

Institute of Computer Science (ICS-HSG)

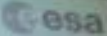
Deep Learning & Earth Observation

Artificial Intelligence & Machine Learning Lab [AI:ML]

Benjamin Bischke¹, Patrick Helber¹, Prof. Dr. Damian Borth²
DFKI¹ & University of St. Gallen (HSG)²



University of St.Gallen

 esa

Industry 1.0: use of water- and steam power
Industry 2.0: mass production through production belts and electric energy
Industry 3.0: use of electronics for automatisaton
Industry 4.0: collective term for technologies and concepts of value chain organization.

- internet of things (machine-machine-interaction)
- internet of services
- vision of the smart factory

Space 1.0: astronomy (+astrology)
Space 2.0: race in space, Apollo era
Space 3.0: space as next dimension, ISS era
Space 4.0: New Space, relaxed, fascinating, comprehensive...

- interaction with society
- increasing number of space faring nations
- commercialisation
- spin off, spin in
- public, private, tourism
- new roles (industry, agencies, EC)





UN News

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Data experts gather to find solutions to world's biggest challenges at UN Forum



United Nations
**WORLD
DATA
FORUM**

The Forum will launch an advance a number of practical solutions, including for the use of new traditional data sources such as mobile phone and bank records, and use media earth observations and geospatial data.

Projects to be showcased include the use of high-resolution satellite images to map poverty, measure soil fertility and improve agricultural productivity.

UN DESA United Nations World Data Forum 2018

23 October 2018

f t y R O



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What good is AI for UN Development Goals?

The United Nations may have a reputation for being a talking shop. But when it comes to artificial intelligence and the 2017 Sustainable Development Goals, it's trying to get ahead of the conversation.

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UN News
12.Oct 2018

Deutsche Welle
16.May 2018

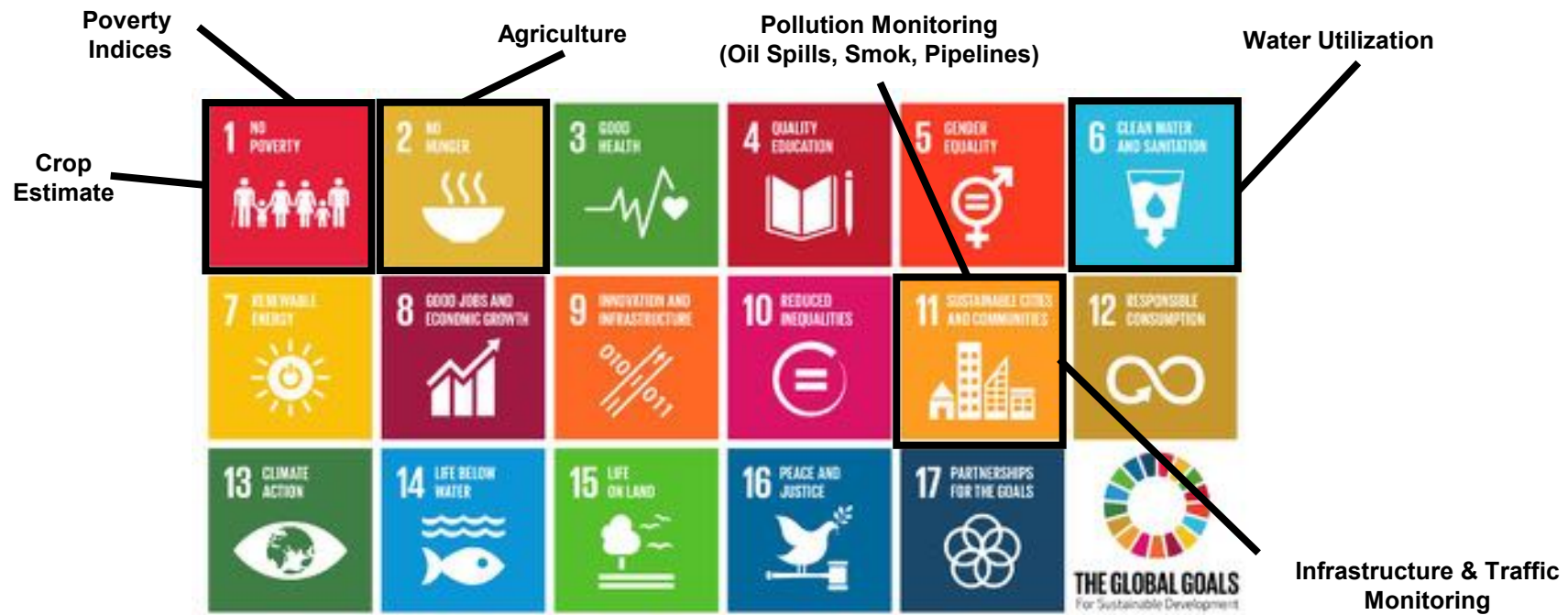
UN Sustainable Development Goals & Earth Observation



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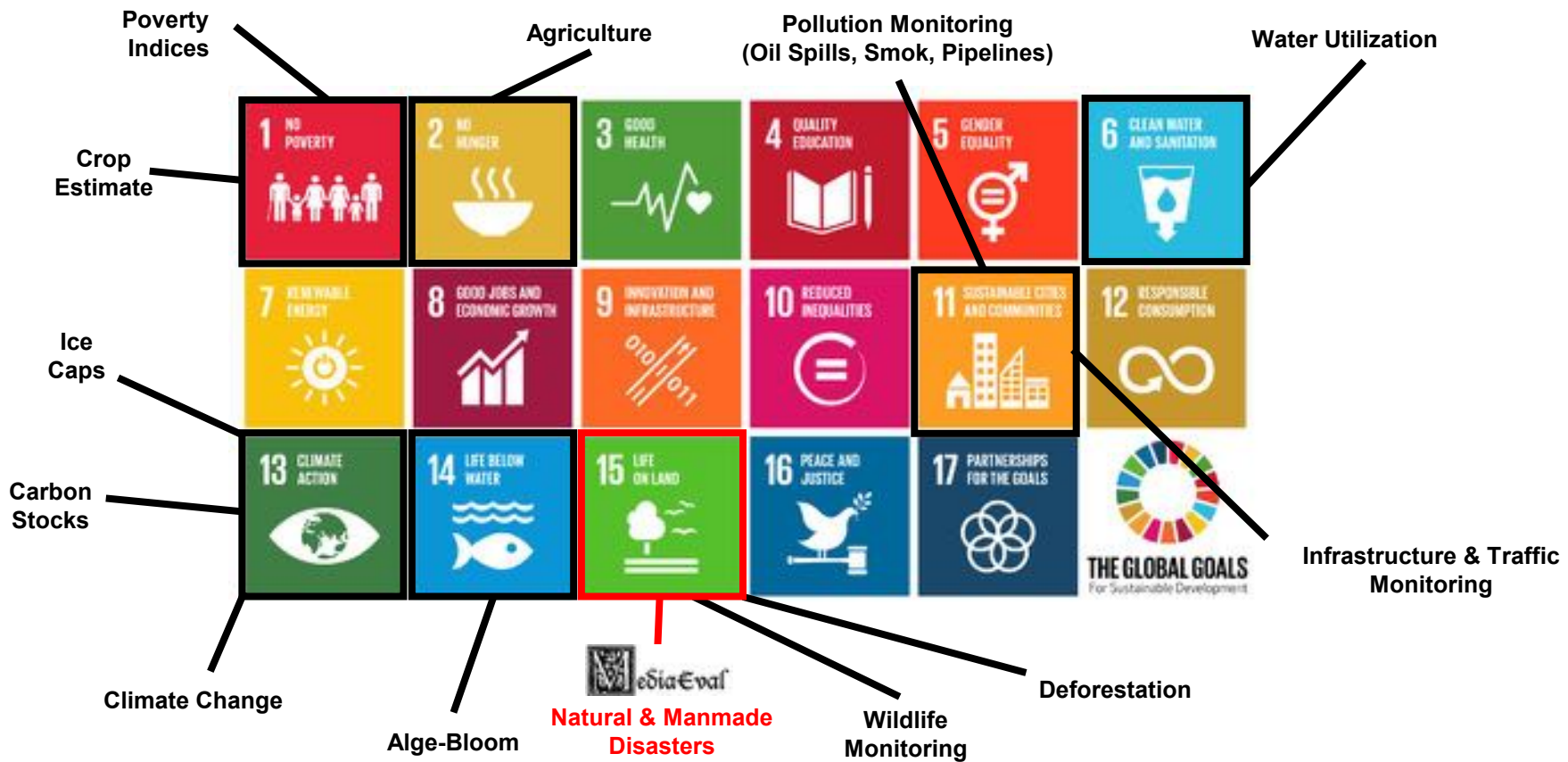
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MediaEval Benchmark: Multimedia Satellite Task

2017 Challenge

2018 Challenge

2017 Challenge



2018 Challenge

Tasks:

- Disaster Image Retrieval from Social Media
- Flood Detection in Satellite Imagery

Participation:

- 11 teams registered
- More than 60 submissions (both sub-tasks)
- Community Building Workshop in Dublin, Ireland

Approaches: Deep Neural Networks (CNN & SegNet)

2017 Challenge



2018 Challenge

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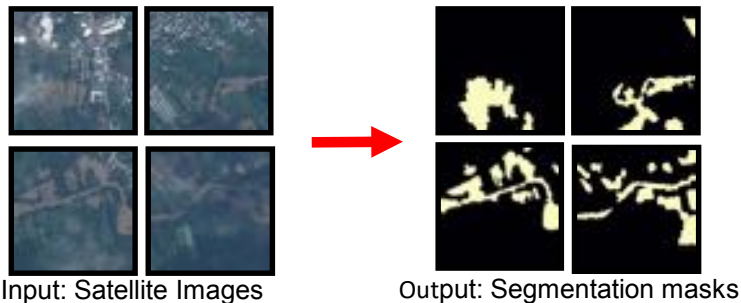
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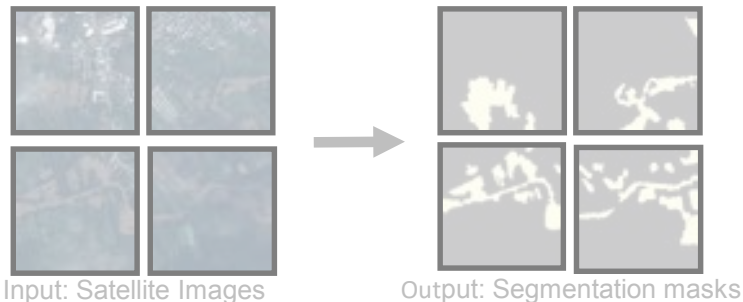
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Tasks:

- Classification for Road Passability (Yes [level of access] vs No)
- Flood Detection in Satellite Imagery

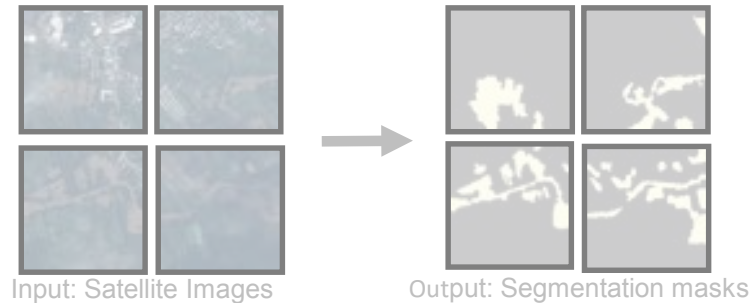
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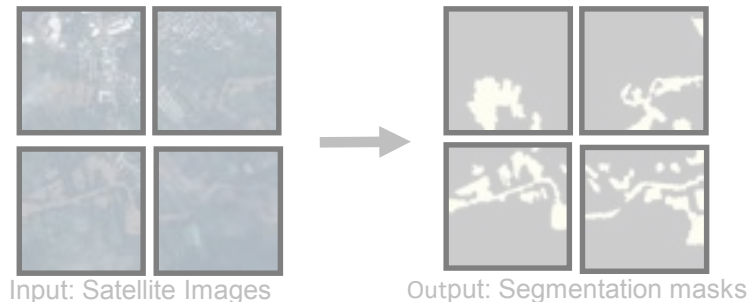
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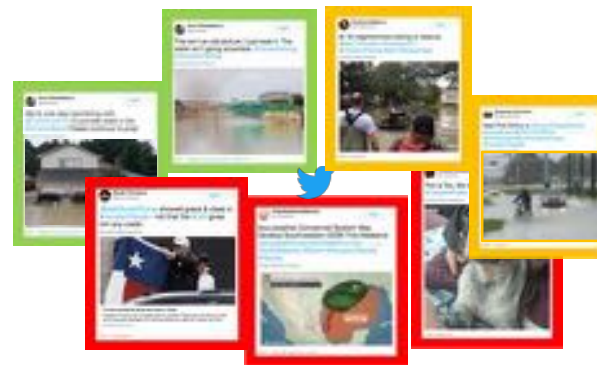
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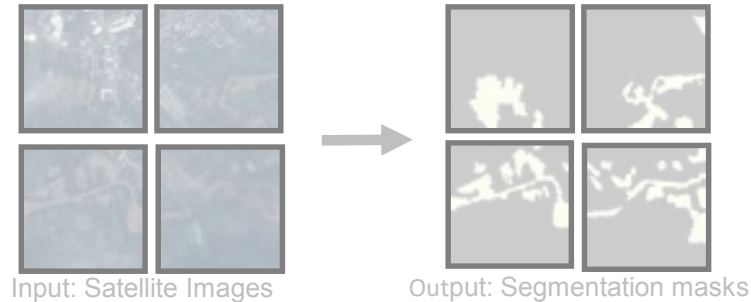
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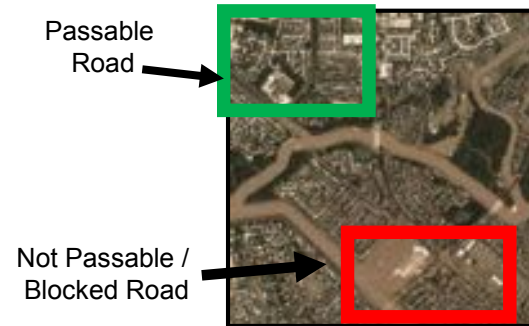
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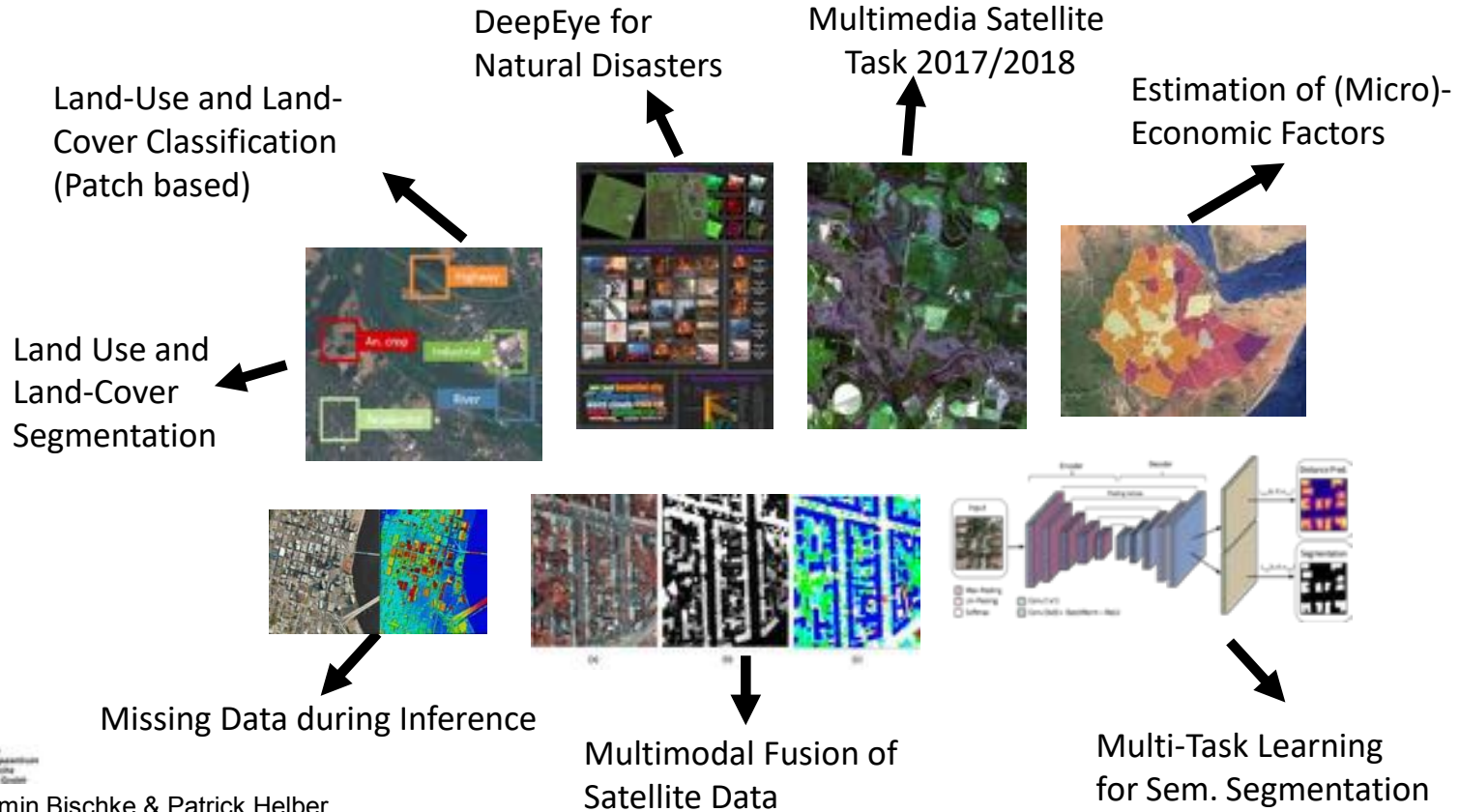
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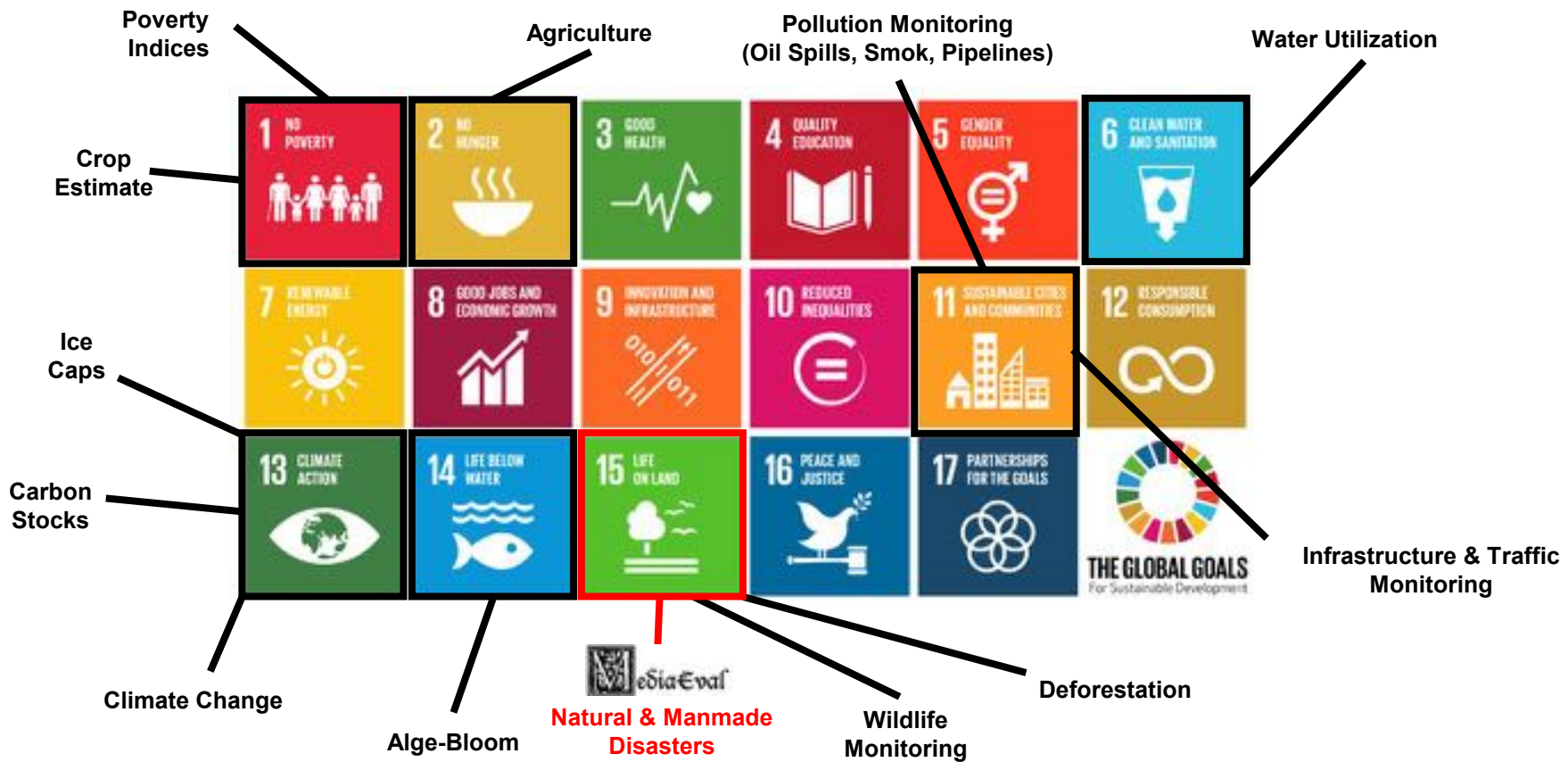
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Remote Sensing & Satellite Image Analysis

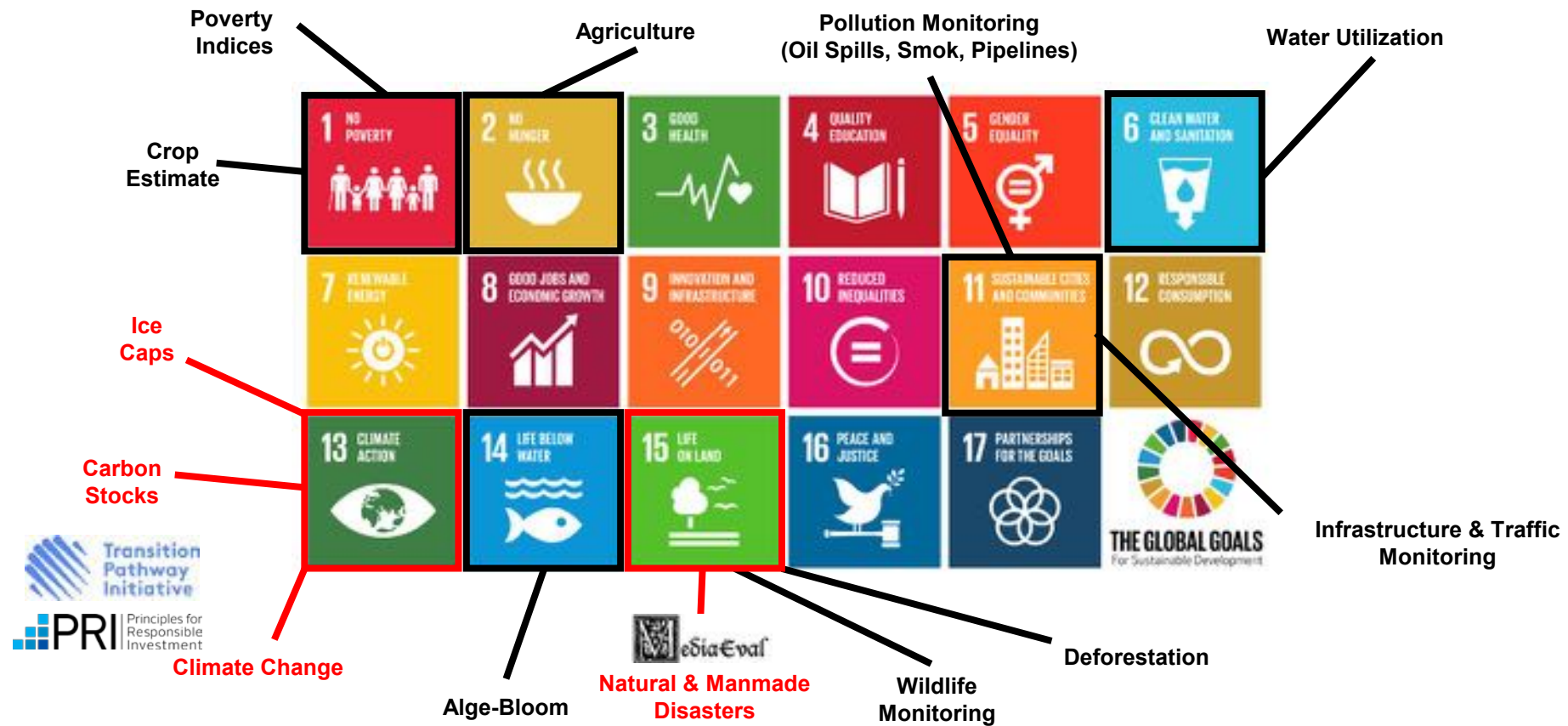


Lead: Benjamin Bischke & Patrick Helber

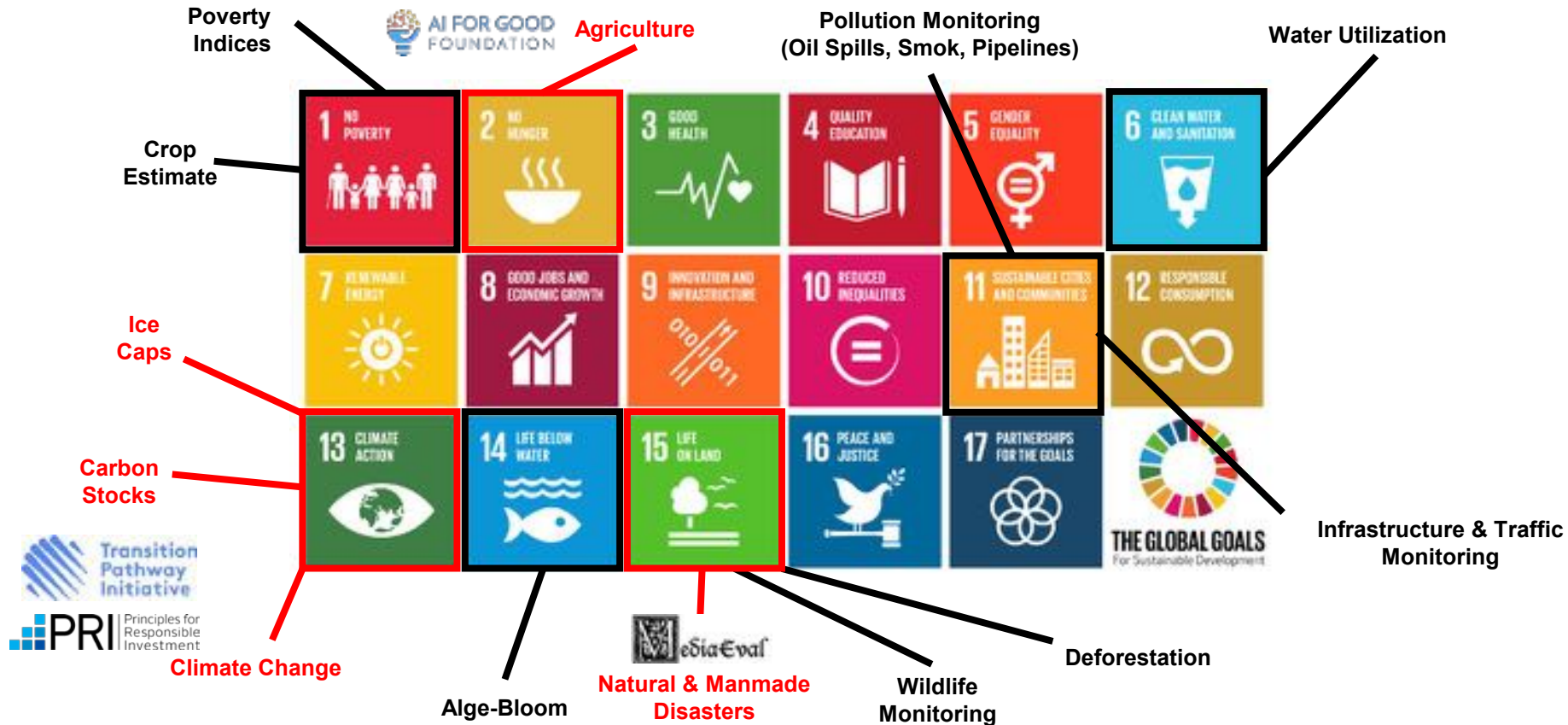
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Questions?

