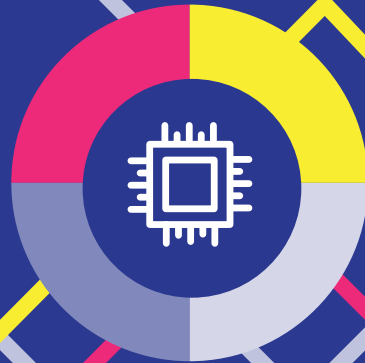


**Advanced traffic
management solutions
for synchronized and
resilient multimodal
transport services**



SYNCHROMODE



D1.3: Ethics requirement and monitoring plan

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Date: 31/10/23



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Executive Summary

This deliverable presents the ethics requirements that all tasks to be undertaken under the SYNCHROMODE project must adhere to. It summarises in a single document, guidelines for interested parties (i.e., WP and task leaders) on how to follow the ethics requirements. Issues pertaining to inclusivity and data security are addressed. Finally, this document includes guidelines on when to request informed consent from participants and what such informed consent forms should include.



Summary sheet

Deliverable No.	1.3
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Project Coordinator	ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (CERTH)
Website	https://synchromode.eu



Project partners

Organisation	Country	Abbreviation
ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS	Greece	CERTH
UNIVERSIDAD DE LA IGLESIA DE DEUSTO ENTIDAD RELIGIOSA	Spain	DEUSTO
NOMMON SOLUTIONS AND TECHNOLOGIES SL	Spain	NOMMON
YUNEX GMBH	Germany	YUNEX
MAP TRAFFIC MANAGEMENT BV	Netherlands	MAPTM
AIMSUN SLU	Spain	AIMSUN
BE-MOBILE	Belgium	BE-MOBILE
VMZ BERLIN N BETREIBERGESELLSCHAFT MBH	Germany	VMZ
ARRIVA PERSONENVERVOER NEDERLAND BV	Netherlands	ARRIVA
RUPPRECHT CONSULT-FORSCHUNG & BERATUNG GMBH	Germany	Rupprecht
POLIS NETWORK	Belgium	POLIS
PNO INNOVATION SL	Spain	PNO
REGION OF CENTRAL MACEDONIA	Greece	RCM
CITYLOGIN IBERICA SL	Spain	CITYLOGIN
PROVINCIE ZUID-HOLLAND	Netherlands	PZH
UNIVERSITY COLLEGE LONDON	United Kingdom	UCL



Document history

Version	Date	Organisation	Main area of changes	Comments
Version 0.1	14/10/2023	CERTH-HIT	Initial Draft	Internal
Version 0.2	24/10/2023	CERTH-HIT	Initial Draft	To be reviewed
Version 0.3	27/10/2023	DEUSTO	Reviewed Draft	
Version 1.0	31/10/2023	CERTH-HIT	Final	



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List of acronyms

DMP	Data Management Plan
DPIA	Data Protection Impact Assessment
EC	European Commission
EGE	European Group on Ethics
GDPR	General Data Protection Regulation
ICT	Information and Communication Technology



1. Introduction

1.1. Purpose and structure of this document

This Deliverable defines the Ethics code for carrying out research and development in SYNCHROMODE and aims to deliver the ethical and data protection framework and policies with consideration for the ethical guidelines and legislation in Europe. As a sound and correct ethical treatment of participants is of great importance for SYNCHROMODE, any relevant processes and administered documents are monitored and managed as highlighted within this document.

The structure of this document is as follows:

- Introduction
- Ethics principles, monitoring procedures, and initial ethics requirements estimates per task
- Informed consent procedures
- Inclusivity
- Data protection
- Conclusions

It's worth noting that while Ethics and data privacy concerns and policies primarily pertain to evaluation, data collection, and processing activities, they extend to govern all project activities involving feedback gathering (e.g., dissemination activities, events) and communication with partners, both within and outside the Consortium, adhering to a code of conduct.

1.2. Intended audience

This deliverable is disseminated internally within the project's consortium. The intended readership comprises of the members of the SYNCHROMODE consortium and the EC's project officer.

1.3. Project Overview

The SYNCHROMODE project aims to develop a data driven ICT toolbox for improving the management of transport operations from a multimodal perspective, to manage the transport network. SYNCHROMODE will provide transport managers with new predictive and network optimization capabilities for balancing the transport supply and demand, enabling efficient reaction to different types of events. SYNCHROMODE will demonstrate via well-chosen Case Studies the effectiveness of integrated multimodal and multi-actor traffic and transport management solutions and the SYNCHROMODE toolbox, able to balance the demand load of both people and goods and at the same time reduce individual journey times.

1.4. Interrelations

The "Ethics requirement and monitoring plan" is part of WP1. WP1 relates to Project Management, and is closely linked to all other WPs. All tasks that are to be conducted in the context of SYNCHROMODE must adhere to the guidelines laid out in this document.



2. Ethics Principles and Monitoring Framework

2.1. Ethic Principles

The SYNCHROMODE project is a Research and Innovation Action, funded by the Horizon Europe programme. The project aims to develop a data driven ICT toolbox for improving the management of transport operations from a multimodal perspective.

In pursuit of this goal, SYNCHROMODE encompasses a software toolbox that will be deployed in the context of three (3) case studies across three (3) countries, (i.e., Madrid-Spain, South Holland-Netherlands, and Thessaloniki-Greece). Public engagement and co-development during the research process is deemed as critical for the success of the project. As such, this project will undertake responsible research and innovation, with a clear ethics consent procedure operated throughout all dealings with human participants and personal data. Article 14 of the SYNCHROMODE Grant Agreement outlines the ethical principles in accordance to which this project will be conducted with respect for:

- human dignity
- freedom
- democracy
- equality
- the rule of law and human rights, including the rights of minorities

2.2. Research Scope of SYNCHROMODE

The SYNCHROMODE research project DOES involve:

- Human data collection
- Research with human participants, who are adult healthy volunteers
- Assessment of personal data to a very restricted degree and only where absolutely necessary. In these cases, strict measures to protect anonymity and confidentiality are taken as explained in later sections of this document.
- Tracking the location or observation of people.
- Research might involve minors, or other vulnerable people
- Research involving non-EU countries (United Kingdom)

There will be NO research involving the following aspects in the SYNCHROMODE research project:

- Research on human embryos
- Research involving genetic material or biological samples
- Research on animals
- Dual use: none of the planned research activities will have direct military use or any potential for terrorist abuse



2.3. Ethics Monitoring Framework

Based on the principles of the previous section and for every task that is to be undertaken by the partners of the SYNCHROMODE consortium, an ethics clearance will be provided by the Project Coordinator. Ethics clearances fall into one of four categories as depicted in Figure 1. For categories A and C, due to the increased ethics issues involved, the SYNCHROMODE Advisory Board will be kept informed of the ethics clearance procedure by the Project Coordinator.

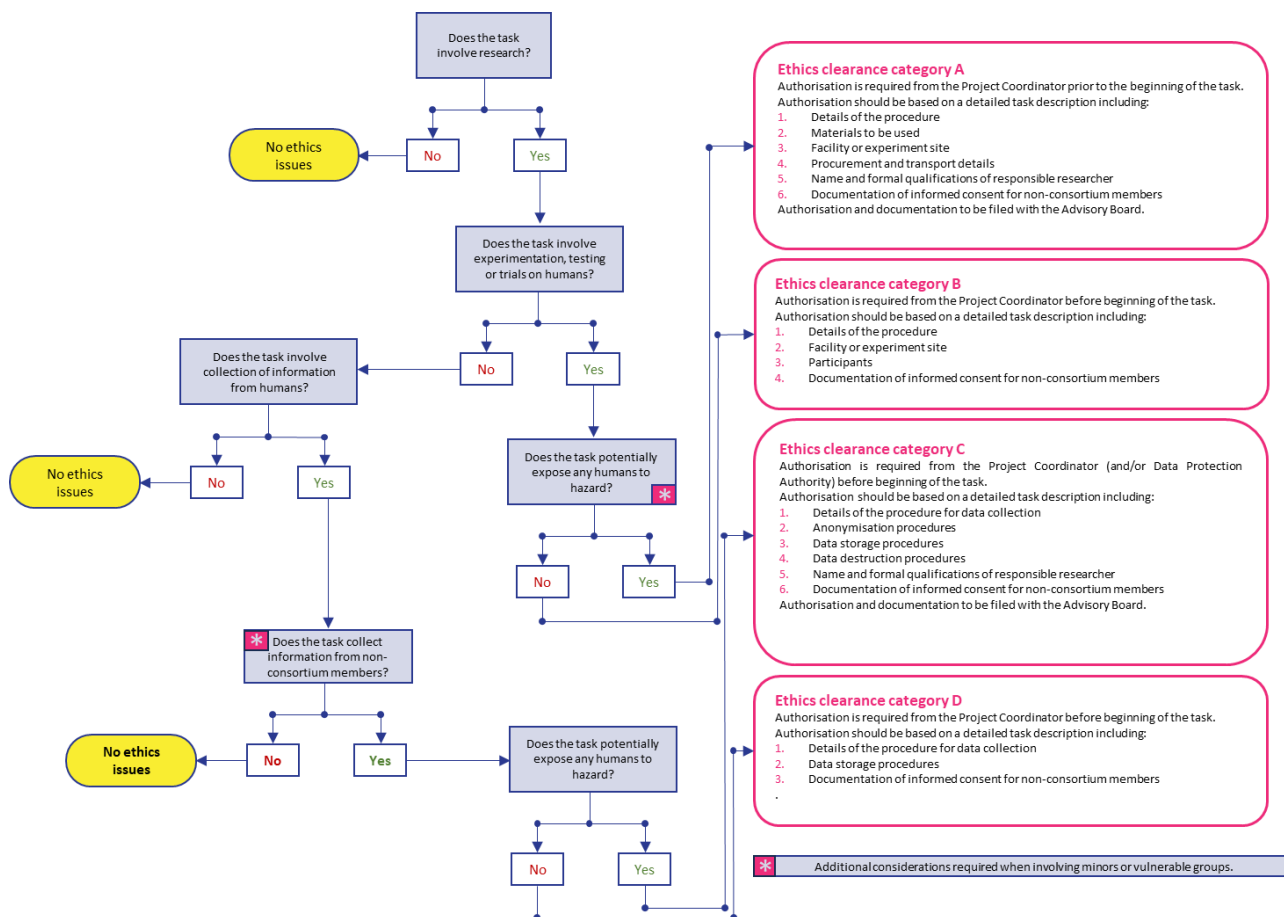


Figure 1: SYNCHROMODE ethics clearance procedure and categories [Adapted from [1]]

Before the completion of each task and as part of the internal review of deliverables, reviewers will evaluate the extent to which authors have adhered to the ethical guidelines established during the ethics clearance stage.

2.4. Initial Estimate of Task Ethics Requirements

The tasks to be undertaken during SYNCHROMODE must adhere to specific ethics categories in a manner such as the one that has initially been identified and summarised in Table 1. These will be reviewed upon by the Task Leaders and the Project Coordinator during each task and updated accordingly. The Requirements column of Table 1 refers to the Ethics Clearance categories described in Figure 1.

Table 1: Initial estimate of task ethics requirements

Task	Research activity	Personal Data	Human Participants	Vulnerable Groups	Informed Consent Possible	Large Scale Data Processing	Sensitive Data	Language	Requirements
Task 1.1	Administrative and financial project management	X						English	D
Task 1.2	Technical project management							English	No Ethics Issues
Task 1.3	Internal & external innovation monitoring and management							English	No Ethics Issues
Task 1.4	Quality and risk management							English	No Ethics Issues



Task	Research activity	Personal Data	Human Participants	Vulnerable Groups	Informed Consent Possible	Large Scale Data Processing	Sensitive Data	Language	Requirements
Task 1.5	Ethics assessment and data management							English	No Ethics Issues
Task 2.1	User needs & system requirements definition	X	X	X	X		X	English/Local	C
Task 2.2	New governance models	X	X		X		X	English/Local	C
Task 2.3	Case studies definition	X	X	X	X	X	X	English/Local	C
Task 3.1	Data gathering and assessment	X		X		X	X	English/Local	C
Task 3.2	Analysis and reconstruction of mobility patterns	X		X		X	X	English/Local	C
Task 3.3	Identification and characterization of bottlenecks and disruptions in multimodal networks	X		X		X	X	English/Local	C



Task	Research activity	Personal Data	Human Participants	Vulnerable Groups	Informed Consent Possible	Large Scale Data Processing	Sensitive Data	Language	Requirements
Task 4.1	Modelling architecture and High-Level Actors' Interactions							English	No Ethics Issues
Task 4.2	Traffic Management Interventions modelling for future transport							English	No Ethics Issues
Task 4.3	Simulation-based demand supply interactions modelling							English	No Ethics Issues
Task 4.4	Hybrid traffic state prediction							English	No Ethics Issues
Task 4.5	Scalability and Transferability of methods using conventional and learning techniques							English	No Ethics Issues
Task 4.6	Predict disruptions							English	No Ethics Issues



Task	Research activity	Personal Data	Human Participants	Vulnerable Groups	Informed Consent Possible	Large Scale Data Processing	Sensitive Data	Language	Requirements
Task 5.1	Review and Analyse current and future mobility approaches in Transport Network Optimization							English	No Ethics Issues
Task 5.2	Formulation and modelling of Transport Network Optimization problems							English	No Ethics Issues
Task 5.3	Design of optimization techniques for Transport Network Optimization							English	No Ethics Issues
Task 5.4	Development of the Transport Network Optimization software module							English	No Ethics Issues
Task 6.1	Creation and application of a reference architecture							English	No Ethics Issues
Task 6.2	Creation of an operational toolbox for decision support system	X	X		X		X	English/Local	C



Task	Research activity	Personal Data	Human Participants	Vulnerable Groups	Informed Consent Possible	Large Scale Data Processing	Sensitive Data	Language	Requirements
Task 6.3	Case studies SYNCHROMODE toolbox deployment and testing execution	X	X	X	X	X	X	English/Local	C
Task 6.4	Assessment of testing result	X	X	X	X	X	X	English	C
Task 7.1	Dissemination and communication activities	X	X	X	X		X	English/Local	C
Task 7.2	Networking, synergies and cooperation with similar projects and initiatives	X	X	X	X		X	English/Local	C
Task 7.3	Exploitation strategy and business modelling							English	No Ethics Issues
Task 7.4	Lessons learnt and policy recommendation							English	No Ethics Issues



3. Data protection

All personal data will be managed in accordance with the SYNCHROMODE Data Management Plan (DMP) (Deliverables D1.4, D1.5, and D1.6). All partners of SYNCHROMODE will be fully compliant throughout the undertaking of their tasks with section 4.2 of Annex 1 Part B of the SYNCHROMODE Grant Agreement and the General Data Protection Regulation (GDPR) with regard to the processing of personal data and on their free movement. The principles of the GDPR and the rights of individuals required by the GDPR, as summarised in Table 2, will be guaranteed.

Table 2: Main aspects of GDPR

Principles of the GDPR	Rights of individuals guaranteed by the GDPR
Lawfulness, fairness and transparency	The right to be informed
Purpose limitation	The right to rectification
Data minimization	The right to restrict processing
Accuracy	The right of access
Storage limitation	The right of erasure
Integrity and confidentiality	The right to data portability
Accountability	The right to object
Lawfulness, fairness and transparency	The right to be informed
	Rights in relation to automated decision making and profiling

As already mentioned, procedures for the management of personal data have been defined to uphold the protection of individuals and their rights, aligning with both EU and national legislation.

Within the SYNCHROMODE project, all assessment tools, data collection methods, and analysis protocols will undergo rigorous scrutiny by the Project Coordinator and the Advisory Board. The consortium is committed to following the advice of expert committees specializing in this domain, such as the European Group on Ethics (EGE) in Science and New Technologies. The EGE stands as an independent advisory body under the auspices of the President of the European Commission, offering invaluable independent advice on ethical aspects related to science and emerging technologies, as it pertains to EU legislation and policies.



Furthermore, project partners pledge unwavering compliance with all national legal and ethical prerequisites of the Member States where research takes place. At all times during the research process, any data collection and storage involving individuals will be treated with utmost confidentiality.

To ensure transparency and respect for individuals' rights, the following procedures will be rigorously observed:

- Participation in the project's case studies and use of developed technologies will be entirely voluntary, and all volunteers will receive comprehensive oral and written information. Participants will be fully informed and granted the opportunity to provide their consent for any monitoring or data acquisition processes.
- Personal data will be pseudo-anonymized as needed in a manner that preserves the project's outcomes without compromising privacy.

The Personal Data that is or will be processed with in SYNCHROMODE will typically fall into one of the following categories:

- Personal Data collected in the context of participation in a research study,
- Contact information such as name, address, telephone number and email address,
- Banking and other financial information for payment or invoicing purposes,
- Information about how one uses websites, for the purpose of making them more user-friendly, for example via cookies,
- Information about participation in dissemination activities, and
- Personal Data needed for employment purposes.

Moreover, participants will receive, in their native language and in accordance with the General Data Protection Regulation (GDPR), the following:

- A clear, understandable written description of the project and its objectives.
- An outline of the planned project progression and the associated testing and evaluation procedures.
- Guidance on their unreserved rights to disclaim their agreement.

The Project Coordinator and the Advisory Board will meticulously assess the research to ensure that no undue risk, whether technical or related to privacy breaches, is conceivable.

Consequently, the consortium is unwavering in its commitment to execute the research project in complete adherence to the legal and ethical mandates of each respective nation and the established code of practice. Whenever authorizations are required from national authorities, these authorizations will be regarded as pertinent project documents, with copies of all relevant authorizations submitted to the Commission.

Further details on how data will be managed and protected throughout the SYNCHROMODE project are provided in deliverables D1.4, D1.5, and D1.6, namely the "Data Management Plan".



4. Informed Consent

All activities within this project have undergone an initial assessment and have been classified as low-risk for both researchers and participants. The primary risks identified for participants pertain to the time commitment required and the sharing of personal data. Consequently, a commitment is made to providing clear warnings to all participants regarding these commitments. Furthermore, SYNCHROMODE will implement appropriate informed consent measures to ensure that participants are fully aware of their involvement before choosing to volunteer. Participation in such actions (e.g., surveys, workshops, case studies tests' participants) is entirely voluntary.

To ensure inclusivity and accessibility, project documents will be translated into local languages as needed. Special attention will be given to using language that is appropriate for individuals with limited understanding, such as children and older adults with comprehension or visual impairments, to ensure that the documents are easily comprehensible and accessible to all as needed.

In cases that the ethics clearance levels deemed it necessary to request consent forms, researchers will obtain them from each participant by means of a signature on the form. In line with the recommendations from the Helsinki Declaration, the standards for ethical review in H2020/FP7 (EN 77851) and good research practice the information sheet covered by the informed consent will cover the topics and provide following information (taken from EN 77851) included in Table 3. Not all items are relevant to the SYNCHROMODE project. However, any information included in Table 3 that is applicable to the undertaken task will be explicitly stated in provided consent forms or otherwise communicated to the required parties. An example of a consent form is provided in Annex I.

Table 3: Informed consent requirements

1	A statement that the research activity involves research subjects and an explanation of the purposes of the research.
2	The expected duration of the subject's participation.
3	A description of the procedures to be followed and an identification of any procedures which are experimental.
4	A statement that participation is voluntary.
5	Information about who is organising and funding the research.
6	A description of any reasonably foreseeable risk, discomfort, or disadvantages.
7	A description of any benefits to the subject or to others, which may reasonably be expected from the research avoiding inappropriate expectations.



8	A disclosure of appropriate alternative procedures for treatment/diagnosis if any, that might be advantageous to the subject.
9	A statement describing the procedures adopted for ensuring data protection/confidentiality/privacy including duration of storage of personal data.
10	A description of how incidental findings are handled.
11	A description of any planned genetic tests. (N/A)
12	For research involving more than minimal risk, an explanation as to whether there are any treatments or compensation if injury occurs and, if so, what they consist of, or where further information may be obtained. Insurance coverage should be mentioned.
13	A reference to whom to contact for answer to pertinent questions about the research and research subjects' rights, and whom to contact in the event of a research-related injury to the subject.
14	A statement offering the subject the opportunity to ask questions and to withdraw at any time from the research without consequences.
15	An explanation of what will happen with the data or samples at the end of the research period and if the data/ samples are retained or sent/sold to a third party for further research.
16	Information about what will happen to the results of the research.
17	If in a given study design deception is necessary, participants will be fully debriefed after the study. Deception will only be employed if strong justification is given and after a thorough assessment of the associated impact and risk.
18	Indication that additional information and clarification can be provided by the trial instructor.



5. Inclusivity

5.1. Gender issues

The participation levels of different genders within the SYNCHROMODE activities will be actively monitored to ensure equal opportunities and treatment between men and women. Over the years, the European Parliament has consistently supported and advocated for measures to enhance the position of women, and this ongoing effort is carried out through the activities of the Women's Committee. Furthermore, the project fully respects several specific European and UN policies aimed at promoting gender equity.

The monitoring of gender participation within the project's activities is a critical aspect of SYNCHROMODE. To promote gender equity, SYNCHROMODE will adhere to various specific European and UN policies (e.g., Council Directive 75/117/EEC, among others). Throughout all phases of the project, including research and development as well as evaluation phases, every effort will be made to maintain equal gender participation to the greatest extent possible.

5.2. Vulnerable groups

Vulnerable users (i.e., homeless, drug and alcohol users and abusers, immigrants, etc.) or minors will not be recruited to participate in any of the tasks that are conducted by SYNCHEROMODE.

In cases where large scale data gathering takes place and it is deemed unfeasible to exclude such groups, since, as indicated in the Data Management Plan (DMP) all such data will be anonymised, no impact is expected.

As already stated, special attention will be given to using language that is appropriate for individuals with limited understanding.



6. Conclusions

This document presents in-depth the ethics requirements that all tasks to be undertaken under the SYNCHROMODE must adhere to. It summarises in a single document, guidelines for interested parties (i.e., project partners) on how to follow the ethics requirements. Issues pertaining to inclusivity and data security are addressed. Finally, this document includes guidelines on when to request informed consent from participants and what such forms should include.






7. References

[1] J.P. Burgess, TARGET-Training Augmented Reality Generalised Environment Toolkit, D8.3 Research ethics compliance kit, 2017



8. ANNEX I – Consent Form example

 CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS	 CERTH/HIT Hellenic Institute of Transport	 SYNCHROMODE
<h3>Consent Form for Personal Data Processing</h3>		
<p>During the 1st Interactive SYNCHROMODE Co-creation Workshop organized by CERTH -HIT as part of the European research project SYNCHROMODE, which is funded by the Horizon Europe program of the European Commission under contract number 101104171, your personal data is collected, including your name, contact information, and the name of the organization you represent. Additionally, during the event, photos/videos of you may be taken.</p> <p>With your written consent, CERTH-HIT may publish the above material in promotional, publishing, and dissemination activities for the 1st Interactive SYNCHROMODE Co-creation Workshop.</p> <p>You have the right to withdraw your consent at any time and object to the processing by notifying the organizers of the 1st Interactive SYNCHROMODE Co-creation Workshop.</p> <p>CERTH-HIT processes personal data in accordance with the General Data Protection Regulation (GDPR) 2016/679 for the protection of individuals concerning the processing of personal data.</p>		
<input type="checkbox"/>	I consent to the organizers taking photographs and/or videos during the 1 st Interactive SYNCHROMODE Co-creation Workshop and using them in accordance with the GDPR (2016/679).	
<input type="checkbox"/>	I consent to my full name and contact details being included in the list of participants for the 1st Interactive SYNCHROMODE Co-creation Workshop.	
Name:		
Organization:		
Date:		
Signature:		
<small>The organizers are not responsible for the photos/videos taken, shared, and published by participants or other individuals.</small>		
<p>1st Interactive Co-creation Workshop SYNCHROMODE - 19 October 2023</p>		