Lessons Learned: "HE-driven open innovation to sustain CHO's in Europe"

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Version Status	**Final**
Submission Date	**01/02/2024**
Dissemination Level	**PU**

Deliverable Factsheet

Project Number:	**20221-1-NO01-KA220-HED-000031986**
Project Acronym:	**eCHOIng**
Project Title:	**eCHOing: Recovery of cultural heritage through higher education-driven open innovation**
Title of Document:	**PR4D5 - DeliverableD5**
Output:	**PR4D5 - Lessons Learned: "HE-driven open innovation to sustain CHO's in Europe"**
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Abstract:	Provide a guideline for the development of OIP (Open Innovation Project) driven by Higher Education Institutes (HEIs) for the benefit of Cultural Heritage Organisations (CHOs). The outcome to be expected is the definition of a cooperation framework that could enhance and optimise the collaboration between HEIs and CHOs

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Please cite as	**Chiara Evangelista, Gaia Sasso, Alexandra Angeletaki 2023, PR4A5: SWOT Draft of OIPs**

Consortium

The project is represented by a wide range of expertise, as four Higher Education Institutions and one university library (NTNU, Scuola Superiore Sant'Anna, Sofia University ST Kliment Ohridski, University of Tartu) join hands with a web education specialist (Web2Learn) and an NGO comprising 16 cultural associations, OSYGY. This mix of knowledge, skills, experiences and networks guarantees a layered approach toward a diverse range of stakeholders.

	Name	Short Name	Country
1	**Norwegian University of Sciences and Technology**	NTNU	Norway
2	**Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna, Pisa**	SA	Italy
3	**Web2Learn**	W2L	Greece
4	**Sofia University St Kliment Ohridski**	SU	Bulgaria

5	**University of Tartu**	UT	Estonia
6	**Federation of Women Association "Kores of Cyclades"**	OSYGY	Greece

Revision History

Version	Date	Revised by	Reason
V0.1	**05/01/2024**	Chiara Evangelista, Gaia Sasso	Creation of 1st version of document
V0.2	**08/01/2024**	Chiara Evangelista, Gaia Sasso	Integration & editing
V0.2	**10/01/2024**	Chiara Evangelista, Gaia Sasso	Integration & editing
V0.2	**15/01/2024**	Chiara Evangelista, Gaia Sasso,Alexandra Angeletaki	Integration & editing
V0.2	**18/01/2024**	Chiara Evangelista, Gaia Sasso, Alexandra Angeletaki	Integration & editing
V0.2	**22/01/2024**	Chiara Evangelista, Gaia Sasso, Milena Dobreva, Paula Rice	Integration & editing

Statement of originality:

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

List of Figures

Figure :

List of Abbreviations

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

Abbreviations	Description
OI	**Open Innovation**
OIP	**Open Innovation Project**
CHOs	**Cultural Heritage Organisations**
HEIs	**Higher Education Institutions**
HEIs	**Higher Education Institutions**

Introduction

The eCHOing project "Cultural Heritage Recovery through Higher Education Driven Open Innovation" is a collaboration between partners from Italy, Greece, Bulgaria, Estonia, and Norway. Members of the group come from a consortium of museums, cultural heritage organisations, universities, and agencies all working together towards the same goal.

This project started in January 2022 and ends in June 2024, with a concluding conference on the 17th of April 2024.

During this period it has gone through many operating stages:

- <u>Transnational Project Meetings</u>: These meetings were fundamental in allowing partners to get to know each other and align their skills with the goals set by the project.

- <u>Multiplier Events:</u> These national and transnational conferences, seminars, and other events organised to disseminate the Project Results.

- <u>Learning/Teaching/Training Activities:</u> Various meetings and educational sessions were organised by each partner within their national collaborative spaces.

- <u>Educational modules available online:</u> Six online modules on the topic of open innovation methods and practices for the cultural heritage sector were also launched as open-access learning modules.

- <u>A Learning Teaching Week (LTTA):</u> This was arranged in Kea from the 24th to the 27th of April 2023. A total of 44 participants took part in a special workshop to consolidate the implementation methodology, developed during the eCHOing as a roadmap for the working groups to use when producing project ideas.

The aim of the project

To help HEIs reconsider their relationship with society and become more agile in tackling the crisis of important sectors of socio-economic activity severely hit by the pandemic, such as the cultural sector.

echoing.eu

Top reasons to follow eCHOing

Join the six modules on higher education open innovation for the benefit of cultural heritage organisations (CHOs): These modules will be designed to train Higher Education (HE) staff and students in open innovation methods and practices.

Join one of our 10 open innovation events: Through hacktivism, the maker movement, citizen science and crowd initiatives such as crowdfunding and crowdsourcing, you will get the opportunity to assess the impact of open innovation tools for the revival of CHOs.

Improve academic curricula: We will contribute to change in higher education through new teaching and learning resources on topics related to the project.

Analyze economic and social sustainability: A framework to analyse the impact of open innovation at European Universities in their relationship to society.

Figure 1: Echoing poster 1

The project

The eCHOing project "Cultural Heritage Recovery through Higher Education Driven Open Innovation" is a European collaboration funded by Erasmus+. The project involves five countries exploring how the COVID-19 crisis could be framed as an opportunity for restructuring the connection between higher education (HE) and society.

The broad group of partners consisting of cultural heritage organisations (CHOs), universities (HEIs), and volunteer organisations (NGOs) brought their expertise and specialties into the project to kickstart the recovery of the cultural heritage sector. In response to the complex challenges posed by the multiple global crises over recent years, the project produced a methodology that was tested by partners looking for open innovation solutions to help the recovery of cultural heritage.

To optimise efficiency, eCHOing has used desktop research and surveys to map current practices regarding economic and social sustainability resilience criteria for the CHOs. The project has also developed a complex methodology as a recovery roadmap for pilot collaborations between CHOs and HEIs. CHOs provided multiple insights into the challenges of managing collections and the choices they had to make to become more agile in tackling the crisis. CHOs also provided eCHOing with choices and decisions about dissemination strategies while universities took the role of dialogue partners, contributing with academic research and expertise to reach sustainable and economically viable decisions for the sector.

The CHOs invited into the project have also shared their experience in social engagement and volunteering, while eCHOing has created cross-cultural-disciplinarity seminars and workshops that have facilitated the coordination and implementation of the project goals.

The cultural heritage professionals of tomorrow – undergraduate and graduate students - were considered an important collaborating force through their academic training in project work. In addition, the members of small and medium-size CHOs were considered equal partners with precious practical knowledge and insights that have helped the projects to grow.

The cross-disciplinary impact of this experience created a transformative paradigm for cultural heritage recovery through problem-solving collaborative teams. It fostered a dynamic landscape where the convergence of expertise in real-life challenges catalyzed new

ideas. This collaborative endeavour has sown the seeds of innovation, and sustainability, providing a blueprint for future initiatives that transcend disciplinary boundaries.

One of the keys to the project's success was the creation of an online platform consisting of examples of best practices in open innovation that have already been implemented in the partner countries of eCHOing. A second tool was an online platform and working dashboard for collaborations within the project as well as a website for external users with all reports and tools developed by eCHOing.

The approach using real-life problems not only addressed challenges such as travel restrictions and limited physical access but also helped highlight the importance of flexibility in collaboration and technological innovation.

"Open innovation initiatives are deemed suitable to integrate the project's[1] objectives as most of these reflect core social values (e.g., a solution to a real need in a local community, such as a product co-created by researchers and civil society organisations, a mobile app for natural and cultural heritage tracking by citizens, a crowdfunding campaign for a social purpose, etc.).

Throughout the project, there were several challenges that had to be taken into consideration, and new solutions were provided through the collaborative efforts of partners from different countries and professional backgrounds.

"Rethinking "knowledge creation and circulation happening outside HEIs but in which students and staff are involved during their studies, can be incorporated and used to upgrade knowledge in academic curricula, and also upscale these examples to other curricula or disciplines"[2].

However, it is important to acknowledge that not every aspect of the project unfolded seamlessly thanks to the various challenges or "setbacks'' eCHOing has encountered. These have also led to an important exchange of experience of what has not worked during the project period. These setbacks fostered solutions to help with the adaptation and refinement of strategies, highlighting the importance of resilience and flexibility in navigating the complex landscape of cultural heritage.

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[1] From Mavroudi 2022
[2] Angeletaki 2022:
https://www.universitetsavisa.no/alexandra-angeletaki-echoing-project-erasmus/recovery-of-cultur al-heritage-through-higher-education-and-open-innovation/208016

Methodology

It was noted during the first stage of the project and also during initial discussions with both the partner universities and the cultural heritage organisations, that a methodology was needed and that this would have to be tested to give tangible results in creating resilient solutions to crises affecting the CHO sector.

At the same time, the use of open innovation (OI) was not intuitive for the universities, staff or students, or for the staff of cultural heritage organisations. The project was therefore obliged to use extra effort in establishing a full understanding of the scope of the project and the OI methods important for the collaborations, as well as using different means to communicate these to all partners.

Thus, the eCHOing project "has also developed a methodology to enable the effective replicability of Open Innovation Project (OIP) initiatives driven by Higher Education Institutes (HEIs) for the benefit of Cultural Heritage Organisations (CHOs). The need for a methodology stems from a lack of systematic knowledge on how HEIs can benefit from open innovation (OI) tools to address the challenges faced by CHOs. created several other tools, presented here to facilitate a two-way communication (dialogue) among the partners and create the frame of collaboration between small CHOs and academia"[3].

As outlined in the eCHOing report PR3A1, the consortium has considered these methodological tools as important factors in establishing an understanding of the concepts used by the project, and for addressing the absence of systematic knowledge on how HEIs and CHOs can benefit through collaborations.

This methodology addresses all target groups in the eCHOing project: primarily CHO and HEI staff at all levels, students at HEIs, and also other stakeholders in small and medium-sized cultural organisations in the cultural and creative sector.

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[3] Angeletaki 2023 PR3A1

Methodological tools developed by eCHOIng:

1. Free online modules to establish a common training platform.
2. Guide to Open Innovation to explain OI and present several concrete examples of similar projects.
3. Learning teaching week in Kea (LTTA) to work on the Methodology for open innovation collaborations between academia and cultural heritage organisation (PR3A1) with a ten-step implementation guide for open innovation initiatives (OII), which was tested through the partner institutions with the associated partners of the project. Feedback was collected on their capability to foster ideas that could result in implementing OI projects in real life. This methodology was also applied in the workshops during the Learning Teaching week in Kea, in April 2023, to produce the final project ideas that were implemented during the following months.
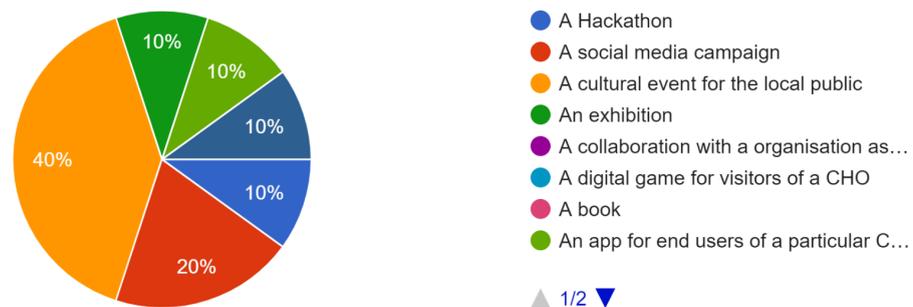4. Interview Guide to facilitate a dialogue between partners

Figure 2: Answers from students who participated at the LTTA week declaring their interest in OI
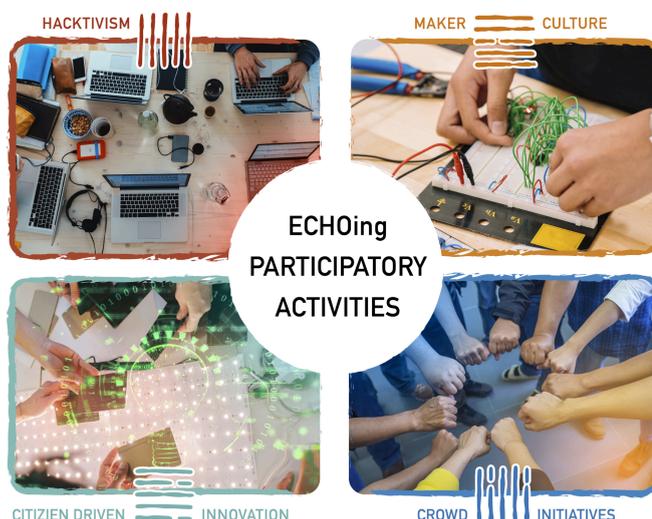
Figure 3: ECHOing participatory activities

1. **Course Modules:** Free online modules to establish a common training platform.

Despite the fact that many cultural heritage organisations are looking for ways to develop engagement, small organisations often face challenges due to a limited number of staff members and volunteers. HEIs can be valuable external collaborators, co-creating innovative projects and supporting a two-way dialogue that can benefit both parties.

ECHOIng took a two-pronged approach to this topic by exploring working models of collaboration between academia and cultural institutions, and also answering some of the digital transformation gaps in education. Many higher education curricula have yet to offer up-to-date modules related to digital transformation. These topics are also in demand within the context of continuous professional development for CHO staff, especially those from smaller cultural heritage organisations.

- **The training modules**

ECHOing has developed several training modules for students of higher education institutions, as well as staff from the cultural and creative sector and cultural organisations.

The modules are designed to inspire and equip cultural heritage organisations with the tools and resources needed to effectively conceive, develop, and manage open innovation collaborations.

The project website provides a complete picture of the process that resulted in the development of six training modules. These responded to needs in the current recovery process, from the use of craft as an empowering tool to co-designing projects. The online modules were finalised through internal and external reviews, and run in four different university courses during the spring semester of 2023.

- **Module 1:** Open innovation in academia-society cooperation: examples of cultural heritage preservation in a crisis**.**
- **Module 2:** Datafication of collections: opportunities for innovation in the novel European data space for cultural heritage**.**
- **Module 3:** Development of an open innovation approach through the co-creation of immersive virtual heritage applications**.**
- **Module 4:** Craft as an empowering tool for community and cultural heritage**.**
- **Module 5:** Diversity, inclusivity and the gender perspective: women and cultural heritage, a how-to crash course
- **Module 6:** Co-designing projects for the cultural sector. Discover the important processes, tools, and skills needed.

1. The Guide on Open Innovation is a tool developed by the consortium that has been important throughout the project period to make sure everyone had an understanding of the collaboration process. The guide on Open Innovation was then shared with the CHOs in order to use OI methods for a purpose that serves their aims not only during, but also when the project is over.

2. Learning Teaching Week (LTTA)

Workshops took place during the Learning Teaching Week (LTTA) in Kea from the 23rd to the 27th of April 2023 at which there were a total of 44 participants. These included daily morning and afternoon sessions that aimed to create a collaborative structure for open innovation (OI) initiatives and address culture-specific sustainable solutions for the stakeholders. Its target audience was higher education (HE) staff and students. The working groups were made of HE students and HE staff members from the four partner HEIs (NTNU, SU, SSA, TU) and representatives of the local CHOs, including OSYGY and Web2Learn who contributed two staff members with expertise in OI.

Working together in a cross-cultural environment in interdisciplinary teams provided an opportunity to test the proposed eCHOing methodology for open innovation projects. The participating students were asked to be active agents of change.

Figure 4: Kea 2023

They posed questions to facilitate the creative process and to examine the challenges connected to the dissemination work that needed to be done in order to engage local communities. They also delved into the policies governing funding, and the digital tools or social media strategies that were suitable for disseminating their ideas, from which they had to choose one project proposal. Social engagement strategies were discussed in order to create a framework for understanding how the ideas presented by the CHOs could serve their communities in the long run. They also participated in the planning of the projects through active discussions and agreed on what steps were needed to implement these over

the coming months. Finally, the teams presented their proposed OI project to the rest of the participants and the local community.

The teams were assisted during the four-day co-creative process by so-called facilitators who circulated around the groups asking questions to help them move forward in their thinking, answering questions about possibilities for implementation within the context of eCHOing.

At the end of each day, there was an opportunity for reflections, which were delivered by different members from each team. This helped them evaluate their own process and develop awareness of any new knowledge and competencies that had emerged.

 "Owing to the emphasis given to the process, in most cases, closure focuses on students sharing their reflections of how they perform as problem solvers and evaluation of their participation as team members"[4].

The LTTA took place after the completion of Project Result (PR) 3 activities and before the launch of the PR4 activities. Participants had already taken part in the PR activities as described in the relevant section of the proposal. The LTTA acted as an innovative venture and as such it was indispensable in achieving the project objectives since it consolidated theoretical knowledge already acquired in PR3, and put into practice the draft methodology produced by PR3 (PR3A1), including its innovative teaching and learning methods. It involved members of cultural heritage organisations (CHOs) as host organisations, and contributed to the match-making process for the establishment of informed and fruitful cooperation.

More specifically, the learning outcomes were the following: all partners took advantage of the interdisciplinary skills, established an operational workflow, and chose the digital tool they would work with for the dissemination of their proposed solution.

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[4] Tan 2021, Pg 138.

What impact did the Draft Methodology have on different aspects of the group work?

In order to be able to achieve realistic collaborative working practices all partners were asked to establish the following criteria framework prior to the implementation of the OIPs[5].

- Clear working practices between the CHO and HEI.
- Sustainable working practices to ensure collaboration continues in the future.
- Objectives that are achieved in a timely and efficient manner.
- Project outcomes that are implemented in a way that yields tangible results.
- Possibility of long term collaboration and implementation.
- Communication that remains consistent throughout the project.

All the participants were asked to answer a survey assessing gains and identifying risks prior to the implementation of the project. In addition, PR3A1 Methodology[6] provided the main partners of the programme with a checklist of benefits criteria, indicative of the performance of the agreed outcome measures:

- ➔ the number of visitors to the cultural organisation,
- ➔ the number of resources shared,
- ➔ the number of partnerships that are established as a result of the collaboration.

The answers to the surveys point towards the overall satisfaction of the participants in achieving the desired goals as 93% of the participants declared that the workshop was satisfactory and one of them called it an **"Amazing experience!"**

The participants also referred to "the organising of the event and the clear path to the goal". and "a clear recipe on how they were supposed to achieve the objective of the workshop". These types of answers suggest that the eCHOing working methodology used helped structure the work and contributed to the completion of the tasks and achieving goals in an efficient and effective manner.

Teams worked intensively and fast during the workshops. The methodology provided a framework that allowed the groups to streamline their processes and maximise productivity.

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[5] Angeletaki 2023 pg 22 to 25
[6] Angeletaki 2023 PR3A1 pg24

A well-defined working methodology starts with setting clear and achievable goals. By outlining specific objectives, it provided a sense of purpose and direction, enabling the groups to stay focused on what needed to be accomplished. The teams had defined roles which ensured that everyone was an active participant, sharing their views on the subjects discussed. Inclusion is a vital aspect of any successful working methodology.

During the workshop, active listening and articulation of ideas were among the requirements. The groups communicated in English as the most suitable lingua franca, making it possible to overcome some barriers when it came to cooperation. However, English was not the first language for most of the participants and that created problems for some members who might have contributed more if they had been able to use their first language. To help overcome this, the draft methodology included pictures and models to exemplify the proposed work steps.

The draft methodology emphasised the importance of early planning. It broke down large goals into smaller tasks, determining the sequence of activities, and estimating the resources needed. This structured approach helped to optimise time management and resource allocation. It promoted collaboration and teamwork and encouraged individuals with diverse skills and expertise to work together towards a common goal.

Collaboration fosters creativity, enhances problem-solving abilities, and leverages the strengths of each team member. Testing the eCHOing draft methodology with individuals or teams that have not worked together before shows that it may increase efficiency: the teams were generally satisfied that they had achieved their goals. All in all, it seems that the proposed methodology provided a framework for organised and purposeful work, fostering a productive and fulfilling working experience for the participants.

Open innovation projects

During the eCHOing project implementation phase, the four university partners were involved in a total of 28 projects during the autumn semester 2024, with NTNU organising seven, SA twelve, TU six, and SU six. There was a good variety of projects which were organised by students, who had an internship period in each CHO, assisted by the eCHOing partner HEIs. Work for the projects was voluntary on the part of the CHOs, the students and HEI staff.

The eCHOing project provided the host institutions and the student interns with a survey toolkit and an interview guide to help them during the implementation phase. In order to evaluate the outcomes of an OIP by the participants, ecHOing a created three-stage surveys: pre OIP survey, post OIP survey and post six months to collect and analyse the overall outcomes[7]. Project outcomes will be reviewed and adapted as needed in order to finalise the methodology as a roadmap for co-creative processes. The final version will be published in the coming months.

The following table summarises the titles of the projects promoted by the partners.

For a full description of each project, please refer to **PR4A6-DeliverableD4.2.**

A brief presentation of the projects implemented by the partners:

By NTNU: Norwegian University of Science and Technology:

- Gaming for cultural heritage
- Hybrid Objects Exhibition
- Chemistry lab
- Archivathon: TikTok Campaign for archives
- Gameathon
- Pilgrim Routes
- Gaming in school classes

By Istituto di Intelligenza Meccanica - Scuola Superiore Sant'Anna:

- Immersive Museum for Virtual Archive
- VR Lab in Museum
- Kea OI Event for Community: IND HER NET "Immersive mining of memory"
- Kea OI Event for School: IND HER NET "Immersive mining of memory"
- Kythnos Event with OSYGY
- Milos Event with OSYGY
- Antiparos OI Event for School

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[7] This will be published by the eCHOing PR5 team as the final evaluation report in March 2024.

- Paros Event with OSYGY
- Andros Event with OSYGY

By Sofia University St Kliment Ohridski:

- Troyan Museum Video
- Troyan Museum at Researchers night
- Troyan Museum 3D realisation with GLADA BG
- Cherni Osam natural history museum at Researchers night
- Historical newspapers in Plovdiv Library
- Users and Digitalisation Varna Library

By Tartu Ulikool:

- Heritage flower bed
- Sockathon
- Heritage cooking club
- Social media campaign for heritage craft
- Workshop on making bio-waste boxes
- Heritage Festival on Muhu island

These projects allowed students who had followed some or all of the previous training modules to use what they had learned in organising and running activities for the CHOs.
The data that will be collected in the +6 month surveys will provide more information about how the external and internal participants evaluate the outcomes of these projects.

3. Video Production

Another outcome of the project was the production of 10 videos presenting the experience of the students during their working internship period with the selected CHOs. The central topic of the video series is **"Be an agent of change for European cultural heritage".** The videos elaborate on the work delivered by the students who collaborated with CHOs to

implement the OIP projects mentioned above. The structure of these videos is designed to answer the following questions:

- What was your project about?
- What was your motivation to engage in the project?
- What do you think of open innovation after your participation in the project?
- What do you think about collaboration between universities and CHOs?
- How do you think you'll use this experience in the future?

The videos are supplemented with comments by the coordinators, CHOs, and other participants to provide a comprehensive picture of each project. This approach is designed to highlight the significant number of people involved and enrich the understanding of the collaborative efforts and contributions made throughout the entire process.

The flexibility given to partners to choose between their native language and English was intended to increase the inclusivity of the project and allow communication with the local communities and public of the selected CHOs. It enabled the partners to express themselves through their first language enabling them to more easily share their ideas. This also allowed for linguistic diversity within the collaborative framework that represents the eCHOing consortium. In cases where partners chose to work in their first or national languages, the post-production process included not only editing but also the addition of subtitles. This approach ensured that the content remained understandable and accessible to a wider audience, contributing to the overall effectiveness and reach of the project.

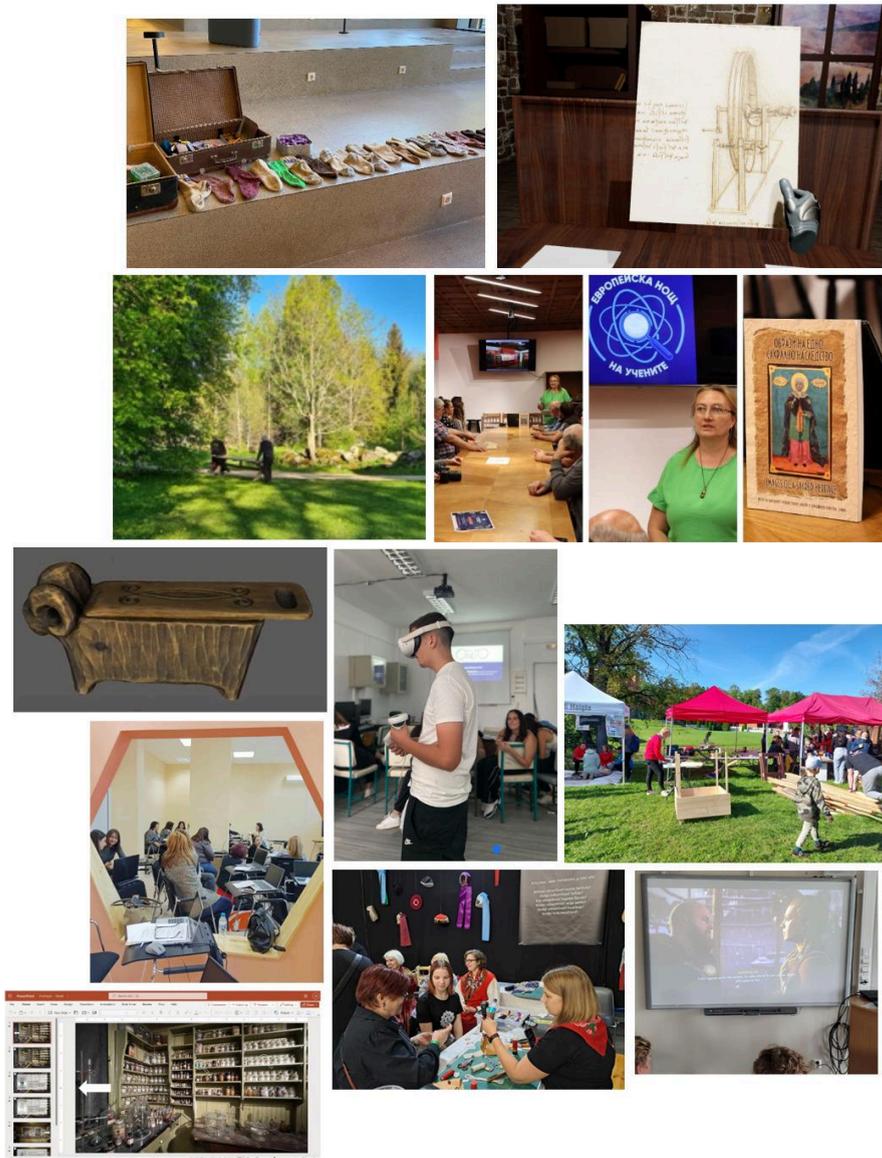After being supervised and corrected, all videos were posted on the eCHOing YouTube page: https://www.youtube.com/channel/UCaNh3j4AAlsrGtqRJv7FRLg

Figure 5: Snapshot from videos on the Youtube channel Echoing_EU

Strengths and Issues to consider!

Inter-disciplinarity in the working groups established for the implementation of OIPs' participation[8] seems to facilitate **a collaborative environment** that has successfully discussed and delved into different perspectives and ideas from all partners. The diverse backgrounds of the participants proved to be a critical element in the project's success, providing a rich mix of experiences, skills and knowledge that resulted in 21 project ideas[9].

The **international collaboration** with participants from different countries significantly broadened the reach of the project and facilitated a successful cross-cultural exchange of ideas and methodologies.

The **integration of advanced technologies**, another strength of the project, has significantly enhanced its ability to preserve, document and broaden access to cultural heritage. It has also helped to bridge the geographical distance between participants by enabling them to meet online[10].

By using an educational approach on **open innovation** collaborations, the eCHOing project not only helped to equip participating students with new skills, but also fostered a collaborative learning environment for educators and professionals. The project's commitment to building a sustainable educational framework has become a positive agent of change, leaving a lasting impact on schools and students across the continent. As the students have commented in the post-implementation survey, 78,5% plan to use knowledge and skills acquired (Figure 6) while 84% of the CHO staff answered positively to the same question (Figure 7).

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[8] See results from LTTA week
[9] See chart from TNM 18th of April 2023
[10] See video from Kea, https://youtu.be/lWdOWWcslr0?feature=shared

2. Do you plan to apply knowledge and skills acquired through the project in your daily activities?
65 responses
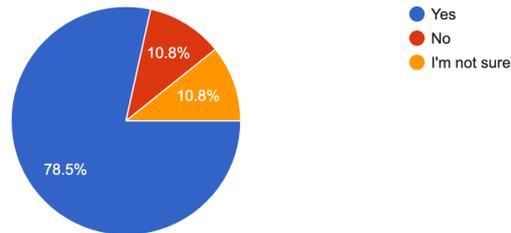

- Yes
- No
- I'm not sure

78.5%
10.8%
10.8%

Figure 6: Students' responses to the 6-month post-survey on knowledge acquired

Furthermore, CHO's have benefited from the project's innovative methods, gaining exposure to cutting-edge technologies and collaborative problem-solving. The project's flexible environment has allowed them to stay current with the latest technologies, providing practical insight and **hands-on experience.**

2. Do you plan to apply knowledge and skills acquired through the project in your daily activities?
19 responses

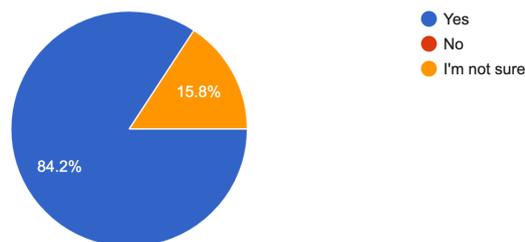- Yes
- No
- I'm not sure

84.2%
15.8%

Figure 7: Answers from post-survey submitted by the CHO's

The project also faced a number of challenges, some of which were easy to overcome, while others were more difficult.

One of the critical issues was the **language barrier.** Despite the decision to use English as the lingua franca, this was an obstacle to full understanding and effective communication. The project was also structured in such a way that each country had a representative who could translate information about the tasks for their fellow nationals, but this system did not work effectively. This caused some misunderstandings and slowed down the whole process.

In addition, **the geographic distance** forced everyone to work remotely via email, shared documents, and online meetings, and this framework required a stable Internet connection and adequate hardware for seamless collaboration. Unfortunately, not every partner had access to these optimal conditions, which created some challenges due to the heavy reliance on online meetings.

Other issues that need to be addressed are the limited resources, strict budgeting and programming combined with time constraints or other unforeseen parameters such as sickness and other managerial issues. The question of how important external funding would be for successful implementation of the OIP shows the need for financial planning (Figure 8).

6. In a scale from 1 to 5, how would you value the importance of external funding for the successful implementation of an OIP?

19 responses
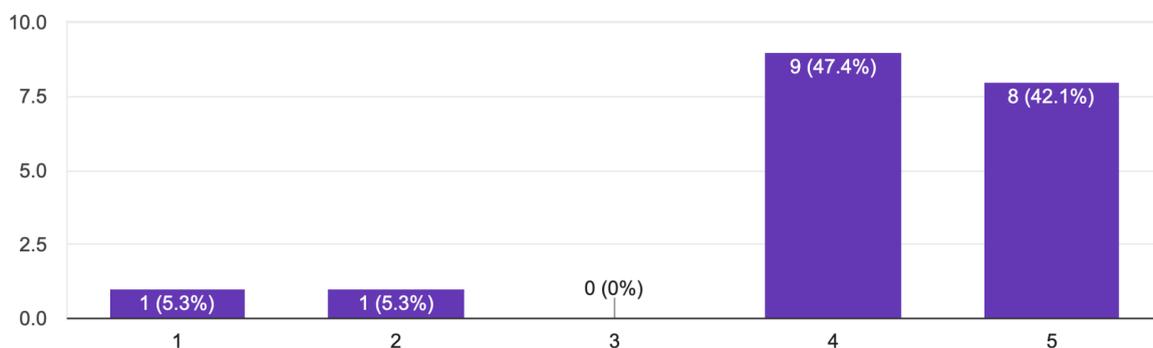
eCHOIng.eu

Figure 8: CHO's responses on the importance of external funding for the successful implementation

As the project now enters its final stage, an impact analysis will be performed by the PR5 team on the parameters of **governance, financing, and social engagement** based on the surveys-answers collected by eCHOing partners. Thus new results will be added in the final report, "PR5A7 Synthesis of impact report", which will also be translated into the five partner languages

Lessons learned

The eCHOing project could serve as a valuable source of lessons for future initiatives in the field of cultural heritage recovery and university-driven open innovation. An important emerging conclusion is that finding a common language and people in charge of the translation between languages is valuable when working across several countries. Although English is considered to be widely used and there is a growing number of digital translation tools, nothing can replace discussions on topics related to a nation's cultural heritage in the first languages of citizens and heritage professionals.

Another key recommendation based on our work is related to the importance of robust planning to avoid deadline problems, which was not always as easy. The project addressed challenges in the CHO sectors post-covid, but continuing cases of covid still had an effect on the involvement of some team members. eCHOing was very efficient in identifying opportunities for filling these gaps through one of the partners investing an additional effort to support another partner. A strong structure with a clear division of tasks is essential for the smooth running of the project, it is also important to have a coordinating tool and a secretariat that checks everyone's workflow. The distance between partners was overcome by extra online meetings that could generate solutions to logistical issues and problems related to conflicts in calendars, extra work during the start and end of the teaching semesters and personal issues.

Last but not least, open innovation is grounded in the realm of participatory approaches. All such initiatives depend on a huge amount of initiative, engagement, good will and a willingness to volunteer. Innovation can stretch the resources of small CHOs who really need to be very motivated and require voluntary efforts from citizens. The academic literature explores what motivates people to contribute to such initiatives. Our observations show that the managerial support and the capacity of small CHOs are critical to the success of open innovation. In cases where there were management changes and new management disengaged with the proposed topics, it was necessary to invest more time in explaining and convincing the new management. The more popular open innovation becomes, with more decision makers in small CHOs embracing it, the more uptake we can expect. In this sense, more awareness and the spread of successful practices are needed to expand the community of professionals committed and dedicated to developing their institutions alongside the increased engagement of their patrons.

Thus all eCHOing collaborators, that is students, staff, and audience, were asked to deliver an evaluation after the implementation of the OIPs through three sets of surveys.

This final report will be crucial for the understanding of critical factors of project initiation, planning, implementation, and evaluation and is a tool which can be used in the cultural sector.

Listening to the real challenges of CHOs such as organisational size, funding structures, and volunteer resources, and establishing an operational dialogue seems to have had a significant influence on the way CHOs collaborated with HEI students in order to plan the implementation of OIPs. In addition, it has been crucial to take into account the data related to the country/region in which the organisation is operating and create customised strategies.

A key aspect has also been the identification of issues that a CHO may face as a partner of an open innovation project, and the creation of a related approach that involves partnerships with local businesses, government agencies, and other CHOs. This framework is critical for small CHOs that need as much help as possible in order to be able to survive and reach their goals.

The project's success in collaborative learning, cross-cultural exchange, and technology integration provides a blueprint for other initiatives in this area. Highlighting these aspects can enhance the educational impact of such projects. Using technology as a new way to approach students in the education sector can help to create a more inclusive environment.

In conclusion, the eCHOing project is a testimony to the potential of collaborative, multidisciplinary efforts in cultural heritage recovery. The lessons learned pave the way for future efforts to overcome challenges, seize opportunities, and make lasting contributions to the preservation and appreciation of the rich cultural heritage that belongs to all of us.

The Echoing partners would like to thank all of the organisations and students

(Appendix 1) that participated in the working groups.

Appendix 1: List of all participating partner organisations and students

OIP title	CHO Partner	HEI Student
Gaming for cultural heritage	Gimse Schools Trondheim	Stig Tobiassen NTNU
Hybrid Objects Exhibition	Falstad center of Human rights	Anders Engelstad Romøren NTNU
Chemistry lab	Levanger Photo museum	Elyas Larkemani NTNU
Archivathon: TikTok Campaign for archives	NTNU Library, Dora Archives	Frida Kirkeby Thomassen NTNU
Gameathon	NTNU Library	Andrea Fossli Bakken,Joakim Hatmyr Vannebo,Julie Ton Nguyen,Anja Aarvig Byfuglien NTNU
Pilgrim Routes	Pilgrim Center Trondheim	Gaia Sasso SA
Gaming in school classes	Gimse Schools Trondheim	Gaia Sasso SA
Immersive Museum for Virtual Archive	Museo Leonardiano di Vinci: Roberta Barsanti	Eleonora Lanfranco SA
OcuLeO Lab	Museo Leonardiano di Vinci	Gaia Sasso SA
VR Lab in Museum	Museo Leonardiano di Vinci	Eleonora Lanfranco, Gaia Sasso SA
Kea OI Event for Community: IND HER NET "Immersive mining of memory"	OSYGY	Gaia Sasso SA
Kea OI Event for School: IND HER NET "Immersive mining of memory"	OSYGY	Gaia Sasso SA
Kythnos Event with OSYGY	OSYGY	Gaia Sasso SA
Milos Event with OSYGY	OSYGY	Gaia Sasso SA

Antiparos OI Event for School	OSYGY	Gaia Sasso SA
Paros Event with OSYGY	OSYGY	Gaia Sasso SA
Andros Event with OSYGY	OSYGY	Gaia Sasso SA
Troyan Museum Video	Troyan Museum	Anton Ivanov SU
Troyan Museum at Researchers night	The Museum of Traditional Crafts and Applied Arts in Troyan	Anton Ivanov SU
Troyan Museum 3D realisation with GLADA BG	The Museum of Traditional Crafts and Applied Arts	Anton Ivanov SU
Cherni Osam natural history museum at Researchers night	The Museum of Traditional Crafts and Applied Arts	Tsveti Stefanova SU
Historical newspapers in Plovdiv Library	National Library Ivan Vazov	Angel Beshirov SU
Users and Digitalisation Varna Library	National Library Ivan Vazov	Tsveti Stefanova SU
Heritage flower bed	Estonian National museum, Heimtali Museum	Merle Liinsoo TU
Sockathon	Estonian National museum, Heimtali Museum	Signe Susi TU
Heritage cooking club	Estonian National museum, Heimtali Museum	Jaana Reissaar TU
Social media campaign for heritage craft	Estonian Folk Art and Craft Union	Urve Niinemets TU
Workshop on making bio-waste boxes	Estonian Folk Art and Craft Union	Edrin Hansen TU
Heritage Festival on Muhu island	Estonian Folk Art and Craft Union	Kätli Saarkoppel TU

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