

**Summary of answers to Questionnaire
for the Project Coordinator/Project Executive Committee members**

#	<i>Question</i>	<i>The most distinctive answers and conclusions</i>
<i>Project completion/final audit stage</i>		
1	Were there any changes/ problems in the project team communicating since the mid-term audit?	<p><u>Since the COVID-19 pandemic, the channel of communication has been limited to only online meetings, emails, and social media between the EU and Thai members. An in-person meeting has been limited to only among Thai members. Our EU members have observed from a distance. The pandemic, to a certain extent, has created a gap between the EU and Thai members. Online communication is not as effective as face-to-face communication, which allows much better networking.*¹</u></p> <p>Lack of in-person meetings in the last period of project realization due to COVID-19 outbreak has impacted the information flow – I think virtual meetings have not engaged whole research staff strongly enough to smoothly run the project.</p> <p>The last project meeting, supposed to take place in Bucharest, was organized online.</p> <p>Mainly all the PEC members answered in the similar manner, citing problems due to COVID-19 epidemic outbreak*².</p>
2	Did the Project Executive Committee meetings take place in accordance with the adopted rules and plan since the mid-term audit?	<p><u>We have been able to organize two out of three PEC meetings after the midterm audit. The fifth meeting was in Jan 2020 at KKU. The sixth meeting was in May 2020 online. We were supposed to be together in Thailand for the seventh meeting during the final conference in Aug 2020, but we could not make it. We could not manage to have a meeting also because we had to handle several activities for the hybrid conference covering time zone difference. However, there have been regular communications among the partner leaders who are the PEC members on documents required, especially on a financial matter, for closing the project.</u></p> <p>All the PEC members agreed with the PC's opinion on this.</p>
3	Did the project team meetings take place in accordance with the adopted rules and plan since the mid-term audit?	<p><u>Most of the meetings have been small unofficial for working groups to move the project forward.</u></p> <p>Yes, with the change to virtual meetings. In my opinion, conference took over too much attention and final project dedicated meeting should be also organized.</p> <p>Interesting opinion on "final meeting". In what format? Who would participate? The PEC?</p>
4	Did the composition of the project team change since the mid-term audit? If yes, who was replaced and why? Please, elaborate.	<p><u>The composition has not been changed after the audit.</u></p> <p>The PEC members answered the same.</p> <p><u>Why changing the winning team?</u></p>
5	Was the quality and quantity of achieved outputs monitored as before the mid-term audit?	<p><u>We have kept practicing what we did before the midterm audit. Each complete task is assessed first within the work package before being checked and approved by</u></p>

	<p>Any changes? Problems? Please, elaborate.</p>	<p><u>QCMB and PEC. All the official outcomes are published on the project website. Despite the big hurdle from the outbreak, we have been able to deliver most of the outcomes so far, as promised in the proposal.</u></p> <p>The PEC members answered the same.</p>
<p>6</p>	<p>Did any predicted risks/new risks appear since the mid-term audit? If yes, how did you handle the identified risks?</p>	<p><u>We have experienced risks from the unexpected COVID-19 pandemic. It has affected several tasks, including but not limited to the regular meetings, laboratory development and the dissemination events (e.g. training for industry and conference). To keep activities as planned, especially for the ones having people gathering, we monitored closely to see the situation developed. We tried to delay our decisions unless decisive ones were required.</u></p> <p><u>We could not avoid replacing the meeting at UPB in May in Romania with an online meeting.</u></p> <p><u>We were able to organize a conference as planned after the situation in Thailand had been alleviated. However, we had to move the venue from Pattaya back to AIT to facilitate the participation of non-Thai participants in a hybrid format.</u></p> <p><u>The pandemic has significantly stymied the development of the laboratory. We tried to work from home as much as we could when the COVID-19 situation got more serious and scheduled our presence in the lab on alternative days when the situation got better for social distancing. Once the situation significantly improved, we have put much more effort into building the laboratory to catch up with the time lost. We have been able to build the physical infrastructure, but there is still a work on a virtual layer to be developed and connected to the physical units.</u></p> <p><u>In terms of industry training, we have also adopted a hybrid format to avoid the inconvenience of a long distance travel and keep social gathering to a local level. I believe that our members have tried to keep things moving during this challenging period and tried to adjust ourselves to working in a new normal to maintain our performance.</u></p> <p><u>The pandemic situation made us move to full online meetings and a hybrid final conference.</u></p> <p><u>The information flow was a bit limited among research staff (not PEC) and it resulted in a bigger workload for WP and Partner leaders to keep the information flow going.</u></p> <p><u>Some problems has resulted from PALE/ALE20 conference that was organized by project staff, with key roles of project coordinator and WP leader. A lot of additional work (organization, collection of papers, reviews, conference schedule and payments) has slowed down the flow of the project.</u></p> <p>The obvious new risk was the Covid-19 epidemic, which influenced the project realization in all the aspects. The information were forced to be mainly</p>

		online, with some exceptions in Thailand due to alleviated situation in that country.
7	Was the project budget was monitored and reported as before the mid-term audit?	Yes. We have monitored the budget. We have also been in contact with the financial auditor for financial audit. All partner leaders have been asked to keep updating their financial reports. This aspect concerns the auditor only whether the activity was done on time.
8	Were there any problems recorded related to compliance with contractual obligations since the mid-term audit? If yes, what are they? How were those problems eliminated? If not, why? Please, elaborate.	No. We have tried our best to deliver what have been promised in the proposal. We have been able to deliver most of the outcomes completely. A few of them have been partially completed. There was a problem with the financial statement of UPB. This was not fully accepted by the project coordinator and I am not sure how the situation is at this moment. I believe that there was a difficulty of communication and negotiation to achieve a fast and acceptable solution. * *This needs to be cleared with PC*³. There were some problems on the communication among WP leaders and team members. However, the problem has been alleviated and recognized and solved by the PEC. **How was this resolved?* ⁴
9	Did the project management (Coordinator/PEC) follow recommendations from the mid-term audit for improving the organization of work?	Regarding the project management, I have tried to perform professionally to ensure the success of the project with all respects to EACEA and the auditor's comments and suggestions. I guess my colleagues have tried to do the same. Regarding some recommendations and initiatives, we were able to do some of them. We organized workshops for Thai members on the online learning platform and the Tecnomatix simulation software. We have not pursued accreditation with the European Network for Quality Assurance (ENQA) due to the limited time and resource as well as the pandemic. Regarding sustainability, I submitted another winning proposal to the 2020 Erasmus Plus Call for Proposal. Based on the nature of the new project focusing on reinforcing capacity building, it will be a composition of several current partners and a few new partners. Only the PC's answer is presented, though the PEC members agree with its content.
10	Which measures were implemented? Please, elaborate.	The workshops were organized for Thai members for WP3. A proposal was submitted and won for the sustainability of the project. Adjustment of teaching and learning platform to make it more accessible. Cooperation between partners for further projects (ERASMUS+ KA107 between CUT, TU, KMUTNB, CMU). There was a small delay in acquiring equipment but all was solved and a great lab implementation was achieved.

		The PEC members agree on implemented measures and their results.
11	Were the project objectives met?	<u>Yes.</u> Only the PC's answer is given since the PEC members agree with it.
12	Which parameters of the defined project objectives were met / not met? If not, why? Please, elaborate.	<u>Five specific objectives have been achieved:</u> 1) <u>A modernized curriculum for a Master's degree in industrial engineering to support a sustainable smart industry has been developed.</u> 2) <u>Courses equipped with teaching and learning materials have been also developed. Teaching and learning methods have been identified for student active learning of the sixteen courses. A platform for online learning has also been developed.</u> 3) <u>A Future Learning Factory Laboratory has been developed. Tecnomatix simulation software has been purchased for virtual learning.</u> <u>Representatives from Thai partners have attended one-week training.</u> 4) <u>Quality of the project outcomes has been implemented with high priority. EQF compliance has been considered for the development of all the courses in the curriculum.</u> 5) <u>The partnership has been implemented since day one.</u> <u>Most of the project parameters have been met, sometime in bigger numbers than assumed (no. of courses, no. of tested courses). The accreditation process is delayed due to late delivery of project outcomes. There is also a significant change within plans of Partners to implement MSIE4.0 curriculum due to COVID-19 impact (some partners needed to change its plans).</u> All the PEC members agreed that the project objectives were met and some provided examples of particular results.
13	Were all the outputs, planned to be realized, implemented, in what amount and quality? If not, why? Please, elaborate.	<u>Yes.</u> <u>Outcome 3.1: Teaching materials for instructors are being developed. Most of them are completed.</u> <u>Outcome 3.4: Two workshops were offered by the EU partners. The third one could not be made due to the pandemic. Six public seminars were offered by EU members during their visits to Thailand for the project meetings.</u> <u>Outcome 5.4: 37 articles have been published through the project period.</u> <u>In general, the outputs have been developed and implemented. Some of the outputs are being developed right now and should be submitted soon. This mostly concerns the accreditation of MSIE4.0 curricula in different schemes on Partner universities (tasks 2.5 and 2.6). It is also related to some dissemination activities that are dependent to publication procedures.</u> All the PEC members agreed that the planned project outputs and outcomes were realized. https://msie4.ait.ac.th/activities/

14	Were all the products, planned to be realized, implemented? If not, why? Please, elaborate.	<p><u>Outcome 2.1: A modernized curriculum for a Master's degree in Industrial Engineering was officially completed in February 2020. A few partners have already submit their requests to their university for adopting the curriculum for their programs. Some courses will be utilized in the new project.</u></p> <p><u>Outcome 3.6: A Future Learning Factory has been developed. Machines have been built. Robots and software have been purchased and installed.</u></p> <p><u>I do not have enough information.</u></p> <p>The PEC member is not well informed??? *5</p> <p>*This needs to be cleared with PC and the PEC member.</p> <p>All other PEC members answered in the same manner that all the products were realized.</p>
15	Was the final report made?	<p><u>In progress.</u></p> <p><u>Final report is being completed now.</u></p> <p>No comment necessary, the final report will be prepared after this auditing is completed.</p>
16	Which groups were informed that the project is completed?	<p><u>In general, we have achieved the objectives but have to work on some details to complete the project.</u></p> <p><u>We have not announced the completion of the project.</u></p> <p>This is explained to auditor as the activity that will be done after the final report is accepted by the program authorities.</p>
17	Were all the project team members informed that the project is completed?	<p><u>No. Not yet. They have only been aware of the closing of the project.</u></p> <p>The same answer as for question number 16.</p>
18	Were the project record kept as before the mid-term audit? Any changes/problems?	<p><u>Yes.</u></p> <p><u>and</u></p> <p><u>No.</u></p> <p>All the PEC members and PC himself agreed that the records on the project realization were kept as before and that there were no problems or changes.</p>
19	How were the project outputs promoted to stakeholders/general public? Please, elaborate.	<p><u>We have promoted the outputs in various capacities.</u></p> <p><u>We share our outputs to students, industry, colleagues in other universities and public.</u></p> <p><u>The level of information is adjusted according to the stakeholders.</u></p> <p>List of outputs promotions is available on the project web site.</p>
20	Is the documentation on the project management available?	<p><u>Yes. Official outcomes are available on the project website. Some documents are available only to partner leaders.</u></p> <p>Only the PC's answer is given since the PEC members agree with it.</p>
21	Are all the project documents archived? Who has the access to those documents?	<p><u>Yes. All the members have access to the intranet. Some documents are available to public.</u></p> <p>Only the PC's answer is given since the PEC members agree with it.</p>
22	Do you consider the project <i>in general</i> is a success, i.e. are the project objectives met within the	<p><u>Yes. Most of the tasks have been completed.</u></p> <p><u>We have achieved the outcomes.</u></p> <p><u>Some of them exceeded what we had promised in the proposal.</u></p>

	<p>planned deadline(s) using the planned funds? Are all the predicted indicators and outputs met? Please, elaborate.</p>	<p><u>For example, we had promised to develop 15 courses. We developed 16 courses.</u> <u>For pilot testing, we had promised to pilot test 9 courses. We tested 10 courses.</u> <u>We had promised to organize a conference. We expanded it to an international conference with four prominent keynote speakers, including the former Thai prime minister.</u> <u>I consider project as a success, confirming it by:</u> - innovative MSIE4.0 curriculum - multiple efforts to implement it in both Thai and EU partners, - significant interest to the project from external stakeholders (mainly in Thailand) - significant follow-up activities (e.g. KA107 project), - significant dissemination event (participation in worldwide renowned conference). Both the PC's and PEC member answers illustrate the level of the project completion (some results were even better/larger than planned).</p>
23	<p>Is the documentation on the project management available?</p>	<p><u>At the moment, most of the documents promised in the proposal are available. Some documents are under review.</u> Only the PC's answer is given since the PEC members agree with it.</p>
24	<p><i>Is there anything you would like to add?</i></p>	<p><u>As the project coordinator, I delegated tasks and authorities to workpackage leaders from the beginning. I have managed this project by observing and assisting when needed. When the members were not able to deliver or did not perform properly, I would normally communicate first with the workpackage leaders. I intervened only when the problems could not be solved by the WP leaders and/or the results were unacceptable to keep the project on track with quality.</u> <u>We are grateful to receive funding from the Erasmus Plus Program of the European Union. This funding has allowed us to be a small mechanism to contribute to support Thailand towards a sustainable smart industry. Since day one, several activities have been conducted under the MSIE 4.0 project that includes, but are not limited to, curriculum development, laboratory development, pilot testing of developing courses, industrial training, public seminars, and an international conference on education.</u> <u>Despite the difficulty and challenge, we are able to deliver the outcomes as promised in the proposal. The quality of the work is acceptable, considering the uncontrollable circumstances.</u> <u>This was a very ambitious project that was hard to develop but achieved great results. At some points, cultural or specific personal characteristics put some stress in communication. I believe we learned a lot with each other.</u> <u>We were able to gain a valuable experience from the project. We want to thank EU/ERASMUS for funding.</u></p>

		<p>This project is my first one in engineering education. It is very interesting. I have learnt many things, including the content of the project, the way to work with other partners, and how to manage the project.</p> <p>This is a very indicative answer. Even teachers could learn new things, especially within the project's area.</p> <p>This project resulted in all outputs according to the proposal. The ultimate objective outcomes are to devise new courses with hand on experiences for the learners. The project achievement lacks only the validation how all the lab gadgets aligned with all the course learning objectives of all the designed courses.</p> <p><u>There was no use of the lab gadgets for the demo/trial teaching.</u></p> <p>*This needs to be cleared with PC. *⁶</p>
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*1 Underlined are answers provided by the Project Coordinator.

*2 Red bold marked are comments/conclusions by auditor.

*3 The matter was discussed during the online interview.

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*5 The PEC member who gave this answer explained during the online interview that this was a misunderstanding, that he is well informed about the project, in particular the project management, which was his main activity.

*5 This was explained by the PC that some of the Thailand partners were not aware that they could use the project laboratory online. That was resolved during the online interview.