



poiesis
TRUST IN SCIENCE

D5.1: Research Integrity and Quality Assurance Plan

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Abstract:	This document describes the research integrity and quality assurance plan for the POIESIS project. It describes how POIESIS will ensure a high standard of research integrity and quality of research and deliverables, based on international reference documents and best practices.
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3.	Partner	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	NTUA	Greece
4.	Partner	INSTITUTO UNIVERSITÁRIO DE LISBOA	ISCTE	Portugal
5.	Partner	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	CNRS	France
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1 Introduction

This document describes the research integrity and quality assurance plan for the POIESIS project. The document is based on the principles agreed on in the ‘POIESIS Consortium Agreement’ and ‘Grant Agreement Number 101057253 – POIESIS’. It describes how POIESIS will ensure a high standard of research integrity and quality of research and deliverables by:

- Building on “The European Code of Conduct for Research Integrity” published by ALLEA in 2017 (see section 2).
- Building on the expertise, skills and past experiences with multi-partner and integrity-related projects of a strong consortium with seven partners in different European countries.
- Drawing on the expertise and experiences of the international Advisory Board.
- Adhering to strict protocols regarding the collection and storage of personal data.
- Using a quality assurance system for deliverables built on internal peer review (see section 3).

In addition, the consortium partners will adhere to a set of quality criteria and procedures to assure them as set out in the POIESIS Consortium Agreement (CA). The purpose of the CA is to formalize the organisation of the work between project partners and the project’s management and coordination. It describes the management structure, organisation and responsibilities of the consortium bodies. This includes a description of the meetings held in various organisational constellations and the responsibilities of project partners regarding those meetings and other collaborative arrangements. We refer to the CA for detailed further information.

The content of this deliverable is based on experiences and research carried out in past European projects related to research integrity and responsible research practices. In particular, it draws extensive inspiration from the SOPs4RI project (www.sops4ri.eu), adopting the structure and thematic contents from the Research Integrity and Quality Assurance Plan delivered by SOPs4RI (Sørensen, Mejlgaard, Hiney; 2019), fitting it to the context of the POIESIS project.

2 Research Integrity

2.1 Basic principles

Responsible conduct of research (RCR) serves as an overall framework for concepts and definitions related to research ethics (i.e. moral principles embedded in research) and research integrity (i.e. professional standards of conducting research). Responsible conduct of research can be defined as “Conducting research in ways that fulfil the professional responsibilities of researchers, as defined by their professional organizations, the institutions for which they work and, when relevant, the government and public” (Steneck 2006, p. 55). Within this definition, research integrity refers to a set of professional research standards and as to whether existing and appropriate legal, scientific and professional standards are adhered to in the production, presentation, review and reporting of research findings (Anderson 2013; Steneck 2006). In the global statement, the ‘Singapore Statement of Research Integrity’ which was drafted at the 2nd World Conference on Research Integrity in 2010, integrity is interpreted as the ‘trustworthiness’ of research (<https://wcrif.org/statement>).

POIESIS builds on the four key principles of *Reliability, Honesty, Respect and Accountability*, delineated in “The European Code of Conduct for Research Integrity” (henceforth, the Code of Conduct), which was revised and published by ALLEA in 2017 (ALLEA 2017). The Code of Conduct provides a set of principles and good research practices as a basis for fostering responsible research behavior at the level of individual researchers and research institutions to strengthen the quality, validity and robustness of research and counter research misconduct and detrimental research practices. The Code of Conduct is currently under review by ALLEA’s Permanent Working Group on Science and Ethics to ensure that it continues to be fit for purpose. When the 2nd edition is published, any changes will be taken into account to ensure that relevant RI updates are in alignment with POIESIS’ research practices.

POIESIS will:

- safeguard *Reliability* through a comprehensive, sound and careful research and development process involving appropriate data, resources, methods and analyses. This process is described in detail in the Grant Agreement and will be thoroughly addressed in the research protocols produced and be a key point of attention in the quality assurance process performed (see section 3)
- ensure *Honesty* in the way data is handled – and in the open and transparent way in which the research process is collaboratively undertaken and research results reviewed, communicated and reported. (See also Deliverable 5.2, the Data Management Plan, for details on the data management in POIESIS).
- promote *Respect as a* foundational principle throughout the research process and research collaborations – internally towards fellow researchers as well as externally in relation to research subjects, collaborators, the research community and society in general. POIESIS expects every member of the consortium to treat internal and external stakeholders with respect and dignity and secure the protection of human participants as well as personal data through high ethical standards, norms and practices.
- warrant *Accountability* through a responsible and transparent management and organization of POIESIS and through a comprehensive quality assurance process. Measures will also be taken in the design and research undertakings to maximize the impacts, exploration and sustainability of research findings

2.2 Ensuring Good Research Practices

The individual partner institutions in POIESIS have to ensure that they adhere to the above-mentioned principles and guidelines, particularly in regard to establishing research environments and research cultures that support research integrity, promote fair assessment procedures and provide the necessary training, supervision and mentoring of researchers and internal project participants in POIESIS. Importantly, junior staff should be properly supported and guided by institutional senior group project members and by their affiliated institutions.

Work Package (WP) Leaders have, in collaboration with the project coordinators and the *Executive Board (EB)*, responsibility for ensuring that appropriate and good research procedures are applied throughout the project. While WP Leaders will clearly outline who is responsible at various levels in the WP, all project participants have individual responsibility for conducting responsible research in adherence with professional, ethical and legal RI and RE standards and implement and adapt them to specific research practices and actions within POIESIS. In collaboration with the consortium, the project coordinators will focus on ways to help cultivate a sound research integrity culture, for instance based on research knowledge and resources obtained and developed through previously conducted research and involvement in national and European research projects (e.g. SOPs4RI, ENERI, PRINT, PRINTEGER, SUPER MORRI).

a. Research Environment

- WP Leaders, in collaboration with their institutions, will promote awareness and ensure a prevailing culture of research integrity in their team by identifying and implementing processes that foster a good research environment. Such processes should include:
 - Developing or adopting (if already available in their institution) clear policies and procedures on good research practice, research integrity, and on the transparent and proper handling of violations of either.
 - Open discussion and constructive criticism of research design, methodologies, interpretation of outputs and proper use of resources.
 - Creating an environment in which people feel safe and confident to raise concerns.
 - Creating awareness of the Code of Conduct and its relevance to the research work.
- WP Leaders will ensure that their team has access to the appropriate infrastructures and skills to allow them to implement POIESIS's data management plan and to ensure accountability for, and quality assurance of, their outputs.

b. Training, Supervision and Mentoring

- The individual consortium partners must ensure that they and their teams have the necessary training required to participate in the WP work in question. Key competences include:
 - Training in, and a strong understanding of, the principles of research integrity and research ethics
 - Appropriate research design and methodological training
 - Training in the use of relevant analytical tools

- Appropriate and adequate training in research ethics to ensure that all concerned are made aware of the relevant codes and regulations
- Training in data management and curation skills
- There should be agreement from the outset in institutional teams about how junior staff are going to be supervised and mentored.
- Senior researchers should ensure that they are adequately equipped to act as effective supervisors and mentors to team members or ensure that adequate supervision and mentoring is provided by other colleagues.

C. Research Procedures and Safeguards

- WP Leaders and their teams will agree on the research design, methodology and methods for documentation and storage of research outputs, to ensure accountability and transparency.
- WP Leaders will develop extensive study protocols for each substantive / empirical / research WP that describes in detail the particular research design and methodology; take into account prevailing regulation and legislation, including GDPR; and the state-of-the-art in their research area. Moreover, research protocols will address the participation of human subjects and will take account of, and be sensitive to, study population diversity.
- WP Leaders will ensure that the research and development processes comply with ethical standards and regulations within their area and ensure that required ethical approvals are obtained from local Research Ethics Committees or Institutional Review Boards (IRBs). Where such committees or IRB do not exist, it will be their responsibility to comply with international best practices.
- WP Leaders and their teams will handle research subjects with respect and care, and in accordance with legal and ethical provisions.
- Where appropriate, studies will be pre-registered at OSF (www.osf.io) before data collection.
- WP Leaders and their teams will commit to reporting and publishing results and interpretations of research in an open, honest, transparent and accurate manner, and to respect the required confidentiality of data or findings
- WP Leaders and their teams will have due regard for the health, safety and well-being of collaborators, research participants and others directly implicated in their research.
- WP Leaders and their teams will strive to identify and manage potential harms and risks relating to their research.

d. Data Practices and Management

- POIESIS's plan for 'data practice and management' is described in detail in an independent document (Deliverable 5.2) and includes:
 - A commitment to make access to POIESIS data as open as possible, as closed as necessary, and in line with the FAIR Principles (Findable, Accessible, Interoperable and Re-usable) for data management, after anonymization of all direct and indirect identifiers.

- Developing a data analysis plan for WPs that involves empirical data as part of the WPs study protocols.
- A description of how data can be transferred and stored safely within the project, in joint data-sharing agreements.
- Ensuring appropriate stewardship and curation of all data and research materials, including unpublished ones, with secure preservation for a reasonable period.
- Providing transparency about how to access or make use of data and research materials.
- Ensuring that any contracts or agreements relating to research outputs include equitable and fair provision for the management of their use, ownership, and/or their protection under intellectual property rights.

e. Collaborative Working

- All collaborators have responsibility for working towards the goals set out in the Grant Agreement of POIESIS. Therefore, the WP Leaders must ensure that partners participating in the WP are well informed at the beginning of the WP concerning its goals, tasks and deadlines
- All partners formally agree at the start of their collaboration on expectations and standards concerning research integrity, on the laws and regulations that will apply, on protection of the intellectual property of collaborators, and on procedures for handling conflicts. These agreements are formalized in the consortium agreement.
- All partners are properly informed and consulted about submissions for publication of the research results.
- Prior to engaging in collaborative tasks, all collaborators will be transparent about any financial, political or personal conflicts of interest that might influence how they approach the research, including research design and methodology, analysis and dissemination strategies.
- All partners will flag potential conflicts of the project's practices and procedures with their applicable laws or policies, including jurisdictions at local institutes or national frameworks (Irish Universities Association, 2022).

f. Publication and Dissemination

- All authors are fully responsible for the content of a publication, unless otherwise specified.
- Agreement will be sought early in the drafting process on the sequence of authorship, acknowledging that authorship itself is based on a significant contribution to the design of the research, relevant data collection, or the analysis or interpretation of the results. ICMJE guidelines and recommendations for authorship will be applied (<https://www.icmje.org/icmje-recommendations.pdf>).
- Each WP team will decide on a publication plan. The publication plan for the WP is negotiated among the partners at the beginning of the WP and updated as the WP progresses. Here, it is also decided who will take lead on the single publications. The publication plan for the single WP must be included in the protocol for the WP.

- WP Leaders and their teams will ensure that their work is made available to colleagues in a timely, open, transparent, and accurate manner, unless otherwise agreed, and are honest in their communication to the general public and in traditional and social media.
- Authors will acknowledge important work and intellectual contributions of others, including collaborators, assistants, and funders, who have influenced the reported research in appropriate form, and cite related work correctly.
- WP Leaders and their teams will disclose any conflicts of interest in the publication of results.
- Where necessary, authors will issue corrections or retract work in a timely manner, the processes for which are clear and the reasons are stated.
- WP Leaders and their teams will not withhold data and will consider negative results to be as valid as positive findings for publication and dissemination.
- WP Leaders and their teams will adhere to the same criteria as those detailed above whether they publish in a subscription journal, an open access journal or in any other alternative publication form.
- In line with the Grant Agreement, all published journal articles resulting from the project will be made available in either green, gold, or diamond open access format.

g. Reviewing, Evaluating and Editing (see Section3)

The quality assurance process within POIESIS will be based on peer review. The EB must make certain that relevant peers have proper time to review the single deliverables in POIESIS. The procedure is described in detail in section 3.

2.3 Research Misconduct and other Unacceptable Practices

Contrary to responsible conduct of research (RCR), which frames ideal research behavior, scientific misconduct comprises the worst kind of research behavior. In line with prevailing international standards, the European Code of Conduct defines research misconduct according to a narrow definition of FFP practices - fabrication, falsification, or plagiarism (ALLEA 2017, p. 8)

- Fabrication is making up results and recording them as if they were real.
- Falsification is manipulating research materials, equipment or processes or changing, omitting or suppressing data or results without justification.
- Plagiarism is using other people's work and ideas without giving proper credit to the original source, thus violating the rights of the original author(s) to their intellectual outputs.

FFP practices are generally viewed as particularly serious breaches of responsible research since "they distort the research record" (ALLEA, 2017, p. 8). The set of research practices that violate good and responsible research behavior but fall within a 'grey area' (between RCR and FFP) are denoted as 'unacceptable practices' in the Code of Conduct. They can also be referred to as questionable research practices (QRPs) (Bouter 2020; Steneck 2006) or detrimental research practices (The National Academies of Science 2017). While these practices have proven more difficult to conceptualize and cover a wide range of potentially detrimental

practices, they can be defined as “actions that violate traditional values of the research enterprise and that may be detrimental to the research process” (National Academy of Science 1992, pp. 5–6)

In POIESIS, violations of good research practice will be handled as follows;

- In case of any well-founded suspicions of incidents of research misconduct or other unacceptable practices, the project coordinators will need to be informed and appropriate measures will be implemented in alignment with the nature and character of suspicion and with a view to the local institutional guidelines and policies. Regardless of the suspicion and potential violation of good research practices, a first ‘screening and evaluation inquiry’ will be initiated to help establish the subsequent actions needed and handling of the allegation (ENRIO 2019). In case of potential conflicts of interest or a lack of independence, the project coordinator will inform the EB to decide on further actions.
- If required, the project coordinators will consult the appropriate RI bodies at Aarhus University (advisors and/or standing Committee for Responsible Conduct of Research and Freedom of Research (The Research Practice Committee)) to seek advice or initiate further investigation. If necessary, the coordinator will contact Research Integrity Boards at the local institutions of researchers’ involved, potentially to initiate further investigation within the institutes.
- The project coordinators must secure a fair investigation process and, if necessary, decide on appropriate sanctions and inform the consortium of decisions.
- In the case of proven FFP the project coordinators must take steps, in consultation with the European Commission, to exclude the researcher and/or partner from the consortium as well as report the research misconduct to the relevant authorities.
- If the case is about unacceptable research practices, the project coordinator must take steps to ensure that the research is redone in a scientifically sound way –and give the researcher(s) a warning and/or ensure additional training.
- If the researcher continues to carry out research in a detrimental way, the project coordinator must make sure that the researcher is removed from the task. Appropriate follow-up actions also have to be considered.

In line with the Code of Conduct, the following principles need to be incorporated into any investigation process (ALLEA 2017, p. 9).

Integrity

- Investigations are fair, comprehensive and conducted expediently, without compromising accuracy, objectivity or thoroughness.
- The parties involved in the procedure declare any conflict of interest that may arise during the investigation.
- Measures are taken to ensure that investigations are carried through to a conclusion.
- Procedures are conducted confidentially in order to protect those involved in the investigation.
- Institutions protect the rights of ‘whistle-blowers’ during investigations and ensure that their career prospects are not endangered.
- General procedures for dealing with violations of good research practice are publicly available and accessible to ensure their transparency and uniformity.

Fairness

- Investigations are carried out with due process and in fairness to all parties.
- Persons accused of research misconduct are given full details of the allegation(s) and allowed a fair process for responding to allegations and presenting evidence.
- Action is taken against persons for whom an allegation of misconduct is upheld, which is proportionate to the severity of the violation.
- Appropriate restorative action is taken when researchers are exonerated of an allegation of misconduct.
- Anyone accused of research misconduct is presumed innocent until proven otherwise.

3 The Quality Assurance Process for deliverables in POIESIS

As described in the Grant Agreement, POIESIS must submit the following deliverables to the European Commission during the project period:

Deliverable (number)	Deliverable name	Work package number	Short name of lead participant	Type	Dissemination level	Delivery date (in months)
D5.1	Research Integrity and Quality Assurance Plan	WP5	AU	R	PU	M2
D1.1	Protocol for stock-taking and synthesis	WP1	WID	R	PU	M3
D2.1	Protocol for small scale case studies	WP2	ISCTE	R	PU	M3
D4.1	Recruitment and engagement strategy	WP4	NTUA	R	PU	M4
D4.2	Plan for Dissemination and Exploitation, including Communication activities	WP4	NTUA	R	PU	M4
D4.3	POIESIS branding: logo, aesthetics, website, and social media presence	WP4	NTUA	DEC	PU	M4
D1,2	Dataset on core time-series items, climate science, and Covid-19	WP1	LSE	DATA	PU	M5
D3.1	Protocol for the participatory research actions	WP3	CNRS	R	PU	M6
D5.2	Data Management Plan	WP5	AU	R	PU	M6
D4.4	1 st Promotional video	WP4	NTUA	DEC	PU	M12
D2.2	Results from public consultation	WP2	ISCTE	R	PU	M14
D4.5	2 nd Promotional video	WP4	NTUA	DEC	PU	M18
D3.2	Results from focus groups	WP3	CNRS	R	PU	M20
D1.3	Indicators for responsible research practices and trust in science	WP1	LSE	R	PU	M22
D2.3	Results from expert interviews	WP2	CSIC	R	PU	M24
D1.4	Consolidated data set for responsible research practices and trust in science	WP1	LSE	DATA	PU	M24
D3.3	Results from open deliberative roundtable workshops	WP3	CSIC	R	PU	M28

D4.6	3 rd Promotional video	WP4	NTUA	DEC	PU	M28
D2.4	Results from survey experiment	WP2	AU	R	PU	M28
D2.5	Cultivating chains of mediation to foster trust in science: Recommendations	WP2	ICSTE	R	PU	M30
D3.4	How can institutions promote responsible research to enhance trust in science: Recommendations	WP3	CNRS	R	PU	M30
D1.5	Integrity, integration, and institutions for trust: Recommendations based on evidence from secondary data sources	WP1	WID	R	PU	M30
D4.7	POIESIS policy recommendations for tackling societal mistrust in science and for strengthening the co-creation of R&I contents by society	WP4	NTUA	R	PU	M36

3.1 The quality assurance process

The final quality control will take place via a dedicated, mostly internal peer review process. No deliverable in POIESIS will be submitted to the European Commission without it having undergone review by a suitable external or internal reviewer. The author(s) of a deliverable, in dialogue with the WP Leader and project coordinators, will adjust the deliverable according to the review and recommendations. The review process will consist of multiple steps, each with its specific deadline:

- At least eight weeks before the deliverable's submission deadline: The EB appoints a reviewer, makes arrangements with him/her and informs the WP Leader responsible for the deliverable.
- At least four weeks before the deliverable's submission deadline: the author(s) send(s) a first draft of the deliverable to the reviewer, WP Leader and project coordinators.
- At least two weeks before the deliverable's submission deadline: the reviewer reviews the first draft and sends the review report and potential suggestions for improvement to the author(s), WP Leader and project coordinators.
- At least one week before the deliverable's submission deadline: the author(s) processes the review comments and sends the final version of the deliverable to the WP Leader and project coordinators.
- Finally, before the submission deadline, the project coordinators upload the deliverable to the EC portal.

This means that the author(s) must finish a first version of the deliverable four weeks ahead of the date of deliverance. To secure a smooth review process, it is the responsibility of the EB to make sure that a qualified reviewer is appointed at least eight weeks ahead of the submission deadline and to inform the author(s) about the selected reviewer(s). The review process will be open in the sense that the reviewer's identity will be disclosed to the author(s) and it will be listed on the final deliverables.

The reviewer(s) will typically be internal, meaning they will be selected from the group of other consortium members or members of the advisory board who are deemed not to have a conflict of interest. However, if

deemed preferable, external experts can also be invited as reviewers. The project coordinators will be informed about the appointment through the EB and must be kept up-to-date through the peer review process. It is the project coordinator's responsibility to upload the deliverable on time.

As for implementing potential revisions suggested by the reviewer(s), the project coordinators will act as the editor and will have the final say. This process will however be conducted in collaboration with the deliverable's author(s) and with the acceptance of the WP Leader.

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