Welcome to

Europe's Moonshot Ambitions for AI:

How to do it

11 April 2024 | 12:00 – 18:00 CET | Norway House, Brussels

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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Welcome

Europe's Moonshot Ambitions for AI: *How to do it*

Jørn Gloslie
Ambassador of Norway to the Kingdom of Belgium

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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Intro

Europe's Moonshot Ambitions for AI: *How to do it*

Morten Irgens
CLAIRE, NORA, Copenhagen Business School

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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Presentation

Session 1 | Why? The State of AI in Europe

Holger Hoos
CLAIRE, RWTH Aachen University, EurAI

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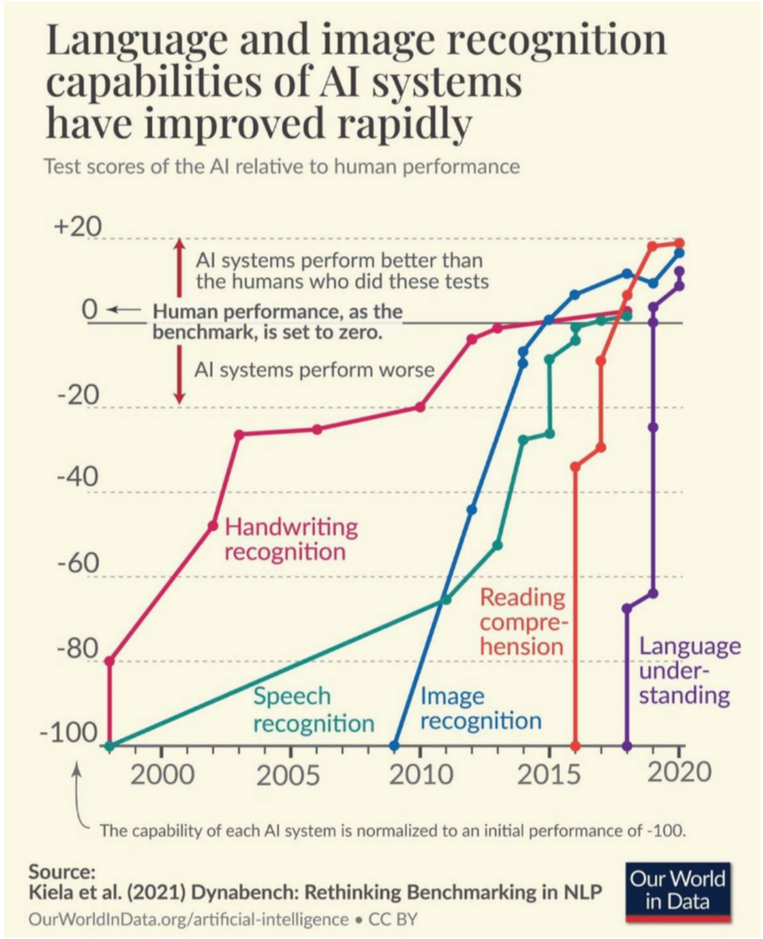
AI is key to …

- better science
- better engineering
- better public administration
- solving the grand problems of our time (climate change, pandemics, inequity, …)

- **our future prosperity and well-being!**



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“AI made in Europe”

- 2018 AI Strategy by the European Commission
  - Good level of ambition …
  - … implementation sorely lacking
- "Ecosystem of Trust”: AI Act
- “Ecosystem of Excellence”: Networks of Excellence, EDIHs, TEFs, HPC, …

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At Stake: Our Future

- Increasing technological dependence on AI tech made + controlled outside of Europe
- Increasing concentration of AI capabilities, expertise and talent in few companies
- Lack of traction for “AI made in Europe”

- Fragmentation: In AI, Europe is not (yet) united in diversity
- Over-emphasis on regulation, lack of investment
- Lack of suitable instruments, focus, coordination: Divided in diversity
- Lack of understanding of role/importance of fundamental AI research

Presentation

Session 1 | Why? The State of AI in Europe

Daniel Opalka
EuroHPC JU, TUM,
University of Cambridge

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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THE EUROHPC JOINT UNDERTAKING

WE ARE:

- An EU body and funding entity
- Existing since 2018 and autonomous since 2020
- Based in Luxembourg
- Governed by a Board composed of the European Commission, 34 Participating States and 3 Private Members

WITH A BUDGET COMING FROM 3 EU FUNDING PROGRAMMES:

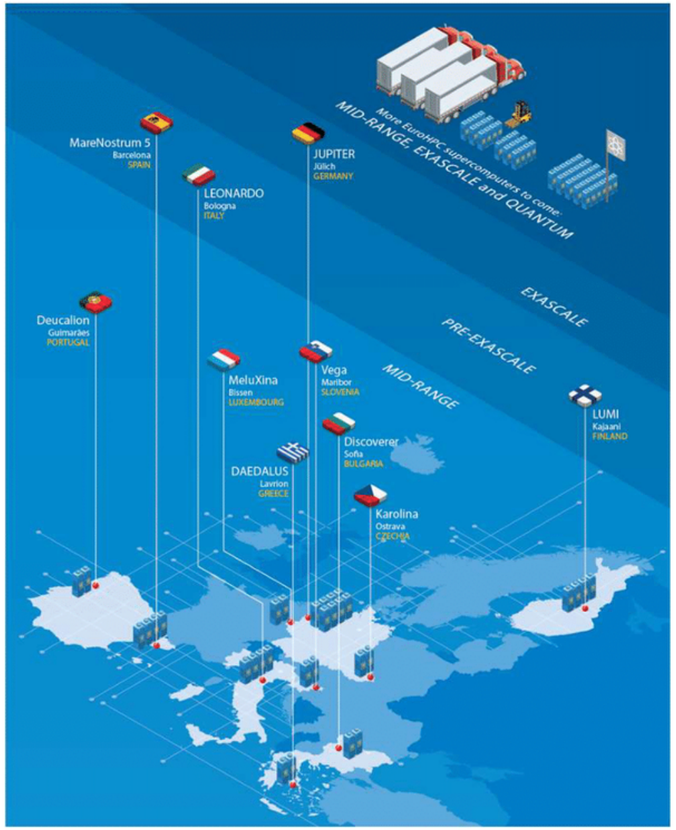
- Digital Europe Programme: EUR 1.98B
- Horizon Europe Programme: EUR 900M
- Connecting Europe Facility: EUR 200M

- EU contributions are matched by national contributions

WITH A MISSION TO:

i. Buy, build and maintain HPC and quantum infrastructure in Europe
ii. Fund innovative R&I projects, to develop European skills, applications, software amd hardware and foster a European supply chain
iii. Provide access to HPC and Quantum Users across Europe and support the development of skills

THE EUROHPC INFRASTRUCTURE



PROCURED

5 PETASCALE

- Vega in Slovenia
- Karolina in Czechia
- Discoverer in Bulgaria
- Meluxina in Luxembourg
- Deucalion in Portugal

3 PRE-EXASCALE

- LUMI in Finland
- Leonardo in Italy
- MareNostrum 5 in Spain

ONGOING

1 EXASCALE

- Jupiter, the first European Exascale, in Germany

2 MID-RANGE

- Arrhenius in Sweden
- Daedalus in Greece

COMING NEXT

A SECOND EXASCALE

- in France

UPGRADES

- Discoverer+
- Lisa/Leonardo

AN INDUSTRIAL SYSTEM

- Co-owned and for use by the industrial sector
- For AI and other applications

A POST-EXASCALE SYSTEM

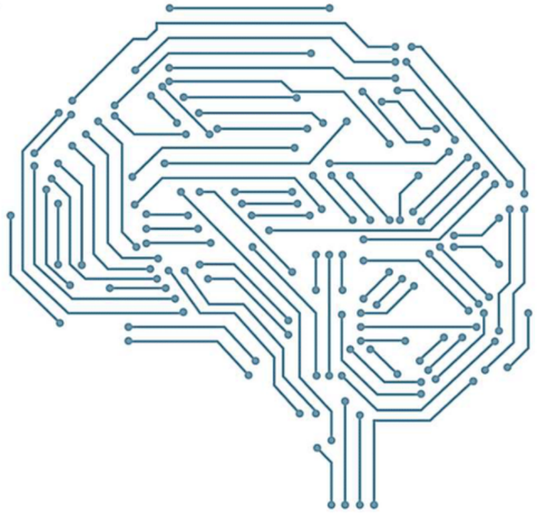
PROCUREMENT OF FEDERATION SERVICES

- A platform for the federation of EuroHPC HPC and quantum infrastructure
- A one-stop shop access point for users

EUROHPC AND ARTIFICIAL INTELLIGENCE

AI GRAND CHALLENGE

Launched with the EC to foster innovation and excellence in large-scale AI models and provide users with access to the LUMI and Leonardo to research, innovate and develop novel AI solutions.



HPC RESSOURCES FOR AI AND DATA-INTENSIVE APPLICATIONS

- Open call launched in March 2024
- Aims to support ethical AI
- Intended for industry, SMEs, startups and public sector organisations

SUPPORTING R&I IN HPC-DRIVEN AI

- **National Competence Centres for HPC** providing a gateway to European HPC competences
- **Financial support for SMEs** to develop the competitiveness and innovation potential of SMEs in advanced AI
- **Support Centre for advanced HPC-powered AI Applications** to provide services for AI users and developers, supporting their uptake of HPC, providing training in HPC skills and on HPC architectures and user requirements

TO DATE:

Over 90 AI projects have been active on EuroHPC supercomputers

Over 42 AI projects have been supported by the 33 EuroHPC NCCs

POTENTIAL FUTURE AI INITIATIVES

- Possible update to EuroHPC Regulation to include more AI-related activities
- AI Factories as nucleation points of European HPC-driven AI
- Support for the AI Software Ecosystem targeting the development of methods, programming environments and a software stack to facilitate the coupling of HPC with AI and big data

Presentation

Session 1 | Why? The State of AI in Europe

Philipp Slusallek
Saarland University,
DFKI

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State of AI in Europe

- **Excellent Research …**
  - Papers published from Europe
  - Prominence of EU contributors at US companies
- **… But**
  - Mostly incremental (short, small projects)
  - Largely uncoordinated (no infrastructure)
  - Rather slow and little agility (fixed for 4 years)
  - Very few grand visions (no funding structures)
  - No tradition for consensus building

dfki ai

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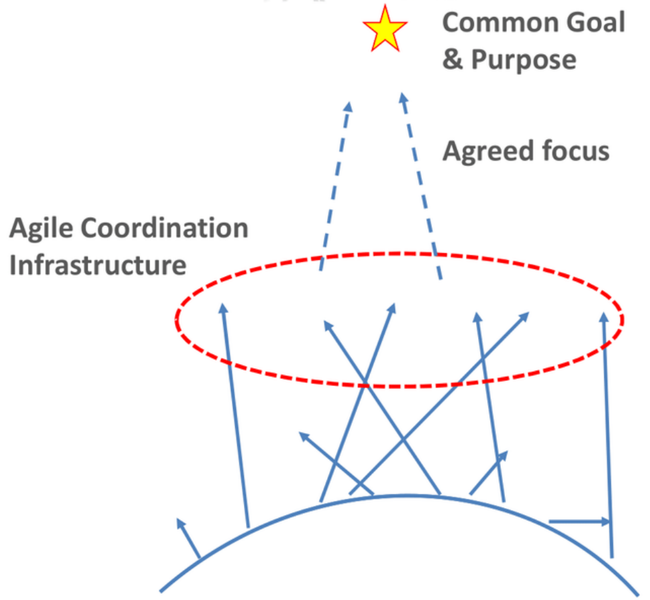
State of AI in Europe

- **Comparison to Physics**
  - Long tradition to work together
  - Community structures for coordination
    - Great European examples: CERN, ESA, ….
  - Mechanisms to jointly identify, get behind, and jointly push for grand visions!
    - Space missions, observatories, accelerators, …
    - Not just HW, but the coordination structures to make them work effectively
  - Working across EU and countries
- **But operating of different time scales than AI**



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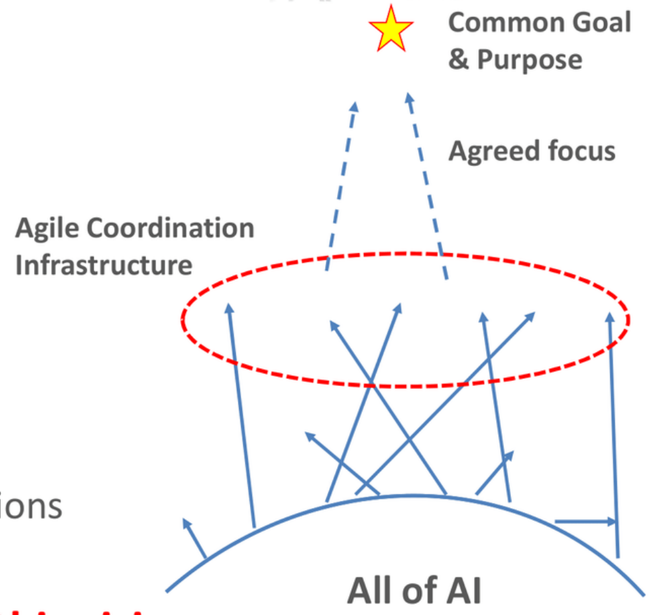
Way Forward for AI in Europe

- **Let's learn from the physicists!**
  - AI is probably even more relevant and urgent for our economy and society
- **But go beyond**
  - Adapt to the speed of AI (agility!)
  - Integrate industry (quick impact!)
  - Engage with society (establish trust!)
  - Address big issues for humanity!
  - Join forces across Europe and our many factions



- **The Moonshot is a great step to realize this vision**

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Presentation

Session 1 | Why? The State of AI in Europe

Emanuela Girardi
Adra, Politecnico di Torino, Pop AI

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The state of AI in Europe

The AI Data Robotics Association

Emanuela Girardi

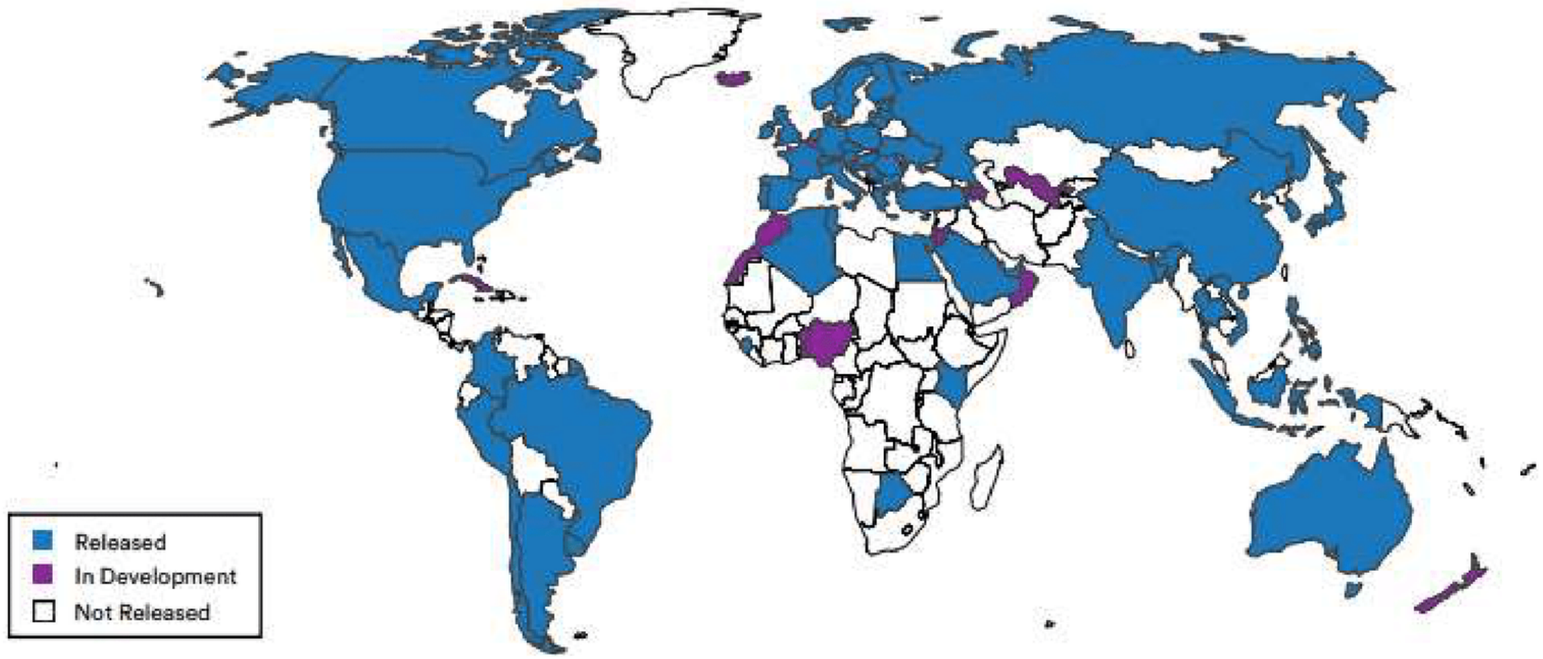
President of Adra

8 April 2024

AGENDA

- AI global landscape
- European AI Vision
- What can we do?

GLOBAL AI RACE



62 countries published an AI strategy

Source: AI INDEX – STANFORD HAI, March 2023

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IN 2016 - CHINA GLOBAL AI LEADER BY 2030

AI INNOVATION IS DRIVEN BY BIG TECH COMPANIES

TRUSTWORTHY & HUMANCENTRIC AI

EUROPEAN AI STRATEGY

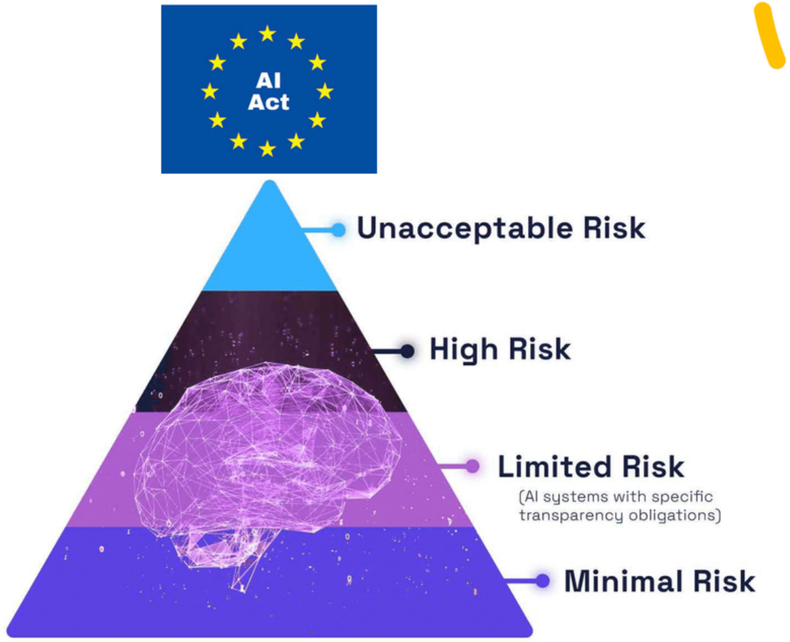
- **ECOSYSTEM OF TRUST**

-> MAKE AI SAFE, SECURE & TRUSTWORTHY

- **ECOSYSTEM OF EXCELLENCE**

-> PROMOTE AI INNOVATION

ECOSYSTEM OF TRUST: AI ACT



On AI, trust is a must, not a nice to have.

ECOSYSTEM OF EXCELLENCE

- Several good initiatives, but impact is still limited, and we keep on following, not leading.

BALANCE BEWTEEN REGULATION & INNOVATION

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SOTEU – State of the European Union speech

3 PILLARS:

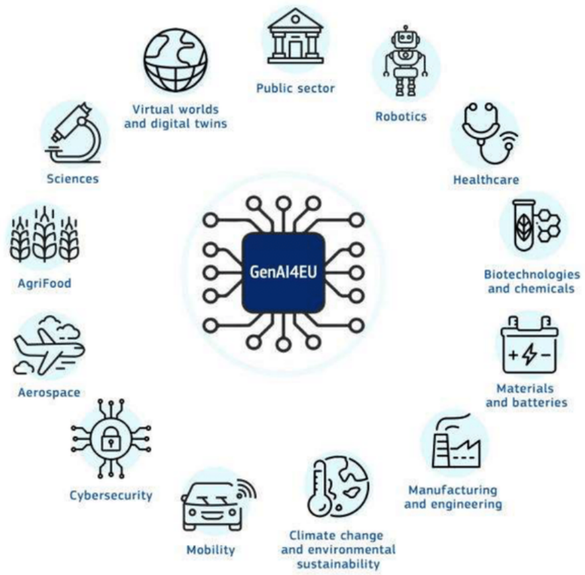
- Guardrails for AI
- AI Governance
- Guiding innovation in AI

AI INNOVATION PACKAGE

- AI FACTORY
- AI OFFICE

AI INNOVATION PACKAGE

- **€4 billion investment for generative AI through Horizon Europe & Digital Europe**
- Strengthening EU's generative **AI talent po**ol through education, training, skilling and reskilling activities
- Encouraging public & private **investments in AI start-ups/scale-ups**, including new initiatives of the EIC Accelerator and InvestEU
- Accelerating Common European **Data** Spaces for AI training data
- **GenAI4EU** initiative for novel AI use cases and emerging applications across 14 industrial ecosystems



WHAT CAN WE DO TO LEAD IN AI?

WE NEED TO THINK LIKE A LEADER

- BE REALISTIC
- ADEQUATE RESOURCES
- AMBITION
- OPENNES
- NO MORE FRAGMENTATION OF RESOURCES AND INITIATIVES
- PUBLIC-PRIVATE PARTNERSHIP WITH MEMBER STATES

Thank you for the attention

The AI Data Robotics Association

Emanuela Girardi

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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Keynote

Europe's Moonshot Ambitions for AI: *How to do it*

Axel Voss
Member of the European Parliament

CLAIRE Confederation of Laboratories for Artificial Intelligence Research in Europe

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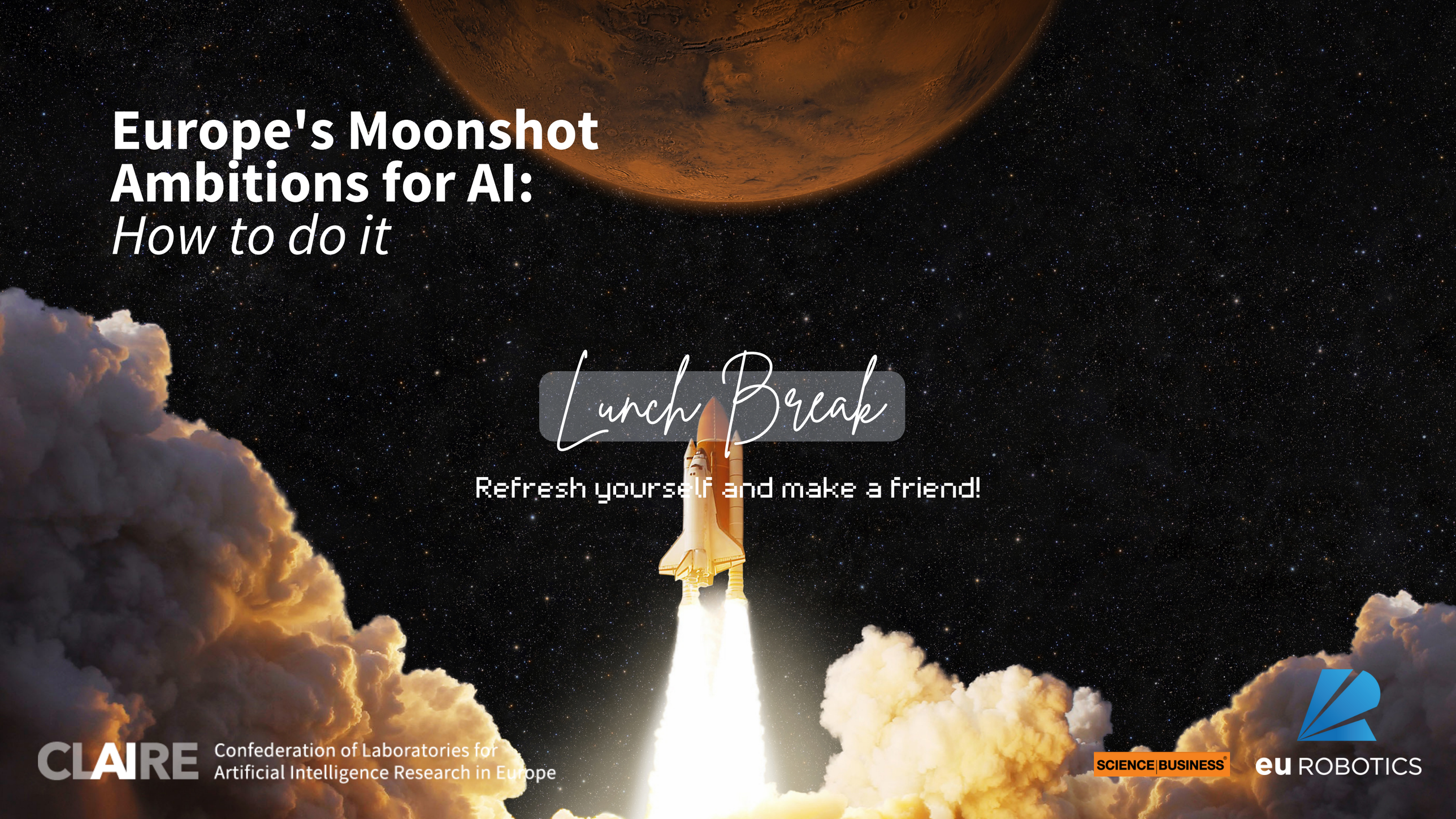
Europe's Moonshot Ambitions for AI:
How to do it



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Panel

Session 2 | What? EU Moonshot Ambitions for AI

Moderator

Holger Hoos
CLAIRE, RWTH Aachen University, EurAI

Jörg Bienert
RWTH AACHEN University, German AI Association

Alistair Nolan
OECD AI, ITIF

Andrea Renda
CEPS, European University Institute, College of Europe

Anne Nowe
VUB, FARI, FWO

David Bisset
euRobotics, European Big Data Value Forum

Alin Albu-Schäffer
TUM, DLR, euRobin

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Panel

Session 3 | How? Implementation Opportunities

Moderator

Karen Boers
FARI - AI for the Common Good Institute

Philipp Slusallek
CLAIRE, Saarland University, DFKI

Bart Becks
EISMEA, Euractiv, Belgacom Skynet

Francesco Ferro
euRobotics aisbl, PAL Robotics

Leopold Summerer
ESA

Sabine Demey
Flanders AI Research Program, imec

Tilman Becker
RICAIP, DFKI

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Closing Remarks

Holger Hoos
CLAIRE, RWTH Aachen University, EurAI

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1959 for Space – 2023 for AI

Amaldi 1959

Relevance
- "space research has become an essential element of our civilisation"

Future importance
- "these first results are no more than a modest first step in a field of research so vast and so important that it far transcends anything we can imagine at present

Catching up
- "The Soviet Union and the US have been the only countries in a position to mobilise the human and financial resources necessary for a high level of research activity in space", "… all the European countries will be mere onlookers"

Industrial relevance and capabilities
- "the launching of artificial satellites requires and stimulates a tremendous industrial surge forward, …a surge which in turn influences the whole industry of the country"

Human resources
- "Many Europeans highly qualified in these fields are currently working abroad, and they would certainly be attracted by an organisation of this kind."

Organisation
- "The setting up of a European Organisation is an essential and urgent matter"

Budget
- "Twice or three times the budget of CERN" "some 130 to 180M Swiss Francs per year"

Timing
- "There is no time to lose", "The preparatory phase should take no more than a year

CLAIRE and euRobotics 2023

Relevance
- "transform the way we live and work. AI is becoming a crucial technology in everything"

Future importance
- "AI is a fundamental technology that cuts across all areas of the economy and touches all areas of society"

Catching up
- "advances are being driven outside of Europe, under the control of a small number of large technology companies"; "lasting technological and economic dependence and a corresponding loss of global market share and strategic sovereignty"

Industrial relevance and capabilities
- ?

Human resources
- "mobilise talent and pool the resources needed to succeed"

Organisation
- "propose to build on Europe's experience by creating a CERN for AI; an organisation and hub"

Budget
- "We estimate the public funding required for this moonshot at roughly 100 billion Euros, to be invested between 2024 and 2029", "12 times the budget of CERN"

Timing
- "There is a narrow window of opportunity for us to create a globally significant force for AI"