




# **Sensor technology for accelerated transition to a sustainable future**

November 2022

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# Insplorion in short

Based in Gothenburg,  
Sweden. 16 FTE

Public company listed  
on Nasdaq First North

Founded as spinoff  
from Chalmers  
University in 2010

Core is Nano  
Plasmonic Sensing  
(NPS) Technology



## Research Instruments

- Research instruments for measurements in gas or liquid
- Focus on battery (M8), and biomolecular research (S2)



## H<sub>2</sub> Sensors

- Fast & specific
- Optical readout
- Commercial prototype stage



# Research Instruments



## Credibility and Technology validation

- Over 125 research articles published by our users

## Know-how and knowledge generation

- Users in fields ranging from Hydrogen Sensing, Battery Research, Life Sciences and Cosmetics
- Key in-house tools to develop current and future applications (i.e. H<sub>2</sub> sensing)

## Maturing into industrial research applications

- Battery research focus
- First publication in cosmetic formulations

# Hydrogen outlook



Green Hydrogen will play a vital role in the transition to a sustainable future  
In Sweden alone, it is estimated that 40 TWh of energy will be used for hydrogen production in 2030.<sup>1</sup> Today, Sweden consumes about 140 TWh of electricity per year.

- bUSD 500** invested in the hydrogen value chain by 2030<sup>2</sup>
- >350** projects ongoing to bring green production to 80 GW by 2030<sup>3</sup>
- 40x** green hydrogen production capacity by 2030<sup>3</sup>
- Massive** initiatives from both EU and US fueling growth
- Anywhere** hydrogen is produced, stored or used sensors are needed

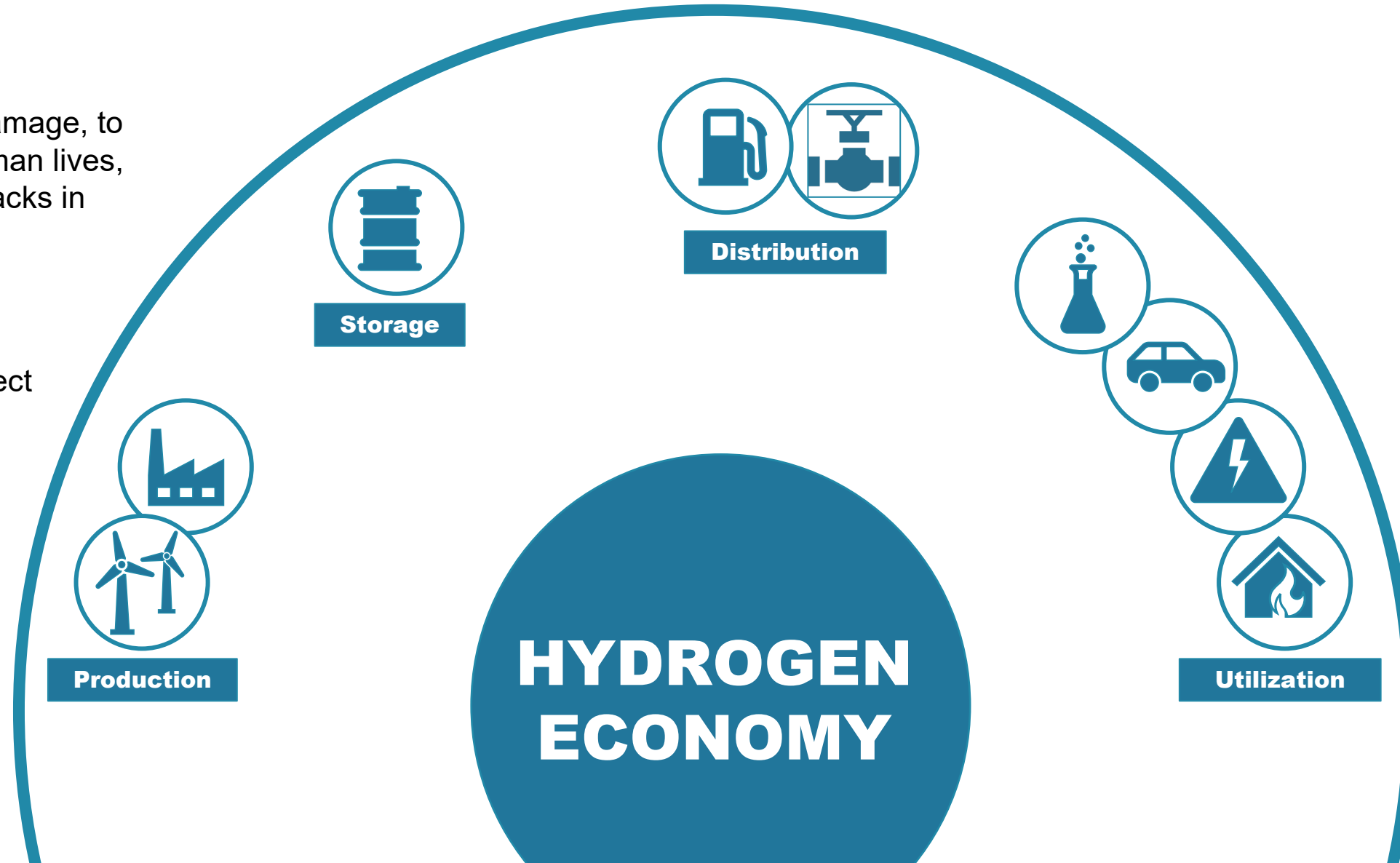
# Need for H<sub>2</sub> Sensors

## Safety

Accidents mean physical damage, to property and potentially human lives, financial damage, and setbacks in public perception.

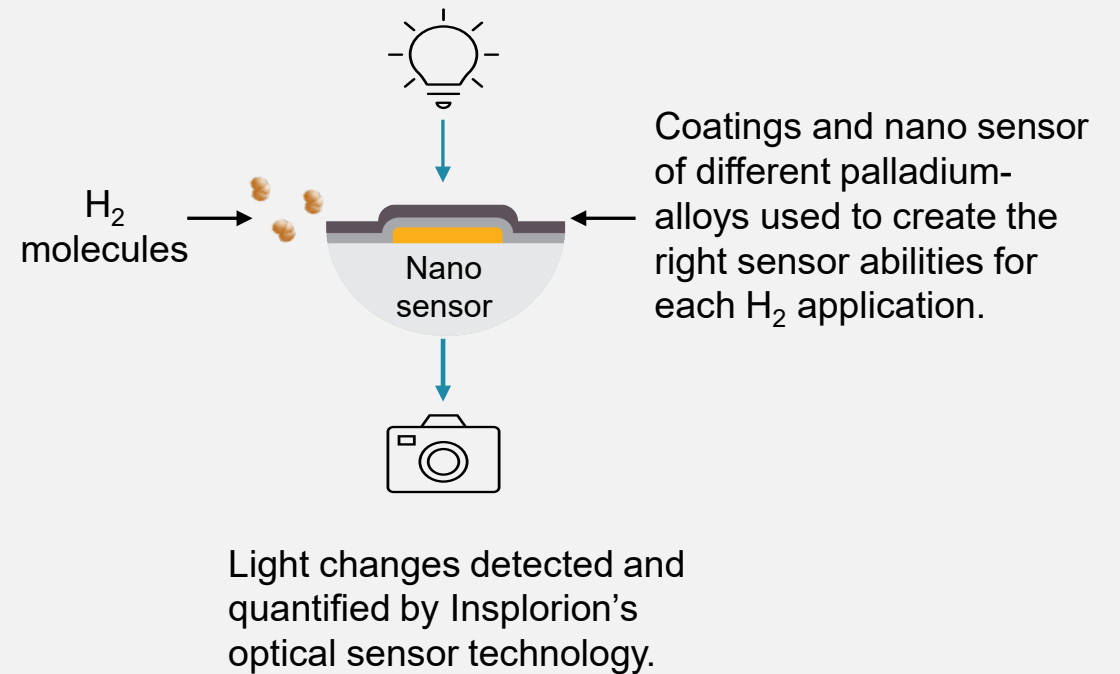
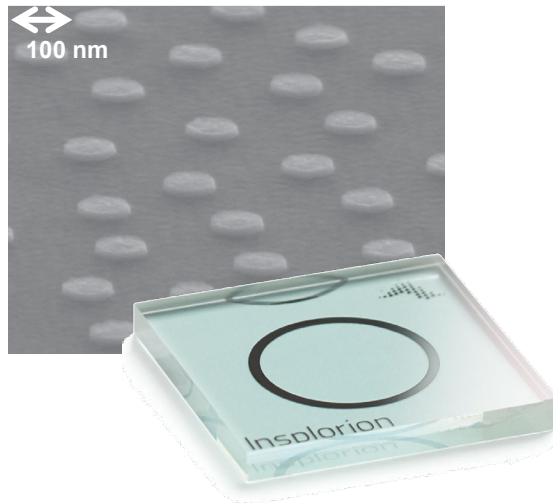
## Efficiency

Downtime and yield has direct effect on profitability.



# Inplorion NPS Sensor platform technology

Nanoscopic structure,  
“nanodiscs” on a transparent  
substrate – the sensor.

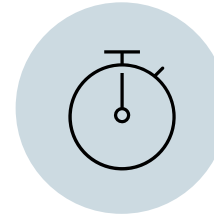


# Insplorion H<sub>2</sub> Sensor - Benefits

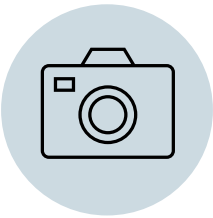
## Increased safety and efficiency



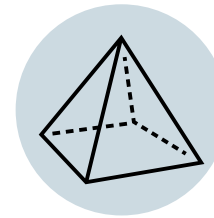
**Highly specific to H<sub>2</sub>** - detects H<sub>2</sub> in presence of other gases



**Fast response** - enables quick action



**Optical readout** - sensor can be separated from electronics



**Flexible Nanoscopic structure** - can be adjusted to different sensor needs and environments



# Insplorion H<sub>2</sub> product concept

## Leak detection



- Diffusion
- 0-10 % H<sub>2</sub>
- 1 bar

## Process monitoring

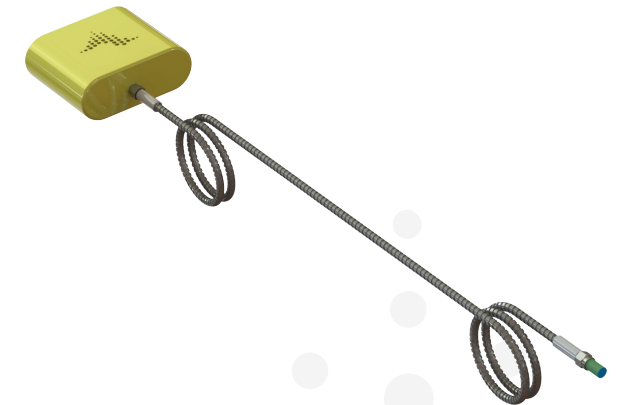


- In-line
- 0-100 % H<sub>2</sub>
- 1 bar



- In-line
- 0-100 % H<sub>2</sub>
- mbar – 50 bar

## Remote read-out



- Fiber optic platform
- 0-100 % H<sub>2</sub>
- Remote read-out

# Competition

	Insplorion NPS	Catalytic	Electrochemical	Thermal conductivity
Specific to H <sub>2</sub>	✓	✗	✓	✗
Independent of O <sub>2</sub>	✓	✗	✗	✓
Long lifetime	✓	✓	✗	✓
High sensitivity	✓	✓	✓	✗
Fast response time	✓	✓	✗	✓





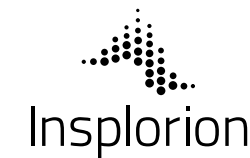
## Prove technology together with customers

### Application focus:

- Process monitoring: focus up-stream in the hydrogen value chain. I.e closer to production than end user case
- Leak detection: applies to both up and down-stream applications. New areas

## Partnerships for faster route to market

# The Insplorion team



## Business development & Sales



*Johan Rask, CEO*



*Per Giljam, CFO*



*David Nilebo*



*Martina Wennesjö*



*João Rosa*



*Radmila Batinic*

## Product development & Tech



*Elin Langhammer,  
CTO*



*Olof Andersson,  
CPO*



*Martin Sech*



*Saima Zaman*



*Irem Tanyeli*



*Umair Javed*



*Fredrik Cognell*

Our team of dedicated employees bring together a strong combination of business and technical competences to propel our business forward.



# Board of Directors



**Jonas Ehinger  
(Chairman)**

20 years of CEO experience. CEO of Gapwaves AB.



**Jan Burenius**

Vast international experience from both large corporations and start-ups.



**Ulla-Britt Fräjdin  
Hellqvist**

Vast experience from private, governmental and listed companies



**Anders Sandell**

Profound experience in industrialization. CEO of Holmberg Safety Systems.



**Magnus Jonsson**

Long experience from high tech operations  
Chairman of Powercell AB.

Our five Board members provide Insplorion a deep network and an extensive set of experiences and competencies in strategy, operations, internationalization, complex technology business models, and product development.



## Investment rationales

Hydrogen is a large and rapidly growing field, with major investments and development expected

Sensors will be needed where hydrogen is produced, stored, transported or used.

Unique and flexible technology with potential to fit many applications in the hydrogen value chain

Know-how built up in the company since 2010, and with an experienced and dedicated team in place

Two customer pilots in place, positive Voice-of-Customer feedback, and ongoing Instrument sales



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# Thank you for your attention

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[www.insplorion.com](http://www.insplorion.com)



[info@insplorion.com](mailto:info@insplorion.com)



+46 (0)31 380 26 95

