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ARETE – DELIVERABLE (D2.8)

WP 2- 2.8 Project Plan; Quality Plan; Ethical Procedures- UPDATE 2

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Document History

Version	Date	Description
0.1	19/10/2021	(NUID UCD) Project Plan; Quality Plan; Ethical Procedures – UPDATE 2
0.2	15/11/2021	Review (all ARETE partners)
0.3	30/11/2021	Final draft review from NUID UCD

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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Executive Summary

The D2.8 “Project Plan; Quality Plan; Ethical procedures-UPDATE 2” is an update of the Deliverable D2.7, which was submitted in M14 (which in turn was the update of D2.2 at M3 and included updates for D1.1 and D1.2 in terms of Ethical Procedures).

The following updates have been made by the ARETE consortium between M14- M26:

- The ARETE project successfully underwent a first project review in M14.
- The ARETE project has been transferred to the **European Health and Digital Executive Agency** (the ‘new granting authority’) from DG for Communications Networks, Content and Technology.
- The 1st Periodic Report including the M18 financial reports has been submitted, and the interim payment has been approved by EC.
- The 2nd amendment of the Grant Agreement has been introduced and submitted in M26.
 - Annex 1 (Description of Action - DoA) has been changed;
 - Annex 2 (estimated budget of action) has been changed;
- To date, 26 deliverables has been completed, 9 of them have been approved and one milestone has been achieved.
- To date, 5 General Assembly (GA) meetings, 8 Project Steering Committee (PSC) meetings including 1 extraordinary PSC which was called by Project Coordinator in M23 to migrate the risks of the ARETE project and 1 reviewing meeting have been completed.
- The WP7 leader changed from CLB to VIC from M15.
- Partner 4 University of Leicester (ULE) was terminated in M23, and the new partner Durham University (UDUR) joined the consortium in M24 (as the WP4 leader Prof. Effie Law accepted a new position at Durham University). The WP4 lead has changed from ULE to UDUR.
- A new **Pilot 4: Teaching with eXtended Reality -Evaluating the MirageXR Authoring Tool** (the teachers would utilise and evaluate the AR authoring toolkit, given the research gap identified with the literature review that took place within the second year of the project) added on the 2nd amendment.
- The WP3 and WP4 end dates have been extended to M42.
- A new General Assembly (GA) meeting (in M38) added on the 2nd amendment due the ARETE project extended to 42 months and moved the 6th GA meeting from M34 to M32.
- The board members Paul Sweeney and James Corbett stepped down from Industry Capacity Board as they moved to the new industry positions.

This report is tended to be a live document and although no significate changes to this document are envisioned, some updates will be provided in M36



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 M14-M26 are: 2nd amendment on the Grant Agreement (GA); the consortium has successfully conducted the first review meeting in M14 and preliminary feedback has been received from the external reviewers and has been applied throughout the development of the second year of the project.

2. Updates on Project Plan

The ARETE project has been transferred to the **European Health and Digital Executive Agency** (the 'new granting authority') from DG for Communications Networks, Content and Technology.

The consortium introduced the second amendment on the Grant Agreement in March 2021 and submitted in November 2021 (as the ARETE project transferred to the new granting authority).

The project activities of engaging with stakeholders have been impacted by COVID-19 and it can be reflected from the number of participants in the Pilots. The WP7 lead has been changed from Partner 2 CLB to Partner 9 VIC. The WP4 lead has been changed from Partner 4 ULE to Partner 12 UDUR. The consortium has suggested to add a new **Pilot 4: Teaching with eXtended Reality -Evaluating the MirageXR Authoring Tool** on the 2nd amendment. For the new pilot, the teachers would utilise and evaluate the AR authoring toolkit, given the research gap identified with the literature review that took place within the second year of the project.

Between M14- M26, the consortium has held 3 PSC meetings:

- 6th PSC: 19th of May 2021 (online)
- 7th PSC: 17th September 2021
(online – Extraordinary on Data Sharing Agreements)
- 8th PSC: 3rd November 2021 (blended at VIC)

Between M14- M26, the consortium has held 2 GA meetings:

- 4th GA: 17th & 18th of May 2021 (online)
- 5th GA: 2nd & 3rd November 2021 (blended at VIC)

The ARETE project's next scientific review meeting is planned to be held in M30. The first ARETE workshop was planned to be held in M10 by the partner Vicometch (VIC). However, due to COVID-19, the workshop was postponed to the second year of the project during iLRN



2021 (7th of June 2021). The Workshop 2 moved to M22, Workshop 3 moved to M32 and Hackathon moved to M37 due to COVID-19. Changed 6th General Assembly meeting and CEN CWA workshop from M34 to M32 and added an additional General Assembly meeting in M38 hosted by the partner UDUR.

The External Ethics Advisory Board (EEAB) has been invited in all GA meetings during the second year and feedback is provided all along the project progress. Two Industry Capacity Board members Paul Sweeney and James Corbett stepped down from the board as they moved to the new positions.

Between M14-M26, the advisory board members have met online during the 5th GA meeting (2nd and 3rd November 2021). They 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.

3. Updates on Quality Plan

Based on the 2nd amendment, there are a total of 51 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 M26, there are 26 deliverables reports that have been finished and submitted to the EC.

The Data Management Plan has been updated in M18 and will become publicly available at M36 (D2.10).

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 the 2nd extraordinary PSC meeting that was organised in September 2021 to organise the Data Sharing Agreement within the consortium based on feedback from the EEAB.

The consortium is monitoring closely the situation under the WHO guidelines and national policies in terms of the pilots' intervention, but there has been a low participation from school teachers in Pilot 1, while Pilot 2 has attracted a number of stakeholders with uncertainty of the full commitment in the project given the uncertainty of schools being open for the duration of the academic year. The consortium has done the best possible given the circumstances and extended invitations to all networks and the following recruitment results have been finalised, with the risk of a drop out from teachers during the academic year 2021/22.

4. Updates on D2.7 4.6 "ARETE Stakeholders' recruitment"

Ten teachers coordinators 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 their recruitment and onboarding in the project, a second round of calls aimed to recruit pilot participants was launched in the beginning of M14: the goal was to recruit about 200 additional teachers - around 40 from Pilot 1, and up to 160 for Pilot 2. Both calls [Open Call Pilots 1 & 2 - ARETE \(areteproject.eu\)](#) were published on ARETE website.

Due to the COVID-19 pandemic, the open calls for pilot teachers proved to attract less teachers than originally expected, despite the consortium's effort to disseminate the information leveraging all possible channels of communication i.e., European Schoolnet network of Ministries of Education, [Scientix](#) network and social media channels, Europeana ambassadors network, [Make it Open](#) network of partners and teachers, [Future Classroom Lab ambassadors](#) network, ARETE teacher coordinator professional network, etc.

In M19, the target number of pilot teachers was only partially attained, with about 40% of the desired number of teachers recruited. Accordingly, the consortium decided to extend the recruitment campaign and reinforced the communication about the calls for ARETE pilot teachers. In addition, the group of main target countries involved in Pilot 2 was extended to include Turkey and a teacher coordinator from Turkey was recruited to boost recruitment there. Thanks to these mitigation actions, the recruitment of teachers for Pilot 2 improved considerably and it reached about 87% of the expected quota (i.e. 170 units) by M23: this corresponds to over 3 400 students i.e., about 102% of the targeted number of students. In M21, one of the two Pilot 1 teacher coordinators was replaced after it was found out that she did not fulfill all the requirements needed to carry out the assigned tasks.

Despite the mitigation measures taken during M19, it proved difficult to attract the targeted number of Pilot 1 teachers (i.e. 40 units). Accordingly, the consortium decided to extend till the end of M23 the recruitment of Pilot 1 teachers, and conducted a short but very targeted communication campaign focusing on Irish teachers. Thus, over 3000 Irish primary schools were directly contacted via email and invited to take part in Pilot 1: contact details of such schools were taken from the list of Irish schools published online by national authorities. As a result of such action, in M24 the number of recruited pilot 1 teachers increased from 13 to 20, corresponding to 50% of the targeted number: this corresponds to about 180 students i.e., roughly 75% of the targeted number of students.

5. Updates on ARETE Ethical procedures

5.1 Update on EEAB progress

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.



5.2 Updates on Ethics related documentation

The following documents have been updated since M14 based on feedback from EEAB

- ARETE Website GDPR Policy (<https://www.areteproject.eu/gdprpolicy/>)
- ARETE Pilots GDPR Compliance:
 - [Pilot 1 App Ethics Policy](#)
 - [Pilot 2 App Ethics Policy](#)

5.3 ARETE Data Sharing Agreements

The consortium consulted EEAB and UCD Legal in terms of the need for Data Sharing Agreements, based on the methodology and research design of the pilots' intervention and data collections and information has been provided to all partners in terms of the roles of Data Controllers and Data Processors, as identified within the RoPA of the project. Each partner is a Data Controller in its own right. Data sharing agreements are good practice and a security measure. We have NO joint data controllers in our consortium. Given the fact that WWL and CLB are non-public research partners (although of course the data collected are for research purposes), it is a safe measure to have the following data sharing agreements given the commercial activities of the SMEs:

- WWL and UNW (Pilot 1)
- WWL and VIC (Pilot 1)
- CLB and VIC (Pilot 2)
- EUN and UNW (It would be good practice - based on data flow diagrams)

There is no need for data sharing agreements between the rest of the partners that will utilise the research data provided from UNW and VIC. UCD has provided a Data Sharing Agreement template and shared with the partners, although every partner can complete their own template.



Figure 1: Pilot 1 Data flow within the consortium

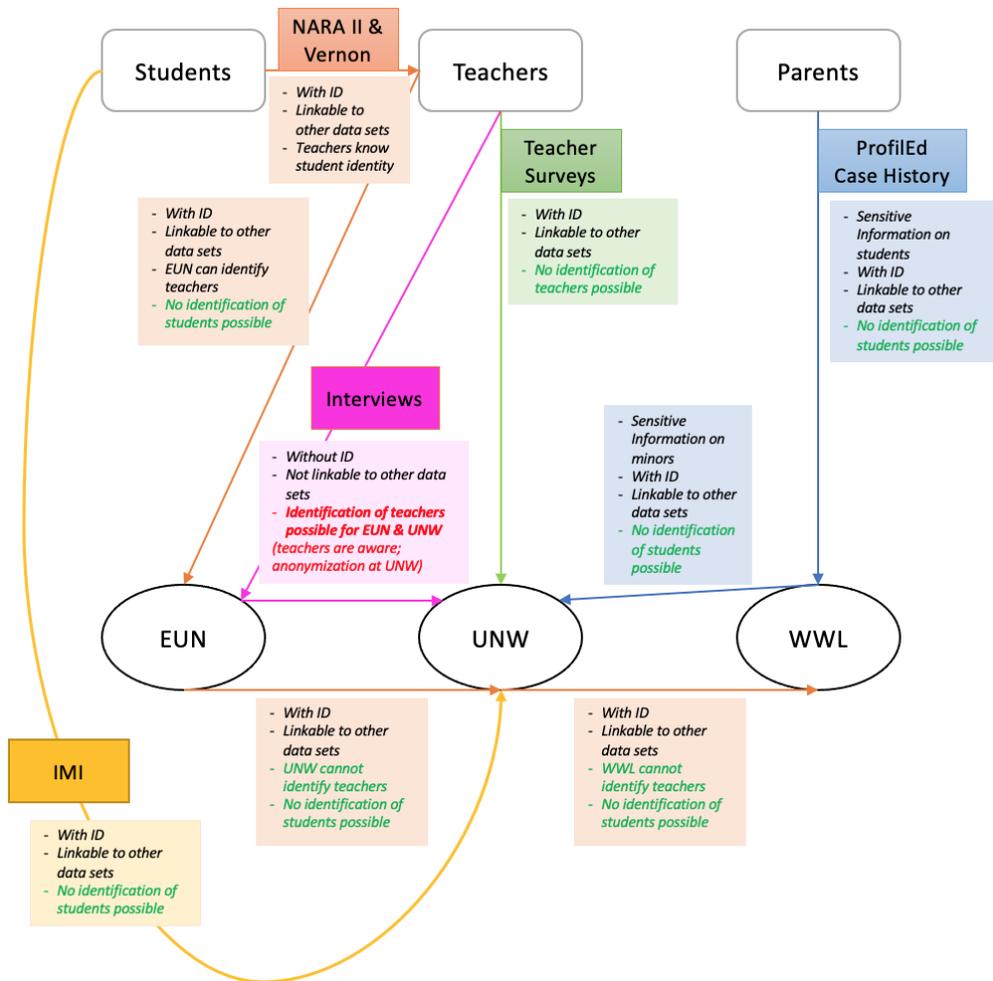




Figure 2: Pilot 2 Data flow within the consortium

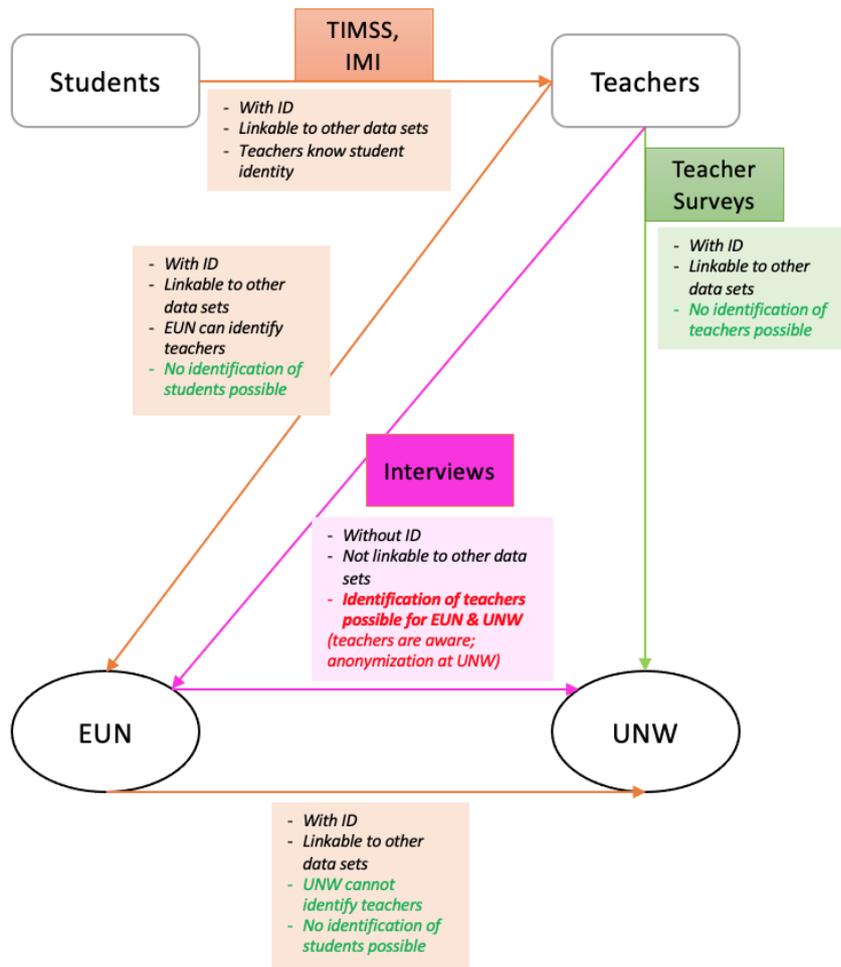




Figure 3: Pilot 3 Data flow within the consortium





5.4 Update on D2.7 Section 4.7 Participation in XR Ethics

UCD (Prof. Eleni Mangina) is actively involved the IEEE Global Initiative on Ethics of Extended Reality² and during the last year, she has chaired the Report of the IEEE Global Initiative, which has resulted to the submission (end of October 2021) of 7 Chapters, with a plan for publication in 2022:

Chapter 1: EXTENDED REALITY (XR) AND THE EROSION OF ANONYMITY AND PRIVACY

Chapter 2: WHO OWNS OUR SECOND LIVES: VIRTUAL CLONES AND THE RIGHT TO YOUR IDENTITY

Chapter 3: SOCIAL AND MULTI-USER SPACES IN VR: TROLLING, HARASSMENT & ONLINE SAFETY

Chapter 4: EXTENDED REALITY (XR) ETHICS IN EDUCATION (Chapter Leader Prof. Eleni Mangina, UCD, ARETE H2020 Coordinator)

Chapter 5: EXTENDED REALITY (XR) ETHICS IN MEDICINE

Chapter 6: EXTENDED REALITY (XR) ETHICS & DIVERSITY, INCLUSION, ACCESSIBILITY

Chapter 7: BUSINESS, FINANCE AND ECONOMICS

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.

Specifically **Chapter 4**, was originated from the work related to the experiences of the Coordinator within a portfolio of projects in Education and XR and the ethical considerations. The report includes 42 recommendations, in order to set the basis for a PAR application on new standards in IEEE for XR Ethics in Education, which are grouped as follows (detailed report will be published from IEEE publicly).

- Privacy in Education requirements (6 recommendations)
- User requirements (2 recommendations)
- Hardware requirements (5 recommendations)
- Software requirements (5 recommendations)
- Accessibility (6 recommendations)
- Teaching & Learning (5 recommendations)
- Authoring Toolkits (2 recommendations)
- Educational Impact (5 recommendations)
- Societal impact (6 recommendations)

² <https://standards.ieee.org/industry-connections/ethics-extended-reality.html>



The project coordinator plans to chair the WG and address the recommendations and inform policy internationally. The focus within practices of digital learning for adoption of ethically XR should be on:

- XR Digital Strategy for Schools.
- XR Digital Teaching & Learning Framework.
- Ethically approved XR Teaching & Learning methodology.
- XR technologies to ethically encourage active and collaborative learning
- XR technologies to ethically create new knowledge, content, and 3D artefacts
- XR technologies supporting effective teaching and learning assessment strategies

Although within the current educational system spectrum there are predefined factors for the progression of an individual student, specific factors must be considered depending on the level of education at which the XR technology is to be adopted:

- Impact of educational policies and resources for the adoption of XR in education
- Definition of educational equality and equity within XR Education
- Level of impact of XR towards the contribution to quality and equity in student performance
- The structure of differentiation within education systems and the applicability of XR within those systems.
- Decentralization of ethically approved XR educational systems.

6. Conclusions

The deliverable report provides the updates on Project Plan, Quality Plan and Ethics Procedures between M14 to M26. Any further updates during M27-M42 will be reported at the final report of the project.



7. Annexes

7.1 Annex 1: List of Deliverables (based on the 2nd Amendments)

No.	Deliverable Name	WP	Lead	Type	Dissemination level	Delivery date (in months)
D1.1	H - Requirement No. 1	WP1	UCD	R	CO	2
D1.2	POPD - Requirement No. 2	WP1	UCD	R	CO	2
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	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	26
D2.9	Data Management Plan – UPDATE 1	WP2	UCD	ORDP	CO	18
D2.10	Data Management Plan – UPDATE 2	WP2	UCD	ORDP	PU	36
D3.1	Interactive AR objects and scenarios for ARETE.	WP3	CLB	R	CO	15
D3.2	Developed tangible content (books, maps, building blocks) to use together with AR software.	WP3	CLB	OTHER	CO	15
D3.3	Interactive collaborative ARETE Mobile app for Pilot 1	WP3	WWL	OTHER	PU	20
D3.4	ARETE 3D digital repository.	WP3	UCD	OTHER	CO	26
D3.5	Learning Design and 3D interactive objects.	WP3	CLB	R	CO	30
D3.6	Report on the standardization landscape and applicable standards MS2	WP3	UCD	R	PU	26
D3.7	Interactive collaborative ARETE Mobile app for Pilot 2	WP3	CLB	OTHER	PU	20
D3.8	Interactive Authoring Toolkit integration with MirageXR	WP3	TOU	OTHER	PU	28
D4.1	ARETE Use Scenarios: Analysis of Educational Technologies Usage in Situ	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 the Interaction Design and Pedagogical Approaches for the ARETE prototypes	WP4	UDUR	R	PU	36
D4.4	Report on Summative usability and user experience evaluation of advanced ARETE prototypes. MS3	WP4	UDUR	R	PU	42
D4.5	ARETE Use Scenarios: Analysis of Educational Technologies Usage in Situ – UPDATE	WP4	UDUR	R	PU	30
D4.6	Analysis of User Requirements, Needs and Visionary User Cases for ARETE – UPDATE	WP4	UDUR	R	PU	33

D5.1	Analysis of PBIS Requirements for ARETE	WP5	SVU	R	PU	21
D5.2	Interactive AR PBIS component	WP5	CNR	OTHER	PU	26
D5.3	Analysis of PBIS Requirements for ARETE UPDATE	WP5	SVU	R	PU	32
D5.4	Interactive AR-PBIS component UPDATE MS4	WP5	CNR	OTHER	PU	32

D6.1	Pilots Deployment Plan.	WP6	EUN	R	PU	18
D6.2	Pilots Requirements, Design	WP6	NUID 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. MS5	WP6	UNW	R	PU	42
D6.6	ARETE Training Platform – UPDATE	WP6	CLB	OTHER	CO	28
D6.7	Report on recruitment, training and methodology for Pilot 4	WP6	EUN	R	PU	35
D6.8	Report on Evaluation Results of Pilot 4	WP6	TOU	R	PU	40

D7.1	Dissemination Plan	WP7	NUID UCD	R	PU	3
D7.2	Website and social media	WP7	NUID UCD	DEC	PU	3
D7.3	Showcase Mobile App	WP7	TOU	OTHER	PU	20
D7.4	Showcase workshop & Hackathon MS6	WP7	UCD	OTHER	PU	40
D7.5	Market Outreach Plan	WP7	CLB	R	CO	18
D7.6	Draft CEN workshop Agreement MS7	WP7	UCD	R	PU	42
D7.7	Dissemination Plan – UPDATE 1	WP7	CLB	R	PU	14
D7.8	Dissemination Plan – UPDATE 2	WP7	VIC	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	VIC	DEC	PU	24
D7.11	Website and social media – UPDATE 3	WP7	VIC	DEC	PU	36
D7.12	Showcase Mobile App – UPDATE	WP7	TOU	OTHER	PU	33
D7.13	Market Outreach Plan – UPDATE	WP7	VIC	R	CO	36



7.2 RoPA (signed on 3rd of November 2021)