ICT-INOV
MODERNIZING ICT EDUCATION FOR HARVESTING INNOVATION

INTERNAL QUALITY ASSURANCE

FINAL REPORT

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CONTENTS

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INTRODUCTION

The objective of a Quality Assurance process is to support the management entities in the production of concrete and high–quality results in line with the project objectives and work plan. To guide this process, a Quality Assurance Plan was designed in the beginning of the project, establishing a coherent set of guidelines, criteria and indicators by which all aspects of the project were to be measured and assessed.

This document presents the final report of the Internal Quality Evaluation process and shows that the internal quality assurance plan has been followed closely and that the process generated valuable information to keep the project on track. The indicators clearly show the positive outlook of the activities and the corresponding generation of high-quality products which reveals that the consortium was able to overcome all the issues faced during execution.

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PROJECT SUMMARY

Universities have the responsibility to modernize their educational practices to be able to develop highly skilled ICT professionals capable of innovating and putting ideas into action. This is crucial because it benefits individuals by building knowledge and skills for pursuing successful careers in a highly evolving sector therefore contributing to the community wellbeing through services that address industry and societal issues.

ICT-INOV aimed to enrich ICT Higher Education in Asia, and specifically Malaysia, Vietnam, Nepal, and Pakistan, for promoting innovation by introducing a technology-enhanced, design thinking learning intervention for contributing to the development of an ICT workforce highly capable of innovation. The project mainly targeted educators, students and Higher Education Institutions and the main results of the project were:

- A design thinking, experiential learning framework for innovation
- Physical labs and digital services for promoting collaboration in design thinking
- Educational activities that integrate design thinking
- Instructor training and community building towards the adoption of design thinking in ICT education

CONSORTIUM

ICT-INOV consortium gathered 12 Higher Education Institutions from Greece, Portugal, Estonia, Italy, Malaysia, Pakistan, Nepal, and Viet Nam:

- PANEPISTIMIO THESSALIAS
- INSTITUTO POLITECNICO DO PORTO
- TALLINN UNIVERSITY
- EUROPEAN TRAINING AND RESEARCH ASSOCIATION
- UNIVERSITY OF MALAYA
- UNIVERSITI TENAGA NASIONAL SDN. BHD
- ISRA ISLAMIC FOUNDATION (GUARENTEE)LIMITED
- NATIONAL UNIVERSITY OF COMPUTER AND EMERGING SCIENCES NUCES

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- TRIBHUVAN UNIVERSITY
- KATHMANDU UNIVERSITY
- TRUNG TAM XUAT SAC JOHN VON NEUMANN
- HANOI UNIVERSITY

WORK PLAN

The duration of the project was 38 months and was comprised of 7 Work Packages (3 technical WPs, 3 Management and Quality Assurance WPs and 1 WP for Dissemination and Exploitation).

WP1: Preparation (leader: Tallinn University)

- To analyse current practices in ICT education as well as learning needs per Partner Country and organization.

WP2: Methodological learning framework (leader: EU-Track)

- To develop an experiential learning framework for building innovation skills through design thinking and gamification.

WP3: Implementation (leader: University of Thessaly)

- To develop the physical and digital infrastructure for supporting design thinking in ICT education.

WP4: Capacity and community building activities (leader University of Malaya)

- To build a community of good practices on deploying design thinking for innovation

WP5: Dissemination and exploitation (leader: Universiti Tenaga Nacional)

- To disseminate widely and promote the adoption of project results

WP6: Quality Plan (leader: Porto Polytechnic)

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- To establish the degree to which the project is implemented according to the goals set in this proposal

WP7: Project Management (leader: University of Thessaly)

- To ensure the smooth and timely implementation of the work plan

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QUALITY ASSURANCE METHODOLOGY

The quality assurance methodology, defined in the QA plan, ensured the proper implementation of the activities and results of the project. It also ensured that all partners were fully involved in the different monitoring and evaluation mechanisms along the various project phases and report, on a periodic basis, about the activities they were leading and/or participating in.

STRUCTURE, ROLES AND RESPONSIBILITES

The structure, roles and responsibilities in the QA process defined in the QA plan were the following:

The **Project Coordinator (PC)** was the responsible for the overall operation of the project and its smooth running, timeliness and accomplishment. He oversaw financial and administrative management including the preparation of reports. The PC was the final responsible that ensured that all partners' contributions meet the expectations.

The **Steering Committee (SC)** supervised the implementation of the whole project. It was chaired by the PC and it was composed by one member of each partner. The SC was the arbitration body about the implementation of the provisions of the Grant Agreement. In the SC meetings the members reviewed interim results from the QA process and set interim (6-month) implementation goals. Evaluation results are mostly internal but the reports that will be made public at the end of the project implementation period.

The **Quality Manager (QM)** was responsible for the achievement of the quality objectives of the project. The duty of the QM was to monitor and evaluate the progress of the project and to ensure that all its activities are carried out properly according to the Quality Assurance plan and ensuring proper execution of the project to achieve its objective. The QM designed the monitoring and evaluation process and was responsible for selecting criteria, indicators, and data collection tools.

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The **External Evaluator (EE)** monitored and evaluated the progress of the project with an external perspective and was responsible for producing the deliverables 6.2 and 6.3.

The **Work Package Leader (WPL)** was responsible for the detailed co-ordination and reporting of the specific WP. When needed, meetings of the partners involved in the Output were organized and chaired by the WPL. For each deliverable, within the WP, the WPL assigned direct responsibility either to himself/herself or to an associate individual. The WPL was the person that was contacted by the PC and QM as part of the monitoring of progress towards completion of the deliverables.

The **Partners** were involved in the QA process by reporting and assessing the project progress and the produced deliverables.

DATA COLLECTION TOOLS

The project quality was assured through the monitoring and evaluation of the quality of two main aspects: the project processes and the project deliverables.

In each project meeting (including online meetings) a specific session was dedicated to Quality Assurance to analyse the internal and external evidences and other monitoring data. Furthermore, after each meeting, a section of the meeting evaluation questionnaire was dedicated to the assessment of the current state of the partnership and the project progress.

The quality of the key project processes was also monitored and assessed through an internal self-evaluation of the consortium by the project partners. This evaluation was done by each partner through a questionnaire with an assessment of the performance of the consortium and of the current state of the project activities.

Event evaluation was done by all participants through a relevant questionnaire that followed the template annexed to the QA plan.

In total, 10 questionnaires and the corresponding reports were produced: 6 corresponding to the transnational project meetings, 2 corresponding to internal

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teacher training, one for the final conference and one for the interim report. Partners also conducted their own QA processes for their events (piloting and training) and their results were included both in the general internal and external evaluation reports.

All these tools were complemented by the observation of ongoing processes like communication, the analysis of the produced documentation (like meeting minutes, reports from events and training) and also the assessment of the produced deliverables.

As such, the QA process has been extremely intensive as it accounted for multiple sources and data collection tools and had different perspectives. This detailed process allowed to develop a project in a way that lead to high-quality outputs and high impact.

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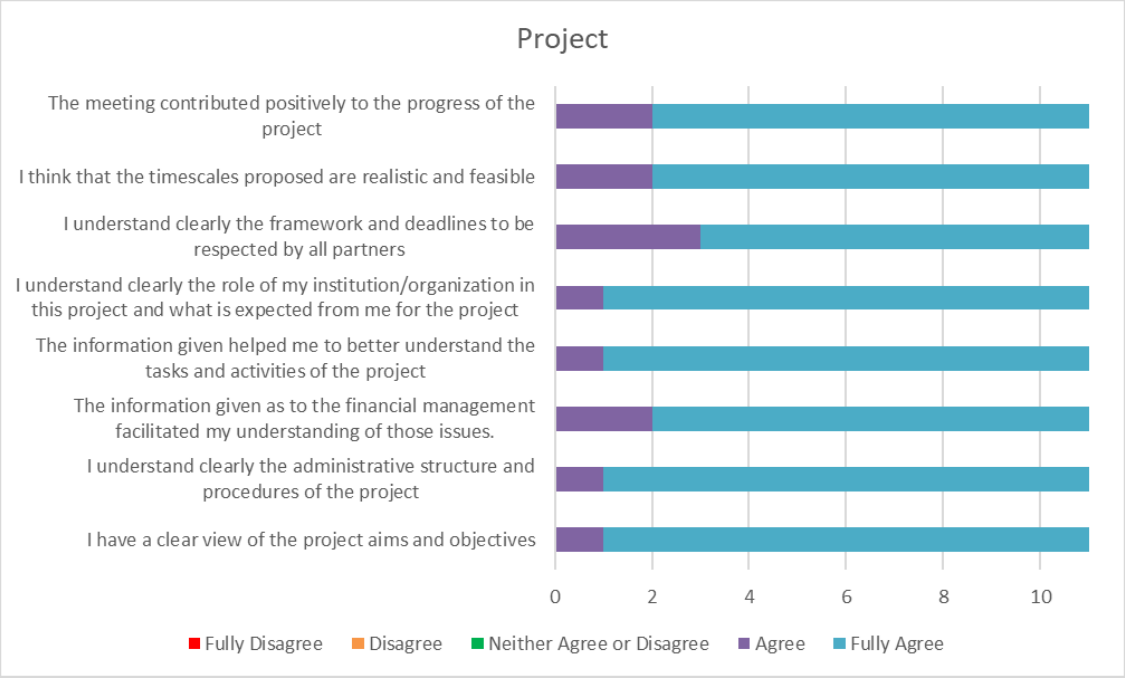
QUALITY ASSURANCE RESULTS

During the first part of the project, data was collected in the two first SC meetings conducted online and the two first training events. An internal evaluation survey was conducted in parallel with the 3rd SC meeting (the event itself was evaluated but the results will only be considered for the second half of the project). The results were presented to the SC and partners through specific reports available in the WP6 area in the common project folder.

During the second part of the project, data was collected for the remaining 4 SC meetings and the final conference. The results were presented in individual reports presented in SC meetings and then compiled in this final internal report.

MEETINGS AND EVENTS EVALUATION RESULTS

Kick-Off Meeting Evaluation Report (Online, 24th - 26th February 2021)



The overall evaluation indicated that the reaction to the meeting was positive and that it served to better explain the individual responsibilities and tasks each partner owns, as well as to complete a first “get to know” of the partners and integrate all the parts of the consortium. The partners had a positive assessment of the future of the project, and

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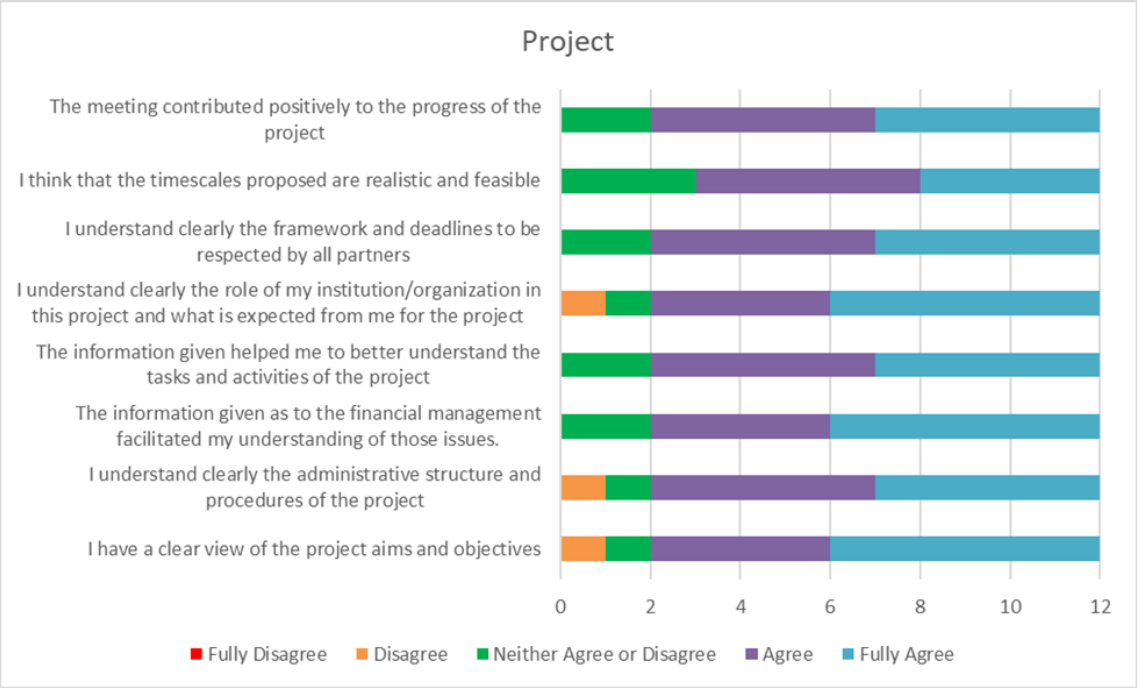
showed some common expectations for the outcomes and share the uncertain concern of the projects dissemination and implementation plan caused by the extraordinary pandemic situation. All the questions were evaluated with a very high satisfaction level, around 85%.

2nd Meeting Evaluation Report (Online, 1-3 November, 2021)



The overall assessment of the 2nd project meeting was very positive and partners felt satisfied with the way it helped them clarify previous doubts and better understand the project's goals, objectives and deadlines. The great majority of the participants gave very good feedback, agreeing or fully agreeing with the statements presented, and not expressing any major difficulty or concern for the near future. Overall, partners were happy with the consortium organisation and collaboration, they recognised the importance and relevance of ICT-INOV's tools and activities, and they felt they had a lot to benefit from transnational cooperation and the further integration of the project deliverables in their schools and institutions.

However, this meeting had a slightly less positive evaluation than the previous one, and some doubts and uncertainties that had not been expressed in the kick-off meeting,

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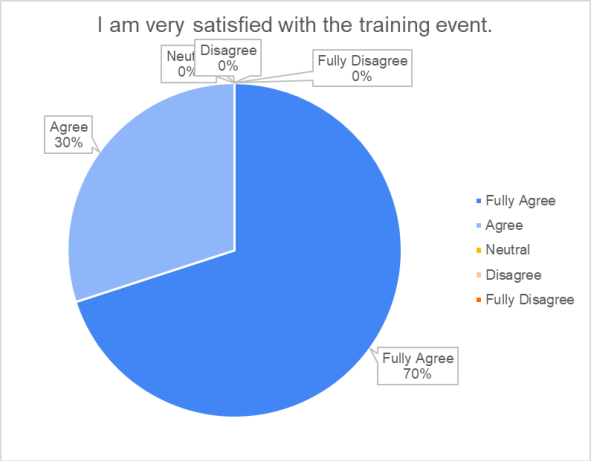
were now communicated by the participants. From the analysis of the first sections of the questionnaire, it is possible to conclude that not all partners felt like they fully understand the role of their organisations in the partnership, they claimed that the project's aims and objectives are not very clear, and still manifest some doubts regarding the administrative procedures. This was later confirmed in the open section, where some partners claimed that they still have doubts about the effectiveness of the project's methodology, about the usage of the project's tools, and where they also showed some concerns regarding the timetable and the completion of all project's deliverables. One aspect that was mentioned both in the closed questions and in the open section is that the online tool used for the meeting was not favourable to the communication (in fact, it seemed to affect it negatively), which is something that the coordinator and the partners of the project definitely need to pay attention to, in order to ensure a better flow of communication in the future and to guarantee a productive and collaborative meeting.

1st Instructor Training Evaluation Report (Porto Portugal, 31 January – 4 February, 2022)



The general conclusion of the event evaluation is that it was very positive and successful and that partners felt satisfied with the usability of what they learned and its relevance for their professional careers. There were minor issues related to the platform used but that did not prevent the participants from getting the most from the training. Finally there were some suggestions regarding the integration of gamification contents and

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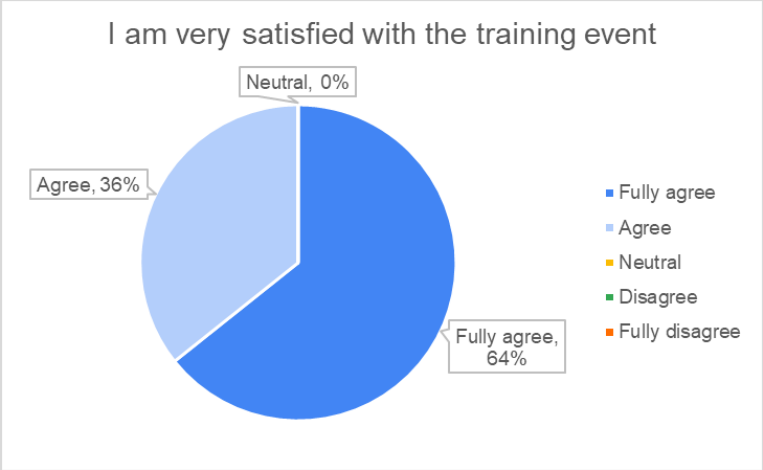
reduce the length of the training. All the assessment topics were evaluated with a satisfaction level over 85%.

2nd Instructor Training Evaluation Report (Hanoi Vietnam, 27 June – 1 July, 2022)



The general conclusion of the evaluation of the second instructor training was that it was very positive (although slightly less positive than the previous one) and successful and that partners felt satisfied with course and its relevance for their professional careers. The organization in small multicultural groups was highly praised and the level of interaction and involvement of facilitators and participants was also considered very positive. All in all, the training structure, organization, contents and approach seems to have reached a very high plateau of quality. For the next event it will be necessary to assess if the suggestions relating to new contents (gamification) and activities should be followed. All the assessment topics were evaluated with a satisfaction level over 85%.

All the meetings and events were considered positive and approved as the percentage of satisfaction was higher than 3 in more than 70% of the answers.

3rd Meeting Evaluation Report, Kathmandu, Nepal, 2-4 November, 2022

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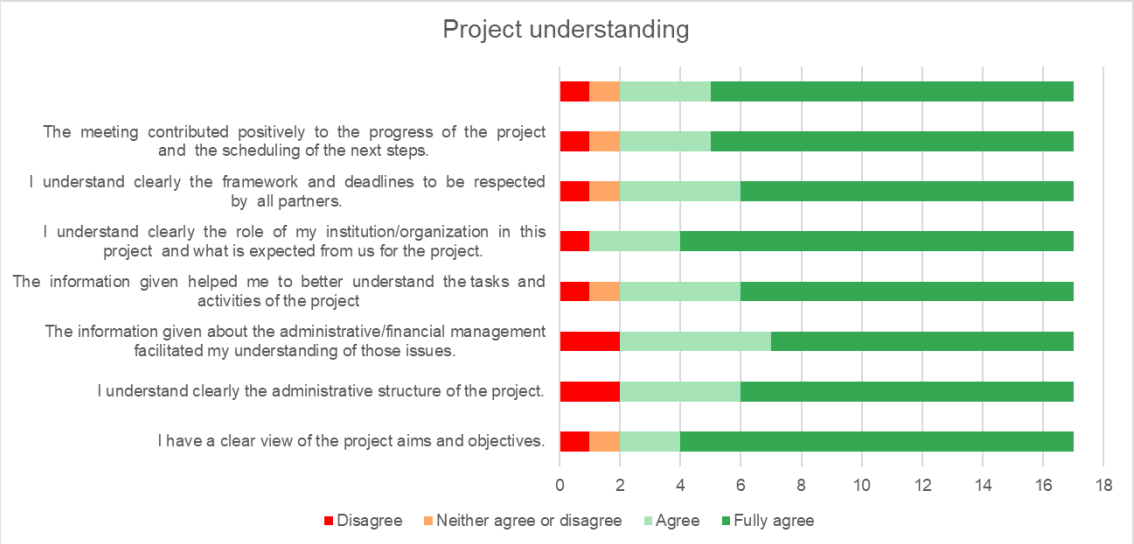
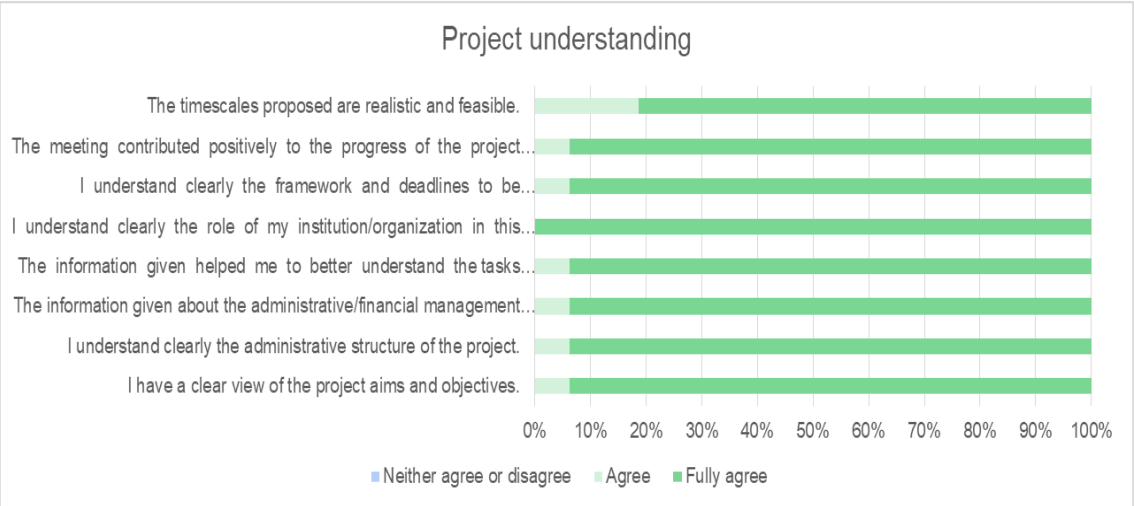


As it can be seen, the feedback was mainly positive, and so it can be concluded that, in general, partners were satisfied with the meeting and believed that it was a good contribution to clarifying doubts and planning the next steps of the project. However, it cannot be dismissed that, all questions had at least a "Disagree" vote which indicates that some improvements must still be made. This particularly true for the aspects related to the administrative and financial structure and management. This confirms that a small percentage of the consortium hadn't been able to fully clarify the doubts they have on these procedures at the time of the meeting.

4th Meeting Evaluation Report, Ho Chi Min, Vietnam, 3-5 April 2023



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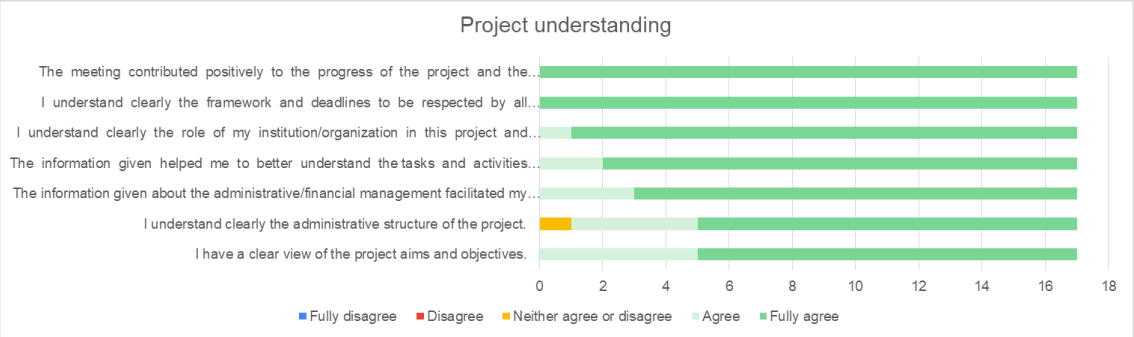
As it can be seen, the feedback was entirely positive, and so it can be concluded that, in general, partners were satisfied with the effectiveness of the meeting and believed that it was a good contribution to clarifying doubts and planning the next steps of the project. The only statement that was somehow less positive was the one related to the feasibility of the timetables. In any case there was a clear improvement from the previous meeting which indicated that the project was progressing very well and partners were getting comfortable with their tasks and responsibilities.

5th Meeting Evaluation Report, Tallinn, Estonia, 30 August - 1 September 2023



As it can be seen, the feedback was entirely positive, with just one neutral vote in one item. It can be concluded that, in general, partners were satisfied with the effectiveness of the meeting and believed that it was a good contribution to clarifying doubts and planning the next steps of the project. The only statement that was somehow less positive was the one related to the administrative structure of the project.

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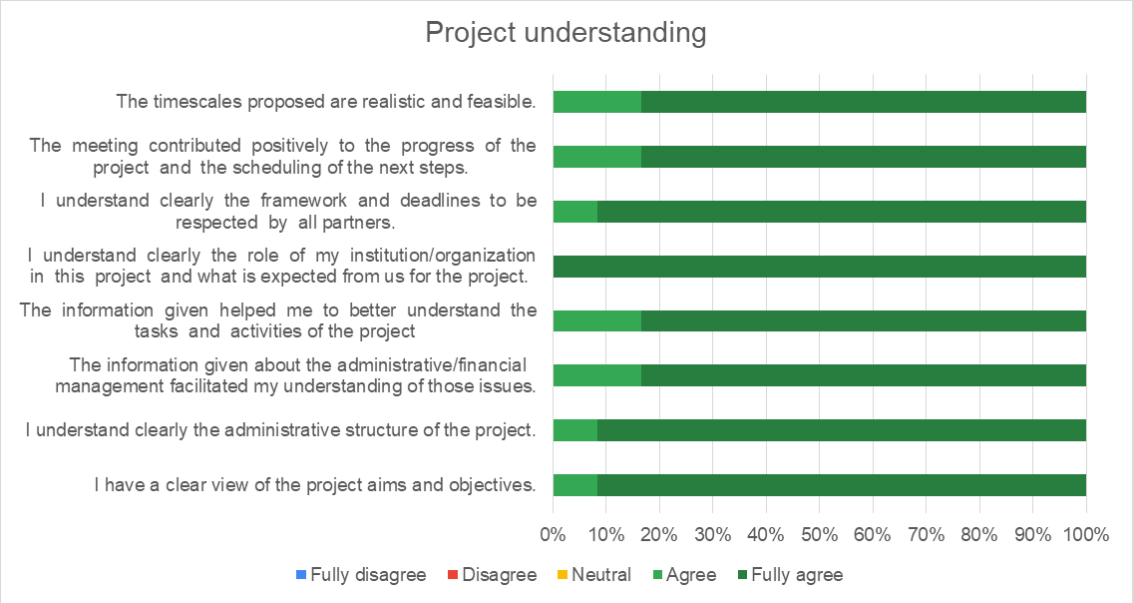
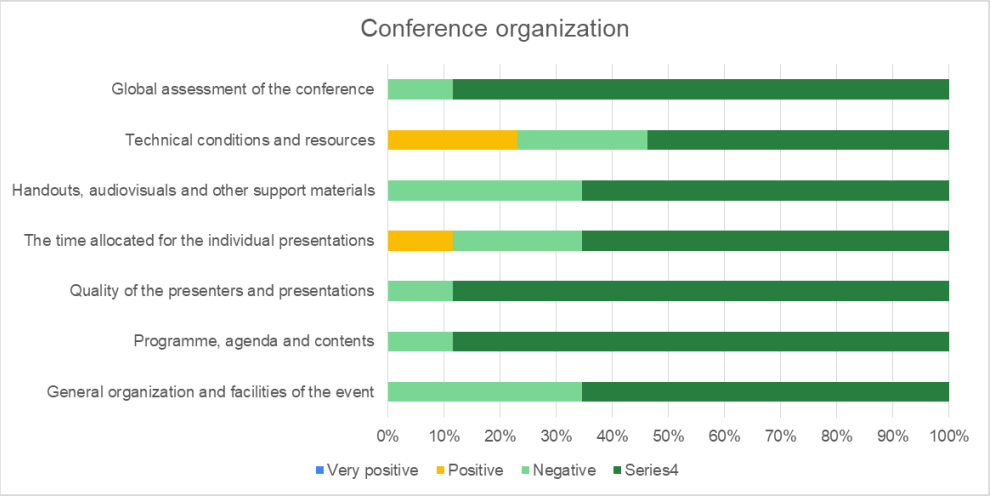
6th Meeting Evaluation Report, Kuala Lumpur, Malaysia, 9-10 January 2024



As it can be seen, the feedback was entirely positive. It can be concluded that, in general, partners were satisfied with the effectiveness of the meeting and believed that it was a good contribution to clarifying doubts and successfully closing the project. Again, all the values were above 4.8 (out of 5). This is particularly relevant as this was the last meeting of the project.

Final Conference Evaluation Report, Kuala Lumpur, Malaysia, 11 January 2024



As it can be seen on the graphic, the level of satisfaction with the meeting organisation was very high (with the participants answering mostly “Agree” or “Fully agree” to them).

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There were some neutral scores related to the time allotted to each presentation and to the technical conditions of the event. The presentations and content were deemed as very positive. The average scores naturally also reflect this positive note with all the values between 4.3 and 4.9 (scale 1 to 5 where 5 means “Fully agree”).

INTERIM INTERNAL EVALUATION RESULTS

The internal evaluation survey covered aspects related to leadership, coordination, collaboration, partner involvement, etc. Participants were asked to score from 1 (very negative) to 5 (very positive).

All the answers were clearly positive with an overwhelming number of “Very Positive” scores. The most positive aspects related to the competence and commitment displayed by the coordinator, the quality of the project impact, the quality of the project monitoring and evaluation processes and tools and the commitment and involvement of the partners.

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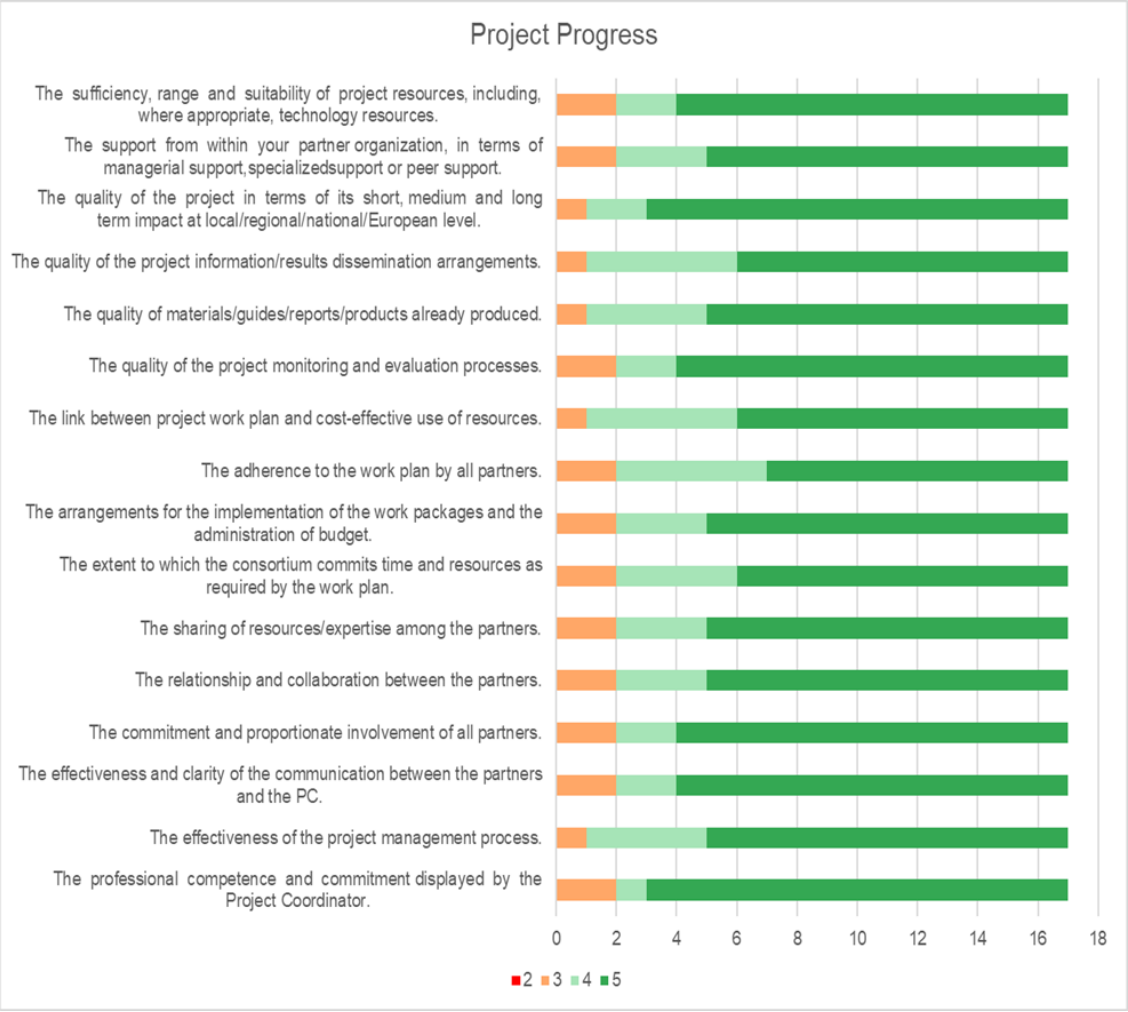

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CRITERIA AND INDICATORS

The constant observation of the project progress, the produced reports and the analysis of the deliverables allows to quantitatively measure the current status of the project.

	Criteria	Indicators	Quantified objectives (min.)	Status
WP1	Depth of the research performed (strategies, policies, projects, etc.)	1.1 Number of sources used in desk research 1.2 Number of external cases (strategies, policies, projects, etc.) used in the research 1.3 Number of institutional cases identified and used in the research	1.1: 100 1.2: 30 1.3: 12	1.1: 103 1.2: 64 1.3: 32
WP2	Depth of the research performed	2.1 Number of sources used in desk research 2.2 Number of external cases (strategies, policies, projects, etc.) used in the research	2.1: 50 2.2: 10	2.1: 52 2.2: 12
	Assessment of students' needs	2.3 Number of students involved 2.4 Number of HEI involved	2.3: 360 2.4: 15	2.3: 368 2.4: 16
	Depth and scope of the educational framework	2.5 Number of identified needs supported by the framework 2.6 Proposed design thinking and gamification features	2.5: 15 2.6: 6	2.5: 16 2.6: 12
	Depth and scope of the institutional strategy	2.7 Number of consortium HEI implementing the institutional strategy 2.8 Number of external HEI reached to develop an institutional strategy based on ICT INOV educational framework	2.7: 12 2.8: 10	2.7: 12 2.8: Over 50
WP3	Physical laboratories	3.1. Number of laboratories installed 3.2. Number of users of the laboratories	3.1: 8 3.2: 1200	3.1: 8 3.2: Over 3.100
	Digital learning service	3.3. Number of students involved 3.4. Number of educators involved	3.3: 750 3.4: 160	3.3: Over 4.200 3.4: Over 320
	Digital content repository	3.5 Number of educational resources/activities integrated 3.6 Number of users of the repository	3.5: 50 3.6: 500	3.5: Over 150 3.6: Over 4.500

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	National educator training events	3.7 Number of events 3.8 Number of participants	3.7: 48 3.8: 150	3.7: 50 3.8: Over 900
WP4	Webinar organization	4.1 Number of events 4.2 Number of participants	4.1: 6 4.2: 150	4.1: 7 4.2: 150
	National community-building events	4.3 Number of events 4.4 Number of participants	4.3: 6 4.4: 150	4.3: 22 4.4: Over 1.500
	Final conference	4.5 Number of participants 4.6 Average perceived satisfaction of the participants	4.5: 50 4.6: 75%	4.5: 50 4.6: 93,7%
	International train-the-trainer events	4.7 Number of participants in international train-the-trainer events 4.8 Average perceived satisfaction of the participants	4.7: 64 4.8: 75%	4.7: 48 4.8: 86%
WP5	Dissemination tools produced and released	5.1 Number of "people reached" in social media 5.2 Number of articles on partner organizational portals 5.3 Number of newsletter issues produced	5.1: 6.000 5.2: 12 5.3: 4	5.1: Over 11.500 5.2: 57 5.3: 5
	Exposure in external events, publications or in the media	5.3 Number of press releases produced 5.4 Number of articles in the media/press referring to the project 5.5 Number of individuals reached through press releases and internet articles 5.6 Number of posters and/or technical/scientific papers published in conferences/workshops or scientific journals	5.3: 12 5.4: 12 5.5 20.000 5.6: 6	5.3: 18 5.4 28 5.5: 40.000 5.6: 7
	Extent of the project dissemination efforts	5.7 Number of dissemination activities carried out 5.8 Number of individuals reached	5.7: 150 5.8: 50.000	5.7: Over 165 5.8: Over 50.000
	Range of external organizations reached	5.9 Number of external organizations contacted 5.10 Number of external organizations engaged (or that expressed interest) in project activities	5.10: 150 5.11: 25	5.10: 150 5.11: over 50

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WP6	Quality of the Monitoring and Evaluation Plan	6.1 Ratio of instruments proposed/applied for indicators of realization 6.2 Ratio of instruments proposed/applied for indicators of result	6.1: 90% 6.2: 90%	6.1: 100% 6.2: 100%
	Evidences of the Monitoring and Evaluation process	6.3 Number of quality indicators below threshold 6.4 Number of end-users involved in evaluation activities	6.3: 4 (max) 6.4: 200	6.3: 0 6.4: 209
WP7	Compliance in the implementation of the planned tasks and in the releasing of project deliverables	7.1 % of tasks completed on time 7.2 % of deliverables released on time	7.1: 70% 7.2: 80%	7.1: 100% 7.2: 100%
	Value of the communication and workflow process among partners	7.3 Number of partners not attending meetings (maximum) 7.4 Number of e-mail messages between partners	7.3: 2 (max) 7.4: 150	7.3: 2 7.4: 891
	Degree of effective use of resources	7.5 % of financial execution in the first half of the project 7.6 % of operational actual costs overrun (staff, travel and subsistence, subcontracts, other) compared to project budgeted values	7.5: 40% 7.6: 10%	7.5: 38.74% 7.6: 0%

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DISCUSSION AND CONCLUSIONS

The different tools and activities established to monitor and ensure the quality of the project have been adequate for the goal. Through them it was possible to collect a significant amount of data to provide feedback on the progress of the project and, with it, to suggest to the Steering Committee how to cope with obstacles. That was the case of the COVID pandemic that created a significant disruption in the beginning of the project. At that moment, the QA process together with the management process were fundamental to ensure the smooth continuation of activities.

The QA procedures and tools have been well accepted and understood by the partners (4,65 out of 5) and their involvement in the different QA activities is well above 80%. The number of expected participants in evaluation activities (indicator 6.4) reached the planned threshold for the entire project which shows this commitment.

In terms of the overall project progress and deliverables, all the data collection tools show highly positive results. Meetings and events have been scored always above the 80% threshold. The quantitative indicators show a well-developed project and all the finished work packages are entirely green.

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