

food



DELIVERABLE 8.3

AI — Requirement No. 3

Ethics and AI

WP8: Ethics Requirements

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1. Description of deliverable

This document is complementary to deliverables D8.1 — H and D8.2 — POPD, thus setting up the ethical approach to research with humans, in this case covering the possible conflicts regarding the use of AI-based systems in research involving human beings.

The use of AI-based systems in SOSFOOD project is limited to the application of different methodologies (such as, but not limited to, digital twins and machine learning algorithms) for the characterization of food systems, the analysis of nutritional patterns and consumption patterns in the three areas represented by the case studies (the country of Lithuania, the metropolitan area of Athens, in Greece, and the autonomous region of Galicia, in Spain) and the analysis of nutritional value of certain foods to improve traditional recipes.

Therefore, while there might be enough indicators to accept that SOSFOOD is a project involving research with data provided by humans and making use of AI-based tools, it is not sufficient to understand the use of these methods can represent any kind of hazard for the humans participating in the project, neither as members of the partner organizations nor as external participants.

2. Mitigation of bias, discrimination and stigmatisation

The partners are aware that AI-based systems are often biased towards the data used in their training, which might cause undesirable effects on matters as discrimination or stigmatisation of vulnerable groups.

The consortium reinforces their engagement with the SOSFOOD declaration on non-discrimination and commits to avoid dealing with any protected characteristics that may affect the developed tools and methods in a way that can be a source of any kind of discrimination.

SOSFOOD consortium agrees on the principles stated by SIENNA project about the main ethical requirements for AI-based systems:



- AI systems should not negatively affect human autonomy, freedom or dignity, nor limit participation in democratic processes.
- AI systems must not violate the right to privacy and the data used for their training and development must be representative and accurate.
- Systems need to be developed with an inclusionary, fair, and non-discriminatory agenda, and protected characteristics (such as ethnicity or geographical precedence) may only be used when offering valid research justification in order to better categorize the nutritional indicators to be studied in a food system.
- AI Systems should be as transparent as possible because only then are accountability and human oversight possible.
- Human oversight and accountability are required to ensure conformance to these principles and address non-compliance.

Agreeing with the abovementioned requirements, SOSFOOD declares AI-based systems will only focus on causal discoveries and finding patterns in between different datasets with the aim of improving nutritional value of the food production, as well as factors that might affect in the process of generation of food waste.

Accordingly to those uses, there is no risk of significant bias that might affect any participant or collaborator in a discriminatory way.

3. Interaction with AI

External participants in activities where AI-based tools might be used for data treatment are carefully informed about the fact of AI being present in the process.

Nevertheless, data is anonymised and reduced to the minimum, and there is no any possible contact between a participant or their raw data and the AI methods developed along the project.

4. Possible risks

As addressed in the D7.1 — Project Management Procedures, the potential risks associated with the use of AI in research are:



Number	Description (Risk level, Probability, Impact)	WP	Proposed Mitigation Measure(s)
1	Potential attack to AI-based services, particularly Digital Twins, might violate the integrity of the predictions and assessment results (R: HIGH; P: Moderate I: Extreme)	WP3	Security services developed as part of T.4.4 will be integrated as part of the Digital Twin architecture to minimize the impact of potential attacks. Moreover, continuous checks of data integrity and frequent penetration tests conducted by JIBE will allow rapid detection of intrusion or a security breach.
2	Lack of acceptance of sustainable recommendations in the food industry (R: MEDIUM; P: Unlikely I: Moderate)	WP5	Food system actors will be listened carefully to elaborate tailor-made recommendations to each of the actors. Support in form of educational workshops, informative material, transparent data, etc. will be provided.
3	Optimized systems do not receive a positive response/adherence from food system actor and/or citizens (R: LOW; P: Likely I: Minor)	WP5	The proposed optimized system prototypes will be tested accompanied by strong communication activities to maximize its impact to raise awareness on its benefits as decision-making tools for food system actors and citizens.

Table 1. Potential risks associated to the use of AI-based technologies in research

5. References

- [Eu AI Act](#) (to enter into force on 01/08/2024)
- Al-Khaldi, F. N. (2022). Artificial Intelligence and the Dilemma of Ethics. *International Journal of Computer Science and Information Technology Research*, 10(2), 68–72. <https://doi.org/10.5281/zenodo.6572997>
- SIENNA D5.4: Multi-stakeholder Strategy and Practical Tools for Ethical AI and Robotics. [10.5281/zenodo.5536175](https://doi.org/10.5281/zenodo.5536175)
- SOSFOOD D7.1: Project Management Procedures





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All partners declare to comply with the [SOSFOOD non-discrimination commitment](#).