



***Steering AI: Legal Challenges and Ethical
Standards
from an Engineering Perspective***

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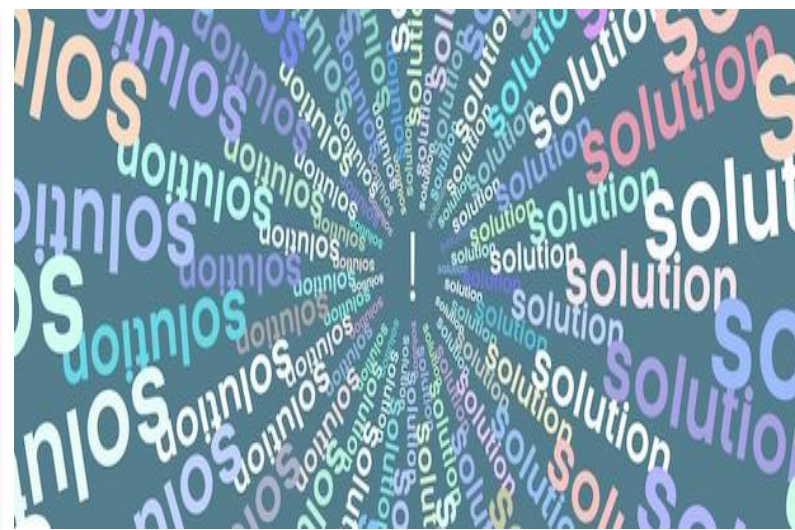
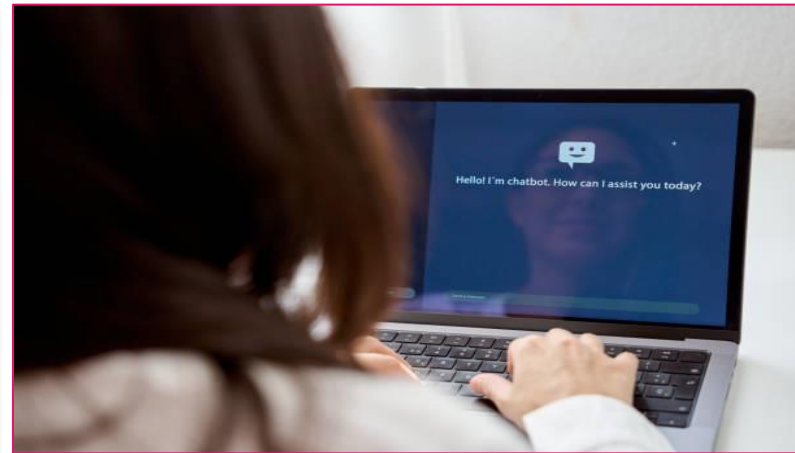
The EU AI Act Explained



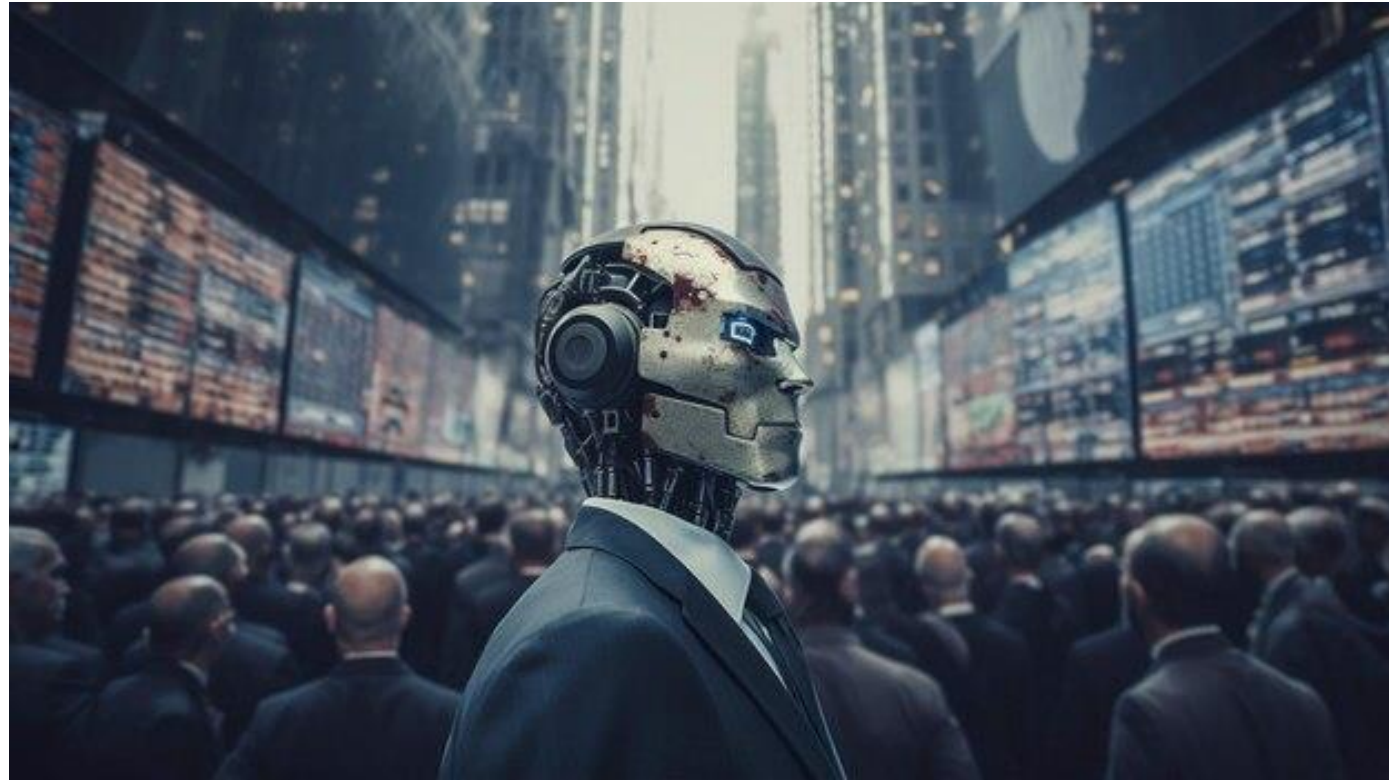
1. Introduction



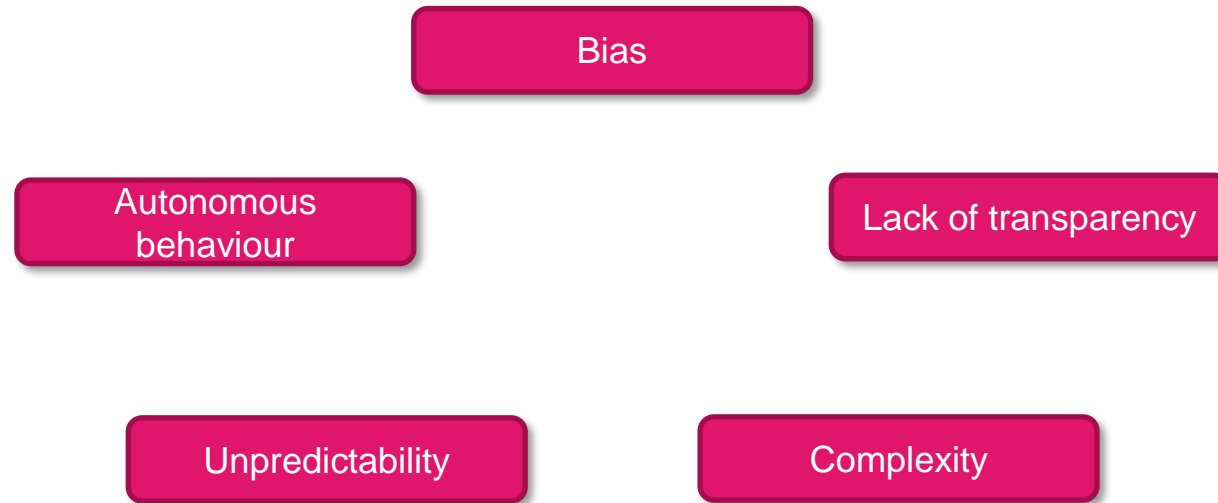
2024: THE YEAR OF ARTIFICIAL INTELLIGENCE (“AI”)?



CHALLENGES OF AI (1)



CHALLENGES OF AI (2)



2. The fundamentals of the EU AI ACT



EUROPEAN UNION A PIONEER IN THE AI REGULATION



April 2021: the European Commission launches the first proposal for a regulation on AI.

March 2024: final text receives green light from the European Parliament.

NEXT STEPS:

After formal approval by the Eu Council of Ministers, the final text should be published in the Official Journal of the European Union **by the first half of 2024.**

The text will come into effect 20 days after the publication of the AI Act in the Official Journal of the European Union.

THE BROAD DEFINITION OF AI SYSTEM CONTAINED IN THE AI ACT

“... ‘AI system’ means a machine-based system designed to operate with varying levels of autonomy, that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments ...” (AI Act, Article 3, para. 1).

Exemptions:

- AI systems used exclusively for military and scientific research and development purposes;
- Natural persons using AI systems for purely non-professional purposes.



THE RISK BASED APPROACH



3. The Unacceptable Risk AI Systems



UNACCEPTABLE RISK (1)

The list

- AI to exploit vulnerabilities.
- AI to manipulate individuals.
- Social scoring.
- Predictive policing.
- Biometric identification systems in publicly accessible spaces for law enforcement.
- AI used for the emotion recognition within the workplace and educational institutions.
- Biometric categorisation.
- Scraping of facial images from the internet or CCTV footage to create facial recognition databases.



UNACCEPTABLE RISK (2)

Examples

“... *Social Scoring*...”.



UNACCEPTABLE RISK (3) Examples

“... AI used for the emotion recognition within the workplace and educational institutions ...”.



UNACCEPTABLE RISK (4)

Examples

“... Biometric categorization of natural persons ...”.



UNACCEPTABLE RISK (5)

Effective day and fines



The bans will come into effect six months after the publication of the AI Act (*i.e.*, presumably by the end of 2024).



Fines up to 35 million Euro or 7% of total worldwide annual turnover.

4. The High-risk AI Systems



HIGH RISK (1)

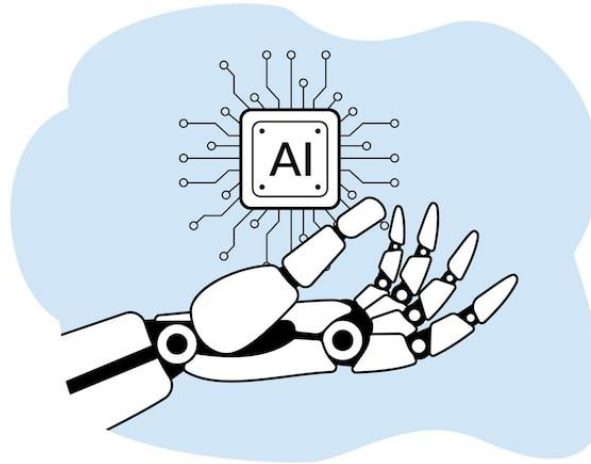
The Areas

- Remote biometric identification and categorisation.
- Critical infrastructure.
- Education and vocational training.
- Employment, workers management and access to self-employment.
- Access to and enjoyment of essential private services and essential public services and benefits.
- Law enforcement.
- Migration, asylum and border control management.
- Administration of justice and democratic processes.



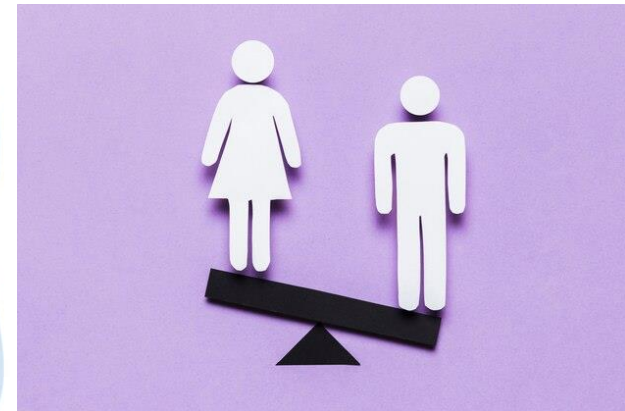
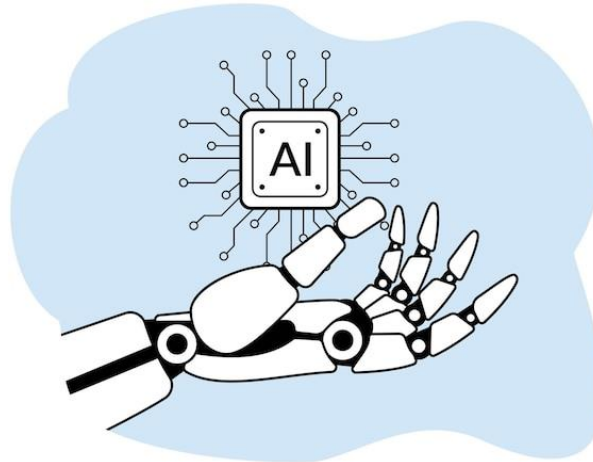
HIGH RISK (2) Examples

*“... Access to and enjoyment of essential private services
...”*



HIGH RISK (3) Examples

“... Employment, workers management and access to self-employment ...”.



HIGH RISK (4)

The Compliance Activity To Be Carried Out *Ex Ante*

- Risk Management System.
- Data and Data Governance.
- Technical Documentation.
- Traceability.
- Transparency obligations.
- Human Supervision.
- Accuracy, Robustness and Security.



HIGH RISK (5)

The EU Declaration of Conformity



In the document, it will be necessary to document how each requirement of the AI Act mentioned in the previous slide is met (e.g., Risk Management System, Data Governance, *etc.*).

HIGH RISK (6)

Further steps to be taken before the AI system can be placed on the market



The CE marking shall be affixed indicating compliance with the general principles and applicable Union Laws.



Registration in the EU Database.

HIGH RISK (7)

Effective day and fines



The rules will come into effect 24 months after the publication of the AI Act (with some exceptions).



Fines up to 15 million Euro or 3% of total worldwide annual turnover.

5. Transparency-risk AI Systems



TRANSPARENCY-RISK (1)

What they are

- AI systems that interact with individuals, such as those that can carry risks of manipulation (but which cannot be considered unacceptable or high-risk AI systems).
- Possible examples are artistic deepfakes or chatbots.
- There are specific obligations of transparency towards the users.



TRANSPARENCY-RISK (2)

Example



A company creates a deepfake video in which Maria Montessori is giving a lesson.



The user shall be warned that the deepfake was created using AI.

TRANSPARENCY-RISK (3)

Effective day and fines



The rules will come into effect 24 months after the publication of the AI Act.



Fines up to 7.5 million Euro or 1% of total worldwide annual turnover.

6. The minimal risk AI Systems



MINIMAL RISK

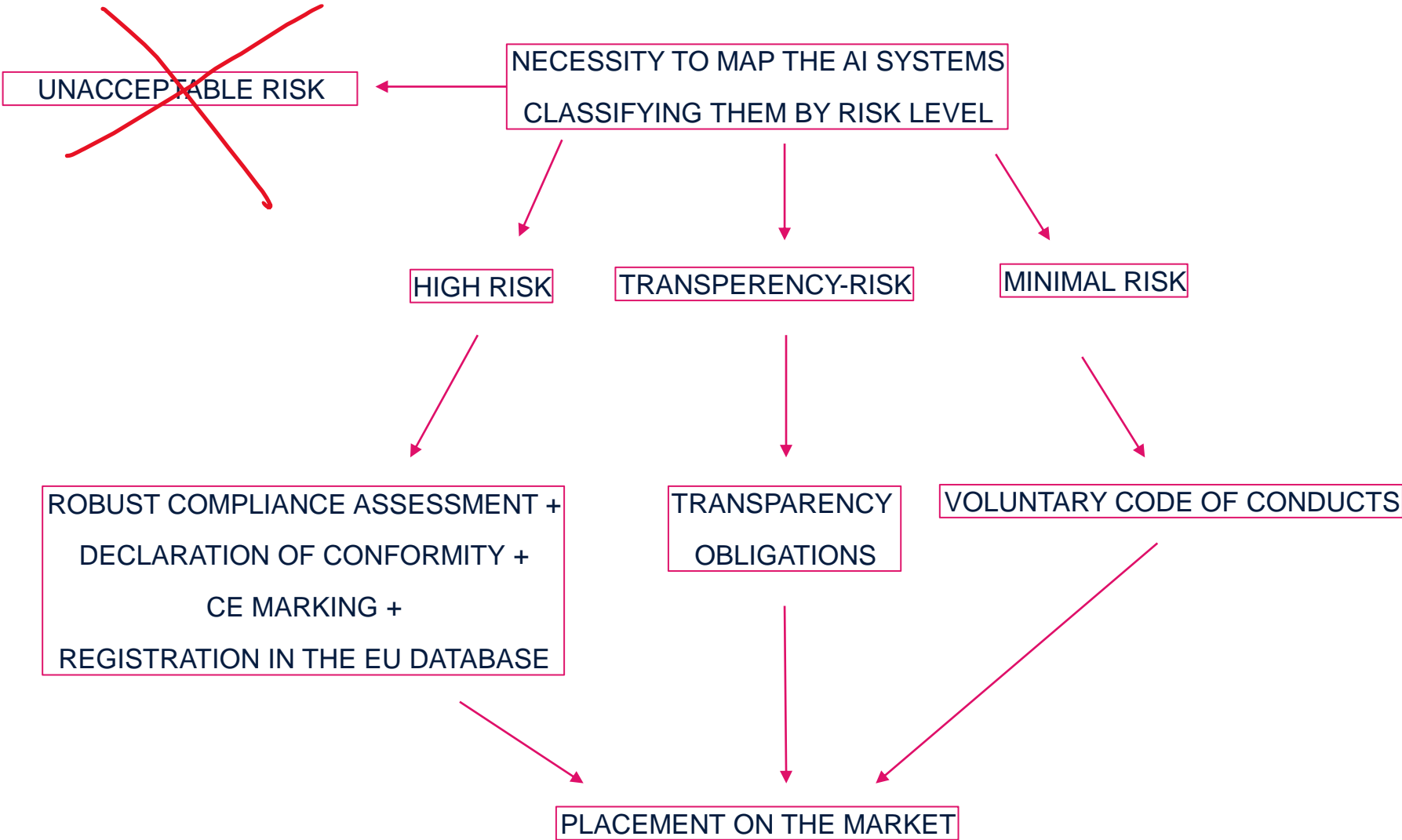
- They include categories such as anti-spam filters.
- In this case, it is established that such AI systems may be submitted to the voluntary application of codes of conduct.
- The rules will start to apply after 24 months from the publication of the AI ACT.



7. A final recap



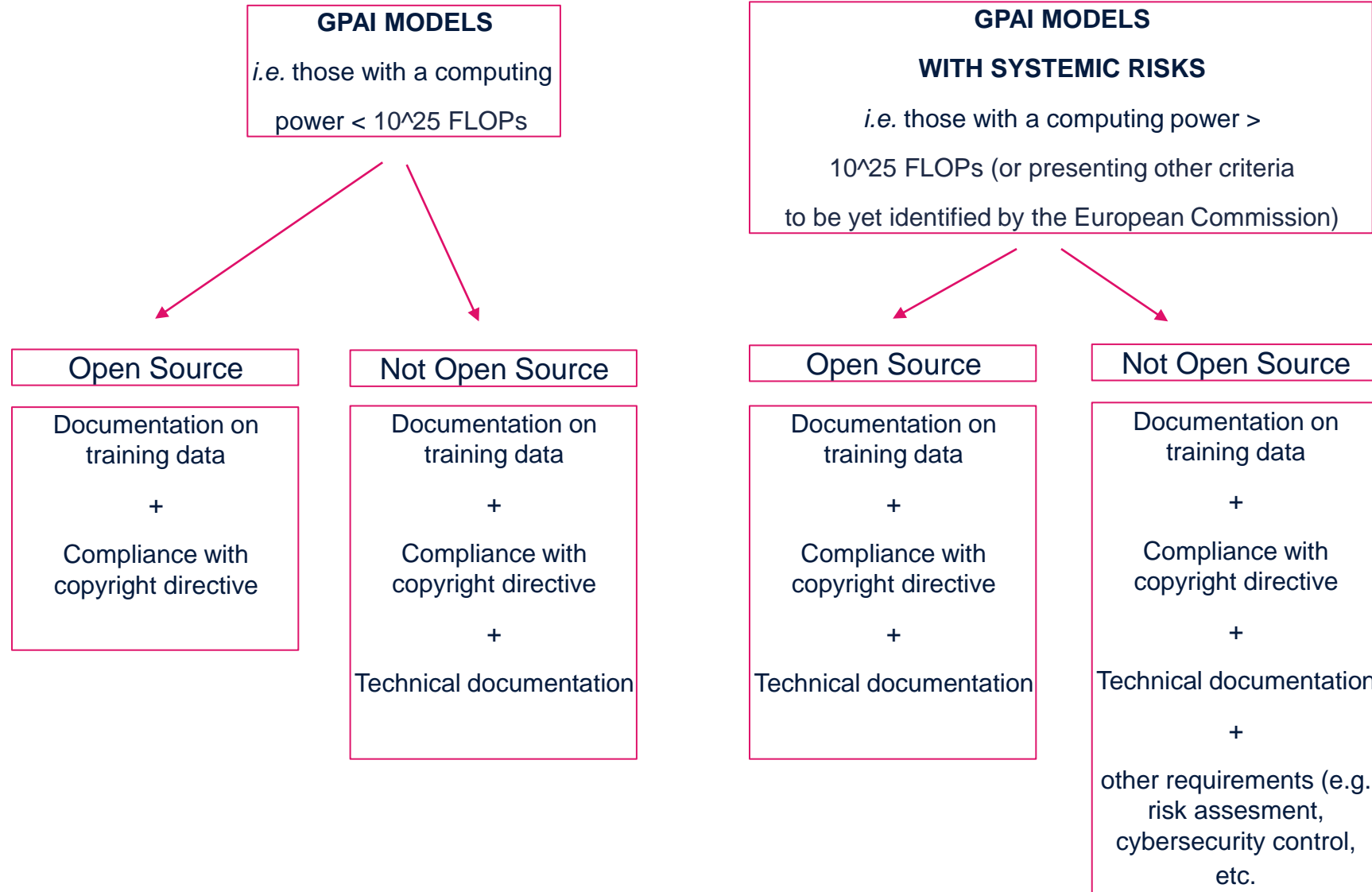
A FINAL RECAP



8. The General-Purpose AI Models (GPAI)



GPAI



9. The AI Governance



THE AI GOVERNANCE (1)



AI Office

Composition

- Office set up within the Commission composed by independent experts.

Functions

- Enforce the rules on the GPAI Models.
- Developing methods for assessing AI Models.

AI Board

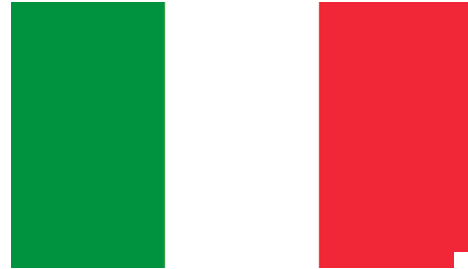
Composition

- One representative for any EU Member State.

Functions

- Coordination of the application of the text liaising with the single national Authorities.
- Publication of written opinions.

THE AI GOVERNANCE (2)



Authority/Authorities yet to be decided

- Power to impose fines. →
- Coordination with the other national authorities for ensuring the implementation of the AI ACT.



10. Critics moved to the AI ACT



CRITICS MOVED TO THE AI ACT

- Could this hinder technology and leave European companies behind?
- Does this introduce a new layer of cumbersome activities for companies, adding to the already significant compliance duties imposed, for example, under the General Data Protection Regulation?
- Is it feasible for legislation to anticipate every new development in constantly evolving technologies like artificial intelligence? (e.g., the original proposal text did not include the phenomenon of generative AI).



THANK YOU!



*All the contents of this presentation were prepared for the event “Steering AI: Legal Challenges and Ethical Standards from an Engineering Perspective”, organized on April 18, 2024, by the University of Pavia, Department of Electrical, Computer, and Biomedical Engineering (“**Event**”). This material is intended solely for uses related to the Event.*



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