Artificial Intelligence: the EU strategy

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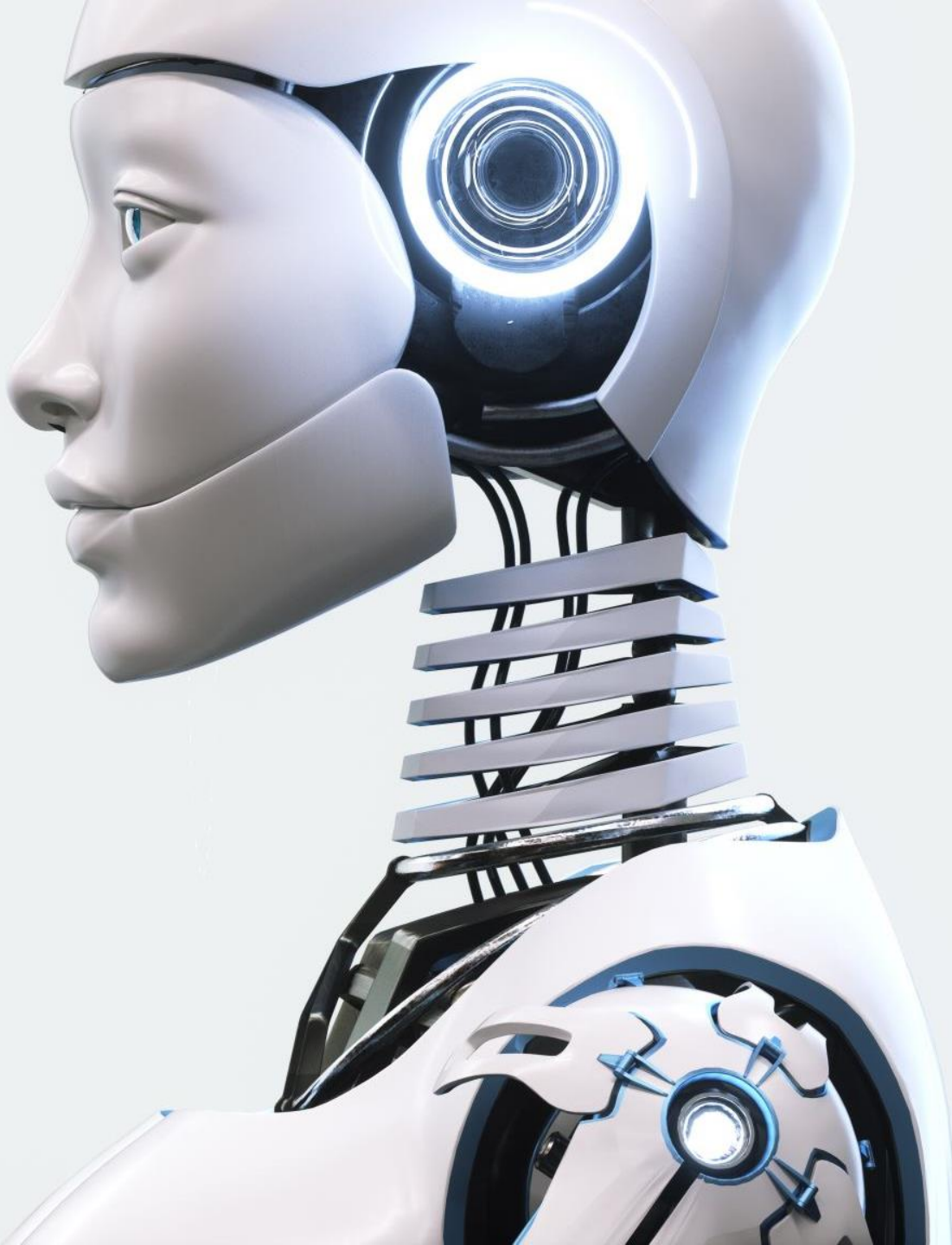
learning objectives

- Artificial Intelligence: why so many legal concerns?
- EU strategy
- Introduction to the EU AI ACT (proposal)

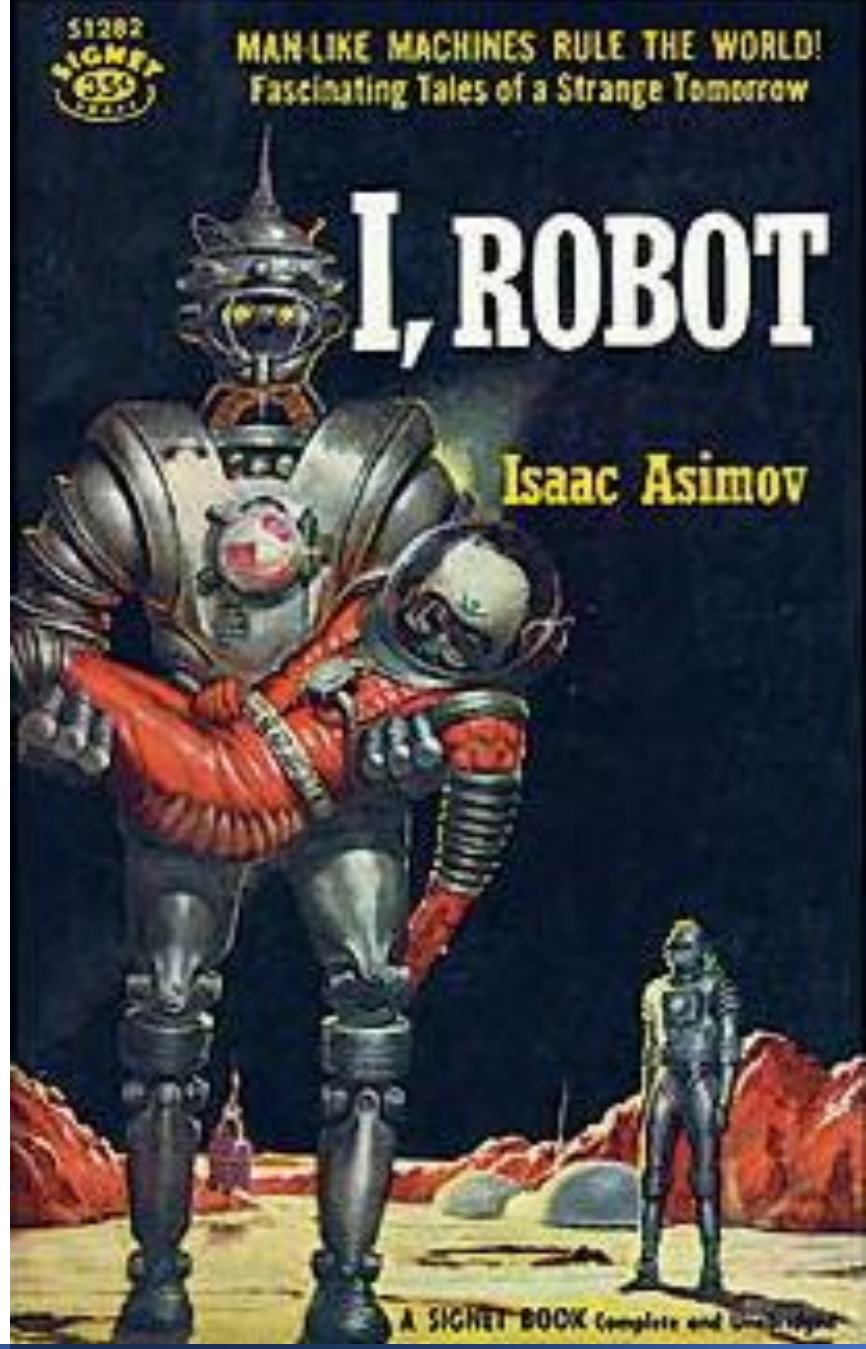
1 artificial intelligence: why so many legal concerns?



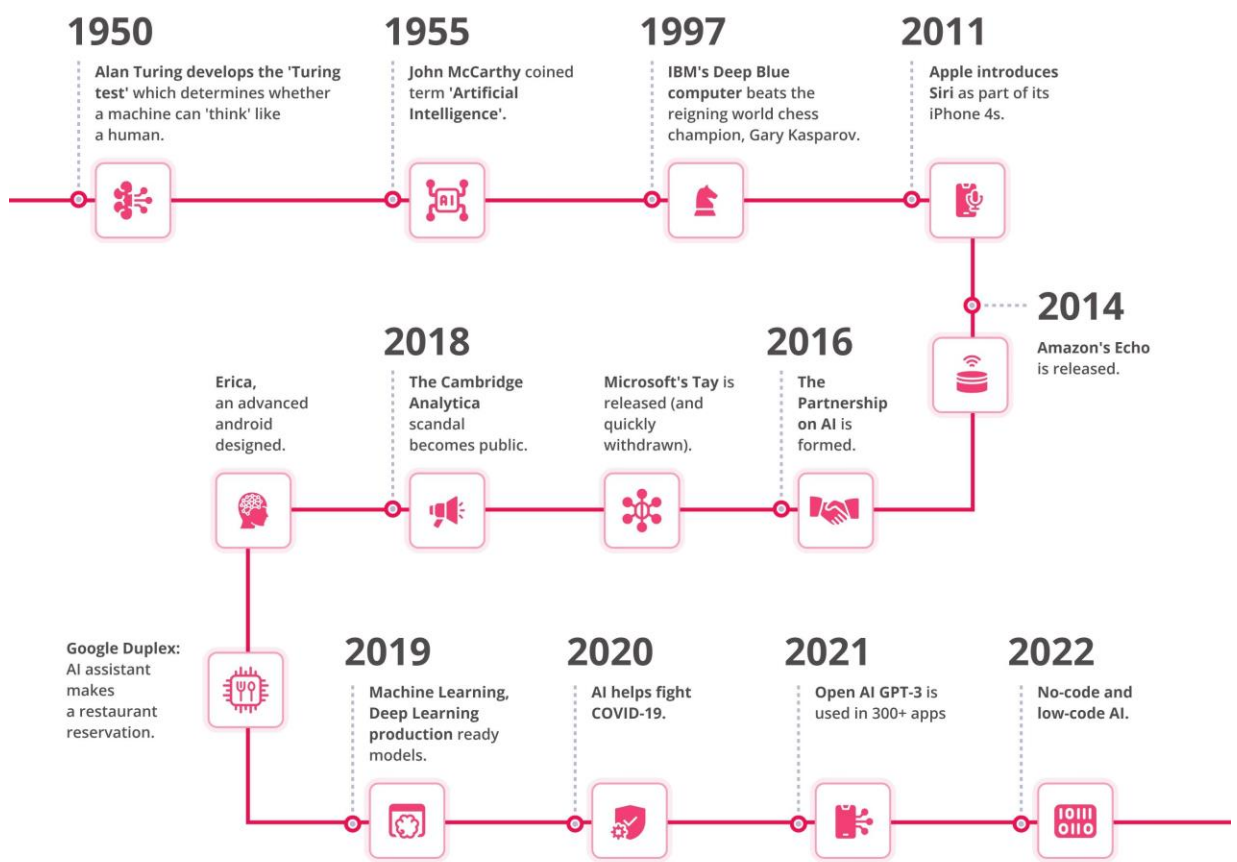
the 3 laws of robotics
(a letterary premise)

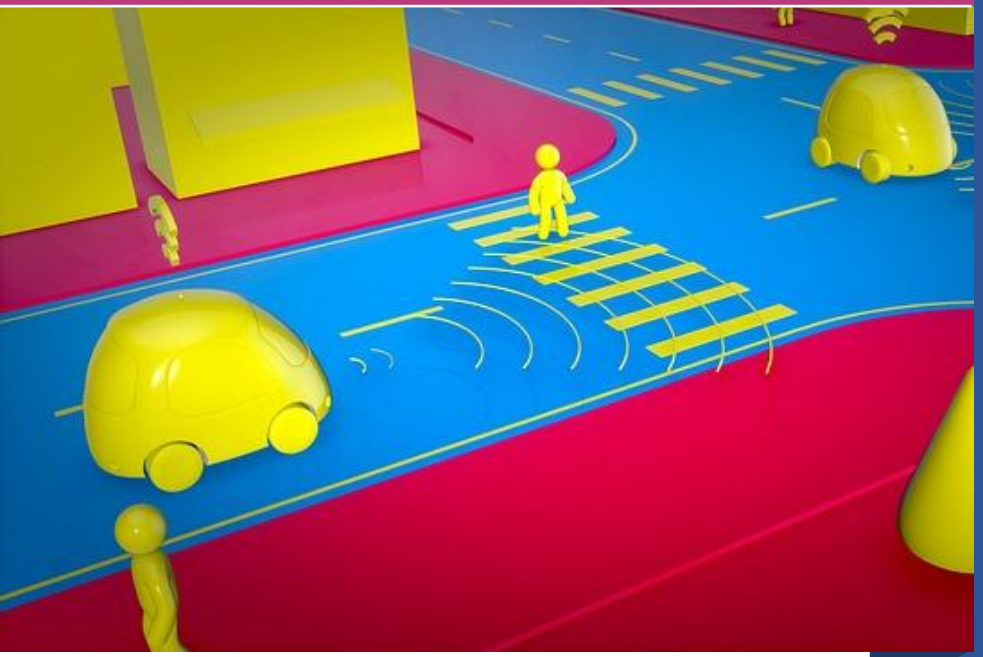
- **FIRST LAW** – A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- **SECOND LAW** – A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
- **THIRD LAW** – A robot must protect its own existence as long as such protection does not conflict with the First or Second Law»

- I. Asimov, *Runaround*,
- in *I Robot*, **1942**



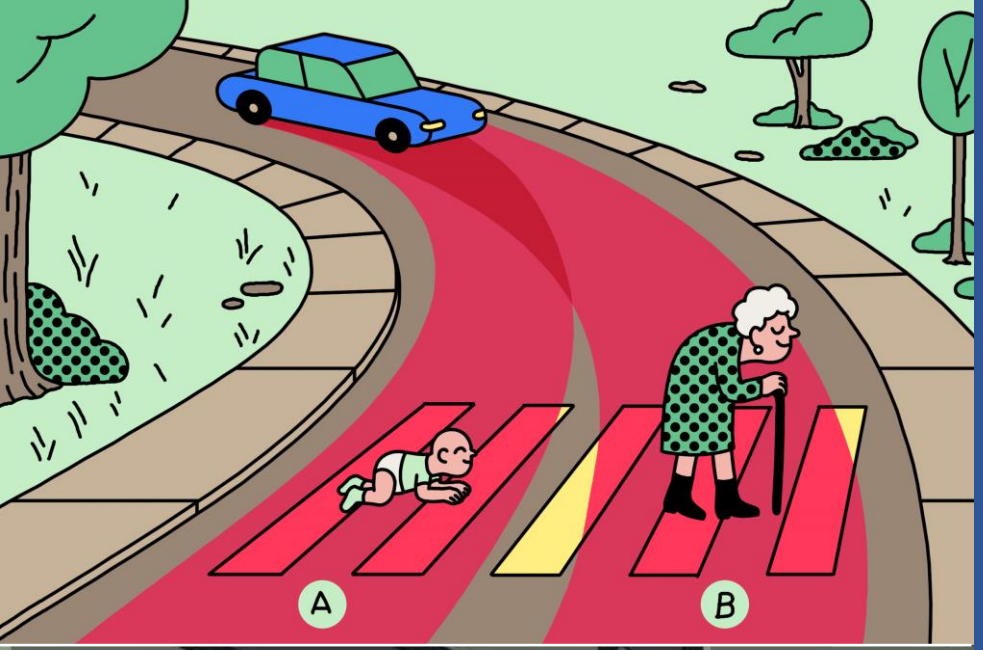
ARTIFICIAL INTELLIGENCE EVOLUTION AND FUTURE





sets of problems identification

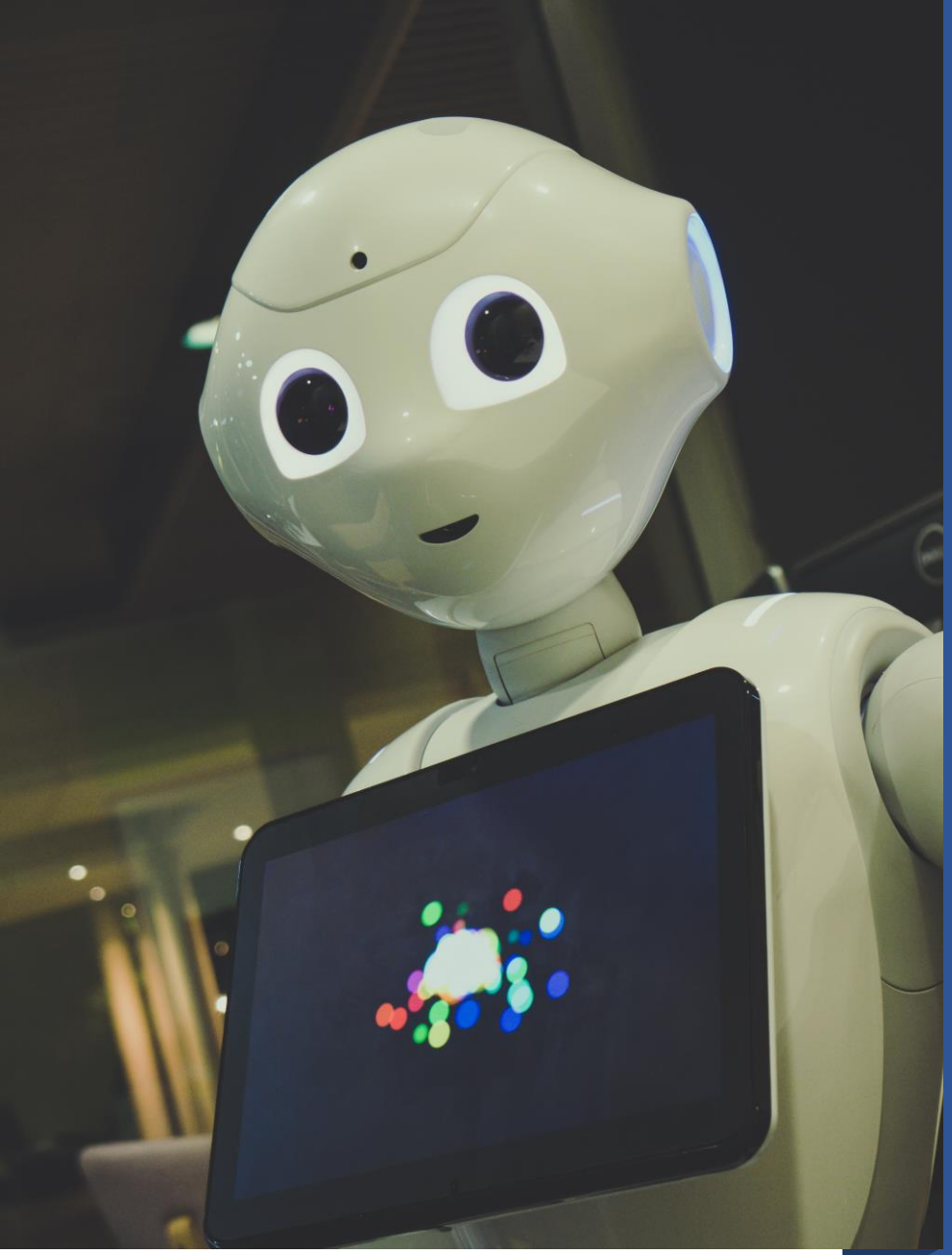
- Embodied
- Unembodied



Automation & Autonomy
as a problem

- Hard AI
- Soft AI

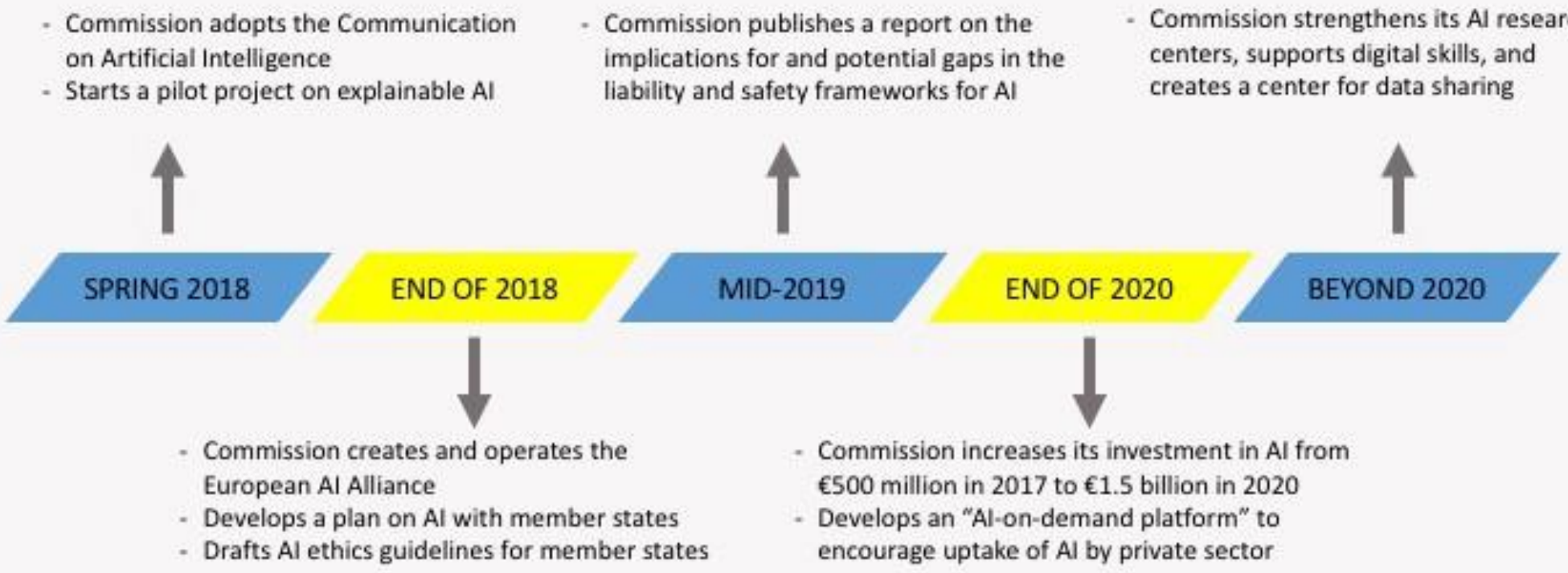
2. artificial intelligence: the EU strategy



EU regulatory approach before a new technology

- **WHY?**
  - to avoid diversified approaches by the MSs
  - to exploit the economic and social advantages
  - to have a strategical and competitive position
  - to ensure the protection of fundamental rights

A TIMELINE FOR EUROPE'S AI STRATEGY



a **three**-prong approach

ETHICAL

LEGAL

ROBUST

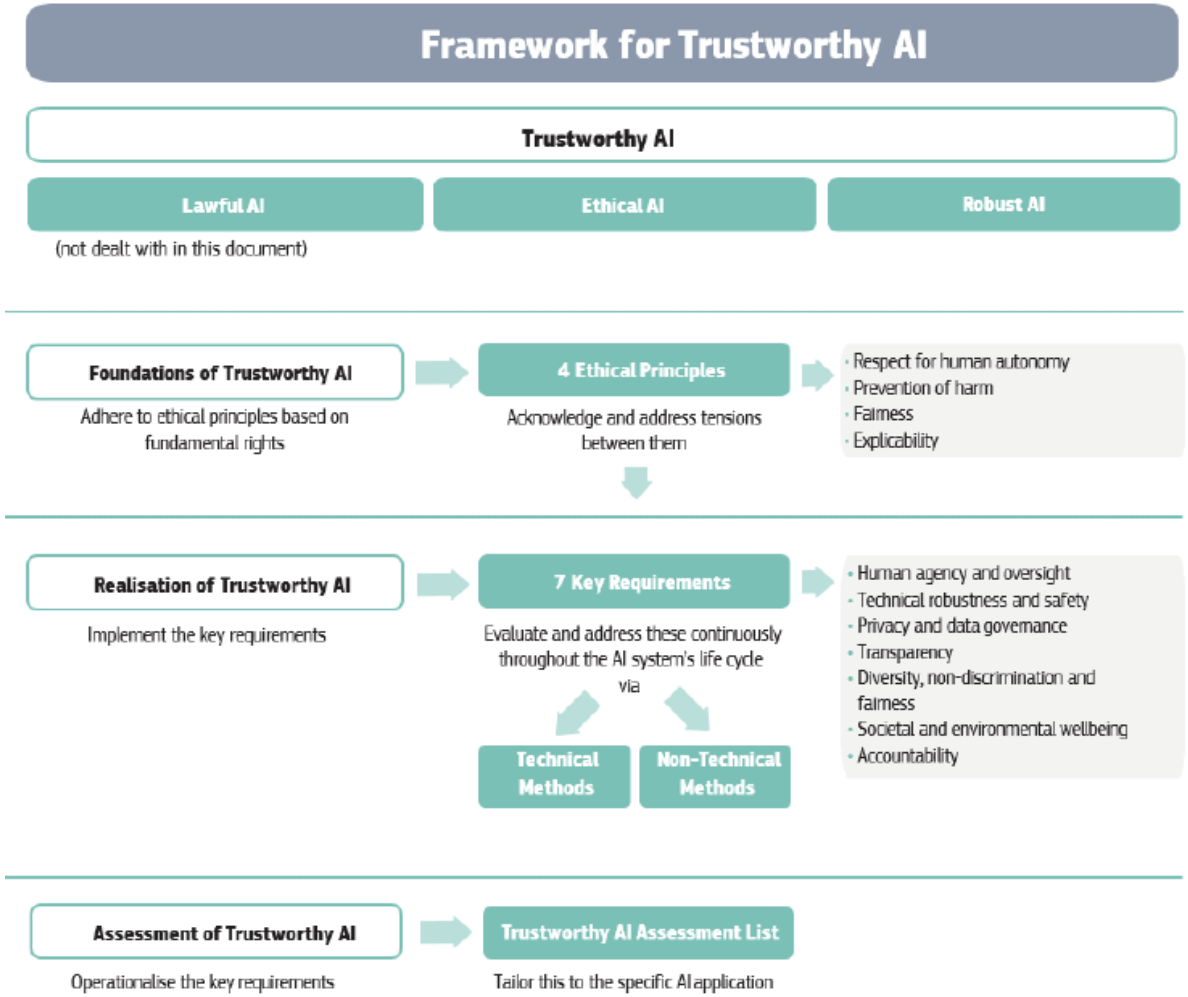


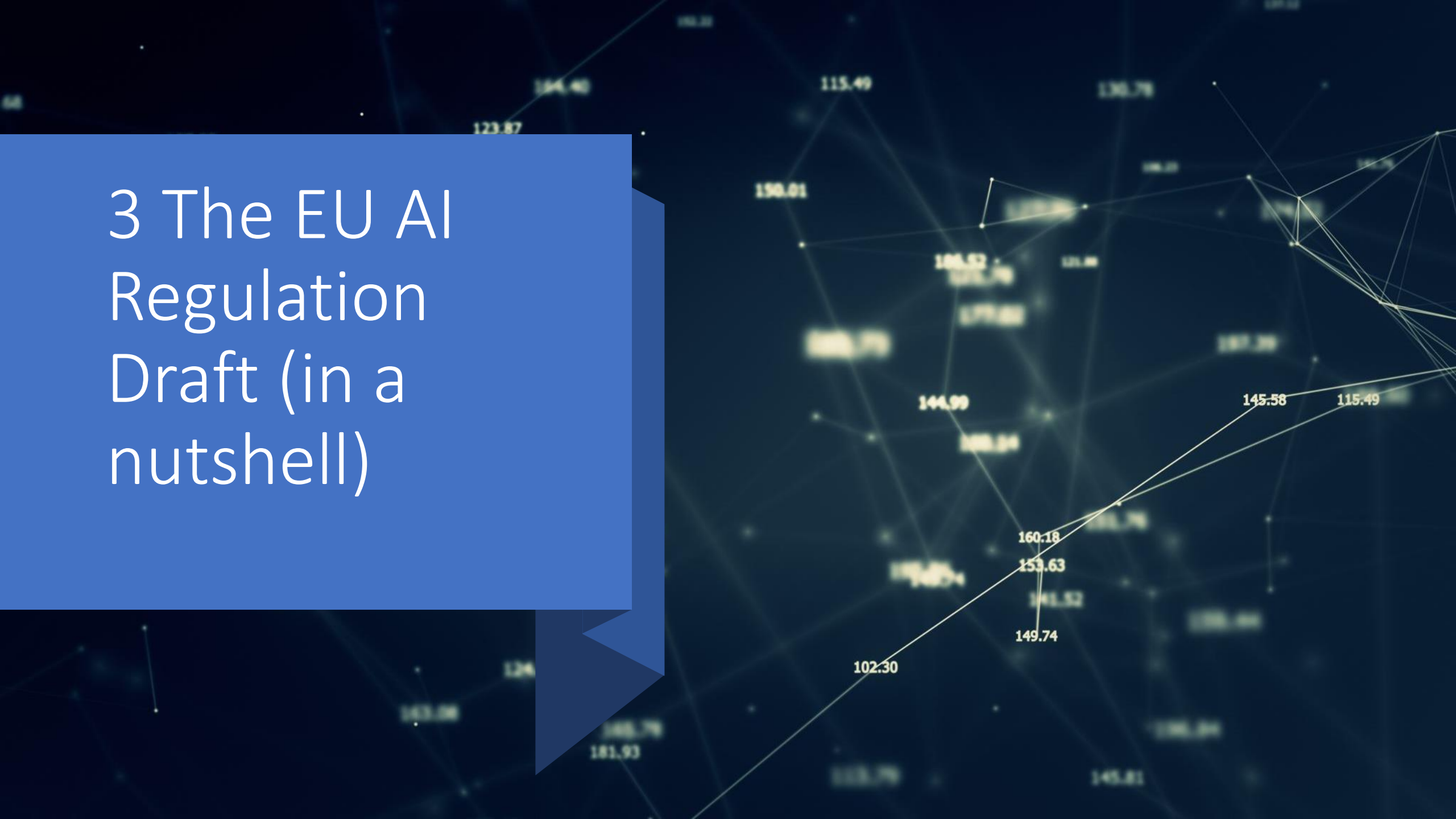
Figure 1: The Guidelines as a framework for Trustworthy AI

HUMAN CENTRIC intended as based on **HUMAN AUTOMONY**

1. Human Agency and Oversight
2. Technical Robustness and Safety
3. Privacy and Data Governance
4. Transparency
5. Diversity, Non-discrimination and Fairness
6. Societal and Environmental Well-being
7. Accountability

Fundamental rights as legal basis of AI REGULATION

3 The EU AI Regulation Draft (in a nutshell)



Artificial intelligence a first legal **definition**

«‘**Artificial intelligence system**’ (AI system) means software that is developed with one or more of the techniques and approaches […] for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with»

«The definition of AI system in the legal framework aims to be as **technology neutral and future proof as possible,** taking into account the fast technological and market developments related to AI»
EU AI ACT
Proposal COM(2021) 206 final

From a technical point of view

Machine learning approaches,

- including **supervised**, **unsupervised** and **reinforcement** learning, using a wide variety of methods including **deep learning**;

Logic- and knowledge-based approaches,

- including knowledge representation, inductive (logic) programming, knowledge bases, inference and deductive engines, (symbolic) reasoning and expert systems;

Statistical approaches, Bayesian estimation, search and optimization methods.

limited material scope
to the EU law competences

- This Regulation shall not apply to AI systems developed or used exclusively for **military purposes**.
- This Regulation shall not apply to **public authorities in a third country nor to international organisations** falling within the scope of this Regulation […], where those authorities or organisations use AI systems in the framework of international agreements for law enforcement and judicial cooperation with the Union or with one or more Member States.

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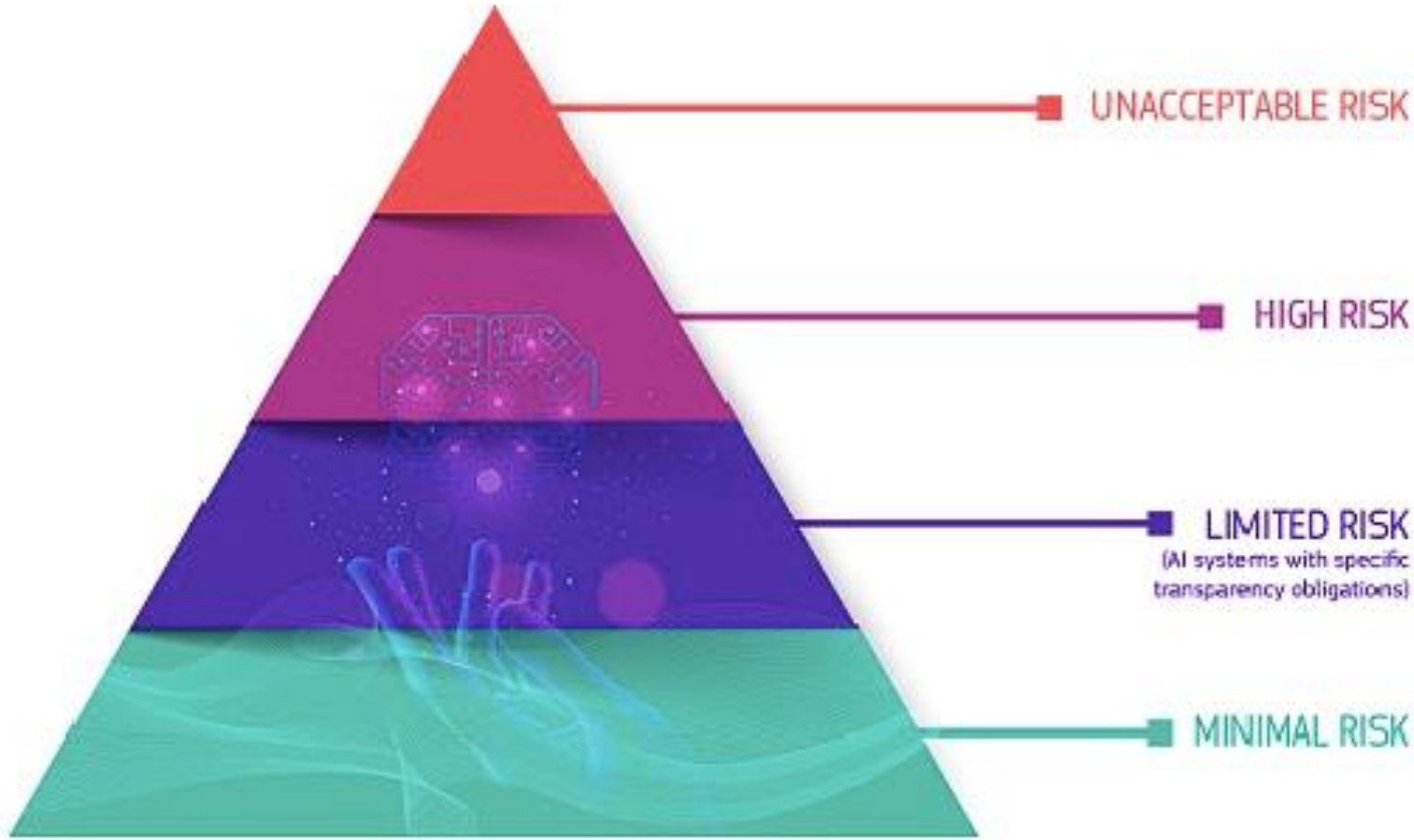
A risk-based approach



PROHIBITED SYSTEMS AND PRACTICES

- Practices having a **significant potential to manipulate persons** through subliminal techniques beyond their consciousness or exploit vulnerabilities of specific vulnerable groups such as children or persons with disabilities in order to materially distort their behaviour in a manner that is likely to cause them or another person **psychological or physical harm**.
- **AI-based social scoring** for general purposes done by public authorities.
- **the use of 'real time' remote biometric identification systems** in publicly accessible spaces for the purpose of law enforcement is also prohibited unless certain limited exceptions apply.

High-risk: AI systems identified as high-risk include AI technology used in:

- **Critical infrastructures** (e.g. transport), that could put the life and health of citizens at risk;
- **Educational or vocational training**, that may determine the access to education and professional course of someone's life (e.g. scoring of exams);
- **Safety components of products** (e.g. AI application in robot-assisted surgery);
- **Employment, workers management and access to self-employment** (e.g. CV-sorting software for recruitment procedures);
- **Essential private and public services** (e.g. credit scoring denying citizens opportunity to obtain a loan);
- **Law enforcement that may interfere with people's fundamental rights** (e.g. evaluation of the reliability of evidence);
- **Migration, asylum and border control management** (e.g. verification of authenticity of travel documents);
- **Administration of justice and democratic processes** (e.g. applying the law to a concrete set of facts).

high-risk systems (early) assessment methodology

STEP1

A high-risk AI system is developed.

STEP2

It needs to undergo the conformity assessment and comply with AI requirements.*

*For some systems a notified body is involved too.

STEP3

Registration of stand-alone AI systems in an EU database.

STEP4

A declaration of conformity needs to be signed and the AI system should bear the CE marking. **The system can be placed on the market.**

If substantial changes happen in the AI system's lifecycle

GO BACK TO STEP 2