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

1950: Alan Turing develops the 'Turing test' which determines whether a machine can 'think' like a human.
1955: John McCarthy coined the term 'Artificial Intelligence'.
1997: IBM’s Deep Blue computer beats the reigning world chess champion, Gary Kasparov.
2011: Apple introduces Siri as part of its iPhone 4S.
2018: Amazon’s Echo is released.
2019: Machine Learning, Deep Learning, production ready models.
2021: Open AI’s GPT-3 is used in 300+ apps.
2022: No-code and low-code AI.
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

- **SPRING 2018**
  - Commission adopts the Communication on Artificial Intelligence
  - Starts a pilot project on explainable AI

- **END OF 2018**
  - Commission publishes a report on the implications for and potential gaps in the liability and safety frameworks for AI

- **MID-2019**
  - Commission creates and operates the European AI Alliance
  - Develops a plan on AI with member states
  - Drafts AI ethics guidelines for member states

- **END OF 2020**
  - Commission increases its investment in AI from €500 million in 2017 to €1.5 billion in 2020
  - Develops an “AI-on-demand platform” to encourage uptake of AI by private sector

- **BEYOND 2020**
  - Commission strengthens its AI research centers, supports digital skills, and creates a center for data sharing
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
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.

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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.

EU AI ACT
Proposal COM(2021) 206 final
A risk-based approach

- Unacceptable Risk
- High Risk
- Limited Risk (AI systems with specific transparency obligations)
- Minimal Risk
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).
**STEP 1**
A high-risk AI system is developed.

**STEP 2**
It needs to undergo the conformity assessment and comply with AI requirements.*

*For some systems a notified body is involved too.

**STEP 3**
Registration of stand-alone AI systems in an EU database.

**STEP 4**
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

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GO BACK TO STEP 2