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Industrya - Introduction

05/11/2021

THE FIRST AFFORDABLE SOLUTION THAT ALLOWS CONTINUOUS METHANE EMISSION MONITORING

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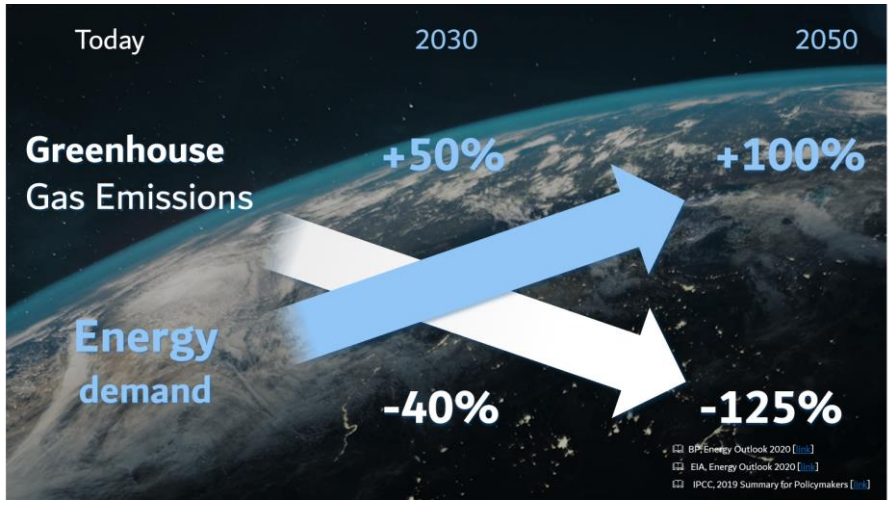
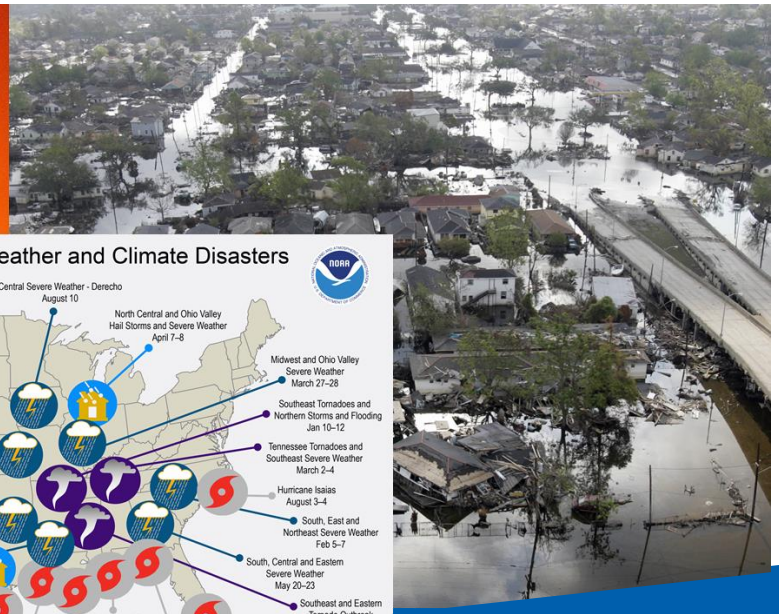
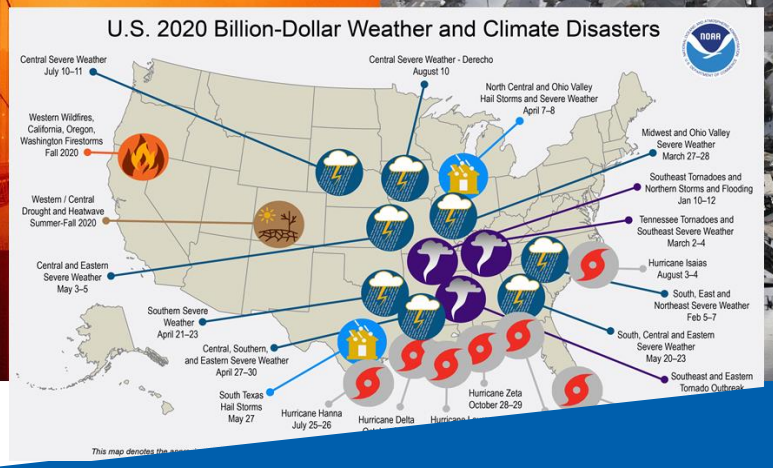
DELOQ TO BRIDGE ENERGY DEMAND & CLIMATE GOALS



Global methane emissions are comparable to the total energy-related CO_2 emissions of the European Union.
(source IEA)

The Biden Plan will:
Ensure the U.S. achieves a 100% clean energy economy and reaches net-zero emissions no later than 2050.





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INDUSTRY NEEDS CONTINUOUS MONITORING

DELOQ - WINNER SHELL GAME CHANGER CONTEST

Shell Game Changer Award for open path optical gas sensing solutions

1. Validation, funding & support for demo-version
2. Cooperation and support in field trials
3. Targeted as “IOC of choice” for first batch

The new OGMP 2.0 standard commits participating companies to increase the accuracy and granularity of their methane emissions reporting for operated and non-operated assets in 3 and 5 years respectively.
- Executive Director at OGMP

“Continuous site level measurement takes primacy in our measurement hierarchy. We want to roll out site level monitoring to relevant sites by the end of 2023”
- Global Sustainability Director at BP

VALUE PROPOSITION

ECONOMICAL OPEN-PATH LASER: ALLOWING CONTINOUS MONITORING ANYWHERE

Low cost/high quality open-path laser spectroscopic sensor for continuous monitoring, leak localization and emission quantification.

- **>10x lower Total Cost of Ownership** (CAPEX **AND** OPEX)
  compared to existing open-path solution
- **Detect** 95% of all methane emissions occurring on any asset
- **Locate and Quantify** Continuously 24/7 (95% time)
- **Easy to install and maintain**

COMPETITIVE ADVANTAGE

- Key sensor components fabricated and **pre-aligned & calibrated on a single chip**
- Optical alignment & compensation **without moving parts**
- Advanced RF sensing architecture for **low-light and adverse** weather **conditions**
- "Multi-fingerprint" laser sensing: **no false alarms**

Low-cost, mass-producible & low power integrated package: **easy to install, maximizing uptime**, **maintenance free**.

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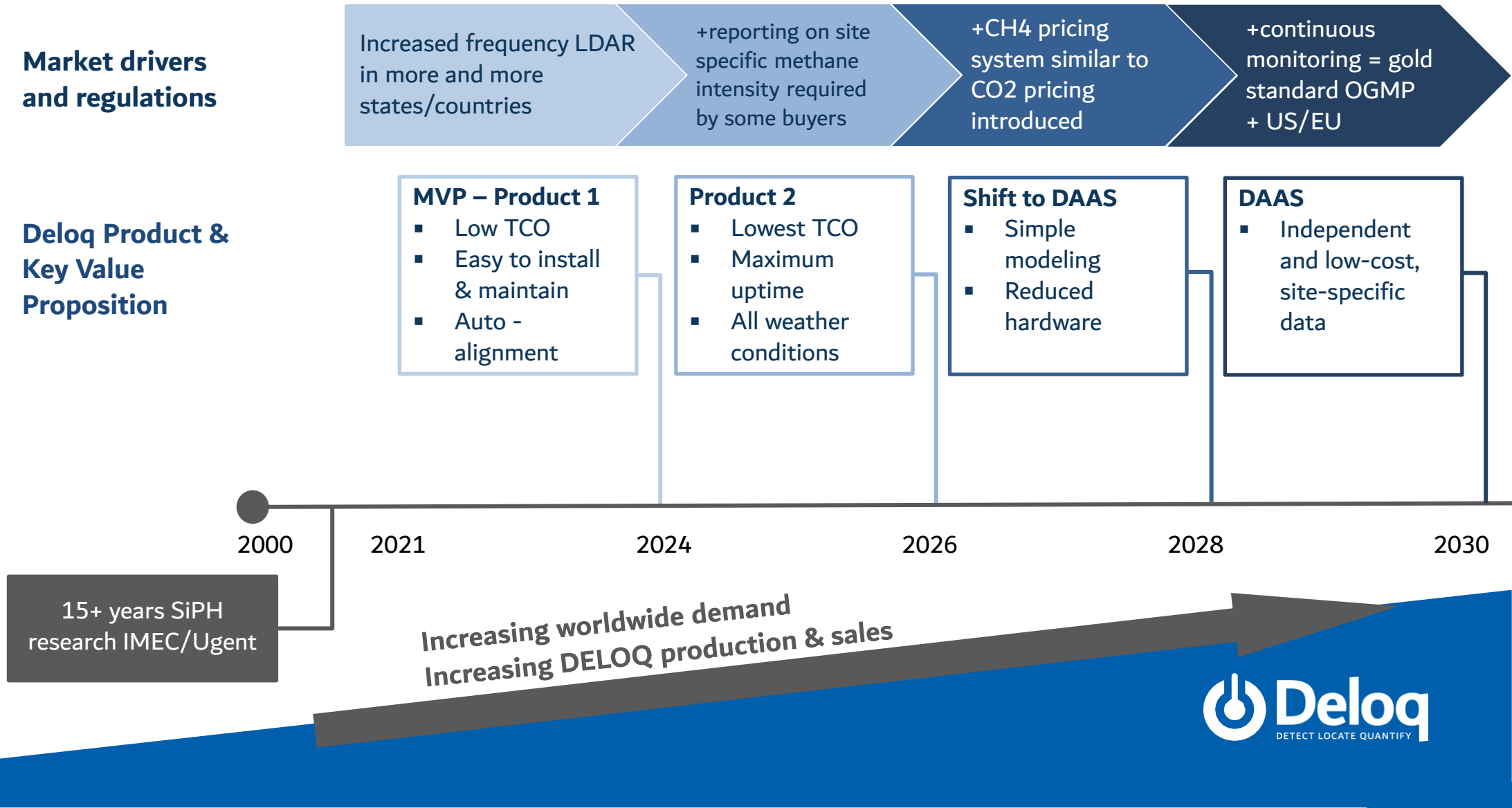
LEVERAGING THE BLUE OCEAN UNFOLD

INCREASING REGULATIONS ALIGN WITH DELOQ PRODUCT DEVELOPMENT



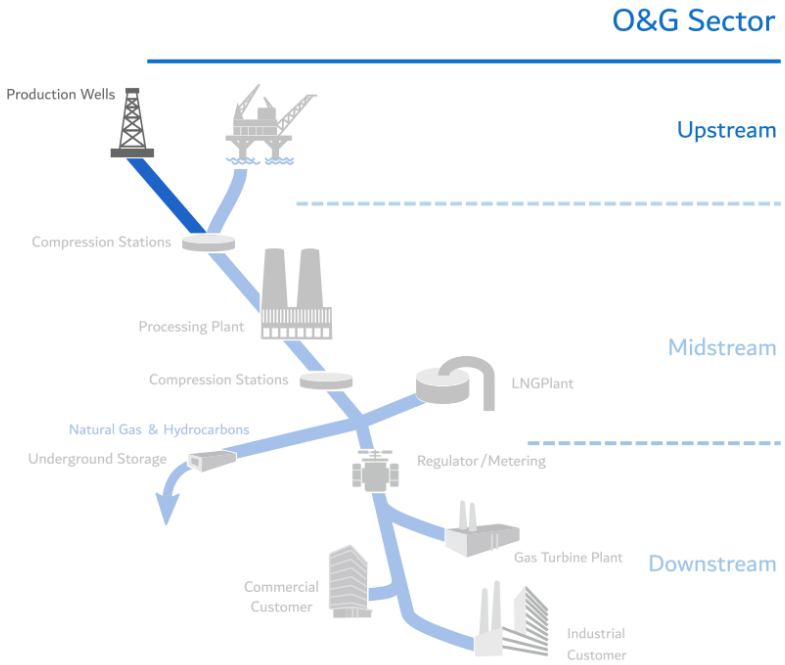
MARKET SEGMENTATION

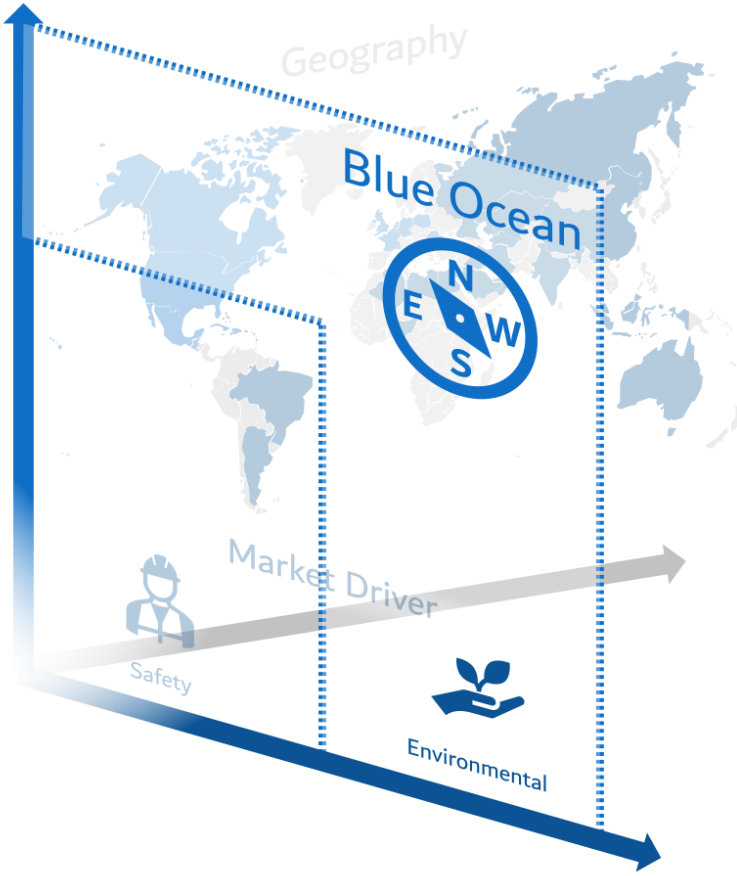
UPSTREAM ONSHORE OIL AND GAS WELL SITES

BEACHHEAD MARKET

Upstream onshore wells in Europe and North-America:

- Highest number of emitting sites (emit 63% of all methane from O&G sector, IEA 2020)
- Wellsite easy to monitor - not congested
- Unmanned sites with need to monitoring fugitive emissions
- Regulations are upcoming or already in place – ahead of the curve





FUTURE POTENTIAL

- Other O&G segments (global upstream, orphan wells, downstream, midstream)
- Other industries (agriculture, landfills)
- Other gasses (CO2, CO, H2S, NH3, H2)

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MARKET SIZE

HARDWARE SALES SHIFT TO DATA AS A SERVICE (DAAS)

1. HARDWARE SALES

Beachhead Market

- TAM (#) = 1.032K sites * 3 – 5 sensors = 3.096K – 5.160K sensors
- TAM (€) = 3.096K – 5.160K sensors * €1500 = **€4.6B – €7.7B market value**

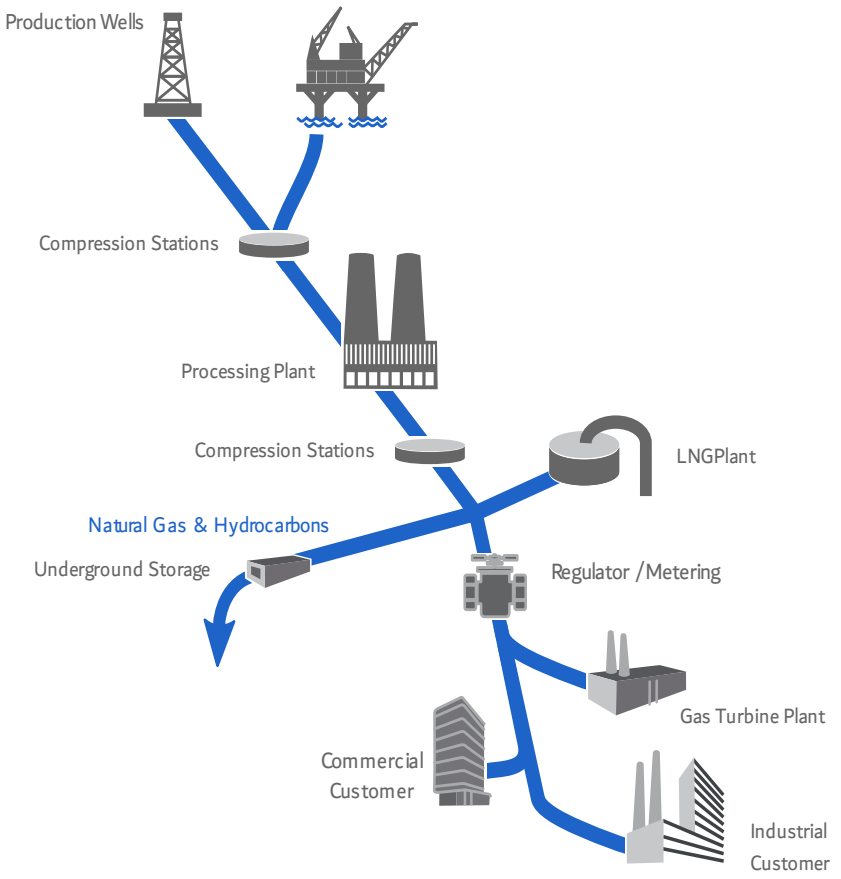
Global Market

- TAM = 2.000K sites * 3- 5 sensors = 6M – 10M sensors
- TAM (€) = 6.000K – 10.000K sensors * €1500 = **€9B – €15B market value**

2. DATA AS A SERVICE (DAAS)

Global Market

- TAM = 2.000K sites * €2000/€3000 = **€4B – €6B annual value**



Excellent localization and quantification, market uptake and scalable low-cost sensor will bring Deloq to DAAS

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COMPETITIVE LANDSCAPE

QUANTITATIVE COMPARISON TO EXISTING AND UPCOMING SOLUTIONS

Technology	 Manual Inspection	 Imaging installations	 Drone-based Monitoring	 Satellite Monitoring	 (MOX) point sensors	 Open-Path Laser Sensing	Deloq DETECT LOCATE QUANTIFY DELOQ
Capex	€€	€€€€	€€€	NA	€	€€€ expensive optics	€
Opex	€€€€ trained operator required	€€	€€€ trained pilot required drone pilot mob on site	€	€€€	€€€ frequent maintenance: realignment required	€
Sensitivity	✓	✗	✓	✗	✓	✓	✓
Location	✓	✓	✓	✗ resolution > 25m	✗ long data-averaging	✓	✓
24/7 monitoring	✗	✗	✗ limited flight autonomy	✗ day-time, fly-by & weather dependent	✓ more wind-dependent, sensor poisoning	✓	✓

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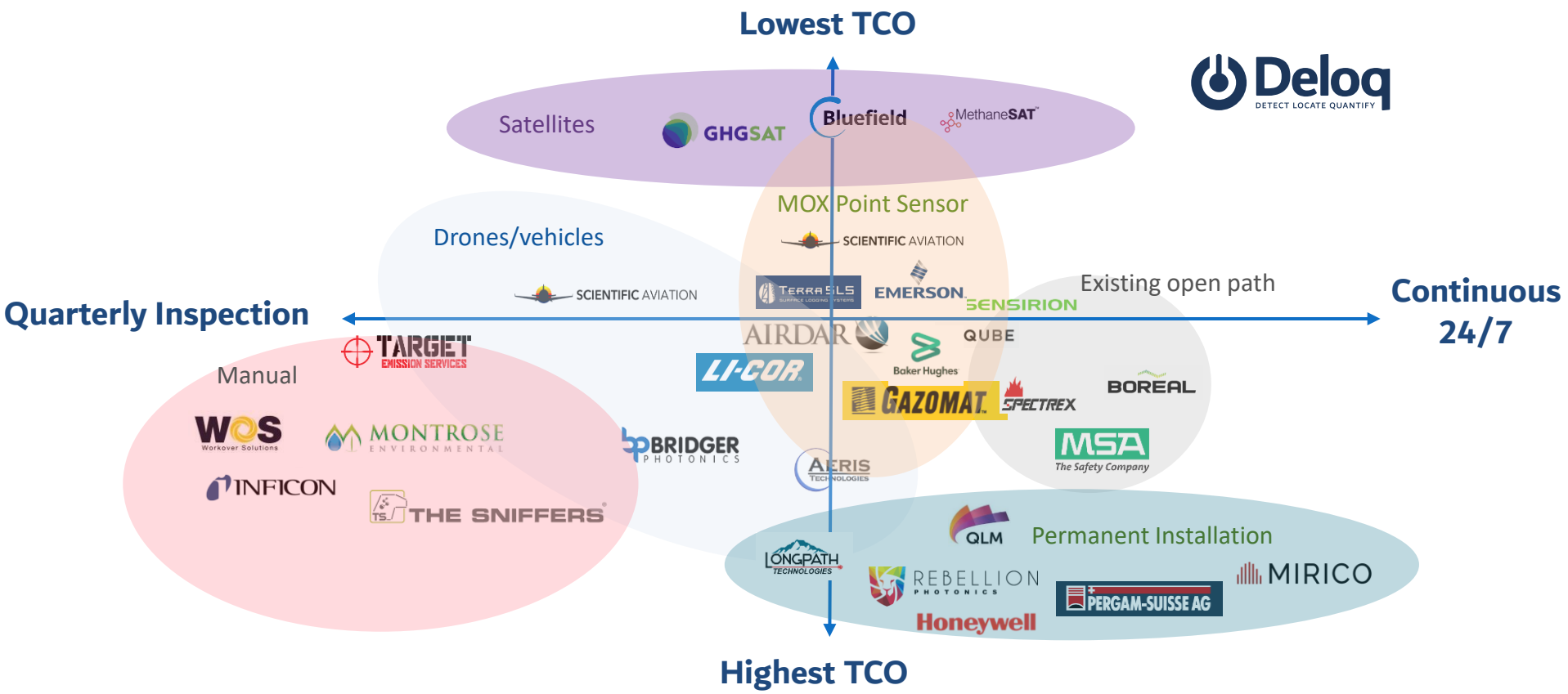
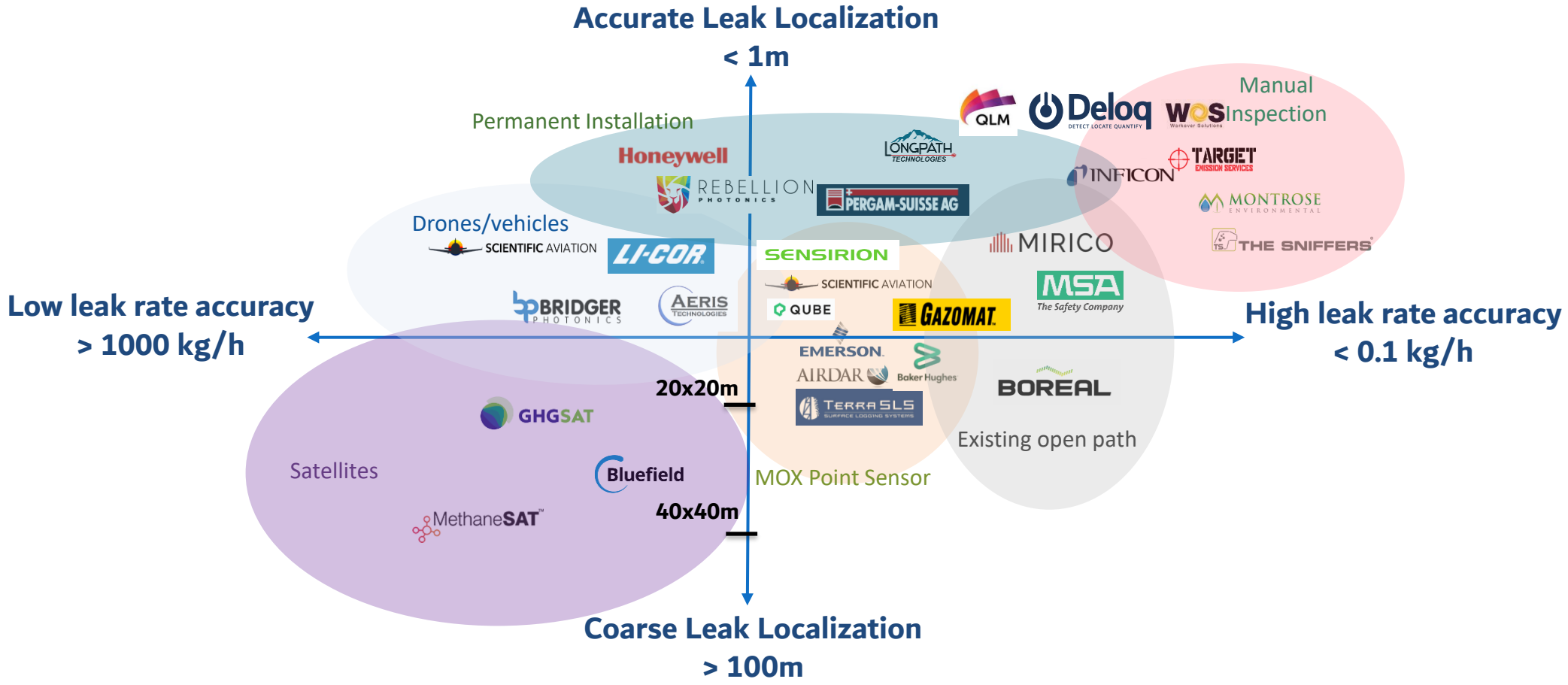
COMPETITIVE LANDSCAPE

DELOQ TO EXCEL ON TOTAL COST OF OWNERSHIP & OPERABILITY



COMPETITIVE LANDSCAPE

DELOQ ON PAR WITH BEST AVAILABLE PRACTICES FOR LEAK LOCALIZATION & QUANTIFICATION



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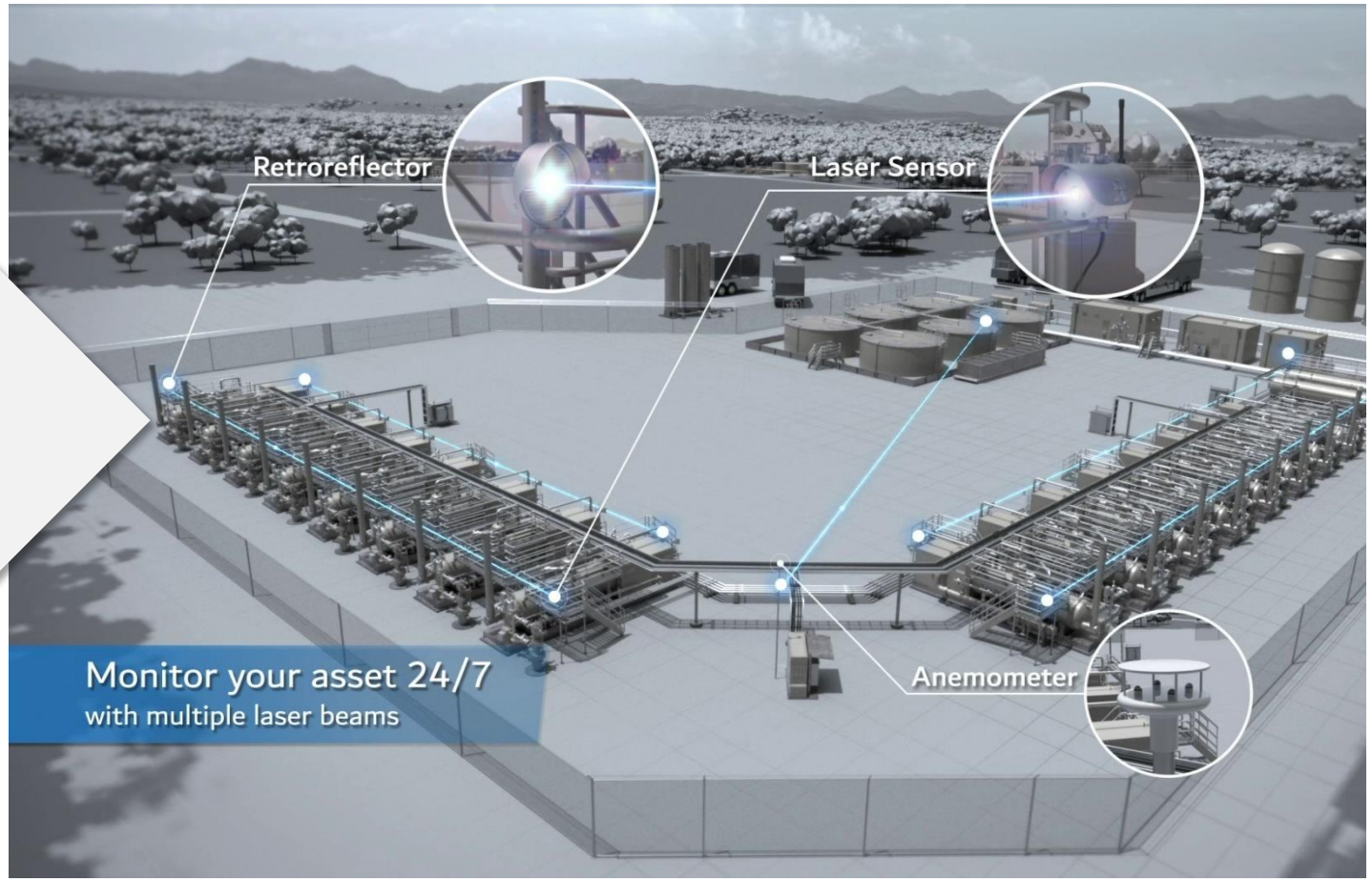
TARGET PRODUCT

ECONOMICAL AND HASSLE-FREE CONTINUOUS LASER MONITORING SYSTEM

Product 1

- 50-200m open-path beam
- 3-5 sensors (with retro) per site
- 1 anemometer per site
- <10kUSD CAPEX/site, installation cost not included



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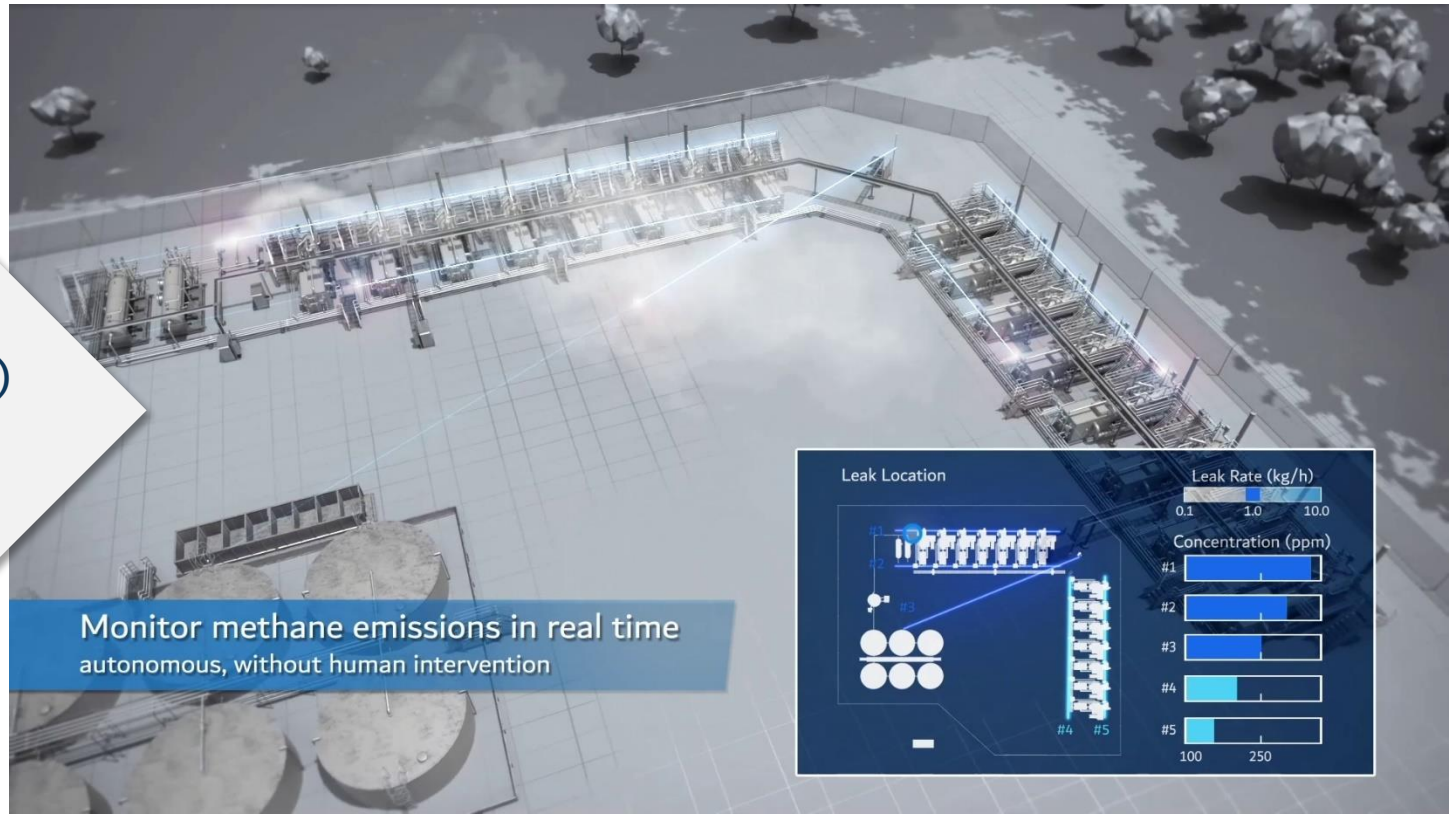
TARGET PRODUCT

ECONOMICAL AND HASSLE-FREE CONTINUOUS LASER MONITORING SYSTEM

Product 1

- CH4 detection <1kg/hr
- Localization on equipment level (1m)
- Simultaneous measurement of all beams
- FoV and compensation >3 deg
- Autonomous leak reporting



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TARGET PRODUCT 1

ECONOMICAL AND HASSLE-FREE CONTINUOUS LASER MONITORING SYSTEM

2023

Product 1 vs Competitors

- Low-cost, mass-producible
- Low power
- Easy to install, retrofit
- Maintenance & calibration free
- No false alarms or poisoning
- Cloud analytics

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TARGET PRODUCT 2

ECONOMICAL AND HASSLE-FREE CONTINUOUS LASER MONITORING SYSTEM

WITH SIMPLER INSTALLATION AND OPERABILITY IN CONGESTED SITES & ADVERSE WEATHER

2023

Product 1 vs Competitors

- Low-cost, mass-producible
- Low power
- Easy to install, retrofit
- Maintenance & calibration free
- No false alarms or poisoning
- Cloud analytics

2026

Product 2

High volume & lower cost
No anemometer
Maximum uptime (fog, mist, ...)
No retroreflector (short-reach)
Plume snapshot (short-reach)

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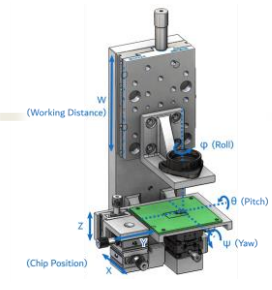
PRODUCT DEVELOPMENT ROADMAP

TOWARDS UNIQUE VALUE PROPOSITION



	Q2 2022	Q1 2023	Q4 2023	Q4 2024	Q2 2026
	Demo 1 Field-test @ internal site	**Demo 2** Field-test @ O&G site	**Product 1 (MVP)** low volume batch	**Product 1 (ATEX)** medium volume	**Product 2** high volume
Highlights	▪ Beam steering ▪ First outdoor tests:	▪ Weatherized enclosure ▪ Field demo on real site	▪ Professional Installation	▪ ATEX certification ▪ Professional Installation ▪ Robust operation in adverse conditions	▪ volume ramp up ▪ Fool-proof Installation ▪ Plume visualization ▪ No anemometer required ▪ No retro (or lower cost)
Commercials	▪ No sales	▪ No sales	▪ Sales = 500 sensors	▪ Sales = 5.000 sensors	▪ Sales = 20.000 sensors

IP position Secured for key components (2021)

- Beam Steering
- Laser and calibration
- High speed receiver
- Modulator & RF circuit
- Low noise TIA

DELOQ TEAM FOR SUCCESS

CREDIBLE CORE TEAM + EXPERIENCED BOARD OF ADVISORS

Chief Executive Officer (CEO)

Rutger Schouten, MBA

20+ years of experience in the O&G sector, matured in companies such as TD williamson and Applus. Has an MBA degree from NIMBAS graduate school of management.

Chief Operations Officer (COO)

Guy Coen, PhD

Led multiple entrepreneurial ventures like Clickshare (now Barco), Awind, Option and Mind4Energy. He is currently also the R&D Director of Cirrus Systems.

Chief Technology Officer (CTO)

Anton Vasiliev, PhD

Obtained his PhD on silicon photonic spectroscopic gas sensors with the Photonics Research Group in 2020. Co-inventor of Deloq patents with 5+ years of relevant lab expertise, committed to apply silicon photonics to realize an affordable and scalable solution for fugitive emissions.

Business Development Manager

Alexey Tuganov

Alexey Tuganov has more than 20 years' experience in upstream and midstream O&G sectors in Russia and worldwide, holding both technical and commercial positions for BDM and TD Williamson.

SUPPORT TEAM – **operationally involved in the venture**

- Dr. Ir. Eva Ryckeboer
  Business Development Manager at Ugent
- Dr. Olivier Rousseaux
  Director Venture Development at IMEC
- Dr. Giorgio Signorello
  Consulting Scientist at IMEC
- Jonnhy Chu
  (Field) Engineer at Gas Sensing Solutions (GSS)
- Sander de Boer
  Investment Associate at Brooklyn Ventures

ADVISORY BOARD

- Dr. Ir. Joris van Campenhout
  Project Manager Silicon Photonics at IMEC
- Prof. Dr. Ir. Gunther Roelkens
  Professor in Integrated Photonics at UGent
- Prof. dr. ir. Bart Kuyken
  Associate Professor in Integrated Photonics at UGent
- Dr. Bill Hirst
  Consulting Scientist at Atmospheric Monitoring Sciences
- Drs. Ing. Ard Jol
  CEO of Pandora Intelligence

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DELOQ – RECAP AND JOURNEY

DETECT, LOCATE AND QUANTIFY METHANE EMISSIONS ANYTIME, ANYWHERE AT LOWEST COST

Deloq – Spin Off in incubation

Deloq is a "project turning venture" in cooperation with IMEC and the University of Ghent (UGent), leveraging both environments for the successful development of the technology.

- **UGent** – Deloq leverages the decades long experience in silicon integrated photonics from the Photonics Research Group in UGent in the field of telecommunications and sensing.
- **IMEC** – Deloq benefits from IMEC's semiconductor process development capacity and scalable manufacturing of the silicon photonics platform.

Mission Statement

Detect, Locate and Quantify Methane Emission Anytime, Anywhere at Lowest Cost

We contribute to lowering the carbon footprint of today's oil and gas infrastructure, to reach a net-zero carbon economy and slow the pace of global warming and climate change.

Strategy

- We deliver cost-effective open-path laser spectroscopic sensor
- that allows for continuous monitoring, accurate leak localization and quantification

Deloq - Timeline

imec
UNIVERSITEIT GENT

Feb 2018: Deloq idea created
imec innovation proposal from Dr. ir. Joris Van Campenhout and Prof. dr. ir. Gunther Roelkens

Apr 2019: Anton Vasiliev (CTO) joins the team

Apr 2020: Alexey Tuganov (BDM) joins the team

BROOKLYN VENTURES

Jan 2021: Brooklyn Ventures joins the team
Rutger Schouten (CEO) to build the team

Shell GameChanger

Jan 2021: Shell Gamechanger Challenge Awarded

Apr 2021: Guy Coen (COO) joins the team

Sep 2021: Business Plan and start roadshow

Q1 2022: Company incorporated

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