

HOW GEOSPATIAL CAN HELP ADDRESS EUROPEAN, AND GLOBAL MAJOR CHALLENGES

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EUROGI Conference, Brussels, 21 November 2024



GEOSPATIAL

**EVERYTHING IS LOCATED SOMEWHERE ..
*AND OCCURS AT SOME POINT IN TIME***

**TRILLIONS OF POTENTIALLY GEOSPATIALLY
REFERENCED OBJECTS ARE AVAILABLE EVERY
SECOND OF EVERY DAY ACROSS EUROPE**



PROLIFERATION OF SENSORS

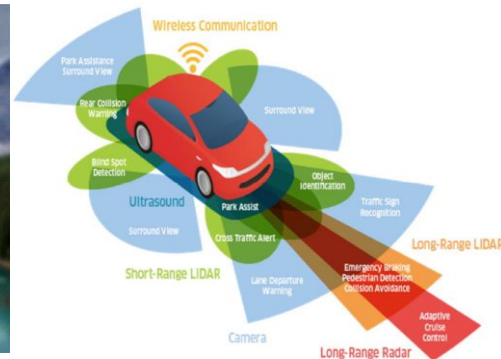
RADAR ... LIDAR ... VISIBLE LIGHT ... MICROWAVE ... ACOUSTIC

RADAR ... LIDAR ... VISIBLE LIGHT ... MICROWAVE ... ACOUSTIC

SENSORS EVERYWHERE

*IN HOMES ... FACTORIES ... STREETS ... SPACE ... NEAR GROUND ...
IN SOIL ... ON CLOTHING ... MOBILE PHONES ... IoT DEVICES*

***IN HOMES ... FACTORIES ... STREETS ... SPACE ... NEAR GROUND ...
IN SOIL ... ON CLOTHING ... MOBILE PHONES ... IoT DEVICES***



GEOSPATIAL ... AN AMAZINGLY, RICH SOURCE OF DATA FOR AIs

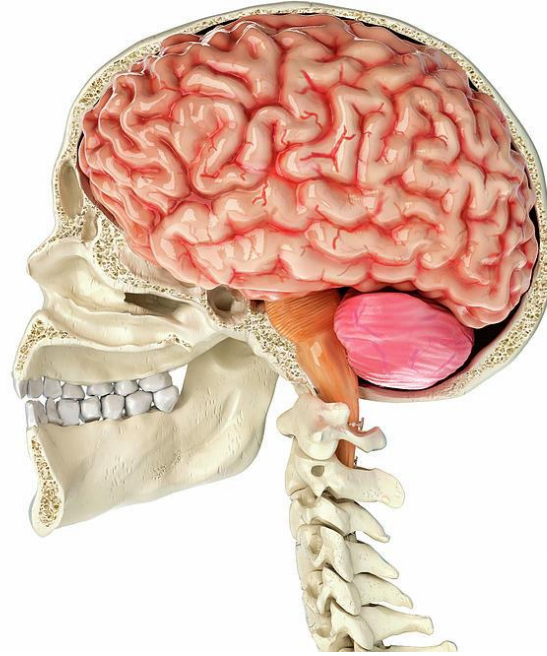
- *LOCATION & TIME PROVIDE A FUNDAMENTAL BASIS FOR **DATA INTEGRATION** & FOR 'HANGING' ALL OTHER DATA OFF GEOLOCATED OBJECTS/PROCESSES*
 - *IDENTIFY **CAUSAL RELATIONSHIPS***
 - *ENABLE EXCELLENT **VISULISATIONS***
 - *TO MAKE **PREDICTIONS***
 - ***MONITOR CHANGE***
 - *APPLY **GEOSPATIAL ANALYTICS***
 - *ENHANCING **AI 'AGENTS'***

BUT
MANY ISSUES TO ADDRESS TO GET THE GEOSPATIAL HOUSE
IN ORDER

SCALE DIFFERENCES
RESOLUTION DIFFERENCES
TIME GAPS
UNKNOWN PROVINANCE
PRIVACY ISSUES
DATA CONFIDENTIALITY
FORMAT DIFFERENCES
BEURACRATIC INERTIA
LACK OF VISION AND POLITICAL WILL
FUNDING CONSTRAINTS
VESTED INTERESTS

BUT
IT WOULD BE WELL WORTH IT

ARTIFICIAL INTELLIGENCE



**MOVING TOWARDS REPRODUCING WHAT THE HUMAN BRAIN CAN DO
AND THEN DOING IT BETTER**

... WOW ...

**TRULY REVOLUTIONARY ... EVEN IF ONLY MUCH (not all) OF WHAT
HUMAN BRAINS CAN DO CAN BE ACHIEVED**

THE HUMAN BRAIN

AN ENTITY OF ENORMOUS COMPLEXITY
AND POWER

ALMOST EVERYTHING AROUND US IS A PRODUCT OF THIS ENTITY

AND THROUGH AI WE ARE STRIVING TO EMULATE THE HUMAN BRAIN'S FUNCTIONALITIES ... some
examples

- Perception
- Reasoning
- Visualising
 - Creating
- Communicating
 - Inventing
- Recognising things
- Contextualising things
- Focussing attention
 - Remembering
 - Learning
 - Planning
- Using symbolic logic
- Exercising motor control
 - *Feeling emotions*
 - *Having consciousness*

OpenAI's STAGE 5 OF AI DEVELOPMENT

AI systems are envisioned to operate at the **scale of entire organizations**. These AI systems would be capable of **handling complex workflows**, making **strategic decisions**, and **optimizing operations** across various domains. Essentially, they would function as **self-sufficient entities**, **managing and executing a wide range of tasks** that typically require human intervention
POTENTIALLY WITH LITTLE OR NO HUMAN INTERVENTION

This Stage would be an example of
ARTIFICIAL GENERAL INTELLIGENCE

OpenAI CEO believes that they know the way to create AGI in 2025



AGI (AND BEYOND) IS A SOURCE OF ENORMOUS CONCERN

Joint 2024 Physics Nobel prize winners for their groundbreaking AI work

Geoffrey Hinton

‘The Godfather of AI’

Left Google in May 2022 to raise public awareness and advocate for safer AI
development

Has highlighted the possibility of AI becoming more intelligent than humans, which
could lead to AI systems taking control

John Hopfield

Stated that the rapid advancements in AI are "*very unnerving*." He called for a deeper
understanding of AI systems to prevent them from spiralling out of control

COUNTRY AI PREPAREDNESS

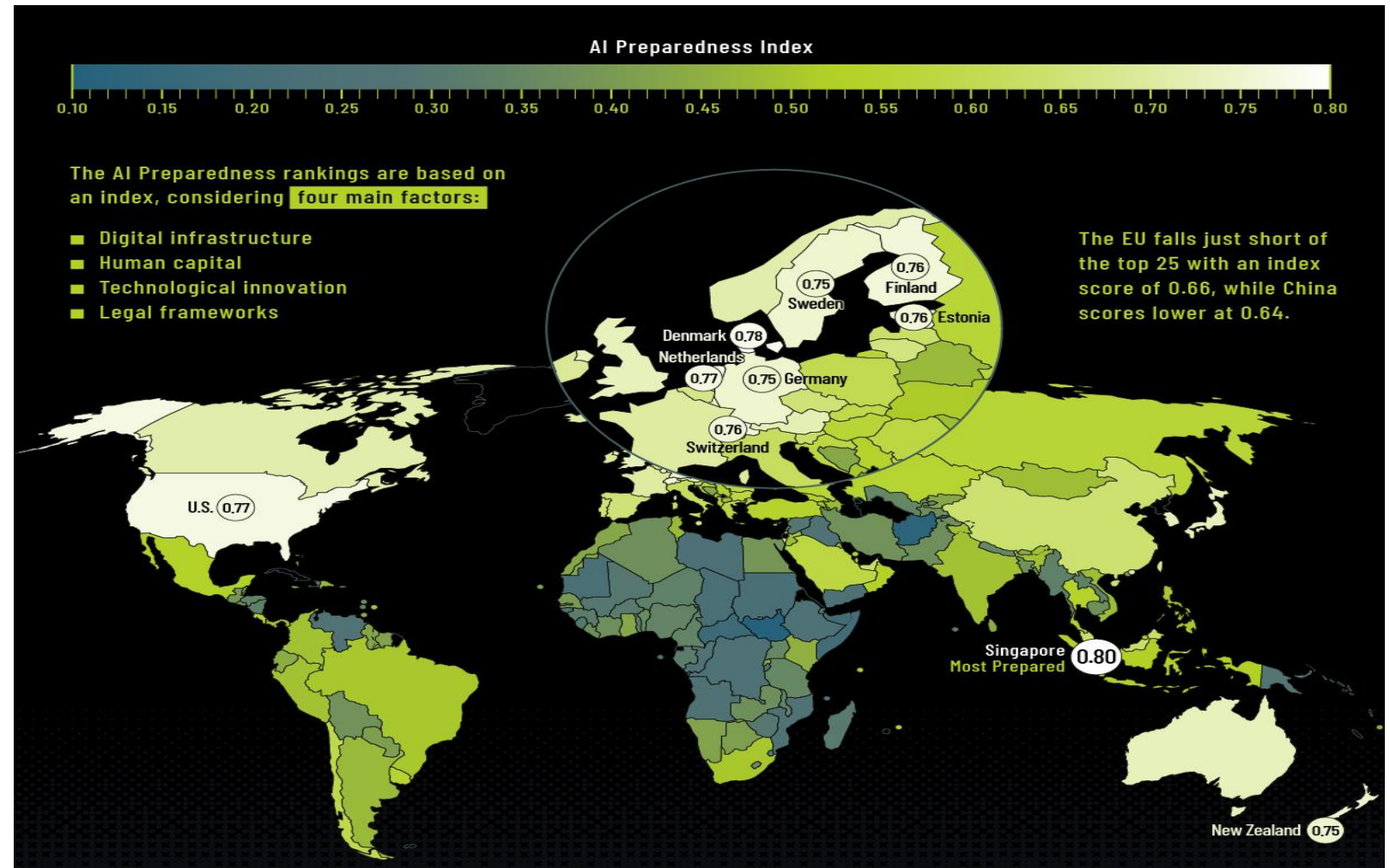
IMF 2023 INDEX

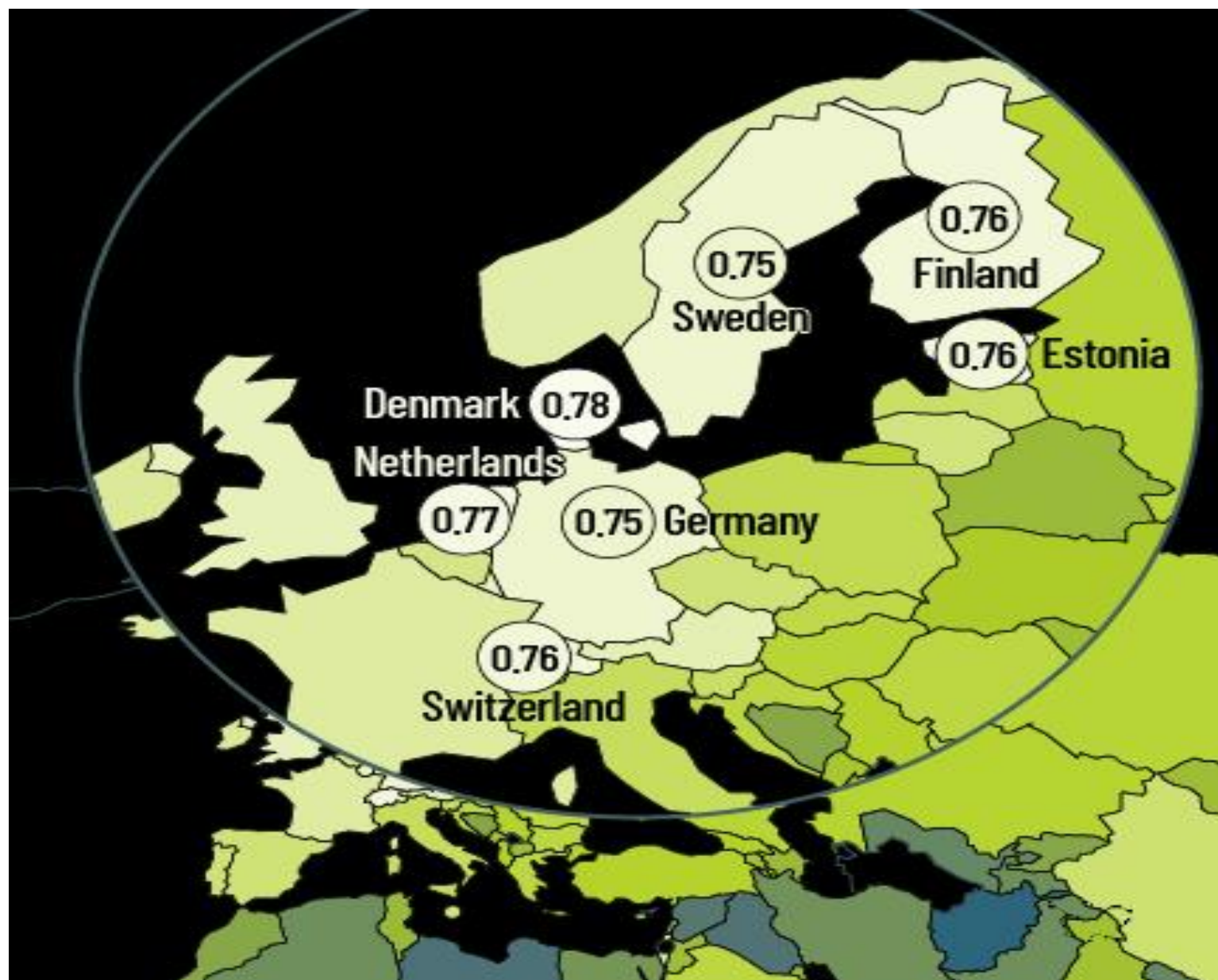
INDEX BASED ON

- DIGITAL INFRASTRUCTURE
- HUMAN CAPITAL
- TECHNOLOGICAL INNOVATION
- LEGAL FRAMEWORK

THE WEST IS WORLD LEADING

GETTING OUR ACT TOGETHER
REGARDING GEOSPATIAL CAN
PLAY A SIGNIFICANT ROLE IN
KEEPING AHEAD OF THE GLOBAL
PACK





EUROPEAN RESPONSE



POLICY and LEGISLATION

SOME EU AI AND RELATED TOPICS REPORTS AND LEGISLATION SINCE 2018

1. General Data Protection Regulation (GDPR) - 2018
2. Coordinated Plan on **Artificial Intelligence** - 2018
3. Ethics Guidelines for Trustworthy **AI** – 2019
4. Cybersecurity Act - 2019
5. White Paper on **Artificial Intelligence** - 2020
6. Report on the safety and liability implications of **AI**, IoT, and robotics - 2020
7. Digital Services Act (DSA) - 2020
8. Digital Markets Act (DMA) - 2020
9. European **AI** Strategy – 2020
10. EU Strategy for Data – 2020
11. **Artificial Intelligence** Act – 2021
12. **AI** Watch: Estimating AI Investments in the European Union – 2022
13. EU **AI** Act – 2024
14. Special report 08/2024: EU **Artificial intelligence** ambition – 2024
15. **AI** investment: EU and global indicators – 2024

EUROPEAN RESPONSE



FUNDING

EU AI FUNDING SUPPORT

1. **Horizon Europe: €2.6 billion** for AI research and development for **2021-2022**.
 2. **Digital Europe Programme: Over €1 billion** dedicated to AI from **2021-2024**.
 3. **European Innovation Council (EIC):** Part of Horizon Europe, with significant funding for high-risk, high-impact AI projects.
 4. **AI Innovation Package: Up to €4 billion** for AI research and deployment from **2024-2027**.
 6. **European Regional Development Fund (ERDF):** Supports regional AI projects, though specific AI funding amounts vary by region.
 7. **European Social Fund Plus (ESF+):** Includes funding for AI-related projects to improve employment and education.
 8. **Connecting Europe Facility (CEF):** Supports AI in digital services, though specific AI funding amounts are part of broader digital infrastructure investments.
 9. **InvestEU Programme:** Provides funding for AI projects through sustainable infrastructure and innovation investments.
 10. **European Defence Fund (EDF):** Supports AI in defence projects, with specific funding amounts varying by project.
 11. **European Institute of Innovation and Technology (EIT):** Supports AI innovation through its Knowledge and Innovation Communities (KICs).
- ALPHABET ... \$45.4 billion** on AI R&D and related expenditure in **2023**
- META ... \$38.5** on AI and related in **2023**
- OpenAI ... \$7 billion** in 2023
- MICROSOFT ... \$27.2 billion** on R&D, much of it on AI and related in **2023**
- Not easy to get an overall, comparable picture but the broad pattern is probably correct

BUT

THE REALLY BIG LOOMING, APPROACHING, RADICAL, REVOLUTIONARY
ISSUE

AGI

**THERE APPEARS TO BE LITTLE REAL APPRECIATION OF THE ALMOST CERTAIN
COMING OF AT LEAST SOME SUBSTANTIAL FORMS OF AGI
AND FOR THE TRULY RADICAL, TRANSFORMATIONAL IMPLICATIONS THIS
WOULD HOLD FOR EUROPE AND BEYOND**

I hope that I am wrong



WHAT IS AN APPROPRIATE EUROPEAN RESPONSE TO THE VERY HIGH NEGATIVE CONSEQUENCES but UNKNOWN PROBABILITY OF OCCURRING

UNDERSTAND (as far as possible) THE **CONSEQUENCES**
ESTABLISH A ROBUST **MONITORING** AND **EARLY WARNING** FACILITY
ADOPT THE **PRECAUTIONARY PRINCIPLE**
EDUCATION AND **CAPACITY BUILDING** FROM **GLOBAL TO LOCAL**
DEVELOP **CONTINGENCY PLANS**

BUT WHAT IS **REALLY NEEDED** BY EUROPE



A EUROPEAN WORLD LEADING RESPONSE



WITH **GEOSPATIAL** PLAYING A ROLE WHICH MAXIMISES ITS FULL POTENTIAL
EUROGI WOULD WELCOME BEING OF ASSISTANCE

