ARETE – DELIVERABLE (D2.7)

WP 2- 2.7 Project Plan; Quality Plan; Ethical Procedures- UPDATE 1

Deliverable number:	D2.7 (Updates of D2.2, D1.1 and D1.2)
Due date:	31st of December 2020
Nature[1]:	R
Dissemination Level:	PU
Work Package:	2
Lead Beneficiary:	NUID UCD
Beneficiaries:	All ARETE partners

Document History

Version	Date	Description
0.1	10/12/2020	(NUID UCD) Project Plan; Quality Plan; Ethical Procedures – UPDATE 1
0.2	14/12/2020	Review (all ARETE partners)
0.3	15/12/2020	Final draft review from NUID UCD

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[1] Nature:

R = Report, P = Prototype, D = Demonstrator, O = Other

Dissemination level

PU = Public

PP = Restricted to other programme participants (including the Commission Services)

RE = Restricted to a group specified by the consortium (including the Commission Services)

CO = Confidential, only for members of the consortium (including the Commission Services)

Restraint UE = Classified with the classification level "Restraint UE" according to Commission Decision 2001/844 and amendments

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Disclaimer

This deliverable is a draft and is provided for information only.

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The final version of the deliverable will be published as soon as approved by EC.

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Executive Summary

The D2.7 "Project Plan; Quality Plan; Ethical procedures-UPDATE 1" is an update of the Deliverable D2.2, which was submitted in M3 and includes updates for D1.1 and D1.2 in terms of Ethical Procedures.

The following updates have been made by the ARETE consortium between M4- M14:
- The project duration has been changed to 42 months;
- The reporting period has been changed;
- The project partner has been changed;
- Annex 1 (Description of Action - DoA) has been changed;
- Annex 2 (estimated budget of action) has been changed;
- The ARETE project External Ethics Advisory Board (EEAB) has been set up;
- The EEAB has been approved the ARETE project ethics requirements;

This document is based on several key documents/meetings including:
- The ARETE Grant Agreement – GA Number 856533 (Revised in July 2020);
- The 1st Project Steering Committee meeting (PSC) 4 March 2020, online;
- The 2nd PSC meeting 26 March 2020, online;
- The 2nd General Assembly (GA) and 3rd PSC meeting 20-21 August 2020, online;
- The 3rd GA and 4th PSC meeting 18-19 November 2020, online;
- The ARETE 12 month review meeting 4 December 2020, online;
- The D2.6 Data Management Plan submitted in M6;
- The D2.4 Management reports (Contractual, Financial and Technical) – UPDATE 1 submitted in M12;

This report is intended to be a live document and although no significant changes to this document are envisioned, some updates will be provided in M26 based on the decisions of the General Assembly (GA).

1. Introduction

This report provides updates on the project and quality plan and ethical procedures that the ARETE partners will have to comply with during the execution of the project. This ensures that the project meets the relevant quality and ethical requirements set by the European Commission (EC). This document has been prepared as part of ARETE Work Package (WP) 2, Project Management.

The highlights of WP1 (Ethics requirements) and WP2 (Project Management) between M4-M14 are: the External Ethics Advisory Board (EEAB) has been recruited, reviewed all the ARETE ethics documents and approved the ARETE project Ethics requirements; the consortium has made amendments on the Grant Agreement (GA); the consortium has successfully conducted the 12 review meetings and preliminary feedback has been received from the external reviewers.

2. Updates on Project Plan

The consortium made amendments on the Grant Agreement in July 2020. The project activities of engaging with stakeholders have been impacted by COVID-19. So the duration of the project has been postponed from 36 to 42 months (project ends in April 2023). The project partner Oxford Brookes University (OBU) was terminated in May 2020 and the new partner The Open University (TOU) has joined the consortium from June 2020. The WP3 lead has been changed from Partner 3 WWL to Partner 11 The Open University.

The External Ethics Advisory Board (further details will be provided in Section 4) has been appointed. The EEAB members shall be allowed to participate in GA meetings upon invitation but have not any voting rights. The PSC will consult ethics requirements with the EEAB throughout the whole project time period.

Between M4- M14, the consortium has held the 2nd General Assembly (GA) meeting, 3rd GA meeting and the 12 month review meeting has been held by the European Commission (EC). Due to COVID-19, all above meetings have been held online. The ARETE project's next scientific review meeting is planned to be held in December 2021. The first ARETE workshop was planned to be held in M10 by the partner Vicometch (VIC). However, due to COVID-19, the workshop has been postponed to the second year of the project.

The EEAB has been invited to the 2nd GA meeting. The EEAB has evaluated the ARETE project ethics requirements and data/GDPR documents. Initial feedback has been provided to the consortium during the 2nd GA meeting. The EEAB, the Advisory Board members and the Industry Capacity Board members have been invited to the 3rd GA meeting. The board members have some recommendations on the technical development, the project dissemination and stakeholders engagement. Overall, the board members are quite positive about the process of the project.

Figure 1: ARETE Work Breakdown Structure presented under the light of Project Management [2]
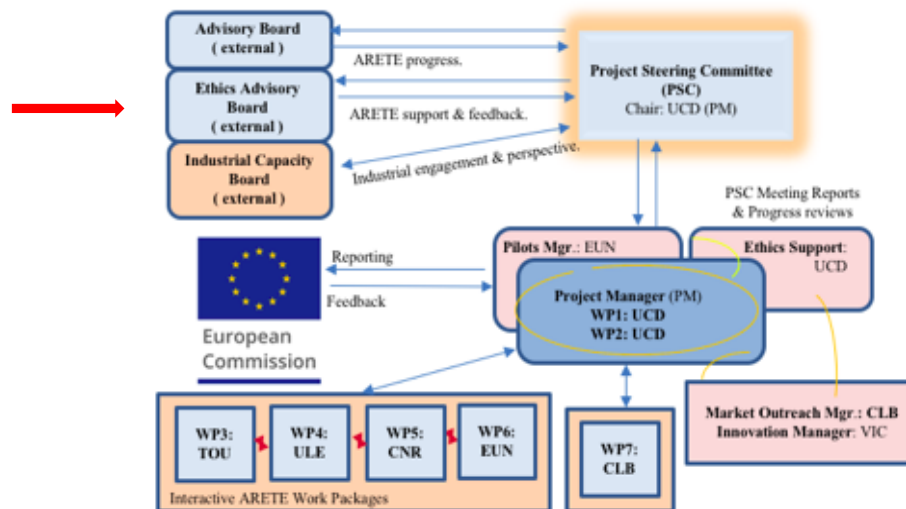
3. Updates on Quality Plan

According to the new GA, there are a total of 45 deliverables that need to be submitted to the EC over the whole project lifecycle. Some of the deliverables' due dates have been changed due to COVID-19. The details of the deliverable reports can be found in Annex 1. Up to M14, there are 9 deliverables reports that have been finished and submitted to the EC.

The first Data Management Plan (DMP) D2.3 has been finalised and submitted to the EC in M6. The ARETE DMP is a 'living' document and it will be updated every year. The next update of the DMP is due in M18.

The Project Coordinator is responsible for continuous risk management including maintenance of the risk register and chairing regular risk assessment sessions during PSC meetings. There was an extraordinary (2nd) PSC meeting that was organised in March 2020 due to COVID-19. As a result the project proposal has been amended and received an extension of 6 months in July 2020. Up to the reporting date, there is still lack of reassurance for face to face ARETE Pilots' interventions that are planned to take place in September 2021. The consortium is monitoring closely the situation under the WHO guidelines and national policies.

In terms of the shared content platform (3.2.4: File Share and Store D2.2 pg. 24) among the consortium partners, all documentation is stored on Google drive, hosted from UCD (Coordinator). Further details in terms of file storage and file sharing can be found at the following links and the information on the files shared do not belong to RED or sensitive data:
https://www.ucd.ie/itservices/ourservices/documentsandstorage/options/
https://www.ucd.ie/itservices/ourservices/documentsandstorage/userfileguide/faq/

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[2] The EEAB has been added on the Project Management structure

4. Updates on ARETE Ethical procedures

4.1 Update D1.2 pg.4: POPD Requirement No 2)

An ethical approach has been adopted from a legal point of view, research and excellence based on recommendations from **UCD Human Research Ethics Committee - Sciences (HREC-Science)** and **UCD Legal** (EEAB Ethics Feedback Report: Annex 2). The ARETE project documentation has been reviewed in terms of: (a) ethics requirements, value oriented and (b) ethics challenges regarding data protection and GDPR. More specifically, In **February 2020** an application for full ethics approval was submitted to UCD Office of Research Ethics (Human Research Ethics Committee (HREC) – Sciences (LS), prior to engagement with the participants for ARETE pilots d. In April 2020, the HREC responded that the application was beyond the scope of what the HREC-LS is able to sanction and recommended to seek advice from external ethics experts.

May 2020, the External Ethics Advisory Board (EEAB) has been recruited: A suitably experienced *ethics advisory board* has been recruited (costs have been covered from the overheads of the coordinator, as this expense was not included initially in the submitted approved budgets) and terms of reference for the EEAB have been pre-defined (Annex 3). EEAB assisted the ARETE Consortium to deal with ethical issues and put into place the procedures to handle these appropriately. The advisory board members are external to the project and to the host institution; totally independent; and free from any conflict of interest. EEAB will maintain an overview of the work throughout the whole course of the project and help to think ahead about possible problems that might arise and how they can be addressed. Their experience will help to check for compliance with ethical standards within the relevant research fields. EEAB members will also be responsible for reporting to PSC, on a regular basis, on ethics concerns as they arise and the continuing probity of the ARETE project. The consortium will work with the EEAB members on a regular basis throughout the project. Their oversight role should be fully integrated into ARETE research activities and they will work closely with the consortium, so they are fully aware of all the developments as ARETE progresses. EEAB is an essential element in the ARETE project management structure. During the continuous discussions with the EEAB, consensus has to be reached and action points have been proposed to the PSC. The aim has been for the EEAB to offer a focused and practical guidance for the ethical issues of the ARETE Horizon 2020 project delivery. EEAB have received specific terms of reference according to the H2020 Ethics regulations

1. The EEAB consists of two (2) members. The chairperson will be appointed by the EEAB members and serve three-year terms and may be re-appointed for any number of terms.

Expert	Organisation	Specific field of expertise and justification for inclusion
Georgia Livieri (Chair of EEAB)	Ethics Advisor (Greece)	Implementation of ethical frameworks and ethical regulatory principles in European and National programs aimed at promoting research, knowledge, and innovation regarding vital issues of everyday life.

Cyril Drury	Data Protection Advisor, Joint Managerial Body (JMB) (Ireland)	Data Protection Advisor helping schools with GDPR Compliance. Promoting GDPR best practice and compliance (including support for audits and reviews). Assisting with privacy policies, procedures and processes as well as guidance on technical and organisational measures to meet GDPR compliance.

2. The Chair of EEAB has the authority to invite other members to temporarily advise the committee on specific issues within their field of expertise.
3. EEAB will meet at least two times per year, in person or electronically and request all documents needed from the project coordinators. The Chair of the EEAB will report on its activities to ARETE PSC.
4. Communication between EEAB members will primarily be by email
5. Records of all meetings and decision with supporting documentation will be maintained in the project's Google Drive under the WP1 folder (Ethics Requirements)

The format and frequency of meetings reflect the proportionality of the EEAB within WP1 of the project, as the reporting function. EEAB members are encouraged to meet via teleconference to discuss between the following calendar dates of the PSC meetings. Project partners are always invited to EEAB meetings in case specific questions need to be addressed. The frequency of activities and meetings with ARETE PSC are as follows:

1. EEAB members list finalised (end of May 2020)
2. EEAB members appointed a Chair and informs Project Coordinator (end of June 2020)
3. EEAB received documents for reviewing (July 2020)
4. EEAB sent the ethics feedback report to Project Coordinator (**September 2020**) – APPENDIX 1
5. EEAB Chair presents report and feedback to the Consortium at 3rd General Assembly (**November 2020**)
6. EEAB receives documents prior to intervention of pilots (February 2021)
7. EEAB Chair presents report and feedback to ARETE Consortium at 4th General Assembly (May 2021)
8. EEAB receives documents on evaluation of pilots (November 2022)
9. EEAB Chair presents the report feedback to ARETE Consortium (January 2023)

4.2 Update D1.2 pg. 4 and D1.1 pg. 8 "Pilot 3: Augmented Reality for promoting behavior management and self-management within the framework of Positive Behaviour Intervention and Support (PBIS)"

KPI targets: pilot delivered to 750+ fifth and sixth grade primary school students aged 10 to 12 years across the Netherlands and Italy within classes of primary schools who either already implement and apply school-wide PBIS for more than one year (i.e., PBISAR and PBIS original conditions), or who are on the waiting list for PBIS implementation (control condition: care as usual). In pilot 3 teachers and parents are also included in data collection. With an average

classroom size of 20-25 students per classroom, a minimum of 30-39 classrooms will be recruited (equally divided over the three conditions).

Moreover, for D1.1 at pg. 8, Pilot 3 is expected to be delivered to more than 750 students across the Netherlands and Italy.

A pre-test/post-test control group design will be used to test the effectiveness of the implementation of PBIS enhanced by AR (AR-PBIS) when compared to PBIS interventions without AR support (PBIS) as well as compared to a control condition with care as usual (i.e., no PBIS intervention).

4.3 Update D1.2 pg. 8 "Qualitative data anonymisation techniques"

The only personal information from pilot participants refers to the pilot teachers - and this information is limited to EUN. In order to record all changes in the research data collected by research partners, EUN will assign an identification code to each participating teacher. Standardised identification codes will also be developed for the participating students, and they will be assigned, at the classroom level, by each participating teacher. These identification codes will later be shared with the research partners for the data processing purposes.

4.4 Update D1.2 pg. 11-13 "Proposed Methods of Data Collections"

Video recordings refer to the videos for observations during Pilot 3 as per normal practice within PBIS methodology and once reviewed from the teachers will be automatically deleted at school level. There will be no records of videos kept in any database of the ARETE project. Regarding measurement tools planned for the Pilot 3 intervention study (PBIS AR Pilot):

- For interviews or focus groups (pg. 12): The School-wide Evaluation Tool has been substituted with the Tiered Fidelity Inventory (TFI). The TFI allows for pre- and post-intervention fidelity assessment of PBIS program implementation.
- For standard psychological tests (pg. 12): The Behavioral Rating Inventory of Executive Function has been added. It assesses children's executive functioning (e.g., behavioral regulation, emotion regulation) and will be administered to students, teachers, and parents. Used for pre-test and post-test administrations.
- For surveys/questionnaires (pg.13): The School-wide Benchmarks of Quality has been added as a pre- and post-intervention measure of fidelity assessment of PBIS program implementation. The School Climate Survey has been added as a pre- and post-intervention measure of students' views of the school climate. The Bullying Role Inventory has been added as a pre- and post-intervention measure of students' behavioral involvement in the classroom social dynamics (e.g., bullying, victimization, bystander behavior, likeability, friendship). A modified version of the Intrinsic Motivation Inventory has been added as a post-intervention measure students' and teachers' experiences with using the PBIS-AR application (e.g., engagement utility, and motivation). The School Safety Survey has been excluded and will not be used. The Teacher Efficacy for Inclusive Practices (TEIP) has been excluded and will not be used.

4.5 Update D1.2 pg. 18 Compliance with European Union Ethical Principles

New structure of the project management includes the EEAB activities. The following documents are incorporated to reflect the workload within WP1 and the updates in terms of data controllers and data processors per pilot:
- ARETE project EEAB Terms of reference
- Documents (per pilot) reviewed and approved from the EEAB, include (and are available upon request):
  - Information Sheets (Parents-Students-Teachers)
  - Consent Forms (Parents-Students-Teachers)
  - Data Protection Impact Assessment (DPIA)
  - Record of Processing Activities (RoPA)
  - Assessment Strategy
  - Intervention Strategy
  - Data Flow Diagrams
  - Questionnaires/Surveys
  - Measurement Tools
- EEAB letter of approval for all ethics and GDPR requirements for ARETE project Pilots.

WP1 has addressed the post-grant requirements noted in the Ethics Summary Report (ESR) as follows:

Humans
2.5 In case children are involved, details on how the consent of the legal representatives (and assent, when applicable) will be acquired must be included in the grant agreement before signature. All details on how the consent of the legal representative (and ascent, when applicable) will be acquired, has been included in the grant agreement as part of Deliverable D1.1 (Month 2 of the project) and all the forms have been reviewed and approved by the EEAB. **2.8. Details on incidental findings policy must be included as a deliverable.** The details on incidental findings policy is included in the grant agreement as part of Deliverable D1.1 (Month 2 of the project) and reviewed and approved by the EEAB.

Protection Of Personal Data
4.2 The host institution must confirm that it has appointed a Data Protection Officer (DPO) and the contact details of the DPO are made available to all data subjects involved in the research. For host institutions not required to appoint a DPO under the GDPR a detailed data protection policy for the project must be submitted as a deliverable. The ARETE consortium takes Data Protection issues very seriously and will institute specific measures to review how personal data is collected and managed to raise awareness of the project staff with respect to privacy issues. RoPA indicates the Data Controller and Data Processor per Pilot and DPO of each Data Controller has reviewed and advised each Pilot Manager (DPIA document). **All relevant documents (DPIA and RoPA per pilot) have been reviewed and approved from EEAB.** **4.4 The beneficiary must explain how all of the data they intend to process is relevant and limited to the purposes of the research project (in accordance with the 'data minimisation 'principle). This must be submitted as a deliverable.** **4.5 The beneficiary must explain which type of the research data will not be anonymised/ pseudonymised and provide a justification for it. This must be submitted as a deliverable.** **4.8 Description of the anonymisation/pseudonymisation techniques that will be implemented must be submitted as a deliverable.** **4.15 In case of further processing of previously collected personal data, an explicit confirmation that the beneficiary has lawful basis for the data processing and that the appropriate technical and organizational measures are in place to safeguard the rights of the data subjects must be submitted as a deliverable.** **The details are included as part of Deliverable D1.2 (Month 2 of the project) and reviewed and approved from the EEAB.**

In summary, the ethical activities to be found in the ARETE project include:

- Maintain ethical standards of practice in research;
- Protect human subjects of research from harm;
- Ensure that the practice of fully informed consent is observed;
- Ethics requirements adhere to the ethical EU and national legislations and directives for all three Pilots within the ARETE project;
- The establishment of the ARETE External Ethics Advisory Board, as well as the presentation of its role and responsibilities;
- Establishment of internal reports' process and documentation related to the ethics requirements for the ARETE project;
- Provide reassurance to the public and outside bodies that all the above are done

It is strongly also emphasized from UCD DPO the RoPA to be a live document that will be updated as needed along with the project progress and regularly reviewed from the Data Controllers' DPO in order to reflect up-to-date information pre and post pilots' intervention.

4.6 Update D2.2 pg. 32 "ARETE Stakeholders' recruitment"

10 teachers who will work closely with the Pilots Management team in coordinating the implementation of the pilots have been recruited by M13 through an open call published on the ARETE website (Pilot 1: http://bit.ly/ARETE-pilot-1 and Pilot 2: http://bit.ly/ARETE-pilot-2). Following the recruitment of the ARETE teacher coordinators, a second round of calls - aiming to recruit pilot participants - has been launched in the beginning of M14, aiming to recruit almost 200 additional teachers (almost 40 from Pilot 1, and up to 160 for Pilot 2). Both calls http://bit.ly/AR-pilot-1-teachers and http://bit.ly/AR-pilot-2-teachers were published on ARETE website.

4.7 Participation in XR Ethics

UCD (Prof. Eleni Mangina) is actively involved the IEEE Global Initiative on Ethics of Extended Reality[3]: The goal of this Industry Connections activity is to continue and proliferate the existing efforts of The IEEE Standards Association focused on the ethical issues related to XR as outlined in the Extended Reality chapter of *Ethically Aligned Design* while inviting Working Group members from the multiple standards Working Groups focused on augmented and virtual reality and the spatial web and additional subject matter experts from industry and policy to create white papers, workshops, and PARs related to this work to ensure these technologies move from perilous to purposeful.

5. Conclusions

The deliverable report provides the updates on Project Plan, Quality Plan and Ethics Procedures between M4 to M14. This deliverable report will be updated again in D2.8 (Project Plan; Quality Plan; Ethical Procedures – Update 2), M26.

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[3] https://standards.ieee.org/industry-connections/ethics-extended-reality.html

6. Annexes

6.1 Annex 1: List of Deliverables

No.	Deliverable Name	WP	Lead	Type	Dissemination level	Delivery date (in months)
D1.1	H-Requirement No.1	WP1	UCD	R	CO	1
D1.2	POPD – Requirement No.2	WP1	UCD	R	CO	1
D2.1	Management reports (Contractual, Financial and Technical)	WP2	UCD	R	CO	3
D2.2	Project Plan; Quality Plan; Ethical procedures **MS1**	WP2	UCD	R	PU	3
D2.3	Data Management Plan (DMP)	WP2	UCD	ORDP	CO	6
D2.4	Management reports (Contractual, Financial and Technical)-UPDATE 1	WP2	UCD	R	CO	12
D2.5	Management reports (Contractual, Financial and Technical)-UPDATE 2	WP2	UCD	R	CO	24
D2.6	Management reports (Contractual, Financial and Technical)-UPDATE 3	WP2	UCD	R	CO	42
D2.7	Project Plan; Quality Plan; Ethical procedures -UPDATE 1	WP2	UCD	R	PU	14
D2.8	Project Plan; Quality Plan; Ethical procedures -UPDATE 2	WP2	UCD	R	PU	36
D2.9	Data Management Plan (DMP) - UPDATE 1	WP2	UCD	ORDPR	CO	18
D2.10	Data Management Plan (DMP) - UPDATE 2	WP2	UCD	ORDPR	CO	36

No.	Deliverable Name	WP	Lead	Type	Dissemination level	Delivery date (in months)
D3.1	Interactive AR objects and scenarios for ARETE.	WP3	CLB	R	CO	15
D3.2	Developed tangible content (books, maps, flashcards, building blocks, puzzles) to use together with AR software.	WP3	CLB	OTHER	CO	15
D3.3	Interactive collaborative ARETE Mobile app (IOS & Android).	WP3	TOU	OTHER	PU	20
D3.4	ARETE 3D digital repository.	WP3	UCD	OTHER	CO	26
D3.5	Design & ontologies for 3D AR interactive objects.	WP3	CLB	R	CO	20
D3.6	IEEE Standards for AR Objects	WP3	UCD	R	PU	26

No.	Deliverable Name	WP	Lead	Type	Dissemination level	Delivery date (in months)
D4.1	ARETE Use Scenarios	WP4	ULE	R	PU	15
D4.2	Analysis of User Requirements, Needs and Visionary User Cases for ARETE	WP4	ULE	R	PU	18

D4.3	Report on teaching and learning methodology of early ARETE prototypes	WP4	ULE	R	PU	36
D4.4	Report on Summative & Formative usability and user experience evaluation of advanced ARETE prototypes.	WP4	ULE	R	PU	36
D4.5	ARETE Use Scenarios - UPDATE	WP4	ULE	R	PU	25
D4.6	Analysis of User Requirements, Needs and Visionary User Cases for ARETE -UPDATE	WP4	ULE	R	PU	33

D5.1	Analysis of PBIS Requirements for ARETE	WP 5	ULE	R	PU	20
D5.2	Interactive AR PBIS component	WP 5	SVU	OTHER	PU	26

D6.1	Pilots Deployment Plan.	WP6	EUN	R	PU	18
D6.2	Pilots Requirements, Design	WP6	UCD	R	PU	22
D6.3	ARETE Training Platform	WP6	CLB	OTHER	CO	22
D6.4	Pilots Deployment.	WP6	EUN	DEM	CO	42
D6.5	Pilots Performance Analysis.	WP6	UNW	R	PU	42
D6.6	ARETE Training Platform - UPDATE	WP6	CLB	OTHER	CO	28

D7.1	Dissemination Plan.	WP7	UCD	R	PU	3
D7.2	Website and social media	WP7	UCD	DEC	PU	3
D7.3	Showcase Mobile App	WP7	TOU	OTHER	PU	20
D7.4	Showcase workshop & Hackathon	WP7	UCD	OTHER	PU	34
D7.5	Market Outreach Plan	WP7	CLB	R	CO	18
D7.6	Draft CEN workshop	WP7	UCD	R	PU	42
D7.7	Dissemination Plan-UPDATE 1	WP7	CLB	R	PU	14
D7.8	Dissemination Plan-UPDATE 2	WP7	CLB	R	PU	28
D7.9	Website and social media -UPDATE 1	WP7	CLB	DEC	PU	12
D7.10	Website and social media -UPDATE 2	WP7	CLB	DEC	PU	24
D7.11	Website and social media -UPDATE 3	WP7	CLB	DEC	PU	36
D7.12	Showcase Mobile App- UPDATE	WP7	TOU	OTHER	PU	33
D7.13	Market Outreach Plan - UPDATE	WP7	CLB	R	CO	36

6.2 Annex 2: External Ethics Advisory Board Evaluation Report

HORIZON 2020 ARETE PROJECT
"AUGMENTED REALITY EDUCATIONAL SYSTEM"
EXTERNAL ETHICS ADVISORY BOARD
UNIVERSITY COLLEGE DUBLIN, IRELAND
EEAB ethics' evaluation Report

The External Ethics Advisory Board (EEAB) for ARETE H2020 project with Grant Agreement No 856533 is composed by Mr. Cyril Drury (GDPR Expert) and Ms. Georgia Livieri (Ethics Expert). The EEAB has extensively interacted with the ARETE consortium partners since May 2020 and during the 2nd General Assembly in August 2020, in order to thoroughly review all the documentation provided in terms of ethics requirements and GDPR compliance. EEAB members confirm after the revision of the documents the GDPR compliance of the project (including all three distinctive Pilots) and the satisfaction of all the ethical requirements, according to the guiding principles of H2020.

The following documentations were reviewed per Pilot:
- Information Sheets (Parents-Students-Teachers)
- Consent Forms (Parents-Students-Teachers)
- Human Subjects Ethical Review Application Form
- Data Protection Impact Assessment
- Record of Processing Activities (RoPA)
- Assessment Strategy
- Intervention Strategy
- Data Flow Diagrams
- Questionnaires/Surveys
- Measurement Tools

The coordination of the review process and the communication and collaboration with and among all the partners was excellent, deadline oriented, based on constructive dialogue and democratic interaction. The consortium partners have welcomed the guidance from EEAB members and updated any documentation that was required during the review process. In summary, the procedure of ethics' requirements evaluation of the ARETE project has been completed and all ethics issues resolved and based on GDPR compliance.

Georgia Livieri

Ethics Expert
Chair of the External Ethics Advisory Board   **DATE:28/09/2020**

### 6.3 Annex 3: External Ethics Advisory Board (EEAB) Terms of Reference

ARETE External Ethics Advisory Board (EEAB) – Terms of Reference

The following Terms of Reference (ToR) were developed by the Project Coordinator (Prof. Eleni Mangina), based on the document guide from European Commission, DG research and Innovation (2012) "Roles and Functions of Ethics Advisors/Ethics Advisory Boards in EC-funded Projects". ToR was submitted to the Project Steering Committee (PSC) of the ARETE Consortium for review and approved and completed in May 2020.

Purpose

The ARETE project aims to support the pan-European interactive technologies effort both in industry and academia, through the multi-user interactions within AR technologies evaluated in education in both professional and private contexts. The authoring tools used within ARETE and the provision of access of the AR content developed for the broader community of users within the EU, will increase the European innovation capacity in AR. Through systematic application of human-centred design approaches, ARETE will deliver highly usable, useful and desirable AR technologies and contents, leading to a wider uptake and further stimulate their creative usage. ARETE Consortium will appoint an independent ethics board, with relevant ethics expertise, to carry out a risk-benefit analysis of the intended research and to suggest appropriate safeguards to cover ethics' risks (during and beyond the lifetime of the project) and inform the researchers.

External Ethics Advisory Board (EEAB): A suitably experienced *ethics advisory board* will assist to deal with ethical issues and putting into place the procedures to handle these appropriately. The advisory board members are external to the project and to the host institution; totally independent; and free from any conflict of interest. EEAB will maintain an overview of the work throughout the whole course of the project and help to think ahead about possible problems that might arise and how they can be addressed. Their experience will help to check for compliance with ethical standards within the relevant research fields. EEAB members will also be responsible for reporting to PSC, on a regular basis, on ethics concerns as they arise and the continuing probity of ARETE project. The consortium will work with the EEAB members on a regular basis throughout the project. Their oversight role should be fully integrated into ARETE research activities and they will work closely with the consortium, so they are fully aware of all the developments as ARETE progress. EEAB is an essential element in the ARETE project management structure.
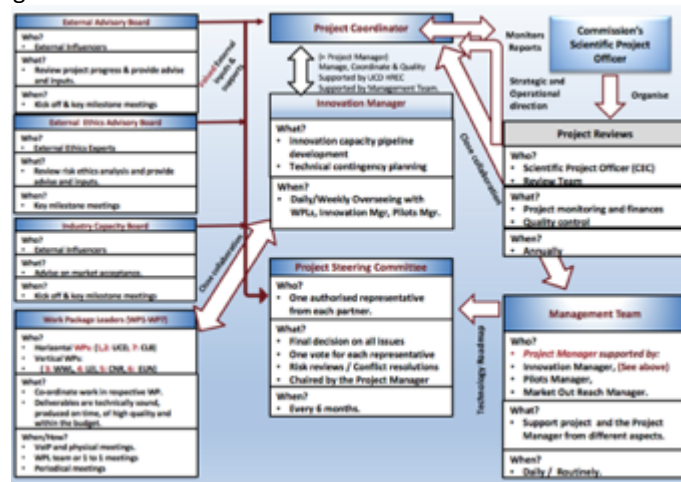
ARETE Project Management Structure

Necessarily, given the nature of ethical debate, there might be differences of opinion and interpretation that remain to be resolved. Nevertheless, whenever possible, consensus has to be reached and action points proposed to the PSC. The aim is to offer a focused and practical guidance for the ethical issues of the ARETE Horizon 2020 project delivery.

The Role of EEAB

1. To foster an awareness of ethical principles and practices in the Augmented Reality Interactive Educational Systems research and stakeholder community.
2. To facilitate excellence in the Augmented Reality Interactive Educational Systems research and innovative practice for the well-being of the stakeholders we work with.
3. To advice the ARETE consortium members through the ARETE PSC on ethical issues related to the Augmented Reality Interactive Educational Systems.
4. To consider, at the request of the ARETE PSC, specific ethical issues raised before, during and after the intervention of the ARETE pilots.
5. To prepare position statements on ethical issues on behalf of the ARETE PSC.
6. To initiate and inform debate on ethical issues within the ARETE Consortium.

Nature of Advisory Role

a) The EEAB must maintain an overview of operations throughout a project, helping with preparation in terms of thinking ahead about possible problems and how they can be addressed. Any sense of static, 'tick-box' approvals must be avoided. EEAB members are resources for advice and guidance when ethical dilemmas arise during a project. EEAB with oversight functions will usually check compliance with ethical standards within the relevant research fields. Independence and freedom of any conflict of interests are requirements for the participation in the EEAB.
b) The Chair of the EEAB is allowed to actively participate in General Assembly meetings. EEAB is fully integrated into the management structure. This active engagement facilitates ongoing liaison between the various agents and groups and helps ensure thorough knowledge of overall project activities and better acceptance and integration of the EEAB into the consortium activities.
c) EEAB keeps up regular contact with any partner bearing Work Package (WP) responsibilities for ethics-related actions and that both know what actions the other is taking and planning. This should ensure consistency and help avoid any unnecessary duplication of effort. Principal link to the consortium has to be established between the Chair of the EEAB and Project Coordinator. This is also important for ensuring consistency of advice and avoiding confusion – as controversial issues might need discussion among all members of the EEAB prior to the formulation of clear advice.
d) Clarity in all communications coming from the EEAB is essential. Advice offered must be understandable by the partners so that appropriate actions can be taken – it must be pragmatic/workable. Direct communications between advisors and partners is vital.
e) A culture of mutual respect and understanding of the other's position should be cultivated during all meetings
f) Transparency and critical detachment are important components of ethical oversight. Being open and clear about decision, actions to take and the rationales behind them is good practice. All other project groups (partners and advisors) should be encouraged to raise issues with the EEAB knowing they are to be treated with discretion.
g) Ethics advisors should include independent summaries of discussions and issues arising in formal meetings in their regular reports.

In summary, the EEAB should do whatever is necessary to diligently monitor the aims, objectives, methodology and implications of the research to ensure that it conforms to the highest ethical standards and ensures that the researchers, the Commission and the general public are not exposed, by the work of the project, to activities that would be considered to be ethically unacceptable. As research activity is dynamic and evolves along unpredicted pathways advisors must be prepared to tackle new issues and concerns as they arise and the ethical perspective will need to be modified throughout the lifetime of the project.

Definitions and Clarifications

(a) "Ethics Advisory Board" (EEAB) is defined as a group of ethics experts giving advice to ARETE project consortium partners in the context of a European Commission (EC) funded project. Although such a provision has not risen as a requirement by an EC Ethics Review Panel, it has become a recommendation from the NUID UCD (Coordinator Institution) Human Research Ethics Committee – Sciences (HREC) and becomes part of WP1 activities throughout the duration of the project. The work of EEAB experts should facilitate, build upon and complement existing oversight regimes by competent ethical and legal authorities.

(b) 'Ethics' is including questions of legal and regulatory compliance as well as a branch of philosophy. It is part of a process of 'governance'. In this vein, the EC document "A comprehensive strategy on how to minimize research misconduct and the potential misuse of research in EU funded research" asserts that ethics is a "key oversight mechanism" to ensure that EU funded research is not misused.

(c) 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). EEAB members will be part of a positive research quality assurance strategy. However, EEAB members must retain the courage to be unpopular in cases where significant ethics problems arise and their intervention is necessary to maintain research ethics standards. Such challenges must be equally backed by effective powers.

(d) Ethics advice will be incorporated into a project either as part of WP1. EEAB members' consultation is subcontracted activity due to the size of the project and the geographical impact.

(e) Ongoing liaison between the EEAB and project partners might be optimized by the coordinator (Prof. Eleni Mangina) taking the responsibility for communicating with the EEAB and informing the PSC. The coordinator has extensive expertise in research ethics, data protection and/or privacy issues within previous EU projects.

(f) Attendance by members at as many relevant meetings as possible (whether virtual or face-to-face) is important for consistency and continuity. If a member's formal attendance is limited for any reason, they should employ other means to ensure they are fully acquainted with how the project is progressing.

Membership

1. The EEAB will consist of at least two (2) members. The chairperson will be appointed by the EEAB members and serve three-year terms and may be re-appointed for any number of terms.
2. The Chair of EEAB shall have the authority to invite other members to temporarily advise the committee on specific issues within their field of expertise.
3. EEAB will meet at least two times per year, in person or electronically and request all documents needed from the project coordinators. The Chair of the EEAB will report on its activities to ARETE PSC.
4. Communication between EEAB members will primarily be by email
5. Records of all meetings and decision with supporting documentation will be maintained in the project's Google Drive under the WP1 folder (Ethics Requirements)

Standard Operating procedures

1. A 'division of labour' between the EEAB members should be formally agreed and clarified from the outset and applied to WP1 specific project deliverables according to EEAB members' expertise in order to increase the efficiency of operations.

2. An EEAB Chair will be elected from the membership and may speak on their behalf. The consortium will interact with the EEAB via the Chair of the EEAB (e.g. advice on approval requirements, risk benefit assessments, guidance on specific ethical questions, reporting obligations, guidance concerning the relevant legal framework and regulatory requirements in the countries where the research takes place).

3. Ethical issues can become quite formidable or can be capable of being addressed in a straightforward way – largely dependent on the primary substantive focus of the project. In all cases 'proportionality' is of the utmost importance EEAB members are encouraged to meet via teleconference to discuss between the following calendar dates of the PSC meetings. Project partners should be invited to EEAB meetings in case specific questions need to be addressed. The frequency of activities and meetings with PSC are as follows:
   (a) EEAB members finalised (end of May 2020)
   (b) EEAB members appoint a Chair and informs Project Coordinator (end of June 2020)
   (c) EEAB receives documents for reviewing (July 2020)
   (d) EEAB sends the ethics feedback report to Project Coordinator (September 2020)
   (e) EEAB Chair presents report and feedback to ARETE Consortium at 3rd General Assembly (November 2020)
   (f) EEAB receives documents prior to intervention of pilots (February 2021)
   (g) EEAB Chair presents report and feedback to ARETE Consortium at 4th General Assembly (May 2021)
   (h) EEAB receives documents on evaluation of pilots (November 2022)
   (i) EEAB Chair presents the report feedback to ARETE Consortium (January 2023)

4. Securing the 'best interests' of the general public and civil society is one of the main goals. EEAB exists to offer guidance, advice, monitoring and recommendations for future work. Boards and advisors should operate while neither dominating the work nor obstructing it unnecessarily. They should be facilitative.

5. Fees and expenses: it is estimated that the workload of one (1) person month will be reimbursed for the duration of the project per EEAB member from project budget. Additionally, any travel/subsistence expenses occurred to attend the General Assembly meetings will be reimbursed from the project budget.

6. Although face-to-face meetings are advantageous in solving complicated issues, it is often not feasible to convene all members together at a certain place and time due to time and financial constraints. Alternatives will be organised from the Project Coordinator either e-mail conversation or videoconferences or one-off site visits.

7. The individual members of the EEAB should cooperate to work out consensus-based recommendations. In cases where no consensus can be reached, it is recommended that the EEAB provide a transparent overview on its discussion to the project management, detailing why no definitive advice was possible.

8. All meetings of the EEAB should be based on an agreed agenda to ensure efficient decision-making. Relevant documents should be circulated beforehand to allow for adequate preparation. Meetings should be co-ordinated by the Chair and a report should be prepared for each meeting and communicated to the project management.

Identifying Ethical Principles and Criteria to Apply

a. Ethics needs to permeate all parts of the project 'culture' to be effective. In the interests of raising and maintaining ethical awareness, all aspects of the project's activities require the maintenance of an ethical perspective. A sound ethics policy requires transparency and balance.

b. EEAB will assist the consortium partners by establishing a set of 'core values' or 'principles' to adhered to. Additionally, an ethics checklist to act as an aide memoire and modified to apply specifically to the project in hand can be a focus for ethical practice for the duration of the project. Application of the checklist can highlight misunderstandings of terminology and conceptual problems associated with the rationales that lie behind conventional ethical principles. This together with applicable legal provisions, codes of conduct and guidance documents provided by the European Commission should form a base for the work of any EEAB. The EEAB should ensure, to the best of their ability, that the consortia adhere to the Fundamental Rights Declaration of the European Union.

c. EEAB should ensure that both ethics screening reports and ethics review reports are fully available to partners, that they are acted upon and, as far as is possible, there is consistency of advice and practice across all ethics experts. The partners' actions are consistent with their responses to the Ethics Issues Table contained in the original proposal. Any subsequent amendments should be reported and explained to the EEAB. Where differences of opinion, judgment and/or interpretation exist within the EEAB, these should be explained to partners to assist in their application to practice.

Meeting Frequency

The format and frequency of meetings reflect the proportionality of the EEAB within WP1 of the project, as the reporting function. EEAB members are encouraged to meet via teleconference to discuss between the following calendar dates of the PSC meetings. Project partners should be invited to EEAB meetings in case specific questions need to be addressed. The frequency of activities and meetings with ARETE PSC are as follows:

1. EEAB members finalised (end of May 2020)
2. EEAB members appoint a Chair and informs Project Coordinator (end of June 2020)
3. EEAB receives documents for reviewing (July 2020)
4. EEAB sends the ethics feedback report to Project Coordinator (September 2020)
5. EEAB Chair presents report and feedback to the Consortium at 3rd General Assembly (November 2020)
6. EEAB receives documents prior to intervention of pilots (February 2021)
7. EEAB Chair presents report and feedback to ARETE Consortium at 4th General Assembly (May 2021)
8. EEAB receives documents on evaluation of pilots (November 2022)
9. EEAB Chair presents the report feedback to ARETE Consortium (January 2023)

Conflicts of Interest

EAC members should perform their functions in good faith, honestly and impartially and avoid situations that might compromise their integrity or otherwise lead to conflicts of interest. Proper observation of these principles will protect the EEAB and its members and will ensure it retains public confidence. EEAB members attend meetings and undertake EEAB activities as independent persons responsible to the PSC as a whole. Members are not appointed as representatives of professional organisations or particular community bodies. The EEAB should not, therefore, assume that a particular group's interests have been taken into account because an EEAB member is associated with this group.

Members should declare, and the committee regularly review, their actual and potential conflicts of interest. When EEAB members believe they have a conflict of interest on a subject that will prevent them from reaching an impartial decision or from undertaking an activity consistent with the EEAB's functions, they should declare that conflict of interest and withdraw themselves from the discussion and/or activity.

A member of the EEAB who is involved with an issue brought before the EEAB shall not take part in the EEAB's assessment of that issue. The member may be present to answer questions but should take no part in the discussion surrounding the consideration of the issue or any decision relating to the issue. This will allow each issue to be considered in a free and frank manner. The EEAB must demonstrate transparency in avoiding or managing any real or perceived conflict of interest.

Expert Advice and Consultation with other EC-projects

a) EEABs should be aware of, and able to liaise with, other relevant EC funded projects. Many EC-funded projects have faced and continue to face very similar ethical issues. It should be possible for each new project to learn from them. A range of factors inhibits open cross-fertilisation and interaction between projects. These include intellectual property rights, security and confidentiality. But unless such 'obstacles' are overcome there is likely to be considerable duplication of effort, which is wasteful of resources and impedes the building of foundational work that could enable more rapid and widespread ethical awareness.

b) Other EU projects that have established 'codes of conduct' could provide the basis for similar ethics progress elsewhere. One excellent model for large scale EC collaborative project that could inform practice is the ETICA Project (completed May 2011): http://www.etica-project.eu/ The main point is to be aware of foundational advice they contain and perhaps view them as 'helpful tools'.

c) Any liaison activities between EEABs directly related to project actions should be discussed and agreed with the PSC in advance, to ensure that no confidential, project-specific information is exchanged between competing research consortia. This could be contained in a confidentiality agreement. An exception should be included in any such agreement for the option to report ethical misconducts directly to the European Commission, to ensure adequate and timely information of the funding institution.

d) Advice may be sought from recognised experts with
   · Specialist knowledge in particular fields of emerging technologies for education
   · An understanding of relevant cultural perspectives in education
   · An understanding of developing methodologies for augmented reality
   · Expertise in ethical theory

It should be noted that the above list gives examples, without restricting the range of external expertise that may be sought. Where external consultation has taken place or advice has been sought, this should be documented and recorder where appropriate in the EEAB's decision on an issue.