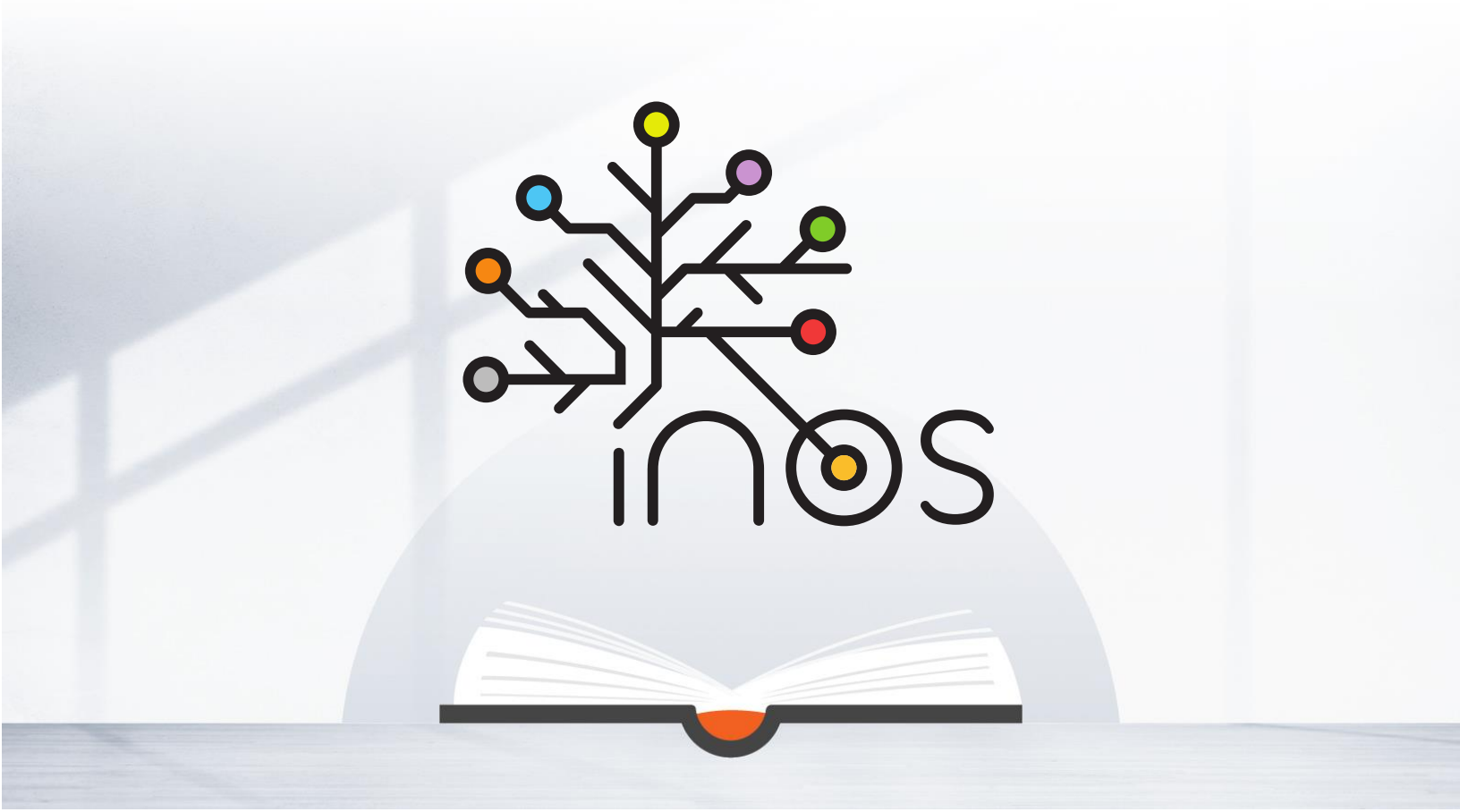
INTEGRATING OPEN AND CITIZEN SCIENCE INTO
ACTIVE LEARNING APPROACHES IN HIGHER EDUCATION



Compilation of use cases of open innovation to be addressed

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Abstract:	The document corresponds to O4A2 of the INOS project. It provides a compilation of cases of open innovation activities run by the INOS partners during the year 2020-2021. These cases will be addressed and evaluated in the two deliverables to come: the report on the implementation of open innovation activities (O4A3) and in a short guide entitled "Fostering open innovation activities at your university" (O4A4).
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evaluation

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Consortium

	Name	Short Name	Country
1	Aalborg University	AAU	Denmark
2	Tallinn University	TU	Estonia
3	Web2Learn	W2L	Greece
4	University of Oulu	UO	Finland
5	University of Bordeaux	UBx	France
6	STICHTING LIBER	LIBER	The Netherlands

Revision History

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V0.1	04/05/2021	Hélène Schwalm (UBx)	Sections “Introduction” and “Methodology”
V0.2	15/05/2021	All partners	For a review of the section “Use cases”.
V0.3	28/05/2021	Hélène Schwalm (UBx)	For final review by TU
V1	07/06/2021	Hélène Schwalm (UBx)	Final version

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List of Abbreviations

The following table presents the acronyms used in the deliverable in alphabetical order.

Abbreviations	Description
CIE	Collaborative innovation event
CS	Citizen Science
HEI	High Education Institution
LDF	Learning Design Framework
OI	Open innovation
OIA	Open Innovation Activity

Executive Summary

The INOS project focuses on integrating open and citizen science in higher education institution (HEI) curricula with the overarching goal of making HEIs key open knowledge and open innovation agents in a changing world. The project aims to inspire HEIs' roles as co-creators of innovation communities, generators of skilled human capital and actors of academic open science.

A large corpus of experience and knowledge already exists on open innovation methodologies. However, INOS aims at strengthening them by active learning approaches embedded in the learning design framework, a tool created to follow up the implementation and the assessment of open innovation in HEIs (Teo, 2020). This LDF, completed by the guidelines elaborated in September 2020, have been experimented with to design open innovation activities (OIAs). Indeed, over 2020-2021, partner HEIs within INOS planned to organise four short (1-2 day) and four long (4-6 month) OIAs. Finally, with the pandemic and the emergence of digitalisation in the implementation of activities, ten OIAs were organised in even more diverse formats.

After describing the context of the study (section 1) and the methodology (section 2), the document proposes a compilation of ten use cases of open innovation activities classified according to their formats (section 3) and to their framework (intra or extra-curricular): the short events which last from half a day to one month (subsection 3.1) and the long events which last approximately one semester (subsection 3.2). Each case is presented into an "identity sheet" to identify their main characteristics such as their program, the kind of participants and mentors involved, their timeframe, their resources and finally, their learning goals. In conclusion, a final table (section 4) resumes some of these characteristics into seven components introducing the three dimensions (participant dimension, innovation dimension and socio-economical dimension), which will be the basis of the evaluation-to-come in the report as mentioned earlier and guide.

1 Introduction

1.1 The role of the HEI in implementing open innovation activities in the INOS framework

As reminded in the *Guidelines on designing, implementing, and evaluating open innovation activities in higher* education (O4A1), what characterises open-innovation is the action to "open up the innovation process to all active players so that knowledge can circulate more freely and be transformed into products and services" (European Commission, 2016 p.11). More than addressing a technical challenge or social problem, creating the conditions of "open-innovation" by organising activities means for HEI to take an active role in a process that starts with framing the activity to evaluate it.

In the INOS context, HEIs are organisations that want to innovate or at least be part of an innovation process. It is even more valid with the sanitary crisis and all the global economic, social, and environmental issues that need to be tackled by the institutions of countries and behind them the citizens. "Open innovation practised by HEIs (...) takes place under three influences" (*Guidelines on designing, implementing, and evaluating open innovation activities in higher education*, p. 13). These influences imply three roles that are essential when designing, implementing, and evaluating an activity:

- "HEIs as co-creators of innovation communities". They are composed on one side of their own communities, which can be divided into categories (students, administrative, academic), subcategories, backgrounds or cultures, and on the other side of external communities, which can be distinguished in many ways. Interdisciplinarity, intercommunity, and interculturality contribute to the enrichment and complexity of each activity.
- HEIs as "generators of skilled human capital" (European Commission, 2016, P.17) which is very important in the framework of the active pedagogy defended by INOS. More broadly than pedagogy, HEIs address the skills issues and how to prepare responsible students and citizens for the next changes and the world of tomorrow.
- HEIs as actors of open science (Zourou, 2020) or how to give fair and responsible access to knowledge and innovation during and after the activity. Indeed, dissemination is one of the challenges HEIs face, and this includes opening Educational Resources and creating new mindsets.

Through the open-innovation activities carried out, the INOS partners position themselves at the crossroads of these three roles.

1.2 Scope

This document provides an overview of ten open innovation activities run by INOS partners during the academic year 2020-2021. It can be used as a support to the internal report on the implementation of OIAs (O4A3) and to the short guide called "Foster open innovation activities at HEIs" (O4A4). It may also be used as a referential for each HEI who would like to dig or reproduce a format of activity.

1.3 Audience

The document's audience is higher education institutions interested in developing open innovation within their institution involving their internal and external communities. They intend to enrich and enhance their teaching

and learning practices by optimising the overall educational, scientific, innovative, and social impacts of open innovation activities.

1.4 Structure

1.4.1 From open innovation activities (OIAs) to Collaborative innovation events (CIEs)

The OIAs presented in the document share different common points:

- As said before, they engage interdisciplinary academic and non-academic partners to co-reflect, co-develop, and apply their knowledge to address a problem drawn from observation or previous knowledge
- They use Iterative methodology, which often involves tangible artefacts produced in collaborative spaces (material or immaterial), or at least innovation processes which are innovation results themselves
- The organisers, who are INOS partners, are pioneers in open innovation in the HE sectors

Behind these common denominators, these activities have common criteria which traduce the expected outputs of such activities:

i) the applicability of the activity for open-innovation co-development.
ii) their potential impact on interdisciplinarity thanks to a problem-oriented challenge.
iii) their transferability potential to other contexts and other participants.

For the participants, OIAs are also practical experiences that place collaboration and intensiveness at the centre of the innovation process. As organisers, the term " Hackathon " is the most-used term to conjure the idea of intense collaboration, accelerated time, creative mindset, and playful approach. But we agreed in the *Guidelines on designing, implementing, and evaluating open innovation activities in higher education* that a different term can be more inclusive: the umbrella term “Collaborative Innovation Events” (P.13). CEIs are based on the concept of sprints which are a well-known practice in iterative design. They are a series of successive sprints, spread over a predetermined period that helps the participants’ prototype, test, and improve their ideas.

1.4.2 Typology of open innovation activities

Based on this definition by the process, the guidelines, and the INOS project in general, make the first distinction between activities: the short events (lasting one or two days to one month) and the long events (lasting one semester).

In other words, the period covered by the activity can be a relevant scale to present the diversity of the formats experienced. The duration of the events does not impact the satisfaction degree of the activity but the nature of the collaboration between the participants and somehow the integration of the activity into the curriculum. Indeed, as explained in the *Guidelines on designing, implementing, and evaluating open innovation activities*, “short events allow mixing up large groups of people who happen to have an interest or be concerned by the issue at hand, without intruding too much on their daily life. Longer formats are more suited to an extended collaboration with a small set of stakeholders and often mean that students receive university credits for their work” (*Guidelines*, P 13).

From shorter to longer collaborative events, the document will depict the large panel of formats developing within the universities and some trends of INOS open innovation activities implementations during the year 2020-2021, marked by the pandemic.

The structure of the document is as follows:

Section 2 - the methodology

Section 3 - a compilation of the use cases

Section 3.1 - short collaborative innovation events.

These events are characterised by their short duration (from half a day to one month). These short events can be divided into two subcategories:

- The extra curricula and punctual CEIs: can be linked to an umbrella project (cf. Hack the pivot)
- The intra curricula CEIs are part of a course or a winter school. They are intensive events that may need to develop the different design phases according to their duration.

Section 3.2 - long collaborative innovation events

These events are characterised by their long duration. The workshops are spaced out over time, but continuous and organised work is necessary. They often last six months / one semester and are integrated into a specific course (intra-curricular) or linked to it (cf. Ocean I3).

All these activities can focus on innovation, education, or entrepreneurial mindset, depending on the framework.

1.4.3Overview of the use cases

Table 1- Table of the OIA – overview of the use cases

Duration of the activity	Intra / Extra curricula	Name of the activity	Duration	Topic/challenge	Focus
The short events (from ½ day to 1 month)	Extra curricula	Climackathon - University of Bordeaux	Two days	Behaviours and mechanisms of the decision facing climate change	Innovation focused
		Digi Edu Hack - Aalborg University	Two days	Online learning	Innovation focused
		Thessaloniki Citizen Science - INOS Web 2 Learn	Two days	Language learning as a means to strengthen active citizenship, according to the literature	Education focused
	Intra curricula	SPIRIT - Oulu University	Half a day	Trends in education	Innovation & Education focus – an entrepreneurial

					mindset
		Civic engagement project -TU	Ten days	Civic engagement	Education focused
		Cultural data interaction in spatial location - TU	Three weeks	Cultural data - open data - design thinking approaches	Education focused
Long events (one semester)	Extra curricula	Ocean I3 - UB	One semester	Ocean sustainability / Plastic Pollution / climate change	Innovation and research-focused
	Intra curricula	Technology & Migration - AAU	One semester	Technology and migration	Innovation focused
		Opening up and redesigning the values of public services - TU	One semester	Public digital services, open data use, digital service using, collective intelligence	Education focused
		Collaborative problem-solving - OU	One semester	Collaborative learning, problem-solving, educational technology, working life competencies	Education & Research focused

2 Methodology

CEIs have been selected from the local project teams based on their experience in open innovation and the implementation of similar activities. These activities needed to meet some criteria, such as involving academic staff and university students from different disciplines if possible. The aim is to evaluate OIAs representing a high diversity of backgrounds among participants and engage external stakeholders acquainted with open innovation practice. Each partner had to pick one short event and one long event and used the INOS methodology to run them from September 2020 to June 2021:

- The guidelines focus on the specific challenges that organisers will meet
- The Learning Design Framework that grounds the learning components of the activities in solid pedagogy (*The INOS Learning Design Framework: Fostering the educational value of Open Science, Citizen Science and Open Innovation activities,* Teo, 2020). All concepts and approaches about the pedagogical dimension of OIAs are covered by the LDF, i.e., problem-based learning framework

The pandemic has largely marked the past year: thus, all these activities which initially would have taken place face-to-face have been adapted into online or mixed formats. However, this situation opened up various online tools and software experiences.

In order to build this compilation of use cases document, each partner has to fill an identity sheet of each activity. Following the guidelines and the Learning Design Framework, it has been elaborated to document the principal characteristics of the event with five short sections briefly detailed:

1) A first general description which summarises the format, the content and framing of the activity within the context of the HEIs
2) Some organisation information such as the audience of the activity
3) The activity's time frame. This part takes up the different steps listed chronologically in the *Guidelines on designing, implementing, and evaluating open innovation activities in higher education*. It details them with regard to each event:
   a) Framing the activity which includes 1/choosing the topic: "narrow topic that creates a bigger sense of ownership and more consistency" (p 15), 2/setting goals as "exploration of the solution space" (p16) and 3/dealing with the innovation artefacts, which means how to document the work being done and the IP issue (p16).
   b) Designing the tasks which follow the "double-diamond" process: 1/ ideation phase (topic exploration, defining the problem, brainstorming solution ideas), 2/ design phase (by developing potential solutions), 3/implementation phase (user testing and reiterative design) and 4/communication phase (presentation and discussion of final outputs and if relevant, 5/dissemination of final output for real-world application).
   c) Engaging the participants is defined as "the challenge of ensuring the participation of (...) specific communities and their diversity"(p35).
   d) Dissemination is defined as a "key to connect to the community-at-large, to engage beyond the mere participants and to give the best chances to the OIA outcomes to make an impact after the activity".
   e) Evaluation of the activity.
4) The resources used: the predominance of the format online requires some details and precisions regarding the accessibility of the activity, especially with the pandemic context.
5) And finally, the learning goals identified as a basis for the Learning Design Framework and the skills identified.

In addition to the role of starting up activities and tools, such a summary aimed to answer the question: **"what has been planned?"**

This document, associated with the report on the implementation of each activity which answers the question **"what has been done?"** will nourish the final guide dedicated to the HEIs.

3 Description of the use cases

3.1 Short Collaborative innovation events

3.1.1Extra curricula

3.1.1.1 Climackathon – University of Bordeaux

1- Activity Description				
Name of the activity	Climackathon - a hackathon on climate change			
INOS Partner	University of Bordeaux			
Topic – areas	Behaviours and mechanisms of decisions (neuroscience, psychological science, and marketing), EcoMobility / Eco-citizenship actions / Sustainable production and consumption, Climate change			
Inspirations *(e.g., external event, megaproject framework,…)*	The Climackathon is inspired by hackathons, especially the ones on Climate Change like "Climathon".			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Innovation focused activity			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Extra-curricular activity			
Date(s)	12 and 13 March 2021			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	30	Achieved	28
including (number of students)	Expected	10	Achieved	7
Short event (1 or 2 days) or Long event	Short event - 2 days			
Please briefly describe the program	A hackathon to motivate behavioural changes throughout the establishment The goal of the "climackathon" is to bring together participants from different disciplines and backgrounds to co-create solutions responding to the following challenge: How to engage the university of Bordeaux communities on climate change and motivate them to			

	change their behaviours *Day 1 from 1.30 pm to 6 pm* 1) Immersion phase: Scientific insight - A multidisciplinary conference on the mechanisms of the decision (neuroscience, psychological science, and marketing. Plenary session. Groups: Focus group on the challenge and definition of a persona from the University of Bordeaux. 2) Ideation phase: brainstorming and definition on a flagship idea per group. Debriefing in plenary session *Day 2 from 10 am to 1 pm* 3) Prototyping phase: "Test and Learn" with mentors and solution prototyping. Each group chooses support to present its solution to the Vice-President in charge of Sustainability. All solutions are discussed in a plenary session in order to be implemented if relevant.			
Public pitches, ceremony, and/or award	Public pitches			
If yes and known, specify	The solutions are presented during the final hour in front of the Vice-President in charge of Sustainability. All the groups can discuss the solutions and help to improve them.			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	Three groups of 7 to 10 people from different backgrounds, statuses and interests. Three topics are proposed to form multi-profiles teams before the event: mobility, eco-citizen actions and sustainable production and consumption. These teams are composed of students, researchers and administrative personnel.			
Type of results expected	The results expected are products, applications, events, communication tools, services.			
2- Organization				
Organizer(s)	University of Bordeaux - Innovation Department			
Partners and funders	INOS			
Students involvement in the organisation	0			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	30	All backgrounds	Students, Administrative and academics	No preconditions are needed.
Mentors' description	three mentors + three facilitators	External expert in environmental transition,	Consultant/facilitator during the first day and coaches during the second	Expertise in design and environmental

		communication, and social psychology	day	transition
3- Activity Timeframe (cf O4A1)	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Team project and scientists involved in the immersion phase	From November to February Day 1 - immersion phase (1 hour)	Meetings and discussions to address the strategic challenges of the University of Bordeaux (Roadmap) Discussion-based learning presentation (scientist)	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Facilitators (team project), participants, mentors.	Day 1 Ideation phase et Design phase (4 hours) Day 2 - implementation and communication phase	Guided discussions, guided design thinking exercises and guided teamwork. The team project provides the canvases, but the participants are free to use their own tools during the communication phase.	
Engaging the participants (according to their backgrounds)	Participants, mentors, and facilitators	Before and along with the event	A specific communication to mix the backgrounds is done. Facilitators will be active in each group to ensure that the supports and the methods are understood and give a voice to each participant. Mentors will go from one group to another to give advice.	
Evaluation	Vice-President in charge of sustainability, mentors, and participants	Day 2 - after the communication phase Just after the event	Plenary session dedicated to feedback during the activity. Evaluation canvas for mentors	
Dissemination	Team Project with the support of administrative departments and participants Participants	After the event and along the year	Academic communications, internal committees dedicated to sustainability, associations and all networks involved in climate change. Participants are invited to be involved in the committees.	
4- Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g., open-source)	Klaxoon		Zoom	
Facilities (e.g., shared space, innovation space)				
Online tools	Klaxoon		Zoom	

Learning resources	Scientific conference on Zoom		
Data	"Roadmap on the societal and environmental transition of the University of Bordeaux" - internal cloud		
IP terms and conditions on the output	Analysed case by case by the sustainability department, according to the establishment rules		
5- Learning goals identified			
Knowledge of the topic	Behaviours facing climate change, environmental transition, environmental innovation Multicultural conference on "Mechanisms of the decision with 3 points of view: neuroscience, psychological science and marketing."		
Technical skills (e.g., using software)	Online collaborative work, online Design Thinking tools		
Soft skills (e.g., project management)	Communication skills, Project management, Collaboration, and teamwork. , Creativity, Curiosity, Problem- solving competencies .		
Open innovation skills (e.g., innovation process)	Design Thinking approach		
Others, please specify			

3.1.1.2 Hack the Great Online Pivot (#HackThePivot) – Aalborg University

1- Activity Description					
Name of the activity	Hack The Great Online Pivot (#HackThePivot) - as part of DigiEduHack 2020				
INOS Partner	Aalborg University				
Topic – areas	Online learning, service design innovation, hackathon				
Inspirations *(e.g., external event, megaproject framework,…)*	DigiEduHack event - global hackathon event to problem-solve digital learning				
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Innovation-focused activity				
HEI context *(part of curriculum, extra-curricular, regular event…)*	Extra-curricular event				
Date(s)	12 and13 November 2020				
Place(s)	Online				
Format					
Online / physical venue / mixed	Online				
Number of participants	Expected	30	Achieved	18	
including (number of students)	Expected	20	Achieved	11	
Short event (1 or 2 days) or Long event	Short event - 1 or 2 days				
Please briefly describe the program	HACKATHON DAY 1 - Morning (9 am-12 pm with break): Welcome and Ideation | Afternoon (1 pm-5 pm with break): Solution Design HACKATHON DAY 2 -Morning (9 am-12 pm with break): Solution Finalisation | Afternoon (1 pm-5 pm with break): Presentations and Judging				
Public pitches, ceremony, and/or award	Yes				
If yes and known, specify	Final presentations and an award ceremony				
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	Groups are expected to be 3-5 people from various backgrounds and professional roles. We have participants from multiple countries: students, educators, education professionals, and innovators. We will guide them with two introductory sessions to deliver the challenges and design framework, from which groups will work independently. Mentors will be available the entire period to help participants in their tasks. Participants will then present their solutions to a panel of judges, determining the 1st and 2nd place winners who will win a prize.				
Type of results expected	Innovative solutions built networks				

2- Organization				
Organizer(s)	Aalborg University - Elisha Teo and Evangelia Triantafyllou			
Partners and funders	The INOS Project and DigiEduHack			
Students involvement in the organisation	0			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	30	Denmark, Greece, Germany, Italy, India, and Turkey	Students, educators, teachers, innovators	Interest in Online Learning Methods
Mentors' description	6	Academics inside and outside the AAU - informatics and media	Academics	-
3- Activity Timeframe (cf O4A1)	Who?	When? How long? (Duration)	How? (tools, method,...)	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Participants with guidance by mentors	Day 1 Morning	Guided discussion and independent teamwork	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Participants	Day 1 Morning	Guided discussion and independent teamwork	
Engaging the participants (according to their backgrounds)	Mentors	Day 1 and Day 2	Mentors will be available on Slack for any help needed by participants. All participants will be a member of the Slack workspace.	
Evaluation	Mentors and Judges	Day 2 Afternoon	Judges will view presentations on Zoom and ask teams questions after the presentations.	
Dissemination	Participants	Day 2 Afternoon	Teams deliver a team presentation on Day 2 afternoon. After the event, solutions will be published online.	
4- Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g., open-source)	Google Drive		Slack, Zoom, and participants have the freedom to choose their own platform for independent teamwork	
Facilities (e.g., shared space, innovation space)	Slack, Zoom		Slack, Zoom, and participants have the freedom to choose their own platform for independent teamwork	

Online tools	Google Drive, Slack, Zoom		Google Drive, Slack, Zoom	
Learning resources	An introductory presentation, an archive, or resources			
Data	-	-		
IP terms and conditions on the output	Available to all participants via Google Drive			
5- Learning goals identified				
Knowledge of the topic	Online learning methods and service design innovation			
Technical skills (e.g., using software)	Online teamwork, online collaborative software, online innovation tools			
Soft skills (e.g., project management)	Project management, communication, online teamwork			
Open innovation skills (e.g., innovation process)	Innovation process, cross-border teamwork			
Others, please specify				

3.1.1.3 *Thessaloniki Citizen Science (#HackThePivot) – Web2Learn*

1- Activity Description				
Name of the activity	Thessaloniki - CitizenScience_INOS			
INOS Partner	Web2Learn			
Topic – areas	Online learning, language learning, hackathon			
Inspirations *(e.g., external event, megaproject framework,…)*	Language learning as a means to strengthen active citizenship, according to the literature			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Education focused activity			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Students at two Greek universities (Aristotle University of Thessaloniki and University of the Peloponnese) plus self-registered participants			
Date(s)	11 and 13 November 2020			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online https://digieduhack.com/en/thessaloniki-citizenscience-inos			
Number of participants	Expected	35	Achieved	40
including (number of students)	Expected	30	Achieved	35
Short event (1 or 2 days) or Long event	Short (7 days)			
Please briefly describe the program	Citizens locally and globally are increasingly committing to social actions (climate change, anti-harassment, anti-corruption). These actions can take many forms and are enhanced by digital technologies (social networks, geotagging, open collaboration spaces). Participants are highly motivated, self-organised, and committed to the common goal in these citizen-enhanced actions. Yet, the potential is very little explored in the language education sector, where the motivation to learn a foreign language often may be missing. This Challenge is about social participation in language education. More information can be found at: https://digieduhack.com/en/thessaloniki-citizenscience-inos			
Public pitches, ceremony, and/or award	Yes, an online presentation of all groups			

If yes and known, specify	*Online presentations of all groups :* • *Group 1: link* • *Group 2: link* • *Group 3: link*			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	4-5 students in each group. Students come from different universities: Aristotle University of Thessaloniki and Department of Social and Education Policy of the University of the Peloponnese.			
Type of results expected	Innovative solutions that are answering the challenge.			
2- Organization				
Organizer(s)	Katerina Zourou, Web2Learn			
Partners and funders	Web2Learn, University of Peloponnese, Greece and Aristotle University of Thessaloniki, Greece			
Students involvement in the organisation	No			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	25	Graduate students in language studies	Students	Interest in the topic
Mentors' description	4	Online language teaching	Academics	no
3- Activity Timeframe (cf O4A1)	**Who?**	**When? How long? (Duration)**	**How? (tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Katerina Zourou, Web2Learn, with the two mentors	One month before the event - 10 days	Brainstorming	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Katerina Zourou, Web2Learn, with the two mentors	One month before the event - ten days	Brainstorming	
Engaging the participants (according to their backgrounds)	Connection to their mainstream university lesson during which the hackathon took place	Before the event	Not specified	
Evaluation	Online public pitch (see above)	Not specified	Not specified	
Dissemination	Not specified	Not specified	Not specified	
4- Resources	**For Design (activity)**		**For Collaboration (between the participants)**	

Software (e.g., open-source)			Slack	
Facilities (e.g., shared space, innovation space)			Google Drive	
Online tools	Participants had the freedom to use different tools.		Zoom, Slack of small groups	
Learning resources	List of indicative resources			
Data				
IP terms and conditions on the output	**Shared publicly**			
5- Learning goals identified				
Knowledge of the topic	No previous participation in hackathons, good knowledge of language learning methodologies			
Technical skills (e.g., using software)	Better mastery of digital tools for online collaboration and interaction			
Soft skills (e.g., project management)	Group work, alignment to group objectives			
Open innovation skills (e.g., innovation process)	No			
Others, please specify				

3.1.2Intra curricula

3.1.2.1 Collaborative problem solving – University of Oulu

1- Activity Description				
Name of the activity	SPIRIT; Education in a changing world			
INOS Partner	University of Oulu			
Topic – areas	Education, educational technology, collaborative learning			
Inspirations *(e.g., external event megaproject framework,…)*	The event was part of a course: Entrepreneurial Mindset in Education, which took place in the fall semester of 2020			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Innovation-focused activity and education-focused activity highlighting entrepreneurial mindset.			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Part of curriculum Name of the course: Entrepreneurial Mindset in Education			
Date(s)	26 November 2020			
Place(s)	Online			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	25	Achieved	20
including (number of students)	Expected	23	Achieved	15
Short event (1 or 2 days) or Long event	Short event - 1 or 2 days			
Please briefly describe the program	SESSION 1 - 8.45am-9am: Check-in | 9.00am-9.30am: introduction BREAK (10 minutes) SESSION 2 -9.40am-11.10am: Team working in breakout rooms BREAK (10 minutes) SESSION 3 - 11.20am to 12.00am: conclusion			
Public pitches, ceremony, and/or award	Yes			
If yes and known, specify	Final presentations			
Mode of engagement *(e.g., group sizes, the composition of the groups, plenary sessions…)*	Participants are divided into small groups from 3 to 5 persons. The groups are composed of people from different countries interested in the future of education, mainly students and alumni.			
Type of results expected	Innovative solutions			

2- Organization				
Organizer(s)	Learning education and technology master's programme (Niina Impiö, Karoliina Hautala, Bhavna Rawat, Pirkko Siklande)			
Partners and funders	The INOS Project			
Students involvement in the organisation	0			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	15	Lithuania, Kenya, Mexico, Spain, Sweden, Finland, Canada, Indonesia, Bangladesh, Sri Lanka	Students, alumni, and other participants outside the university	Interest in the future of education
Mentors' description	5	Academics from the OU in the discipline of education	Academics, university staff, alumni	-
3- Activity Timeframe (cf O4A1)	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Participants	D Day - 20 minutes	Guided discussion and independent teamwork	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Participants	D Day - Brainstorming (20 min) and Design Phase (30 min)	Guided discussion and independent teamwork	
Engaging the participants (according to their backgrounds)	Organisers and participants	Before the event	Social media channels and mailing/invitation by participants' networks	
Evaluation	Mentors	At the end of the activity, 15 minutes	Mentors will give feedback on the final presentation	
Dissemination	Participants and organisers	After the event	Participants will create solutions on Jamboard, which will be published online	
4- Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g., open-source)	Zoom, Jamboard		Zoom, Jamboard	
Facilities (e.g., shared space, innovation space)	Zoom, Jamboard		Zoom, Jamboard	
Online tools	Zoom, Jamboard		Zoom, Jamboard	
Learning resources	An introductory presentation and megatrends			
Data	-	-		
IP terms and conditions on the output	Available to all participants via Google Drive			

5- Learning goals identified	
Knowledge of the topic	Trends in education
Technical skills (e.g., using software)	Distance learning with specific online tools (Zoom and Jamboard)
Soft skills (e.g., project management)	Collaboration skills, problem-solving and entrepreneurial mindset
Open innovation skills (e.g., innovation process)	Innovation process, cross-border teamwork
Others, please specify	

3.1.2.2 Civic engagement projects – Tallinn University

1- Activity Description				
Name of the activity	**Civic engagement projects**			
INOS Partner	**Tallinn University**			
Topic – areas	**Civic engagement technologies and approaches**			
Inspirations *(e.g., external event, megaproject framework,…)*	**Value-based design activity, innovation service design activity**			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	**Education-focused activity**			
HEI context *(part of curriculum, extra-curricular, regular event…)*	**Part of the Tallinn University Winter School 2021**			
Date(s)	**10 to 20 January 2021**			
Place(s)	**Online**			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	17	Achieved	17
including (number of students)	Expected	12	Achieved	12
Short event (1 or 2 days) or Long event	Ten-day event			
Please briefly describe the program	During the week: sessions with plenary presentations on civic engagement and design thinking sessions. During the weekend (2 days): individual work The design thinking process goes through different phases : • Empathy mapping • Values' mapping on Trello board • Teams picked the values they needed for their team from the Trello board • Persona mapping on Mural • Journey map on Mural • Threat mapping in civic engagement activities in Miro • Impact mapping on Mural • Business Canvas on Mural • The pitching session used google slides or Sutori.com presentations			
Public pitches, ceremony, and/or award	Yes			
If yes and known, specify	Each session results are pitched to the others and evaluated by the mentors: final pitches are Pecha Kucha presentations.			

Mode of engagement *(e.g., group sizes, the composition of the groups, plenary sessions…)*	Work in small groups (3-5) grouped interest-based ways and plenary sessions.			
Type of results expected	Public engagement project planning advanced with design thinking canvases			
2- Organization				
Organizer(s)	Tallinn University and Citizenos.com			
Partners and funders	Citizenos.com, the community of Civic hacktivists			
Students involvement in the organisation	Various external from Tallinn University international participants from Indonesia, Germany, Finland, India, China, Switzerland, Poland, Italy, and Estonia were participants of design workshops.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	12	Civic activists from different countries (Germany, Finland, India, China, Switzerland, Poland, Italy, and Estonia)	Designer	Have some project ideas
Mentors' description	5	Expert in civic engagement technology and Design Thinking	Facilitator	Have some civic activist project examples and Design Thinking experience
3- Activity Timeframe (cf O4A1)	**Who?**	**When? How long? (Duration)**	**How? (tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Participants and mentors	Ten days (all the activity duration)	Guided discussion and independent teamwork (support by online tools). Mentors created the method. Tools were chosen by the mentors and by the participants.	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Participants and mentors	Ten days (all the activity duration)	Guided discussion and independent teamwork (support by online tools). Mentors created the method. Tools were chosen by the mentors and by the participants.	
Engaging the participants (according to their backgrounds)	Mentors	Ten days and beyond	Facebook groups and Zoom discussions.	
Evaluation	Mentors	Last day - four hours	Mentors will view pitches on Zoom and ask teams questions after the presentations.	
Dissemination	Participants and mentors	Ten days and beyond	Teams presentations on Facebook groups	
4- Resources	**For Design (activity)**		**For Collaboration (between the participants)**	
Software (e.g., open-				

source)		
Facilities (e.g., shared space, innovation space)	Trello, Mural, Miro, answergarden, sutori.com	Zoom and Facebook group
Online tools	Trello, Mural, Miro, answergarden, sutori.com	Zoom, Facebook group, Trello, Mural, Miro, Answergarden, Sutori.com
Learning resources	Google classroom	
Data	The Design Thinking Canvas	
IP terms and conditions on the output	Not defined, shared openly in the Facebook group	
5- Learning goals identified		
Knowledge of the topic	Civic engagement practices	
Technical skills (e.g., using software)	Online teamwork, online collaborative software, online innovation tools	
Soft skills (e.g., project management)	online teamwork and collaboration	
Open innovation skills (e.g., innovation process)	Innovation process (open-innovation), Design thinking	
Others, please specify	Argumentation practices	

3.1.2.3 Cultural data interaction in spatial location – Tallinn University

1- Activity Description				
Name of the activity	Cultural data interaction on spatial location			
INOS Partner	Tallinn University			
Topic – areas	Open data, cultural data, spatial location - Create a solution to open up data from music and theatre museum in Tallinn Old Town			
Inspirations *(e.g., external eve megaproject framework,…)*	Open activity trails			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Education-focused activity			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Part of master curriculum course Technologies for community inclusion			
Date(s)	26 September to 10 October 2020			
Place(s)	Classrooms, Outdoors in Tallinn old town and online			
Format				
Online / physical venue / mixed	Mixed			
Number of participants	Expected	20	Achieved	20
including (number of students)	Expected	19	Achieved	19
Short event (1 or 2 days) or Long event	Long event			
Please briefly describe the program	IDEATION PHASE **Leading the project work.** Getting familiar with Trello.com for developing the project page. **Choosing the topic.** The problematisation is done together with students **Setting goals together with students.** Introduction to open science principles. Ideation with tricider.com about the learning ideas with open data and selecting five ideas from which one has found support from the Music and Theatre Museum. Next, students were using coggle.it to create the problem tree. The breakout rooms were created in Zoom for teamwork with Persona canvases in Uxpressia. Four teams created each one persona. The results were discussed from the perspective of input to the design. DESIGN PHASE Design thinking lesson to design together with the outdoor track with questions with historic content. The training activities were designed by the teacher at Tallinn University and were conducted in face-to-face mode. Picking up from the last session: Sutory com - The teams map the interaction steps with the data on the map. Students created journey maps for the interactive questions in Sutori.com			

	IMPLEMENTATION PHASE The students designed four track prototypes with locative scavenger hunt tools and maps. Students explored how to use archived digital cultural data to open it up to public space learning interactions. Particular aspects are the limitations of existing cultural data for interactive activities. Each team prototyped one activity point EVALUATION Playing the track to validate it for different types of users. The discussion session will be held with the students to evaluate the created learning design. Students evaluate themselves using the INOS survey in O4.			
Public pitches, ceremony, and/or award	No - presentations within each team			
If yes and known, specify	Final presentations and an award ceremony			
Mode of engagement *(e.g., group sizes, the composition of the groups, plenary sessions…)*	Groups are expected to be 4-5 persons in size. Plenary sessions will be with all participants together (20 persons)			
Type of results expected	Prototypical interaction modes for opening up cultural data in hybrid city space for public learning and interaction. Development of new digitally enhanced design tasks			
2- Organization				
Organizer(s)	Tallinn university - Kai Pata			
Partners and funders	The INOS Project			
Students involvement in the organisation	Yes			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	19	Andragogy (Tallinn University)	Students	No preconditions needed
Mentors' description	1	Educational technology (Tallinn University)	Academics	No preconditions needed
3- Activity Timeframe (cf O4A1)	**Who?**	**When? How long? (Duration)**	**How? (tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Mentor and students	Days 1 -3 - 4 hours	Guided discussion and independent group work (Trello and Coggle it supports)	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Mentor and students	Days 1-3 - 4 hours and individual group work	Guided discussion and independent group work (Design thinking tools and tools for designing the outdoor track - see below)	
Engaging the participants (according to their	Mentor	Days 1-3 - 12 hours and individual group work	Face to face sessions - in parallel, discussions and meetings by Zoom	

backgrounds)		external from class	
Evaluation	Mentor and students	Final day - 2 hours	Oral evaluation feedback (classroom and zoom)
Dissemination	Students	Day 3 - 4 hours	Publications on the tools for designing the outdoor track (see below)
4- Resources	**For Design (activity)**		**For Collaboration (between the participants)**
Software (e.g., open-source)			
Facilities (e.g., shared space, innovation space)	Classroom Zoom, Trello, Coggle it Online Design thinking tools: Tricider, Uxpressia, Sutori Tools for designing the outdoor track: rada.smartzoos.eu, actionbound, goosechase, google my map and google form		Classroom Google classroom, Zoom, Trello, Coggle it Online Design thinking tools: Tricider, Uxpressia, Sutori Tools for designing the outdoor track: rada.smartzoos.eu, actionbound, goosechase, google my map and google form
Online tools	Google classroom, Zoom, Trello, Coggle it Online Design thinking tools: Tricider, Uxpressia, Sutori Tools for designing the outdoor track: rada.smartzoos.eu, actionbound, goosechase, google my map and google form		Google classroom, Zoom, Trello, Coggle it, Online Design thinking tools: Tricider, Uxpressia, Sutori Tools for designing the outdoor track: rada.smartzoos.eu, actionbound, goosechase, google my map and google form
Learning resources	Google Classroom (supplemental materials)		
Data	Activity track questions that use open cultural data		
IP terms and conditions on the output	Not defined		
5- Learning goals identified			
Knowledge of the topic	Understanding the challenges of opening up cultural data for public interaction and locative learning		
Technical skills (e.g., using software)	Practising the design on informal learning with locative digital tools in the hybrid city space		
Soft skills (e.g., project management)	Teamwork and collaboration		
Open innovation skills (e.g., innovation process)	Practising design thinking competence with online digital tools		
Others, please specify			

3.2 Long Collaborative innovation events

3.2.1Extra curricula

3.2.1.1 Ocean I3 – University of Bordeaux

1- Activity Description				
Name of the activity	Ocean I3 - A Cross-Border Project on Educational Innovation for Ocean Sustainability			
INOS Partner	University of Bordeaux			
Topic – areas	Ocean sustainability / Plastic pollution / Climate change			
Inspirations *(e.g., external event, megaproject framework,…)*	Ocean I3 was initiated in the framework of the Alliance between the University of Bordeaux and the University of the Basque Country. The project refers to the three axes combined in the UPV/EHU IKD I3 educational model: ikaskuntza/learning, ikerketa/research, and iraunkortasuna/sustainability.			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Research-focus activity and education-focused activity			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Extra-curricular activity			
Date(s)	From January to June 2021. Five workshops punctuate the activity in 2021: 5 February, 12 March, 16 April, 28 May and 25 of June			
Place(s)	Online: oktonine.com and other platforms			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	80	Achieved	73
including (number of students)	Expected	50	Achieved	43
Short event (1 or 2 days) or Long event	Long event			
Please briefly describe the program	Ocean I3 is an inter-university, cross-border, interdisciplinary project that develops an innovative training approach with an important territorial engagement. Ocean i3 offers students a particular framework in which they will develop different types of projects and curricular practices oriented towards a common mission, which is to propose interventions and studies to tackle the challenge of the "**ocean pollution by plastics**". An inter-university and interdisciplinary teaching team is formed (from both universities' different centres and degree courses). Teachers who composed this team will propose to the students they are tutoring to participate in Ocean i3 during the period in which			

	they develop their projects, for example, End-of-Degree Thesis (TFG in Spanish), Master Thesis (TFM in Spanish) or internships, and we already had cases of doctoral theses. Teachers and students work within their own curricular frameworks, and participate in Ocean i3 to share, contrast, and enrich their projects by establishing collaborations with real actors and real problems/challenges of the cross-border coastline. The dynamics consist of: 1. A selection of social agents proposes challenges at the start of the academic year, 2. An accompaniment to form and energise interdisciplinary working groups associated with each challenge. 3. The students (tutored by the teaching staff) orientate part of their work and results to contribute to these challenges. 4. Ocean i3 provides the collaborative and interdisciplinary context by developing five cross-border workshops based on methodology and designing training during the academic year. A virtual classroom supports these groups and exchanges.			
Public pitches, ceremony, and/or award	Public pitches			
If yes and known, specify	The last workshop is dedicated to the presentation of the results on different supports: diaporama, video presentation, poster, or storyboarding			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	Call of participation (social actors and students) are launched. "Challenge teams" are formed, composed of 10 people.			
Type of results expected	The results expected are multidisciplinary approaches for the challenge and mission-oriented projects.			
2- Organization				
Organizer(s)	The University of Bordeaux, University of the Basque Country, and Euskampus Foundation			
Partners and funders	Poctefa Crossborder European Program (INTERREG) and INOS Project			
Students involvement in the organisation	Students are not involved in the organisation, but some students work on reflexive works within two internships in communication.			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	50	Open to all disciplines	Students: Degree, Ms, PhD	Have a mentored curricular project
Mentors' description	23 (teachers) + 7 (socioeconomic actors)	Open to all disciplines	Academics	Being a mentor to students (individual project)

		Involved in climate change issues within the Basque Country coast	Experts from companies, associations, or public actors	Have a challenge to propose Have internships to propose (not compulsory) and collective projects
3- Activity Timeframe (cf O4A1)	Who?	When? How long? (Duration)	How? (tools, method,…)	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Management team innovation team (teachers) and external partners	From January to June	Call of application, OI3 workshops, collaborative work on oktonine PBL (Problem based learning) plateforme	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Management team, teachers, and fellowship students	From September to July	OI3 workshops and meetings	
Engaging the participants (according to their backgrounds)	Teachers- tutors Team Management	November to December From February to June	Call of application and discussions (teachers are students tutors) Platform management	
Evaluation	Teachers and socioeconomic actors	Mi-April (intermediary) and end of June (final)	Skills validation through activity accomplishment	
Dissemination	Management team, teachers, and students	During the whole project	Project communication tools (blogs, social networks), academic communications and participation in events Internships (valorisation training)	
4- Resources	For Design (activity)		For Collaboration (between the participants)	
Software (e.g., open-source)	Google drive - blackboard, MURAL, mentimiter,		Oktonine Gather.town	
Facilities (e.g., shared space, innovation space)	Google drive - blackboard, MURAL, mentimiter,		Oktonine Gather.town	
Online tools				
Learning resources				
Data				

IP terms and conditions on the output	No IP terms. Results opened publicly, except in the framework of internships and PhD studies.
5- Learning goals identified	
Knowledge of the topic	Plastic pollution and ocean sustainability
Technical skills (e.g., using software)	Design software using: a training on oktonine is given to each teacher, not to students
Soft skills (e.g., project management)	"Blue skills" identified (collaboration with IKASGURA and DREAM UPV / EHU Research labs) • Communication in intercultural and multilingual contexts • Negotiation, horizontal participation and commitment to people and actions developed. • Active listening, interpretation, interrelation, and interaction with the Ocean i3 community members and social agents. • Integration and management of the knowledge contributed by different disciplines and social contexts. • Analysis, understanding and resolution of complex problems. • Creativity to solve problems from different angles. • The global and integrative vision of the problems. • Elaboration of informed documents based on research methods. • Integration of values adopted in the Agenda for Sustainable Development.
Open innovation skills (e.g., innovation process)	Design Thinking approach
Others, please specify	Sustainable goals, integration of the problem, the complexity of the problem

3.2.2Intra curricula

3.2.2.1 Technology and Migration: Interdisciplinary Project – Aalborg University

1- Activity Description				
Name of the activity	**Technology and Migration: Interdisciplinary Project**			
INOS Partner	**Aalborg University**			
Topic – areas	**Technology and Migration**			
Inspirations *(e.g., external event, megaproject framework,…)*	**Megaprojects at Aalborg University**			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	**Innovation-focused activity**			
HEI context *(part of curriculum, extra-curricular, regular event…)*	**Part of curriculum**			
Date(s)	**1st February to 30 June 2021 (one semester)**			
Place(s)	**Online**			
Format				
Online / physical venue / mixed	Online			
Number of participants	Expected	20	Achieved	19
including (number of students)	Expected	20	Achieved	19
Short event (1 or 2 days) or Long event	Long event			
Please briefly describe the program	Three seminars spread across the semester, weekly support meetings			
Public pitches, ceremony, and/or award	Yes			
If yes and known, specify	Final presentations to the UN Refugee Agency (UNHCR)			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	Bachelors and Masters students across the two programs were invited to create projects under a shared "Technology and Migration" theme. Each group would then tackle the theme within the scopes of each group's focused interests and program's curriculum; this brings the opportunity for interdisciplinary collaboration and peer-learning, as student groups may offer peer-support as they progress with their projects. Open innovation is further incorporated by involving the UN Refugee Agency			

	Copenhagen (UNHCR) as an external expert. As facilitators, the course coordinators' key role is to support the collaborations between the students and with the UNHCR. Currently, this includes creating an online discussion and resource-sharing space for students via Microsoft Teams, hosting weekly support meetings for students, and helping students establish initial contacts at the UNHCR. Such activities are not compulsory, and the students themselves drive their sustainability. Students are also free to initiate other collaborative activities as inspired by their project work (e.g., interest group meetings).			
Type of results expected	Innovative solutions built networks			
2- Organization				
Organizer(s)	Elisha Teo, Evangelia Triantafyllou, Tom Børsen, Jorge Contreras Cardeno, Petko Karadechev – Aalborg University			
Partners and funders	Aalborg University, UN Refugee Agency (UNHCR)			
Students involvement in the organisation	0			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	20	Students from Medialogy, Students from Techno-anthropology	Students	-
Mentors' description	5	Academics	Facilitators	-
3- Activity Timeframe (cf O4A1)	**Who?**	**When? How long? (Duration)**	**How? (tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Participants with guidance by mentors	1-2 weeks	Students do this independently with guidance from mentors	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Participants	Ongoing throughout semester	Students do this independently with guidance from mentors	
Engaging the participants (according to their backgrounds)	Facilitators	Ongoing throughout semester	Mentors will be available on Microsoft Teams for any help needed by participants. All participants are invited into the Microsoft Team.	
Evaluation	-	End of semester	Since this project is part of their course, students are evaluated through an oral exam.	
Dissemination	Participants	End of semester	Teams deliver a team presentation on Day 2 afternoon. After the event, solutions will be published	

			online.
4- Resources	For Design (activity)		For Collaboration (between the participants)
Software (e.g., open-source)	Microsoft Teams		Microsoft Teams
Facilities (e.g., shared space, innovation space)	Microsoft Teams		Microsoft Teams
Online tools	Microsoft Teams		Microsoft Teams
Learning resources	Microsoft Teams		
Data	-	-	
IP terms and conditions on the output	As defined by the university's standards, students will always be asked for permission to share their work.		
5- Learning goals identified			
Knowledge of the topic	Technology and Migration		
Technical skills (e.g., using software)	Online teamwork		
Soft skills (e.g., project management)	Project management, communication, online teamwork		
Open innovation skills (e.g., innovation process)	Innovation process, cross-border teamwork		
Others, please specify			

3.2.2.2 Opening up and redesigning the values of public services – Tallinn University

1- Activity Description					
Name of the activity	Opening up and redesigning the values of public services				
INOS Partner	Tallinn University				
Topic – areas	Public digital services, open data use, digital service using collective intelligence				
Inspirations *(e.g., externa event, megaproject framework,…)*	Open society technologies winter school 2020 - (We did at the winter school 2021 similar activity - public innovation with social activists who design services for their communities (see at OKA's description in O3A2)				
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Education focused activity				
HEI context *(part of curriculum, extra-curricular, regular event…)*	Part of the curriculum - setting Tallinn University master course called Collective intelligence in sociotechnical systems				
Date(s)	From 4 September to 17 December 2020				
Place(s)	Mixed - online video lessons with digital tools and classroom design activities with digital tools				
Format					
Online / physical venue / mixed	Mixed				
Number of participants	Expected	27	Achieved	28	
including (number of students)	Expected	26	Achieved	26	
Short event (1 or 2 days) or Long event	Long event				
Please briefly describe the program	SESSION 1 - Choosing the sociotechnical systems for analysis. Collecting and sorting the systems for further analysis (Google classroom) SESSION 2 - System analysis as a sociotechnical system or service to analyse (Group work in the classroom - paper canvases) SESSION 3 - Analyse what data and system used with Canvas that aligns with open data principles **Empathise and design phase** SESSION 4 - Creating a nudge idea for the system SESSION 5 - Mapping the values of the system by selecting the value cards and associating these with agent, algorithms, data, system, and society levels of sociotechnical systems (paper-based canvas approach and online approach with Trello or a similar tool) SESSION 6 - Mapping your system with future wheel canvas and values cards for eliciting the values at agent, algorithms, data, system, and society level (Miro canvas) **Implementation phase** SESSION 7 - Translating the actionable items in your future wheels into a sketch				

	depicting the evolution of your system (persona canvas and journey map canvas) Benchmarking the before / after versions of the sociotechnical system pinpointing significant changes and exposing the rationale connecting it to one or both of the value-driven design used instruments **Evaluation** SESSION 8 - Each of the ten groups had 15 minutes to present their work, followed by 5 minutes for discussions and feedback. The group work results are graded based on case criteria			
Public pitches, ceremony, and/or award	Yes			
If yes and known, specify	Pitching the case reports, presentation on Zoom with PowerPoint slides			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary sessions…)*	Groups are expected to be 3-4 people in size. Design thinking exercises are done in individual groups Method approach is explained in plenary sessions			
Type of results expected	Reengineering the existing digitally mediated sociotechnical services from the public value's viewpoint			
2- Organization				
Organizer(s)	Tallinn University			
Partners and funders	The INOS Project			
Students involvement in the organisation	Collaboration with some organisations chosen and contacted by the participants, such as Citizenos.com			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	26	Open society technologies/human-computer interaction	Students	No preconditions needed
Mentors' description	1	Educational technology	Academics	No preconditions needed
3- Activity Timeframe (cf. O4A1)	**Who?**	**When? How long? (Duration)**	**How? (Tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Mentor	7 hours in different study sessions	In lecture mode, in face-to-face and parallel zoom sessions	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Mentor	One day while planning the activity programme	Design thinking tools (see below), the paper prototyping tools, the Data evaluation canvas, the Future wheel canvas, the persona canvas, the journey map canvas. Communication in face-to-face and Zoom	

Engaging the participants (according to their backgrounds)	Mentor	During the presentations at all phases of the activity, and by students' requests during working sessions	In face-face and zoom sessions
Evaluation	Mentor	4 hours	In Zoom sessions and PowerPoint presentations
Dissemination	Students and mentor	One day	Google slides: the Google drive-based portfolio for all case studies
4- Resources	**For Design (activity)**		**For Collaboration (between the participants)**
Software (e.g., open-source)	Google Drive		Slack, Zoom, and participants have the freedom to choose their own platform for independent teamwork
Facilities (e.g., shared space, innovation space)	Design thinking tools (Trello, Uxpressia, Miro,) the paper prototyping tools, the Data evaluation canvas, the Future wheel canvas, the persona canvas, the journey map canvas. Communication in face-to-face and Zoom		Design thinking tools (Trello, Uxpressia, Miro,) the paper prototyping tools, the Data evaluation canvas, the Future wheel canvas, the persona canvas, the journey map canvas. Communication in face-to-face and Zoom
Online tools	Design thinking tools (Trello, Uxpressia, Miro,) the paper prototyping tools, the Data evaluation canvas, the Future wheel canvas, the persona canvas, the journey map canvas. Communication in Zoom		Design thinking tools (Trello, Uxpressia, Miro,) the paper prototyping tools, the Data evaluation canvas, the Future wheel canvas, the persona canvas, the journey map canvas. Communication in Zoom
Learning resources	In Google classrooms		
Data	Case studies		
IP terms and conditions on the output	Not defined, outputs are shared freely		
5- Learning goals identified			
Knowledge of the topic	Sociotechnical systems, open society, societal values. Knowing how to elicit values from sociotechnical systems and how to design more explicit and open values for users		
Technical skills (e.g., using software)	Using design thinking digital software The ability to use design thinking practices with digital tools online and co-creative mode		
Soft skills (e.g., project management)	Project management, collaboration		
Open innovation skills (e.g., innovation process)	Design thinking, value-based design, the ability to use the value-elicitation techniques in analysis and design of sociotechnical systems		
Others, please specify			

3.2.2.3 Collaborative problem solving – University of Oulu

1- Activity Description				
Name of the activity	Collaborative problem solving			
INOS Partner	University of Oulu			
Topic – areas	Collaborative learning, problem-solving, educational technology, working life competencies			
Inspirations *(e.g., external event, megaproject framework,…)*	By design-based approach implementing courses of collaborative problem-solving to understand how to best provide learning of working skills, e.g., collaboration and cooperation, problem-solving, creativity and self-regulation			
Activity approach *(e.g., research-focus activity, education-focused activity,…)*	Education-focused activity (learning of working life competencies), Research-focused activity (collecting data on how students experience the process and achieve working life competencies)			
HEI context *(part of curriculum, extra-curricular, regular event…)*	Part of curriculum (Problem-solving case 2)			
Date(s)	17 September to 10 December 2020			
Place(s)	Online mostly and classroom			
Format				
Online / physical venue / mixed	Mixed			
Number of participants	Expected	25	Achieved	21
including (number of students)	Expected	22	Achieved	14
Short event (1 or 2 days) or Long event	Long event			
Please briefly describe the program	SESSION 23/09 - Kick-off meeting SESSION 24/09 - Case introduction SESSION 01/10 - Expert talks and coaching SESSION 15/10 - Expert talks and coaching SESSION 29/10 - Mid-term presentation SESSION 19/11 - Expert talks, coaching SESSION 03/12 - Final presentation SESSION 10/12 – Closing			
Public pitches, ceremony, and/or award	Yes			
If yes and known, specify	Final presentations			
Mode of engagement *(e.g., groups' sizes, the composition of the groups, plenary*	Students work in groups of 3-4 persons. Mentors and companies' representatives work with the students along the process.			

sessions…)				
Type of results expected	Innovative solutions			
2- Organization				
Organizer(s)	LET master's degree programme (Niina Impiö, Pirkko Siklander, Karoliina Hautala)			
Partners and funders	Happia (micro edtech company)			
Students involvement in the organisation	0			
	Expected number	Background(s)	Role(s)	Preconditions needed
Participants' description	22	LET - master students from multidisciplinary and multicultural backgrounds	Students, educators, teachers, innovators	No preconditions needed
Mentors' description	3	Various backgrounds inside and outside the university Each mentor had his/her own focus area from where they coached the groups	Edtech company representative, university teacher, researcher, project designer, educational assistant/alumni	No preconditions needed
3- Activity Timeframe (cf O4A1)	**Who?**	**When? How long? (Duration)**	**How? (tools, method,…)**	
Framing the activity (Choosing the topic, setting goals, dealing with innovation artefacts)	Participants with guidance by mentors/teachers	Step 1 - Deadline: 12/10 Understanding an open problem	Independent teamwork, teaching sessions with different activities (e.g., expert talks), feedback from teachers and mentors. Google drive, Tools selected in teams, online Zoom sessions, Badge Factory	
Designing the tasks and the activity (Ideation phase, design phase, implementation phase, communication phase)	Participants with guidance by mentors/teachers	Step 2 - From 15/10 to 3/12 Planning (solving process and group process) Step 3 - Deadline 29/01 Constructing solution	Independent teamwork, teaching sessions with different activities (e.g., expert talks), feedback from teachers and mentors. Google drive, Tools selected in teams, online Zoom sessions, Badge Factory	
Engaging the participants (according to their backgrounds)	Teachers and mentors	Whole event	The event is part of the participants' curriculum. Monitoring during the teaching sessions with AnswerGarden tool.	
Evaluation	Teachers and mentors, participants	Step 4 - 03/12 Presenting solutions Step 5 - 10/12 -	Teachers and mentors will give feedback along the way. Participants will apply for open badges	

		Elaborating	during the whole event (Open Badge Factory)
Dissemination			
4- Resources	**For Design (activity)**		**For Collaboration (between the participants)**
Software (e.g., open-source)			
Facilities (e.g., shared space, innovation space)	Zoom		Participants have the freedom to choose their own tools for independent teamwork
Online tools	Zoom		Participants have the freedom to choose their own tools for independent teamwork
Learning resources			
Data	-	-	
IP terms and conditions on the output	Not defined, outputs are shared freely		
5- Learning goals identified			
Knowledge of the topic	Collaborative problem solving, open science in general, physical activity and learning, education export, education technology		
Technical skills (e.g., using software)	Collaborative tools		
Soft skills (e.g., project management)	Working life skills, e.g., collaboration and cooperation, problem-solving, creativity and self-regulation		
Open innovation skills (e.g., innovation process)	Collaborative problem-solving skills		
Others, please specify			

4 Conclusion

Despite various formats (duration and framework), open innovation activities share a common basis. They are conducted collaboratively by a diverse community composed of internal and external stakeholders, and they are learning activities that develop skills necessary for open science and innovation. More precisely, from a pedagogical point of view, they are all project-oriented activities following two main learning goals: developing collaboration skills and developing sustained and empowered citizen participation (Teo, *Enhancing Impact using pedagogy*, 2020).

Based on these statements, the project INOS has developed some tools and methods to optimise the educational, scientific, innovative, and social impact of these activities, notably by grounding the learning components with a solid pedagogy. Indeed, thanks to the guidelines and the learning design framework (*The INOS Learning Design Framework: Fostering the educational value of Open Science, Citizen Science and Open Innovation activities*, Teo, 2020), the organisers of these OIAs have built a general framework that highlights some pedagogical and innovative operational objectives adapted to the chosen formats of the activities:

- To address a large-scale community composed of participants and mentors from various backgrounds (1). The shorter the activity, the more open the community can be outside the university.
- To define learning goals considering the soft skills and more especially innovative skills which encompasses various skills to list (2 and 3).
- To elaborate a design process involving and engaging participants at all or several stages (4).
- To create learning and opened resources using tools responding to technical skills (5); and
- To target the design of various innovation results, which are the outcomes of the learning design process conducted during the activity (6).

Following the previous classification, here are these objectives according to each OIA:

Table 2 Table of OIAs – pedagogic and innovative goals

Name of the activity	1 Community perimeter	2 Learning goals identified (except knowledge of the topic)	3 Learning goals - innovation skills	4 Learning design of the activity (cf. design thinking process)	5 Learning resources and tools	6 Innovation as results
Short OIAs						
Climackathon - University of Bordeaux	Internal participants External mentors	Collaboration and teamwork, Creativity, Curiosity, Problem-solving competencies	Design Thinking approach	Participants partially involved with guidance	One collaboration tool and one design tool	Innovative solutions
Digi Edu Hack - Aalborg University	International participants Internal and external mentors	Project management, communication, online teamwork	Innovation process, cross-border teamwork	Participants involved with guidance	Three collaboration tools and free design tools	Innovative solutions built networks

Thessaloniki Citizen Science - INOS Web 2 Learn	Participants from 2 national universities (students) Internal mentors (from the two universities)	Group work, alignment to group objectives	No innovation skills	Participants are not involved in the design of the activity	Two collaboration tools and free design tools	Innovative solutions
SPIRIT - Oulu University	International participants Internal mentors	Collaboration skills, problem-solving and entrepreneurial mindset	Innovation process, cross-border teamwork	Participants are involved in every stage	One collaboration tool and one design tool	Innovative solutions
Civic engagement project – Tallinn University	External participants External mentors	Teamwork and collaboration	Innovation process and Design Thinking	Participants are involved in every stage except evaluation and dissemination	Seven collaboration tools and five design tools	Innovative projects
Cultural data interaction in spatial location – Tallinn University	Internal participants (students only) Internal mentors (academics)	Teamwork and collaboration	Design Thinking with online digital tools	Participants are involved in every stage except the engaging phase and dissemination	Four collaboration tools and nine design tools	Prototypical interaction modes and innovative design tasks
Long OIAs						
Ocean I3 – University of Bordeaux	Internal participants from international universities (mixed) External mentors (mixed)	Communication (interculturality) Collaboration skills, problem-solving, management of the knowledge	Design Thinking Approach	Participants are involved in every step	Three collaboration tools and two design tools	Multidisciplinary approaches
Tech&Migration – Aalborg University	Internal participants (students) Internal mentors (academics)	Project management, communication, online teamwork	Innovation process and cross-border teamwork	Participants are involved in every step, except engagement and evaluation	One same tool for collaboration and design	Innovative solutions built networks

Opening up and redesigning the values of public services – Tallinn University	Internal participants (students) Internal mentors (academics)	Project management, collaboration	Design thinking, value-based design, the ability to use the value-elicitation techniques in analysis and design of sociotechnical systems	Participants are not involved in designing the activity except the dissemination	Three collaboration tools and three design tools + papers canvas (5)	Reengineering digitally services
Collaborative problem-solving – Oulu University	Internal participants (students) and internal and external mentors	Working life skills, e.g., collaboration and cooperation, problem-solving, creativity and self-regulation	Collaborative problem-solving skills	Participants are involved in each step except engagement	One collaboration tool and free design tools (chosen by the participants)	Innovative solutions

These objectives set out in the design of the activity highlight three important dimensions necessary for monitoring the implementation of OIAs:

- the participant dimension, and the achievement of the learning goals, including the learners' response to the activity individually
- the innovation dimension, which puts into perspective the challenge-based activity itself (interest of the topic, interdisciplinarity, the realised outputs, the process) and the empowerment of the participants' thanks to the collaborative nature of the activity and the co-design process
- and finally, the socio-economical dimension as the "resonance" of the activity and its results with an ecosystem. Measuring these outcomes requires monitoring starting at the end of the activity and lasting for several months. For this reason, they are called "far-reaching" outcomes (Jordan et al., 2012) and are undervalued although essential to measure the viability of an activity (*Guidelines on designing, implementing, and evaluating open innovation activities in higher education*, P.33)

These three dimensions, which echo the three key-roles of HEI defined in the introduction, are the basis of the report (confidential) which will be developed in the next deliverable, called *Report on the implementation of open-innovation activities (confidential report),* which will lead to the Short guide "Foster open innovation activities at your university" (opened publicly).

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