutions</b> </div>	Refrigerants leakage					
	Methane leakage					
	CO <sub>2</sub> leakage					
	Hydrogen leakage					

NEW

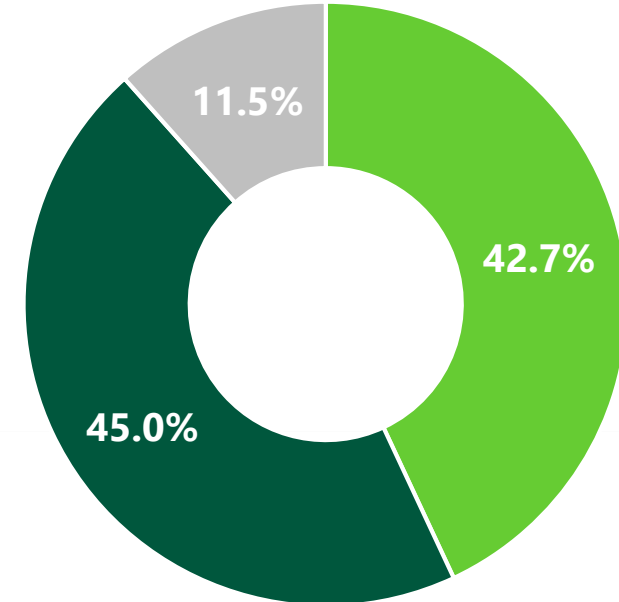


# Stability through strong market und customer diversification

Highly diversified in end markets and regions (2023)



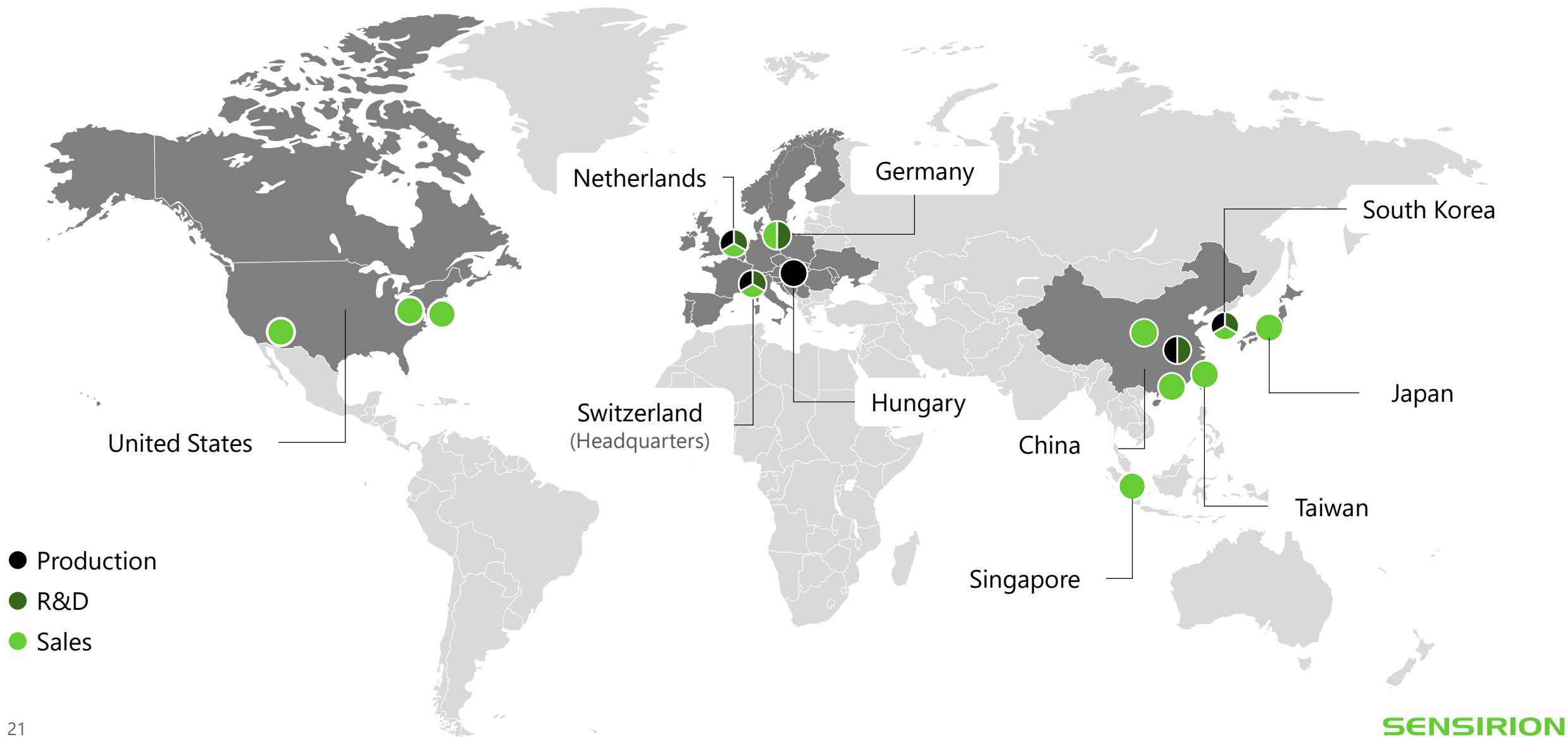
■ Automotive ■ Medical ■ Industrial ■ Consumer



■ APAC ■ EMEA ■ Americas



# Global footprint ensures customer proximity





A woman with long brown hair, wearing a green ribbed sweater, stands with her arms raised and eyes closed, looking up at a bright blue sky filled with white, fluffy clouds. The background shows a hint of a desert landscape with low sand dunes.

“

We make the difference in sensing  
for a better world

Our Mission Statement





Fair and  
honest



Top  
performance



## INNOVATION NEEDS A DEDICATED COMPANY CULTURE

A company culture dedicated to **long-term innovation...**

... with an **entrepreneurial mindset** to push limits...

... and built by **exceptional people**

**SENSIRION**



# STRATEGIC ACHIEVEMENTS since our last CMD 2021



**SENSIRION**



# Main strategic achievements since 2021



## **Strategic goal of CMD 2021 achieved:**

Establish Sensirion as a leading manufacturer of environmental sensors

---

Developed the products for the next growth cycle

---

Ongoing globalization of our operational footprint

---

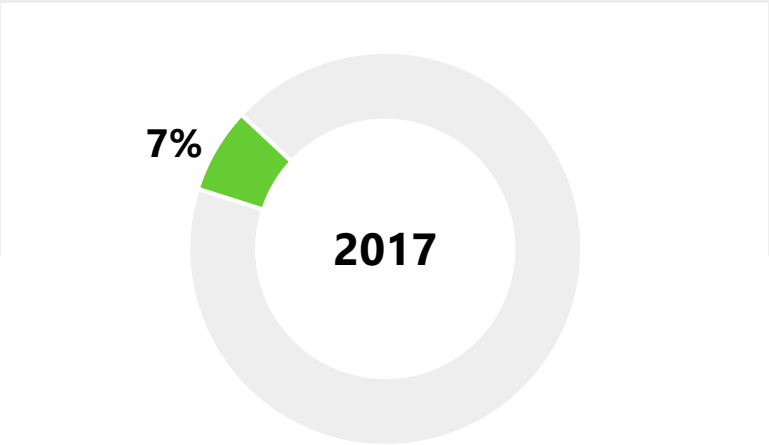
Captured several short-term market opportunities through agility and customer proximity






# Strategic goal of CMD 2021 achieved

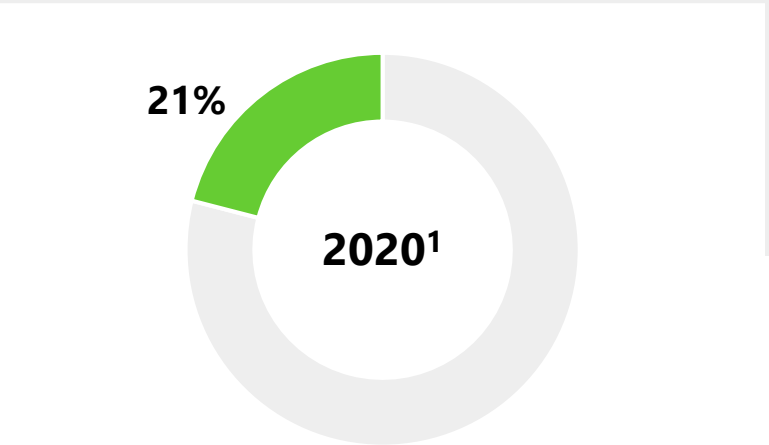
Sensirion established as one of the Top-2 manufacturers for environmental sensors




## Contribution of “environmental sensors (w/o Humidity)” to Sensirion group sales (in % of revenue)



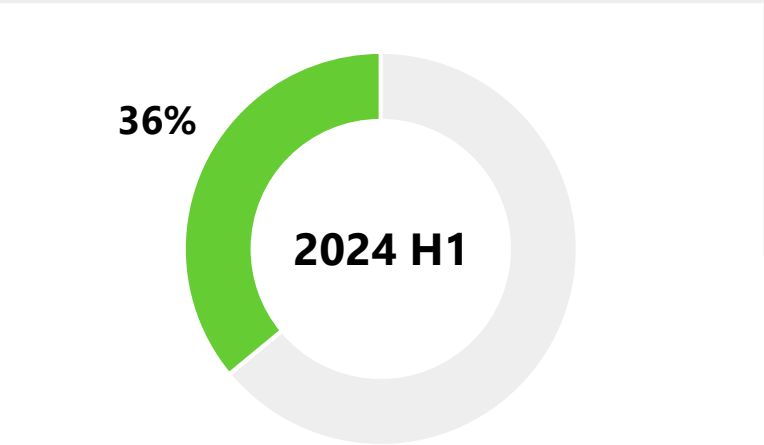
Humidity/temperature	
Gas flow	
Liquid flow	





3 product families



Humidity/temperature	
Gas flow	
Liquid flow	

7 product families



Gas: VOC, formaldehyde	
CO <sub>2</sub>	
PM2.5	
Automotive modules	

<sup>1</sup> Excluding COVID-19-related ventilator business



# Developed the products for the next growth cycle

We are ready to capture the next growth cycle, supported by secular megatrends

**Mid-term:**  
Miniaturized versions of environmental sensors

**Carbon dioxide**



**Particulate matter**



**Formaldehyde**



**Mid-term:**  
New product family of gas leakage sensors

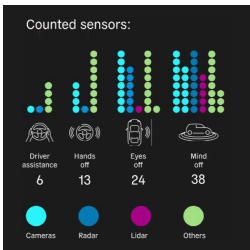


**Methane leakage detection**

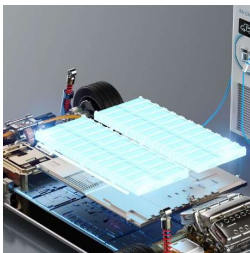


**Gas leakage sensor for AC (A2L & A3)**

**Mid-to-long term:**  
Autonomous Driving and Electric Vehicles



**Advanced Driver Assistance System (ADAS)**



**Battery Safety**

**Longer term:**  
Advanced Medical solutions (in development)



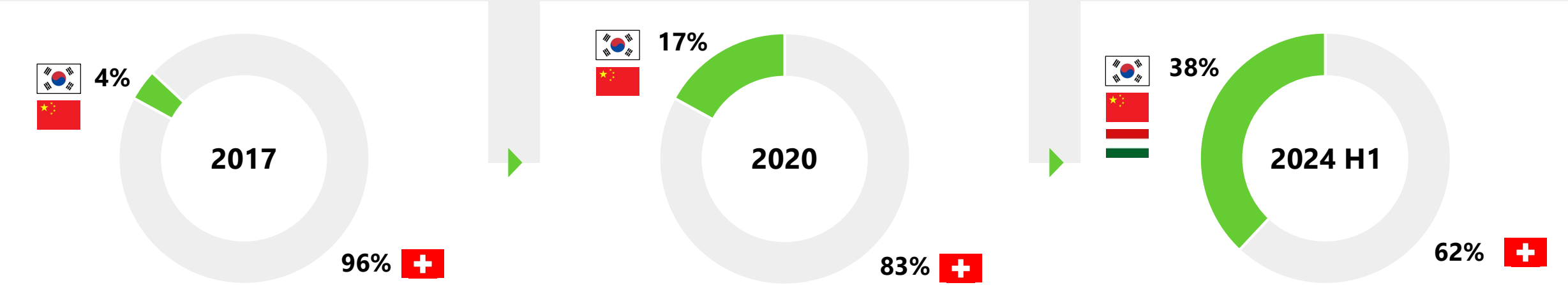
**Advanced medical solution combining breath and gas analysis**



# Expanded global operational footprint

Sensirion's operational footprint is expanding strongly to Asia and Eastern Europe

**Contribution to group output in % of revenue** (excl. COVID-19-related ventilator business)





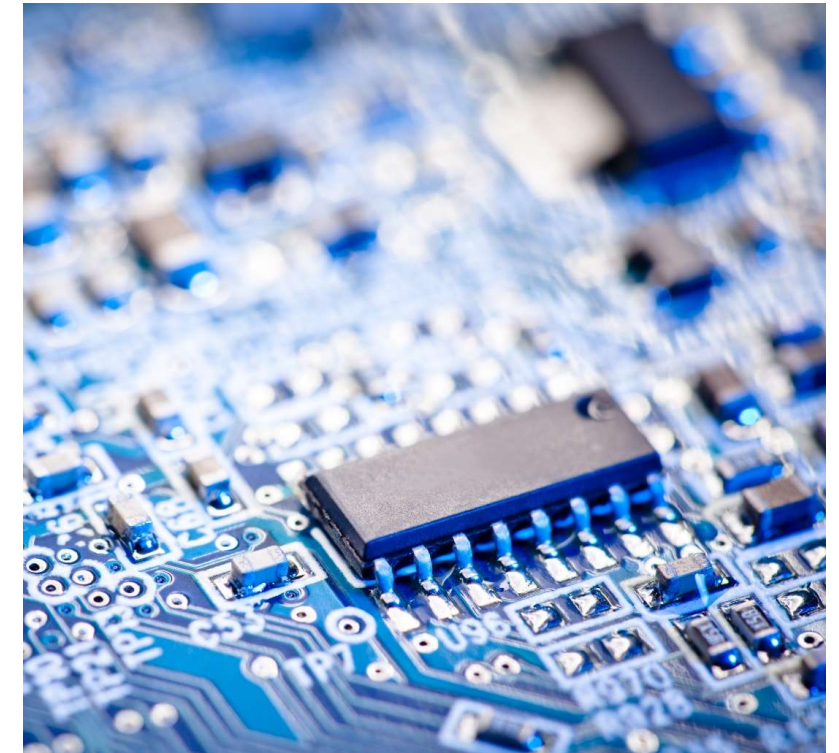
# Captured several short-term market opportunities



Pandemic-driven extra medical ventilator business  
**Revenue +92 MCHF**



Medical CPAP extra-business  
**Revenue +28 MCHF**






Market share gains thanks to **best-in-class lead times** during supply chain crisis



# We delivered better than we guided

2020-24 average to be at and above the top end on all guided KPI

(CHFm)	Mid-term guidance as of March 2021 <sup>1</sup>	Average 2020 – 2024
 Averaged annual revenue growth rate (CAGR) <sup>2,3</sup>	Low- to mid-teens %	<b>~12% (excl. fx effects) <sup>2,3</sup></b> <b>~10% (incl. fx effects) <sup>2,3</sup></b>
 Gross margin	Stable 52-54%	<b>~56% <sup>3</sup></b>
 EBITDA margin <sup>4</sup>	Mid- to high-teens %	<b>~20% <sup>3</sup></b>

<sup>1</sup> At fixed foreign currency exchange rates; mid-term means “averaged target over 3-5 years”

<sup>3</sup> Figures for FY 2024 according to mid-point of official guidance

<sup>2</sup> Without COVID-19-related one-off ventilator business

<sup>4</sup> Adjusted for AiSight one-off impairment and restructuring costs



# STRATEGIC UPDATE





# Strong underlying megatrends drive innovation and growth

Sensirion's sensor solutions are critical for many applications across these megatrends



## Energy efficiency

- Scarcity of resources
- Governmental and societal initiatives



## Environmental protection

- Decarbonization
- Electrification
- Climate change



## Health and aging society

- Economic development
- Increasing health costs
- Increasing awareness around health & comfort



## Safety and regulations

- Increasing awareness of safety
- Increasing regulation level

**We can “make the difference” to enable these megatrends by our sensor solutions**



# Growth along three strategic foci

Our new strategic foci



**Strategic focus 3**

**Lay the technological foundation for long-term growth**

---



**Strategic focus 2**

**Go beyond our core to foster additional growth opportunities in adjacent market fields**

---



**Strategic focus 1**

**Drive and expand our strong market position in our core markets of environmental and flow sensing**

---



**Foundation**

**“SensiSpirit”: unique culture of innovation and entrepreneurship**



## STRATEGIC FOCUS 1



**SENSIRION**



# Growth along three strategic foci

Our new strategic foci



Strategic focus 3

Lay the technological foundation for long-term growth



Strategic focus 2

Go beyond our core to foster additional growth opportunities in adjacent market fields



Strategic focus 1

**Drive and expand our strong market position in our core markets of environmental and flow sensing**

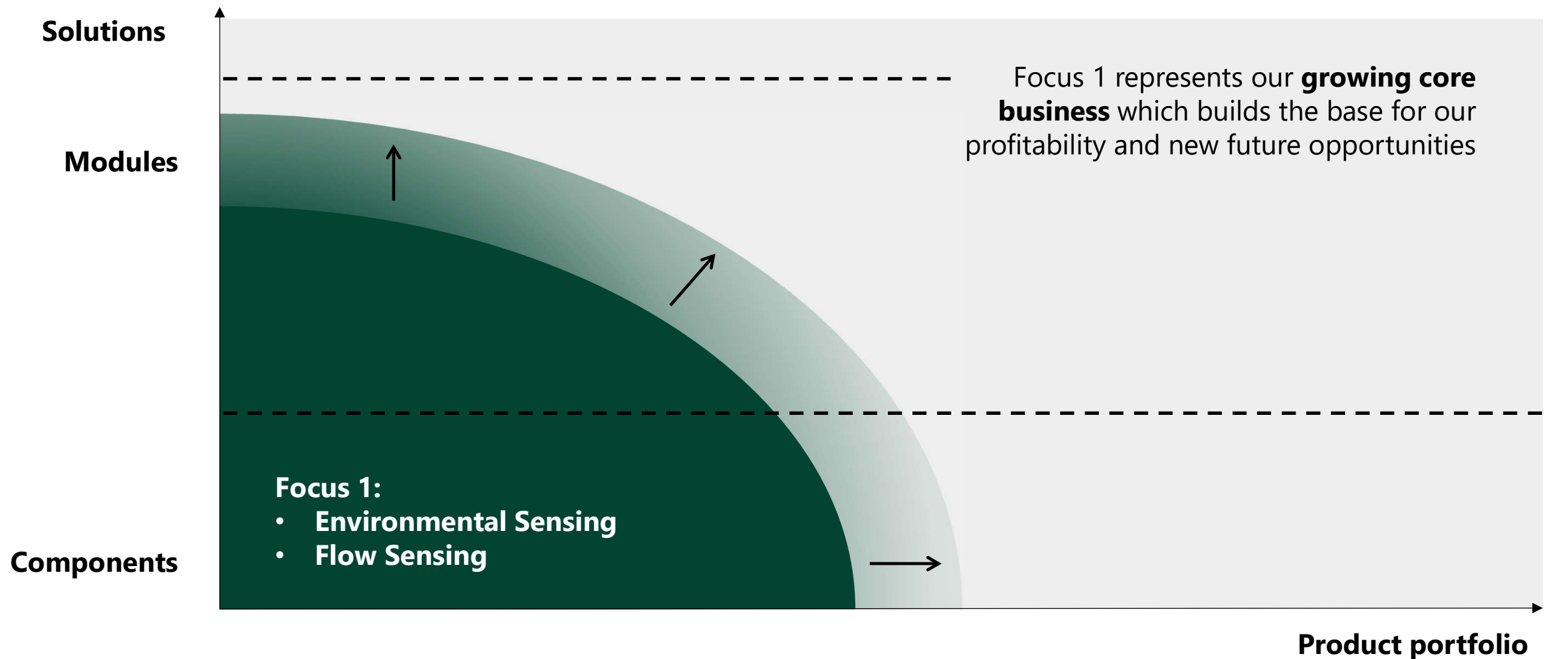


Foundation

“SensiSpirit”: unique culture of innovation and entrepreneurship



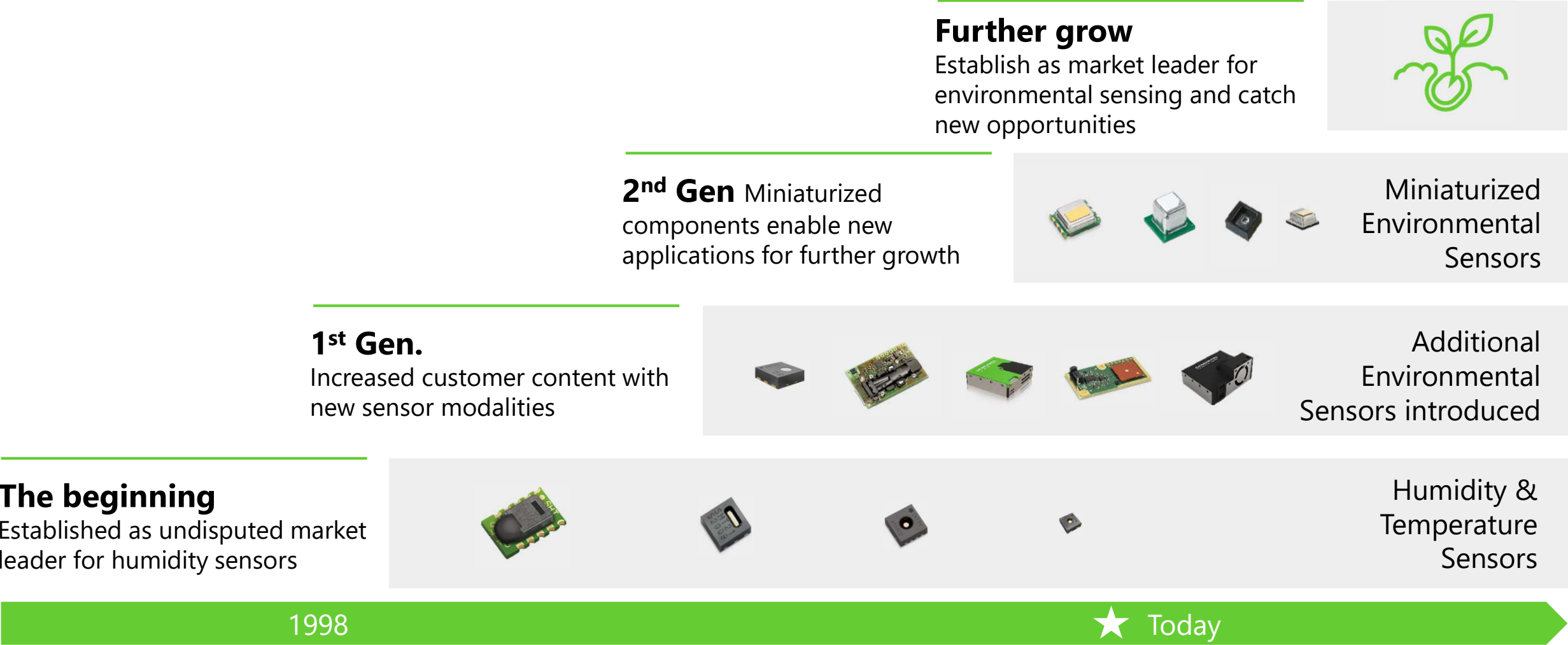
# Drive and expand our strong market position in our core markets





# Evolution of environmental sensing

Based on our humidity business we evolved Top-2 for environmental sensing





# Humidity sensing

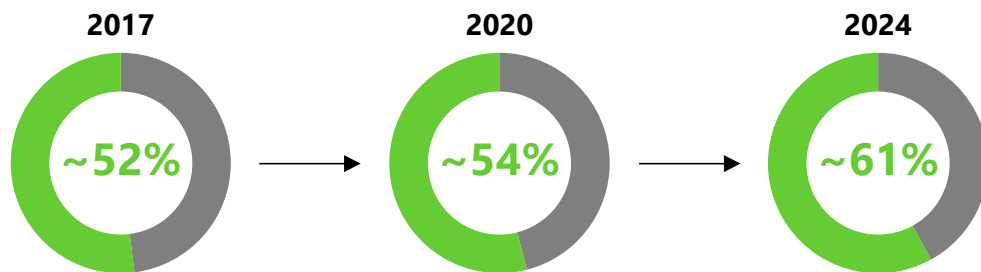
Gaining market share in a growing market



## Market

- Dominating the humidity market due to long-lasting customer relationships with all major players
- Consolidating market with single digit growth
- Some competitors (e.g. ST, Denso, Alps, etc.) exiting the humidity market

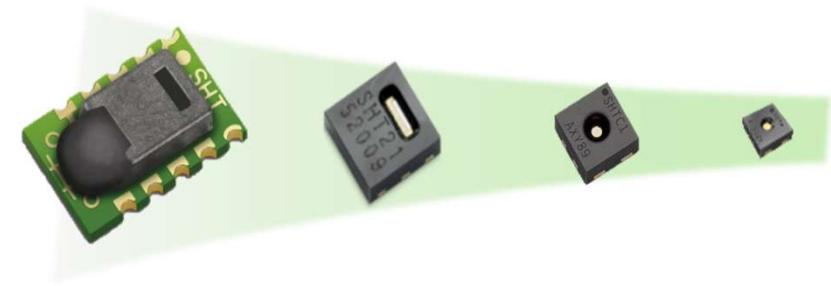
## Sensirion's global RHT market share



## Continuous innovation with our new 4<sup>th</sup> generation

- 70% smaller sensor volume optimizes costs and raises market entry barriers
- Top performance and cost efficiency open new applications in elastic markets
- Enable premium applications with individual calibration certificates and market specialization

## Evolution of 4th humidity generations





# Humidity sensing

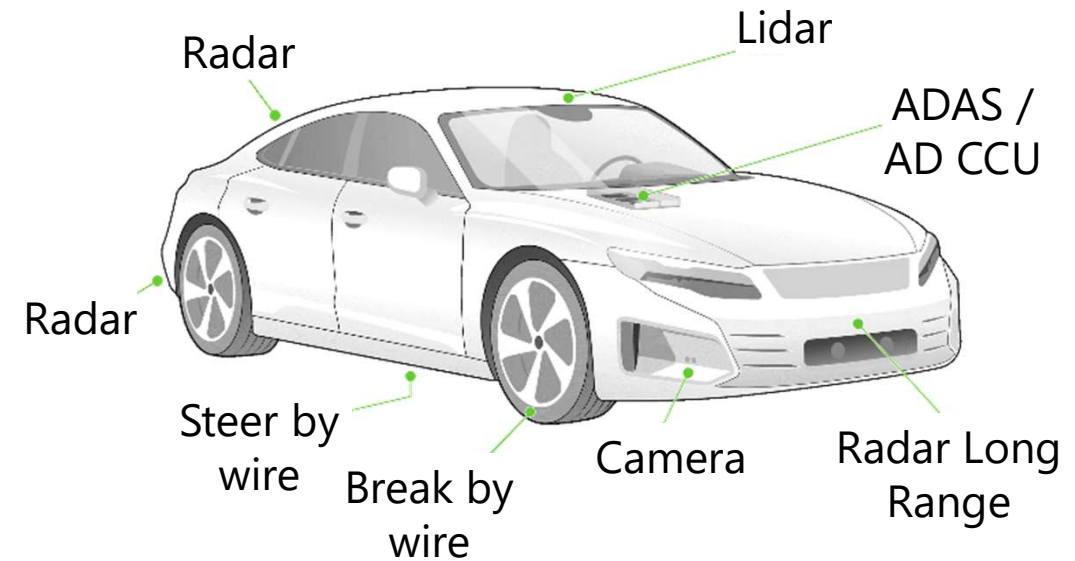
Keeping profitable business and building foundation for growth



## Cost-efficiency and specialization create new applications

Example: Safety for autonomous driving and electrification

- Solution: Humidity sensor detecting water ingress before vehicle electronic fails and safety of the passenger compromises
- Our advantage: Proven track record, quality reputation, and ASIL-automotive capabilities (Automotive Safety Integrity Level)



## Sensirion strategy for the humidity market

### Consolidate market leadership

market understanding and customer focus

### Deliver solid results

leverage economies of scale and work in cost efficiency

### Ensure a resilient supply chain

dual sourcing critical materials and production sites



# Environmental sensing

Be the one-stop-shop for environmental sensing

**1<sup>st</sup> Product generation:**  
**Develop new sensor modalities for our existing customer base**



**Priority**

Time-to-market - “Fast market entry with innovation light”.



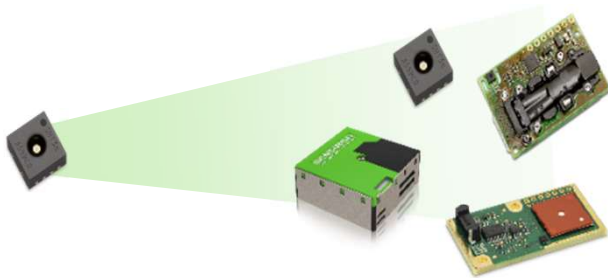
**Goal**

Test the market and gain market share quickly.



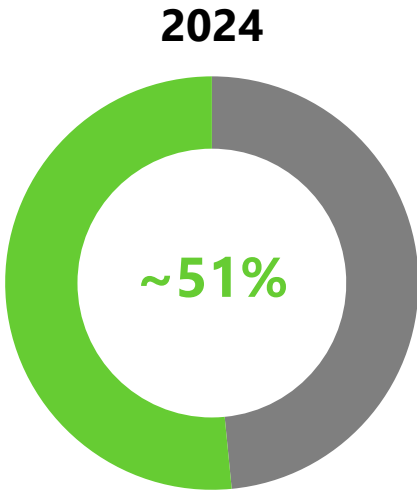
**Approach**

Use existing technology platforms to accelerate development.



**Example Application: Air Purifier**

Reached market share of ~51% for “smart” Air Purifier in 4 years



**Humidity**



**Humidity, VOC, PM2.5,  
Formaldehyde, CO2**



# Growth by miniaturization

Bring Sensirion’s technical competitive advantage into play

**2<sup>nd</sup> Product generation:**  
“Miniaturization unlocks new applications and drives volumes”



**Priority:** Decreased size and improved cost-structure opens new market opportunities



**Goal:** Providing industry-first sensor modalities gives Sensirion the advantage of the economy of scale

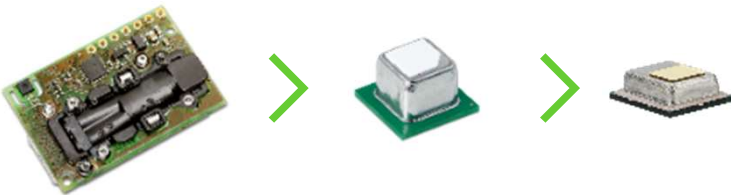


**Approach:** Leverage high-volume component competence and market know how for dedicated miniaturization development

**1<sup>st</sup> Gen:**  
established

**2<sup>nd</sup> Gen:**  
Start of production  
in 2025

**Carbon dioxide**



**Particulate matter**



**Formaldehyde**





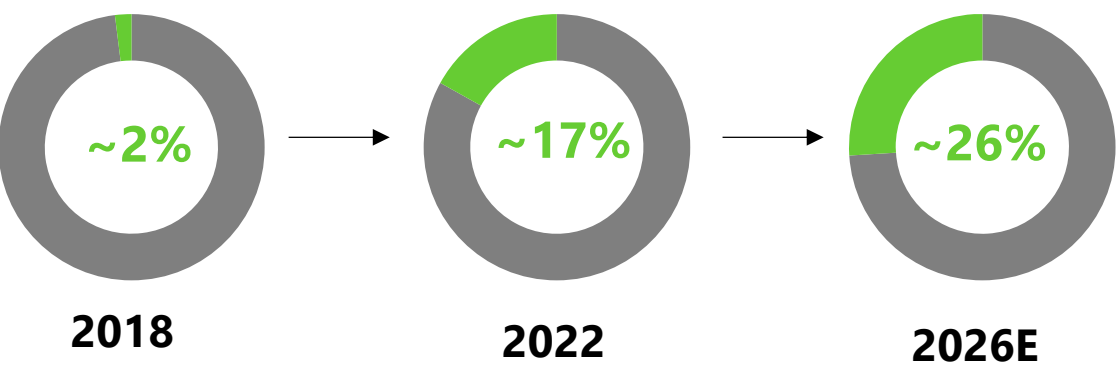
# CO<sub>2</sub> sensors

Satisfying the needs of a growing market

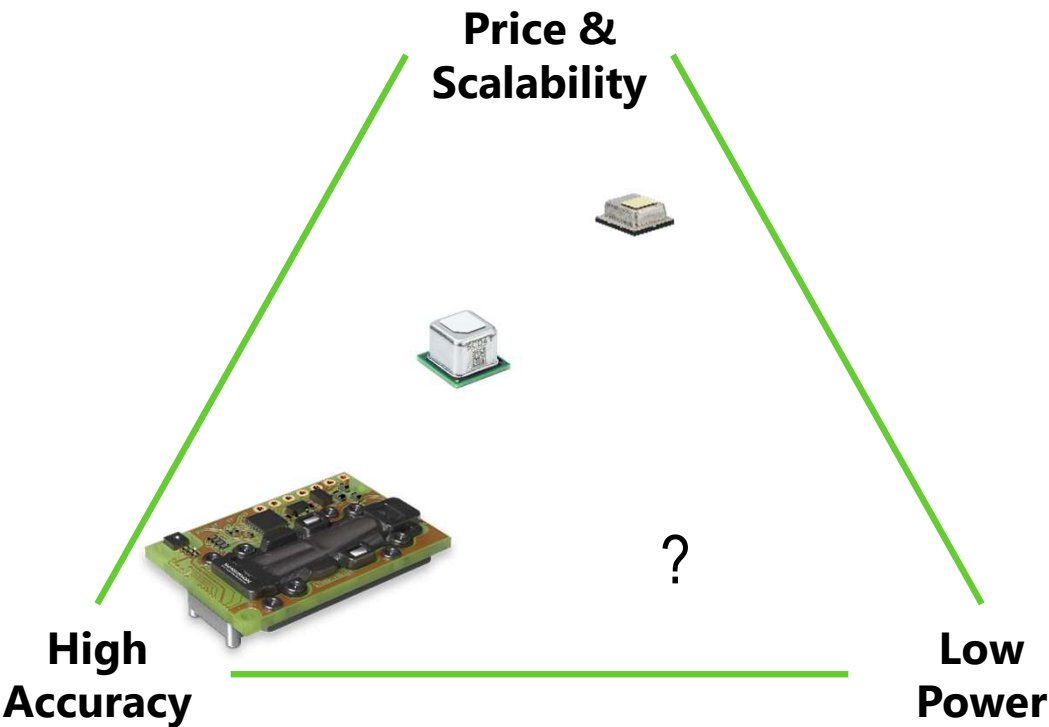
**CO<sub>2</sub> is the main index for Indoor Air Quality (IAQ)**

Our strategy of miniaturization enables efficient development of disruptive CO<sub>2</sub> sensor technologies covering various market needs.

**Sensirion’s market share CO<sub>2</sub> for indoor air quality**



**Sensirion’s unique CO<sub>2</sub> sensor portfolio addresses different market requirements**





# Further growth of existing environmental portfolio

Growth based on strong customer base and broad technology portfolio



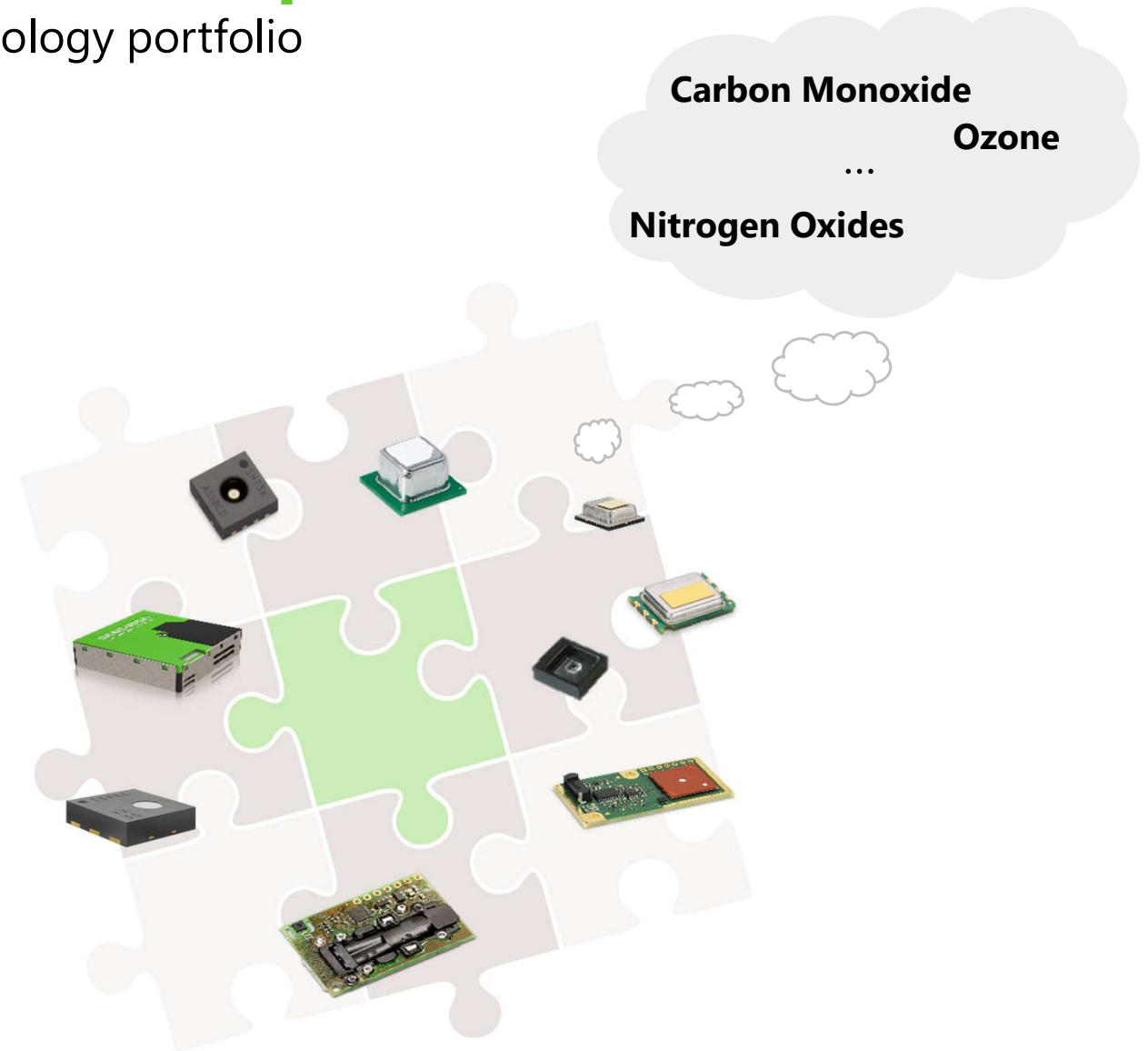
## Customer relationship

Our excellent customer intimacy allows us to identify future customer requirements



## Broad technology platform for further gas parameters

Variety of different sensing technology allows us to choose the best sensing principle for each application  
Our broad technology portfolio enables a fast market entry of any new sensor modality





# Flow sensing

Stronger than before the COVID pandemic

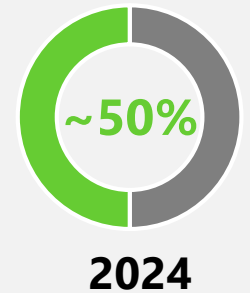
## Flow Market

- The flow sensor market is very fragmented
- Sensirion has a **high market share in certain flow applications**, e.g. CPAP devices (Continuous Positive Air Pressure)

Sensirion supplies to all **major CPAP** (sleep apnea) manufacturers, covering more than 90% of the market.

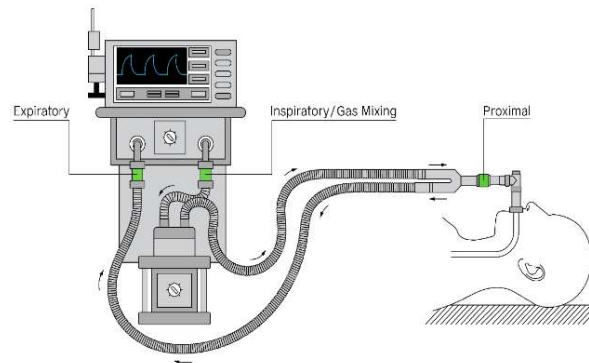


Ventilation (Medical) : ~50% growing with new projects and new customer



## Medical applications: stronger than before

Our ability to deliver flow sensors during the COVID pandemic increased our overall visibility and allowed us to sustainably expand our customer base.



**Entering new applications such as NO-dosing or heart-lung machines enable additional future growth in the medical market**



# Flow market

Examples of different growth opportunities



## HVAC-Building Control

Increasing market share by winning **new customers** and **increasing customer** content



## Gas Metering

Growth with new applications such as **biogas & hydrogen in "power to gas"** and **smart metering for clean cooking** in Africa and India



## «More than Flow»

Combination of know-how in **flow and environmental sensing** enables completely new fields (see strategic focus 2)



# Summary “Strategic Focus 1”

## Drive and expand our strong market position in our core markets of environmental and flow sensing

### What we have achieved



We continuously increased our content at existing customers and expanded our market shares in key applications



We grew with new customers using our sensor modalities



We implemented our strategy to turn our technical competitive advantage of miniaturization capabilities into an added customer value

### Outlook: We are well positioned



To monetize our brand-new portfolio of miniaturized environmental sensors to enable new growing applications



To leverage our technology platforms for future opportunities enabling sustainable growth in both fields: Environmental and flow sensing



To combine the environmental and flow world to enable new applications





## Q&A

Online Participants:

---

Please register your question via the Q&A or Chat functionality

---

The moderator will read out your questions.

---

Thank you very much.

---

---



## CMD LUNCH BREAK

12.40 - 13.40

### Good to know

Remember to visit the  
Sensirion product show.

**SENSIRION**



## STRATEGIC FOCUS 2



**SENSIRION**



# Growth along three strategic foci

Our new strategic foci



Strategic focus 3

Lay the technological foundation for long-term growth



Strategic focus 2

**Go beyond our core to foster additional growth opportunities in adjacent market fields**



Strategic focus 1

Drive and expand our strong market position in our core markets of environmental and flow sensing



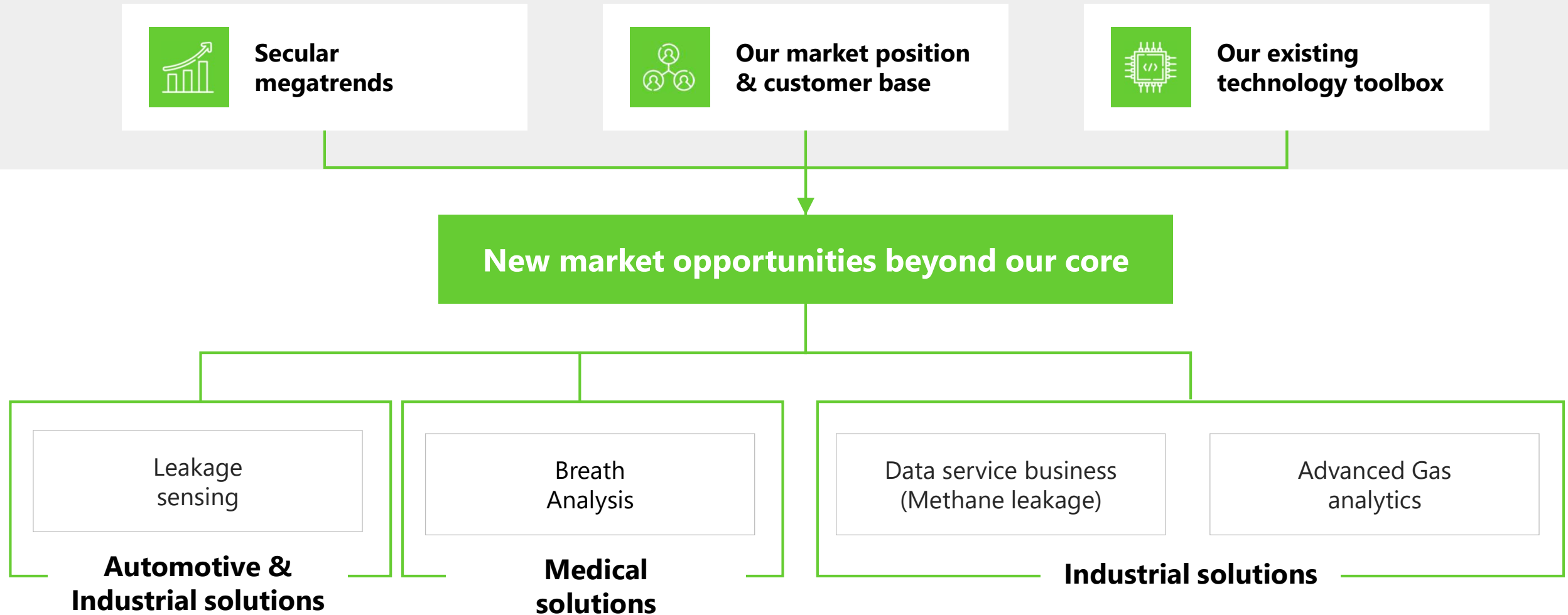
Foundation

“SensiSpirit”: unique culture of innovation and entrepreneurship



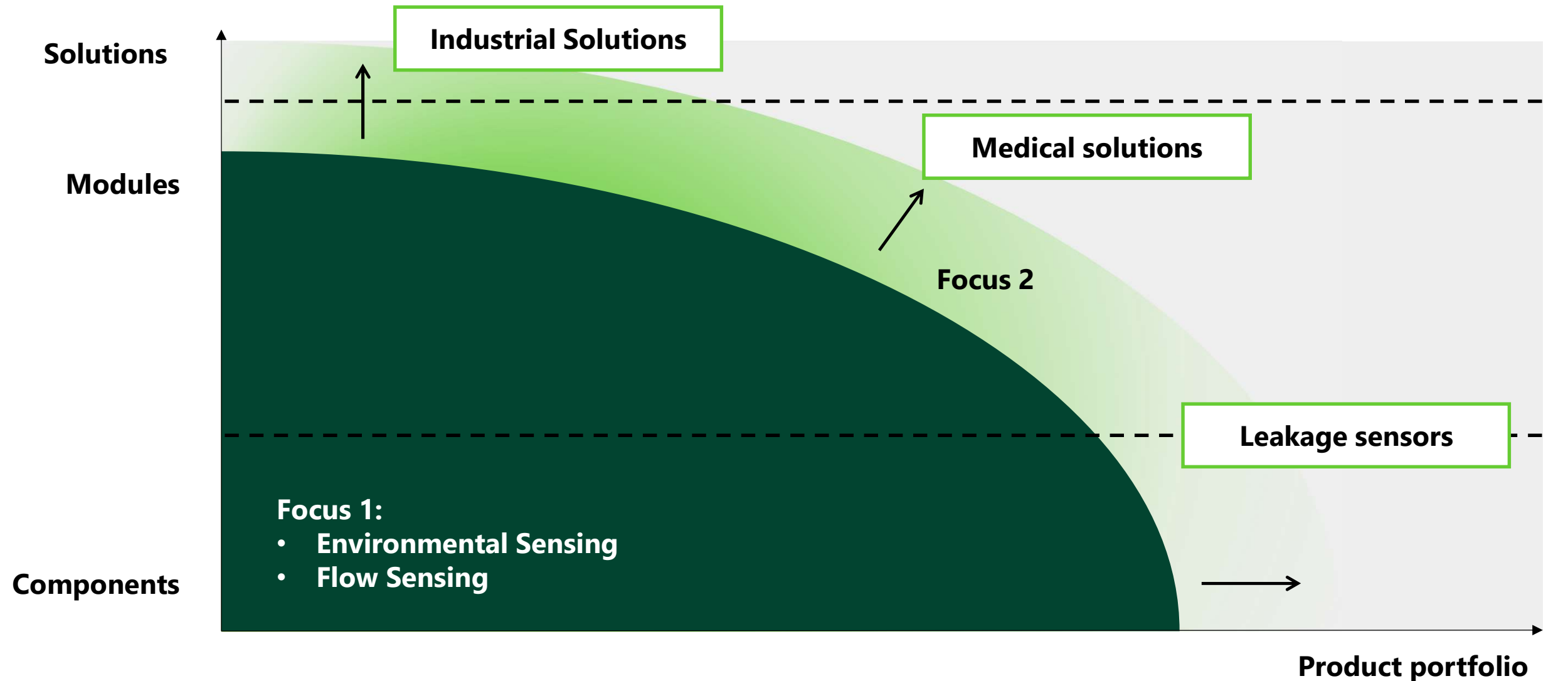
## Focus 2: Megatrends drive additional growth potential

Leverage our strong market and technology leadership in our core business to expand the market.



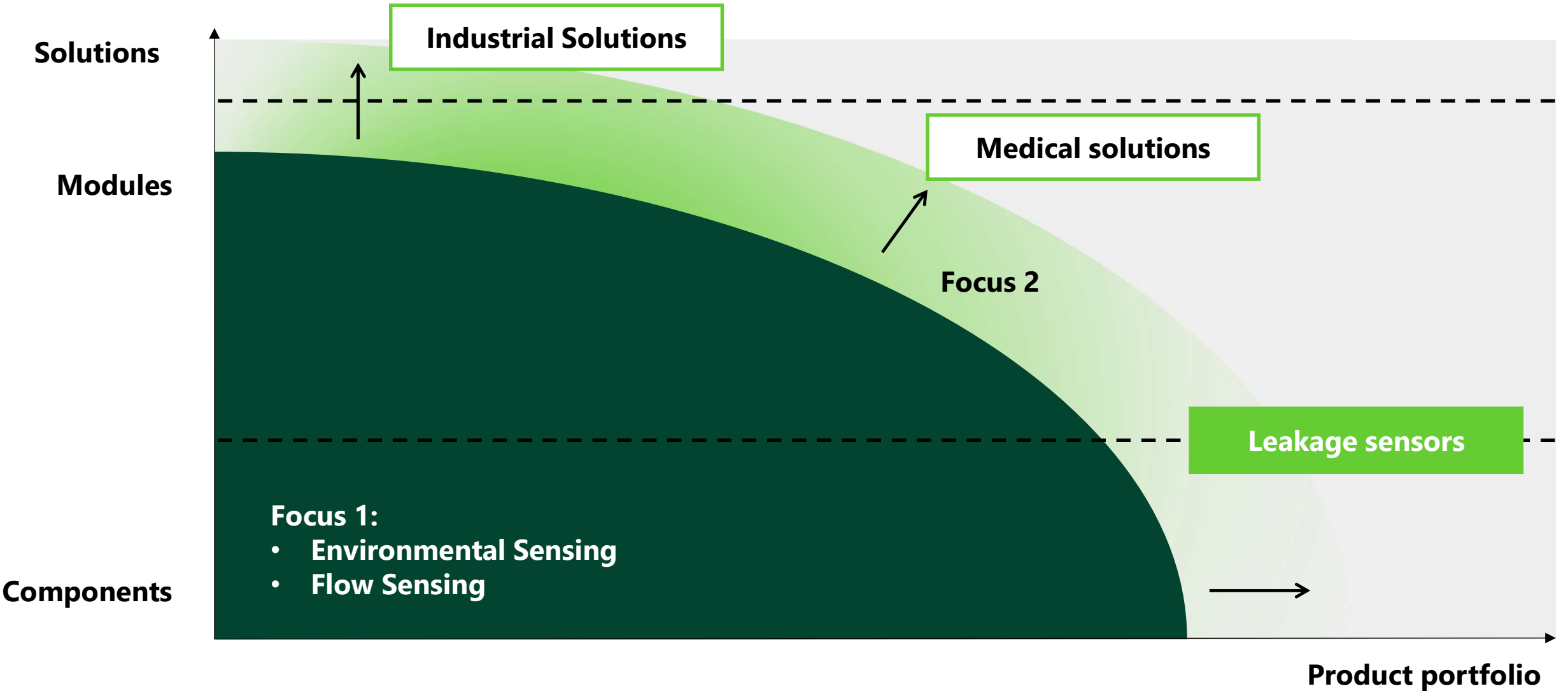


# Go beyond our core to foster additional growth opportunities





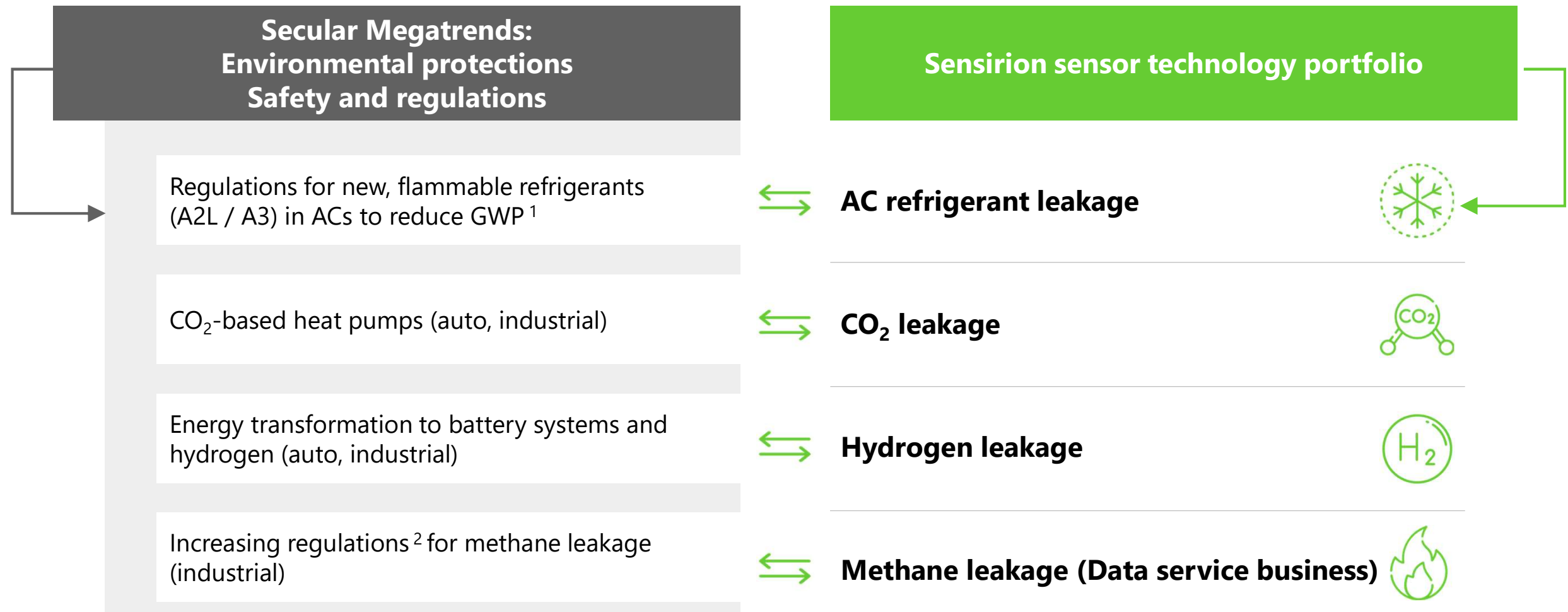
# Go beyond our core to foster additional growth opportunities





# “Make the difference” in leakage sensing

Become the leader in the emerging market for leak detection solutions in all markets



<sup>1</sup>GWP = global warming potential: the new refrigerants (e.g. R32) have a significantly lower GWP compared to common refrigerants

<sup>2</sup>Methane Emissions Reduction Program was created under the Inflation Reduction Act of 2022 to reduce methane emission from the oil and gas sector



# Refrigerant leakage

## for Air Conditioner & Heat Pumps



### Major supporting megatrends

- Environmental protection
- Safety and regulations



### Market drivers

- Transition to lower GWP refrigerants (A2L and A3)
- Due to the flammability of A2L/A3 refrigerants, US regulations require a leakage sensor for larger HVAC systems



### Technologies applied

Thermal conductivity & photo-acoustic (as both already used in CO<sub>2</sub> sensing)



### Addressable market potential

≈ 100 MCHF



### Sensirion's position

- A2L: Strong market position, won 5 out of Top-6 US HVAC accounts
- A3: first design-ins ongoing, market development in early phase





# CO<sub>2</sub> leakage

for CO<sub>2</sub>-based heat pumps (automotive & industrial markets)



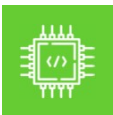
## Major supporting megatrends

- Energy efficiency
- Safety & regulations



## Market drivers

Transition to EV cars drives more efficient automotive AC systems (CO<sub>2</sub>-based heat pumps)



## Technologies applied

Thermal conductivity & photoacoustic (as both already used in CO<sub>2</sub> sensing)



## Addressable market potential

≈20-40 MCHF (in some years)



## Sensirion's position

- First nominations won
- Broad existing customer base
- Large experience in CO<sub>2</sub> sensing





# Hydrogen leakage

for battery and hydrogen systems (automotive & industrial markets)



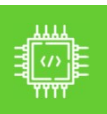
## Major supporting megatrends

- Environmental protection
- Safety and regulations



## Market drivers

Hydrogen leakage as a reliable parameter for early detection of thermal runaway of batteries



## Technologies applied

Thermal conductivity & metal oxide (both technologies already used for other applications)



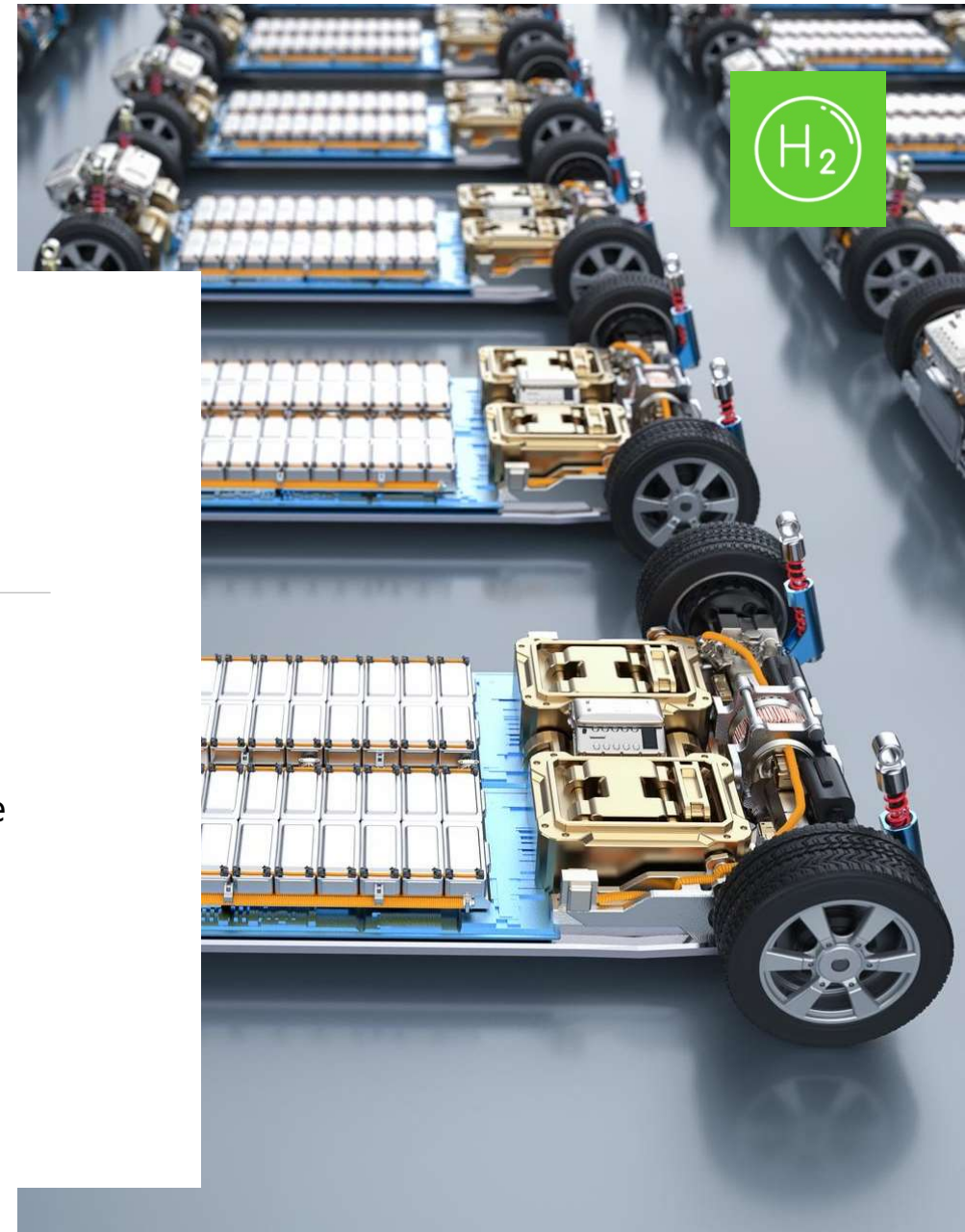
## Addressable market potential

≈30-50 MCHF (in some years)



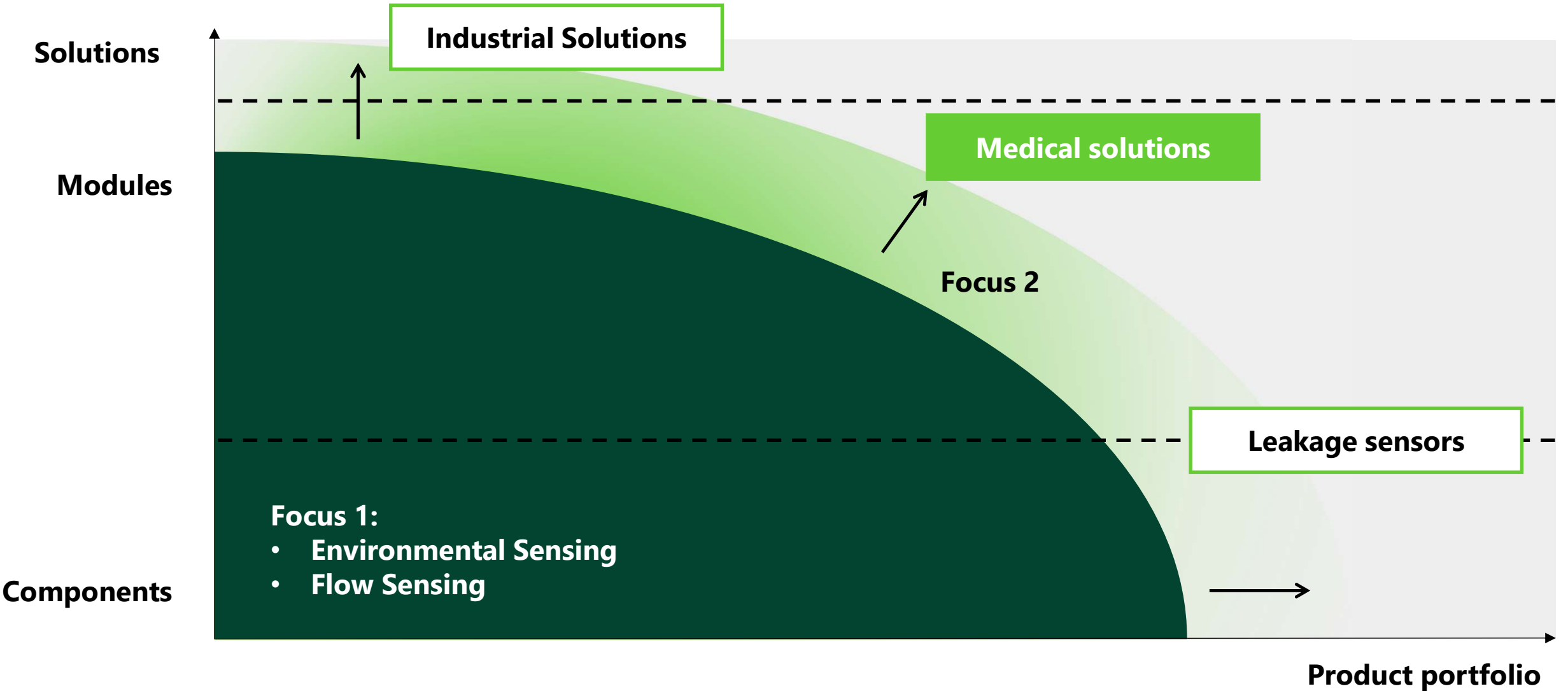
## Sensirion's position

- First nominations won
- Broad existing customer base





# Go beyond our core to foster additional growth opportunities





# Advanced Medical solutions

“Make the difference” in sensor technology, application expertise and algorithms

## Business rationale

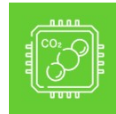
Next level of medical breath products: combining flow and gas analysis technologies to increase treatment safety and efficiency

## Sensirion's favorable position



### Breath flow

- Dominant market position (#1 in CPAP & Ventilation)
- Superior technology
- Deep application knowhow



### Gas analysis technology

- Comprehensive technology toolbox
- Among Top-2 in environmental sensing
- Field-proven and miniaturized



### Customer base

- Broad existing customer base
- Long-term and trustful relationship with major medical players



### Algorithm

- Deep application know-how



# Medical solutions

Combining flow and gas technologies for medical applications



## Major supporting megatrends

Health and aging society



## Addressable market potential

≈100+ MCHF (in some years)



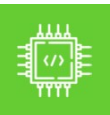
## Business rationale

Next level of medical breath products: combining flow and gas detection technologies to increase treatment safety and efficiency.



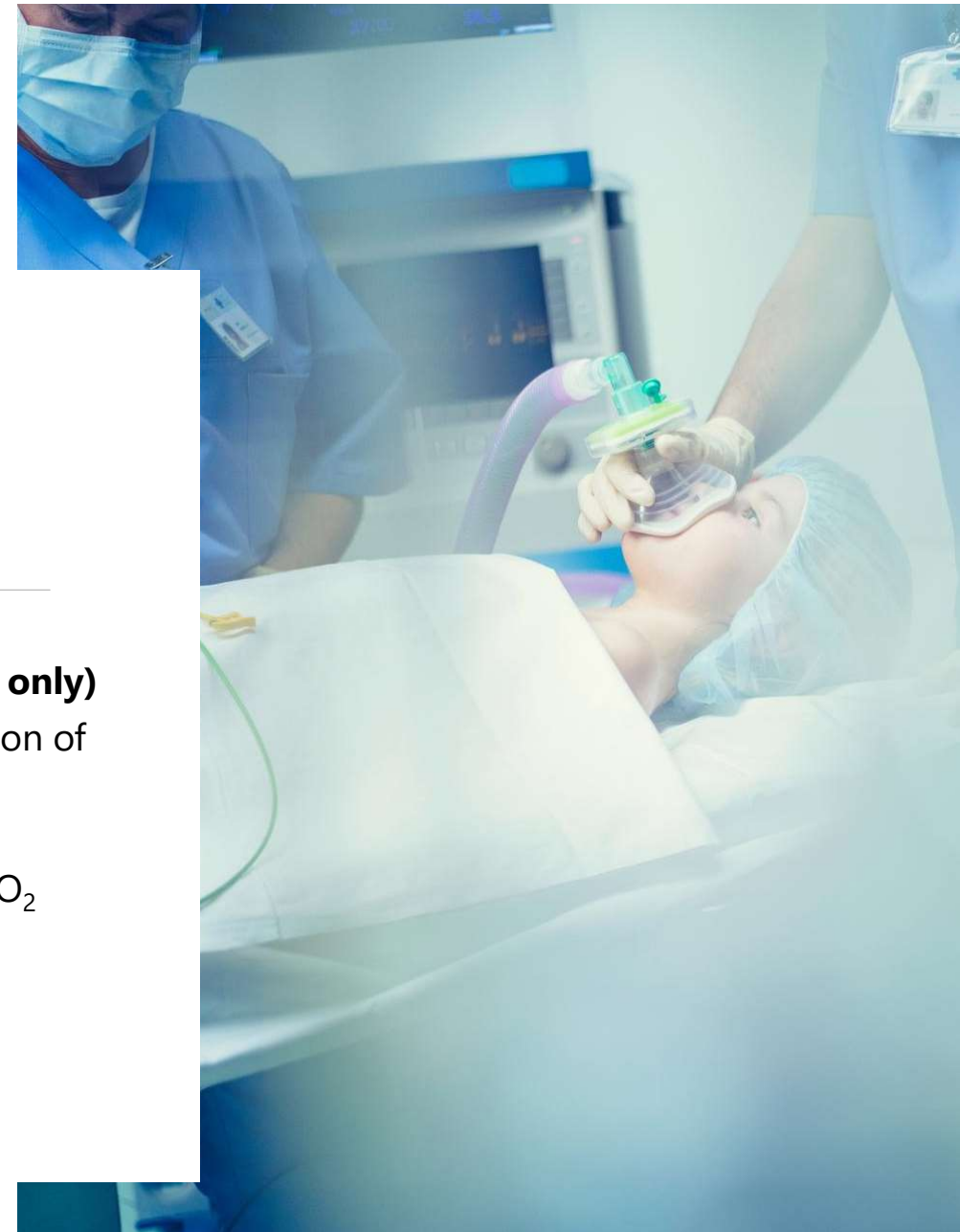
## Target applications (selection only)

- Smart resuscitation: combination of flow and CO<sub>2</sub> (emergency)
- Respiration exchange rate: combination of flow, CO<sub>2</sub> and O<sub>2</sub>



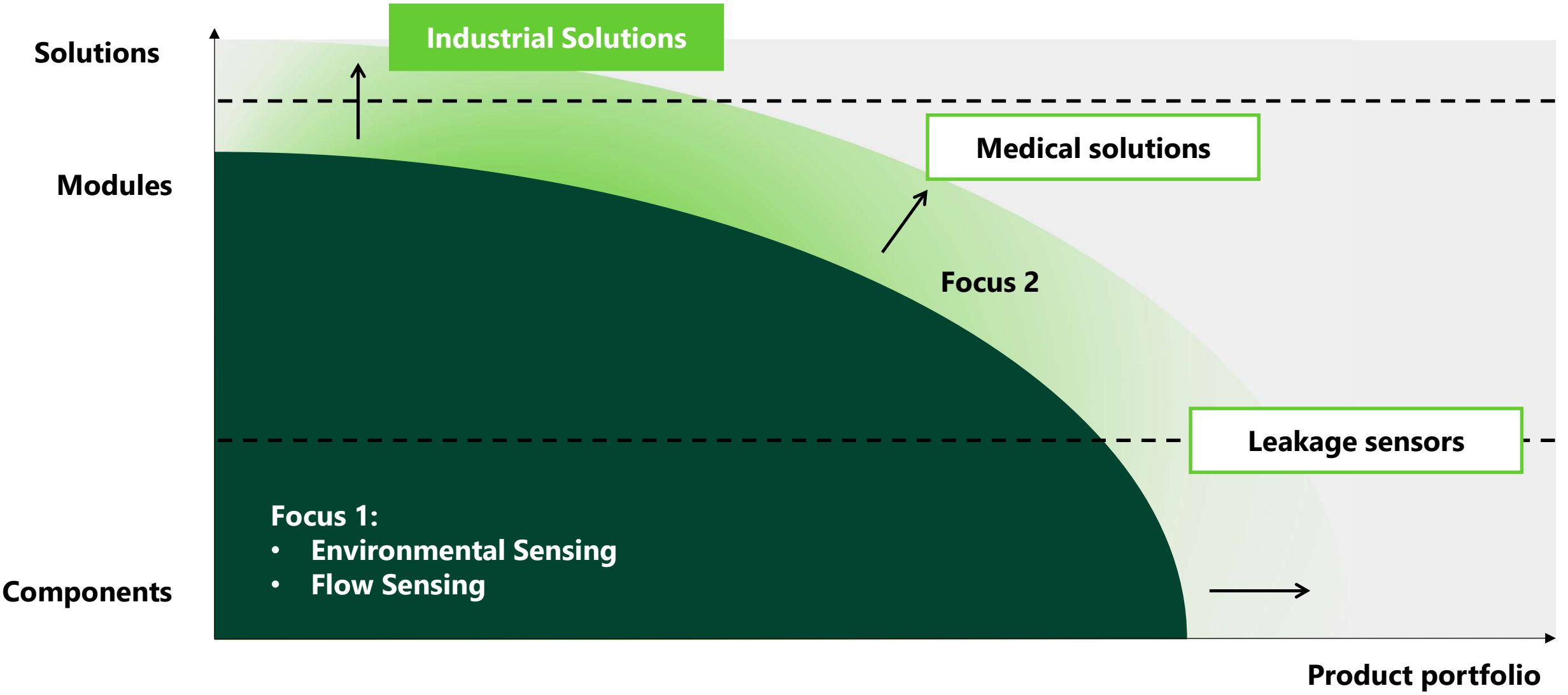
## Technologies applied

Flow technology combined with CO<sub>2</sub> and O<sub>2</sub> sensing





# Go beyond our core to foster additional growth opportunities





# Industrial solutions

“Make the difference” in sensor technology, application expertise and algorithms

## Business rationale

Leverage our sensor technologies and application know-how for high-end industrial monitoring solutions, driven by secular megatrends.

## Target applications we are working on (selection only)

- Continuous Methane leakage detection for oil & gas industry
- Advanced gas analytics by gas chromatography

## Sensirion's favorable position



### Sensirion's gas analysis technology

- Comprehensive technology toolbox
- Field-proven and miniaturized



### Qmicro's GC technology

- Acquired in 2021
- Superior gas chromatography technology
- Deep application-know-how by Qmicro's founders



### Algorithm

- Deep application know-how



### Market synergies

- Leverage our strong position in gasmetering
- Application synergies with flow applications



# Methane leakage monitoring

Where technology helps to protect the climate



Methane accounts for **about 16% of all global emissions** <sup>1</sup>  
**Methane is  $\approx 84$ x more potent than CO<sub>2</sub>** <sup>1,2</sup>



Almost **15% of the methane** emitted by the energy sector is caused by **unintentionally leaked natural gas**.



Investors, governments & buyers are **increasingly demanding action** from operators to comply with recent regulations in US and EU



- **>50'000 active high production wells** <sup>3</sup> in US
- >5'000 mid-stream sites in US
- Addressable market potential: 100+ MCHF

<sup>1</sup> International Energy Agency IEA "Global Methane Tracker 2024"

<sup>2</sup> based on global warming potential of methane over 20-year-timeframe (GWP20)

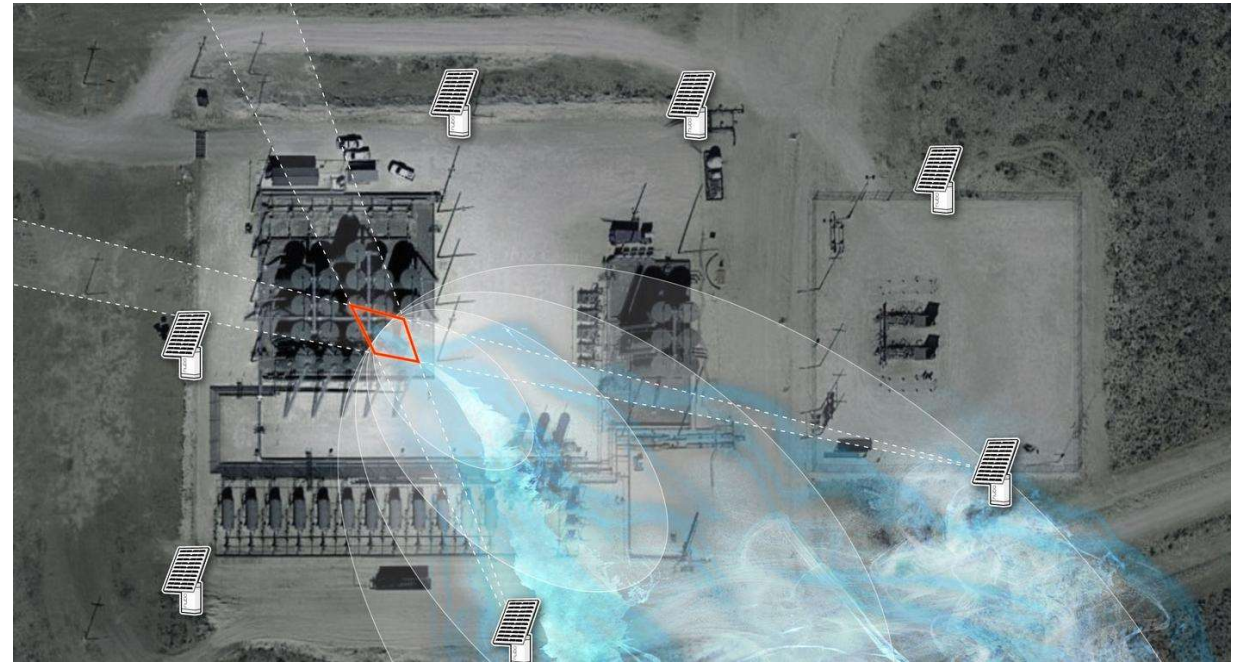
<sup>3</sup> US Energy Information Administration (EIA), high production wells > 100 BOE/d



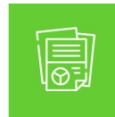


# Our solution: Nubo Sphere

End-to-end continuous methane emissions monitoring solution



Leak detection and repair



Emissions quantification,  
reporting and reconciliation



Alerting; Emission localization  
and quantification



Continuous monitoring enables  
fast reaction time and a  
complete picture of emissions



# Advanced gas analytic solutions by gas chromatography

Leverage our deep know-how in gas analytics

## The situation today



Strong footprint in gas analytics for CO<sub>2</sub>, methane, VOCs, formaldehyde, NO<sub>x</sub>, ...



Market pull for high-end, multi-dimensional gas analytics



Given high-volume technologies not suitable:  
Sensitivity     ✓  
Selectivity     ~



Measuring smaller concentrations of harmful gases in an unknown mixture with other gases is challenging.



## Providing a comprehensive gas analytics solution



**Micro-gas chromatograph (GC)** technology leverages existing gas sensor solutions



A gas chromatograph separates the gases before measurement and provides a **detailed multi-dimensional gas analysis**



**Our solution**



Addressable market potential:  
**50 MCHF+**



# Broad application opportunities across different markets

We are working on these industrial and environmental applications



---

## Gas (natural, bio)

- Biomethane quality guards
- Natural gas (calorific value)
- LNG analysis
- Hydrogen



---

## Factory automation

- Chemical industry
- Process control



---

## Environmental monitoring

- Fenceline monitoring
- Smart city



# Summary “Strategic focus 2”

## Go beyond our core to foster additional growth opportunities in adjacent market fields

### What we have achieved

**We have successfully laid the foundation to foster market opportunities beyond our core**



by leveraging our superior technology toolbox to address emerging megatrends in leakage sensing as well as medical and industrial solutions



by successfully pioneering the A2L leak detection market, which will soon contribute significantly to our growth rate



by having successfully established our first data services business for continuous monitoring of oil and gas sites

### Outlook: We are well positioned



**to become the leader in the emerging market for leak detection solutions across all markets**

- by pioneering the A2L ramp-up soon
- by expanding our leak detection activities to areas other than just A2L leaks.



**to become a solution provider for selected focus applications in medical and industrial markets**

- by leveraging our dominant position in medical breath by combining flow and gas analysis.
- through the expansion of our initial successes in high-end industrial monitoring.



## SUCCESS STORY

# A2L

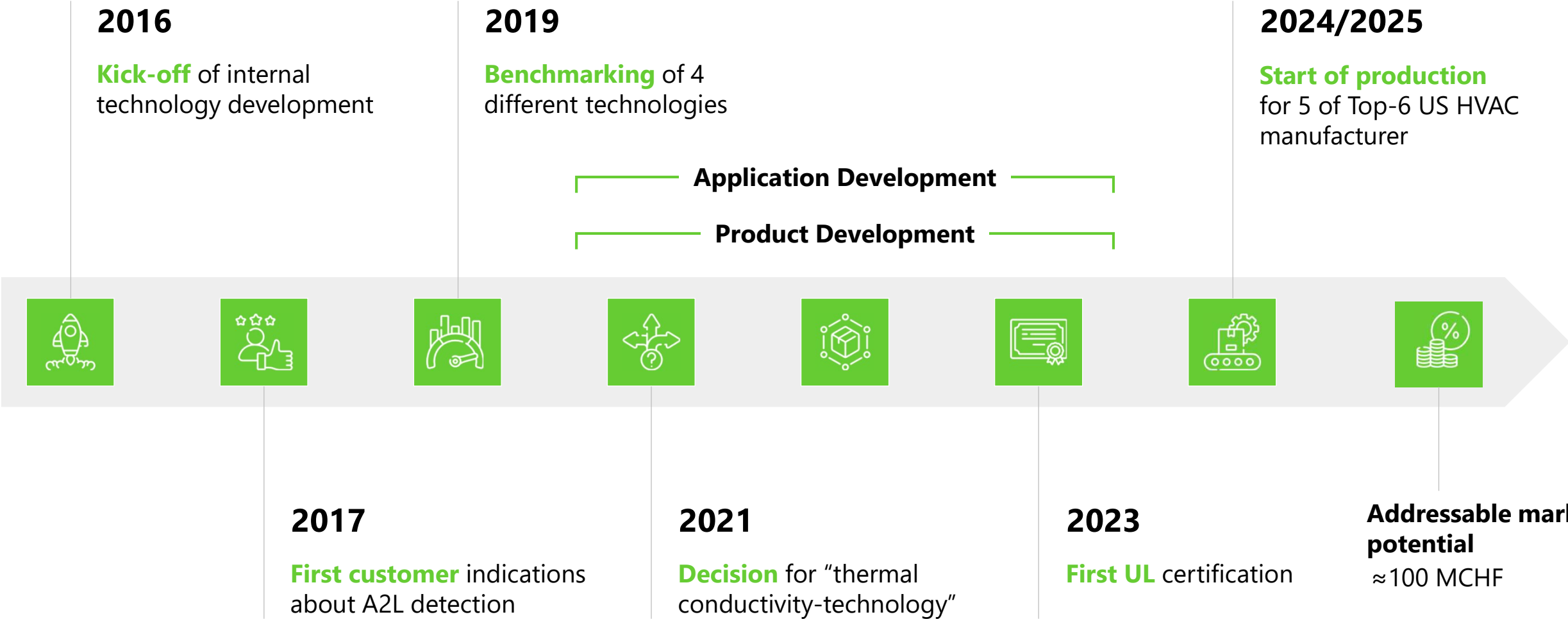


**SENSIRION**



# Success story: A2L journey from innovation to monetization

How did we tackle this challenge?





# Forward-looking technology development is key

Key take-aways from the "A2L success story"



**Broad market presence and customer proximity help to identify emerging sensor trends at an early stage**



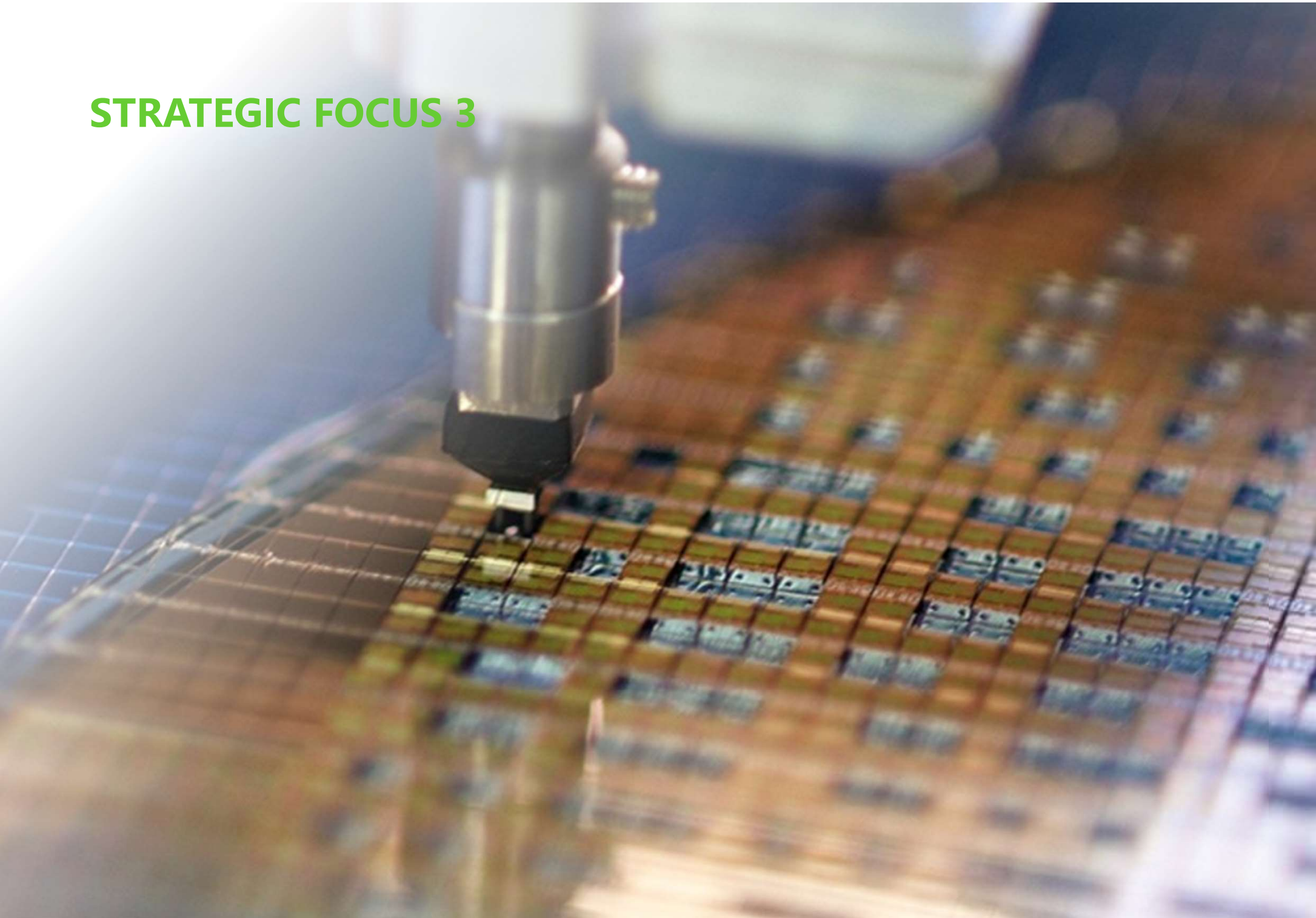
**The technological base development has to start early enough as it takes time to be ready**



**To successfully foster emerging market potentials, the technological foundation should already be available**



## STRATEGIC FOCUS 3



**SENSIRION**



# Growth along four strategic foci

Our new strategic foci



**Strategic focus 3**

**Lay the technological foundation for long-term growth**



**Strategic focus 2**

Go beyond our core to foster additional growth opportunities in adjacent market fields



**Strategic focus 1**

Drive and expand our strong market position in our core markets of environmental and flow sensing



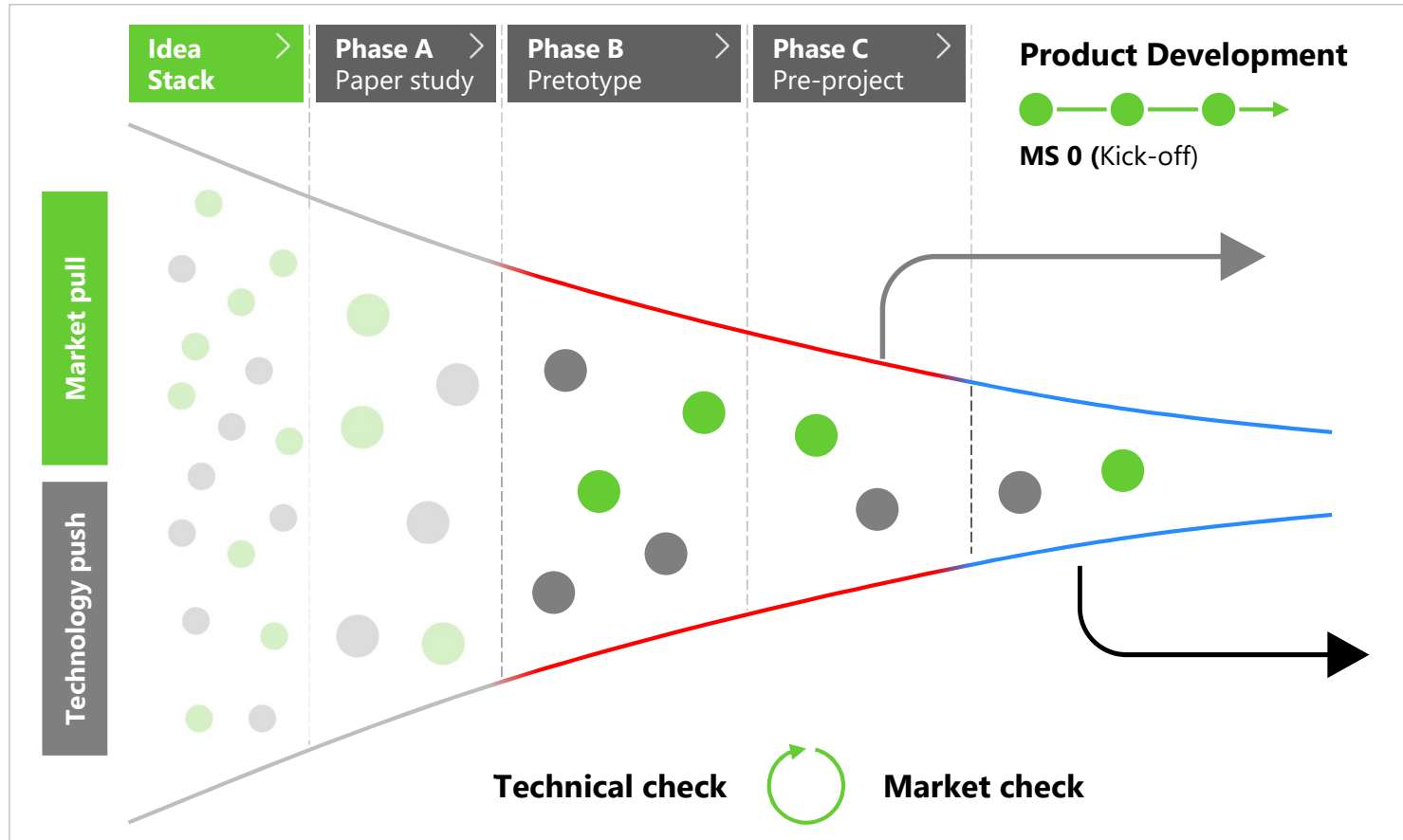
**Foundation**

“SensiSpirit”: unique culture of innovation and entrepreneurship



# Our innovation is embedded in a structured process

We have a full pipeline of new product ideas at different stages of maturity



## Several projects in phases B and C

- Currently, several promising product ideas are in phase B (prototype) and phase C (pre-project).
- It is too early to disclose due to competition and M&A reasons.



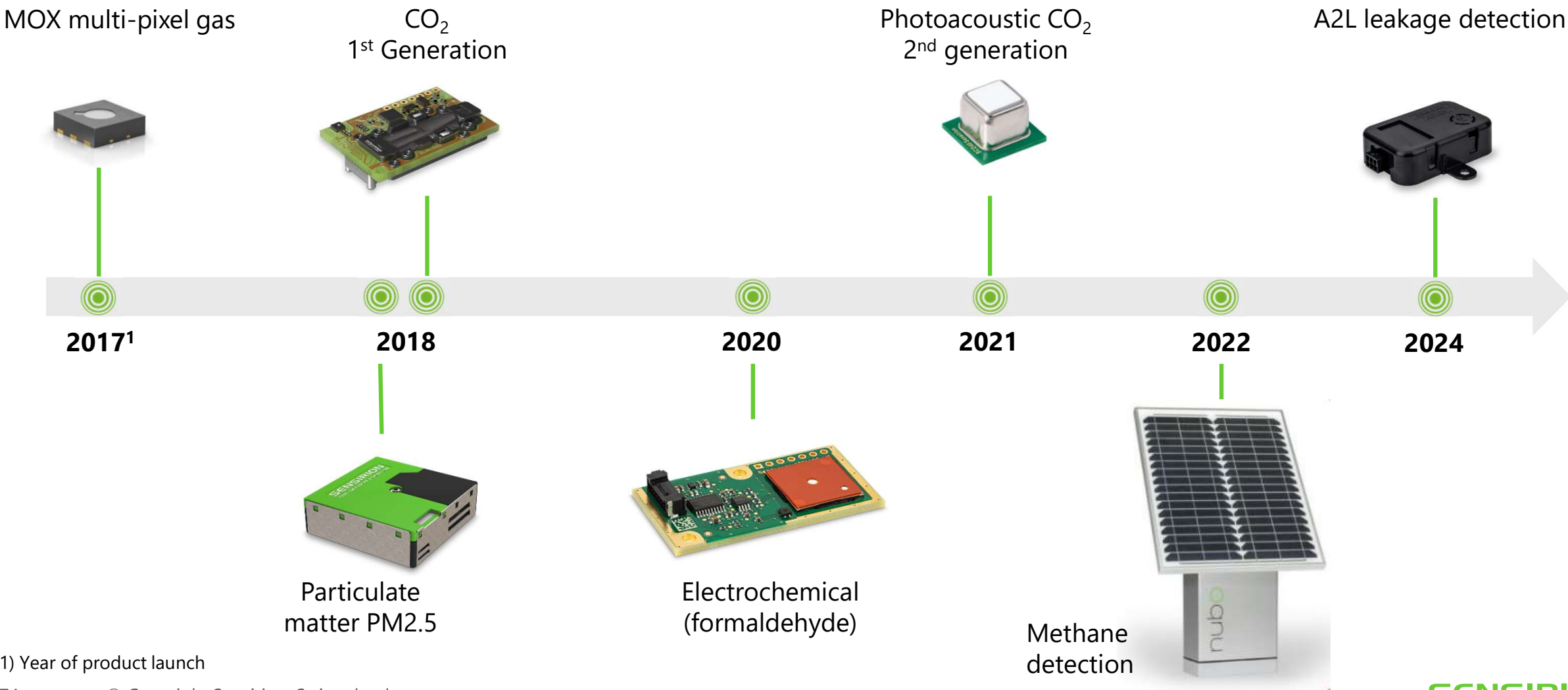
## New product ideas in first development stage

- Medical solutions projects
- Industrial solutions projects
- Furthermore, we are working on advanced spectroscopic technologies based on low-cost IR laser systems



# Focus 3 topics drive new product innovations

Numerous products were initially kicked-off by focus-3 initiatives



1) Year of product launch



# M&A strategy

We have implemented a systematic strategy for M&A activities to enhance our strategic growth areas.



**Markus Geiser**  
Director M&A

## Growth strategy



Strategic foci



Identified growth areas



Forward-looking technology development

## M&A activities



Strategic acquisitions



IP deal



Minority shareholding



**Market access**  
**Technology acquisition**



**Technology acquisition**




**Secure technological access**  
**in potential future fields**



# Focus 3: M&A successfully supported growth initiatives


## Strategic acquisitions

- 2017




AUTO INDUSTRIAL CO., LTD.


> Sensirion's Automotive Tier-1 business
- 2021



> Sensirion's first "full solution portfolio"
- 2021




> Foundation for Sensirion's laser-based sensor portfolio
- 2021




> market potential didn't materialize in line with expectations -> closed in April 2024

## IP deals


- 2012




> IP for Sensirion's metal oxide sensor portfolio
- 2016



> IP for Sensirion's Particulate Matter PM2.5 portfolio
- 2019



> IP for Sensirion's formaldehyde sensing portfolio
- 2022



unique solutions in sensor technology

> IP for Sensirion's oxygen sensors (coming soon)

## Minority shareholder to secure technological access in potential future fields

- 2020



Optical technology
- 2018



Bio-sensing technology



# Summary “Strategic focus 3”

## Lay the technological foundation for long-term growth

### What we have achieved



Innovation is in our DNA: we embrace challenges, take calculated risks, and drive disruptive technological advancements



We have a strong track record in the innovation of new technologies and the monetization of these technologies in all our markets.



We have a full pipeline of technology projects in different stages of maturity.



We have established an efficient and disciplined M&A process to support the strategic growth fields.

### Outlook: We are well positioned



to drive innovation and technology developments to address future megatrends.



to secure long-term sustainable company growth.



# OUR SUSTAINABILITY JOURNEY & BUSINESS



**SENSIRION**



# We are committed to our environmental and social responsibility

## Environmental commitment and responsibility



Our innovative sensors enhance **energy efficiency** and help customers **create eco-friendly products** and decarbonize operations.



In Operations we focus our efforts on production that avoids **waste, increases material efficiency**, and uses **natural resources** thoughtfully and as sustainably as possible.



In 2021, we have kicked off an **ambitious journey to decarbonize** our own operations (focus first on Scope 1&2)

## Social commitment and responsibility



We aim to offer our employees an **inspiring and safe working environment** and optimal conditions for personal and professional development.



Pillars of this commitment are equal opportunity, diversity, non-discrimination; health and safety; training and education, work-life balance, and our **unique and award-winning corporate culture**.



# Our sensors enable customers to develop more eco-friendly products and/or decarbonize their operations

## Application examples



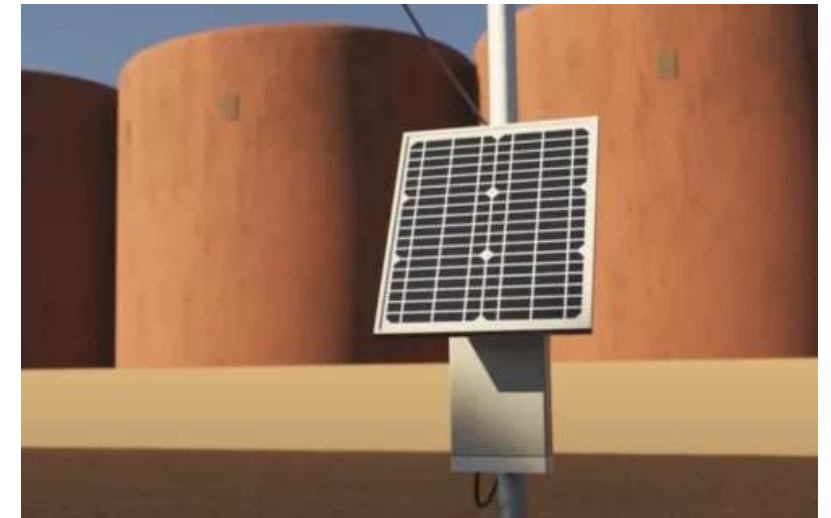
### Increased energy efficiency of cars

Humidity/temperature and CO2 sensors in car climate control optimize AC use and extend EV range.



### Strongly reduced GWP of new refrigerants in ACs

Our sensor monitors A2L and A3 refrigerant leakage safeguarding a transition to a more climate-friendly HVAC industry



### Continuous monitoring of methane gas emissions in oil & gas industry

Sensirion's Nubo provides end-to-end continuous methane monitoring, sends alerts and fastens initiation of mitigation actions.

**Sensirion's sensors help to increase energy efficiency and contribute to GHG Mitigation**



# Our ambitious journey towards decarbonization

## Our promise

We pledge to the Swiss Federal government net-zero target for 2050

## Our higher ambitions

Since 2021, we are working on **our ambitious journey to decarbonize** our own operations (focus on Scope 1&2)

## Our achievements so far



We have reduced our global Scope 1&2 CO<sub>2</sub> emissions **by 61% between 2021 and 2023**, while increasing revenue by 36% over the same period.



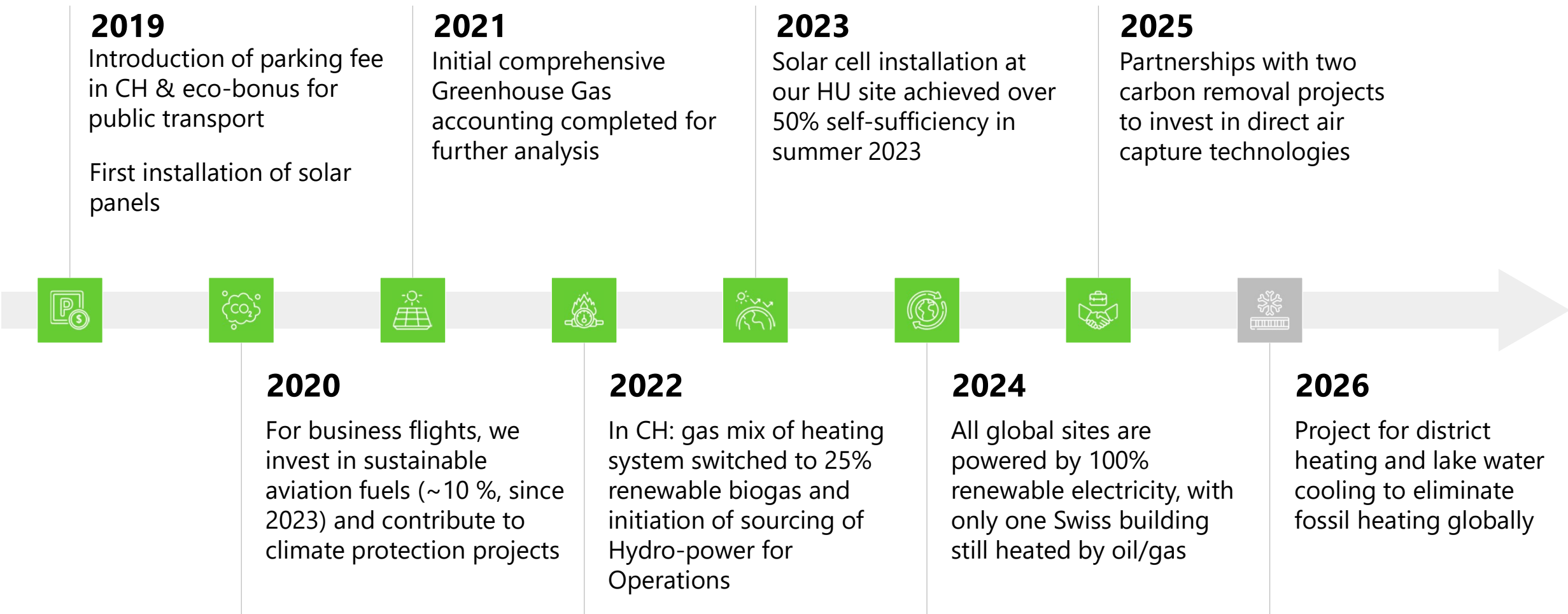
We have converted **100% of our global electricity consumption** to renewable sources (solar, wind, water)



We have working on a **district heating and lake water cooling** to eliminate the remaining fossil heating system and to optimize energy efficiency in cooling.



# Selected Milestones on our journey to decarbonization



■ Implemented / confirmed    ■ In progress / to be confirmed

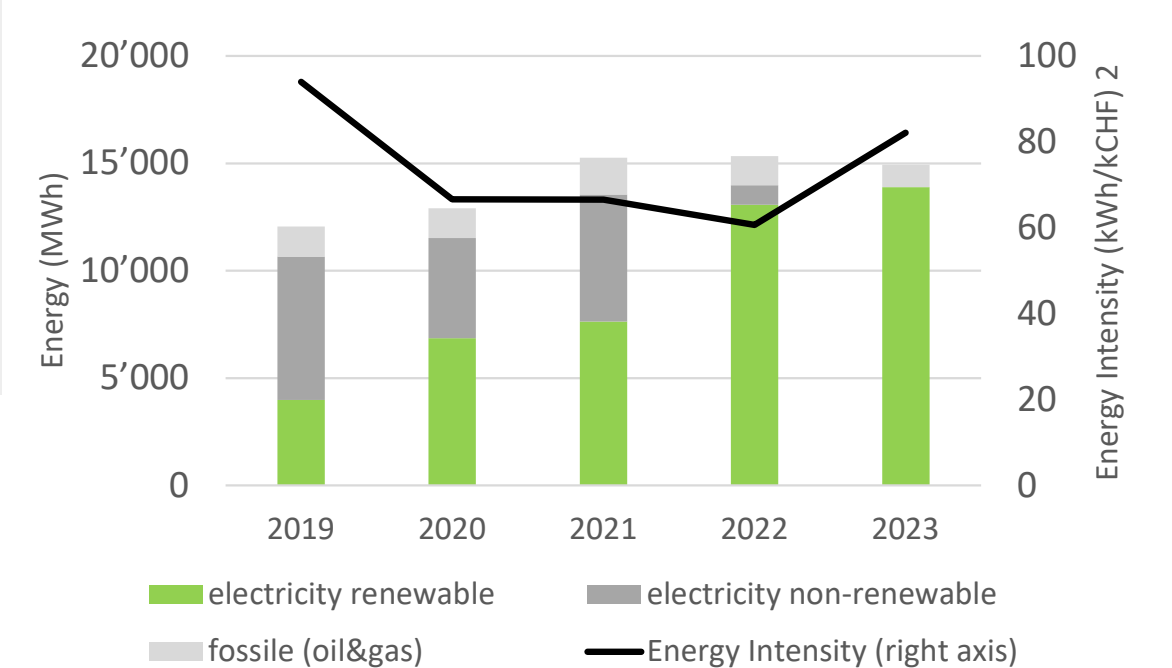


# We have reduced our global CO<sub>2</sub> emissions by 61% since 2021

First significant achievements on our journey to decarbonization

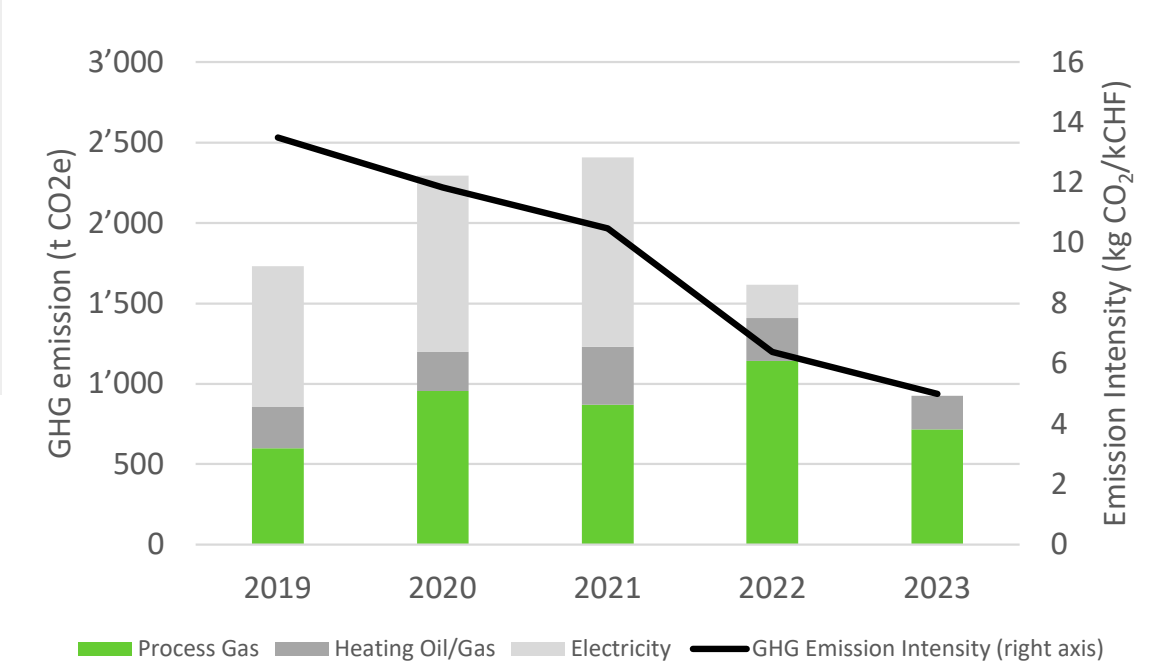
## Energy consumption <sup>1</sup>

Clean sources: Most of the electricity has been converted to renewable sources by end of 2023



## GHG emissions

Reduction of total GHG emissions by 61% since the launch of our decarbonization journey in 2021



<sup>1</sup> Since 2022 emission data for electricity is calculated on a market-based approach. 2021 (and older) emissions from electricity are calculated on a location-based approach based on emission conversion data of IEA (2022).

<sup>2</sup> Energy/GHG intensity defined as ratio of energy consumption (and GHG emissions, respectively) and contribution profit (revenue minus material expenses)



# Impressions



## **The Sustainable Debrecen Grand Prize was awarded to Sensirion Hungary Kft.**

The factory uses geothermal energy for heating and cooling, LED lighting with presence detectors, solar panels for electricity



## **Photovoltaic system in Building C, Stäfa - Switzerland**

The photovoltaic system on the roof of building C has been in operation since May 28, 2024. The nominal output of the system is 355kWp.



# Our ambitious journey towards decarbonization

## Our challenge



Our Swiss MEMS factory uses **process gases** (mainly SF6) with high global warming potential that can't be fully eliminated.



This issue affects the entire semiconductor industry on the path to net zero emissions, not just Sensirion.

## Our approach



We studied alternative filtration technologies to reduce our process gas and Scope 1 emissions.



To account for these hard-to-remove emissions we **invest in high-value carbon removal projects (starting 2025)** and cutting-edge decarbonization technologies.

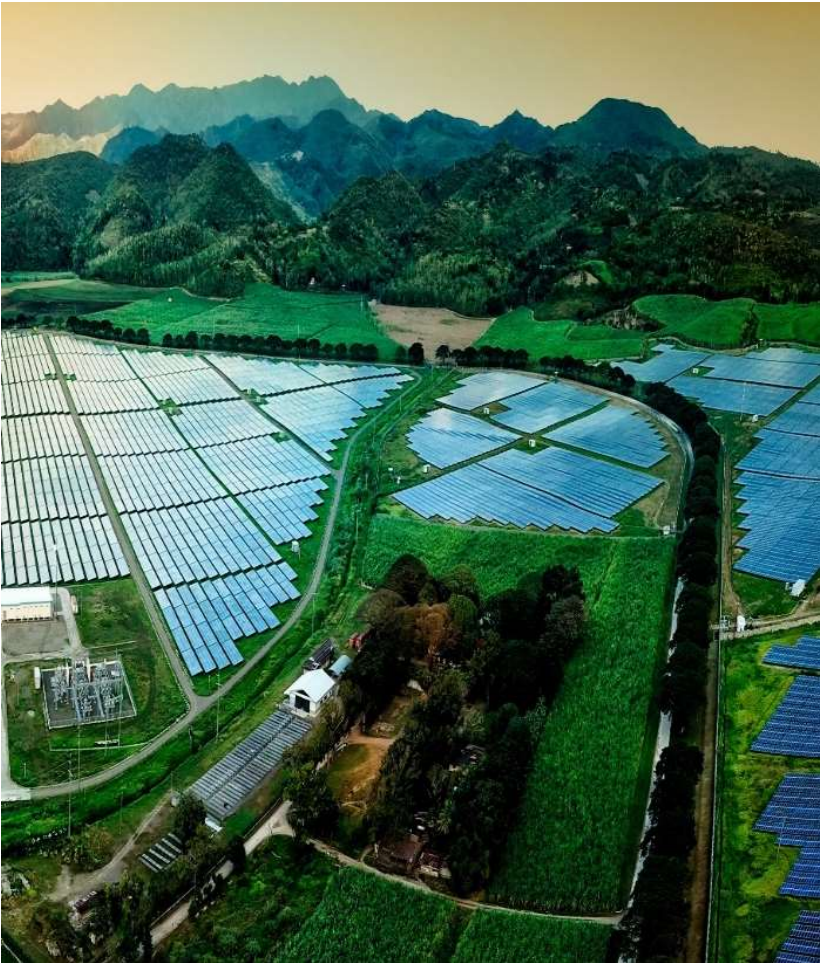



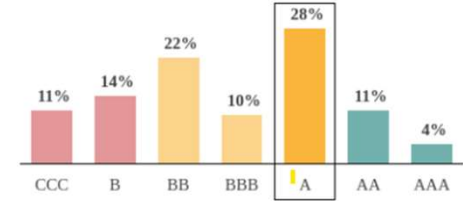






### What's next?

Once our Scope 1 & 2 goals are achieved, we will shift our focus to **Scope 3 activities.**



# Our efforts in sustainability are recognized by agencies and partners



Agency	Rating	Scale	External recognition
	<div><div>A</div><div>Updated: 20.12.2023</div></div>		
	<div><div>ESG Risk Rating: 30.3 (-3.9) Ranking 124 out of 245</div><div>Updated: 15.10.2024</div></div>	<div><div>As of October 2024, Sensirion received an overall ESG Risk Ranking of 124 out of 245 companies in the Semiconductor Design and Manufacturing segment and remains at the lower end of high-risk group (of experiencing material ESG financial impacts)</div></div>	<div> <b>Silver status</b> (score 166.1) Updated: 30.11.2023</div>
	<div><div>2022 C* on climate</div><div>2023 non-responder</div></div>	<div> In September 2024 Sensirion has completed the CDP submission Climate and Water.</div>	<div> <b>Bronze status</b> (64/100), 81<sup>st</sup> percentile Updated: 27.08.2024</div>



# FINANCE STRATEGY

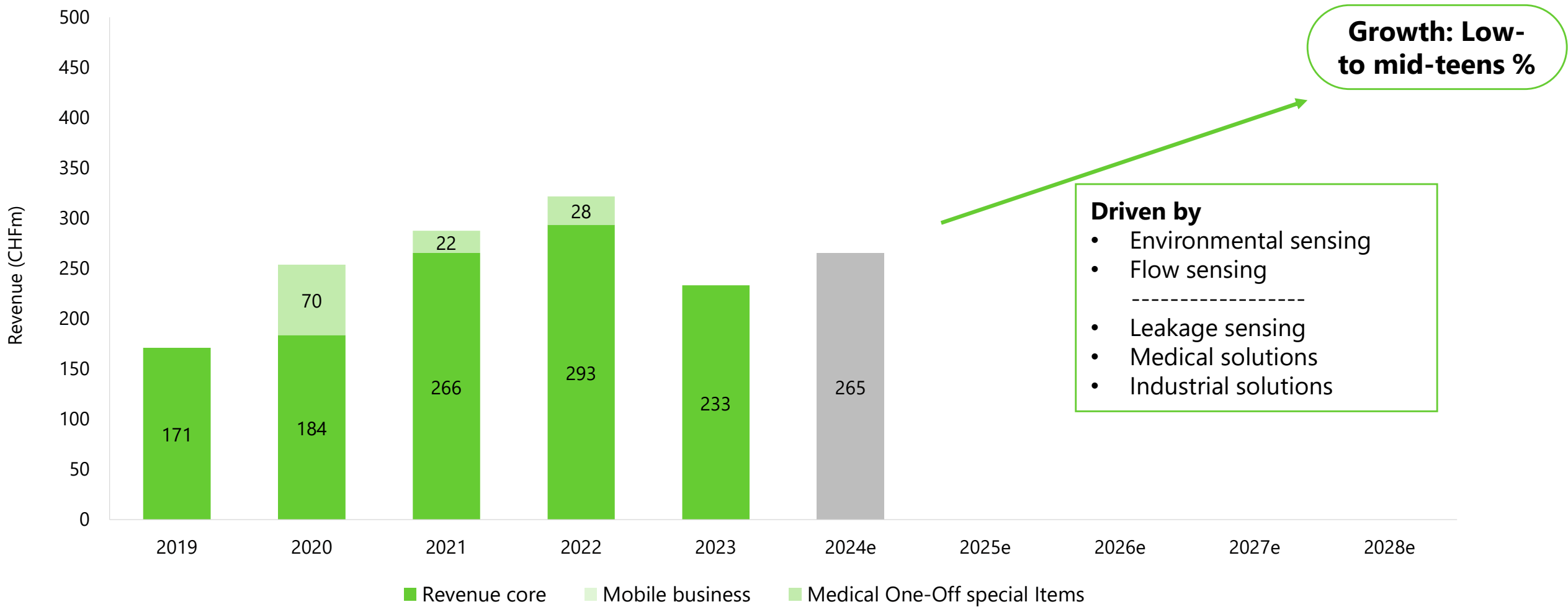
A close-up photograph of a person's hands working at a desk. The person is wearing a dark blue suit jacket. Their right hand holds a silver pen, and their left hand is resting on a stack of papers. The papers contain various financial documents, including a spreadsheet with colorful bars and a pie chart. A calculator is visible on the desk, and a pair of glasses is resting on a book in the background. The lighting is soft and focused on the workspace.

SENSIRION



# Sustained high revenue growth driven by innovation

Environmental and Flow remain key to growth as we broaden our customer reach in Leak detection and Medical and Industrial solutions



<sup>1</sup> Figures for FY 2024 according to mid-point of guidance



# Market driven product mix changes drive P&L profile adjustment



## **Modules get more important**

Market / customer demand drives change in product mix allowing Sensirion to be a strategic supplier to leading OEM customers



## **Moderate dilution of gross margin**

Higher module material content expected to reduce gross margin (by a few percentage points)

## **Reduced R&D for modules**

Less R&D required for module development (relative to sales potential)



## **Stable EBITDA profile**

EBITDA margin profile is expected to be stable over a cycle





# Strong balance sheet and free cashflow generation

Will finance mid-term growth

## Organic Growth strategy



### Growth and Maintenance Capex

stable at typically 6-8%



### One-off Capex

Second production building in Switzerland 2025-2027



### Financing via

Strong balance sheet & free cashflow generation



### Partially

Bank / Mortgage loans for 2<sup>nd</sup> building

## M&A activities



Strategic acquisitions



IP deal



Minority shareholding



Solid liquidity base assures **freedom to operate**



# Tax outlook

Expected tax range: 11-14%\*

## Our strategy



Tax substance mainly in Switzerland innovation

## Tax rate



Tax substance mainly in Switzerland innovation

## Ruling

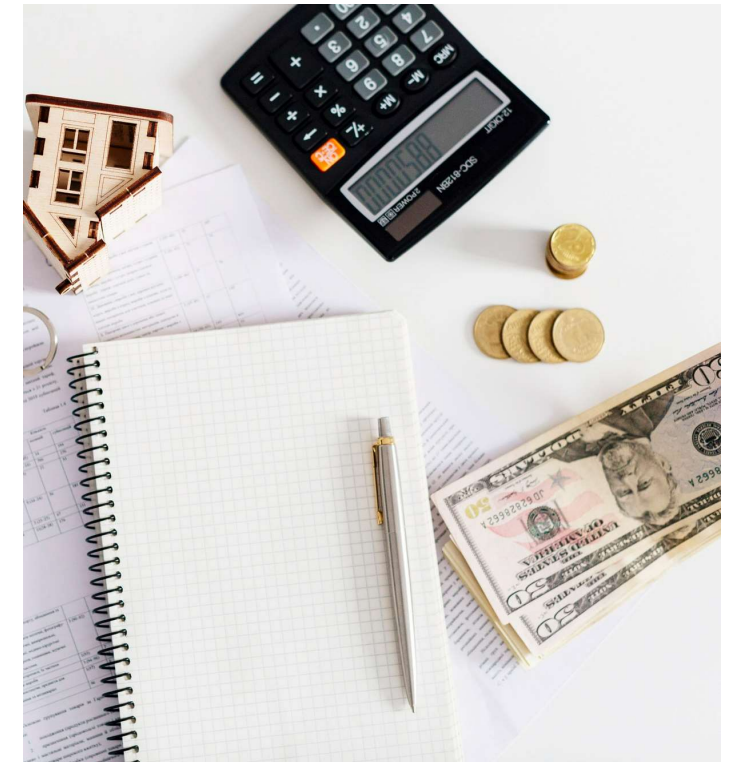
Tax ruling referring to revised Company law in place



Privileged taxation after dismissal of holding privilege



Definition of patent box solution and deduction of R&D expenses



\*Out of scope for minimum taxation of 15%



## WRAP-UP & MID-TERM GUIDANCE



**SENSIRION**



# Summary: growth along three strategic foci

## Strategic foci



**Strategic Focus 3:** Develop technologies for long-term growth



**Strategic Focus 2:** Become market leader for the entire environmental market



**Strategic Focus 1:** Drive and expand our strong market position in our core markets of environmental and flow sensing



**Foundation: "SensiSpirit":** unique culture of innovation and entrepreneurship

## Sensirion strategically well positioned

- to drive innovation and technology developments to address future megatrends
  - to secure long-term sustainable company growth
- 
- to become the leader in the emerging market for leak detection solutions
  - to become a solution provider for selected focus applications in medical and industrial markets
- 
- to monetize our brand-new portfolio of miniaturized environmental sensors and to enable new growing applications
  - to leverage our technology platforms and to react fast to future opportunities
- 
- to attract and retain the best people based on an exceptional and award-winning culture



# Confirmed mid-term guidance for next cycle



We see **many promising additional business fields** in all three strategic foci



We maintain the innovation power with **lower R&D spending of 18-20%** (instead of 22-24%) due to the higher portion of module business



As a result, we expect the average **EBITDA level** to remain stable in the **mid to high teens** over the next medium cycle.

(CHFm)	Avg 2020-2024 <sup>3</sup>	Mid-term <sup>1</sup>	Comments
Annual revenue growth rate (CAGR)	~12% <sup>1,2</sup>	Low- to mid-teens %	<ul style="list-style-type: none"><li>✓ Secular megatrends supports revenue growth</li><li>✓ <b>Sensirion aims to grow above market</b> by leveraging its leading technologies and new applications</li></ul>
EBITDA margin	~20% <sup>4</sup>	Mid- to high-teens %	<ul style="list-style-type: none"><li>✓ <b>R&amp;D spending of 18-20% of revenue</b> to support long-term technology development</li><li>✓ We keep our conservative accounting principle to expense R&amp;D spending almost fully</li></ul>

<sup>1</sup> At fixed foreign currency exchange rates; mid-term means “averaged target over cycle of 3-5 years” <sup>2</sup> Without (with) COVID-19-related ventilator business

<sup>3</sup> FY 2024 at mid-point of annual guidance <sup>4</sup> adjusted for AiSight one-off impairment and restructuring costs





## Q&A

Online Participants:

---

Please register your question via the Q&A or Chat functionality

---

The moderator will read out your questions.

---

Thank you very much.

---

---



**SENSIRION**



# Production Tour in Stäfa



## Instructions

- 5 Min Walk to Building C
- Sensirion guides will provide further details. In general:
  - Put on disposable coat and shoe cover
  - Taking pictures is not allowed
- Production tours start:  
15.45 - 16.30  
16.00 - 16.45