HORIZON-CL4-2024-HUMAN-03-01

Advancing Large AI Models: Integration of New Data Modalities and Expansion of Capabilities

- Large AI models are a new generation of general-purpose AI models with remarkable adaptability, like GPT-4V and Llama 3.

- They can be adapted to various tasks and domains without significant modification, offering vast potential across industries.

- This topic focuses on multimodal large AI models that integrate text, structured data, computer code, visual/audio media, robotics/IoT sensors and remote sensing data.

2024-HUMAN-03-01 - Expected Ouctomes

- **Enhanced applicability** of large AI systems to **new domains** through the integration of innovative data modalities.

- **Improvement of current multimodal large AI systems** capabilities and expansion of the number of data modalities jointly handed by one AI system.

5. Who are the types of main stakeholders that are addressed?

6. Is there a key group of actors (eg. Partnership or other) driving this?

2024-HUMAN-03-01

- Indicative budget – **50 Million** EUR per proposal
- Expected EU contribution per project – **25 Million** EUR
- Type of Action – Research and Innovation
- TRL – Starting at TRL 2-3 and achieving TRL 4-5
- Eligibility conditions: **Article 22.5**
  - Participation in this topic is limited to legal entities established in Member States, associated countries, OECD and Mercosur countries, countries with which the EU cooperates under a Trade and Technology Council, and countries with which the EU has a Digital Partnership.

2024-HUMAN-03-01 - Key Areas of Research Innovation

1. Integration of **innovative data modalities** for large AI models in training and inference (e.g., event streams, structured data, sensor measurements).

2. **Enhanced multimodal models surpassing the state-of-the-art**, with significantly improved capabilities or handling of a greater number of modalities. This includes models capable of generating multi-modal output.

2024-HUMAN-03-01 - Key Elements

1. Data Collection, Processing and Cross-modal Alignment

   Data Collection activities (<10%)

2. Multimodal Foundation Model Pretraining

   Acquisition Computing Resources (<10%). Use of HPC facilities

3. Fine-Tuning of Multimodal Foundation Models

   Demonstrating potential use-cases

4. Testing and Evaluation

   Both foundation and fine-tuned models

   In compliance with the AI Act

5. Who are the types of main stakeholders that are addressed?

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2024-HUMAN-03-01 – Some Considerations

- Proposals should adhere to Horizon Europe's guidelines regarding Open Science practices and the FAIR data principles.

- Projects should share results via platforms and forums to maximize knowledge dissemination in the European AI ecosystem.

2024-HUMAN-03-01

2. What do we <u>NOT</u> want?

– Lack of of relevant players with significant experience developing foundation models.

– Proposals focused on application of existing available technologies and not on innovative research

5. Who are the types of main stakeholders that are addressed?

6. Is there a key group of actors (eg. Partnership or other) driving this?

2024-HUMAN-03-01 – Key actors

The consortium that will carry this action should be composed by entities **with experience in developing foundation models**: research and technology organisations, higher education entities, private companies, including SMEs and start-ups, or a combination of these.
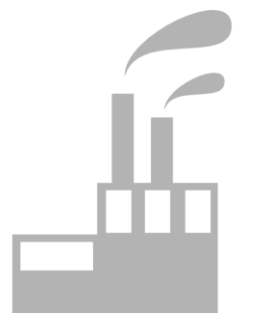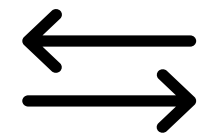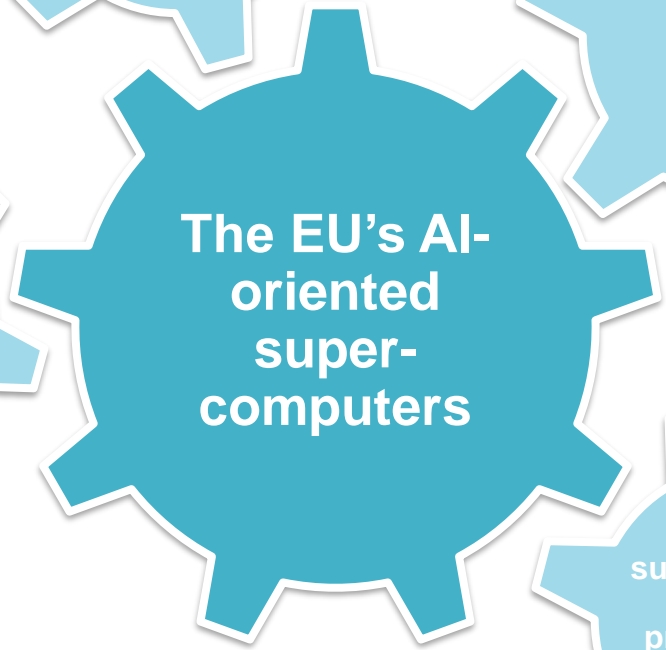
This topic implements the co-programmed European Partnership on AI, data and robotics.
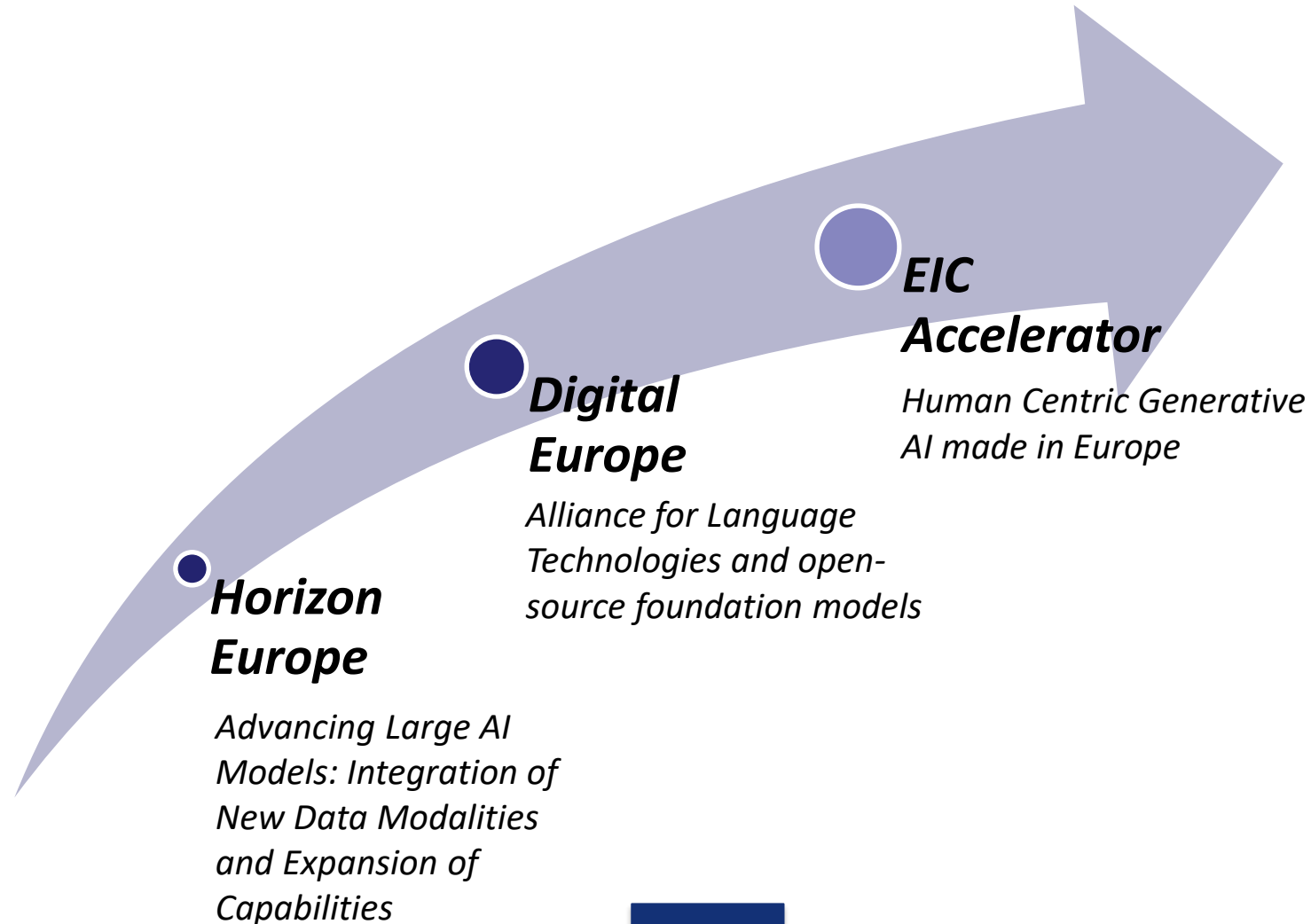
AI Factories

GenAI4EU Initiative

- **GenAI4EU** initiative to stimulate the widespread uptake of generative AI across the Union's *fourteen strategic industrial ecosystems.*

- Startups and innovators can work closely with industrial users, attract investments in the Union and have access to the key ingredients of AI - *data, computing, algorithms and talent.*

Examples:

Virtual worlds and digital twins

Public sector

Robotics

Sciences

Healthcare

AgriFood

GenAI4EU

Biotechnologies and chemicals

Aerospace

Materials and batteries

Cybersecurity

Mobility

Climate change and environmental sustainability

Manufacturing and engineering

European Commission