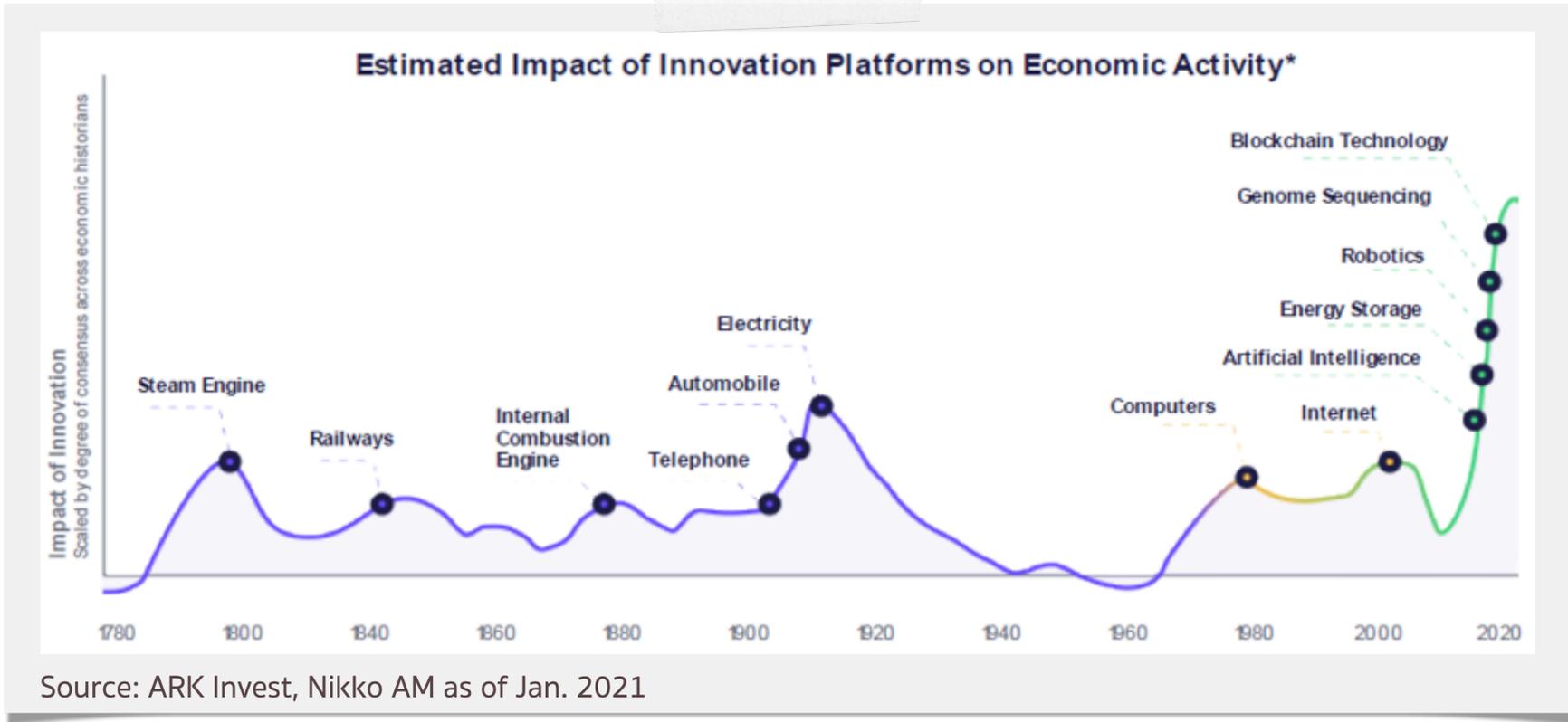


# CONCEPTS, ETHICAL ISSUES AND RESPONSIBILITIES

*when tools make evident  
unsolved societal issues*

*Eugénio A. M. Rocha  
DMAT - Univ. de Aveiro*






**Robotics**

Robotics or automation to help businesses improve efficiency



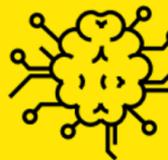
**Energy Storage**

Advances in technology for energy storage with longer duration and cheaper cost



**DNA Sequencing**

DNA sequencing technology to improve diagnostic and diseases therapy



**Artificial Intelligence**

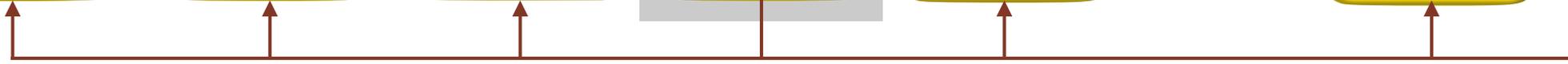
enabling robots to perform tasks such as thinking, analysing for solving problems



**Blockchain Technology**

a system of recording information connecting the world's networked transactions





## AI is just **ANOTHER TOOL?**

- Ethical implications come from the **actions made on a moral context** being independent of tools use
  - Regulating “good/bad” it is not easy (social defs)



### **Oldest stone tools pre-date earliest humans**

By Rebecca Morelle  
Science Correspondent, BBC News

They were unearthed from the shores of Lake Turkana in Kenya, and date to 3.3 million years ago.

They are 700,000 years older than any tools found before, even pre-dating the earliest humans in the *Homo* genus.

The find, **reported in Nature**, suggests that more ancient species, such as *Australopithecus afarensis* or *Kenyanthropus platyops*, may have been more sophisticated than was thought.



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**21:58 London Bridge**  
Van driven southbound for first time

**22:06 London Bridge**  
Multiple injuries and fatalities as van driven southbound into pedestrians

**22:05 London Bridge**  
Van driven northbound, performs U-turn at north end of bridge

**22:07 Borough High Street**  
Van crashes, occupants exit armed with knives and head for Borough Market

**22:15 Borough Market**  
Attackers stab multiple people in pubs and restaurants

**22:16 Stoney Street**  
Attackers shot dead by police

**London Bridge Attack: 7 Killed, 48 Wounded; 3 Suspects Shot Dead by Police**

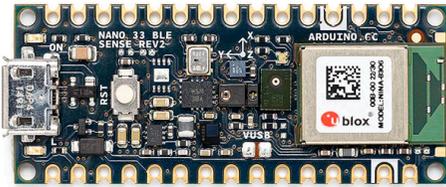
**Convicted murderer hailed as 'hero' in London Bridge attack**

Man convicted of killing woman, 21, joined others to stop terrorist who went on knife rampage

**LONDON:** One of the men who helped to stop the London Bridge terrorist from killing more people was once a killer himself.

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➤ EdgeML  
➤ 6 x 6 mm



€10

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- But the correct use may help anonymization



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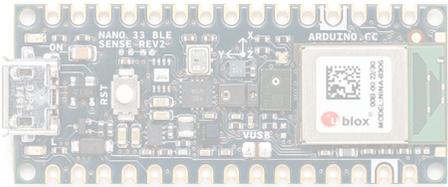
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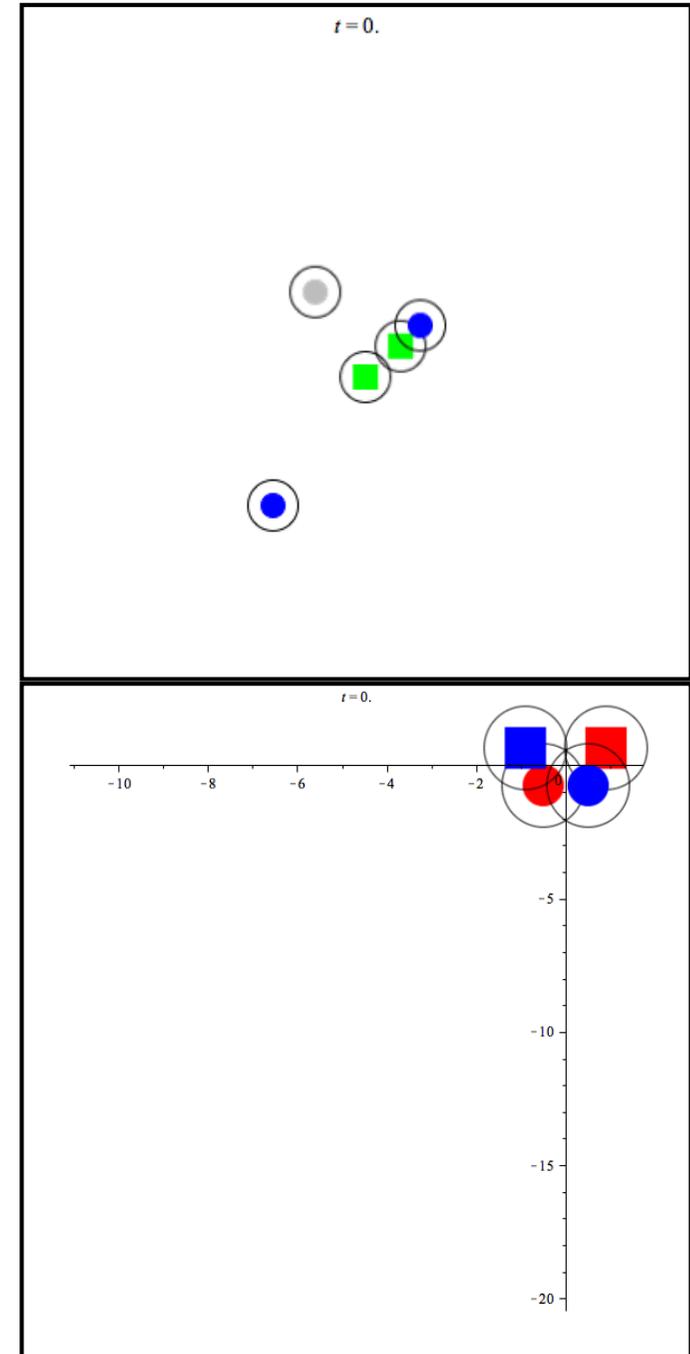


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- But the correct use may help anonymization

- Some AI applications are by herself disruptive



- *Gottman Method - Predict Divorce >90% acc*
- *EDOs + AI - Group (inter)Relation Behaviour*



## REGULATION

The European Parliament and the Council are currently discussing two important new laws that aim to improve algorithmic decision-making' transparency and explainability:

- **AI Act** — apply to all AI-based services (presented in Apr/Dec 2022):
  - MAIN CORES: **lawfulness, fairness, and transparency.**
- **Platform Workers Directive** — regulate AI management tools.

### The AI ACT (e.g. prohibited AI practices)

- The text extends to private actors **the prohibition on using AI for social scoring.** Furthermore, the provision prohibiting the use of AI systems that **exploit the vulnerabilities** of a specific group of persons now also covers **persons who are vulnerable due to their social or economic situation.**
- Classification of some AI systems as **high-risk.**

## RESPONSABILITY

- **AI Act** — The FLT requirement rule:
  - **Fairness:** New algorithms and a topic under study [“definition”];
  - **Lawfulness:** Will (always) be quite difficult;
  - **Transparency:** Interpretability and (global/local) explainability is under study [“true”].

Academia has a strong responsibility to define and propose good practices and applications.

## SOME DISCUSSION QUESTIONS

- Since limits/borders are difficult to determine, how will we define the **limit (fair) human augmentation** by technology means?
- Since AI can imitate some human actions (quite) well, in the future are we also requiring **humans to comply with FLT**?
- Fundamental Science is slow to acquire and consolidate.  
Technology and Society are changing quite fast nowadays.  
So, is the current **Educational System Model valid** in the long run?
  - Substantially increase of Technical Courses (*e.g. architecture, digital assets production, scientific literature review, social communication and marketing*);
  - (*I believe that*) Every scientific area should have (also) a Technical Course, in spite of the current variety of MSc Courses and PhD grants in projects' context.