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## Deliverable D1.3 Ethics Assessment Report

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Responsible author(s)	Eda Gürel <a href="mailto:eda@tourism.bilkent.edu.tr">eda@tourism.bilkent.edu.tr</a>			
Reviewer(s)	Azru Sibel İkinci <a href="mailto:aikinci@bilkent.edu.tr">aikinci@bilkent.edu.tr</a>			

Short Description	<p>This deliverable includes guidelines and procedures for addressing various ethical issues, including research practices, to ensure that all align with the European Code of Conduct for Research Integrity based on reliability, honesty, respect, and accountability. This deliverable is a reference document for all partners of the project. It is a living document and will be updated throughout the project when required to comply with the highest ethical principles.</p>
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28 April 2023	Final 1.0	Eda Gürel	Revised after review

## Executive Summary

This Ethics Assessment Report outlines guidelines and procedures for addressing various ethical issues that may arise during our project, particularly regarding research practices and technology development. As set out in the European Code of Conduct for Research Integrity of ALLEA (All European Academies, 2017), the fundamental principles of research integrity of honesty, reliability, respect, and accountability will guide our approach to these issues.

We will prioritize **transparency and disclosure** to promote **honesty** throughout our research process. This includes our various open science practices and data management procedures.

We will adhere to rigorous research standards to ensure **reliability**, including robust methodology, data collection and analysis procedures, careful documentation, and peer review. We will also take steps to mitigate potential sources of error, such as sampling bias. We also address obtaining ethical approvals.

To demonstrate **respect**, we will prioritize the welfare and dignity of all individuals involved in our research, including study participants, research staff, and other stakeholders. This includes obtaining informed consent, protecting privacy and confidentiality, and avoiding harm or exploitation.

Finally, to promote **accountability**, we will establish clear roles and responsibilities, set expectations for ethical behavior, and establish mechanisms for oversight and review. We will also ensure that our research adheres to applicable **laws, regulations, and professional codes of conduct**.

By following these principles, we will ensure that our project is conducted ethically and with the highest level of integrity.

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## 1. Introduction

Following the main ethical good research principles set out in the European Code of Conduct for Research Integrity (ALLEA, 2017), this Ethics Assessment Report provides a plan for addressing various ethical issues that may arise during our project.

Ethical considerations are important in all areas of our lives, including research. As researchers, we have a responsibility to conduct our work in a manner that is ethical, transparent, and accountable and to ensure that our findings are reliable and accurate.

This ethics assessment report provides guidelines and procedures for addressing various ethical issues that may arise during our project, particularly regarding research practices and technology development based on the Ethics Summary Report of our project by the European Commission. This report is grounded in **honesty, reliability, respect, and accountability**, guiding our approach to these issues.

Thus, in the following sections, we will outline our approach to promoting honesty, reliability, respect, and accountability in our project. We will describe the specific ethical issues that may arise during our project and provide strategies for addressing them under each principle. We will also outline our plan for ensuring compliance with relevant laws and regulations.

Our goal in producing this report is to demonstrate our commitment to ethical research practices and to provide a framework for ensuring that our project will be conducted in a manner that is both ethical and rigorous. We hope this report will guide all team members and promote a culture of ethical behavior and responsibility in our project.

## 2. Legal Foundation

The ground for ethics in Horizon Europe Projects is laid down in Article 19 of the regulation (EU) 2021/695 establishing the Horizon Europe (Eur-Lex, 2023) passed by the European Parliament. Accordingly, ethical principles are linked to human rights and fundamental freedoms. In addition, the ground for ethics is laid down in Article 14 of the Grant Agreement in Annex 5 concerning ethics and research integrity. Thus, the following is stated in the Grant Agreement (Annex 5, page 2);

*“all beneficiaries must carry out the action in compliance with:*

- *ethical principles (including the highest standards of research integrity), and*

- *applicable EU, international and national law, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.”*

The following is also stated in the Grant Agreement in Annex 5 (pages 2 and 3),

*“The Beneficiaries must pay particular attention to the principles 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.”*

...

*“In addition, the beneficiaries must respect the fundamental principle of research integrity — as set out in the European Code of Conduct for Research Integrity.*

*This implies compliance with the following 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 organization, for training, supervision and mentoring, and for its wider impacts*

*and means that beneficiaries must ensure that persons carrying out research tasks follow the good research practices including ensuring, where possible, openness, reproducibility and traceability and refrain from the research integrity violations described in the Code.*

*Activities raising ethical issues must comply with the additional requirements formulated by the ethics panels (including after checks, reviews or audits; see Article 25).*

*Before starting an action task raising ethical issues, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.*

*The documents must be kept on file and be submitted upon request by the coordinator to the granting authority. If they are not in English, they must be submitted together with an English summary, which shows that the documents cover the action tasks in question and includes the conclusions of the committee or authority concerned (if any)."*

Thus, we hereby acknowledge that according to the Grant Agreement, all beneficiaries of CULTURATI, including both EU and non-EU, will act in compliance with the above specific rules concerning ethics and research integrity. Research will be conducted with a critical and open mind and with utmost respect and dignity for all human participants.

### **3. Requirements Set Out in the Ethics Summary Report**

#### **3.1 External Independent Ethics Advisor/Board**

The appointment of an External Independent Ethics Advisor with relevant expertise in ethics of AI and ethics research with human participants emerged as a requirement during the grant agreement process in line with the suggestions of the European Commission to monitor the ethical concerns related to this project. Nevertheless, CULTURATI aims to identify, test, and evaluate the project's core system by integrating AI technologies, as well as test, validate and demonstrate the main functionalities of AI on the users, and make experiments in the non-EU country (Türkiye and the UK). Therefore, the project raises questions about research ethics and the ethics of AI. Accordingly, an independent Ethics Advisor with relevant expertise in AI and ethics of research with human participants was deemed necessary by the European Commission.

The General Assembly officially appointed Dr. Hüseyin Sungur Kuyumcuoğlu as the Independent Ethics Advisor based on his relevant education, experience, and courses taught in AI ethics on 7 March 2023, as agreed in the Consortium Meeting on 17 February 2023. According to the Grant Agreement, the External Independent Ethics Advisor must report in M1, M6, M12, 24, and M36.

After the appointment of Dr. Kuyumcuoğlu, a meeting was held with the AI developers of CULTURATI in M1. Dr. Kuyumcuoğlu was informed about the project's objectives, scope and methodology. After the meeting, the first observations of the External Independent Ethics Advisor were summarized and submitted in Deliverable D7.1 OEI – Requirement No. 1 in M1.

The deliverable included the initial suggestions and guidelines to ensure ethical compliance throughout the CULTURATI project. Following the guidelines set out in the "Ethics By Design and Ethics

of Use Approaches for Artificial Intelligence” by the European Commission, the observations and the guidelines of the External Independent Ethics Advisor are grounded in the following ethical principles;

- respect for human agency,
- privacy, personal data protection, and data governance,
- fairness,
- individual, social, and environmental well-being,
- transparency,
- accountability and oversight (European Commission, 2021).

The values and principles listed above guided the initial decisions regarding the critical characteristics of CULTURATI's AI-based system. As Deliverable D7.1 OEI – Requirement No. 1 is classified as sensitive, we do not provide the details here.

### 3.2 Ethics Check or Review During the Project

Based on our Ethics Summary Report by the European Commission, an Ethics Check is warranted at M10 of our project, because of the following reasons;

- lack of details about the nature of the research activities involving human participants (including vulnerable groups, minors etc), and processing of personal data (including potential special categories of personal data),
- lack of details regarding the tracking and profiling activities within the project,
- lack of an ethics-by-design approach in Artificial Intelligence (AI) tool development,
- two of the project’s pilot studies and three of the project’s pilot demonstrations take place in non-EU countries (Türkiye and UK).

Therefore, in the following section, we provide details for the research practices that will be carried out during the lifecycle of our project to overcome the ethical issues identified above.

## 4. Ethical Issues Management

Since CULTURATI is a Research Innovation and Action (RIA) project involving human participants, the following section aims to offer assistance in research ethics to all CULTURATI consortium members during the project lifecycle. This section promotes a shared understanding of the importance of high research standards, integrity, and adherence to ethical guidelines. Accordingly, following the main ethical good research principles set out in the European Code of Conduct for Research Integrity

(ALLEA, 2017), we will provide details regarding the nature of our research activities to promote honesty, reliability, respect, and accountability in our project.

## 4.1 Honesty

### 4.1.1 Transparency and Disclosure

As an integral part of our proposed methodology, we will implement open science practices in various ways to make our research outputs transparent, available, accessible, broad, and sustainable. First, we will practice early and open sharing of research through preregistration and reprints. Before gathering data, we will finalize and preregister our research protocols (e.g. As Predicted by the University of Pennsylvania) to provide transparency and avoid bias. We will also post preprints online on Open Research Europe to make our findings openly available and accessible to a broader community and receive feedback before submission to a journal.

Second, we will provide open access to our research outputs. The Scientific and Technological Research Council of Türkiye (TÜBİTAK) supports open science. In March 2019, the Board of Directors accepted the open science policy in line with the Green Road Open Access requirements. The policy concerns providing continuous open access to scientific publications and research data to increase the visibility and impact of the scientific publications (TÜBİTAK, 2021). Therefore, it has its online platform APERTA for researchers to keep and make their publications, data, software, models, algorithms, and workflows openly accessible (TÜBİTAK, 2022). In line with this policy decision, powered by the Turkish Academic Network and Information Centre, Bilkent University (Project Coordinator) has its institutional open access repository called BUIR. By default, material deposited in BUIR is openly accessible worldwide over the Web. Accordingly, all the academic work produced by the university's academic staff (including CULTURATI project's team members) is openly accessible (Bilkent University, 2021). We will use APERTA and BUIR to provide stable, long-term public access to research outputs (including publications and policy briefs) produced during the project. These repositories will be an integral part of our research data management.

Third, we will increase reproducibility by implementing the open science practices above and disseminating information about these practices. We aim to ensure reproducibility by making the research data, software, codes, and models with our published findings and analysis available, open and accessible through Open Research Europe, APERTA, and BUIR. To this end, we will also document our metadata and its data dictionary and post data and codes with a link in our publications. Fourth, we will seek citizen, expert, and end-user engagement, besides including them as active participants

and end-users in all stages of CULTURATI; development, evaluation, testing, and validation stages. We will co-design, co-create (e.g. participant's work presentations), and co-assess our research outputs by including citizens, experts, and end-users during the project. In addition, we will organize workshops and national events (in hybrid form) with them at research sites and universities as part of our communication and dissemination activities (see 2.1.3. Grant Agreement Annex 1 Part B for more details). Fifth, we will participate in open peer-review and publish as early as possible. For this purpose, we allocated a budget for open access journals under the budget of Touch TD, which is responsible for dissemination, communication, and exploitation (WP6). Sixth, we have a project website ([culturati.eu](https://culturati.eu)) to reach a broader audience and open access to our project during and after its duration. With the help of our open science practices, we will be able to share and manage our research outputs during and after the project duration. Some of our deliverables are already available on <https://culturati.eu/deliverables/>

#### 4.1.2 Data Management and Management of Other Research Output

The consortium is committed to managing the digital research data generated during the project responsibly, in line with the FAIR (Findable, Accessible, Interoperable, Reusable) principles bearing in mind that RDM (Research Data Management) is an essential element in any project that generates, collects or re-uses data to ensure that researchers can find, access and re-use each other's data, maximising the effectiveness and reproducibility of the research undertaken. During the first stages of the project a detailed data management plan (DMP) for making the data/research outputs FAIR will be defined. The DMP will be a live document that will be updated based on the project progress and needs. Among the partners, Serdar Vural Öktem is involved in the data management and protection project due to his expertise (see 3.2 in Grant Agreement Annex 1 Part B).

To comply with the FAIR principles, we will follow the following methodology: A. Findability of data/research outputs; (1) The data will be identified by a persistent identifier, and a stable resolvable link to where the data sets can be directly accessed will be provided. The APERTA repository mentioned above fulfils these and Horizon Europe/European Commission's requirements, (2) the data will be enriched with metadata so it can be easily discovered, (3) the discovery will be facilitated by the Data Lake (WP2 - Task 4) specifically designed for this project. B. Accessibility of data/research outputs; by default, material deposited in APERTA is openly accessible worldwide over the Web. C. Interoperability of data/research outputs; a data dictionary will be created, it will serve as a reference and description of each data element. The dictionary will be based on the data model, it will be the detailed definition and documentation of the data model, D. Reusability of data/research outputs; the

data will be exposed openly, and a dictionary will be publicly available therefore the reusability of the data generated will be fostered. Hence, the research outputs of CULTURATI, including the research data, software, codes and models, as well as peer-reviewed scientific journals, policy briefs disseminated at national and local government and industry levels will be managed, stored, and made accessible to the public for reuse.

## 4.2 Reliability

### 4.2.1 Robust Methodology, Data Collection, and Analysis Procedures

#### 4.2.1.1 Methodology

CULTURATI project will **build a sustainable and inclusive cultural-educational ecosystem with visitor and capacity management** that will aim to achieve the following strategic objectives;

- **Strategic Objective 1:** To enhance and support collaboration between private CCIs, public and cultural institutions, and everyone in the community to promote Europe's culture, values, and interests,
- **Strategic Objective 2:** To increase accessibility, awareness, understanding, and participation of cultural heritage and arts,
- **Strategic Objective 3:** To enhance the audience experience by using digital solutions and cutting-edge technologies,
- **Strategic Objective 4:** To preserve cultural heritage and make them more resilient by preventing deterioration due to overcrowding and in case of a pandemic,
- **Strategic Objective 5:** To increase economic and socio-cultural development.

To achieve its overall and strategic objectives, the research, development, and innovation objectives of this project (and their mapping to WPs) are;

- **Objective 1:** To develop, verify and evaluate main-stream technologies for CULTURATI for content and visitor-flow management with two subsystems; education and navigation (WP2),
- **Objective 2:** To test and verify the technological outcomes in operational environments consisting of two pilot studies (WP3),
- **Objective 3:** To demonstrate the fully functional prototype to show its operational feasibility at five pilot venues (WP4),
- **Objective 4:** To Integrate AI into CULTURATI to automate the content management and improve the performance of its technological stack with AI (WP5).

To this end, we will employ user-centred design methodology in this project. According to the Interaction Design Foundation, “User-centred design (UCD) is an iterative design process in which designers focus on the users and their needs in each phase of the design process” (Reveall, 2022). Thus, following the recommendations (ISO 13407) for a UCD project, the project will be carried out in the following phases; (1) requirements specifications to better define the context of use and the users’ needs, (2) technologies selection, (3) system architecture development, (4) user interface (UI) design, and (5) system evaluation (user testing) (ISO, 2022).

Thus, the project will be carried out in three main stages over three years;

- Stage ONE will focus on developing, evaluating, and testing main-stream technologies of the system, which will have two users; (1) content creators and (2) consumers of cultural heritage and arts (end-users). At this stage, the multiple components of the technology will be developed, tested and evaluated. Thus, this stage will include all the phases of the UCD process and take into account the user’s requirements and objectives (WP2). At this stage, the technology of CULTURATI will be tested in two operational environments (indoor and outdoor) in Türkiye (WP3) through custom usability tests (e.g. System Usability Scale – SUS) and expert reviews to evaluate its main functionalities.
- Stage TWO will focus on more rigorous testing than technology and get feedback from the users in the operational environments to further validate and demonstrate the capabilities and usability of the system. At this stage, we will make formative and summative evaluations involving end-users. To this end, we will measure and explore the user experience and impact of CULTURATI’s technologies at five pilot venues across Europe (WP4).
- Stage THREE will focus on integrating AI into CULTURATI to help CCIs and citizens produce creative content by utilizing the internal archives and data and then curating this content in a logical and organized way through games and routes. This stage will also include testing and validating it in one of the pilot sites (Blenheim Palace), because of the language barrier. However, experiments will be conducted for Turkish, Finnish, and Italian (WP5). Testing and validation of AI integration into the curatorial software and optimization will be conducted in all research sites.

Findings from Stage ONE will be used to inform the initial design of CULTURATI. In Stage TWO, formative and summative assessments will be conducted with planned field studies. At this stage, besides traditional usability tests, we will test CULTURATI on the end-users based on our interdisciplinary conceptual framework (WP4).

In line with our user-centred methodology, we will conduct research based on a conceptual model to validate CULTURATI and explore its impact on the end-users' learning, satisfaction, engagement, and participation in cultural heritage and arts. To this end, we propose a conceptual model integrating a range of theoretical perspectives from experience marketing, sociology, anthropology, gender and women's studies, multicultural and regional studies, tourism, museum and cultural studies to holistically investigate cultural preferences and participation, motivations and experiences of different types of visitors to validate CULTURATI. By doing this, we will respond to Barbieri and Mahoney's (2010), Stylianou-Lambert's (2011) and Taheri et al.'s (2014) call for research on cultural consumption by integrating theories from various disciplines by applying multi- and interdisciplinary approaches.

In summary, our conceptual model includes personal, social and physical context as antecedent variables, gender and end-users' clusters as moderating variables and satisfaction (e.g. revisit and recommendation intention) and beneficial outcomes as outcome variables to measure visitor experiences and satisfaction with CULTURATI to validate it. However, this proposed model will be improved and finalised before data collection in the project especially after exploring theories from anthropology to understand cultural consumers (including tourists) and their future behaviours and intentions (e.g. revisit and recommendation intentions). Based on our conceptual model, a self-administrated research instrument will be developed.

#### *4.2.1.2 Data Collection and Sampling*

CULTURATI project partners are committed to upholding the highest scientific standards in data collection. Accordingly, this section aims to provide clear information about our data collection procedures and protocols, the research methods used, instruments, timing and analysis methods.

We will use a mixed-method research design to collect data from the end-users. First of all, after using CULTURATI, visitors exiting the site (the location will strategically be chosen at outdoor sites) will be approached to fill out the online questionnaires by using tablets. A three-member trained research team from the research universities (BU, HHU, OBU, and UNIFG) will conduct the questionnaires. The researchers will explain the research briefly and ask for their consent to participate in the project. Participation will be completely voluntary and anonymous.

Second, we will also make interviews with selected end-users who agree to participate in our subsequent research to further discuss their experiences. Collecting qualitative data is important at both formative and summative evaluation stages to explain and interpret quantitative findings,

overcome nonresponse bias and cross-validate our findings. Those participants who agree to participate in the interviews will be invited to the site; otherwise, interviews will be conducted online. Seasonal variations will be considered in data collection. To further validate CULTURATI, we will conduct longitudinal research with participants who agree to participate in the project. These participants will make several visits to the site during the project to measure their experiences in time.

A random and opportunity sampling technique will be applied. We target to collect 400 face-to-face questionnaires at each pilot site and conduct 20 semi-structured interviews every three months in Stage TWO and Stage THREE. To achieve a representative sample for the population, we will check to ensure representative numbers of first-time and repeat visitors, tourists and local visitors, individual and tour members, under and over 30s and game and route users. We will interview directors of research sites to make sure that the demographic profile of our sample is similar to the profiles of their visitors.

Third, we will collect data from online end-users. Tracking online visitor behaviour would provide a strong source of information to evolve and optimize the current algorithms of the system. It will become a valuable guideline and blueprint for further iterations with the user, since online visitor policies will enable ad-hoc customization. The same research instrument will be used to collect data from online users besides collecting traditional analytical data for websites, such as total traffic, source of traffic, bounce rate, and conversion rate.

Fourth, we will collect data from all site managers and content creators who manage and participate in content creation for the system. Semi-structured in-depth interviews will be carried out with all managers and content creators involved in the study to understand and explore their suggestions and opinions on the strengths and weaknesses of the system to improve it continuously and minimize its potential negative consequences.

Researchers involved in the project will pre-test the questionnaire on a sample (100 visitors in each pilot location because of the language differences; month 10 in Türkiye and month 16 in other sites) of 500 respondents (**KPI**). After these procedures, the questionnaire will be modified and improved.

In total, we will collect 15600 questionnaires and conduct 780 interviews with the users of CULTURATI to improve and validate it (**KPI**). By using a larger sample size collected in various pilot sites and countries, we aim to produce reliable research data. Accordingly, data collection will be carried out by

the Research Universities (BU, HHU, OBU, UNIFG) in the project. For this purpose, each research site has a research university. For more information about the roles and responsibilities, see section 4. Project Organization in the Project Handbook and section 4.4.1 Clear Roles and Responsibilities in this document. In this document, we also cover details about protecting personal data in 4.3.3 Privacy and Personal Data Protection.

#### *4.2.1.3 Data Analysis*

Like our data collection, we will conduct our analysis to produce reliable data. First, reliability analysis for the research constructs will be performed. Second, since previous research studies show that visitors look for various experiences, we will conduct cluster analysis to classify visitors into mutually exclusive groups based on selected sociodemographic, motivational, and behavioural variables to overcome the aggregation problem. There are several different ways to conduct cluster analysis, including hierarchical methods, partitioning methods (k-means) and two-step clustering. Largely a combination of the first two methods, two-step clustering has been suggested as appropriate in clustering groups with mixed attributes. Third, multiple regression analysis will be used to examine the relationships between variables in our proposed conceptual model involving personal, social and physical factors, satisfying experiences and beneficial outcomes. In the model, clusters and gender will be the moderating variables. Cross-cultural comparisons (including the samples from Finland, Italy, Türkiye and the United Kingdom), will be made to cross-validate our research findings. Fourth, the interview transcripts will be transcribed for data analysis. Using Colaizzi's (1978) phenomenological method, all transcripts will be read several times to obtain an overall feeling for them. Significant phrases or sentences will be identified to be grouped under common themes. A qualitative analysis tool NVivo will be used to determine the common themes in data analysis. Using Meadows and Morse' (2001) application of verification, validation and validity, methodological rigor will be attained.

In data analysis, **licensed data analysis tools** will be used. Bilket University already has a licensed NVivo for qualitative data analysis. SPSS will be used for quantitative data analysis. The budget of University of Foggia (UNIFG) includes the cost of a licensed SPSS.

Like data collection, a large group of experienced researchers will also conduct data analysis involving members from all research universities **for peer review and careful documentation** to produce reliable research data.

#### 4.2.1.4 Writing Up for Academic Journals and Conferences

All research partners in the project are committed to producing excellent research output. Therefore, while producing academic works, the contributions of each research member will be clearly identified. It is also important to adhere to other guidelines when writing academically, such as using credible sources and citing references. Therefore, to prevent plagiarism, we will use Turnitin through the library of the Bilkent Universitesi Vakif. In fact, many academic journals and publishers use Turnitin to check submissions for originality before accepting for publication. Using Turnitin will help us ensure that our work is original and meets ethical standards for academic research. The acceptable plagiarism rate is up to 15%, like most of the Q1 journals.

#### 4.2.2 Ethical Approvals

Bilkent University's (Project Coordinator) Ethics Committee's approval will be received for the survey instrument and semi-structured interviews in the study. Before each data collection session, participants will be informed about the aim of the research and the procedure for data protection. They will also complete a university-approved consent form before the surveys and semi-structured interviews.

The questionnaire and semi-structured interviews will be written in English and translated into other languages (Finish, Italian and Turkish) to collect precise data from national visitors. The translations will be done with the support of linguistic experts at the research universities of the project. Therefore, the project will also receive ethical approvals for the translated versions of the research instruments from the other research universities (UNIFG, HHU, OBU). Since two of the project's pilot studies and three of the project's pilot demonstrations take place in non-EU countries including Türkiye and UK, ethical approval will also be received from the research university in the UK, Oxford Brookes University (OBU).

All pilot sites in the project are beneficiaries of CULTURATI. Therefore, pilot sites will handle permissions for data collection at their sites. As beneficiaries, they have already agreed to help collect user data for the CULTURATI project. They will be responsible for obtaining approvals and authorizations required by law. Each partner research university is responsible for all data collection and acquisition at pilot sites.

Since data will be collected through tablets, all data will be stored in Cloud in the EU (for details, see Deliverable 1.4 Data Management Plan 1). Each partner is obliged to implement appropriate security

measures to ensure the confidentiality and reliability of the data. Each partner must properly implement the informed consent procedures during data collection. Online informed consent forms and information sheets will be available before data collection.

### 4.3 Respect

#### 4.3.1 Gender Dimension

In our project's research and innovation content, gender is taken into account in several ways. First, we aim to test the moderating effect of gender on the visitors' satisfying experiences and beneficial outcomes using CULTURATI. In literature, there is scarce research evidence on the motivations and experiences of visitors and the effect of sex or gender. Although large-scale research data suggests that women's cultural participation rates are higher than men's, it is not yet known why women's attendance is higher and what role gender plays in this, particularly in relation to their motivations and what experiences they look for in engaging with cultural activities. To close this gap in the literature, we introduced gender as a moderating variable in our proposed conceptual model.

In previous research studies and national surveys, in most cases, sex or gender is traditionally operationalized by asking respondents to indicate whether they are male or female (one-step method). However, this method has been criticised because it cannot capture the complexities of gender and sex identities. Therefore, we will employ the two-step method to measure birth sex and current gender identity separately to overcome the shortcomings of the one-step method (European Commission, 2020) (WP4). In this way, we will address and have an in-depth understanding of the diverse gender needs of citizens of the European Union and design and iterate CULTURATI.

Second, we will employ user-centred design methodology in all stages of this project. Thus, we will seek the participation of diverse users (both content creators and end-users) without any unfair and unlawful discrimination by age (not including children under 18), disability, race, sex, gender reassignment, sexual orientation, religion or belief, pregnancy or maternity, marriage or civil partnership to understand and consider their needs in the design, development, evaluation, testing and validation of CULTURATI (all WPs).

Third, while integrating AI into the system, we will also take gender and intersectionality into account and consider the users (both content creators and end-users) of CULTURATI. Because CULTURATI needs to include and attract everyone to reach a wider audience and increase awareness and understanding of European arts, culture, and values within the EU and internationally (WP5). A

gender-balance will be aimed by checking the language created by content creators so that the language is not promoting a gender over the other.

Fourth, gender-balance will also be sought after in developing the questions of the research instrument. With our pilot tests, we will make sure that the questions apply to all genders, without putting one or the other in a situation of discomfort.

Fifth, although some progress on women's rights has been achieved globally, work still needs to be done in many countries, including Türkiye, to achieve gender equality (UN Sustainable Development Goals - Goal 5 – Gender Equality). Unfortunately, Türkiye's female labour force participation rate is 32 percent lower than the European Union's 46 percent (World Bank, 2022). CULTURATI will provide a global content platform to help everyone (not only in Türkiye but also across Europe), including women and their SMEs, disseminate information and knowledge about their arts and crafts, providing economic and socio-cultural development opportunities. In the inclusion and selection of the users in this project, gender balance will be a priority.

#### **4.3.2 Participation of Diverse Users**

We employ user-centred design methodology in all stages of this project. Thus, we will seek the participation of diverse users (both content creators and end-users) without any unfair and unlawful discrimination by age (not including children under 18), disability, race, sex, gender reassignment, sexual orientation, religion or belief, pregnancy or maternity, marriage or civil partnership to understand and consider their needs in the design, development, evaluation, testing and validation of CULTURATI (all WPs).

The main objective of CULTURATI is to build a sustainable and inclusive cultural-educational ecosystem with visitor and capacity management. Accordingly, getting involved in the CULTURATI project has no limitations or restrictions. The principal motivation behind CULTURATI is to involve anyone in society without discrimination in creating, disseminating and sharing knowledge concerning cultural heritage and arts. Although, CULTURATI project does not include children under 18 years old during the development and validation of the technologies of CULTURATI, we will pay utmost importance to the unique needs of various groups in the public in the development of the CULTURATI.

### 4.3.3 Privacy and Personal Data Protection

The CULTURATI project will promote the activities below to guarantee privacy and personal data protection. Personal data may be defined as any data permitting the identification of the person involved. In the CULTURATI project, we are determined to collect data so that identification of the person will not be allowed.

#### 4.3.3.1 Anonymity and Volunteer Participation

The CULTURATI project involves collecting data from the users of CULTURATI (content creators, online and on-site end-users, managers of pilot sites), data will be collected voluntarily and anonymously by assigning random numbers for each participant. This includes interview data that will be collected from the managers of the pilot sites to protect privacy and personal data. During the development of CULTURATI, our aim is to understand how well it works, therefore, we do not need to collect any personal data (including names and surnames) from the users that would help identify the identity of the participants.

After the pilot testing, the final version of the research instrument will have four sections. We will collect data **anonymously** so that it will be impossible to link an individual to a set of answers. The first section will briefly explain the research and its aims and ask for **participants' consent** to be involved in the study as a volunteer. The second section will measure study constructs with a seven-point Likert scale like Laumann, Garling, and Stormark (2001). The third section will consist of demographic questions (including age, sex/gender, place of residence/nationality, previous visits, companions and occupation to measure socioeconomic status as in previous studies e.g. Gurel and Nielsen, 2019) and visitors' attendance to cultural activities. The fourth section will invite participants to participate in a larger study including interviews and longitudinal research.

The second section of the survey instrument will include the study constructs, therefore will include questions to measure personal, social, and physical factors that may play a part in the satisfaction, and beneficial outcomes of the visitors with CULTURATI.

Each partner research university is responsible for all data collection and acquisition at pilot sites. Since data will be collected through tablets, all data will be stored in Cloud in the EU (for details, see Deliverable 1.4 Data Management Plan 1). We will collect and keep data in an anonymized manner and make access available for open science practices.

Each partner is obliged to implement appropriate security measures to ensure the confidentiality and reliability of the data. Each partner must properly implement the informed consent procedures during data collection. Online informed **consent forms and information sheets** explaining the anonymous and volunteer nature of the research with its aims will be available before data collection.

To protect anonymity, the platform of CULTURATI, working with the Internet of Things (IoT) and sensors data, will assign random numbers to the users at pilot sites and online. Therefore, although the system will follow the end-users at the pilot sites and online, they will be tracked anonymously to check the systems functioning. We are not interested in any personal information of the participants. Data collection will be limited to information required as part of the system and the conceptual model of the research project. Therefore, the respondents will remain anonymous on the system and database. No marketing and statistical profiling cookies or crawls will be used to collect personal data from the respondents with the help of smart technologies. In addition, no personal data of the respondents will be shared by third parties. However, the anonymous data will be open to researchers.

After data collection, each anonymous survey and interview will be processed for data analysis using SPSS and NVivo. Qualitative data will be generated in audio format which will be fully transcribed for data analysis. We are committed to providing high-standard quality data and research excellence. To ensure the integrity and quality of research data and increase the potential for data sharing, the transcriptions of the audio files will be checked and anonymized for archiving. Data formatting and metadata provision will conform to the "guidelines on data protection for archive services" of the European Archives Group.

Content creators will be required to create an account with a "username" and "password" to use the platform of CULTURATI with an email account. However, no other personal data will be required to use the platform rather than an email account. These users will also be required to consent. All emails will be protected by a two-factor authentication in the Cloud with access only by authorized team members. System users' and participants' usernames, passwords and emails will not be open-access and shared by third individuals.

For data protection, research data and system data will be stored on different servers in the Cloud in the EU.

#### 4.3.3.2 *Involvement of Humans and Informed Consent Procedures*

Humans will be involved in the CULTURATI project as (1) content creators, (2) end-users on pilot sites and online, (3) respondents in the research to validate CULTURATI, (4) interview participants involving end-users, content creators, and managers of pilot sites, and (5) participants in workshops.

The involvement of humans in research requires that informed consent procedures be in place. Informed consent is the process by which a potential research participant is fully informed about the research project, including its purpose, procedures, risks and benefits, and their rights, before deciding whether or not to participate.

Informed consent procedures are important to ensure that research participants understand the nature and purpose of the research and the risks and benefits associated with their participation. This process enables individuals to make informed decisions about whether or not to participate in the study, and to do so voluntarily.

To allow all these potential participants to understand fully and do not feel pressured or forced to give consent, they will be provided with an Informed **Consent Form** and detailed **Information Sheets** that (i) are in a language and terms entirely understandable to them, (ii) describe the purpose of the CULTURATI project, (iii) describe the methods and implications of the research, the nature of the participation and any benefits, risks, or discomfort that might be involved, (iv) indicate information on who is carrying out the study, (v) explicitly state that participation is voluntary and that anyone has the right to refuse to participate and to withdraw their participation, samples, or data at any time (without any consequences), (vi) indicate how data will be collected, protected during the project, and either destroyed or reused subsequently, (vii) indicate what procedures will be implemented in the event of unexpected or incidental findings (in particular, if the participants have the right to know or not know any such findings). Consent will be given in writing (e.g. by signing the 'informed consent form' and 'information sheets').

However, as we prefer to collect data electronically by using tablets, we will use electronic surveys with a consent process where participants indicate their agreement to participate by clicking a box or button on the survey. This is commonly referred to as an "opt-in" consent process, where participants actively indicate their willingness to participate by taking affirmative action.

The consent form will also include: i) Clear identification of the University and Funding Body involved, the project title, the Principal and other investigators (including contact details); ii) Details of what involvement in the project will require (involvement in interviews, completion of questionnaire, recording of interviews and estimated time commitment), iii) A clear statement that the project has received clearance by the university ethics committee, iv) Assurance that participants are free to withdraw consent at any time, and to withdraw any unprocessed data previously supplied in compliance with the General Data Protection Regulations of EU, v) A statement about arrangements made to protect confidentiality of data by assigning random numbers for each participant for anonymity, vii) A statement that the data generated in the course of the research be retained in accordance with the University's Policy of Academic Integrity and must be kept securely in paper or electronic form for a period of five years or more depending on the University's policy after the completion of a research project, viii) Advice that if participants have any concerns about the conduct of this research project, they can contact the University conducting data collection and its Research Ethics Committee, including the email address. Participants will have the option to answer the questions in the survey instrument later by email.

#### *4.3.3.3 Data Minimisation*

To protect personal data, we are committed to data minimization. Data minimization is a principle of data protection and privacy that requires collecting, using, and storing only the minimum amount of personal data necessary to achieve a specific purpose. In other words, data minimization means limiting the collection and processing of personal information to what is strictly necessary and relevant for a particular purpose and not retaining that information for any longer than necessary.

The idea behind data minimization is to reduce the risk of data breaches and protect the privacy and security of individuals whose data is being collected and processed. By collecting only the minimum amount of data necessary, we will limit the **potential harm** that may be caused by a security breach or unauthorized access to the data. In CULTURATI, the collection of personal data will be kept to a minimum, with only the collection of information needed to fulfill our project's objectives.

To this end, first of all, the technologies of CULTURATI will be developed in a way not to require creating an account to use the platform. For our evaluations, we will track the movements of individuals on pilot sites and online by assigning them random numbers.

For our research purposes, we will use anonymous research instruments with no data that can help with identification. We will only collect and store usernames, passwords and email accounts when necessary and with the participants' permission. Our project and the system do not also involve collecting or processing special personal data categories (e.g., sexual lifestyle). Although, our system requires input from the end-users of CULTURATI based on the categories (e.g., interested in arts, history, or nature) created by the content creators, we do not use any crawls or cookies for this purpose. Instead, we will ask participants about their preferences. The system can operate with no other personal input (names, surnames etc) from the end-users. However, if the visitor or user wish the system to recognize him or her in the subsequent visits, an account can be created with a username, password and an email of the user. In this case, the users will be advised to create a username that will not help with personal identification.

As part of our research involving humans, due to our conceptual model in the project, participants will be asked about their cultural preferences, satisfaction with the systems etc. (please see the Conceptual Model under section 1.2.5.1 in the Grant Agreement). However, data will be collected anonymously to protect their privacy and personal data. Those individuals, who accept to participate in the longitudinal part of our research, will be asked to provide the last three letters of their names and surnames to protect their anonymity.

#### *4.3.3.4 Compliance with Relevant Legislation*

The project covers both the EU (Finland, Italy, Spain, and Germany) and non-EU countries, including Türkiye and UK. Each consortium member is committed to providing the highest standard of data collection, analysis, research excellence, and compliance with ethical principles and relevant legislation in the EU and non-EU countries. Our research activities will comply with the ethics provisions set out in the Grant Agreement, and notably; highest ethical standards as well as applicable international, EU, and national law (in particular, the GDPR, national data protection laws and other relevant legislation).

This project involves adult human participants; no children/minors (people under the age of 18) are included. The instrument for data collection will be approved by the Ethics Committees of all participant Universities in all countries involved in the study. In data collection, participation will be voluntary and anonymous by assigning random numbers to each participant to protect personal data on the system. Before each data collection session, participants will be informed about the aim of the study and will be asked for their consent (with the help of a consent form), as explained above in

detail. This procedure will be carried out in the same manner in all countries both EU and non-EU (Türkiye and UK). In the case of UK, the project will be implemented in line with the UK's data protection regime as set out in the UK General Data Protection Regulation (UK GDPR) and the Data Protection Act 2018. In the case of Türkiye, the project will be implemented in line with "Law on the Protection of Personal Data" No. 6698 came into force 7 April 2016. For the rest of the EU countries all issues concerning personal data protection will comply with EU's General Data Protection (GDPR) approved by the EU Parliament on 14 April 2016.

## 4.4 Accountability

### 4.4.1 Clear Roles and Responsibilities

Regarding accountability, we defined clear roles and responsibilities to ensure that all parties involved in our research project know their obligations and are accountable for their actions. The following are the key roles and responsibilities for conducting research in our project ethically and responsibly;

1. The Coordinator and Project Manager is responsible for the research project's overall design, conduct, and management. The Coordinator and Project Manager is accountable for ensuring that the research is conducted ethically and responsibly and that all participants are fully informed about the research.
2. Research team including all individuals in the research universities is responsible for carrying out the research procedures and for adhering to the study protocol. They are also responsible for ensuring that all participants are treated with respect and dignity, and for protecting the confidentiality and privacy of all participants during data collection.
3. Pilot sites are responsible for providing help in data collection and will be responsible for handling permissions for data collection at their sites. They will be responsible for obtaining approvals and authorizations required by law.
4. Institutional ethics review boards at research universities are responsible for reviewing and approving all research involving human subjects. These boards are accountable for ensuring that the research meets ethical and legal standards, and for ensuring that the risks to participants are minimized and the potential benefits of the research are maximized.
5. Funding agencies are responsible for ensuring that the research they support is conducted in an ethical and responsible manner. They are accountable for ensuring that the research meets their funding criteria, and for monitoring the progress of the research to ensure that it is conducted in accordance with their policies and guidelines.

6. Participants have a responsibility to provide honest and accurate information, to follow study procedures, and to provide informed consent. They are also responsible for reporting any adverse events or other concerns related to the research to the research team.

#### **4.4.2 Training, Supervision, and Mentoring**

By providing adequate training, supervision, and mentoring, we aim to develop the knowledge and skills to conduct research ethically and responsibly. To this end, first of all, we will train the research team to understand the ethical and legal requirements of conducting research, as well as the specific procedures and protocols involved in our project. Training will cover several topics, including the principles of informed consent, confidentiality and privacy, risk assessment and management, and data management and analysis. Second, we will provide supervision for ensuring that researchers conduct their research according to the study protocol and ethical guidelines. Researchers involved in data collection in Stage ONE will provide supervision to the other researchers in the Stages TWO and THREE. Third, mentoring will be provided for early-career researchers by experienced research members to promote responsible research practices by providing guidance and support.

#### **4.5 Adherence to the “Ethics by Design” in AI**

In Stage THREE of this project, Artificial Intelligence will be integrated to create categories, Q&A, and information by using the internal archives of the CCIs to help them to create content using their internal archives for the system. However, this would not raise any ethical concerns about human rights and values, as the content created by AI will be reviewed and approved by the CCIs. As suggested by the European Commission, an independent Ethics Advisor with relevant expertise in ethics of AI and research ethics with human participants will be appointed to monitor the ethical concerns related to this project. The Ethics Advisor will provide periodic reports at months 1, 6, 12, 24, and 36. At the development, deployment, and implementation stages, we will adopt the “ethics by design” approach to equip CULTURATI with the essential requirements for an ethically sound AI system. We will ensure that AI system of the CULTURATI will not risk (i) human rights, subordinate, deceive or manipulate people, violate bodily or mental integrity, create attachment or addiction, or hide the fact people are interacting with an AI system, (ii) cause people to be disadvantaged socially or politically, reduce the power that they have over their lives, or result in discrimination, either by the system, or by the way it will be used, (iii) cause people to suffer physical, psychological or financial harm, cause environmental damage, or significantly damage social processes and institutions (for example, by contributing to misinformation of the public).



## Conclusion

In conclusion, the Ethics Assessment Report for the CULTURATI project involving human participants highlights the importance of upholding ethical principles in all aspects of research. By adhering to these principles, we will ensure that our project will be conducted to protect the rights and well-being of all participants.

Nevertheless, the principle of "do no harm," is a fundamental ethical principle in research. This principle requires us to take all necessary steps to minimize the potential harm that may arise from our research, and to ensure that the benefits outweigh any potential risks. To ensure that our research does not cause harm, we will take the actions and measures outlined in this document.

Thus, this deliverable outlines guidelines and procedures for addressing various ethical issues that may arise during our project, particularly regarding research practices and technology development. As set out in the European Code of Conduct for Research Integrity of ALLEA (All European Academies, 2017), the fundamental principles of research integrity of honesty, reliability, respect, and accountability guide our approach to these issues.

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