Accelerating methane mitigation in the energy sector

International Methane Emissions Observatory – IMEO

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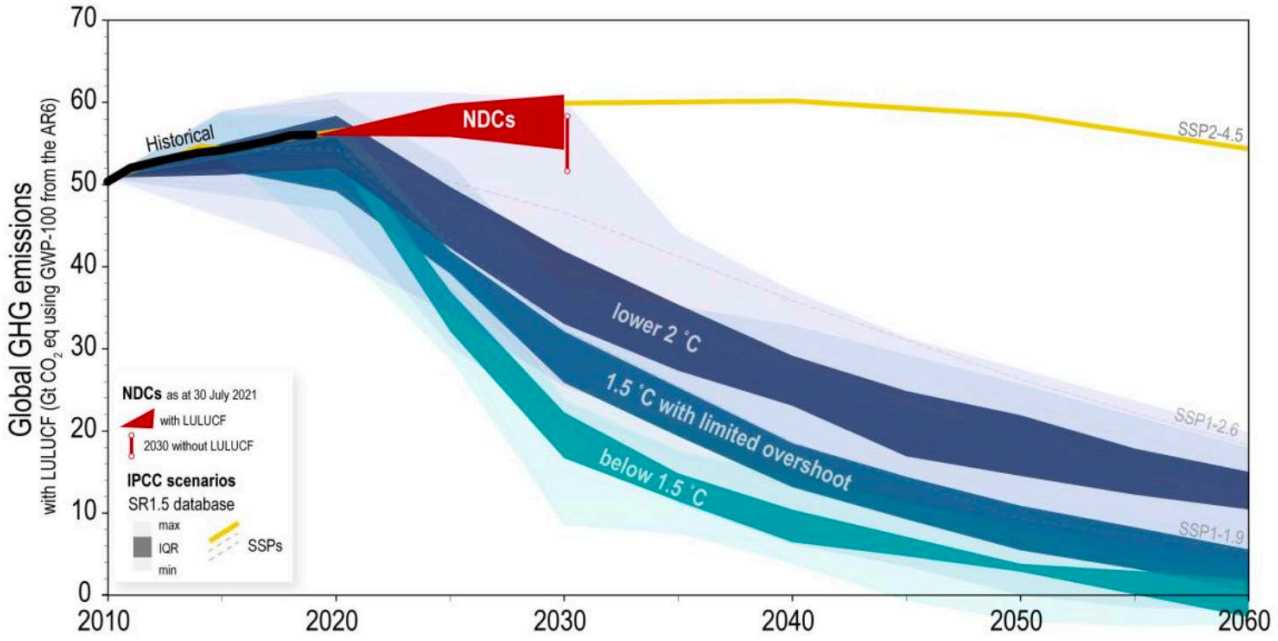
UN environment programme 50 1972-2022

The world is not on track to limit the temperature increase even to 2 degrees: an urgent need to enhance or overachieve the latest NDCs



Comparison of global emissions under scenarios assessed in the IPCC 1.5 °C Special Report according to nationally determined contributions (NDCs)

For limiting global warming to below 2 °C:

- CO2 emissions need to **decline by about 25 % from the 2010 level** by 2030 on most pathways
- Deep reductions are required for non- CO2 emissions as well

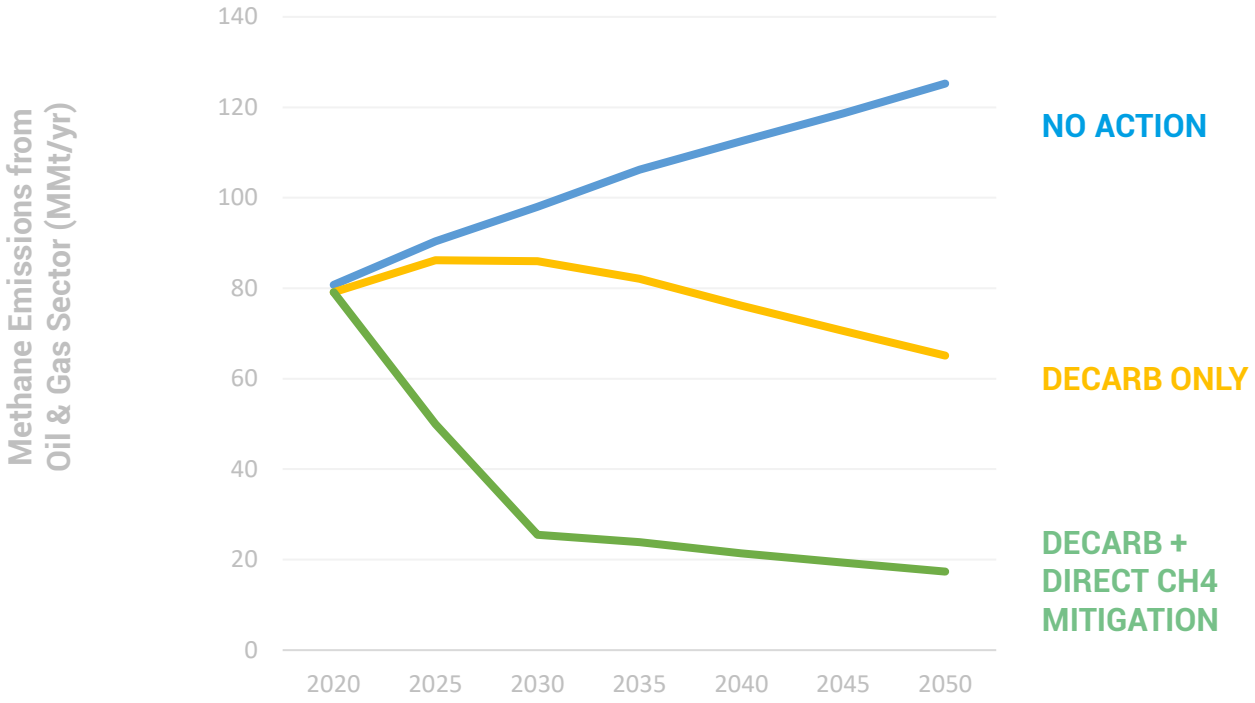
However, the total global GHG emission level in 2030 taking into account implementation of the latest NDCs

- is expected to be **16.3 % above the 2010 level**.

(UNFCCC, Synthesis report, 2021)

Targeted measures are needed to realize the full potential of methane mitigation in the fossil fuel sector

Methane Emissions Scenarios



Ocko et al., Acting rapidly to deploy readily available methane mitigation measures by sector can immediately slow global warming, 2021.

According to the International Energy Agency

1. Methane emissions from the oil and gas sector could be reduced with technologies that exist today

by 75%

2. The measures pay for themselves quickly by saving money:

~ 50%

3. Available targeted measures have

negative costs

Better data is needed to enable targeted methane mitigation strategies and policies

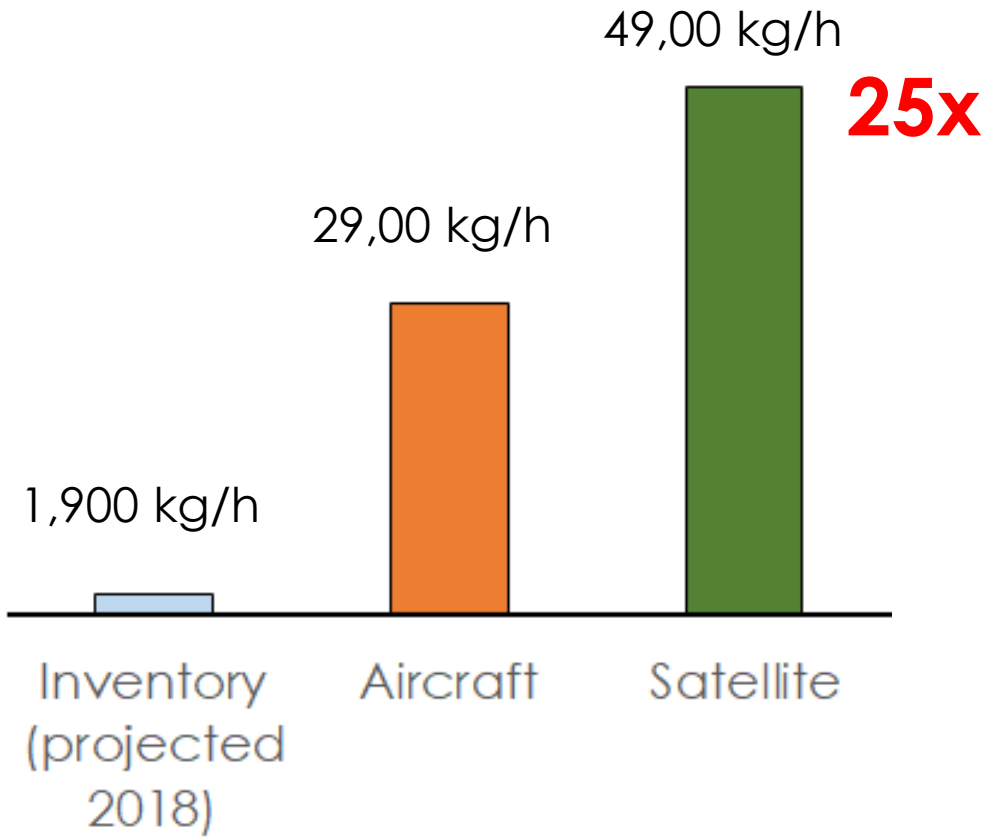
Data Landscape Today

Accuracy of data

- Most methane emissions data is from emissions factors
- Studies show that these underestimate observed emissions levels

Action enabled by better data:
- Targeted emissions reduction plans
- Identification of super-emitters
- Set and track ambitious methane reduction targets

Sample Measurement Data in Mexico



(Zavala-Araiza et al. 2021)

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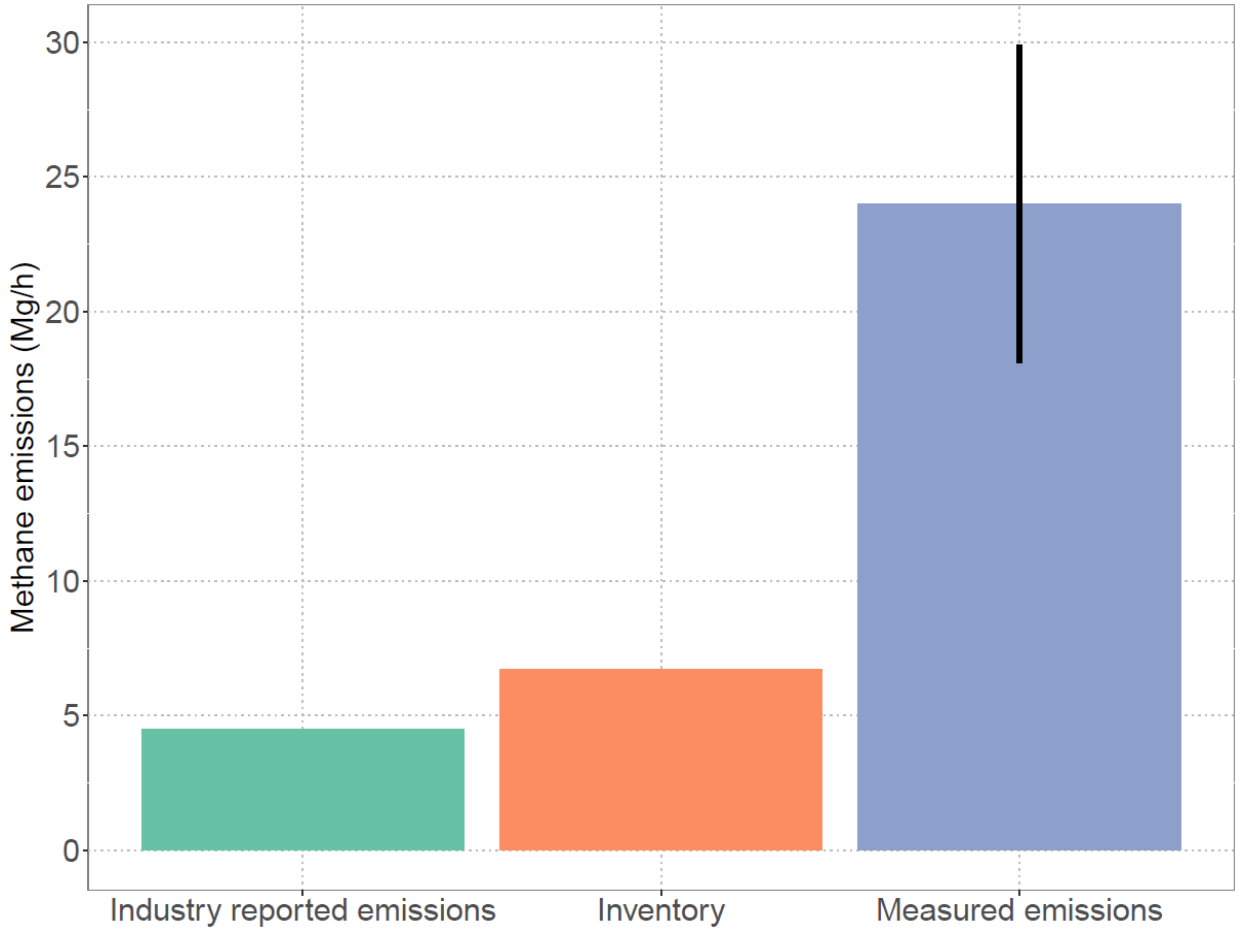
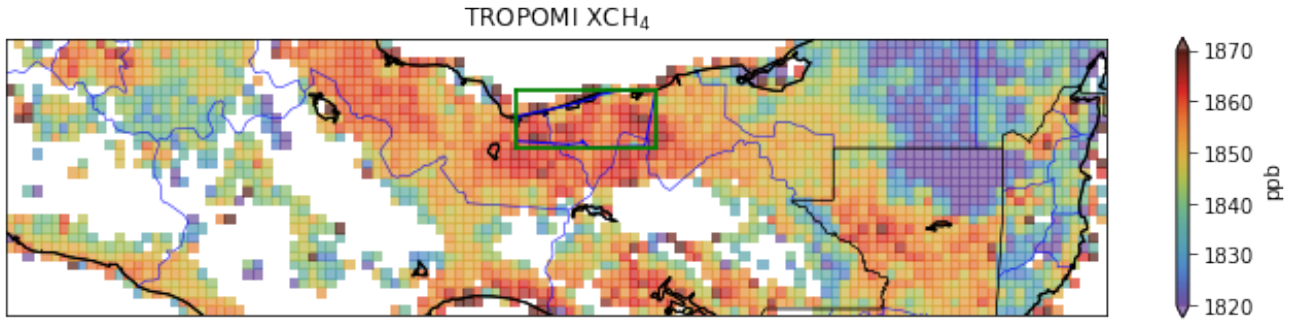
Sample Measurement Data in Alberta, Canada

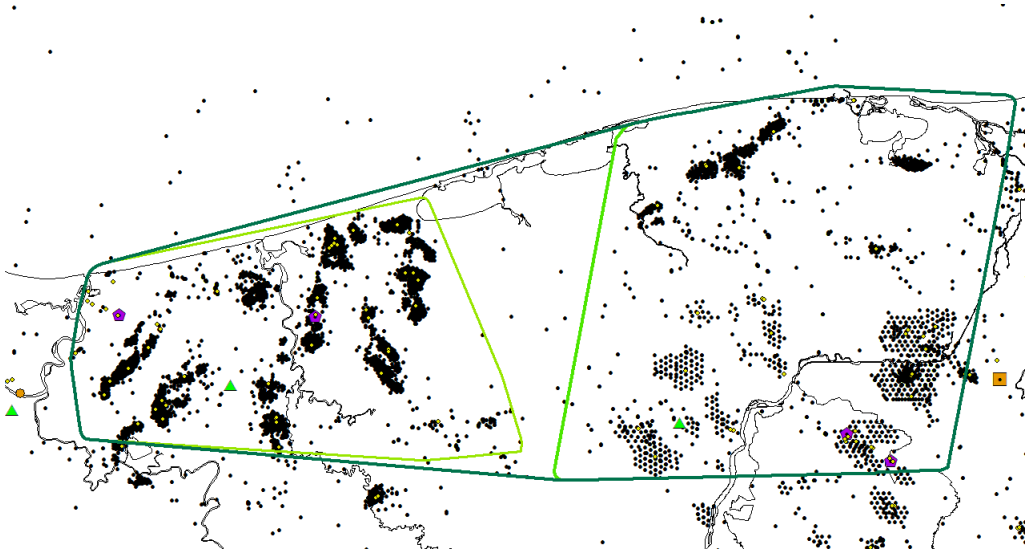


(Johnson, et al. ES&T 2017)

Recent satellite observations reveal high methane emissions in Mexico's most important onshore oil and gas production region

TROPOMI data (24-month average Dec2017 - Nov2019)





Independent characterization of emissions using satellite data (i.e., TROPOMI methane data and VIIRS night-time flare data) allowed us to better constrain our estimates by averaging data over longer periods of time (i.e., two years of data).

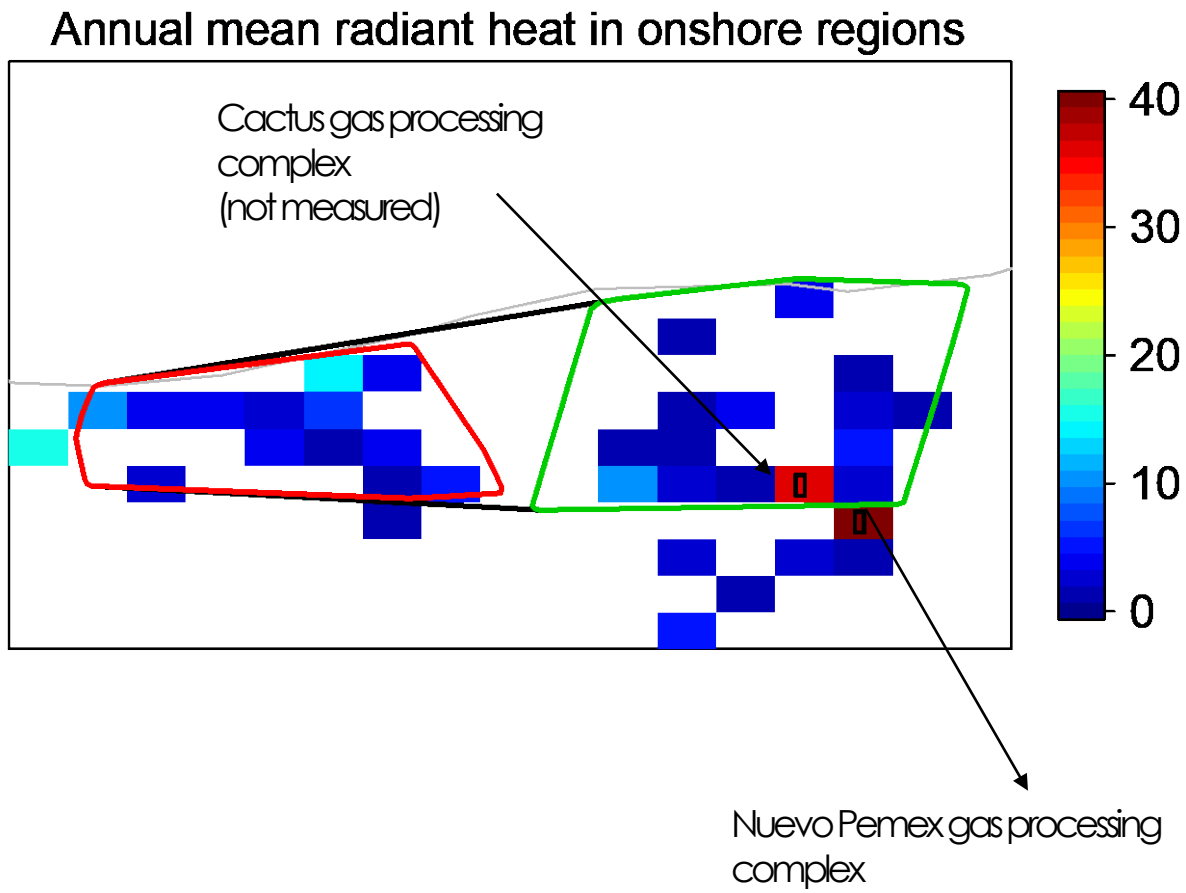
Satellite data showed that high emissions at key facilities continued throughout two years in the onshore region

VIIRS data – Onshore flaring

Characterized specific high-emitting facilities

- *only show the grid cells with >50 observations per year*

(Zavala-Araiza et al. 2021)



Accelerating methane emissions reductions requires knowing

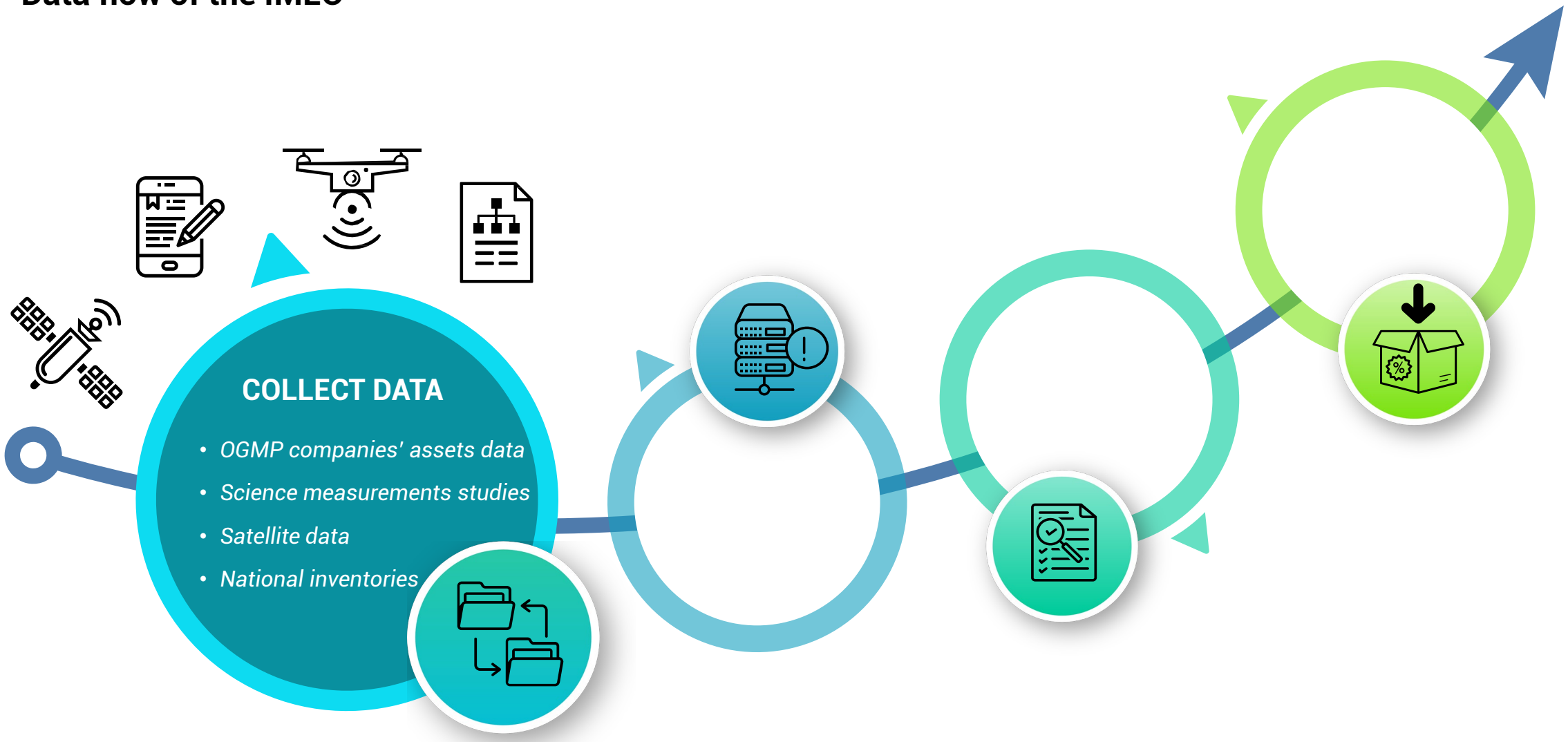
1. What
2. Where
3. How much

is being emitted

This is the role of IMEO

How will IMEO answer the methane emissions data problem?

Data flow of the IMEO



OGMP Timeline

The Oil & Gas Methane Partnership was launched at the UN Secretary General's Climate Summit in New York in September 2014

6 companies

USA

Norway

and

UK joined

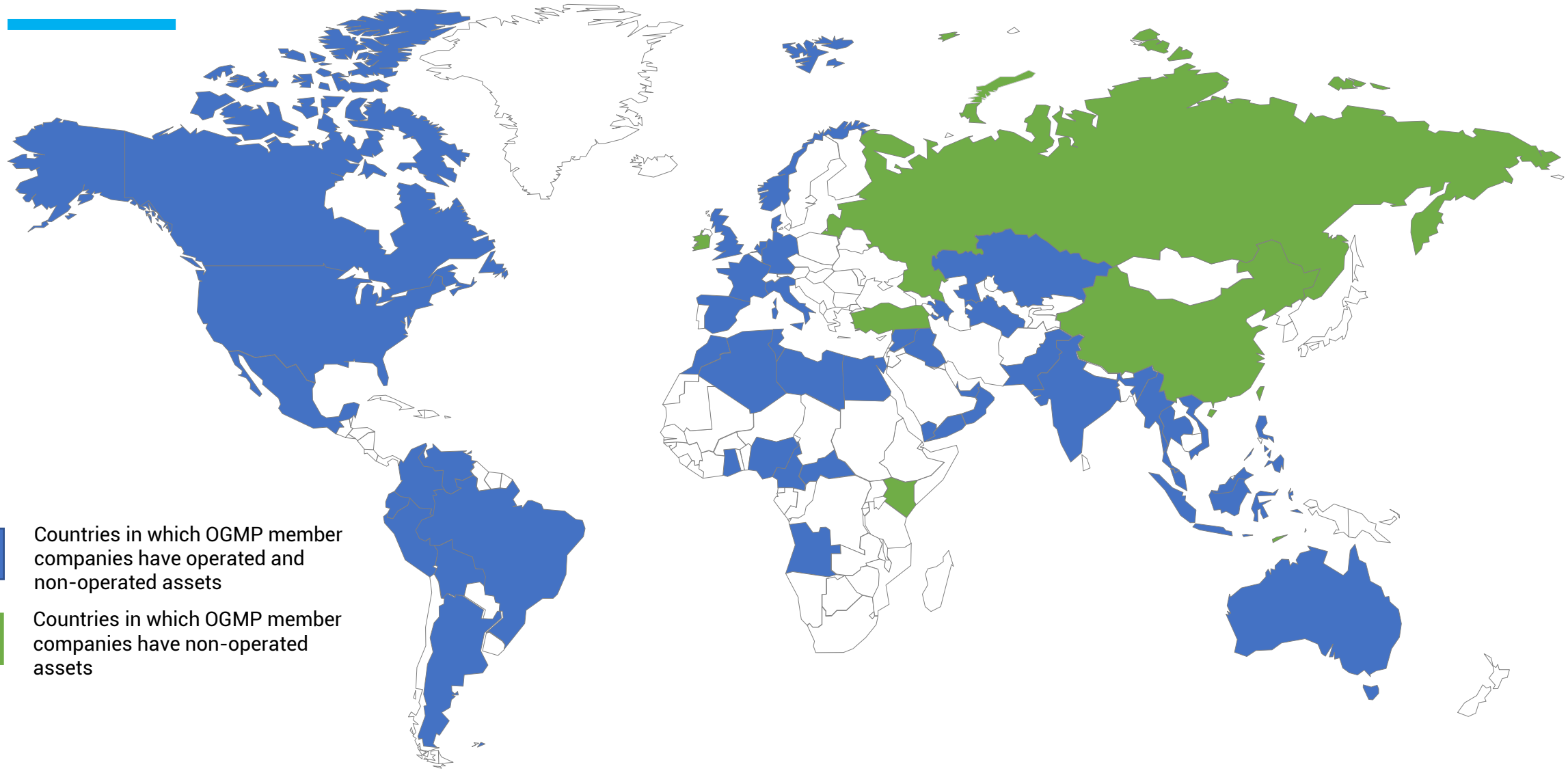
European Commission joined

74 companies

OGMP 2.0 launched on 23 November 2020

OGMP
Oil And Gas Methane Partnership 2.0

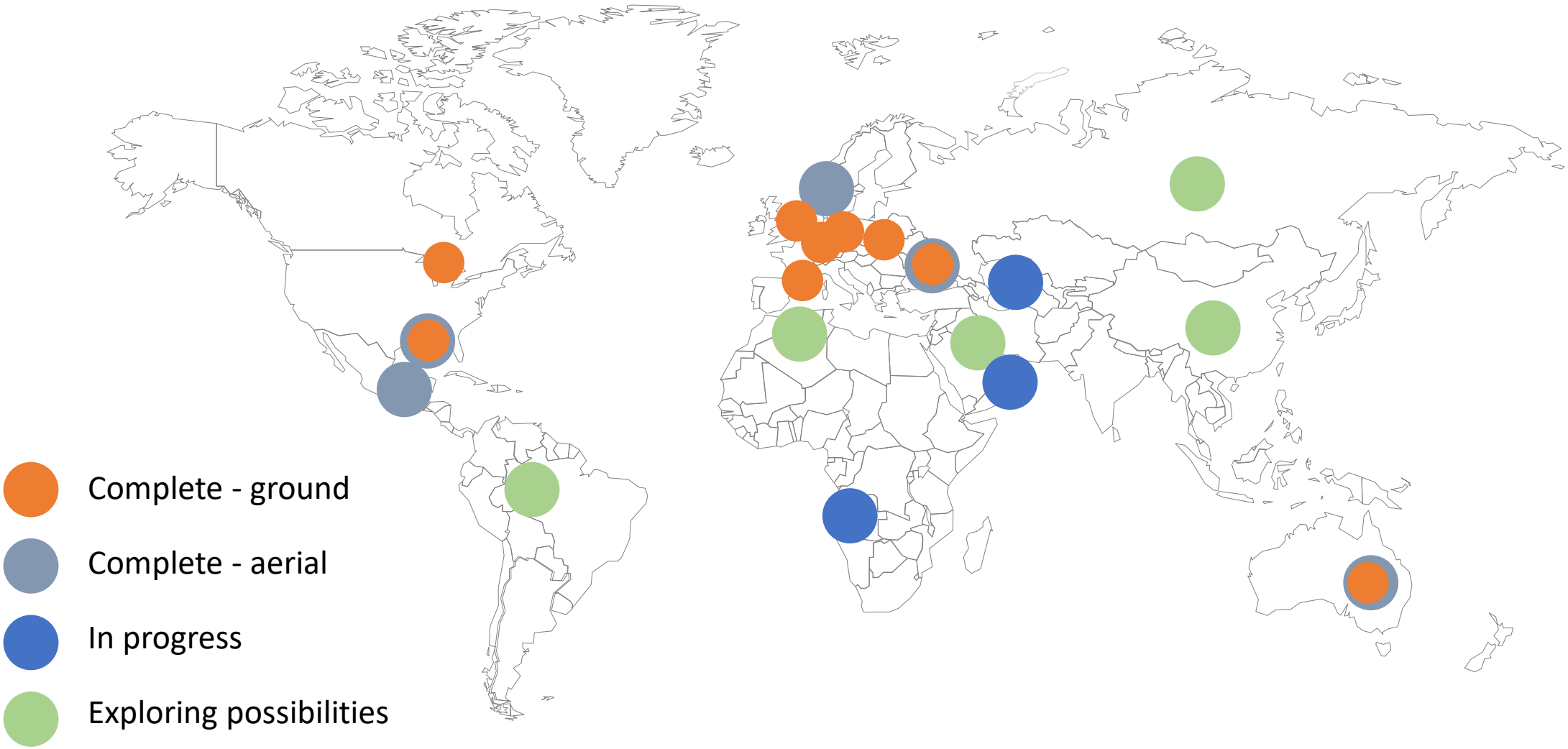
OGMP 2.0 will improve methane reporting around the world



Countries in which OGMP member companies have operated and non-operated assets

Countries in which OGMP member companies have non-operated assets

Direct measurement studies help better understand where and how much methane is leaking



Satellites Are Complementary For Tackling Global Methane Emissions

Instrument	Dates operational	Grid size (subgrid pixel) (km2)	Swath (km)	Precision (ppbv)
GOSAT	2009	10 km dia., single	Sparse	~8
GHGSat	2016	0.05 x 0.05	12 x 12	~50
TROPOMI	2017	7 × 7	2600	~11
GOSAT-2	2018	10 km dia., single	Sparse	~8
MethaneSAT	2022	1.4 × 1.4 (< 1 km raw)	200±	2-3*
GeoCARB	2022	3 × 6	2800	~18
Carbon Mapper	2023	0.03 x 0.03	18km	~30

* Gradient measured over 10 – 100 km length scales.

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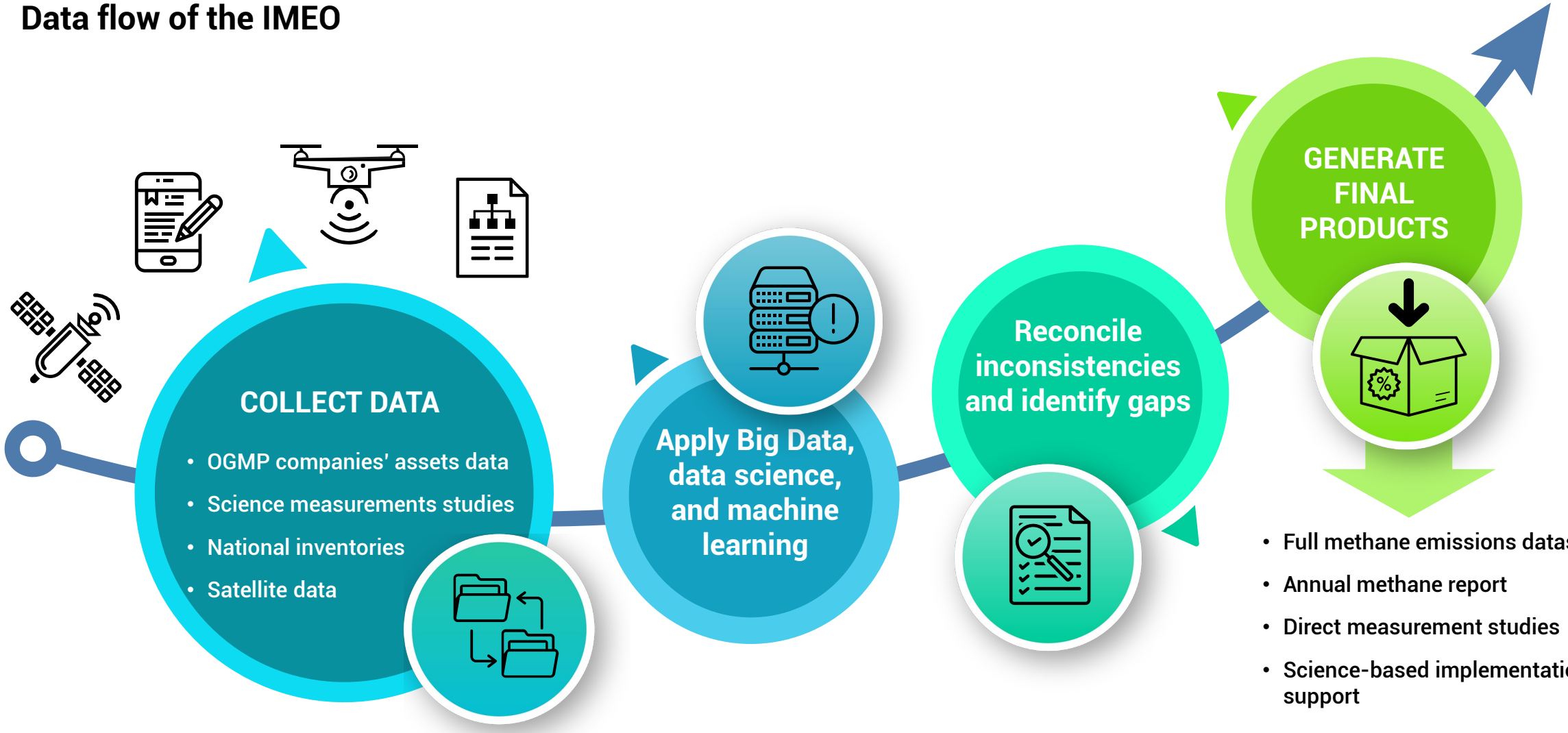
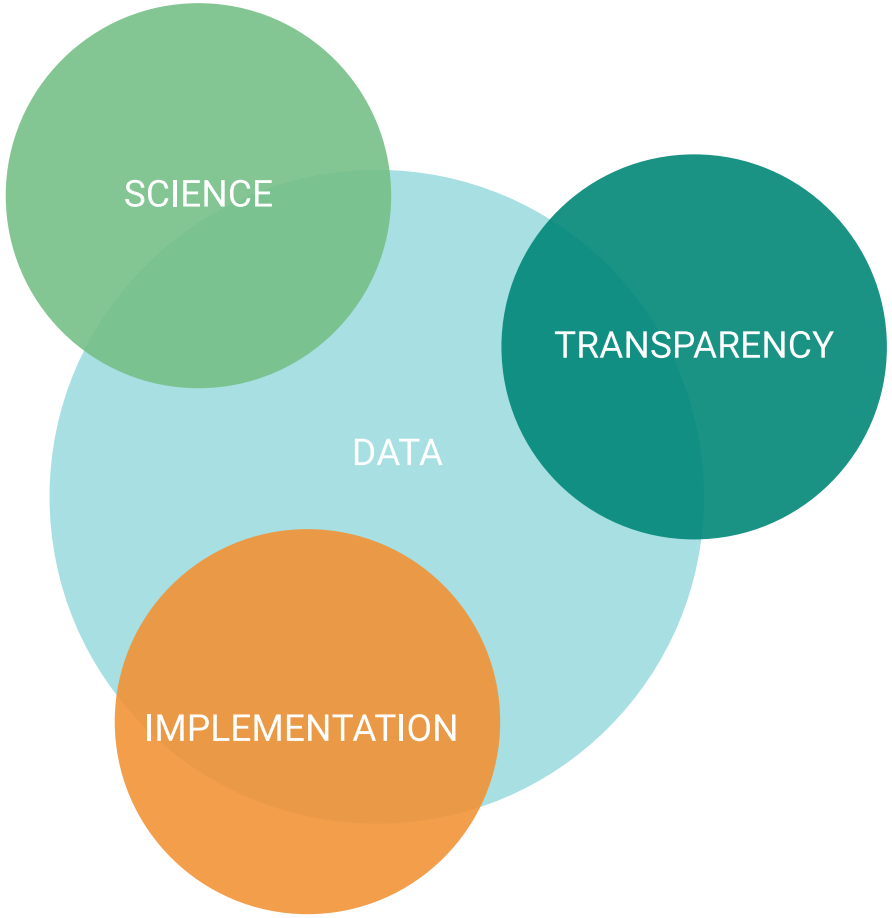


The International Methane Emissions Observatory will revolutionize the global methane emissions approach

Each element is necessary, but not sufficient to drive change

IMEO interconnects activities across the methane ecosystem



Thank you

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