

/ EU Artificial Intelligence Act – recommendations on ecological transparency

Ensure minimum transparency on the ecological sustainability parameters for all AI systems in the AI Act

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Context

The draft Artificial Intelligence Act (AI Act) will profoundly shape AI regulation in the next decades in the European Union (EU) and beyond. As it currently stands, the AI Act misses a crucial opportunity to ensure that the development and use of AI systems can be done in a sustainable, resource-friendly way which respects our planetary boundaries. This shortcoming of the AI Act is not only detrimental in the light of our collective endeavour to combat climate change but is also at odds with the objectives of other environmental EU policies.

The AI Act must address the environmental impact of AI systems

- AI has a “*multi-faceted relationship with climate change*”: it can be deployed to help with climate change mitigation and adaptation; can also be used in ways that contravene such efforts, therefore potentially increasing greenhouse gas emission; and AI systems themselves can directly emit greenhouse gases through computational energy consumption¹. Moreover, as the European Consumer Organization (BEUC) stresses, “*empirical findings have shown that digital technologies contribute to 4% of overall greenhouse gas emission, a number expected to double by 2025*”².
- The White Paper on Artificial Intelligence - A European Approach to excellence and trust³ [White Paper] which laid the ground for the draft AI Act, stressed that “*AI can help with finding solutions to climate change and environmental degradation*”, but “*it is important that it happens in an environmentally friendly manner*”. It set out that the “*environmental impact of AI systems needs to be duly considered throughout their lifecycle and across the entire supply chain, e.g. as regards*

¹ https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12527-Artificial-intelligence-ethical-and-legal-requirements/details/F2665623_en

² https://www.beuc.eu/publications/beuc-x-2021-088_regulating_ai_to_protect_the_consumer.pdf

³ https://ec.europa.eu/info/sites/default/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf

resource usage for the training of algorithms and the storage data." This consideration got translated into the voluntary application of codes of conduct for the AI Act, whereby providers may create and implement commitments related to environmental sustainability themselves. In our view, this does not go far enough to ensure that the development and use of AI systems are done in a sustainable, resource-friendly way.

- Both in order to contribute to the endeavour of combating climate change and to ensure the coherence among EU policies, we demand **the introduction of horizontal, public-facing transparency requirements on the resource consumption and greenhouse gas emission impacts of AI systems** – irrespective of risk level – in relation to design, data management and training and underlying infrastructures (hardware, data centres, etc.).
- Transparency indicators would have a twofold purpose: On the one hand, they could inform users and the general public about the ecological impact of AI systems, on the other hand we could gain invaluable insights in the potential issues for sustainability regarding AI that could lead to further political measurements.
- Moreover, **impact on the environment shall be considered as a factor when assessing the risk an AI system may pose and therefore as a criterion shall be included in Article 7.**

Amendments to the Artificial Intelligence Act

(13) In order to ensure a consistent and high level of protection of public interest as regards health, safety and fundamental rights, common normative standards for all high-risk AI systems should be established. Those standards should be consistent with the Charter of fundamental rights of the European Union (the Charter) and should be non-discriminatory and in line with the Union's international trade commitments.

The following recital is proposed following Recital 13:

In order to ensure a minimum level of transparency on the ecological sustainability aspects of an AI system, providers and users shall document (i) parameters including, but not limited to, resource consumption resulting from the design, data management, training and from the underlying infrastructures of the AI system; as well as (ii) the methods to reduce such impact.

Article 52

Transparency obligations for certain AI systems

(4) (new)

Providers of any AI system should document and make available upon request the parameters regarding the environmental impact, including but not limited to, resource consumption resulting from the design, data management, training, and from the underlying infrastructures of the AI system; as well as the methods to reduce such impact.

5. Paragraphs 1, 2 3 and 4 shall not affect the requirements and obligations set out in Title III of this Regulation.

Article 7
Amendments to Annex III

2. When assessing for the purposes of paragraph 1 whether an AI system poses a risk of harm to the health and safety or a risk of adverse impact on fundamental rights **or on the environment** that is equivalent to or greater than the risk of harm posed by the high-risk AI systems already referred to in Annex III, the Commission shall take into account the following criteria:

- (a) the intended purpose of the AI system;
- (b) the extent to which an AI system has been used or is likely to be used;
- (c) the extent to which the use of an AI system has already caused harm to the health and safety or adverse impact on the fundamental rights **or on the environment** or has given rise to significant concerns in relation to the materialisation of such harm or adverse impact, as demonstrated by reports or documented allegations submitted to national competent authorities;
- (d) the potential extent of such harm or such adverse impact, in particular in terms of its intensity and its ability to affect a plurality of persons;
- (e) the extent to which potentially harmed or adversely impacted persons are dependent on the outcome produced with an AI system, in particular because for practical or legal reasons it is not reasonably possible to opt-out from that outcome;
- (f) the extent to which potentially harmed or adversely impacted persons are in a vulnerable position in relation to the user of an AI system, in particular due to an imbalance of power, knowledge, economic or social circumstances, or age;
- (g) the extent to which the outcome produced with an AI system is easily reversible, whereby outcomes having an impact on the health or safety of persons shall not be considered as easily reversible;
- (h) the extent to which existing Union legislation provides for:
 - (i) effective measures of redress in relation to the risks posed by an AI system, with the exclusion of claims for damages;
 - (ii) effective measures to prevent or substantially minimise those risks.

Ancillary Amendments (detailed in separate papers)

The following amendments impose related obligations on providers and users of AI systems within the scope of this regulation to facilitate greater public transparency and accountability about the ecological impact of AI systems.

Article 29b (new)

Fundamental rights impact assessments for high-risk AI systems⁴

1. Users of high-risk AI systems as defined in Article 6(2) shall conduct an assessment of the systems' impact in the context of use before putting the system into use. This assessment shall include, but is not limited to, the following:

- (f) the foreseeable impact of the use of the system on the environment, including but not limited to energy consumption;

EU database and public transparency⁵

Annex VIII

INFORMATION TO BE SUBMITTED UPON THE REGISTRATION OF HIGH-RISK AI SYSTEMS AND OF CERTAIN AI SYSTEMS, USES THEREOF, AND USES OF AI SYSTEMS BY PUBLIC AUTHORITIES IN ACCORDANCE WITH ARTICLE 51

1. The following information shall be provided and thereafter kept up to date **by the provider** with regard to high-risk AI systems **referred to in Article 6(2) and to any AI system referred to in Article 52 1(b) and (2) to be registered in accordance with Article 51(1).**

(l) Assessment of the environmental impact, including but not limited to, resource consumption: resulting from the design, data management, training, and underlying infrastructures of the AI system; as well as the methods to reduce such impact;

2. The following information shall be provided and thereafter kept up to date **by the user** with regard to uses of high-risk AI systems referred to in Article 6(2) and any AI system referred to in Article 52 1(b) and (2) to be registered in accordance with Article 51(2).

(i) Results of the impact assessment on the use of the AI system that is conducted under obligations imposed by Article XX of this Regulation.[1] Where full public disclosure of these results cannot be granted for reasons of privacy and data protection, disclosure must be granted to the national supervisory authority, which in turn must be indicated in the EU database.

3. The following information shall be provided and thereafter kept up to date **by the user** with regard to uses of AI systems by public authorities to be registered in accordance with Article 51(3).

⁴ This obligation is the subject of an amendment outlined further in the amendment paper 'Introduce obligations on users of high-risk AI systems' prepared by EDRI.

⁵ This obligation is the subject of an amendment outlined further in the amendment paper 'Ensure consistent and meaningful public transparency' drafted by AlgorithmWatch

(i) Assessment of the foreseeable impact on the environment, including but not limited to, energy consumption resulting from the use of the AI system over its entire lifecycle, and the methods to reduce such impact.

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The paper follows the Joint Civil Society Statement '[An EU Artificial Intelligence Act for Fundamental Rights](#)' signed by 123 organisations in November 2021.