ARTIFICIAL INTELLIGENCE IN THE INTERNAL CONTROL OF THE LOCAL PUBLIC SECTOR: ALGORITHMIC AUDIT.

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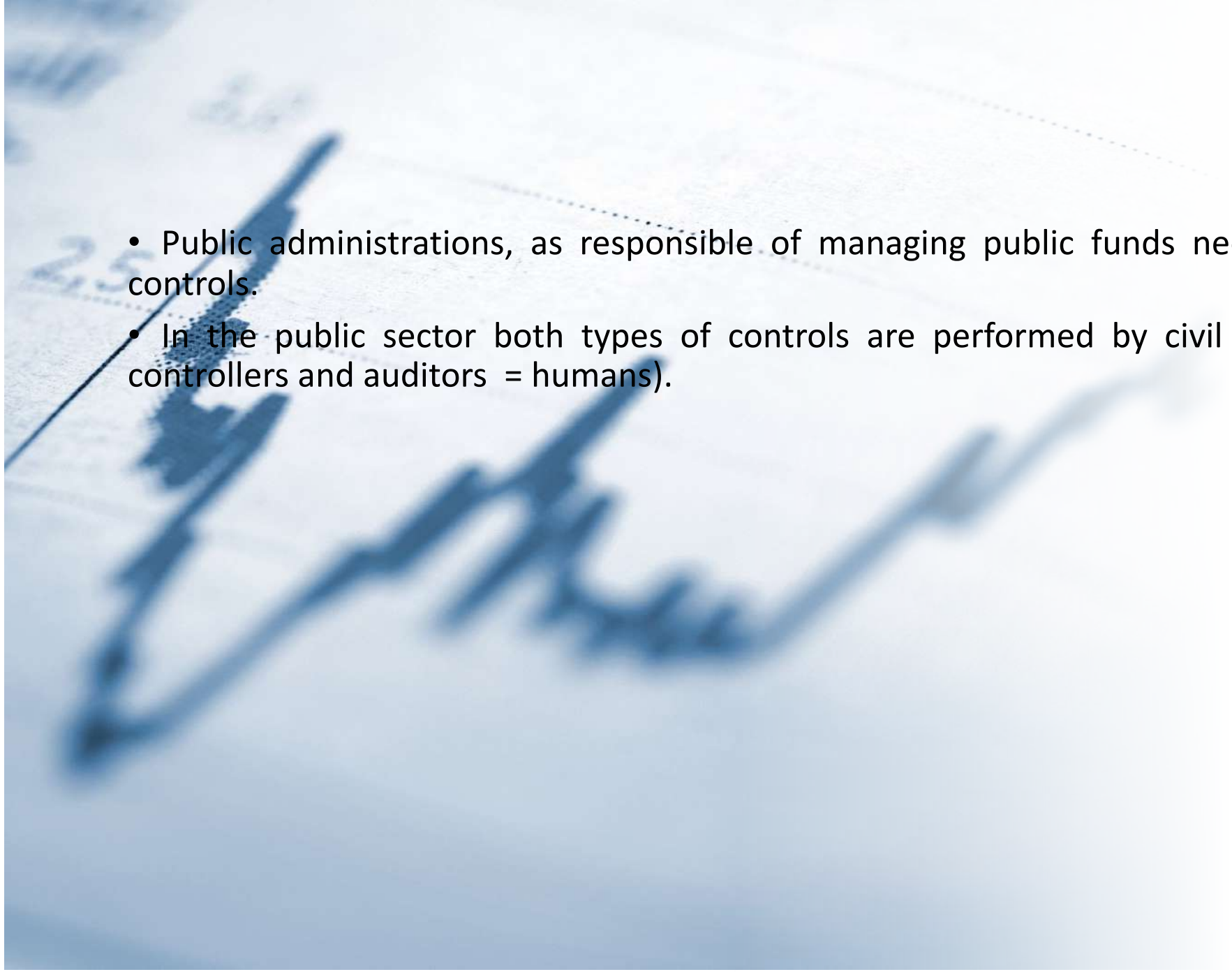
Digital transformation

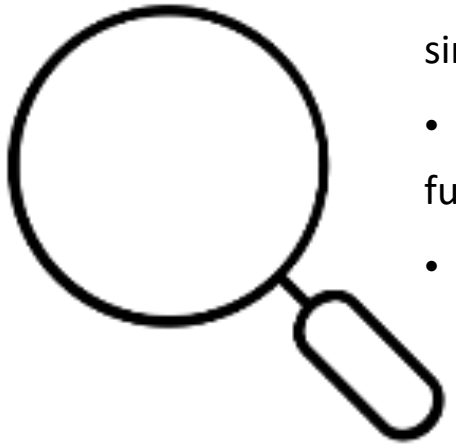
Algorithmic audit

DIGITAL TRANSFORMATION



- Public administrations, as responsible of managing public funds needs internal and external controls.
- In the public sector both types of controls are performed by civil servants (public financial controllers and auditors = humans).

- So, at present financial control is performed by civil servants, that is, human intelligence.
- But…technology and instruments are required to perform financial control better (Automation, Big Data and Artificial Intelligence). Industrial revolution phases 5 & 6.
- Pros and cons of digitalization in the financial public control:
- **PROS:** Transformation of direct and cross data. Transformation of the whole organization. An asset that facilitates the decision making process for public managers (accuracy and efficiency).
- **CONS:** Public auditors may fell threatened by an unknown technological environment.
- Cybersecurity.
- Algorithms.



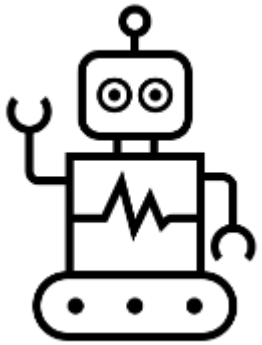
- Technology is changing working processes in the public sector and the way it interact with citizens.
- In this sense, it is shortening processes, promoting accessibility, simplifying processes and saving money.
- Digital administration is boosting a tsunami of organizative and functional changes.
- But we must be aware of…
  - Data protection (security).
  - Transparency.
  - Ethics.

Digital administration objectives:

- Shorter procedures.
- Quicker transactions.
- Less mistakes.
- Better public services.
- Less bureaucracy.
- Less costs.

Artificial intelligence

ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION



Machines (IT systems) reproduce processes designed by humans

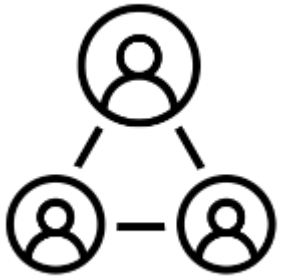
Learning, reasoning and self correction

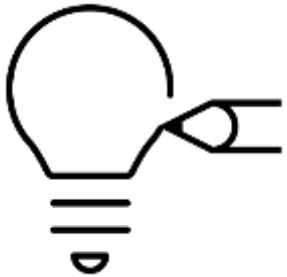
Emerged in 1956

- AI uses algorithms and data.
- In the AI kitchen, first go recipes second go ingredients.

AI INTELLIGENCE IN PUBLIC ADMINISTRATION

Article 41 Law 40/2015, 1st October "Automatized administrative act: any administrative act completely developed electronically without the intervention of a civil servant".





✓AI algorithms: well designed set of instructions and rules that provide a solution (machine learning). Draft european regulation. White box, black box. Distortion, bias.

✓Juli PONCE (I International seminar on administrative law and AI. Toledo, april 2019: Not to act in a reactive way but in a proactive way". To promote public law that enables innovation, good practices,

✓Data protection Spain.

✓Transparency: articles 9 & 24 Spanish Constitution.

Law 19/2013, 9 december, transparency, access public information and good governance/administration.

Articles 11 & 13 Royal Decree 203/2021, 30th March.

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Static algorithms, designed to take decisions designed by the programmer

Dynamic algorithms, machine learning: data, experiences to take decisions by themselves. They generate their own instructions different from the intial ones, belonged to programmer .

Deep machine learning. AI simulates complex neuronal nets. Complex relation between data and decisions taken (difficult to guess the causality between both).

In the deep machine learning case, the transparency required along the decision making process doesn’t exist, and therefore human control escapes.

The process became dark.

Why a wrong decision has been taken?

What’s the logic in a decision taken?

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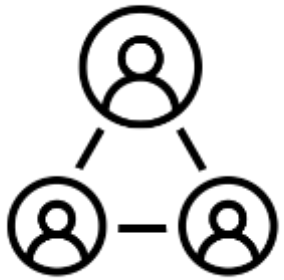

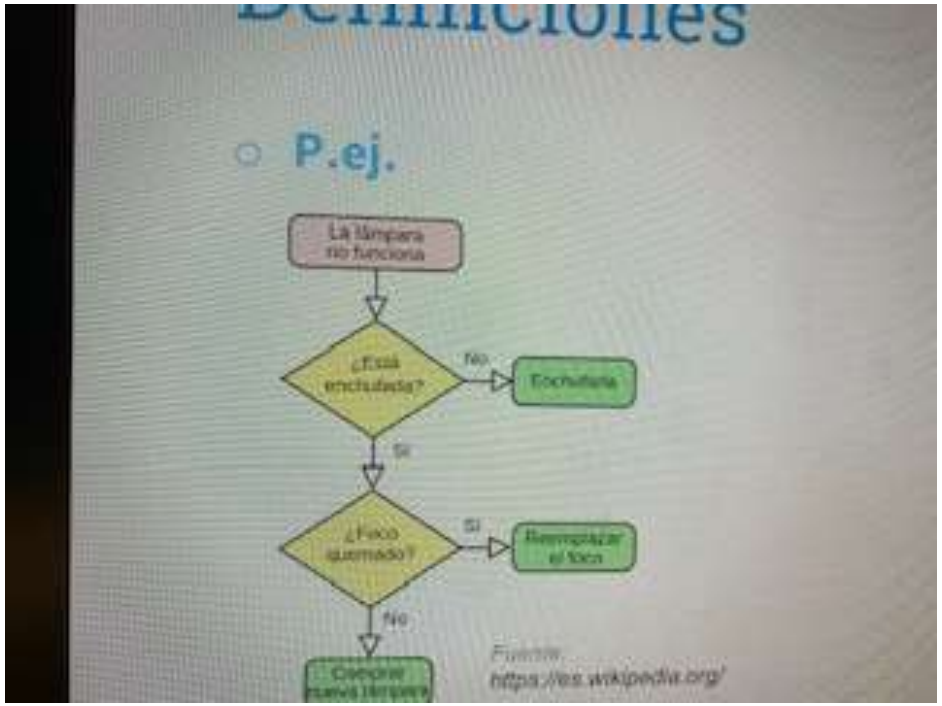

White box algorithm: Give us not just a result but also crearly readable rules. Transparency is key.

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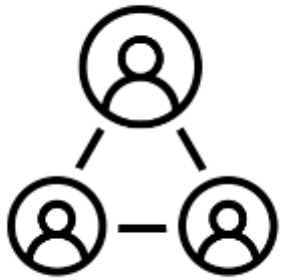
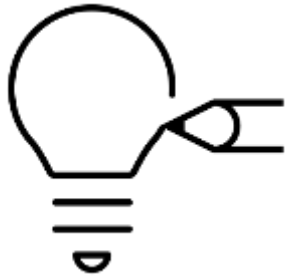
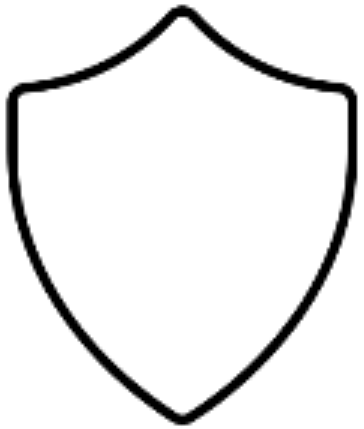




Black box algorithm: The user cannot see the inner workings of the algoritm.

Ramón SANGÜESA: AI and algorithmic transparency. It's complicated". 2018



ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION

- **AI ecosystem** that benefits citizens, businesses an public service.
- **Regulary framework:** transparency, reponsability, data protection, fundamental rights protection (privacy, security, equality), commmon interest, distortion prevention, respect principles of good governance.
- **Ethics &Transparency** in the development and use of algorithms.
- **Active advertising** and **right of public access** to the source code (data used, maximum permissible error, scope of applicability).
- **Algorithmic audits** (*similar to financial audits*). (who control the algorithms?). Avoid unfair, ilegal and dark algorithms. Detect risky áreas in the use of algoritms. Create security and trust in the use of AI in public administration.

ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION

Transparent algorithms:

- What data are used? (Data quality).
- How the data are used?
- How the process of taking decisions affecting our lives from data works? (*Foster* ***social responsibility*** *of all the actors intervening in the design and use of algorithms*).

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- Access protocols, algorithms quality, data processes that protect privacy. Algorithmic registers (exemple Transparency website. C.A. Valencia Article 16.11 Law 1/2022, 13th April: **Algorithms affecting procedures or public services must be published**).

- "**Ethic algorithms**": Consider equity and equality and also the more disadvantaged collectives: women, children, elder population, lower income, gender violence, etc. (*IDEA!: Ethic algorithm label*).

ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION

- Draft European Regulation in AI: AI transparent, explicable (*understandable*) and effective
- AI not as an end in itself but a means
- Potential guaranteeing efficiency in public services provision and enviromental protection
- AI must respects our rules (*legal framework*) and values (*deontological code, good gobernance*)
- AI focused on the human being, sustainable, secure, inclusive and reliable. Algorithmic Justice

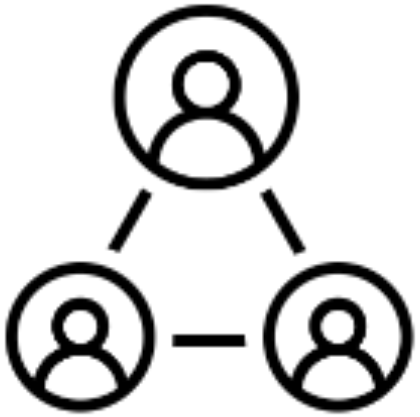
ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION: AI Act

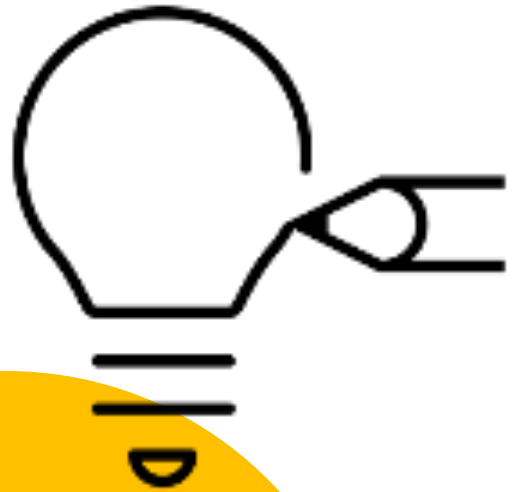
Unacceptable risks: Considered a threat to people and will be banned

Ex: Cognitive behavioural manipulation specific vulnerable groups: voice-activated toys that encourage dangerous behaviour in children

High risks: AI systems that negatively affect safety or fundamental rights. Will be assessed before being put on the market and also throughout their lifecycle

Limited risk: AI systems that comply with minimal transparency requirements that would allow users to make informed decisions.





ARTIFICIAL INTELLIGENCE IN PUBLIC ADMINISTRATION

- **AI audit:** Security and confidence.
- AI not as an end itself but a means.

Magdalena Cordero, former Director Innovation in ECA, said in 2020: "AI will not be the challenge, but to audit it".

ALGORITHMIC AUDIT IN PUBLIC ADMINISTRATION

ALGORITHMIC AUDIT IN PUBLIC ADMINISTRATION

Auditing algorithms: 3 phases of control

Ex ante

Concurrent

Ex post

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Ex ante control: Programme or Software

Evaluate the **specific social context** where the algorithm is applied: economical, environmental, sociocultural factors. Population directly and indirectly affected

Evaluate **risks** in applying each algorithm.

Criteria and metrics of algorithmic Justice applied

Verify they don't cause color, gender or income discrimination (avoid distortion, bias) and respect privacy

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- **Concurrent control:** Continuos
- Better aproach to the moment damage is caused.
  Better detection of negative deviations
- Early warning

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Ex post control: Systems audit

Transparent algorithms: Easily understood = White box. Explainable

None distortion

Data protection. Privacy

Quality data

Expected target reached

Evolution

Machine learning (it hasn't integrated discriminatory schemes)

ALGORITHMIC AUDIT IN PUBLIC ADMINISTRATION

- **Reports and recommendations:** Specific and possible recomendations to improve algorithms. Redefined their conceptual basis. Mitigate identified risks.

ALGORITHMIC AUDIT IN PUBLIC ADMINISTRATION

CURRENT DEBATE TOPICS:

- **Audit team:** Multidisciplinar team of civil servants: public auditors and technicians. *Other profiles desirables: mathematicians, economists, legal advisors, philosophers…*
- **Civil and criminal responsability.** *Judgement 5th February 2020 La Haya Court of Justice declared ilegal the SyRI algorithm used by the Dutch administration to combat against fraud to Social Security. Lack of proportion and transparency. Against article 8 Charter of Fundamental Rights UE.*
- **Human reservation:**
    - **Decisions: Automatized ones:** machines, with adecuated guarantees.

      Discretionarary ones: humans, always.

      What do we do with administrative decisions that separate from the ones adopted by machines? Justify the reason.
    - **Audits:** who audits the machine? Humans? Machines?

CONCLUSIONS

1. AI offers many different opportunities in implementing public policies.
2. Big risk in case public auditors don't adapt to the new technological environment.
3. AI at the service of Human Intelligence.
4. Bear in mind transparency, public ethics, fundamental rights and most disadvantages collectives.

THANK YOU
FOR YOUR
Attention!

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