

Towards Trustworthy Artificial Intelligence



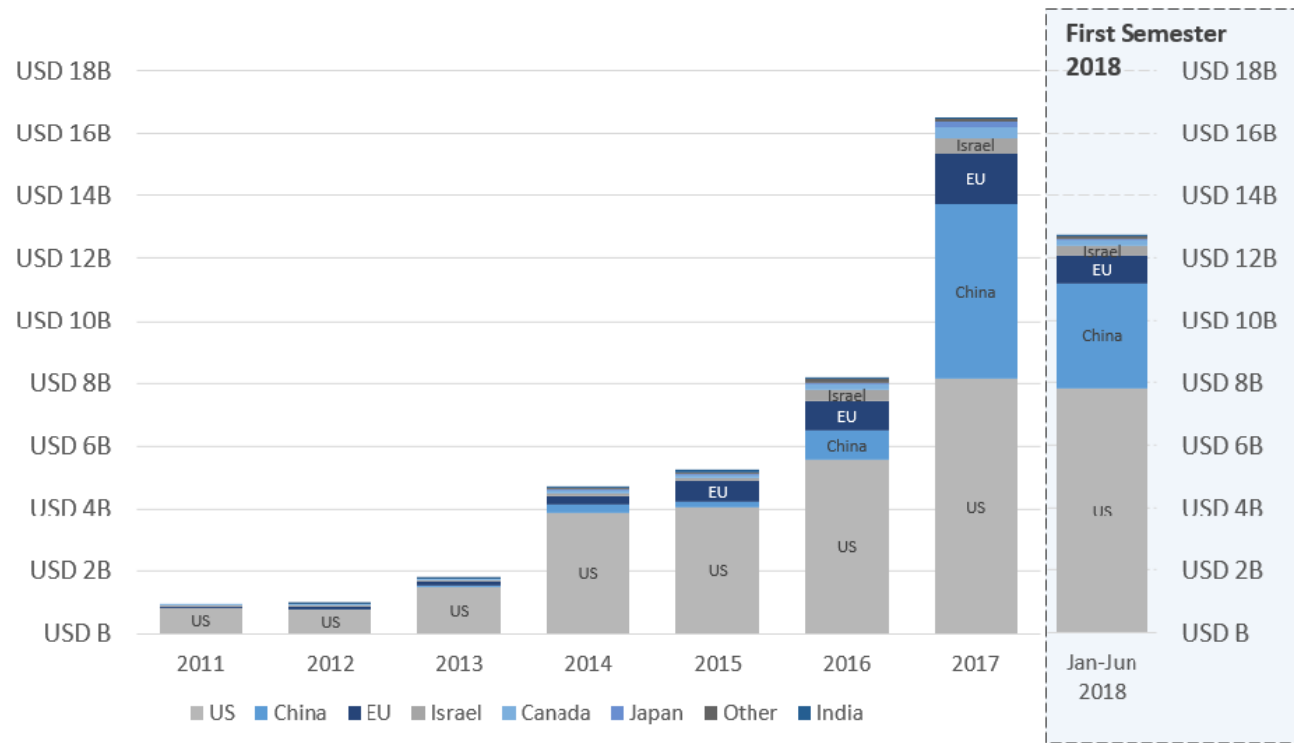
Context

- New opportunities brought by AI
- AI in a global context
- Need for strategic autonomy
- New Commission



Figure 2.2. Total estimated investments in AI start-ups (USD billion), 2011-2017 and first semester 2018

By start-up location



Credit: thegeniusworks.com

Note: Estimates for 2018 may be conservative, as they do not account for a likely lag in reporting. See Box 2.1. Methodological note.

Source: OECD (est.), based on Crunchbase (July 2018), www.crunchbase.com

Europe must play to its strengths

- EU depends on foreign technologies for key parts of the digital supply chain
- Computing capabilities, hardware and software for machines, robots or cars is often made elsewhere
- Technological dependence could translate into dependence for the next wave of data infrastructure and service solutions
- Reversing the trend: increase support for key enablers of the digital economy (connectivity, hardware, data, AI, cybersecurity..)
 - Ensure digitalisation of areas that define EU competitiveness: energy, mobility, health, manufacturing and finance
 - Set global standards for safety, security, data protection, privacy, trust and sustainability

Increasing Investment

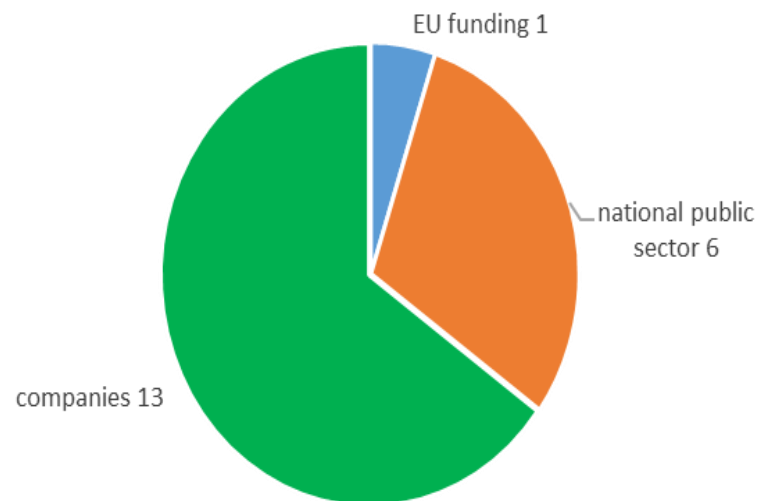


[Credit: roboticsbusinessreview.com](https://roboticsbusinessreview.com)

EU funding for AI, in billion euros



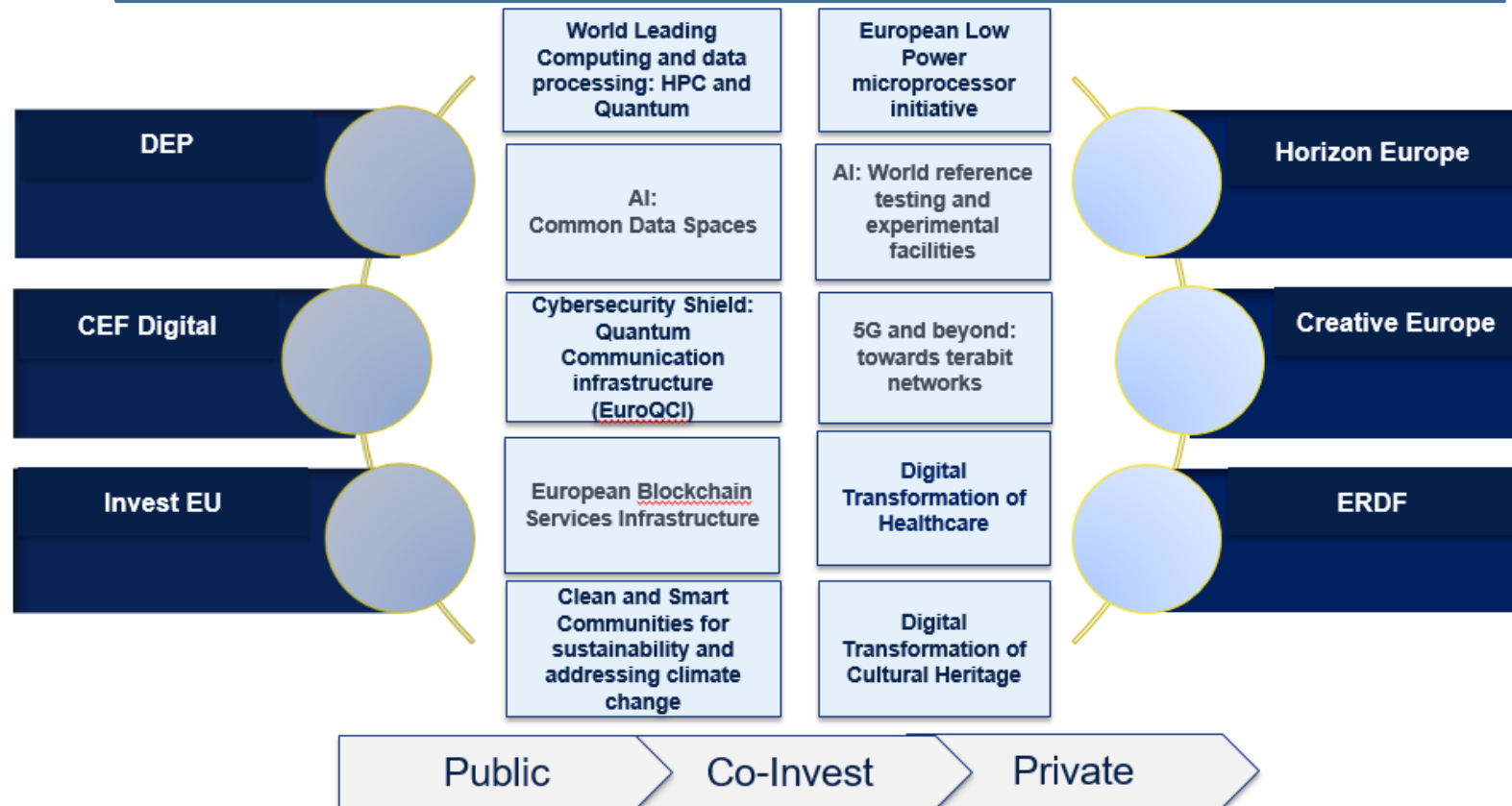
European Investment in AI: target 20 bn by 2025



Aiming for technological sovereignty

- Focus using EU funding instruments to advance high impact digital projects
 - Ensure sufficient budget for digital in MFF and exploit synergies between programmes
- Co-finance with Member States
 - Need for a strategic framework to procure, deploy and operate joint digital infrastructure projects
- Set up partnerships, including industry

Proposed high impact digital Projects for Europe 2021-2027



EU STRATEGY ON ARTIFICIAL INTELLIGENCE

April 2018

Boost AI uptake

Tackle socio-economic
changes

Ensure adequate ethical
& legal framework



Appointment of Independent High-Level Expert Group on Artificial Intelligence (AI HLEG) in June 2018

Towards an AI Ecosystem

- Invest in infrastructure
 - HPC
 - Facilities for large-scale testing
 - Data spaces



- Invest in deployment
 - DIH



- Strengthen excellence in AI research

- Increase training
 - Advanced AI skills
 - AI user skills



- Improve data availability
 - Data re-use
 - Data sharing (sectoral)



Investing in AI Excellence and capacity



€1.5 billion EC investments into AI in 2018-20
BY 70% INCREASE OF ANNUAL INVESTMENT



Basic and industrial research
(health, transport, agriculture, manufacturing, etc.)



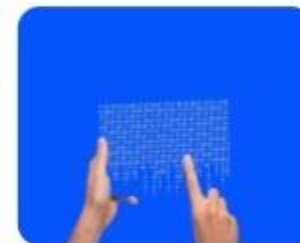
AI-on-demand platform



Network of AI-focused Digital Innovation Hubs (DIHs)



Strengthening AI excellence centres



Setting up an industrial data platform

Upcoming H2020 calls



Information and Communication Technologies

Artificial Intelligence and Technologies for Digitising European Industry and Economy		Open	Close
1	ICT-46-2020	Robotics in Application Areas and Coordination & Support	19-11-2019 22-04-2020
1	ICT-47-2020	Research and Innovation boosting promising robotics applications	19-11-2019 22-04-2020
1	ICT-48-2020	Towards a vibrant European network of AI excellence centres	09-07-2019 13-11-2019
1	ICT-49-2020	Artificial Intelligence on demand platform	19-11-2019 22-04-2020
1	ICT-38-2020	Artificial intelligence for manufacturing	09-07-2019 16-01-2020
European Data Infrastructure: Big Data and Cloud technologies			
	ICT-51-2020	Big Data technologies and extreme-scale analytics	09-07-2019 16-01-2020
5G			
1	ICT-52-2020	5G PPP – Smart Connectivity beyond 5G	19-11-2019 22-04-2020
2	ICT-53-2020	5G PPP – 5G for Connected and Automated Mobility (CAM)	09-07-2019 13-11-2019
Next Generation Internet (NGI)			
1	ICT-56-2020	Next Generation Internet of Things	09-07-2019 16-01-2020
2	ICT-44-2020	Next Generation Media	09-07-2019 16-01-2020
Digitising and transforming European industry and services: digital innovation hubs and platforms			
1	DT-ICT-03-2020	I4MS (phase 4) - uptake of digital game changers	09-07-2019 13-11-2019
1	DT-ICT-05-2020	Big Data Innovation Hubs	09-07-2019 13-11-2019
2	DT-ICT-09-2020	Boost rural economies through cross-sector digital service platforms	19-11-2019 22-04-2020
2	DT-ICT-12-2020	AI for the smart hospital of the future	19-11-2019 22-04-2020

Upcoming AI Infoday



- Proposers Day/Brokerage event
- When: 26 November
- Where: Brussels

- !!! Register before *November 15th*
- <https://ec.europa.eu/digital-single-market/en/news/h2020-upcoming-calls-robotics-and-ai-information-and-brokerage-day>



Credit: robohub.org

EVENT | LE CHARLEMAGNE, ROOM ALCIDE DE GASPERI, RUE DE LA LOI 170, BRUSSELS | 26 November 2019

H2020 upcoming calls on Robotics and AI: Information and Brokerage day

Funding for digital in the next MFF

Digital Europe

1. High Performance Computing (HPC)
2. Artificial Intelligence (AI)
3. Cybersecurity
4. Advanced digital skills
5. Digital transformation and interoperability

€9.2 Bn

Digital in Horizon Europe

1. Digital under "global challenges"
 - Digital and industry cluster
 - Digital in other clusters - health, mobility, energy, environment,...
2. FET Open under Open Innovation
3. Research Infra under Open Science

€100 Bn
with share
to digital
of 15Bn

CEF - Digital

Connectivity

- Synergies with Transport /Energy
- WIFI/BB 4EU
- 5G roll out

€3 Bn

MEDIA under Creative Europe within Cohesion and Values

- Distribution of works
- Creation

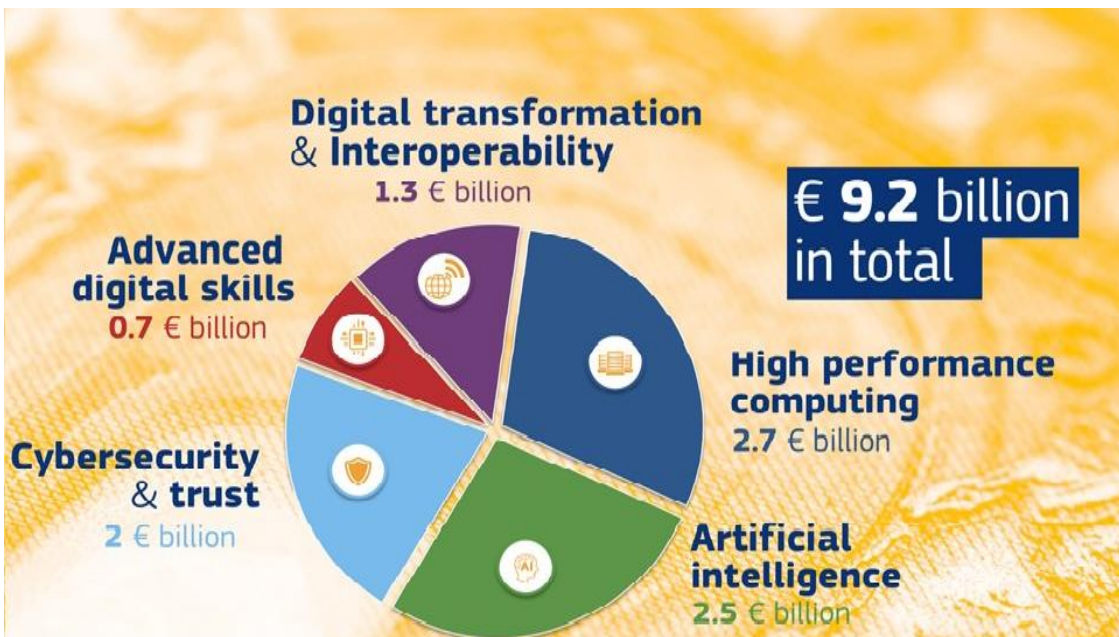
€1.1 Bn

Digital Europe Programme

Building the strategic digital capacities of the EU and facilitate the wide deployment of digital technologies

What?

Why?



Compete globally

- Other regions of the world invest huge amount of public capital in advanced technologies. For example, the US and China spend € 10-20 billion annually on AI alone

Achieve scale through collective co-investments

- Given the size of investments needed, scale required and risks involved Europe needs to pool the resources together

Better address Europe's economic and societal challenges

- E.g. climate, health, mobility and public services

Ensure broad take-up of digital technologies across all regions of EU

- In deploying latest technologies to offer best services to citizens and business

Address skills shortage and facilitate access to latest technologies for SMEs

Summer 2018

EC proposal for DEP

Spring 2019

Agreement on DEP by EP and Council (excl budget)

Summer 2019

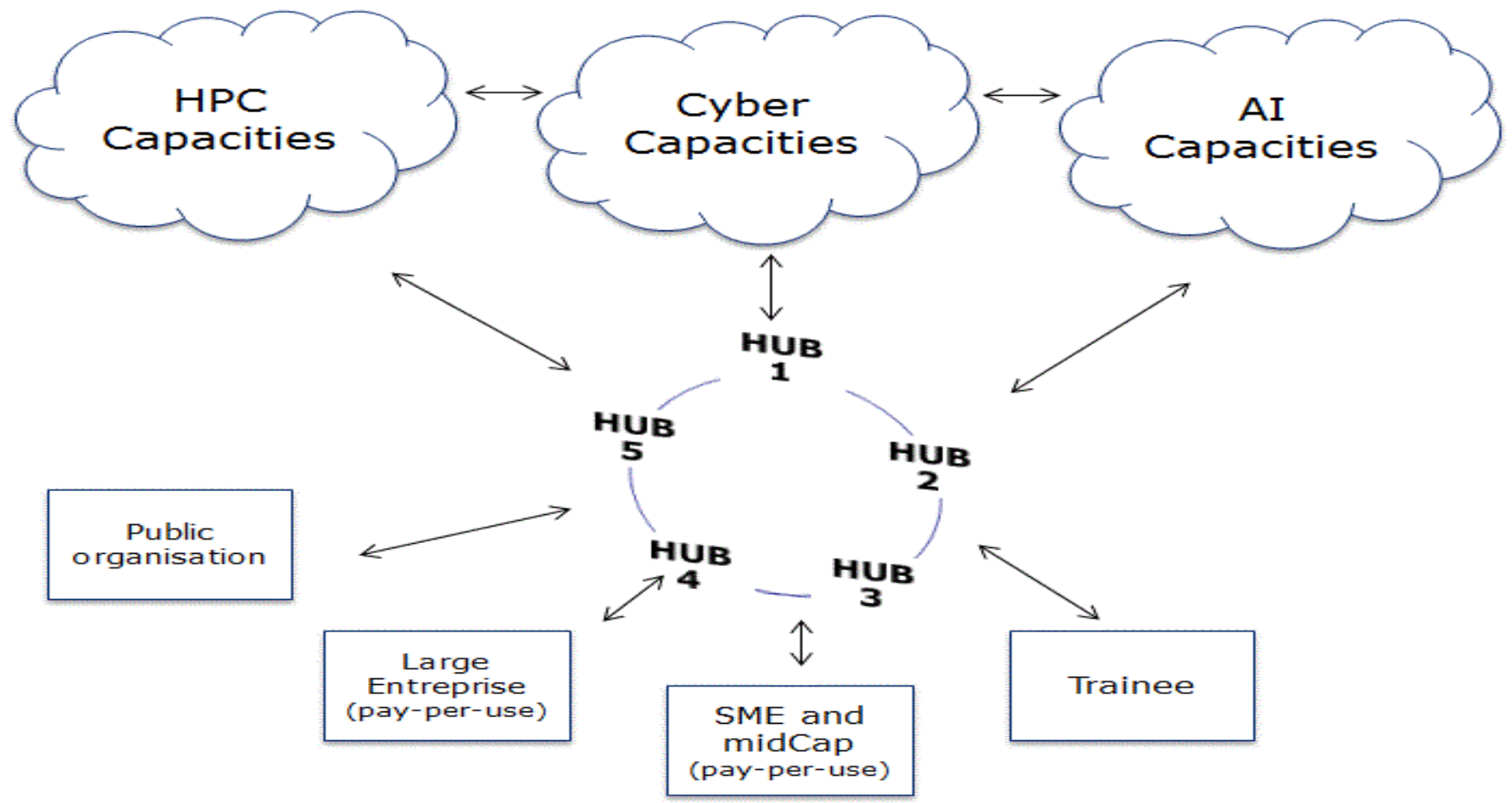
Targeted stakeholders consultation

End of 2019 ?

Full inter-institutional agreement

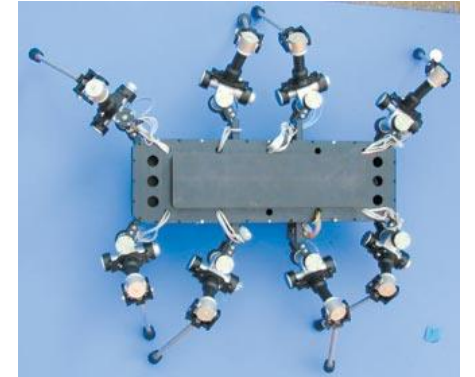
January 2021

Start of DEP



AI Coordinated plan with Member States

- **Maximize investment through partnerships**
 - National AI strategies
 - Public-private partnership for AI
 - AI Development Fund to support startups and AI innovators
- **Create European data spaces**
 - Make data sharing between borders transparent (for example, common health database with anonymized data)
 - Data sharing support centre to provide practical advice
- **Nurturing talents, skills and lifelong learning**
 - Support advanced diplomas. support digital skills retain and attract highly qualified AI professionals in Europe
- **Develop a trustworthy and ethical artificial intelligence**
 - Bringing Europe's ethical approach to the world stage



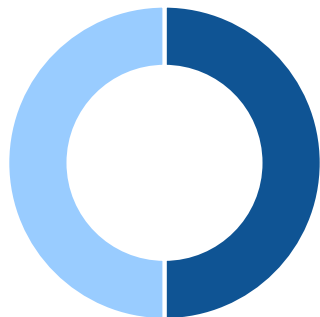
Credit: harunyahya.fr

Ongoing work in EU Member States



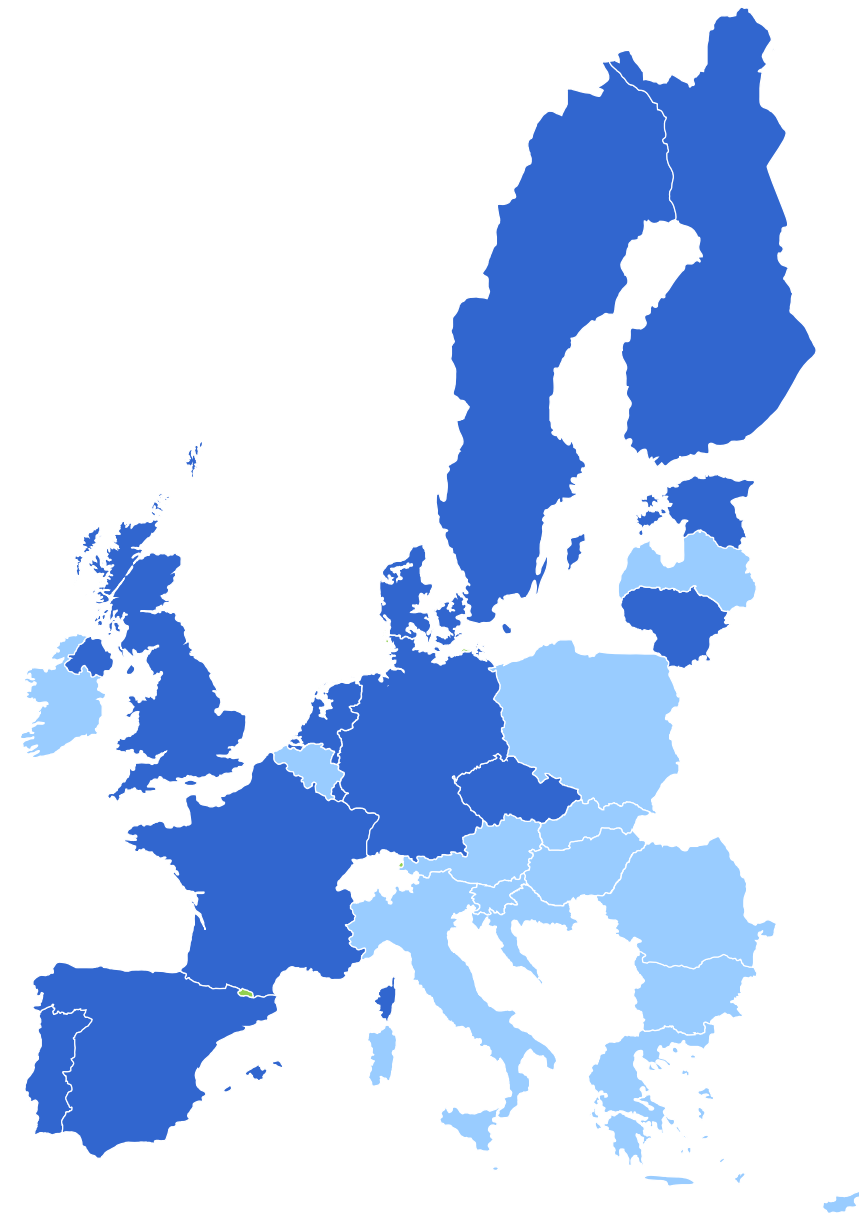
14

14 Member States are working on their strategies



14

14 Member States have published their strategies



Ethics Guidelines for AI – Requirements



Human agency and oversight



Technical Robustness and safety



Privacy and data governance



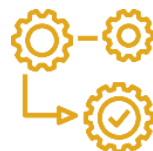
Transparency



Diversity, non-discrimination and fairness



Societal & environmental well-being



Accountability

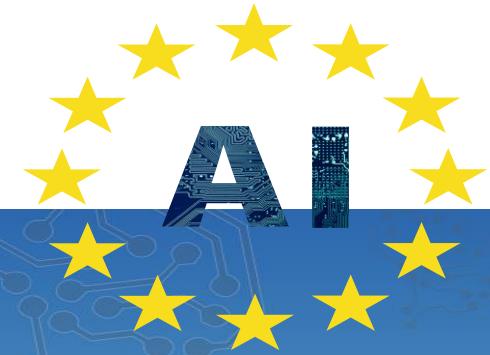
Ethics Guidelines for AI – Process





President-elect Ursula von der Leyen:

- In my first 100 days in office, I will put forward legislation for a coordinated European approach on the human and ethical implications of Artificial Intelligence.
- I will make sure that we prioritise investments in Artificial Intelligence, both through the Multiannual Financial Framework and through the increased use of public-private partnerships.



The European AI Alliance

Joint reflexion on AI
future

Mobilisation of all
actors: industry,
research, civil society

Supported by the
High Level Expert
Group on Ethics

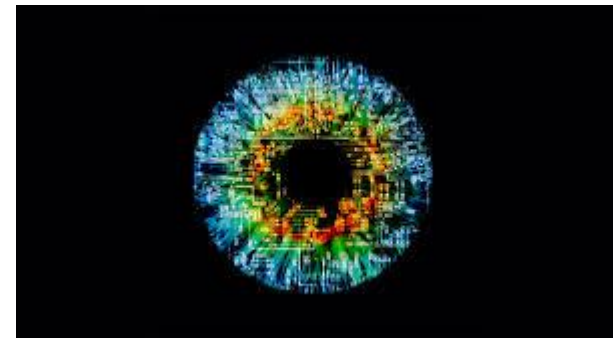
Objective: Make this platform a reference for reflexion on AI

<https://ec.europa.eu/digital-single-market/en/european-ai-alliance>

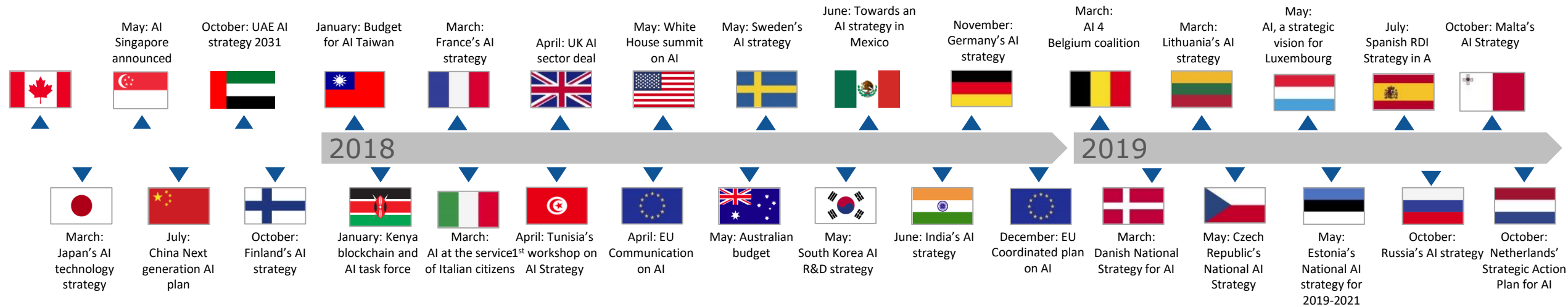
Knowledge sharing service to observe the development, absorption and impact of AI in the EU

- Definition and taxonomy of AI
- Investments
- Ecosystem and indicators
- Technology monitoring
- Deployment
- National initiatives and country profiles
- Use of AI in public services

<https://ec.europa.eu/knowledge4policy/ai-watch/>



Interest in AI growing globally



Building a global consensus for a human-centric AI framework

A crowded field

- OECD recommendation adopted on 22-23 May
- (G7) Global Partnership on AI (GPAI)
- G20: (Japanese Presidency) Declaration on Human Centric AI
- UNESCO: study on standard setting instrument on ethics of AI
- Council of Europe: AI Legal Framework work to start in November 2019
- Standardisation: ISO/IEC, IEEE and CEN/CENELEC

Way forward

- Promote participation of 3rd countries organisations in the testing phase of the guidelines
- Exchange of view on regulatory needs
- Pursue bilateral discussions and active cooperation with like-minded countries and relevant international organisations
- Build on bilateral exchanges and move to consensus that is as broad as possible

Digital policy mix

- Coordinated strategy combines public and private investments for AI with ethical guidelines and regulatory framework
- Building on EU strengths and providing a European “3rd way”
- Giving businesses clear, uniform rules to ensure they can operate with predictability and user trust in the EU
- Policy mix to provide regulatory clarity, inspire confidence and trust and ensure competitiveness of European industry
- AI provides major opportunities for Europe