TECHETHOS

FUTURE ○ TECHNOLOGY ○ ETHICS

Scan of publicly available results of other EU funded research ethics (RE) and research integrity (RI) projects regarding their relevance for the work in TechEthos

Deliverable 6.1

Draft version submitted to the European Commission for review

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D6.1 Scan of publicly available results of other EU funded projects			
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The TechEthos Project

Short project summary

TechEthos is an EU-funded project that deals with the ethics of the new and emerging technologies anticipated to have high socio-economic impact. The project involves ten scientific partners and six science engagement organisations and runs from January 2021 to the end of 2023.

TechEthos aims to facilitate “ethics by design”, namely, to bring ethical and societal values into the design and development of new and emerging technologies from the very beginning of the process. The project will produce operational ethics guidelines for three to four technologies for users such as researchers, research ethics committees and policy makers. To reconcile the needs of research and innovation and the concerns of society, the project will explore the awareness, acceptance and aspirations of academia, industry and the general public alike and reflect them in the guidelines.

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

List of Abbreviations

Term	Explanation
DoA	Description of Action
EC	European Commission
ECoc	The European Code of Conduct for Research Integrity published by ALLEA[1]
H2020	Horizon 2020
ICT	Information communication technology
PC	Project Coordinator
RE	Research Ethics
REC	Research Ethics Committee
RFO	Research Funding Organisation
RI	Research Integrity
RRI	Responsible Research and Innovation
SIS	Smart Information System
SwafS	Science with and for Society[2]
WP	Work Package

[1] https://www.allea.org/wp-content/uploads/2017/05/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017.pdf
[2] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society

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Executive Summary

In this deliverable we report on the outcomes of TechEthos task 6.3. For this task we scanned publicly available results of other EU funded research ethics (RE) and research integrity (RI) projects regarding their relevance for the work in TechEthos. This report aims to support TechEthos partners when it comes to carrying out the individual tasks – especially tasks within WP2-WP5 – to find out which projects have done similar work already. For the relevant WPs, it lists which deliverables, tools, or other documents from other RE and RI projects funded by the EU might be useful. In the long run, this will contribute to synchronize EU projects and their outcomes as well.

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1. Introduction

In this deliverable we report on the outcomes of TechEthos task 6.3. For this task we scanned publicly available results of other EU funded research ethics (RE) and research integrity (RI) projects regarding their relevance for the work in TechEthos. Many different projects in the fields RE and RI have been funded by the European Commission (EC) so far. TechEthos will build on these results and therefore we carried out a review of all relevant projects. The objective of this review was to determine, mainly, deliverables, but also tools and policy briefs that give information on methods for ethical, legal, and social analysis of research with emerging technologies that TechEthos can expand on.

1.1 Method

Projects were selected based on their focus on ethics of new and emerging technologies. Some of the scanned projects were already defined in the call text such as SHERPA, SIENNA, PANELFIT and SATORI. The project SIENNA plays a prominent role as TechEthos is its successor and aims at complementing the work started in SIENNA. Other projects were selected from the SwafS cluster searching the Community Research and Development Information Service of the EC (CORDIS[3]) with the key words 'ethics' + 'emerging technology' + 'RRI'.

Projects that are still running and have already publicly available results on their website were scanned as well as projects that were closed in the timeframe from 2017-2021. We found 23 relevant EU-funded RE and RI projects and scanned all of them. In 15 of these projects, we found relevant results and documented them in individual scan tables. The individual scans can be found in the annex of this report.

The relevant projects had to be scanned in terms of their relevance to the work TechEthos wants to do in the different WPs and tasks. Therefore, we searched specifically for deliverables, tools and policy briefs that give information on one of the following topics:

- Ethical analysis of emerging technology research (relevant for TechEthos tasks 2.1-2.4)
- Legal analysis of emerging technology research (relevant for TechEthos 2.1-2.4 and WP4)
- Ethical impact assessment of emerging technology research (relevant for TechEthos WP2)
- Reports on experiences with technology scenarios and/or case studies (relevant for TechEthos tasks 3.1-3.3.)
- Reports on strategies for public awareness raising in the field emerging technology research (relevant for TechEthos task 3.5)
- Codes and guidelines development for research with emerging technologies (relevant for TechEthos task 5.1, task 5.2)
- Project results on the role of Research Ethics Committees (RECs) and other ethics bodies within research with emerging technologies (relevant for TechEthos task 5.3)
- Projects results on the need for a revision of the European Code of Conduct (EcoC) and/or other RI information that could be helpful when it comes to the revision of the EcoC (relevant for TechEthos task 5.4)

[3] https://cordis.europa.eu/

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1.2 Scope

One of the first steps in the TechEthos project is the selection of 3-4 most relevant emerging technologies with the highest socio-economic impact. The project partners have developed and circulated an online survey to narrow down the range of technologies. The next step in defining the most relevant 3-4 technology areas are a meeting of the Advisory and Impact Board (ADIM Board) mid of June 2021 and a workshop to discuss the final selection of the most important emerging technologies with the highest impact beginning of July 2021. Since this deliverable report is due for QA mid of June 2021, we can focus during our scan of other project results only on emerging technology research in general and not on specific technologies.

This report aims to support TechEthos partners when it comes to carrying out the individual tasks – especially tasks within WP2-WP5. For the relevant WPs, it lists which deliverables, tools or other documents from other RE and RI projects funded by the EU might be useful. In the individual tasks the partners will have enough time to have a closer look at these documents. The aim of this report is to point out the existence of the reports only and to connect them with the relevant TechEthos tasks.

2. Scan results

In this section we give a brief summary of the most important results of our scan. An overview of all the projects that we scanned and tables that list all relevant results can be found in the annex of this report in section 5.

2.1 Methodology for ethical analysis and ethics assessment

In TechEthos WP2, partners will focus on the ethical analysis of the 3-4 selected new and emerging technologies. As described in the DoA for task 2.1 a "detailed review of current approaches to ethical analysis (e.g., ATE, ETA, Future Studies) will be conducted and previous studies on the ethics of new and emerging technologies (including ETICA, SHERPA, SIENNA, PANELFIT, REELER) will be in focus"[4] (DoA).
Accordingly, a detailed review of methods for ethical analysis used by other EC funded projects will be carried out within task 2.1. Nevertheless, we have already performed a first pre-scan of methods to identify and analyse ethical issues used by other EC funded projects. Here are some highlights:

SIENNA[5]: Most relevant for the work that will be carried out for WP2 are the outcomes of the project SIENNA. SIENNA is a SwafS project that was funded by the EC for 3,5 years. The project ended on 31 March 2021. The results of the project are presented on the SIENNA website under "publications".[6] SIENNA analysed and addressed ethical issues in three new and emerging technology areas: human genomics, human enhancement, and human-machine interaction. The method for ethical analysis SIENNA used is outlined in different deliverable reports (see annex), but most useful is the report D6.1 on a "Generalised methodology for ethical assessment of emerging technologies". This report will be published on the SIENNA website and in ZENODO soon. The used methodology should be sufficiently general so that it can be fruitfully applied for different fields of emerging

[4] DoA, page 14.
[5] https://sienna-project.eu/
[6] https://sienna-project.eu/publications/

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technology research. The method builds on seven steps and attempts to be neutral with respect to different moral theories and viewpoints. The first four steps are directed at defining the subject of analysis, the aim and scope, and engaging in conceptual analysis and description. The final three steps specify the actual ethical analysis, with both descriptive and normative components. SIENNA provides in D6.1 a detailed account of each of these seven steps and illustrates the application of the methodology to different emerging technologies. The methodology makes use of methods of foresight analysis and social and environmental impact assessment (SIA), of stakeholder engagement, and methods for these processes are described in additional sections of the report. Further relevant SIENNA deliverables are listed in the annex.

SHERPA[7]: Beside the SIENNA results, also the deliverables published by the project SHERPA are relevant, when it comes to the ethical analysis in TechEthos WP2. The SHERPA project, funded by the EC from May 2018-October 2021, examines how smart information systems (SIS; the combination of artificial intelligence and big data analytics) impact ethics and human rights issues. SHERPA develops novel ways of understanding and addressing SIS challenges. A list of relevant SHERPA deliverables can be found in the annex.

SATORI[8]: Also, the SATORI project, which was closed in September 2017, published deliverables that will be useful for TechEthos when it comes to finding the right method for ethical analysis. Especially the ethical impact assessment approach developed by SATORI which is explained in the SATORI deliverable D4.1[9] is relevant, but also D1.1 on "Ethical assessment of R&I: a comparative analysis"[10] is useful.

2.2 Methodology to scan existing codes and guidelines

Within task 2.1 the TechEthos partners will carry out a brief scan of existing ethical codes and guidelines at the international level relevant to the selected technologies. This will be the basis for WP5, which has the objective to develop new or enhance existing codes and guidelines. Such scans of codes and guidelines have already been conducted by other projects and it makes sense to look into relevant results from other projects, before starting the scan within task 2.1. At this moment, without knowing the technology areas, we can highlight:

SIENNA did research to find out about already existing codes, guidelines and documents for RECs in the three fields (human enhancement, human genomics and artificial intelligence and robotics). The scan was carried out in 11 different countries. The results are presented in three deliverables, namely D2.3[11], D3.3[12] and D4.3[13].

[7] https://www.project-sherpa.eu/
[8] https://satoriproject.eu/
[9] Jansen et al., 2017.
[10] Shelley-Egan et al., 2016.
[11] Howard et al., 2019.
[12] Tambornino et al, 2019a.
[13] Tambornino et al, 2019b.

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PRO-RES[14]**:** The PRO-RES project which aims to produce a guidance framework regarding the delivery of Responsible Research and Innovation (RRI) scanned codes and guidelines and reported their work in D1.1 (Reporting on existing Codes and Guidelines).[15]

2.3 Develop and refine operational guidelines and codes

The operationalisation, complementation and revision of existing ethical frameworks plays a crucial role in Techethos. WP5 is dedicated to this task. Due to its special status the task 5.3 (*Analyse need for operational guidelines for RECs to review research and complement existing guidelines*) and task 5.4 (*Complement and inform a revision of the European code of conduct for research integrity*) will be dealt with in a separate chapter (*Enhance the system of RECs* and *Revise the EcoC*).

The most important projects are SIENNA, SHERPA and PRO-RES. But there is some informative material in the projects TRUST, SATORI and PANELFIT (sister project of SHERPA) as well.

SIENNA: Although the work is very specific on the areas of human enhancement, genomics and AI and robotics they are included here, as SIENNA was mentioned in the call explicitly. The deliverables 2.7[16], 3.7[17]. and 4.7[18] suggest ethical frameworks for the afore mentioned technologies and are relevant for the TechEthos tasks 5.1 and 5.2.
D6.1 describes a generalised methodology for ethical assessment of emerging technologies (which will be online soon). The focus is on analysis, but the document contains normative elements as well and is therefore mentioned here.
D5.6[19] gives recommendations for the enhancement of the existing legal frameworks for genomics, human enhancement, and AI and robotics. It is interesting here as the interrelations between ethics and law from the perspective of policymakers are investigated.
Last but not least the policy brief on Ethics & human rights for new and emerging technologies is relevant.[20]

SHERPA: The project developed in D3.2[21] two sets of ethical guidelines – one for the technological development and one for the use – of artificial intelligence and big data systems. This framework is on Big Data and AI but mentioned here as well due to the call. The SHERPA recommendations to policy makers should be considered here as well.

[14] https://prores-project.eu/
[15] Parder ML et al., 2019.
[16] Hansson et al., 2020.
[17] Kühler et al., 2020.
[18] Brey et al., 2020.
[19] Siemaszko et al., 2020
[20] Trilateral research Ltd., 2021.
[21] Brey et al., 2019.

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PANELFIT[22]**:** The sister project of SHERPA focuses on ICT based research and developed in D5.4 a Code of Conduct for Responsible Research and Innovation which is important for 5.1 and 5.2 of the TechEthos project. This report will be published soon on the PANELFIT website.

SATORI: The SATORI deliverable D3.1[23] comprises a report on the legal frameworks that guide or constrain ethical procedures within research in the EU and could be helpful for TechEthos task 5.1. The SATORI deliverable D3.2[24] focuses on the differences between countries in values and in the interpretation of international legal and regulatory frameworks. It is investigated what these differences may mean for the prospects of international harmonisation of ethics assessment of research and innovation.
The CEN Workshop agreement part 2[25] provides a practical, policy-oriented guide for researchers and ethics committees and is relevant for TechEthos tasks 5.1 and 5.2

PRO-RES: D1.1[26] reports on existing codes and guidelines on ethics and integrity across different disciplines and is of high relevance for TechEthos tasks 5.1 and 5.2

TRUST: The Global Ethics Code[27] to fight ethics dumping in research (with a focus on low-income countries) is important for the TechEthos deliverables 5.1 and 5.2.

e-SIDES[28]**:** The technology areas for TechEthos are not selected yet. However, it is quite likely that big data will be at least in some way in focus. Therefore, the recommendations developed by the project e-SIDES could also be relevant. They are presented in D5.2[29] developed and published by e-SIDES.

2.4 Development of ethical sensitivity tools

For TechEthos task 5.5 the partners will develop a set of ethical sensitivity tools "to help innovators, regulators, civil society organizations, and researchers move beyond the principle and checklist nature of ethical codes by developing their sensitivity to ethical issues"[30].

NEWHORRIZON[31]**:** Helpful for the work on this task will be the outcomes of the project NEWHORRIZON, which was closed recently in May 2021. Most relevant is the "Societal Readiness (SR) Thinking Tool"[32]. "The primary goal

[22] https://www.panelfit.eu/
[23] Rangi et al., 2015.
[24] Brey et al., 2015.
[25] https://satoriproject.eu/publications/cwa-part-2/
[26] Parder et al., 2019.
[27] TRUST project.
[28] https://e-sides.eu/e-sides-project
[29] Bachlechner, 2020.
[30] DoA, page 24.
[31] https://newhorrizon.eu/
[32] https://newhorrizon.eu/thinking-tool/

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is to help researchers align their project activities with societal needs and expectations. The SR Thinking Tool asks reflective questions to stimulate thinking about how to integrate ideas about RRI into research practice."[33]

VIRT-EU[34]: The VIRT-EU project, closed in 2019, brought together an interdisciplinary group of researchers, designers and policy professionals in order to create practical tools to help technology developers think and talk about ethics in new and hopefully more productive ways.[35] The result is a whole service package with tools available online.[36] Most relevant for the work on TechEthos task 5.5 is the "Ethical Stack Tool"[37], a series of tools to support creators of new connected technology to reflect on their product's ethical and social impacts.

ENERI[38]: The ENERI project, which was closed in 2019 and aimed to improve the exchange between experts in the fields of research ethics and research integrity, developed the tools decision tree39 and eneri classroom40. Both are tools to raise ethical awareness and beside this help RECs and others in finding the appropriate questions and answers when it comes to ethical analysis.

2.5 Development and work with scenarios and case studies

Within the Techethos WP3 scenarios play an important role. They are not only developed and refined in this WP (tasks 3.2 and 3.3) but also later on employed to capture expert awareness (task 3.4) and public awareness (task 3.5) towards the ethical implications of the selected technology families.

There will be a case study developed within task 5.1 with a slightly different focus: one existing ethical framework will be used as case study to enhance specific existing frameworks. This is not taken into account here as it is a too specific example.

SHERPA: The most important source for scenarios and case studies is the SHERPA project. The SHERPA project developed in tasks 1.2 five scenarios[41] that investigate the ethical and legal issues as well as the social, security and economic impacts. On top 10 case studies[42] with the focus on the ethical implications have been developed that could feed into the Techethos work as well.

TRUST: The TRUST project presents various case studies in the context of ethics dumping.[43] These might be relevant for the TechEthos tasks 3.2 and 3.3 also.

[33] https://newhorrizon.eu/thinking-tool/
[34] https://virteuproject.eu/
[35] https://www.virteuproject.eu/servicepackage/
[36] https://www.virteuproject.eu/servicepackage/
[37] https://www.virteuproject.eu/servicepackage/ethical-stack/
[38] https://eneri.eu/
[39] https://eneri.eu/decision-tree/
[40] https://eneri.eu/eneri-classroom/
[41] https://www.project-sherpa.eu/category/scenarios/
[42] https://www.project-sherpa.eu/category/case-studies/
[43] Schroeder, 2016.

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PRISMA[44]: The PRISMA-project, closed in 2019, developed a practical guideline and contributed to a new standard for companies aiming at developing a strategy for Responsible Research and Innovation (RRI). In doing so the PRISMA project focused on 8 pilots with industries. The technologies field involved were automated cars, internet technology, drones, biotechnology, synthetic biology, and nanotechnology.). The results can be found in D2.4 which is the final report on the pilots.[45]

2.6 Explore public awareness and attitudes

In TechEthos task 3.5 the partners will explore public awareness and attitudes towards the ethical implications of the technology families. The plan is to start by organizing a series of events to build knowledge about the selected technology families and help recruit citizens (including vulnerable groups) for subsequent dialogues and expert stakeholders. After that multi-stakeholder workshops (with citizens, civil society organisation actors, and local research and technology actors with insights into the selected technology families) will be held.

Similar approaches to capture public awareness and attitudes have been used by other EU funded projects. Most important are:

REELER[46]: This project, closed in 2019, is about responsible ethical learning with robotics. Some of the outcomes of the project have relevance for public awareness raising of emerging technology research in general, but some are also specifically developed for the field of robotics. REELER developed an awareness-raising toolbox[47], which will be relevant for the work on TechEthos task 3.5. Also, the so called "Mini-public concept"[48] might be of relevance, which is a tool for citizen engagement in the topic of robots but is potentially relevant for other emerging technologies. If the field of robotics will be one of the TechEthos areas, there are further interesting outcomes on the website of the REELER project[49] that might be useful.

REINFORCE[50]: The REINFORCE project (Research Infrastructures FOR Citizens in Europe) aims to engage and support citizens to cooperate with researchers and actively contribute to the development of new knowledge for the needs of science and society.[51] This project is still running and therefore there are only a few deliverables public available until now. One deliverable that might be relevant for TechEthos task 3.5 is D2.1 which is a citizen engagement plan.[52]

[44] https://www.rri-prisma.eu/
[45] Guelke et al., 2018.
[46] https://reeler.eu/
[47] https://reelertoolbox.ab-acus.com/
[48] https://reeler.eu/mini-public/
[49] https://reeler.eu/
[50] https://reinforceeu.eu/
[51] https://reinforceeu.eu/
[52] Sotiriou, 2019.

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2.7 Enhance the system of RECs

Within the scope of task 5.3 the TechEthos partners will look closer into the role of RECs when it comes to the review of emerging technology research projects. The objective is to analyse the need for operational guidelines for RECs and complement existing guidelines. Relevant work has been carried out mostly in the projects below.

SIENNA: SIENNA did research to find out about the role of RECs in the non-biomedical field. It was analysed if the guidance documents and guidelines which are used by RECs to review health related research projects could also be helpful to review research projects in other fields. Furthermore, the SIENNA project developed elements to complement the existing guidelines. The results are presented in D5.1. In addition, SIENNA developed a generalised method on the constitution of RECs. This is presented in D6.3. Both deliverables will be published soon on the SIENNA website.

SATORI: The SATORI work is very relevant when it comes to the role of RECs. Especially the CEN Workshop Agreement (CWA) Part 1[53] is of major importance.

2.8 Revise the EcoC

In task 5.4 the TechEthos partners will work on a revision of the European code of conduct for research integrity (EcoC). They will pay particularly close attention to augmenting the current edition of the European Code of Conduct for Research Integrity as regards ethical implications of new technologies as well as taking into considerations other trends emerging in the research landscape. Other RI projects focused on the work on the EcoC and the outcomes will help the TechEthos partners carrying out task 5.4. Most relevant are the outcomes of the projects VIRT2UE, ENTIRE, SOPs4RI, PRO-RES and ENERI. Within these projects the EcoC was not revised, however the EcoC built the basis for the work the projects did and there might be some results on what worked well and what did not. Furthermore, some of the before mentioned projects developed recommendation for the RI and these could be useful when it comes to the revision of the EcoC. To name a few examples (more can be found in the single scans in the annex):

The Embassy of Good Science[54] (developed by ENTIRE and VIRT2UE)**:** The Embassy of good science is a platform for actors in the fields of RE and RI and offers training materials and other resources. One resource that will be useful for TechEthos task 5.4 is a selection of RI guidelines available on the Embassy of good science.[55]

ENERI: The European Network of Research Ethics and research Integrity is a project that was closed in 2019. However, ENERI as a network is still alive. Exchange with the eneri? network is crucial when it comes to the work

[53] https://satoriproject.eu/publications/cwa-part-1/
[54] https://embassy.science/wiki/Main_Page
[55] https://embassy.science/wiki-wiki/index.php/Special:BrowseData/Resource?_search_Resource_Type%5B0%5D=Guidelines

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on the revision of the EcoC. Furthermore, some of the eneri? tools will be helpful, especially the RI handbook[56] and the decision tree[57].

PRO-RES: The above mentioned (page 9) deliverable from Pro-res D1.1 (Reporting on existing Codes and Guidelines) is also relevant when it comes to the revision of the EcoC.[58]

SOPs4RI[59]: The project SOPs4RI, which is still running, aims to stimulate transformational processes across European Research Performing Organisations and Research Funding Organisations. For TechEthos task 5.4 especially the toolbox developed by SOPs4RI is relevant, which is a structured collection of easy-to-use Standard Operating Procedures and Guidelines that Research Performing and Research Funding Organisations can freely use to develop Research Integrity Promotion Plans, customised to their needs. The SOPs4RI Toolbox also contains supplementary resources that can inspire policy makers to foster research integrity at the organizational level.[60] Beside the toolbox, also the deliverables developed in WP4 of the Sops4RI project will be useful for TechEthos task 5.4.[61]

2.9 Methodology to identify and analyse legal issues

Within WP4 the TechEthos partners will identify the legal issues and challenges for each of the 3-4 selected technology fields. The methodology for legal analysis will be worked out in task 4.1.

SIENNA: Very relevant is a deliverable from SIENNA on adapting methods for legal analysis of emerging technologies (D6.2) that will be published soon. The report outlines a revised general approach for legal analysis of emerging technologies. It elaborates and adapts the original approach developed in the SIENNA methodological handbook which was applied to SIENNA legal studies in human genomics, artificial intelligence and robotics and human enhancement technologies.

SATORI: A legal analysis was also carried out by The SATORI project. Relevant are D3.1[62] which is a report on the legal frameworks that guide or constrain ethical procedures within research in the EU and D3.2[63]. which is a report on international differences in research cultures, ethical standards and legal frameworks

SHERPA: The deliverable D1.5[64] on current human rights frameworks analyses 11 specific challenges in the field of Smart Information Systems (the combination of AI and Big Data) from a human rights perspective. Concrete discussions are presented in the light of human rights frameworks, each of which outlines the main positions

[56] https://eneri.eu/ri-handbook/
[57] https://eneri.eu/wp-content/uploads/2020/02/ENERI-Decision-Tree_3.pdf
[58] Parder et al., 2019.
[59] https://sops4ri.eu/
[60] https://sops4ri.eu/toolbox/
[61] https://sops4ri.eu/deliverables/
[62] Rangi et al., 2015.
[63] Brey et al., 2015.
[64] Andreou et al., 2019.

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taken on each challenge. Deliverable D3.3[65] on regulatory option for Smart Information Systems could give valuable impulses also.

3. Conclusion and outlook

Our scan of EU-funded RE and RI projects has shown that the tasks that will be carried out in TechEthos can partly build on results from other projects. In particular, when it comes to methods for ethical, legal and social analysis of research with new technologies, TechEthos partners can use results from other projects and further develop their approaches. This report can be used by TechEthos partners as a resource to help them carry out their work. For each specific task, partners will find links to project results relevant to their methodology. A more detailed analysis of the results and tools developed by the projects is provided in other tasks, e.g., Task 2.1.

As described in the introduction, the TechEthos project will not define 3-4 technology areas to focus on until July. Therefore, it is necessary to review afterwards what technology-specific results are already available from other EU-funded projects. We will further investigate this in the context of Task 6.2, which is about building a cluster of RE and RI projects (*Task 6.2: Cooperation, clustering and liaison activities*). Identifying overlaps between the different RE and RI projects and fostering synergies between them is the main goal of Task 6.2, and TechEthos partners will form a common cluster of relevant RE and RI projects once the technology areas are defined. The cluster will be a collaboration of representatives from the relevant projects and the exchange within this group will give us further information on relevant results from other projects for the work in TechEthos.

[65] Rodrigues et al., 2020.

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Andreou A et al. (2019) SHERPA D1.5 Current Human Rights Frameworks. Available at: https://figshare.dmu.ac.uk/articles/online_resource/D1_5_Current_Human_Rights_Frameworks/8181827 (accessed 15 July 2021).

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

5. Annex

5.1 List of scanned RE and RI EU funded projects

Here you can find the list of the 22 SwafS projects that we found relevant to be scanned further. The list comprises RE and RI projects on emerging technologies in general. Included are projects that are still running and have already publicly available results on their website as well as projects that were closed in the timeframe from 2017-2021. The list contains the name of the project, a short description, the duration and if it was further scanned or not.

	Project Acronym	Content and Website	Project duration	Results found?
1.	e-SIDES	e-SIDES is an EU-funded Coordination and Support Action (CSA) that will complement the Research and Innovation Actions (RIAs) of the ICT-18 call on privacy-preserving big data technologies by exploring the societal and ethical implications of big data technologies and providing a broad basis and wider context to validate privacy-preserving technologies. https://e-sides.eu/	2017-2019	Yes
2.	ENERI	ENERI was a project that aimed to improve the exchange between experts in the fields of RE and RI. The ENERI network is still alive. https://eneri.eu	2016-2019	Yes
3.	Gov4nano	The Gov4Nano project will develop the first implementation of a future-proof operational Nano Risk Governance Model (NRGM) that addresses the needs of the transdisciplinary field and innovative (and key enabling) character of nanotechnology. https://www.gov4nano.eu/	2019-2022	No
4.	GRECO	GRECO is a multinational research project funded by the European Commission. Its main goal is putting Open Science and other Responsible Research and Innovation (RRI) approaches into action in a real research project in the photovoltaic sector.	2018-2021	No

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		https://www.greco-project.eu/		
5.	I-Consent	i-CONSENT, funded by the European Union H2020 programme, aims to improve the information that patients receive from clinical studies. Within the project, a series of guidelines to improve Informed Consent process will be created, including vulnerable populations, under a gender perspective and relying on ICT tools https://i-consentproject.eu/	2017-2021	No
6.	NEWHORRIZON	The project aims at further integrating Responsible Research and Innovation (RRI) in the research and innovation systems on national and international levels. The concept of RRI is an approach which intends to bridge gaps between science, research and innovation communities and society at large. https://newhorrizon.eu/	2017-2021	Yes
7.	PANELFIT	Panelfit stands for Participatory Approaches to a New Ethical and Legal Framework for ICT. Data commercialization, informed consent and security, are the key topics on which the new EU legal framework should focus and the three pillars on which PANELFIT will mainly concentrate. https://www.panelfit.eu/	2018-2021	Yes
8.	Path2Integrity	Path2Integrity fosters formal and informal learning towards reliable research results. https://www.path2integrity.eu/	2019-2021	No
9.	PREFET	The PREFET Project Is About Evidence-Based Detection Of Emerging Technology Trends With High-Impact Potential, And Funnel Them Down To Successful FET Proposals For 2019 And 2020 Calls (And Their Continuation Under The New Pathfinder Program From The European Commission). https://prefet.eu/	2018-2020	No
10.	PRINTEGER	The mission of PRINTEGER is to enhance research integrity by promoting a research culture in which integrity is part and parcel of what it means to do	2015-2018	No

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		excellent research, and not just an external and restrictive control system https://printeger.eu.		
11.	PRISMA	The *PRISMA-project* developed a practical guideline and contributed to a new standard for companies aiming at developing a strategy for Responsible Research and Innovation(RRI). https://www.rri-prisma.eu/	2016-2019	No
12.	PRO-RES	*PRO-RES project* aims to produce a guidance framework regarding the delivery of Responsible Research and Innovation (RRI), which is required from researchers and research funding and performing organizations (RFPO), in order to balance political, institutional and professional contradictions and constraints. https://prores-project.eu/	2018-2021	Yes
13.	REELER	The REELER project aims at aligning the roboticists' visions of a future with robots with empirically-based knowledge of human needs and societal concerns. https://reeler.eu/	2017-2019	Yes
14.	REINFORCE	The REINFORCE project (Research Infrastructures FOR Citizens in Europe) aims to engage and support citizens to cooperate with researchers and actively contribute in the development of new knowledge for the needs of science and society. https://www.reinforceeu.eu/	2019-2022	Yes
15.	RRI-Practice	RRI-Practice aim is to understand the barriers and drivers to the successful implementation of RRI both in European and global contexts; to promote reflection on organisational structures and cultures of research conducting and research funding organisations; and to identify and support best practices to facilitate the uptake of RRI in organisations and research programmes. https://www.rri-practice.eu/	2016-2019	Yes
16.	RRI Tools	The project helps to find out what RRI means, why it is important and how to foster it.	2014-2016	No

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		https://rri-tools.eu/about-rri		
17.	SATORI	SATORI aims to develop a common European framework for ethical assessment of research and innovation in the form of ethical principles and practical approaches so as to strengthen shared understandings among actors involved in the design and implementation of research ethics. https://satoriproject.eu/	2014-2017	Yes
18.	SHERPA	SHERPA is an EU-funded project which analyses how AI and big data analytics impact ethics and human rights. In dialogue with stakeholders, the project is developing novel ways to understand and address these challenges to find desirable and sustainable solutions that can benefit both innovators and society. https://www.project-sherpa.eu/	2018-2021	Yes
19.	SIENNA	Human genomics, human enhancement, artificial intelligence and robotics offer benefits for both individuals and society. But these technologies also challenge our notions of what is ethical. SIENNA will provide frameworks to help develop research ethics protocols, professional ethical codes and better legal frameworks. https://sienna-project.eu/	2017-2021	Yes
20.	Sops4RI	The project has the mission is to promote excellent research and a strong research integrity culture aligned with the European Code of Conduct https://sops4ri.eu/	2019-2022	Yes
21.	The Embassy of good science	The two EU funded projects VIRT2UE and EnTIRE devloped together the Embassy of good scienceThe Embassy offers help to anyone seeking support in handling day-to-day research practices and dilemmas. https://embassy.science/wiki/Main_Page	2017-2021	Yes
22.	TRUST	TRUST was a pluralistic project, which aimed to foster adherence to high ethical standards in research globally and to counteract the practice of “Ethics dumping” or the application of double standards in research, by co-developing with vulnerable populations tools and	2015-2018	Yes

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		mechanisms for the improvement of research governance structures. http://trust-project.eu/		
23.	virt.eu	This research project brings together a group of multi-disciplinary researchers who have created tools to implement ethical reasoning and frameworks in the development of connected devices. https://www.virteuproject.eu/servicepackage/about/	2017-2019	Yes

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

5.2 Documentation of single scans (in alphabetical order)

In 14 of the projects listed before, we found relevant results and documented them in the individual scan tables below. Each table contains the relevant deliverables of the scanned projects, a short description of each deliverable, and its potential usefulness for the specific tasks of the TechEthos project.

e-SIDES – Ethical and Societal Implications of Data Sciences

Brief project summary: e-SIDES is an EU-funded Coordination and Support Action (CSA) that will complement the Research and Innovation Actions (RIAs) of the ICT-18 call on privacy-preserving big data technologies by exploring the societal and ethical implications of big data technologies and providing a broad basis and wider context to validate privacy-preserving technologies.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D5.2 Recommendations and Conclusions	Building on the insights gained during the implementation of the e-SIDES project after an intensive 3-year process, the primary aim of this document is to translate them into recommendations that help bringing different groups of actors as well as the field as a whole forward. With respect to groups of actors, the recommendations target developers and operators of big data solutions, developers of privacy-preserving technologies, policy makers dealing with relevant issues and civil society (organisations).	Task 5.2

ENERI - European Network of Research Ethics and Research Integrity

Brief project summary: The "European Network of Research Ethics and Research Integrity" (ENERI) is a project that aims to improve the exchange between experts in the fields of research ethics and research integrity.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
eneri decision tree (Tool)	With the decision tree, eneri wants to help researchers, REC and RIO members to think about ethical questions and challenges that might arise during a planned research project. The tool has been developed to complement the RE&RI	Task 5.2, 5.3, 5.5

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	manual and intents to help users to find the appropriate ethical questions more quickly.	
RI handbook	The RI handbook issues the following questions: How should research misconduct be defined and how will it differ from unacceptable research practices? How should allegations be handled? What if an allegation involves several institutions and/or researchers in different countries? Why is it important to have a formal research integrity system in each European country to deal with research misconduct and is there any best model? Where should countries with no RI structures start? Should responsibility be local or national? What about openness and transparency versus confidentiality when dealing with possible misconduct cases?	Task 5.4
eneri classroom	Training materials on RE and RI	Task 5.5

NEW HORRIZON – An Experiment in responsible Research and Innovation

Brief project summary: NewHoRRIzon is a project that aims at further integrating Responsible Research and Innovation (RRI) in the research and innovation systems on national and international levels. The concept of RRI is an approach which intends to bridge gaps between science, research and innovation communities and society at large by fostering more inclusive, anticipatory, open and responsive research and innovation systems. In this frame, multiple stakeholders (from research, business, policy making, education and civil society) are involved in research and innovation on the project and system level to better align its processes and outcomes with the values, needs and expectations of society. A first big step was the operationalisation of RRI into the following six key elements: ethics, gender equality, governance, public engagement, science education and open access.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
Societal Readiness (SR) Thinking Tool	NewHoRRIzon provides the Societal Readiness (SR) Thinking Tool, which offers practical guidance on how to mature the societal readiness of research projects. The SR Thinking Tool provides a generic methodology allowing researchers to reflect on the societal impact of their work at critical stages in the project life cycle. The primary goal is to help researchers align their project activities with societal needs and expectations. The SR Thinking Tool asks	Task 5.2, Task 5.5

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	reflective questions to stimulate thinking about how to integrate ideas about RRI into research practice.	
MOOC on Responsible Research and Innovation	I n this online course, you will learn about why it is important to act responsibly in your research and innovation processes and reflect on the different fields of application. You will get introduced to several tools that will help make your own work in research and/or innovation more aware by introducing concepts of RRI and related issues to your work or study settings. In addition, we will present inspiring examples and cases from the NewHoRRIzon RRI pilots, which effectively applied RRI in different sciences. Finally, you will see how you can consider R&I processes from different viewpoints by conducting exercises. This course is specifically customized for researchers and students, innovators, policymakers as well as interested people from personal development, education and innovation trainers.	Task 5.2
RRI-EX	The RRI.ex is a virtual experience that shares the project's story of working with Responsible Research and Innovation (RRI) and diverse groups of people and institutions throughout the NewHoRRIzon project.	Task 5.2, task 5.5

PANELFIT - Participatory Approaches to a New Ethical and Legal Framework for ICT

Brief project summary: Changes to the EUs regulations regarding ICT-based research and innovation are creating a new scenario, one to which researchers, innovators, stakeholders, policymakers and citizens must adapt - as soon as possible. This is likely to be difficult, however. PANELFIT, a European Commission research project, is facilitating this adaptation process. Through the materials produced by the project, PANELFIT will provide the information that citizens, scientists and researchers need to take advantage of the protections offered by the new EU regulations.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D5.3 Report on the Governance of ICT data protection ELI.	This report will be finalised in August 2021. It entails detailed information on how RECs and DPOs could collaborate more effectively.	Task 5.1, 5.3, 8.3, 8.4

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D5.4 Code of Conduct for Responsible Research and Innovation	This deliverable will be finalized in August 2021	Task 5.2

PRISMA - Piloting RRI in Industry: a roadmap for tranSforMAtive technologies

Brief project summary: The PRISMA-project developed a practical guideline and contributed to a new standard for companies aiming at developing a strategy for Responsible Research and Innovation (RRI).

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D2.4 Final Report on Pilots	The PRISMA project focus on 8 pilots with industries. The technologies field involved were automated cars, internet technology, drones, biotechnology, synthetic biology, and nanotechnology. The goal was to draw specific lessons about how RRI can be implemented in practice more broadly. This report explains the pilots, the challenges and key findings.	WP2, WP3
D4.1. Stakeholder strategy	The aim of the Deliverable 4.1 of the PRISMA project is to provide for a dialogue strategy that can work as a guideline for the five stakeholder dialogues that will be organized, in the course of the project. As an outcome of this strategy, several stakeholders will be map and identified as possible elements to participate in the dialogues.	WP3, task 3.5

PRO-RES – PROmoting integrity in the use of RESearch results

Brief project summary: The PRO-RES Project has produced a guidance FRAMEWORK that encourages policymakers and their advisors to seek evidence for their decisions from research that has been conducted ethically, responsibly and with integrity.

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Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D1.1 Reporting on existing Codes and Guidelines	In this deliverable various existing codes and guidelines for RI and RE are presented. This deliverable maps the existing range of codes and guidelines on ethics and integrity across disciplines, the existing literature, codes and documentation - what is currently recognized as reference documentation on the topic, the different approaches, and existing good/best practices in place in the non-medical field.	Tasks 5.1, 5.4

REELER – Responsible Ethical Learning with Robotics

Brief project summary: REELER is a highly interdisciplinary H2020-project involving 4 European partners from the fields of anthropology, learning, robotics, philosophy, and economy. With a multidisciplinarity profile, REELER aims to assure collaboration, comprehension and acceptance of SSH research-based knowledge about distributed responsibility, ethical and societal issues relating to robotics.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
Method: Mini-Public	"Mini-public is a concept originally developed by political scientists. In REELER we have, inspired by this work, developed mini-public into a tool for citizen engagement in the topic of robots. It is in our version a method to 'give voice' to groups not usually heard in the debates on robots (workers, students, retired people) as well as a debate room which gives voice to both scientists, companies and politicians. In this respect our mini-publics have become 'meeting' rooms where citizens affected by robots can speak directly to decision-makers and robot developers. It is our believe that this may improve opportunities for	Task 3.5, task 5.5

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	citizens to contribute to parliamentary deliberation on a given topic."	
BuildBot	Relevant for Robotics only. BuildBot is a board game developed out of interdisciplinary collaboration between REELER's robot developers and anthropologists, using data from ethnographic interviews to simulate a reflective robot design process.	Task 3.5, task 5.5
Awareness-Raising Toolbox	The Awareness-Raising Toolbox is the outcome of interdisciplinary collaboration in the EU project REELER (Responsible Ethical Learning with Robotics).	Task 5.5

REINFORCE – REsearch INfrastructures FOR Citizens in Europe

Brief project summary: The project will create a series of cutting-edge citizen science projects on frontier Physics research, with citizen scientists making a genuine and valued contribution to managing the data avalanche. More than 100,000 citizens will be engaged in the research done in Large Research Infrastructures through a participatory design methodology that will take into account the special characteristics of different target groups, their barriers and constraints, their perceptions and biases and their attitudes and knowledge regarding science. They will use real and simulated data for analysis, simple affordable detectors and instrumentation to measure properties of objects such as cosmic rays, providing among others their contributions in large infrastructure site specific parameters such as environmental impacts and noise. Furthermore, through the use of open data as with dedicated training activities on their use and analysis, citizens will be able to perform their own inquiries, guided and supported by the REINFORCE experts.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D2.1 Citizen Engagement Plan	This document outlines the results of the work of an exhaustive literature review on citizen engagement in citizen science, and the design, deployment and first results of a target group study as part of the Citizens' Survey, followed by an initial task analysis of the REINFORCE demonstrator projects.	Task 3.5

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RRI-Practice – Responisble Research and Innovation in Practice

Brief project summary: RRI-Practice aim is to understand the barriers and drivers to the successful implementation of RRI both in European and global contexts; to promote reflection on organisational structures and cultures of research conducting and research funding organisations; and to identify and support best practices to facilitate the uptake of RRI in organisations and research programmes. The project will review RRI related work in 22 research conducting and research funding organisations and will develop RRI Outlooks outlining RRI objectives, targets and indicators for each organisation.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D16.2 RRI-Practice Policy Recommendations and Roadmaps	These policy recommendations aim to support the European Commission (EC) and national policy makers to strengthen Responsible Research and Innovation (RRI) based on insights and findings from the work undertaken in the RRI-Practice project. The recommendations are presented as cross cutting themes emerging from the cross-comparison reports completed for each of the RRI keys (and notably recommendations emerging from these). These cross-comparison reports in turn collate and synthesise insights from the national case studies undertaken by consortium partners during the project.	Task 5.2

SATORI - Stakeholders-Acting Together On the -ethical impact assessment of research and innovation

Brief project summary: SATORI is a 45-month project, comprising 17 partners from 12 countries, including an intergovernmental organisation, the aim of which is to improve respect of ethics principles and laws in research and innovation, and to make sure that they are adequately adapted to the evolution of technologies and societal concerns.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

D1.1: Ethical assessment of R&I: a comparative analysis	This deliverable offers a detailed picture of the de facto ethics assessment landscape in the European Union and other countries with regard to approaches, practices and institutions for ethics assessment across scientific fields, different kinds of organisations that carry out assessment, and different countries. The deliverable is based on in-depth study of ethics assessment in ten countries in the European Union, and the United States (US) and China, as well as studies of particular organisations in other EU countries. This main report summarises the results of work package 1 of the SATORI project and provides a comparative analysis of ethics assessment in the scientific fields, organisations and countries investigated. The annex to the report consists of detailed studies of ethics assessment in different scientific fields, types of organisations and countries, in addition to a number of reports on major principles, issues and approaches in ethics assessment.	Task 2.1
D3.1: a report on the legal frameworks that guide or constrain ethical procedures within research in the EU	This deliverable comprises a report on the legal frameworks that guide or constrain ethical procedures within research in the EU. It contains two major parts. Part One provides an examination of the legal and regulatory frameworks across 12 domains at the level of the European Union and 8 selected countries. Part Two contains a report that offers an overview of risk analysis approaches in EU legislation and briefly investigates how research and innovation are taken into account in EU policies, with the final aim of giving insights into the relationship between risk-based regulation on Research and Innovation.	Tasks 4.1-4.3, task 5.1, task 6.5
D3.2: a report on international differences in research cultures, ethical standards and legal frameworks	In this report, the focus is on differences between countries in values and in the interpretation of international legal and regulatory frameworks. The overall aim is to investigate what these differences are and what they may mean for the prospects of international harmonisation of ethics assessment of research and innovation. The report consists of two main parts.	Tasks 4.1-4.3, task 5.1, task 6.5
D4.1: a reasoned proposal for a set of shared ethical values and principles for ethics assessment in the European context	This report presents a comprehensive proposal for a common ethics assessment framework for research and innovation (R&I) in the European Union member states. It details recommendations for good practices for ethics assessment, which includes the development of ethics assessment units and the protocols of these units.	Tasks 2.3, 2.4, 5.1, 5.2

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D5.1: A Report on The Cost-Effectiveness and Risk Benefit of Ethics Assessment	This report explores how best to conceptualise and implement cost-effectiveness and risk-benefit evaluation of ethics assessment and ethics guidance in relation to European research and innovation (R&I). The report gives an overview over existing data about the effectiveness of ethics assessment and other organizational mechanisms for supporting a culture of ethics in R&I organizations. The report finally assesses current best practice in evaluating the cost-effectiveness of ethics assessment. The report builds on interviews, literature review, and case studies in addition to expert input reported in SATORI D5.3.	Tasks 2.3, 2.4, 5.1, 5.3, 5.5
CEN Workshop Agreement (CWA) Part 1	Part 1 makes recommendations for the composition, role, functioning and procedures of ethics committee.	Task 5.1, 5.3
CEN Workshop Agreement (CWA) Part 2	Part 2 provides a practical, policy-oriented guide for researchers and ethics committees on the different stages of the ethical impact assessment (EIA) process.	Task 5.1, 5.2, 5.3, 5.5

SHERPA - Shaping the Ethical Dimensions of Smart Information Systems

Brief project summary: In collaboration with a broad range of stakeholders, the SHERPA project will investigate, analyse and synthesise our understanding of the ways in which smart information systems (SIS; the combination of artificial intelligence and big data analytics) impact ethics and human rights issues. It will develop novel ways of understanding and addressing SIS challenges, evaluate with stakeholders, and advocate the most desirable and sustainable solutions.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D1.1 Case studies	The SHERPA consortium looked at ten case studies that would give a broad overview of the many ethical issues faced in current use and implementation of smart information systems (artificial intelligence and Big Data).	Task 2.1, 2.2, 2.3, 3.2, 3.3, 4.4
D1.2 Scenarios	This deliverable considers the ethical, legal (data protection), social and economic impacts of new and emerging technologies, powered by artificial intelligence (AI) and big data. In this deliverable, we look forward to the year 2025 to	Task 2.1, 2.2, 2.3, 3.2, 3.3, 4.2, 4.3, 4.4

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	consider how new and emerging technologies may raise various issues, regarding which policymakers and other stakeholders should consider what ethical guidelines, data protection policies and other measures we might need to address the issues now rather than five or six years from now when they may have fewer policy options. We have developed five scenarios, addressing five different technology clusters in five different areas – social care for senior citizens, information warfare, predictive policing, driverless cars and learning buddy robots.	
D1.4 Report on Ethical Tensions and Social Impacts	The deliverable examines ethical tensions in the use of SIS (Smart Information Systems which is the combination of AI and Big Data) in a pragmatic and comprehensive way, beginning with ethical issues related to the actual design of the technologies themselves. Whether or not there are inherent issues with their functioning, capacities, and programming (sections 2 and 5). The document then identifies the main ethical issues within the debate for the use of SIS in practice, outlining 24 of the key ethical concerns found within the literature (section 4). While the technologies themselves, and their use, raise important concerns that need to be addressed, it is important to not overlook specific domain applications and fields of practice, which is reviewed in section 6 of this report. The Deliverable will also give a thorough analysis of the main ethical issues related to research & innovation aspects of SIS development (section 7). The report will subsequently finish with a detailed analysis of the main ethical issues and possible solutions within the report (section 8), in an attempt to identify, allocate, and group such a wide body of information into the most prevalent concerns for society today.	Task 2.1, 2.2, 2.3
D1.5 current human rights framework	Smart Information Systems (SIS), which are a combination of big data analytics and Artificial Intelligence (AI), constitute an integral part of our lives. Meanwhile, human rights and ethics discussions about SIS are taking place whilst the technologies are already omnipresent. The main value of this report are the concrete discussions presented in the light of human rights frameworks, each of which outlines the main positions taken on each challenge, a requirement for moving forward with solutions. In addition, two sets of existing recommendations are endorsed in the light of the analysis presented in this report. The five principles of the Data for Humanity Initiative and the European Commissions' seven essentials for achieving trustworthy AI.	Task 2.1, 2.2, 2.3, 4.2, 4.3

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D2.2 Report of interview analysis	The aim of the interviews and the report was twofold. Firstly, to gain stakeholders' views regarding the recommendations that have been developed in the SHERPA project, particularly regarding the set of Guidelines for Users and Developers (T3.2), the Regulatory Options (T3.3.) and the Terms of Reference for a New Regulator (T3.6) (14 interviews). Secondly, to obtain an in-depth understanding of what stakeholders consider to be the main ethical issues that come out of Artificial Intelligence (AI) and big data; the way those ethical issues are currently addressed, and their suggestions on how those ethical issues can be addressed efficiently (21 interviews).	Task 2.1, 2.2, 2.3, 4.2, 4.3
D2.3 Online survey report	Based around the existing outcomes from the SHERPA project so far, and as encapsulated in the online workbook, this online survey aimed to explore the research question, "From the perspective of a well-informed lay public, which ethical and human rights issues relating to SIS are perceived as particularly problematic and how should they be addressed?" Overall, the results show very broad agreement with the SHERPA findings so far.	Task 2.2, 2.3, 4.2, 4.3
D2.4 Delphi study report	The SHERPA project undertook a Delphi study on ethical and human rights issues of smart information systems (SIS), i.e. systems drawing on and containing artificial intelligence (AI) and big data analytics. The Delphi study aimed to develop insights into the following questions: What are the most important ethical and human rights issues in AI and big data? What are the approaches that are currently used to address these issues? What are the problems with these current approaches? Which suggestions exist that might be better suited to address these problems and whose responsibility is it to address them? What would be an appropriate set of priorities to implement these approaches?	Task 2.2, 2.3, 4.2, 4.3
D3.2 Guidelines for the development and use of SIS	This report contains two sets of ethical guidelines – one for the technological development and one for the use – of artificial intelligence and big data systems, a glossary, two annexes, and a list of references. It is a deliverable of the SHERPA project, an EU Horizon 2020 project on the ethical and human rights implications of AI and big data. The guidelines differ from other existing guidelines in that they are directly related to design and development practices. They are intended to be actionable guidelines for systems and	Tasks 5.1, 5.2

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	software development and use respectively, rather than abstract principles that have no direct application in practice. We call such guidelines operational, meaning ready for use.	
D3.3 Report on regulatory options	This report reviews various regulatory options that support the ethical and/or responsible development of smart information systems (AI and big data). Its insights will be useful to policymakers as a guide to making policy and regulatory decisions. It presents snapshots of policy and other stakeholder perspectives on the regulation of AI and big data and discusses how AI challenges regulation. It also looks at EU aspirations for better law-making and presents key considerations for regulating AI and big data. The study adopted a wide, inclusive understanding of 'regulatory options' to cover proposals for laws, bodies and other regulatory tools and mechanisms. Well-established legislation has been excluded.	Task 4.2, 4.3, 6.5
D3.6 Terms of reference for SIS regulator	The report explores the feasibility of a bespoke/new regulator for AI and big data at the EU and/or Member State levels. The report assesses the factors indicating the need for such a regulator, its mandate, and how it would fit or interact with existing regulatory bodies and structures. Pros and cons, and challenges are identified. The report proposes terms of reference for a European Agency for AI.	Task 4.2, 4.3, 6.5
SHERPA recommendations	These recommendations aim to ensure that ethical and human rights issues of AI are recognised and addressed. They are based on the view of AI as a set of overlapping ecosystems. In order to steer these ecosystems, three main conditions should be fulfilled: Concepts need to be clear and the ecosystems need to be clearly delineated There must be a sustainable knowledge base of technical, but also social, ethical and legal aspects Governance of AI ecosystems should set the framework and support individuals and organisations These three groups of recommendations each contain several individual recommendation.	Task 5.1, 5.2, 4.2, 4.3

SIENNA - Stakeholder-informed ethics for new technologies with high socio-economic and human rights impact

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No.101006249.

Brief project summary: The SIENNA project addressed ethical issues in three new and emerging technology areas: human genomics, human enhancement and human-machine interaction. These areas all come with major socio-economic impact. They also raise issues related to human rights.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
D1.1: The consortium's methodological handbook	This Handbook brings together and describes the SIENNA project's theoretical and methodological approaches for ethical, legal and human rights analyses, societal acceptance and awareness studies, development of research ethics protocols and professional ethical codes.	Task 1.2, 1.3, Task 2.1
D5.1 Report documenting elements to open and complement operational guidelines for research ethics committees (online available soon here)	In this report guidance documents relevant for RECs were analysed and applied to hypothetical cases beyond their usual remit of application. All documents were developed for health-related research fields and all encourage the involvement of a REC before, during and after research with humans is conducted. The documents in focus refer to principles and obligations researchers need to follow and contain detailed information on how a REC should be constituted, how a REC should assess research projects and how a REC should be organized in general.	Task 5.3
D6.1 Generalised methodology for ethical assessment of emerging technologies (online available soon here)	This report provides a methodology for the ethical analysis of emerging technologies. The methodology contains seven key steps, the first four of which are directed at defining subject of analysis, aim and scope, and engaging in conceptual analysis and description, and the final three of which specify the actual ethical analysis, with both descriptive and normative components. Our methodology makes use of methods of foresight analysis and social and environmental impact assessment (SIA), and of stakeholder engagement, and methods for these processes are described in additional sections of the report.	Task 1.4, Task 2.1-2.4 and Task 5.1
D6.3 Methods for translating ethical analysis into instruments for the ethical development and deployment of emerging	In this SIENNA deliverable five general methods for translating ethical analysis into frameworks and methods for the ethical guidance of new emerging technologies are outlined. These are:	Task 2.4

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technologies (online available soon here)	• a multistakeholder, coevolutionary strategy for ethically responsible development, deployment and use of new technology, • a step-by-step method for the development of ethics guidelines and ways in which guidelines can be operationalized, • a general approach for Ethics by Design, that works for all technology fields, • suggestions for ethics and human rights projects on new and emerging technologies for engaging with policy-maker, and finally • a method on how research ethics committees can support ethics in new emerging technology research.	
D5.6: Recommendations for the enhancement of the existing legal frameworks for genomics, human enhancement, and AI and robotics (online available soon here)	This report identifies potential changes needed in the existing legal and human rights frameworks (international, EU and national) that might be necessary or desirable to create an environment in which the SIENNA proposals for ethical human genetics and genomics, human enhancement technologies and AI and robotics could be implemented most effectively. It also includes recommendations to improve enforcement and promote the uptake and effectiveness of the existing legislation in these fields. The desired or necessary changes advanced are specified in the report along with related actions, actors responsible for implementing them, their priority levels, implementation challenges and how these could be addressed. The report also discusses the interrelations between ethics and law from the perspective of policymakers.	Tasks 4.1-4.4, Task 5.1, Task 6.5
D6.2 Report on adapting methods for legal analysis of emerging technologies (online available soon here)	The report outlines a revised general approach for legal analysis of emerging technologies. It elaborates and adapts the original approach developed in the SIENNA methodological Handbook which was applied to SIENNA legal studies in human genomics, artificial intelligence and robotics and human enhancement technologies. The proposed approach consists of four general steps: (1) specification of scope of legal analysis; (2) identification of legal issues; (3) analysis of international, regional (including EU) and national legal norms relevant for the identified issues and (4) identification of gaps and challenges in the existing legal frameworks with regard to the identified issues. The annex of the report includes two brief legal case-studies on three-	Tasks 4.1-4.4, Task 5.1, Task 6.5

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	dimensional printing and augmented reality technologies, illustrating how the major points of the revised approach could be applied to emerging technologies.	
SIENNA project policy briefs on Ethics & human rights for new and emerging technologies	This policy brief presents key messages drawn from the EU-funded Horizon 2020 SIENNA project (2017-2021).	Relevant for all WPs
D2.3, D3.3, D4.3	Survey of codes and guidelines in Human Genomics, Human Enhancement and AI&R	Relevant for WP2
D2.7	Proposal for an ethical framework for the assessment of genomics technologies and for research in genetics and genomics	WP2, WP5
D3.7	Proposal for an ethical framework for human enhancement	WP2, WP5
D4.7	An Ethical framework for the development and use of AI and robotics technologies	WP2, WP5

SOPs4RI – Standard Operating Procedures for Research Integrity

Brief project summary: SOPs4RI aims to stimulate transformational processes across European Research Performing Organisations and Research Funding Organisations (RPOs and RFOs). SOPs4RI will deliver an online, freely accessible and easy-to-use 'toolbox' that can help RPOs and RFOs cultivate research integrity and reduce detrimental practice. SOPs4RI will establish an inventory of relevant Standard Operating Procedures (SOPs) and Guidelines that RPOs and RFOs can draw on when developing governance arrangements promoting strong research integrity cultures.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
SOPs4RI Toolbox	The SOPs4RI Toolbox is a structured collection of easy-to-use Standard Operating Procedures and Guidelines that Research Performing and Research Funding Organisations can freely use to develop Research Integrity Promotion Plans, customised to their needs. The SOPs4RI Toolbox also contains supplementary resources that can inspire policy makers to	Task 5.4, 5.5

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	foster research integrity at the organizational level. The Toolbox will continue to grow! New tools co-created with end-users and tools aimed at Research Funding Organisations will soon be provided.	
Deliverables developed in WP4: D4.1, D4.4, D4.3. D4.5		Task 5.4

The Embassy of good science

(VIRT2UE – Virtue based ethics and Integrity of Research: Train-the-Trainer program for Upholding the principles and practices of the European Code of Conduct for Research Integrity GA No. 787580 2018-2021 and EnTIRE – Mapping Normative Frameworks for Ethics and Integrity of Research GA No. 741782, 2017-2021)

Brief project summary: The Embassy offers help to anyone seeking support in handling day-to-day research practices and dilemmas. It was created by the projects VIRT2UE and EnTIRE.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
Selection of guidelines for RE and RI	109 resources	Task 2.1, task 5.4, and task 5.5

TRUST project – Equitable Research Parentships

Project website: http://trust-project.eu/
Brief project summary: TRUST was a pluralistic project, which aimed to foster adherence to high ethical standards in research globally and to counteract the practice of "Ethics dumping" or the application of double standards in research, by co-developing with vulnerable populations tools and mechanisms for the improvement of research governance structures.

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Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
A Global Ethics Code to fight 'ethics dumping' in research	The Global Code of Conduct for Research in Resource-Poor Settings is a resource for all research stakeholders who want to ensure that research is carried out ethically in lower income settings and without 'ethics dumping', the export of unethical practices from high income to lower income countries.	Tasks 5.2, 5.4
Fair research contracting FRC toolkit	The purpose of this toolkit is to provide guidance and highlight key issues for consideration when negotiating for fair outcomes in collaborative research.	Tasks 5.3, 5.4, 5.5
"Ethics Dumping" – Paradigmatic Case Studies	various case studies are presented in this deliverable	Tasks 3.2, 3.3

VIRT-EU – Values and ethics in Innovation for Responsible Technology in EUrope

Brief project summary: The VIRT-EU project brought together an interdisciplinary group of researchers, designers and policy professionals in order to create practical tools to help technology developers think and talk about ethics in new and hopefully more productive ways. Rather than providing yet-another-checklist, the VIRT-EU toolkit offers a way for technology developers to gain the necessary language, structure and authority to convene and engage in conversations about ethics.

Name of deliverable + LINK	Brief summary of the deliverable	Potentially useful for which TechEthos tasks?
Ethical Stack Tool	The Ethical Stack is a series of tools to support creators of new connected technology to reflect on their product's ethical and social impacts.	Task 5.5

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	There is a lot of talk about ethics and technology but what can designers and developers actually do? How can we confront the present and future ethical challenges as we create connective tech? The Ethical Stack is an interface designed to structure and facilitate considering ethics when building new connected technology. This is a series of tools to support creators of new connected technology to reflect on their products ethical and social impacts. You can view the site on your desktop or laptop.	
Paper tools	VIRT-EU'S paper tools are offline resources designed to ask difficult questions and push at assumptions or forgotten uncertainties.	Task 3.2, 3.3, 5.5
PESIA	The PESIA questionnaire goes beyond the familiar privacy impact assessment (PIA) tools, also addressing ethical and social issues respectively. This document is geared specifically towards IoT (Internet of Things) system development issues. The questionnaire is developed around the common ethical values recognised by international charters of human rights and fundamental freedoms and draws on results of the VIRT-EU project's extensive research together with IoT designers and developers.	Task 2.2
VIRT-EU ethical tool index	Virt-EU has studied over 80 different ethical tools that have been made by many other groups, projects and organizations. These range from card games and canvases to guidelines and codes of conduct. They are presented in an excel sheet.	Task 5.5

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