

D6.5: Sustainability plan: options and strategies for promoting the project's legacy

[WP6 – Generalizing project methods, and exploitation measures]

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Abstract

This sustainability plan for SIENNA aimed to help ensure the project (and its outcomes) leave a legacy beyond its duration. It presents strategies to promote the project's legacy beyond the project's timespan (2017-2021), i.e., the project's ethical and legal proposals, and other research outputs and networks developed during the project's stakeholder engagement activities. It discusses SIENNA's positioning and presents the outputs and exploitation and sustainability strategies, covering SIENNA assets and actions. It also contains information on sustainability actions and work carried out to obtain buy-in for SIENNA proposals.

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Information in this report that may influence other SIENNA tasks

Linked task	Points of relevance
Task 6.4	This report connects with and reports on the work done in Task 6.4 as both relate to exploitation and sustainability building.
Task 7.4	Sustainability strategies connect with scientific dissemination and re-use of SIENNA results.
Task 7.5	The work in this task will also support/feed into stakeholder communication and public relations.



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Executive summary

The objective of this report is to formulate a **sustainability plan** for SIENNA to ensure the project (and its outcomes) leave a legacy beyond its duration. Here, we present our strategies to promote the project's legacy beyond the project's timespan for the project's ethical and legal proposals, other research outputs and networks developed during the project's stakeholder engagement activities.

Section 2 discusses the methodology followed in ensuring sustainability for SIENNA's results. Section 3 discusses SIENNA's positioning within the SwafS, technological area ethics and policy landscape and presents a SWOT analysis. Section 4 presents the outputs and exploitation and sustainability strategies, covering SIENNA assets and actions including collaboration with other projects. To obtain buy-in for our results and proposals we focussed on engaging with key stakeholders using various means. The Annexes contain information on sustainability actions and work carried out in task 6.4 buy-in for SIENNA proposals.

This sustainability plan, the analysis contained herein, the actions carried out so far and after 31 March 2021 will ensure the dissemination and use of the project's results and boost further scientific developments in the ethics of new and emerging technologies. It will also foster the implementation of high ethics and human rights standards at the EU and international level for the three technologies.

There were three key stages in the development of the SIENNA sustainability strategy. These were:

- Stage 1: **Planning, research on positioning and exploration of the exploitable and sustainable outputs**, including a sustainability SWOT analysis.
- Stage 2: **Call to action, creation of sustainability foundations and suitable strategies** in discussion with partners and SIENNA's Scientific Advisory Board and related projects.
- Stage 3: **Review and finalisation of sustainability plan.**

Our **key sustainability achievements** so far:

- Achieving good visibility of results via open access to reports on SIENNA website and Zenodo, partner websites, publications, and citations in related research
- Buy-in for our proposals via SIENNA consultation activities, webinars, meetings with organisations and projects, presentations at third-party events
- Contributions to AI and robotics policy public consultations
- Delivery of policy briefs related to results for international, EU and national policy-makers to ensure use of results and findings in addressing ethics and human rights concerns
- Delivery of trainings (e.g., ethical requirements, ethics by design) to the European Commission in human enhancement and AI and robotics
- Contribution to the ethics self-assessment process for AI projects funded by Horizon Europe.
- Collaboration in related projects such as SHERPA, PANELFIT and TechEthos and new proposals under Horizon Europe to ensure use of results, methodologies, and lessons learnt.

While there were some challenges to the legacy building and sustainability work, SIENNA was able to take significant actions by leveraging its stakeholders, networks, events, related projects and dissemination and communication activities to increase uptake and build sustainability for its research, proposals and generalised methodologies – some of these actions, as shown here, have already occurred during the project and many will continue after its end.



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List of acronyms/abbreviations

Abbreviation	Explanation
AI	Artificial Intelligence
AIDA	Special Committee on Artificial Intelligence in a Digital Age (European Parliament)
AI HLEG	High-level expert group on artificial intelligence
DoA	Description of Action
DiVA	Digitala Vetenskapliga Arkivet
EC	European Commission
EDPB	European Data Protection Board
EU	European Union
FP7	European Union Seventh Framework Programme
FRA	European Union Agency for Fundamental Rights
H2020	Horizon 2020
HET	Human Enhancement Technologies
HYBRIDA	Embedding a comprehensive ethical dimension to organoid-based research and resulting technologies
ICT	Information and Communication Technology
IEEE	Institute of Electrical and Electronics Engineers
PANELFIT	Participatory Approaches to a New Ethical and Legal Framework for ICT
R&I	Research and innovation
RE	Research Ethics
REA	Research Executive Agency
REC	Research ethics committee
RI	Research Integrity
RRI	Responsible research and innovation
SEIA	Socio-Economic Impact Assessment
SHERPA	Shaping the Ethical Dimensions of Smart Information Systems
SIENNA	Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact



Abbreviation	Explanation
STOA	European Parliament Panel for the Future of Science and Technology
SwafS	Science with and for Society
SWOT	Strengths, Weaknesses, Opportunities, Threats
T	Task
TechEthos	Ethics for Technologies with High Socio-Economic Impact
WP	Work package

Table 1: List of acronyms/abbreviations

Glossary of terms

Term	Explanation
DiVA	The DiVA portal is a common finding tool for all publications that have been registered and published with each DiVA member. DiVA helps disseminate research and other publications openly available to the outside world, open access.
EUREC Network	EUREC is a network that brings together existing national Research Ethics Committees (RECs) associations, networks or comparable initiatives on the European level.
Exploitation	The utilisation of results in further research activities other than those covered by the action concerned, or in developing, creating and marketing a product or process, or in creating and providing a service, or in standardisation activities. ¹
Stakeholder	Defined in a broad sense as anyone who (1) might be affected by the project; (2) has the potential to implement the project's results and findings; (3) has a stated interest in the project fields; and/or, (4) has the knowledge and expertise to propose strategies and solutions in the fields of genomics, human enhancement and artificial intelligence and robotics.
Sustainability plan	A plan to ensure the project 's sustainability, i.e., continuation to deliver benefits to the project beneficiaries and/or other constituencies for an extended period after the Commission's financial assistance has been terminated. ²
Zenodo	Zenodo is part of OpenAIRE and provides a repository for those researchers who do not have an existing institutional or thematic repository they can deposit their publications and data in. ³ It allows both open and closed access.

Table 2: Glossary of terms

¹http://ec.europa.eu/research/participants/portal/desktop/en/support/reference_terms.html

² Adapted from European Commission Directorate-General Education and Culture, *Sustainability of international cooperation projects in the field of higher education and vocational training - Handbook on Sustainability*. Luxembourg: Office for Official Publications of the European Communities, 2006.

³ <https://help.zenodo.org>



1. Introduction

1.1 Background

This document addresses SIENNA DoA Task 6.6 description: *Drawing upon WPs 5, 6 and 7, and from the impact of the dissemination and outreach measures adopted during the project's lifetime, this task will develop a sustainability plan. The sustainability plan will support the objective of ensuring that the project (and its outcomes) leaves a legacy beyond its duration through, for example, digital archiving, media impact and strategic networking.*

SIENNA sustainability actions were expected to focus on follow-up activities for (a) proposals (b) other research outputs and (c) networks developed during the project's stakeholder engagement activities. The sustainability team was expected to collaboratively explore options and devise suitable strategies in consultation with the project's Scientific Advisory Board. It was also expected to explore the potential of fostering further partnerships within Horizon 2020 and amongst the international research community.

1.2 Objectives

SIENNA is a EU-funded Horizon 2020 project (2017-2021)⁴ that has produced critical work on ethical, legal and human rights aspects of genomics, human enhancement and AI and robotics. In collaboration with a variety of stakeholders, SIENNA identified and assessed ethical and socio-economic issues, public opinions (via citizen surveys and panels), legal regulation and human rights implications of each technology. It has developed ethical frameworks based on social, ethical and legal analyses that address major present and future ethical issues. SIENNA has developed a proposal for an International Code of Conduct for Data Sharing in Genomics, Ethics guidelines for human enhancement technologies and a Multi-Stakeholder Strategy and practical tools for ethical AI and Robotics. SIENNA has also developed generalised methods to conduct ethical and legal analyses of new and emerging technologies and guidance and tools to promote ethics for the development, deployment and use of these technologies.

The objective of this report is to formulate a sustainability plan for SIENNA to help ensure the project and these results leaves a legacy beyond its duration. It also aims to present our strategies to promote the project's legacy beyond the project's timespan for the project's ethical legal and policy proposals, other research outputs and networks developed during the project's stakeholder engagement activities. There are many advantages to a sustainability plan – setting directions and providing guidance to project partners to gain and maximise impact, helping build legacy, supporting dissemination, exploitation and delivering added-value and benefits⁵ even after a project ends.

⁴ SIENNA project. <https://www.sienna-project.eu>

⁵ European Commission Directorate-General Education and Culture, *Sustainability of international cooperation projects in the field of higher education and vocational training - Handbook on Sustainability*, Luxembourg: Office for Official Publications of the European Communities, 2006.



This sustainability plan, the analysis contained herein, the actions carried out so far and after 31 March 2021 will ensure the dissemination and use of the project's results and boost further scientific developments in the ethics of new and emerging technologies. It will also foster the implementation of high ethics and human rights standards at the EU and international level for the three technologies. We also hope to inspire and provide methodological insights and tools for the study of other new and emerging technologies.

SIENNA links sustainability to partnerships and cooperative relations developed during the project with consortium partners and external stakeholders. Dissemination and communications activities (reported separately in *SIENNA D7.5 Final communications report*) will also support exploitation and sustainability of results. Our key stakeholders include policy-makers, industry, research ethics committees, researchers and the scientific community.

1.3 Structure of the report

Section 2 of this report discusses the methodology followed in ensuring sustainability for SIENNA's results. Section 3 discusses SIENNA's positioning within the SwafS and technological area ethics and policy landscape and presents a SWOT analysis. Section 4 presents the outputs and exploitation and sustainability strategies, covering SIENNA assets and actions including collaboration with other projects. The Annexes contain information on sustainability actions and work carried out in task 6.4 (buy-in for SIENNA proposals).

1.4 Scope and limitations

The scope of the sustainability plan task was limited by the SIENNA Description of Action (DoA) and the resources allocated by it. However, sustainability has been considered during the planning and execution of SIENNA tasks, particularly the work in *WP5 The consortium's proposals* and *WP6 Generalizing project methods, and exploitation measures*.

The key challenges for this task were the late development of the proposals (and agreement on amendments to the scope of our work) in *WP5* and *WP6* which were mitigated by working closely with the *WP5* and *WP6* teams to ensure buy-in and sustainability did not become an afterthought. This risk was further mitigated by carrying out a variety of activities and the inclusion of a variety of stakeholders in the development and review of the proposals and generalised methods.

2. Methodology and planning

There were three key stages in the development of the SIENNA sustainability strategy. These were:⁶

Stage 1: Planning, research on positioning and exploration of the exploitable and sustainable outputs. Here, together with partners, we carried out a sustainability SWOT analysis and identified the outputs that could be exploited, what needed to be sustained and how. Resources for the sustainability work were pre-determined by the DoA.

⁶ Adapted from Bailey, Amy, "Sustainability", undated.
<http://www.episcenter.psu.edu/sites/default/files/Sustainability.pdf>



Stage 2: Call to action, creation of sustainability foundations and suitable strategies in discussion with partners and SIENNA’s Scientific Advisory Board and related projects. This stage included actions to ensure exploitation and sustainability.

Stage 3: Review and finalisation of sustainability plan. This was carried out in the final stages of the Task. The plan was shared with partners and inputs were sought to ensure we had captured all relevant information.

3. SIENNA positioning: snapshots of the landscape

This section first presents brief positioning analysis – it presents some snapshots of the SIENNA positioning within the SwafS family, in relation to ongoing human genomics ethics projects, Human Enhancement ethics projects, AI and Robotics ethics projects, European Union ethics and policy and legal work. It next presents a sustainability SWOT analysis.

3.1 Positioning analysis

SIENNA is a Horizon 2020 coordination and support action (Grant Agreement ID: 741716). It started on 1 October 2017 and ended on 31 March 2021. It had an overall budget of €3,996,787.50. SIENNA sits within the *Science With and For Society Programme (SWAFS)* which is implemented by the Research Executive Agency (REA) and is part of the European Union *Research Ethics and Research Integrity (RE&RI) Sub-cluster 2 - RE&RI guidelines and regulatory framework*.⁷ In addition to SIENNA, the projects included in *Sub-Cluster 2* were PANELFIT, TRUST, SHERPA⁸, PRINTEGER, ICONSENT, and PRO-RES (see table 3 below⁹).

Project	Duration	Fields/topic addressed	Key results
SIENNA	2017-2021	Human genomics, human enhancement and AI and robotics: ethics, law, human rights	Impact assessment, Ethical analysis, Legal analysis, ethical frameworks and code, public opinion surveys, panels of citizens, generalisation of methods.
SHERPA	2018-2021	Ethics and human rights of smart information systems (AI and big data)	Case studies, scenarios and artistic representations, interviews, a large-scale online survey, a Delphi study, a stakeholder board, workbook, technical and regulatory options, Terms of Reference for new regulator.
PANELFIT	2018-2021	ICT research and innovation	Co-creation. Improvements to the regulatory and governance framework at the EU and the national level, mutual learning and support tools, networking

⁷ See http://prores-project.eu/wp-content/uploads/2019/07/Final-Report_public-version.pdf

⁸ SHERPA. <https://www.project-sherpa.eu/>

⁹ This table used data from 2018-2020.



Project	Duration	Fields/topic addressed	Key results
			among stakeholders and policy makers process involving policy makers, stakeholders, and end-users. Workshops, public consultations, encounters, surveys, etc.
TRUST	2015-2018	Ethical standards in international research	Three sets of tools based on participatory engagement covering all continents: (1) a global code of conduct for funders/San Code (2) a fair research contracting on-line tool and (3) a compliance and ethics follow-up tool.
PRO-RES	2018-2021	Responsible Research and Innovation (RRI)	Guidance Framework with a statement – The Accord , supplemented with a Toolbox for policy makers and advisors and additional supportive Resources to complement the Accord and the Toolbox.
ICONSENT	2017-2021	Informed Consent /medical and health sciences	Workshops, innovative resources, guidelines.

Table 3: List of RE/RI projects

In addition to these projects, we note the relevance of the projects funded SwafS 28 (HYBRIDA)¹⁰ and Swafs 29 2020 (TechEthos)¹¹ These are discussed later in the report.

Positioning in relation to ongoing HG ethics projects

Currently there are almost 134 projects related to ethics of human genomics on CORDIS. The projects are varying in terms of scope: molecular biology tools, cell therapies, personalized nutrition, genome and research infrastructure. The more relevant genomics projects include BBMRI-ERIC¹², RD-Connect¹³, HBP SGA-3¹⁴, EASI-Genomics¹⁵ and HYBRIDA (Swafs 28 2020)¹⁶. The BBMRI-ERIC and RD-Connect are platforms for sharing health data and/or biospecimens. Similarly, EASI Genomics is a European infrastructure dedicated to genomic data and services. They pledge to comply with ethical and legal requirements involving big “omics” data. All three projects directly relate to our proposal for an international code of conduct for genomic data sharing. HBP SGA3 encompasses an RRI component

¹⁰ CORDIS, “Embedding a comprehensive ethical dimension to organoïd-based research and resulting technologies – HYBRIDA”. <https://cordis.europa.eu/project/id/101006012>

¹¹ CORDIS, “Ethics for Technologies with High Socio-Economic Impact- TechEthos”. <https://cordis.europa.eu/project/id/101006249>

¹² CORDIS, “ImplementAtion anD OPeration of the gateway for healTh into BBMRI-ERIC”. <https://cordis.europa.eu/project/id/676550>

¹³ CORDIS, “RD-CONNECT: An integrated platform connecting registries, biobanks and clinical bioinformatics for rare disease research”. <https://cordis.europa.eu/project/id/305444>

¹⁴ CORDIS. “Human Brain Project Specific Grant Agreement 3”. <https://cordis.europa.eu/project/id/945539>

¹⁵ <https://www.easi-genomics.eu>

¹⁶ CORDIS, “Embedding a comprehensive ethical dimension to organoïd-based research and resulting technologies – HYBRIDA”. <https://cordis.europa.eu/project/id/101006012>



that focuses on e-brain research infrastructure promoting best research practices. Lastly, HYBRIDA addresses conceptual and philosophical dimensions of uncertainty, an integral aspect of genomic research and applications.

Positioning in relation to ongoing Human Enhancement ethics projects

When SIENNA began, there were no other projects in Horizon 2020 that focussed unambiguously, directly and exclusively on ‘human enhancement’, and as far as we are aware, this has not changed.¹⁷ One of the projects that was connected to SIENNA work was EPOCH (Ethics in Public Policy Making: The Case of Human Enhancement (FP7-SiS))¹⁸ which focussed on providing a better insight into the role of ethics, and of ethical expertise in particular, in EU policies on science and technology, and to provide guidance for EU public policies on human enhancement, and normative issues generally. SIENNA consulted the work of the NERRI project (Neuro-Enhancement: Responsible Research and Innovation).¹⁹ The SIENNA ethical analysis work also referred to the work in FP7 SATORI project²⁰. SIENNA has also collaborated with the Human Brain Project (HBP), the European Community Flagship project developing ICT platforms for brain simulation, high performance computing, neuro-informatics, medical informatics, neuro-morphic computing and neuro-robotics. SIENNA engaged with members from FUTUREBODY – The Future of the Body in the Light of Neurotechnology.²¹

Positioning in relation to ongoing AI and Robotics ethics projects

In the Horizon 2020 AI and robotics space, SIENNA’s closest related project is EU-funded H2020 **SHERPA** project that focuses on smart information systems, ethics and human rights and with whom it has already established a close relationship. Some SIENNA partners (such as University of Twente, Trilateral Research and EUREC Office gUG) are also partners in SHERPA and vice versa; this has ensured that the two projects are well-informed of each other’s work. SIENNA has also developed and advanced SHERPA results further (e.g., in ethics by design). SIENNA also complements the work in H2020 project **PANELFIT** which focuses on ICT Research and Innovation. The collaboration worked on two levels: the coordinators of the projects met regularly to discuss how to build synergies and achieve common goals. In parallel, the communication and dissemination leads met monthly to discuss joint activities, focusing on explaining the scope and overlaps of the projects, sharing networks and carrying out joint promotional activities, including an open online webinar and a publication on setting future ethical standards for ICT, Big Data, AI and robotics.²²

¹⁷ The difficulty in stating this with more certainty arises from a number of factors addressed in SIENNA D5.3, namely, (1) that enhancement can be a by-product as well as an implicit or explicit, unstated or unstated secondary aim, (2) not everyone uses the same terminology, i.e. some projects refer to augmentation or other terminology (see stakeholder analysis also [SIENNA D3.1](#) and [SIENNA D3.4](#) on this). For instance, the [EXTEND](#) project does not always reference enhancement, though some of their aims align with the definition of enhancement used by SIENNA. The SIENNA stakeholder analysis (D1.2) identified some projects in human enhancement technologies such as the HCENAT Project: Naturalness in Human Cognitive Enhancement project (Czechia); [INOPRO](#); [BIOethAI+](#) Project (Spain); MEJORA project – Ethics and Politics of Medical Developments for Human Enhancement and the RECALL project (UK).

¹⁸ SIENNA partner Sciences Po was partner in that project.

¹⁹ Zwart, Hub, “NERRI (Neuro-Enhancement: Responsible Research and Innovation) FINAL Report WP3”, 23 July 2015.

²⁰ SATORI. <https://satoriproject.eu/the-project/>

²¹ FUTUREBODY – The Future of the Body in the Light of Neurotechnology.

https://www.itas.kit.edu/english/projects_coen18_futurebody.php

²² Fernow, Josepine, Inigo de Miguel Beriain, Philip Brey, Bernd Stahl, "Setting future ethical standards for ICT, Big Data, AI and robotics: The contribution of three European projects," *Orbit Journal*, 2019.1, <https://doi.org/10.29297/orbit.v2019i1.115>



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Technology, ethics and human rights

- AI & Robotics
- Human Enhancement
- Genomics
- Ethics & human rights implications

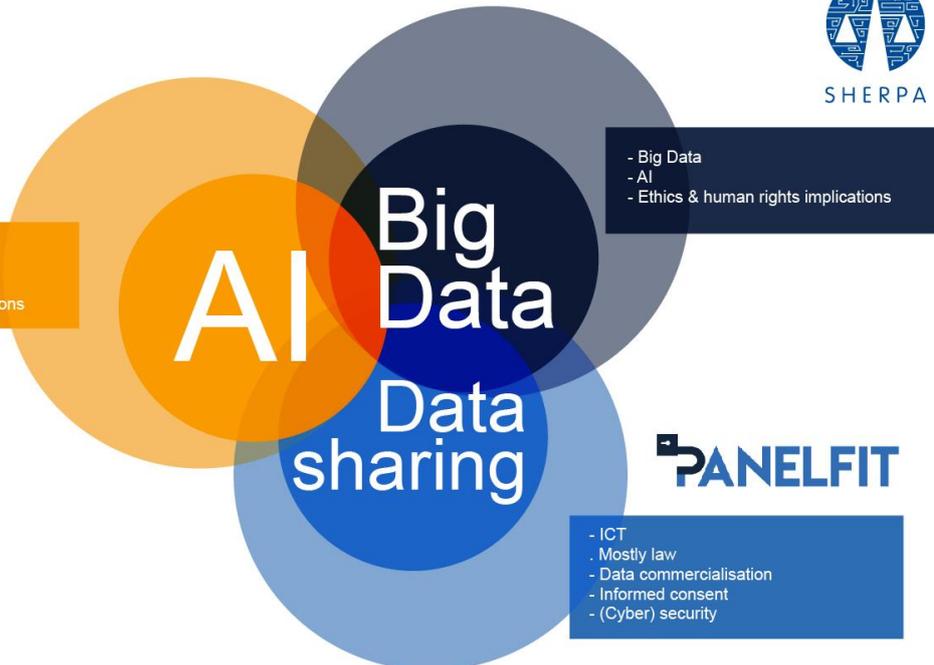


Fig 1: SIENNA-SHERPA-PANELFIT relationship

Positioning in relation to EU ethics work

SIENNA work in ethical and legal analysis of human genomics, human enhancement technologies, and AI and robotics will help boost the EU's leadership in developing ethical standards and support its vision of Responsible Research and Innovation (RRI) to foster the design of inclusive research and innovation. SIENNA will improve knowledge of the ethical, human rights and socio-economic impacts of the three technology areas, supporting ethical and responsible decision making by research ethics committees. SIENNA has supported the European Commission by contributing to the development of their ethics review process for projects developing or using AI and human enhancement technologies in Horizon Europe. SIENNA contributed to the ethics self-assessment process that all applicants to Horizon Europe will need to complete and has developed an ethics by design framework for AI projects that is now the recommended framework to ensure projects developing or using AI comply with fundamental ethical principles. Additionally, SIENNA has delivered a training on this ethics by design framework to (1) members of the European Commission and (2) to external ethics experts of the Commission (more details, see section 4.2.3).

Positioning in relation to EU policy and legal work

SIENNA has provided a good knowledge base to support and enhance responsible decision-making by policy makers in the three areas by carrying out and presenting legal analysis of the three technologies at international, EU and national levels and making recommendations for enhancement of the legal framework. SIENNA will also create added value by generalising its methods for use in other emerging technological domains. It responded to and fed its recommendations into international, EU-level and national policy consultations (see Annex 2). SIENNA also developed a policy brief series for policy-makers' at the international, EU and national levels.²³

²³ <https://www.sienna-project.eu/publications/policy-briefs/>



3.2 Sustainability SWOT analysis

This section looks at the strengths internal to the project (what we do well, resources we could draw on), weaknesses (what is lacking), opportunities outside the project (what could we make the most of; leveraging strengths) and threats (what is it that might harm us unless risks are mitigated) to SIENNA sustainability efforts. The initial identification was carried out in August 2020 by Trilateral Research, reviewed again in October 2020, brainstormed and discussed with SIENNA partners (a meeting was held on 18 November 2020, after which the information was updated).



Fig 2: SWOT

Strengths (internal to the project)

- SIENNA internal collaborations and partnerships that have led to successful new projects (e.g., SHERPA, TechEthos)
- Collaborations in other proposals
- SIENNA relations with external stakeholders, e.g., Advisory Board Members, workshop participants, other projects (e.g., SHERPA, PANELFIT)
- EUREC Office with access to EUREC Network as partner
- Academic positioning: ability to turn SIENNA results into teaching and training materials, PhDs, publications, training researchers, mutual learning
- Strong publications track record of partners
- Strong cooperation with academia and policy makers at different levels (international, EC, and national), especially via policy consultation inputs
- Inter-disciplinarity, cross-country, diversity of cultures
- Contribution to ethics self-assessment e.g., in Horizon Europe (and ability to influence ethics policy-making)
- Being part of standardisation efforts: ISO SC42 Artificial Intelligence. In this work programme, standards are developed for AI, including standards for ethics and trustworthiness.

Weaknesses (internal to the project)

- Limited communication of results or publication (some results were embargoed/took longer to publish than expected, e.g., survey reports)
- Staff changes: affects continuity, commitment to project and legacy results, getting information on project



- Late development of some deliverables of WP5 and WP6 (proposals and generalised methods)
- Unclear structures for internal communications (duplication in contacting stakeholders)
- Lack of research/efforts to align with and attract dominant private educational/training/certification programmes and identifying how we can help and fit in
- Under-representation of STEM and industry in the consortium partnership
- Less emphasis on influencing policy and governance in the DoA
- Methodological challenges related to some of the studies and their depth that had an impact on outputs
- DoA amendment delays.

Opportunities (external to SIENNA)

- Horizon Europe (next Framework Programme) proposal collaborations
- Horizon Europe ethics self-assessment appraisal: development of process for AI and guidance for Human Enhancement (and related training delivered by SIENNA members)
- Unique positioning, as we were invited to provide ethics review guidance for Horizon Europe on human enhancement and artificial intelligence, and training on ethics by design²⁴
- Conferences
- Policy consultations
- Digital archiving in multiple repositories e.g., Zenodo²⁵, DivA²⁶ (might want to do individual uploads of ‘parts’ of D5.2/5.3 and 5.4 – user accessible)
- TechEthos successful funding and collaboration
- Collaboration with HYBRIDA (SWAFS 28 2020) (organoids project)²⁷
- EUREC network²⁸
- Journal publications
- Expert interviews and publicity for results in computer society journals/professional magazines/journals/newspapers etc (multiplier effect)
- Direct policy input at the international, EU and national level (e.g. SIENNA policy brief series)
- Teaching and training – university level and for industry, training modules (teaming up with ORBIT²⁹), PREFET³⁰ training session.

Threats (external to SIENNA)

- Potential conflict of proposals with other existing/parallel Guidelines, Codes, strategies
- Possibility of mismatch between stakeholder needs/state of the art and Codes
- Lack of fixed guardians for end results and proposals e.g., Codes and Strategies

²⁴ Details in section 4.

²⁵ <https://zenodo.org>

²⁶ <https://info.diva-portal.org>

²⁷ CORDIS, “Embedding a comprehensive ethical dimension to organoid-based research and resulting technologies- HYBRIDA”. <https://cordis.europa.eu/project/id/101006012>

²⁸ <http://www.eurecnet.org/index.html>

²⁹ <https://www.orbit-rrr.org>. ORBIT “provides training, consultancy and other RRI services to both university and industry research and innovation teams to help ensure that RRI principles are embedded in development from the earliest possible point.”

³⁰ PREFET. <https://prefet.eu>



- Possible lack of buy-in/acceptance by stakeholders e.g., policymakers, RECs, industry, professional organisations
- Stakeholders may not be ready to implement our proposals
- Failure to gain acceptance for methods from the ethics/legal research community
- Materialisation of field-specific threats, e.g., rise of open platform AI, do-it-yourself AI, biohacking, home genetic engineering and application of results in that environment.
- Potential failure to bring together the three SIENNA areas
- Challenges that might be generated by the COVID 19 pandemic (and associated risks and uncertainties).

Addressing the challenges identified in SWOT

After discussing the SWOT analysis, the following measures were identified, as being critical to consider in the final phases of the project, to minimise the weaknesses and threats and maximise impact.

- Strong and focused dissemination and communication activities
- Sharing results as soon as possible; feeding them into open related policy activities (taking advantage of opportunities in relation to AI and robotics)
- Active engagement with stakeholders – keeping them involved via workshops, webinars, public consultation, newsletters, Twitter and other events (final conference, STOA workshop together with PANELFIT and SHERPA).
- Developing frameworks that complement/support existing ones (not gone just with what was planned but worked with stakeholders to meet needs)
- Refining our methods in WP5 based on feedback received
- Adopting an ‘agile’ and needs-based approach to exploitation and sustainability
- Developing long term relationships with ongoing projects to carry forward the SIENNA legacy.

The partners duly took these into consideration and acted upon them in the finalisation of the project.

4. Outputs and assets: exploitation and sustainability actions

This section first discusses the key types of outputs, and the main planned and activated exploitation routes and sustainability actions taken. Section 4.2 then focusses on activities carried out to obtain buy-in for our results and proposals for the three technological fields; this is deeply connected with building sustainability. It also outlines activities planned/undertaken for general SIENNA outputs/assets, collaboration with other projects and presents some information on the European Parliament Panel for the Future of Science and Technology (STOA) workshop on ‘*Policy options for the ethical governance of disruptive technologies (online event)*’.

4.1 Introduction

There were various outputs produced by the SIENNA project. In connection with impact strategy planning, the discussion on how to curate and sustain outputs was initiated and work continued in collaboration between WP7 (Dissemination and communications) and WP6 to align sustainability and



exploitation planning with dissemination and communication plans to design impact strategy. The different outputs of the SIENNA project have different audiences, and different exploitation routes.

The table below shows the key types of outputs, and the main planned and activated exploitation routes and sustainability actions.

Output Asset	Exploitation route	Sustainability actions
Deliverables	Use in further work and research in SIENNA and related projects, new proposals (including Horizon Europe). Use in publications. Feeding of results and findings into public consultations. Trainings. Infographics.	Open access via project, website, Zenodo (see Annex 1) and partner institutional repositories; exploitation through journal publication; publicity through SIENNA channels, multiplied by partners; one-on-one buy-in meetings with organisations; news release.
Publications	Use in further/other research. Publicity strategy to boost discoverability (social media, newsletters, using existing blog platforms). Lay summaries/editorial web content.	Available on website; open access via publisher and DiVa repository; publicity activities through SIENNA channels, multiplied by partners and other actors (e.g., publishers).
Policy briefs	Dissemination to policy makers via personalised emails, newsletters, social media publicity and via events such as SIENNA final conference and STOA workshop; use in policy-making.	Open access in Zenodo; on file with partner organisations and available on request; publicity in SIENNA channels, multiplied by partners and other actors.

Table 4: Outputs, exploitation routes and sustainability actions

4.2 Obtaining buy-in for our results and proposals

To obtain buy-in for our results and proposals we focussed on engaging with key stakeholders using various means. This section presents the activities carried out in the three fields of study. The buy-in activities for each of the three fields were led by Uppsala University for genomics, University of Twente for Human Enhancement, and Trilateral Research Ltd and the University of Twente for AI and Robotics.

4.2.1 Human Genomics

Human genomics buy-in activities focused on three key outputs:

1. The proposal for operational guidelines for ethical self-assessment of research in genetics and genomics (D2.7)
2. International code of conduct for data sharing in genomics: A proposal (D5.2)
3. Legal analyses for human genetics and genomics at the international, European and national levels. (D2.2 and D5.6)



Key buy-in supporting activities carried out were consultation via expert panels, public consultation and engagement with the SIENNA Scientific Advisory Board. Genomics stakeholders from different professional organisations, e.g., European Society of Human Genetics, Human Genome Organisation, Global Alliance for Genomics and Health were involved during the tasks and in review of reports produced which helped make them aware of the work being carried out and related results. Efforts were also made to ensure input from, and engagement with, patient organisations. Dissemination activities also supported buy-in and exploitation. The SIENNA genomics results will also serve as the basis for future work to develop codes of conduct for big data in other “omics” fields.³¹ Publishing our results in peer-reviewed scientific journals will support a lasting SIENNA legacy and impact in the scientific community.

The table below expands on the activities planned/undertaken:

Output/ Asset	Activities planned/undertaken
“Legal Overview Human Genetics and Genomics: Spain”, 2018, Annex to SIENNA D2.2 Analysis of the legal and human rights requirements for genomics in and outside the EU	<ul style="list-style-type: none"> ● Briefing on “Genética y genómica humana Mejora del marco jurídico de España” for the Ministerio de sanidad de España, Consejerías de sanidad de las Comunidades Autónomas, March 2021.³²
Legal Overview: Human Genetics and Genomics: China, annex to SIENNA D2.2, March 2019.	<ul style="list-style-type: none"> ● Briefing for Chinese national policy-makers prepared by the Dalian University of Technology, on “Enhancing China’s national legal frameworks for human genetic and genomic technologies”, March 2021.³³
A proposal for operational guide lines for ethical self-assessment of research in genetics and genomics (D2.7)	<ul style="list-style-type: none"> ● Expert panel, 10-11 September 2020. ● Public consultation held from January 11-25, 2021. ● Webinar for patients, other stakeholders and the public on 18 January 2021. ● Peer-reviewed publication. ● Post about publication on Uppsala University’s Ethics Blog. ● Uppsala University has connected with the Centre for Informed Consent integrity (January 2021).
Code of ethics for international data sharing and cloud computing (related genomic data) (D5.2)	<ul style="list-style-type: none"> ● Expert panel, 10-11 September 2020. ● Outreach to researchers in other academic institutions who have published and are involved in international data sharing and cloud computing regulation endeavours (e.g., Lund University and McGill University). ● Peer-reviewed publication planned.

³¹ See Conesa, A., S. Beck, “Making multi-omics data accessible to researchers”, *Sci Data* 6, 251, 2019.

<https://doi.org/10.1038/s41597-019-0258-4>

³²Prieto, Javier Valls, “Genética y genómica humana. Mejora del marco jurídico de España”, Version 1.0, March 2021. <http://doi.org/10.5281/zenodo.4633448>

³³ Ping, Yan, Liu Hongzuo, & Wang Qian, “Human Genetics and Genomics Law in China”, Version 1.0, March 2021. <http://doi.org/10.5281/zenodo.4633486>



Output/ Asset	Activities planned/undertaken
	<ul style="list-style-type: none"> ● Engagement with SIENNA scientific advisory board - written feedback on D5.2. ● Input on code of conduct from stakeholders in professional organisations. ● The EUREC office will share with its network and on the ENERI website and e-community.
Recommendations for the enhancement of the existing legal frameworks for genomics, (D5.6)	<ul style="list-style-type: none"> ● Policy brief on <i>Enhancing EU legal frameworks for genetics & genomics research</i> for the European Union institutions, and the Member States.³⁴ ● Workshop “Ethically and socially responsible governance of research biobanks in the Baltic states”, 29 October 2020. Implementation of GDPR in the context of biobanks: challenges and solutions, Santa Slokenberga, Uppsala University. ● Santa Slokenberga, Uppsala University, has been invited by the Swedish National Council of Medical Ethics³⁵ to present on gene editing, covering care and enhancement, on 1 March 2021. ● Webinar on <i>Enhancing legal frameworks human genetics & genomics, human enhancement, AI and robotics</i> organised by Uppsala University, Helsinki Foundation for Human Rights and Trilateral Research on 17 June 2020³⁶

Table 5: Genomics key outputs/assets and activities planned/undertaken

4.2.2 Human Enhancement

Human enhancement buy-in activities focused on *D5.3 Methods for promoting ethics for human enhancement*. The four main proposals offered are (i) Ethics guidelines for human enhancement; (ii) Proposals for engaging with research funding organisations to devise funding policies for (potential) human enhancement research; (iii) Proposals for the creation of an expert body for human enhancement; (iv) Proposals for medical organisations in relation to human enhancement. The buy-in activities targeted stakeholders at the international and regional levels.

Output/ Asset	Activities planned/undertaken
D5.3 Methods for promoting ethics for human enhancement	<ul style="list-style-type: none"> ● Policy brief on <i>Promoting ethics for human enhancement technologies</i>³⁷ for EU institutions, international, European, or

³⁴ Slokenberga, Santa, “Enhancing EU legal frameworks for genetics & genomics research SIENNA project Policy Brief #2”, Version V2.0, Jan. 2021. <http://doi.org/10.5281/zenodo.4554977>

³⁵ Statens medicinsk-etiska råd. <https://smer.se/>

³⁶ See videos at: https://www.youtube.com/watch?v=JTi_1grunJk; <https://www.youtube.com/watch?v=6SE0ujzCOPk>; <https://www.youtube.com/watch?v=s3HIRE5Xngs>

³⁷ Erden, Yasemin J., & Philip Brey, “Promoting ethics for human enhancement technologies: SIENNA project Policy Brief #5” Version 1.0, March 2021. <http://doi.org/10.5281/zenodo.4633510>



Output/ Asset	Activities planned/undertaken
	<p>national level policy-makers working on issues related to human enhancement technologies.</p> <ul style="list-style-type: none"> ● EUREC Office will share with the EUREC Network, on the ENERI website and e-community.
Ethics guidelines for human enhancement	<ul style="list-style-type: none"> ● Online workshop with a range of stakeholders including STOA, held on 22 and 23 October 2020. ● Guidelines (second draft) circulated to stakeholders 17 and 18 November 2020. ● Open webinar presenting the guidelines organised for 14 December 2020. ● Meeting with European Commission on 6 January 2021 to discuss buy-in for guidelines and potential for an expert working group and how these could impact Horizon Europe and how to initiate a process for this. ● Public consultation 11-25 January 2021. ● Presentation at the Augmented Humans conference (Finland/online, February 2021). ● Training sessions for experts/EC staff in human enhancement technology and ethics, including the guidelines (March 2021) ● Discussed with contact at UK Cyborg Nest how we could maximise likelihood of success of our guidelines in relation to industry. ● Discussed with a member of staff at University of Twente Biomechatronics and Rehabilitation, if these guidelines would be useful for the kind of work being done in its current form, and what might need to change. ● Review of results by contacts from World Health Organization (WHO), ALLEA³⁸, Global Alliance for Genomics and Health. ● Meeting with IEEE contact; discussed how to harmonise their guidelines and our approach. ● Preparation of guidelines for Horizon Europe on human enhancement technology for projects. ● Planned meeting with European Commission AI and health sectors for further buy-in. ● Entry created in Embassy of Good Science (May 2021).³⁹ ● EC forwarded to the relevant colleagues in EISMEA ● Shared on 700+ SINAPSE expert community and to be added to EC links on the HE page.
Proposals for the creation of an expert body for HE	<ul style="list-style-type: none"> ● Meeting with European Commission on 6 January 2021 to discuss buy-in for guidelines and potential for an expert working group. ● Public consultation 11-25 January 2021.

³⁸ European Federation of Academies of Sciences and Humanities.

³⁹ <https://embassy.science/wiki/Resource:Baeaad30-3c8d-4812-8a50-ca4aeb593707>



Output/ Asset	Activities planned/undertaken
	<ul style="list-style-type: none"> Planned meeting with European Commission AI and health sectors for further buy-in.
SIENNA human enhancement work	<ul style="list-style-type: none"> Meeting with Organisation for Economic Co-operation and Development - OECD Working Party on Biotechnology, Nanotechnology and Converging Technologies, Senior Policy Analyst and Secretary of the Working Party on Bio-, Nano- and Converging Technology (BNCT) (7 January 2021). Suggested inputs from SIENNA would be useful in the OECD meeting 2021 May meeting looking at (i) building capacity for a deliberative society, (ii) private sector stewardship, and (iii) brain data. Discussed issue of hype and how this impacts on perceptions of neural technologies, including for human enhancement technologies with a member of the Neuronal Networks of Memory Lab.

Table 6: Human enhancement key outputs/assets and activities planned/undertaken

4.2.3 AI and Robotics

AI and robotics buy-in activities focused on a number of results such as the socio-economic impact assessment, the legal and human rights analysis, the ethical analysis and the multi-stakeholder strategy and practical tools for ethical AI and robotics. The buy-in activities targeted stakeholders at the international, regional (EU) and national levels both in the development and review of proposals. One key achievement was the seven consultation activities that SIENNA was able to participate in, providing input to several policy-making processes (see Annex 2).

Output/ Asset	Activities planned/undertaken
D4.1 : State-of-the-art Review: Artificial Intelligence and robotics	<ul style="list-style-type: none"> Feeding into public/policy consultations. Referenced/linked on Berkman Klein Centre website.⁴⁰
D4.2 Analysis of the legal and human rights requirements for AI and robotics in and outside the EU	<ul style="list-style-type: none"> Peer-reviewed publication on legal issues of AI and human rights. Fed into public/policy consultations (see Annex 2). Report sent to AI HLEG. Citation in “European framework on ethical aspects of artificial intelligence, robotics and related technologies”, by the DG for Parliamentary Research Services at the European Parliament (September 2020). Used and referenced in SHERPA work on regulatory options and Terms of Reference for EU Agency for AI

⁴⁰ Bavitz, Christopher, Adam Holland, Andrea Nishi, “Ethics and Governance of AI and Robotics. A Contribution to the SIENNA Project”, 23 February 2021. <https://cyber.harvard.edu/story/2021-02/ethics-and-governance-ai-and-robotics>



Output/ Asset	Activities planned/undertaken
	<ul style="list-style-type: none"> ● Report and national study for USA⁴¹ referenced/linked on Berkman Klein Centre website.⁴²
D4.3 Survey of REC approaches and codes for Artificial Intelligence & Robotics	<ul style="list-style-type: none"> ● Ethics and Governance of AI and Robotics: A survey and sampling of relevant professional ethics codes (USA), August 2019 - referenced on Berkman Klein Centre website.⁴³
D4.4 Ethical Analysis of AI and Robotics Technologies	<ul style="list-style-type: none"> ● Fed into public/policy consultations. ● Chapter on philosophical and ethical aspects for edited volume on <i>AI in Medicine</i> (Springer Nature). (forthcoming). ● Ethics and Governance of AI and Robotics: A survey and sampling of academic articles and “popular” news and media (USA) April 2019 - referenced on Berkman Klein Centre website.⁴⁴
D5.4: Multi-stakeholder Strategy and Practical Tools for Ethical AI and Robotics	<ul style="list-style-type: none"> ● Multi-Stakeholder strategies for ethical AI Workshop on 9-10 September 2020 with experts, ALLEA, EC representatives and MEP, members of IEEE Global Initiative for Ethical Considerations and Robotics and Automation Society, Big Data Value Association, Council of European Professional Informatics Societies, National Pilot Committee for Digital Ethics (CNPEN). ● Brandt Dainow (University of Twente) is a member of IEEE Global Initiative for Ethical Considerations in the Design of Autonomous Systems Working Group.

⁴¹ Bavitz, Christopher, Adam Holland, Andrea Nishi, “Ethics And Governance of AI And Robotics . A Survey And Legal Analysis Of Existing United States Law And Regulation”, December 2018.

https://cyber.harvard.edu/sites/default/files/2021-02/SIENNA%20US%20report_4-2_FINAL_0.pdf

⁴² <https://cyber.harvard.edu/story/2021-02/ethics-and-governance-ai-and-robotics>

⁴³ Bavitz, Christopher, Adam Holland, “Ethics and Governance of AI And Robotics. A Survey and Sampling of Relevant Professional Ethics Codes”, August 2019. https://cyber.harvard.edu/sites/default/files/2021-02/SIENNA%20US%20Report_4-3_FINAL.pdf

⁴⁴ Bavitz, Christopher, Adam Holland, “Ethics and Governance Of AI and Robotics. A Survey and Sampling of Academic Articles and “Popular” News And Media”, April 2019.

https://cyber.harvard.edu/sites/default/files/2021-02/SIENNA%20US%20report_4-4_FINAL2.pdf



Output/ Asset	Activities planned/undertaken
	<ul style="list-style-type: none"> ● Liaison with ForHumanity via University of Twente.⁴⁵ ● EUREC Office will share with its Network and on the ENERI website and e-community. ● TRI meeting on 14 June 2021 to explore potential of using work in upcoming ISO, CEN/CENELEC, IEEE standards.
<p>D5.6 Recommendations for the enhancement of the existing legal frameworks for genomics, human enhancement, and AI and robotics</p>	<ul style="list-style-type: none"> ● Rowena Rodrigues (Trilateral Research Ltd) attended the Forum Europe and Workday, online event <i>The Governance of AI - Developing a Global Eco-System of Trust</i> on 21 Jan. 2021. Post-event tweet of policy brief.⁴⁶ ● Policy briefs prepared for EU and national-levels and shared with policy-makers and deposited in Zenodo. The EU-level brief was emailed to EU policy making institutional contacts (European Commission, European Parliament, AIDA secretariat, EU Agency for Fundamental Rights (FRA), the European Data Protection Board (EDPB) and the European Data Protection Supervisor (EDPS).⁴⁷ The national brief was emailed to policy makers in 39 countries.
<p>Multi-Stakeholder Strategy for Ethical AI and Robotics</p>	<ul style="list-style-type: none"> ● Joint feedback and buy-in meeting with John Havens (IEEE, ethically aligned design), Rene von Schomberg (European Commission), Charlotte Stix (AI-HLEG coordinator) and Catherine Tessier (Onera) ● Was shared and discussed with panellists from European Parliament, Council of Europe, The Ethical Tech Society and Google in preparation for the STOA workshop. ● Will be taken up in the SHERPA project.
<p>Ethics by Design and Ethics of Use for AI and Robotics</p>	<ul style="list-style-type: none"> ● Public consultation 11-25 January 2021. ● Ethics by Design presented at RABB conference on AI in Society, North Carolina University, 19 Feb. 2021. Presentation recorded and added to SIENNA YouTube channel. To be followed by paper in a special issue of Journal of AI and Society, published Q4 2021. ● Ethics by Design to be presented at CEPE/IACAP⁴⁸ Joint Conference 2021, Hamburg University. Possible publication of paper in special topic journal, to be announced. ● Training on Ethics by Design for AI projects in Horizon Europe at the European Commission on 4 March 2021 and for external ethics experts on 5 March 2021.

⁴⁵ <https://www.forhumanity.center/>

⁴⁶ <https://twitter.com/RRodriguesTRI/status/1352272684663631874>

⁴⁷ Special Committee on Artificial Intelligence in a Digital Age.

⁴⁸ CEPE (Computer Ethics Philosophical Enquiry). International Association for Computing and Philosophy (IACAP).



Output/ Asset	Activities planned/undertaken
Industry Education and Buy-In for AI Ethics	<ul style="list-style-type: none"> Public consultation 11-25 January 2021.
Research ethics guidelines for Artificial Intelligence	<ul style="list-style-type: none"> Presented to EUREC members at SIENNA Workshop on 26-27 October 2020. Contributed to the ethics self-assessment process for AI projects funded by Horizon Europe.
AI Ethics Education, Training and Awareness Raising	<ul style="list-style-type: none"> Public consultation 11-25 January 2021.
Ethics as Attention to Context: Recommendations for AI Ethics	<ul style="list-style-type: none"> Public consultation 11-25 January 2021. Essay on <i>Ethics as attention to context: recommendations for the ethics of artificial intelligence</i>, led by Trilateral Research published in Open Research Europe (March 2021).⁴⁹
Ethics self-assessment process for AI projects applying under Horizon Europe and Ethics by design guidelines for Horizon Europe funded AI projects	<ul style="list-style-type: none"> Shared with European Commission - Ethics and Research Integrity Sector. Training on 4 March 2021 for European Commission staff and on 5 March 2021 for European Commission external ethics experts.
AI and robotics (general results)	<ul style="list-style-type: none"> Entry for SIENNA submitted to the ITU AI repository in January 2021. EU call: Horizon-CL4-2021-Human-01-24 on AI biases refers to SIENNA, SHERPA, PANELFIT, TechEthos results - Trilateral Research will collaborate in this call.

Table 7: AI and robotics key outputs/assets and activities planned/undertaken

4.2.4 General

This section outlines activities planned/undertaken for general SIENNA outputs/assets.

Output/ Asset	Activities planned/undertaken
D5.1 Elements to diversify and complement guidance documents for research ethics committees: Insights from SIENNA	<ul style="list-style-type: none"> SIENNA workshop with EUREC members on 26-27 October 2020 exploring needs for new guidance documents for research ethics for the 3 technology areas. EUREC Office will refine and use this work together with a working group established within the EUREC network on ethical reviews of research projects outside biomedical research.
D6.1 Methods for ethical analysis of emerging technologies	<ul style="list-style-type: none"> Will be used in TechEthos.

⁴⁹ Resseguier, A. and R. Rodrigues, "Ethics as attention to context: recommendations for the ethics of artificial intelligence [version 1; peer review: awaiting peer review], *Open Research Europe* NaN, 1:27, March 2021. <https://doi.org/10.12688/openreseurope.13260.1>



Output/ Asset	Activities planned/undertaken
Proposal for socio-economic impact assessment (SEIA) for new and emerging technologies (D6.1)	<ul style="list-style-type: none"> ● TRI will further refine and use the SEIA methodology in its work. ● Peer-reviewed publication planned.
D6.2 Adapting methods for legal analysis of emerging technologies	<ul style="list-style-type: none"> ● Will be used in TechEthos. ● Peer-reviewed publication planned by HFHR. ● Will be prescribed as reading by Tilburg University for their course on AI governance (100 students, LLM level).
D6.3: Methods for translating ethical analysis into instruments for the ethical development and deployment of emerging technologies	<ul style="list-style-type: none"> ● EUREC office will further refine and use this work together with a working group established within the EUREC network on ethical reviews of research projects outside biomedical research. ● TRI will use the policy engagement analysis and tips to support its work with policy-makers.
D6.4: Methodology to help public research funding organisations reconcile the views and interests of scientists and citizens	<ul style="list-style-type: none"> ● Meetings. ● Workshop. ● Open webinar held on 5 March 2021 with public research funding and Trilateral Research staff.⁵⁰
SIENNA results	<ul style="list-style-type: none"> ● Uploaded to Zenodo (indexed in OpenAire). ● EUREC Office to share results with EUREC network, ENERI e-community and integrate in the ENERI decision tree.⁵¹ ● SIENNA entry on RRI Tools website updated; results added for better visibility in RRI community.⁵² ● Members of Anthropotechnie⁵³ wrote a blog on SIENNA response to CNPEN.⁵⁴ ● Discussions held with Adam Marek, short stories writer, commissioned to write a fiction on AI for the JUST AI project.⁵⁵ The story was discussed on 3 March 2021 in an online Evening Salon where Yasemin J Erden was a panelist and was attended by Nicole Santiago and Rowena Rodrigues. SIENNA work on ethical analysis of

⁵⁰ <https://www.youtube.com/watch?v=-rcCHCNw2QI>

⁵¹ ENERI Decision Tree. <https://eneri.eu/decision-tree/>

⁵² RRI Tools, "SIENNA - Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact. <https://rri-tools.eu/-/sienna-stakeholder-informed-ethics-for-new-technologies-with-high-socio-economic-and-human-rights-impact>

⁵³ AnthroTechnie. <http://www.anthropotechnie.com>

⁵⁴ AnthroTechnie, "Réduire l'anthropomorphisme des chabots". <https://www.anthropotechnie.com/reduire-lanthropomorphisme-des-chabots/>

⁵⁵ Ada Lovelace Institute, "JUST AI". <https://www.adalovelaceinstitute.org/just-ai/>



Output/ Asset	Activities planned/undertaken
	<p>AI and robotics was also acknowledged.⁵⁶</p> <ul style="list-style-type: none"> ● SIENNA featured in TRI meeting with INOVA+ which coordinates the STARTS ecosystem⁵⁷, on 3 March 2021; INOVA+ was invited to the SIENNA final conference. ● Publicised via SIENNA final conference: 10-12 March 2021. ● SIENNA is co-organiser of the online STOA Workshop on Policy options for the ethical governance of disruptive technologies (online event), 23 March 2021;⁵⁸ Coordinator Philip Brey participated in the Interactive Panel III: <i>Beyond AI - Ethics and human rights implications of emerging technologies</i>. ● Publicity actions via social media, newsletters, website and blogs.⁵⁹ ● ⁶⁰⁶¹

Table 8: Other key outputs/assets and activities planned/undertaken

In addition to these, for impact of SIENNA results and use in other research and publications see Annex 3.

4.2.5 Collaboration with other projects

SIENNA collaborated with a number of projects during its lifetime through its various activities (e.g., workshops, report reviews, consultations, meetings). Listed below are key projects that we worked with to get buy-in, give publicity more widely for our results and build sustainability. They are also multipliers of impact and support sustainability.

Project	Activities undertaken
AVEthics project (French National Research Agency, 2017-2021)	<ul style="list-style-type: none"> ● Dr Ebru Dogan (coordinator) reviewed part of D5.4.
Configuring ethical AI in healthcare (funded by the Wellcome Trust)	<ul style="list-style-type: none"> ● Anais Resseguier, Trilateral Research, took part in an online workshop (25 March 2021) to explore and reflect on the stories that figure and shape ethical AI in healthcare and to co-create alternative ones.

⁵⁶ Ada Lovelace Institute, “Almost future AI”. <https://www.adalovelaceinstitute.org/event/almost-future-ai-2/>

⁵⁷ S+T+ARTS. <https://www.starts.eu>

⁵⁸ European Parliament STOA, “Policy options for the ethical governance of disruptive technologies (online event)”, 23 March 2021. <https://www.europarl.europa.eu/stoa/en/events/details/policy-options-for-the-ethical-governanc/20210303WKS03282>

⁵⁹ See interim and final reports on SIENNA dissemination and communications activities.

⁶¹ <https://embassy.science/wiki/Theme:5682ba3d-ab7d-42e7-8a3a-684360ee216b>



Project	Activities undertaken
Ethically Aligned Design (IEEE)	<ul style="list-style-type: none"> ● Regular interaction with IEEE leaders on our and their strategy and approach. IEEE leaders were included in our Scientific Advisory Board.
Ethics of Socially Disruptive Technologies	<ul style="list-style-type: none"> ● Collaboration on joint framework for key emerging technologies ● ESDT, a programme with 50 researchers, that runs 2020-2029 (coordinator: Philip Brey) will be taking up SIENNA results in the future
Human Brain Project	<ul style="list-style-type: none"> ● Brandt Dainow, University of Twente was a discussant in the Human Brain Project open webinar with SIENNA & SHERPA: Trust and Transparency in Artificial Intelligence on 30 March 2021.⁶² ● Synergies between the project's communications strategies as Josepine Fernow (SIENNA WP7 lead) takes on the role as communications manager for the Human Brain Project's work package on responsible research and innovation.
HYBRIDA (SWAFS 28 2020)	<ul style="list-style-type: none"> ● Meeting held (Rowena Rodrigues and Anais Resseguier, Trilateral Research, Philip Brey, University of Twente) with coordinator Professor Jan Helge Solbakk (University of Oslo) and Panogiatis Kavouras (Nal Tech Uni of Athens) on 15 February 2021. ● HYBRIDA has consulted SIENNA results (especially from the genomics workstream) and will continue to do so . ● SIENNA shared project introduction slides, links to results, and final conference details. ● Plans discussed and agreed: HYBRIDA will approach SIENNA for further meetings with our partners leading relevant work e.g., genomics (Uppsala University); follows on social media; sign up to newsletter; HYBRIDA to send SIENNA a short item about their kick-off, SIENNA to share on website about our collaboration and HYBRIDA launch; HYBRIDA will interview Philip Brey (expert interview, HYBRIDA WP3).
NANOFABNET	<ul style="list-style-type: none"> ● Meeting held on 21/12/20 with Fernand Doridot, Center for Ethics, Technics and Society (CETS), ICAM of Lille (Engineering School). ● NANOFABNET introduced to SIENNA; both follow each other on social media. ● Links to project results shared. ● Anais Resseguier (Trilateral Research) attended and presented at NANOFABNET development workshop on 21 Jan 2021. ● Fernand Doridot participated in the SIENNA Workshop "Enhancing Methods for Ethical and Legal Analysis of Emerging Technologies" online on 15 Jan 2021.

⁶² Human Brain Project, SIENNA & SHERPA, "Trust and Transparency in Artificial Intelligence", Webinar, 30 March 2021. <https://uu-se.zoom.us/meeting/register/u5AoceCgpzwtH9NKxAGHFluVBfEJBPfkvPK5>



Project	Activities undertaken
	<ul style="list-style-type: none"> ● NANOFABNET publicised the SIENNA public consultation.⁶³
PANELFIT	<ul style="list-style-type: none"> ● Close collaboration via dissemination and communications activities e.g., joint video⁶⁴, joint webinar⁶⁵, publicity via websites⁶⁶, review of reports, joint editorial about the projects, their scopes, overlaps and potential for synergies.⁶⁷ ● Joint event with STOA, 23 March 2021.
PREFER	<ul style="list-style-type: none"> ● Strategy for an upcoming public consultation in the Innovative Medicines Initiative PREFER project will build on lessons learned from SIENNA.
SHAPE-ID⁶⁸	<ul style="list-style-type: none"> ● Anais Resseguier (Trilateral Research) participated in a workshop organised by the project on AI4Good on 19 Oct 2020. ● SHAPE-ID included a case-study of SIENNA in their toolkit.⁶⁹
SHERPA	<ul style="list-style-type: none"> ● Transfer of SHERPA results on ethics guidelines for SIS for further development in SIENNA. ● Close collaboration via dissemination and communications activities e.g., joint video⁷⁰, joint webinar⁷¹, publicity via websites⁷², review of reports, joint editorial about the projects, their scopes, overlaps and potential for synergies.⁷³ ● SHERPA & SIENNA “Ethics by Design” track at the 4TU Ethics Biannual Conference on 7-8 November 2019 (call for abstracts published). ● Use of SIENNA legal analysis results in SHERPA D3.3, D3.6 ● Joint event with STOA, 23 March 2021. ● SHERPA and SIENNA joint membership in ISO working group ● Webinar on 30 March 2021 presenting the Human Brain Project’s opinion on AI, with discussants from both SHERPA and SIENNA.⁷⁴ ● SHERPA will further develop and do buy-in and training for Ethics by Design for AI, Ethics Assessment methodologies developed in SIENNA, the multistakeholder strategy for AI, and teaching and training proposals for AI
SUaaVE project (H2020,	<ul style="list-style-type: none"> ● Dr Ebru Dogan reviewed part of SIENNA D5.4.

⁶³ NanoFabNet, “SIENNA Project Hosts Public Consultation on Ethics in AI & Robotics”, 19 January 2021.

<https://www.nanofabnet.net/sienna-project-hosts-public-consultation-on-ethics-in-ai-robotics/>

⁶⁴ <https://www.youtube.com/watch?v=ISFECdCmfow&feature=youtu.be>

⁶⁵ <https://www.youtube.com/watch?v=awgHZVMDyfw>

⁶⁶ PANELFIT, “H2020 Sister Projects”. <https://www.panelfit.eu/h2020-sisters-projects/>

⁶⁷ <http://uu.diva-portal.org/smash/get/diva2:1335841/FULLTEXT01.pdf>

⁶⁸ SHAPE-ID. <https://www.shapeid.eu>

⁶⁹ <https://www.shapeidtoolkit.eu/case-studies/>

⁷⁰ <https://www.youtube.com/watch?v=ISFECdCmfow&feature=youtu.be>

⁷¹ <https://www.youtube.com/watch?v=awgHZVMDyfw>

⁷² PANELFIT, “H2020 Sister Projects”. <https://www.panelfit.eu/h2020-sisters-projects/>

⁷³ <http://uu.diva-portal.org/smash/get/diva2:1335841/FULLTEXT01.pdf>

⁷⁴ <https://www.sienna-project.eu/robotics/news/news-item/?tarContentId=935104>



Project	Activities undertaken
<p>2019-2022)⁷⁵</p> <p>TAILOR - Trustworthy Artificial Intelligence in European Law Enforcement (proposal had not received funding at the time of the meeting)</p>	<ul style="list-style-type: none"> • Anais Resseguier, Trilateral Research, participated in a break-out session organised by partners of the TAILOR consortium on 19 Oct 2020 and presented the SIENNA survey and panel studies.
<p>TechEthos (SWAFS 29 2020)</p>	<ul style="list-style-type: none"> • SIENNA spotlighted at TechEthos Kick off Meeting (in relevant discussions e.g., policy, law, ethics). • TechEthos-SIENNA meeting held on 23 February 2021 and actions agreed. Presented here were: overview of SIENNA and key results of relevance to TechEthos, an overview of TechEthos and how it connects with SIENNA, SIENNA methods and proposals for ethics of emerging technologies, SIENNA methods and proposals for ethics of emerging technologies, Policy and legal insights: update on work on 11.20 generalised methodology and Challenges for the governance of new technologies: a discussion (drawing from SIENNA and TechEthos). SIENNA partners University of Twente, Trilateral Research, EUREC Office gUG, University of Granada and Helsinki Foundation for Human Rights participated in the meeting. • TechEthos-SIENNA meeting dissemination and communications teams meeting held on 1 March 2021 to discuss strategies, lessons learnt. Agreed actions included: sharing of editorial content, social media copy by TechEthos with SIENNA before project end, SIENNA sharing opt-in to TechEthos newsletter to its subscribers; introductions to TechEthos at the SIENNA final event (10-12 March 2021) and on website.⁷⁶ • Results transfer to TechEthos repository

Table 9: Project collaborations

Of the above projects, SHERPA, TechEthos and HYBRIDA are key partners in taking on board results and important for SIENNA legacy. We also expect that the other projects not described above, but funded under Horizon Europe, especially under the WIDERA umbrella, will be significant in terms of carrying forward the SIENNA legacy. This will be facilitated by partners from the SIENNA consortium by forming new consortia and submitting proposals.

4.2.6 The STOA Workshop

On 23 March 2021, the European Parliament Panel for the Future of Science and Technology (STOA) along with SIENNA, SHERPA and PANELFIT, organised a workshop on *'Policy options for the ethical*

⁷⁵ SUaaVE. <http://www.suaave.eu>

⁷⁶ Polo, Nuala, "TechEthos: New project using ethics to shape technology of the future", SIENNA website, 26 March 2021. <https://www.sienna-project.eu/news/news-item/?tarContentId=938676>



governance of disruptive technologies (online event)'.⁷⁷ The workshop sought to identify which issues and challenges of AI are in need of particular attention, discuss ways to address those challenges and build on what was learned to better prepare for the next wave of scientific and technological advances, and ensure that these are beneficial to society and their risks are addressed early. The SIENNA panel focussed on 'Beyond AI - Ethics and human rights implications of emerging technologies. The event was significant for developing and building SIENNA legacy – the audience was familiarised with the project and its role in ethics and regulation of new technologies, what it achieved and its directions and actively directed to the project's results (which resulted in an increase in viewership and downloads for many of our reports and policy briefs). Over 200 people were in the online workshop and the event was also live-streamed.

4.2.7 Summary

To summarise, SIENNA key exploitation routes for its results included:

- Use in further work and research in SIENNA and related projects, new proposals (including Horizon Europe).
- Use in publications and communications
- Use in trainings
- Use in policy briefs and public consultation activity.

Our key sustainability achievements so far included:

- Good visibility of results via open access to reports on SIENNA website and Zenodo, partner websites, publications, and citations in related research
- Buy-in for our proposals via SIENNA consultation activities, webinars, meetings with organisations and projects, presentations at third-party events
- Contributions to AI and robotics policy public consultations
- Delivery of policy briefs related to results for international, EU and national policy-makers to ensure use of results and findings in addressing ethics and human rights concerns
- Delivery of trainings (e.g., ethical requirements, ethics by design) to the European Commission in human enhancement and AI and robotics
- Contribution to the ethics self-assessment process for AI projects funded by Horizon Europe.
- Collaboration in related projects such as SHERPA, PANELFIT and TechEthos and new proposals under Horizon Europe to ensure use of results, methodologies, and lessons learnt.

5. Conclusion

This report formulated a sustainability plan for SIENNA to help ensure the project and its results leave a long-lasting legacy. It presented strategies and actions to promote the project's legacy beyond the project's timespan for the project's ethical legal and policy proposals, other research outputs and networks developed during the project's stakeholder engagement activities. The SIENNA legacy will foster the implementation of high ethics and human rights standards at the EU and international level

⁷⁷ European Parliament STOA, "Policy options for the ethical governance of disruptive technologies (online event)", 23 March 2021. <https://www.europarl.europa.eu/stoa/en/events/details/policy-options-for-the-ethical-governanc/20210303WKS03282>



for the three technologies and inspire and provide methodological insights for the study of other new and emerging technologies.

While there were some challenges to the legacy building and sustainability work, SIENNA was able to take significant actions by leveraging its stakeholders, networks, events, related projects, building new relationships, and dissemination and communication activities to increase uptake and build sustainability for its research, proposals and generalised methodologies – some of these actions, as shown in this report, have already occurred during the project and many will continue after its end.

The SIENNA partners are well-invested in ensuring the SIENNA legacy lives on via their research, education, policy and training activities. We particularly expect good impact via use of our results and proposals in Horizon Europe (e.g., AI ethics self-assessment, human enhancement guidelines, ethics by design). This will ensure its legacy will continue beyond March 2021.



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Annex 1 Sustaining outputs via open access: Zenodo and indexing in OpenAire

SIENNA reports have been deposited in Zenodo and are indexed via OpenAire.⁷⁸ Note, as of 31 March 2021, some reports were awaiting European Commission approval and/or are under embargo due to publication plans and will be duly deposited in Zenodo. Note, the figures below reflect the good publicity and visibility that our results deposited before these events got from the SIENNA final event (10-12 March 2021) and the STOA workshop on 23 March 2021.

Output	DOI Link	Views and downloads (as of 30 March 2021)
SIENNA D1.1: The consortium's methodological handbook	https://doi.org/10.5281/zenodo.4247384	139 views, 127 downloads
SIENNA D2.1: State of the art review of human genomic technologies	https://doi.org/10.5281/zenodo.4067912	119 views, 114 downloads
SIENNA D3.1: State-of-the-art Review: Human Enhancement	https://doi.org/10.5281/zenodo.4066557	341 views, 268 downloads
SIENNA D4.1: State-of-the-art Review: Artificial Intelligence and robotics	https://doi.org/10.5281/zenodo.4066571	180 views, 150 downloads
SIENNA D2.2 Analysis of the legal and human rights requirements for genomics in and outside the EU	https://doi.org/10.5281/zenodo.4066659	110 views, 111 downloads
SIENNA D3.2: Analysis of the legal and human rights requirements for Human Enhancement Technologies in and outside the EU	https://doi.org/10.5281/zenodo.4066617	159 views, 133 downloads
SIENNA D4.2: Analysis of the legal and human rights requirements for AI and robotics in and outside the EU	https://doi.org/10.5281/zenodo.4066812	248 views, 246 downloads
SIENNA D2.3: Survey of REC approaches and codes for genomics	https://doi.org/10.5281/zenodo.4066865	71 views, 59 downloads
SIENNA D3.3: Survey of REC approaches and codes for human enhancement	https://doi.org/10.5281/zenodo.4066874	88 views, 59 downloads

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Output	DOI Link	Views and downloads (as of 30 March 2021)
SIENNA D4.3: Survey of REC approaches and codes for Artificial Intelligence & Robotics	https://doi.org/10.5281/zenodo.4067990	153 views, 137 downloads
SIENNA D2.4: Ethical Analysis of Human Genetics and Genomics	https://doi.org/10.5281/zenodo.4068016	129 views, 102 downloads
SIENNA D3.4: Ethical Analysis of Human Enhancement Technologies	https://doi.org/10.5281/zenodo.4068071	371 views, 256 downloads
SIENNA D4.4: Ethical Analysis of AI and Robotics Technologies	https://doi.org/10.5281/zenodo.4068083	303 views, 251 downloads
SIENNA D2.5: Public views on genetics, genomics and gene editing in 11 EU and non-EU countries	https://doi.org/10.5281/zenodo.4081155	68 views, 68 downloads
SIENNA D3.5: Public views of human enhancement technologies in 11 EU and non-EU countries	https://doi.org/10.5281/zenodo.4068194	288 views, 181 downloads
SIENNA D4.5 Public views on artificial intelligence and robots across 11 EU and non-EU countries	https://doi.org/10.5281/zenodo.4068220	557 views, 312 downloads
SIENNA D2.6: Qualitative research exploring public attitudes to human genomics	https://doi.org/10.5281/zenodo.4081178	46 views, 40 downloads
SIENNA D3.6: Qualitative research exploring public attitudes to human enhancement technologies	https://doi.org/10.5281/zenodo.4081193	105 views, 75 downloads
SIENNA D4.6: Qualitative research exploring public attitudes to AI and robotics	https://doi.org/10.5281/zenodo.4081247	499 views, 103 downloads
SIENNA D5.6: Recommendations for the enhancement of the existing legal frameworks for genomics, human enhancement, and AI and robotics	https://doi.org/10.5281/zenodo.4121082	281 views, 186 downloads
SIENNA D3.7: Proposal for an ethical framework for human enhancement	https://doi.org/10.5281/zenodo.4275579	88 views, 75 downloads
SIENNA D7.1: Press release	https://doi.org/10.5281/zenodo.4633541	8 views, 6 downloads
SIENNA D7.2: Website launch	http://doi.org/10.5281/zenodo.4633557	6 views, 6 downloads



Output	DOI Link	Views and downloads (as of 30 March 2021)
SIENNA D7.3: Communication and dissemination plan	https://doi.org/10.5281/zenodo.4633743	9 views, 6 downloads
SIENNA D7.4: Interim report on communications	https://doi.org/10.5281/zenodo.4633747	7 views, 6 downloads
SIENNA D7.5: Final report on communications	https://doi.org/10.5281/zenodo.4727114	Uploaded on 29 April 2021
Policy briefs and national summaries		
Enhancing EU legal frameworks for AI & robotics. SIENNA project Policy Brief #1	https://doi.org/10.5281/zenodo.4332661	425 views, 200 downloads
Enhancing EU legal frameworks for genetics & genomics research SIENNA project. Policy Brief #2	https://doi.org/10.5281/zenodo.4554977	162 views, 101 downloads
Responsible AI and robotics: Enhancing national legal frameworks. SIENNA project Policy Brief #3	https://doi.org/10.5281/zenodo.4545804	101 views, 78 downloads
Ethics & human rights for new and emerging technologies. SIENNA project Policy Brief #4	http://doi.org/10.5281/zenodo.4590094	185 views, 132 downloads
Promoting ethics for human enhancement technologies. SIENNA project Policy Brief #5	https://doi.org/10.5281/zenodo.4633510	169 views, 90 downloads
Genética y genómica humana Mejora del marco jurídico de España Resumen y recomendaciones	https://doi.org/10.5281/zenodo.4633448	13 views, 11 downloads
Inteligencia artificial y robótica. Cómo mejorar el marco legal en España	https://doi.org/10.5281/zenodo.4633470	44 views, 15 downloads
Human Genetics and Genomics Law in China	https://doi.org/10.5281/zenodo.4633486	12 views, 11 downloads
National legal reports: AI and robotics		
Law, AI and robotics: UK country report	http://doi.org/10.5281/zenodo.4290204	13 views, 9 downloads
Law, AI and robotics: France country report	http://doi.org/10.5281/zenodo.4518852	8 views, 8 downloads
Law, AI and robotics: USA country report	http://doi.org/10.5281/zenodo.4518858	11 views, 7 downloads
Law, AI and robotics: Brazil country report	http://doi.org/10.5281/zenodo.4518881	27 views, 10 downloads



Output	DOI Link	Views and downloads (as of 30 March 2021)
Law, AI and robotics: Germany country report	http://doi.org/10.5281/zenodo.4519115	13 views, 10 downloads
Law, AI and robotics: Spain country report	http://doi.org/10.5281/zenodo.4541585	12 views, 13 downloads
National legal reports: genetics and genomics		
Legal Overview Human Genetics and Genomics: BRAZIL	http://doi.org/10.5281/zenodo.4518887	33 views, 8 downloads
Legal Overview Human Genetics and Genomics: France	http://doi.org/10.5281/zenodo.4518908	7 views, 7 downloads
Legal Overview Human Genetics and Genomics: Germany	http://doi.org/10.5281/zenodo.4519067	7 views, 6 downloads
Legal Overview Human Genetics and Genomics: UK	https://doi.org/10.5281/zenodo.4569895	7 views, 6 downloads
Legal Overview Human Genetics and Genomics: Spain	https://doi.org/10.5281/zenodo.4569922	7 views, 4 downloads
National legal reports: human enhancement technologies		
Legal aspects of human enhancement technologies: Germany	http://doi.org/10.5281/zenodo.4519136	10 views, 8 downloads
Legal aspects of human enhancement technologies: UK	http://doi.org/10.5281/zenodo.4519179	8 views, 6 downloads
Legal aspects of human enhancement technologies: France	https://doi.org/10.5281/zenodo.4569534	7 views, 5 downloads
Legal aspects of human enhancement technologies: Brazil	https://doi.org/10.5281/zenodo.4569540	34 views, 16 downloads
Legal aspects of human enhancement technologies: Spain	https://doi.org/10.5281/zenodo.4569561	5 views, 4 downloads
Guidance documents		
Ethical guidance for research with a potential for human enhancement	http://doi.org/10.5281/zenodo.4783068	Uploaded 24 May 2021

Annex 2 Public consultations

SIENNA provided inputs to the following public consultations on AI regulation and ethics.



Topic	Organisation	Response lead	Date	Link (if available)
Draft report with recommendations to the Commission on a framework of ethical aspects of artificial intelligence, robotics and related technologies (2020/2012(INL))	European Parliament JURI Committee	Trilateral Research (with SHERPA)	May 2020	https://www.sienna-project.eu/digitalAssets/883/c_8_83282-l_1-k_feedback-from-the-sienna-sherpa-projects_ep_ai-regulation_final_22-may.pdf
White Paper on Artificial Intelligence - A European Approach to excellence and trust	European Commission	Helsinki Foundation for Human Rights	June 2020	https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12270-White-Paper-on-Artificial-Intelligence-a-European-Approach/public-consultation
Recommendation on AI ethics	UNESCO	University of Twente	July 2020	https://www.sienna-project.eu/news/news-item/?tarContentId=888660 Note, many SIENNA suggestions can be found the updated draft. ⁷⁹
Inception Impact Assessment on the proposal for a legal act for artificial intelligence	European Commission	Trilateral Research	September 2020	https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12527-Requirements-for-Artificial-Intelligence/F550986
Ethics issues of conversational agents	French National Pilot Committee for Digital Ethics (CNPEN)	Trilateral Research	October 2020	https://www.sienna-project.eu/digitalAssets/902/c_9_02358-l_1-k_sienna-response_cnpen-chatbots_30-oct.pdf

⁷⁹ E.g., There is now much more explicit and frequent mention of human rights [*we recommended stronger and clearer language on human rights, and clarification that HR distinct from ethical values*]; “Do No Harm” has been added as the first principle [*we recommended adding the principle of non-maleficence*]; Trustworthiness is no longer an explicit ‘value’ with its own section [*we recommended not using the term*]; Ethical impact assessments have been moved to the first policy action and are no longer limited to labour-related impacts [*we recommended calling for a broader perspective on socio-economic impacts, not limited to concerns in labour market*]; Mentioned need for cross-collaboration between technical/scientific and SSH when developing AI ethics curricula (para 107) [*we recommended cross collaboration*]; a recommendation has been added on redress mechanisms [*we recommended adding this recommendation*]; there is more mention of broader stakeholder consultation [*we recommended*].



Topic	Organisation	Response lead	Date	Link (if available)
Draft Policy Guidance on AI for Children	UNICEF	Trilateral Research	October 2020	https://www.sienna-project.eu/digitalAssets/902/c_902450-l_1-k_unicef-policy-guidance-ai-children_sienna-response.pdf Three points in the summary of responses reflect what we wrote. ⁸⁰
Draft General Comment No. 25 on children's rights in relation to the digital environment	UN Committee on the Rights of the Child	Trilateral Research	November 2020	https://www.ohchr.org/EN/HRBodies/CRC/Pages/GCChildrensRightsRelationDigitalEnvironment.aspx

⁸⁰ 1) "Consider the different realities of children"; (2) "We were also asked to consider the physical impact of AI on children, from their interaction with robots to the effects of (extended use of screens and tablets."; (3) "Look at the bigger picture: Respondents also urged us to look at the bigger picture. AI does not exist in a vacuum, and most interactions children will encounter are mediated through interfacing systems. So guidance needs to include, or be extended to, other technologies and digital platforms").



Annex 3 SIENNA citations and use in other research and policy reports

Title of the citing report/project	What was referenced from SIENNA	Link
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State of the art of regulation, standardization and ethics (2018) (Project ORCHID)	Ethical impact assessment	https://h2020-orchid.eu/wp-content/uploads/2018/11/D51-State_of_art_RSE-PU-v1.0.pdf/
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