

# **D8.2 Ethics Plan**

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Authors	Pirjo Heikkilä, VTT						
Co-authors	-						
Reviewers	Linda Henriksson, CARR; Katariina Torvinen, VTT						



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### **DOCUMENT HISTORY**

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## **PROJECT PARTNERS**

Partner	Country	Short name
TEKNOLOGIAN TUTKIMUSKESKUS VTT OY	FI	VTT
RISE RESEARCH INSTITUTES OF SWEDEN AB	SE	RISE
CENTRE SCIENTIFIQUE & TECHNIQUE DEL'INDUSTRIE TEXTILE BELGE ASBL	BE	СТВ
CENTRO TECNOLOGICO DAS INDUSTRIAS TEXTIL E DO VESTUARIO DE PORTUGAL	РО	CIT
AIMPLAS - ASOCIACION DE INVESTIGACION DE MATERIALES PLASTICOS Y CONEXAS	ES	AIM
CARR COMMUNICATIONS LIMITED	IE	CARR
LOUNAIS-SUOMEN JATEHUOLTO OY	FI	LSJH
GREENWAY LO	SE	TEKO
PURFI MANUFACTURING BELGIUM	BE	PURF
UTEXBEL NV		UTEX
ERT TEXTIL PORTUGAL SA		ERT
RESTER OY		RES
MTEX NEW SOLUTION SA		MTEX
ZALA BRIVIBA BIEDRIBA		ZALA
INESC TEC - INSTITUTO DE ENGENHARIADE SISTEMAS E COMPUTADORES, TECNOLOGIA E CIENCIA		INES
NARODNA RECYKLACNA AGENTURA SLOVENSKO		NARA
TEXTEIS J. F. ALMEIDA S.A.		JFA
SOPREMA		SOP
DE KRINGLOOPWINKEL DELTAGROEP		KLW
Tally Weijl Trading AG		TAW



## LIST OF ABBREVIATIONS

Abbreviation	Definition
AI	Artificial Intelligence
ALLEA	All European Academies
EC	European Commission
EU	European Union
FAIR principle	Include findability, accessibility, interoperability, and reusability
DoA	Description of Action
GA	Grant Agreement
GDPR	General Data Protection Regulation
GenA	General Assembly
IDS	International Data Spaces
ІоТ	Internet of Things
PQMP	Project Quality Management Plan
RCR	Responsible Conduct of Research
TENK	The Finnish National Board on Research Integrity



# **Executive Summary**

The purpose of deliverable is detailing the Ethics management principles, forthcoming actions and responsibilities to ensure that the ethics requirements are satisfied within tExtended project.

Extended activities will include involvement of **human participants**, processing of **personal data**, and development, deployment and use of **Artificial Intelligence** (AI). Since project is dealing with textile waste and new technologies environmental impacts and side-effects of which are not necessarily yet fully know, also **environment**, **health and safety** issues are included in this Ethics plan.

The main principle of dealing with human participants is that participation of will be entirely voluntary and you must obtain and clearly document participants' informed consent in advance.

Processing of personal data is done by limiting any the negative impact on the persons concerned; ensuring fairness, transparency and accountability of the data processing, data quality and confidentiality; and in accordance with highest ethical standards, and applicable international, EU and national law (in particular, the GDPR, national data protection laws and other relevant legislation).

The AI systems in tExtended will be designed and documented to be reproducible. The AI systems are designed and tested with collected data to be technically as robust and accurate as possible. Risk of achieving false identification results and conditions for accurate performance will be stated clearly. Data sharing tools are based on IDS where data security, sovereignty and protection are a part of the reference design.

Even when solutions developed in tExtended project are expected to be safe and sustainable by design, tExtended project work includes handling of textile waste, which have some occupational safety concerns such as handling of textile waste can lead to dust formation; and that materials may contain unknown contaminants, which may be release irritant, hazardous or toxic gaseous components when handled and/or processed, for example, in high temperatures. Therefore, occupational safety will be ensured by up-to-date Safety and Health procedures, including risk assessment and mitigation methods of each partner. Partners will follow precautionary principle and legislation on nature conservation and pollution control. All waste will be disposed by fully following the EU level and national legislation.

Ethics is included into fixed agenda point for each General Assembly meetings so any ethics related questions and issues raised during the project will be dealt collaboratively by consortium members. Also following **procedures** are included into ethics management plan: preparation of Data Management Plan (expected in May 2023); Review of occupational safety risks and documentation of partner specific protocols for ensuring occupation safety (first version expected in June 2023); preparation of *Informed consent form* and detailed *information sheets* regarding human participation in specific project activities including *Social Innovation Spin-off* (before the start of activity); and preparation of *Privacy notice* regarding personal data related to stakeholder collaboration.



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# **1** Introduction

The purpose of deliverable is detailing the Ethics management principles, forthcoming actions and responsibilities to ensure that the ethics requirements are satisfied within tExtended project. The Ethics Plan will include a schedule to obtain and deliver all documents related to Ethics requirements identified in Part A. This deliverable is outcome of ethics management task<sup>1</sup>.

This document has been made using VTT's template for ethics plan deliverable and using appropriate sections from EC's guide *How to complete your ethics self-assessment* as guidance (EC, 2021a). Whole consortium is involved in ethics management.

Main documents regarding relevance, principles and management of ethics in tExtended project are

- Grant Agreement (GA)
- Description of Action (DoA) Annex1 of GA
- tExtended ethics self-assessment

Direct and modified citations from these specific documents are identified in colours used above. Other document references are sited in text and listed at the end of the document. Footnotes are used for providing additional information, especially referencing related to work packages, tasks and/or deliverables of tExtended project, but also other relevant information clarifying text.

<sup>&</sup>lt;sup>1</sup> Task 8.2 Ethics management (Task leader VTT, participation by all partners) M1-M48



# 2 Ethics, Research Integrity and EC Ethics Principles

# 2.1 Ethics

EC (2012) defines ethics in the following way (2012): 'The EC perceives 'ethics' as including questions of legal and regulatory compliance as well as a branch of philosophy. It is part of a process of 'governance'. The consideration of ethical issues, starting at the conceptual stage of a proposal, enhances the quality of research, increases its likely social impact, promotes research integrity, promotes a better alignment of research with social needs and expectations and, finally, supports the societal uptake of the fruits of research because high ethical standards generally merit public trust. In this spirit, the Commission aims to build a relationship between the research process and ethics that is collaborative and constructive (rather than negative and inhibitive).'

# 2.2 Research Integrity

VTT has committed to follow the guidance of The Finnish National Board on Research Integrity (TENK): Responsible Conduct of Research (RCR) (TENK, 2012).

All European Academies (ALLEA's) European Code of Conduct for Research Integrity (ALLEA, 2017) obliges all tExtended researchers. The European Commission has adopted ethics and research integrity principles from it and requires all projects receiving funding from the EU to commit to the principles of the ALLEA Guideline.

Guideline states that, 'good research practices are based on fundamental principles of research integrity. They guide researchers in their work as well as in their engagement with the practical, ethical and intellectual challenges inherent in research'. (ALLEA, 2017)

# 2.3 Ethics and Research Integrity in GA

According to Grant Agreement (GA) Article 14:

- The action must be carried out in line with the highest international and national law on ethical principles.
- The beneficiaries are committed to and ensure the respect of basic EU values (such as respect for human dignity, freedom, democracy, equality, the rule of law and human rights, including the rights of minorities).

And within Annex 5 of GA Specific ethics rules include, for example that: The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure protection of the environment and high levels of human health protection.

Annex 5 of GA also requires compliance with following fundamental principles:

- **reliability** in ensuring the quality of research reflected in the design, the methodology, the analysis, and the use of resources
- **honesty** in developing, undertaking, reviewing, reporting, and communicating research in a transparent, fair, and unbiased way
- **respect** for colleagues, research participants, society, ecosystems, cultural heritage and the environment
- **accountability** for the research from idea to publication, for its management and organisation, for training, supervision, and mentoring, and for its wider impacts



Naturally, continuous supervision and guidance is made by the management of the tExtended project regarding to following contexts defined by ALLEA (2017) in regard to research integrity:

- Research environment
- Training, supervision and mentoring
- Research procedures
- Safeguards
- Data practices and management
- Collaborative working
- Publication and dissemination
- Reviewing, evaluating and editing

# 2.4 VTT Support for Research Ethics

VTT provides support for research ethics:

- VTT's ethics committee role of which is, firstly, to enhance and monitor the compliance of Responsible Conduct of Research (RCR) at VTT, and secondly, advise and support researchers about RCR and provide guidance on the RCR process, if RCR violation is suspected.
- Research Integrity Advisors
- VTT OPINET online -course on research ethics and responsible conduct of research

Beside research integrity related themes VTT's ethics committee will provide support for any ethical issues that project may have.



# **3** Ethical Issues Relevant in tExtended

The **overall objective** of the tExtended project is to develop a knowledge-based Blueprint, i.e. a master plan for a sustainable textile ecosystem. The basis of the Blueprint is a Conceptual Framework determining the optimized utilization of textile flows, aiming for retention of value of materials in a safe and sustainable way. Based on the Blueprint, we will implement a real scale demonstrator, verifying its replicability and potential to reduce textile waste by 80 %. The tExtended project will achieve its overall objective of reduction of textile waste by developing and demonstrating effective textile recovery, waste valorisation and recycling processes combined with digital tools, sensing systems and data-driven solutions to support sustainable circularity of textiles.

Specific objectives of tExtended project are:

- 1. Support the implementation of circular textile ecosystems in different parts of Europe
- 2. Enable the optimization of textile recycling in the circular textile ecosystem by adopting data sharing and digital tools
- 3. Adopt Industrial-Urban Symbiosis in the replicable real scale demonstrator
- 4. Assess the sustainability and circularity with appropriate methodologies
- 5. Increase societal awareness and knowledge sharing within the community of practice
- 6. Develop a business case and an exploitation strategy

tExtended will develop circular solutions for the textile sector for replacing a large portion of virgin natural and oil based synthetic fibres with secondary raw materials supporting **green transition**, and data sharing tools and data-driven solutions to support **digital transition** in textile sector. tExtended will have both societal benefits related to new employment potential and business benefits improving the competitive edge of the European textile industry.

Extended activities will include involvement of human participants (Chapter 3.1), processing of personal data (Chapter 3.2), and development, deployment and use of Artificial Intelligence (Chapter 3.3). Since project is dealing with textile waste and new technologies environmental impacts and side-effects of which are not necessarily yet fully know, also environment, health and safety issues are included in this Ethics plan as Chapter 3.4.

One of tExtended partners TAW (CH) is from non-EU country, but activities undertaken in Switzerland do not rise any potential ethics issues. There is no foreseen concerns of materials, methods, technologies or knowledge developed within tExtended could be misused for unethical purposes. Furthermore, tExtended project scope does not contain activities raising any other specific ethical issues<sup>2</sup> listed in *How to complete your ethics self-assessment* (EC 2021a).

If any ethical issues arise unexpectedly during your project, those will be handled according to *Procedures* listed in Chapter 4.

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<sup>&</sup>lt;sup>2</sup> Other specific ethical issues listed in *How to complete your ethics self-assessment* (EC, 2021a) include use of human embryonic stem cells and human embryos, use of human cells or tissues, and use of animals.



# **3.1** Involving Human Participants

Main ethics issues concerning human participants are (EC, 2021a):

- the respect for persons and for human dignity,
- fair distribution of benefits and burden
- the rights and interests of the participants
- the need to ensure participants' free informed consent

Moreover, the methodologies should not result in discriminatory practices or unfair treatment.

### **Relevance to tExtended**

Consumer engagement and co-creation with communities is the main focus of the Social Innovation Spin-off<sup>3</sup>, where we will empower citizens to participate in the circular economy. The citizens play an active role in extending the lifespan of textiles and enabling their use as a source of raw materials. Increasing general knowledge and favourable attitudes towards more sustainable textiles promotes an environmentally friendly way of use throughout the life cycle (compared to current unsustainable, fast-fashion oriented linear model). tExtended studies the possibilities for social employment in the processes between consumers, as well as reuse or recycling actors. This also implies the development of appropriate training methods and programs, and the use and creation of digital training tools<sup>4</sup>. These tools also facilitate the dissemination process.

### **General Principles**

Participation of will be entirely voluntary and you must obtain and clearly document participants' informed consent in advance. (EC, 2021a)

Participants will be given informed consent form and detailed information sheets that (EC, 2021a):

- are written in a language and in terms they can fully understand
- describe the aims, methods and implications of the project activity, the nature of the participation and any benefits, risks or discomfort that might ensue
- explicitly state that participation is voluntary and that anyone has the right to refuse to participate and to withdraw their participation or data at any time without any consequences

Due to the nature of the tExtended activities involving human participants, ethics approvals are most likely not needed by law or practice.

Regarding handling of personal data related to human participation – see Chapter 3.2.

#### tExtended Ethics Self-Assessment:

The tExtended project foresees the involvement of different stakeholders for interviews. Related to Industrial-Urban Symbiosis modelling<sup>5</sup> there will be interviews/questionnaires targeted for value chain actors (raw material providers, product manufacturers, retail, consumers, recycling, waste treatment and other

<sup>&</sup>lt;sup>3</sup> Task 1.4 Social innovation spin-off (Task leader CARR, participants CTB, KLW, VTT, ZALA, CIT, AIM) M25-M46

<sup>&</sup>lt;sup>4</sup> Task 7.5 Training materials & worker skills development (Task leader NARA, participants KLW, CARR, CTB, CIT, RES, AIM, LSJH, KLW) M13-M48

<sup>&</sup>lt;sup>5</sup> Task 1.3 Symbiotic interaction in circular textile ecosystem (Task leader VTT, all partners participating) M12-M46



stakeholders). Related to the context of the social innovation spin-off<sup>3</sup>, there will be interview sessions with local representatives such as local municipalities, city councils, charities, other local actors as well as consumer.

The interviews will be published in tExtended communication and dissemination channels, and the interviewees act as multipliers of the tExtended messages. All subjects are adults able to give informed consents and their participation will be on a voluntary basis pending their acceptance of the informed consent modules. Informed consent will be prepared in languages understandable by the volunteers and will include information about the project activities, the objectives, and the anticipated outcome. Information on data processing methods, data privacy protection, handling of personal data and other rights of the participant will also be informed.

The participants will be informed on their right to participate, decline to participate, or withdraw from the project. Related to the Social innovation spin-off interviews, a permit to publish the interviews in specified channels will be asked form the interviewees before the interview.

# **3.2** Processing of Personal Data

Personal data must be processed in accordance with principles and conditions that aim

- to limit the negative impact on the persons concerned
- and ensure fairness, transparency and accountability of the data processing, data quality and confidentiality.
- are in accordance with highest ethical standards, and applicable international, EU and national law (in particular, the GDPR (Regulation (EU) 2016/679), national data protection laws and other relevant legislation). (EC, 2021a)

### Relevance to tExtended

Personal data will be processed within internal project management and communication<sup>6</sup>, stakeholder communication<sup>7</sup>, and related to human participants (see Chapter 3.1).

### **General Principles**

Project related personal contact information of the project group members are stored in secured MS Teams channel at VTTs domain. The access is available only to persons authorised by partners.

Within consumer engagement and involving Human Participants included to tExtended project work, there is no need for collecting *special categories of personal data*, formerly known as *sensitive data*<sup>8</sup>.

Any personal data under the Agreement will be processed under the responsibility of the data controller of the granting authority in accordance with and for the purposes set out in the Portal Privacy Statement (GA Article 15.1)

<sup>&</sup>lt;sup>6</sup> WP8 Management (Work package leader VTT, all partners participating) M1-M48

<sup>&</sup>lt;sup>7</sup> WP7 Dissemination, exploitation and communication (Work package leader CARR, all partners participating) M1-M48

<sup>&</sup>lt;sup>8</sup> Special categories of personal data, former Sensitive data, include personal data revealing racial or ethnic origin, political opinions, religious or philosophical beliefs, or trade union membership, and the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person, data concerning health or data concerning a natural person's sex life or sexual orientation (Article 9(1) in Regulation (EU) 2016/679)



#### Beneficiaries will ensure (GA Article 15.2) that personal data is:

- processed lawfully, fairly and in a transparent manner in relation to the data subjects
- collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes
- adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed
- accurate and, where necessary, kept up to date
- kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the data is processed and
- processed in a manner that ensures appropriate security of the data.

The beneficiaries may grant their personnel access to personal data only if it is strictly necessary for implementing, managing, and monitoring the Agreement. The beneficiaries must ensure that the personnel is under a confidentiality obligation.

The beneficiaries must inform the persons whose data are transferred to the granting authority and provide them with the Portal Privacy Statement.

For any personal data external to the Consortium partners that is gathered for the purposes of communication or dissemination of the project's work, such as through photos, videos, audio etc., a consent sheet will be provided. Respect with regards to privacy and data protection will also be ensured by complying with the General Data Protection Regulation (GDPR; Regulation (EU) 2016/679)

#### tExtended Ethics Self-Assessment:

The collected data does not include any special categories of personal data (e.g. sexual lifestyle, ethnicity, genetic, biometric and health data, political opinion, religious or philosophical beliefs). Regarding the data processing, all personal details and identification obtained from tExtended activities are handled according to the legislative requirements and GDPR principles. The access to personal data of the volunteers is limited to the dedicated partners' employees who have a need to know for the purposes of the research. If there is a processor processing personal data on behalf of any controller, said controller is responsible for entering into a data processing agreement with said processor and providing legally required information to the data subjects. All persons that are involved in processing volunteers' data are accountable for the compliance with the applicable legislative requirements.

The data management plan of tExtended including the personal data protection protocols, are described in separate Data management plan<sup>9</sup>.

Compliance with ethical principles and relevant legislations: All personal details and identification obtained from tExtended activities are handled according to the legislative requirements and EU GDPR principles and will be kept confidential in any public documents that may be produced using the data.

PUBLIC

<sup>&</sup>lt;sup>9</sup> D8.3 Project data management plan, lead partner VTT, Type data management plan, Dissemination level Public, Due in M6 i.e., in May 2023



# 3.3 Development, Deployment and/or Use of Artificial Intelligence

The manner in which an AI solution is deployed or used may change the ethical characteristics of the system. It is therefore important to ensure ethics compliance even in cases where your project does not develop itself an AI based system/technique.

#### **Relevance to tExtended**

Efficient data acquisition from and data sharing between different actors of the ecosystem is the basis for creation of data-driven processes<sup>10</sup>, which can be used to add predictability to the material flows in the ecosystem, optimize the valorisation of recycled materials and verify the ecosystem's capability to reach the target of 80 % reduction of solid waste generation in comparison to current state-of-the-art. The data sharing and usage will have an essential role in the tExtended Blueprint as part of the Conceptual Framework.

In addition to the data sharing targets on the ecosystem level, efficient utilisation of recycled materials requires adoption of novel sensing technologies and especially analytics methods, e.g. Internet of Things (IoT) technologies and other digital tools for the material identification, sorting and recycling processes. We will experiment with different optical sensor combinations and develop AI methods for both identification of different textile materials and for more detailed quality analysis.

### **General Principles**

The AI systems in tExtended will be designed and documented to be reproducible. The data will be endorsed a concise and measurable set of principles that we refer to as the FAIR data principles. The AI systems are designed and tested with collected data to be technically as robust, high quality, explainable, and accurate as possible. Risk of achieving false identification results and conditions for accurate performance will be stated clearly. Data sharing tools are based on IDS where data security, sovereignty and protection are a part of the reference design. The ownership of data will be determined, and handling of data will be tailored and clarified based on project and project owner needs.

#### tExtended Ethics Self-Assessment:

Explanation how the participants and/or end-users will be informed: The users will be informed about the AI models through detailed documentation and examples. The documentation will contain full mathematical, technical, and functional details of the AI models, software infrastructure. The examples will demonstrate different use cases, limitations of the AI models and how to avoid pitfalls.

Details on the measures taken to avoid bias in input data and algorithm design: We will not use people sensitive data. The AI models biases (if any) will cause wrong estimation of identification of the textile material properties or textile waste flows. The AI systems will be developed with training material collected in controlled laboratory environment and for the training data we will do statistical analysis to measure distribution, noise, data generality of training data. We will create training data that has as uniform distribution as possible in order to develop methods that can classify different properties of material with good accuracy.

The AI models will be tested against a set of real measured data set that will be used to test accuracy, stability against noise and special cases. This test data will be updated incrementally to add new test scenarios. This

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<sup>&</sup>lt;sup>10</sup> Data related tasks: Task 1.2 Requirements for data sharing in circular textile ecosystem (Task leader CIT, all partners participating) M1-M21; Task 2.1 Development of data sharing tools and data-driven solutions (Task leader VTT, participants TEKO, LSJH, INES, CIT, KLW) M5-M36; and Task 4.2 tExtended data sharing infrastructure and datadriven solutions (Task leader INES, participants CIT, VTT, TEKO) M5-M36



approach will also make sure that the AI models stays stable upon new training updates. If a test fails, we will re-examine the training data, data processing pipeline and AI-model architecture. Explanation as to how the respect to fundamental human rights and freedoms (e.g., human autonomy, privacy and data protection) will be ensured: The purpose of AI models in the project are to estimate material lifetimes and identify material defects. The AI models will not contain data and parameters sensitive to people's personal and professional life.

Detailed explanation on the potential ethics risks and the risk mitigation measures: The AI models will not contain data and parameters sensitive to people's personal and professional life. The main ethical risk is that the user fails to take the uncertainty and risk estimates given by the AI technology into account when making decisions. This risk is mitigated by training the users on how to evaluate the risks of the decisions given the output of the AI system.

Compliance with ethical principles and relevant legislations: We are aware that a Proposal for a Regulation laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) (EC, 2021b) is currently pending adoption by the EU legislator, and that when it enters into force, may have effect on project activities. The project will carefully follow the progress of the legislation.

# 3.4 Environment, Health and Safety

The health and safety of all human participants must be a priority in all EU projects, especially in projects where participants may be subjects, investigators or uninvolved third parties. Consideration must be taken if research activities may adversely affect the environment, or the health and safety of the persons involved. This may be due to either the (experimental) design of the project itself or undesirable side-effects of the technologies used.

## Relevance to tExtended

Technological<sup>11</sup> and digital solutions developed in tExtended project are expected by design to be safe for people and environmentally sustainable. The overall objective of the tExtended project is to develop a knowledgebased Blueprint for a sustainable textile ecosystem. The basis of the Blueprint is a Conceptual Framework determining the optimized utilization of textile flows, aiming for retention of value of materials in a **safe and sustainable** way.

## **General principles**

When considering the scope and activities of tExtended and its expected direct and primary indirect impacts, the project is in accordance with the **Do no significant harm** -principle (Regulation (EU) 2020/852) since it:

- will have negligible or slight positive expected impact of climate change mitigation as it enables (Article 16) reduction of greenhouse gas emissions of textile production and recycling value chain (Article 10).
- will have none or negligible expected impact on contribution to climate change adaptation (Article 11).
- will have negligible or slight positive expected impact on sustainable use and protection of water and marine resources as it is improving water management and efficiency (Article 12) since increased textile recycling will replace use of virgin textile fibres, production of which requires large amount of water and chemicals.

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<sup>&</sup>lt;sup>11</sup> Work Packages involving process and technology development and demonstrations: WP2 Digital tools and technologies for textile recovery (Work package leader AIM, participants all, except CARR) M5-M48; WP3 Textile recycling technologies (Work package leader CIT, participants all except CARR, INES) M3-M39; WP5 Demonstrators (Work package leader RES, all partners participating) M25-M46



- is contributing substantially to the transition to a circular economy via several actions listed in Article 13: especially (Action 1a) reducing the use of primary raw materials or increasing the use of by-products and secondary raw materials, (Action 1f) increases the use of secondary raw materials and their quality, including by high-quality recycling of waste.
- will have negligible or slight positive expected impact of pollution prevention and control as it enables (Article 16) reduction of pollution of textile production and recycling value chain (Article 14).
- will have none or negligible expected impact on protection and restoration of biodiversity and ecosystems (Article 15).

Even if developed solutions are expected to be safe and sustainable by design, tExtended project work includes handling of textile waste, which have some occupational safety concerns such as:

- Handling of textile waste can lead to dust formation
- Materials may contain unknown contaminants, which may be release irritant, hazardous or toxic gaseous components when handled and/or processed, for example, in high temperatures

The occupational safety will be ensured by up-to-date Safety and Health procedures, including risk assessment and mitigation methods of each partner. Partners will follow precautionary principle and legislation on nature conservation and pollution control. All waste will be disposed by fully following the EU level and national legislation.

It is possible that there are undesirable side-effects of the technologies used. This is shortly referred in tExtended Risk Assessment.

Description of risk	Possible consequences	WP	L	S	Proposed risk mitigation measures			
	Risks related to technical issues							
Developed solutions not feasible for specific products, or properties do not meet all the criteria	Higher cost of the end products/technologies; Need to adopt alternative technologies	2-6	М	М	Several approaches and concepts will be considered and evaluated, and not all are expected to perform equally well for all types of products.			
Results do not comply with planned sustainability impacts.	Inability to achieve expected Impact; Difficulties in dissemination of results and in technology transfer.	1-6	L	М	Early screening in order to pinpoint possible obstacles in reaching goals. In extreme case, plan to be readjusted.			

# Table 1: Risks related to sustainability of technologies as described in tExtended Risk assessment in Project Quality Management Plan. Level of likelihood (L) and Severity (S) are indicated as Low L, Medium M, or High H.

# **4** Procedures of Ethics Management in tExtended

#### Table 2: Procedures of Ethics Management in tExtended

Action	Description Documentation		Timeline
1	VTT completed ethics self-assessment of tExtended project during Grant Agreement Preparation process	Part of GA and text also included into this document.	Completed
2	As coordinator VTT will be responsible of quality management of tExtended project		
3	As leader of Ethic Management <sup>13</sup> VTT will act as Ethics manager monitoring the ethics issues involved in the project, with support of VTTs support described in Chapter 2.4.	Ethics Plan (i.e., this document) - PUBLIC	Submission M3
4	As task leader of Data management task VTT will act as Data Manager	Data Management Plan - PUBLIC	Submission M6
5	<ul> <li>Ethics is included into fixed agenda point for each General Assembly (GenA) meeting so any ethics related questions and issues raised during the project will be dealt collaboratively by GenA.</li> <li>These could be e.g.</li> <li>Unexpected side-effects of technologies.</li> <li>Evaluation if <i>Ethics evaluation</i> is needed in human involved once Social Innovation spin-off plans have been clarified.</li> </ul>	GenA minutes. Other documentation based on raised ethical issues.	Every GenA meeting
6	Occupational safety regarding handling and processing of textile waste	Review of occupational safety risks and documentation of partner specific protocols for ensuring occupation safety	Ongoing, first version M7

<sup>&</sup>lt;sup>12</sup> D8.1 Project Quality Management Plan (PQMP), Lead partner: VTT, Type: Report, Dissemination level: Sensitive, Due M1

<sup>&</sup>lt;sup>13</sup> Task 8.2 Ethics management (Task leader VTT, all partners involved) M1-M48



Action	Description	Documentation	Timeline
7	Human participation in specific project activities including Social Innovation Spin-off	Informed consent form and detailed information sheets	Before start of activities
8	Personal data related to stakeholder collaboration If needed, also Informed consent form and detailed information sheets		Before start of activities
9	Any ethical issues arise unexpectedly during your project will also be reported via Funding & Tenders Portal with detailed information on the issue and how we are intending to handle it, in order to receive appropriate help and guidance.	To be determined	If needed, any time during the project



# References

Allea (2017) The European Code of Conduct for Research Integrity. Available: <u>https://allea.org/code-of-conduct/</u>

 EC (2012) Roles and Functions of Ethics Advisors/Ethics Advisory Boards in EC-funded Projects. December

 2012.
 Available:

 <u>https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/ethics-guide-</u>

 advisors\_en.pdf

EC (2021a) How to complete your ethics self-assessment, Version 2.0, 13 July 2021. Available: <u>https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/common/guidance/how-to-complete-your-ethics-self-assessment\_en.pdf</u>

EC (2021b) Proposal for a Regulation of The European Parliament and of The Council Laying Down Harmonised Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts, COM/2021/206 final. Available: <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206</u>

Regulation (EU) 2016/679 of The European Parliament and of The Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) Available: <u>EUR-Lex - 32016R0679 - EN - EUR-Lex (europa.eu)</u>

Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 <u>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32020R0852</u>

TENK (2012) The Finnish National Board on Research Integrity TENK (Tutkimuseettinen neuvottelukunta): Responsible Conduct of Research, RCR (Hyvä tieteellinen käytäntö). Available: https://www.tenk.fi/sites/tenk.fi/files/HTK\_ohje\_2012.pdf