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Description of Ethics Requirements

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GLOSSARY

Acronym	Signification
AI	Artificial Intelligence
D&E	Dissemination & Exploitation
EA	Ethical Advisor
EMC	Ethics Management Committee
FAIR	Findable, Accessible, Interoperable and Reusable
GDPR	General Data Protection Regulation
WP	Work Package

ABSTRACT

D1.2 “Description of ethics requirements” sets out the regulations, rules and procedures that the COLOSSUS project must comply with in order to meet the ethical requirements for research activities within Horizon Europe.

1. EXECUTIVE SUMMARY

1.1 Introduction

The present document represents the delivery of D1.2 “Description of ethics requirements”, which aims at setting out the regulations, rules and procedures that the COLOSSUS project must comply with. To deal with this topic appropriately, ethical guidelines and procedures will be outlined in this document. The purpose of this deliverable is to serve as a practical tool that provides guidance concerning ethical issues for all partners of COLOSSUS. All COLOSSUS partners are expected to adhere to these guidelines in all project activities.

1.2 Brief description of the work performed and results achieved

This document consists of three parts.

The first part deals with the ethical principles in European research, from the general ethical principles that apply for research actions in Horizon Europe to the European code of conduct for research integrity and good research practices with respect to ethical standards.

The second part refers to the most relevant legal requirements that all project participants have to meet.

The third part installs the appropriate management structure to ensure COLOSSUS will meet all ethical requirements for professional, well-executed European research.

2. ETHICAL PRINCIPLES IN EUROPEAN RESEARCH

2.1 General ethical principles for research actions in Horizon Europe

Research actions in the Horizon Europe Programme for Research and Innovation, as they are established by Regulation (EU) 2021/695 of the European Parliament and of the Council of 28 April 2021, [1], have to comply with the ethical requirements summarized in this document, particularly with Article 19 "Ethics", which requests that attention shall be paid to the principle of proportionality, to the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of a person, the right to non-discrimination and to the need to ensure protection of the environment and high levels of human health protection.

Research activities undertaken in Horizon Europe shall also respect the fundamental rights and observe the principles acknowledged by the Charter of Fundamental Rights of the European Union [2], the ethical principles as they are laid out by the European Group on Ethics in Science and New Technologies, [3] and [4], the European Union Agency for Fundamental Rights, [5], [6] and [7], and the European Data Protection Supervisor, [8], [9] and [10].

2.2 European code of conduct for research integrity

2.2.1 Principles

The European code of conduct for research integrity guides research activities in their work as well as in their engagement with the practical, ethical, and intellectual challenges, [11].

These principles are:

- **Reliability** in ensuring the quality of research, reflected in the design, methodology, analysis, and use of resources.
- **Honesty** in developing, undertaking, reviewing, reporting, and communicating research in a transparent, fair, full, and unbiased way.
- **Respect** for colleagues, research participants, research subjects, society, ecosystems, cultural heritage, and the environment.
- **Accountability** for the research from idea to publication, for its management and organisation, for training, supervision, and mentoring, and for its wider societal impacts.

The activities of COLOSSUS do not touch any issues which, in regard of ethical questions, go beyond the general responsibilities of professional research. However, individuals, institutions and organisations active in COLOSSUS should be aware that the project aims to pave the way for future European aviation products and services which are designed in a truly holistic approach. Future applications of the technology and capabilities developed in this project may indeed affect society, ecosystems and the environment, and it is in the responsibility of all involved that this will be done under consideration of the proper ethical principles.

2.3 Good Research Practices

The European code of conduct for research integrity also defines good practices for research activities. Of those, the following practices have any relevance for COLOSSUS:

2.3.1 Research environment

Research institutions and organisations have the responsibility to

- promote awareness and resource incentives to ensure a culture of research integrity.
- create an environment of mutual respect and promote values such as equity, diversity, and inclusion.
- create an environment free from undue pressures on researchers that allows them to work independently and according to the principles of good research practice.
- demonstrate leadership in clear policies and procedures on good research practice and the transparent and proper handling of suspected research misconduct and violations of research integrity.

- actively support researchers who receive threats and protect bona fide whistle blowers, taking into account that early career and short-term employed researchers may be particularly vulnerable.
- support appropriate infrastructure for the generation, management, and protection of data and research materials in all their forms that are necessary for reproducibility, traceability, and accountability.

3. LEGAL FRAMEWORK

3.1 General protection of personal data

The general protection of personal data is regulated in Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data. This regulation is well-known under the term General Data Protection Regulation (GDPR).

In compliance with the GDPR, personal data shall be:

- processed lawfully, fairly and in a transparent manner in relation to the data subject ('lawfulness, fairness and transparency').
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes.
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed ('data minimization').
- accurate and, where necessary, kept up to date. Personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay ('accuracy').
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed.
- processed in a manner that ensure appropriate security of personal data, including protection against unauthorized or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organization measures ('integrity and confidentiality').

More information about the guidelines, processes and procedures for data management will be defined in deliverable D6.3 "Data Management Plan – initial report", due at M6, and the deliverable D6.6 "Data Management Plan – final report" which will be submitted at the end of the project.

3.2 Specific ethical guidelines of COLOSSUS with respect to personal data

3.2.1 Personal data of members of the project team

For communication and collaboration, COLOSSUS will process personal data of the members of the project team. This data will only contain information relevant for these purposes, such as affiliation, office address, telephone/mobile number, email address(es).

These data will be made available to all COLOSSUS team members via the password-protected project server. It is the responsibility of the team members that within all their activities, these data are being processed in compliance with the GDPR and only be used for purposes of the project.

Additional personal information, such as other communication data (e.g. for interaction via Microsoft Teams, Skype, Zoom, WhatsApp, Slack, etc.) will not be stored or processed in the project's central data base, but may be shared among team members in the course of the project. These data have to be used and processed under the terms set by the GDPR as well.

3.2.2 Personal data of external individuals or organisations

The need to process data of external individuals may arise in the COLOSSUS Grand Design Challenge, in order to communicate and collaborate with participants of that event. As far as can be foreseen at the time of writing, the personal data processed by COLOSSUS will consist of name and contact data only. COLOSSUS will inform the

participants of the Grand Design Challenge about the intended use of their data, and ensure that storage and processing comply with the GDPR.

3.3 Other legal requirements

Other legal requirements may arise from national regulations or requirements that are specific for a certain legal form or status of organisation. It is the responsibility of the organisation or individuals concerned to ensure proper compliance.

4. ETHICAL CONCERNS OF THE COLOSSUS PROJECT

Beyond the general requirements on ethical research, COLOSSUS raises two specific ethical concerns.

4.1 Third countries

Some project activities will be carried out in the non-EU country Switzerland by the partner CFS Engineering. This partner will be active in four work packages (WP) with the following activities:

- WP3 & WP4: Aerodynamic & aeroelastic analysis
- WP3 & WP4: Integration of these disciplines into the multidisciplinary framework
- WP6: Coordination of the scientific activities of D&E (coordination of papers, conference attendance, journals, etc.)
- WP1: Minor involvement as co-coordinator of D&E.

None of these activities raise potential ethics issues. According to the Ordinance on Measures for Swiss Participation in the European Union Programmes in the field of Research and Innovation of 20 January 2021, Swiss partners have to comply to the ethical regulations of Horizon Europe, and CFS Engineering will follow the same ethical rules and procedures that are obligatory for all other partners.

4.2 Artificial intelligence

The Artificial Intelligence (AI) developed in COLOSSUS will consist of agent-based, simulation-driven design and behaviour models that will allow to explore the design space of very complex system-of-systems more comprehensively. Input data and algorithm design are physics-based and not prone to human bias. Users of Artificial Intelligence will be researchers and scientists from project participants only. There is no risk of impairment of fundamental human rights and freedoms.

The interaction between users and Artificial Intelligence will only be

- the actual implementation within agent-based simulations as behaviour models,
- the analysis and assessment of SoS-based scenarios in which the level of detail and the number of considered cases will be enhanced through the use of AI.

The COLOSSUS team members active in this research are fully aware of the limitations and risks of the proposed Artificial Intelligence system, and the ethical guidelines of the European Union on AI, [12].

5. ETHICS MANAGEMENT

5.1 Ethics management team

5.1.1 Ethical advisor

To ensure compliance with the ethical requirements throughout the COLOSSUS project, Dr. Martin Spieck (Thelsys) will act as the Ethical Advisor (EA).

The EA is responsible for:

- Communicating the ethical requirements to all project participants.
- Ensuring the proper management of all ethics procedures.
- Giving advice and assistance on ethics to all consortium partners.

5.1.2 Ethics management committee

In case any ethical concern arises that cannot be dealt with immediately and bilaterally between the EA and the participants involved, the EA will assemble an Ethics Management Committee (EMC).

The EMC will consist of the project manager(s), the work package managers and the EA. The EMC will then review the specific concern and take the necessary steps to resolve it.

5.1.3 Procedures in the case of ethical misconduct

In the case of ethical misconduct or if an ethical concern cannot be resolved by the EMC, the issue will be taken to the project's Steering Committee and dealt with according to the procedures laid out in the COLOSSUS Consortium Agreement.

6. REFERENCES

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