

## SUSTAIN – CE

Integration of Sustainable Design and Circular  
Economy Concepts in Civil Engineering Curricula



# PROGRESS EVALUATION REPORT

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## 1 INTRODUCTION

Regarding quality evaluation for the SUSTAIN-CE project, this is the third biannual quality evaluation report.

Previous biannual reports were delivered before, covering respectively the period between

- i) November 2020 to May 2021 – 1<sup>st</sup> Biannual Evaluation Report, and
- ii) June to December 2021 – 2<sup>nd</sup> Biannual Evaluation Report.

**This is also the Progress Evaluation Report** foreseen in the Quality and Evaluation Handbook, pertaining to the first half of the project lifetime (November 2020 to February 2022). As such, it will recap all the results presented the first and second biannual reports.

The Progress Evaluation Report is based on an Internal Evaluation Approach, which means that partners are the ones who are evaluating the project, using the 3P Model (Process and Project Management, Partnership and Products), in a process conducted by ISQ. Besides focusing on the 3P evaluation, the report also includes an assessment on the project performance indicators defined by partners in the beginning of the project, a SWOT analysis, and the results of a risk analysis carried out in the end of this first year.

The main goals of this evaluation report are:

- To summarise the results of the evaluation process carried out by the partnership
- To monitor the performance of the project and present a set of conclusions about the performance indicators
- To demonstrate the strengths and the issues that need to be addressed in the project
- To identify possible risks and mitigation actions
- To facilitate the project management and guide all partners through the quality and evaluation issues

## SUSTAIN-CE PROJECT

SUSTAIN-CE addresses circular economy concepts and principles within the construction sector, aiming at integrating principles of sustainable development and circular economy (SD/CE) in civil engineering curricula, which should consider all steps from raw material to the life cycle of the end-product in the construction sector.

Infrastructure is the backbone of sustainable development and forms much of the foundation for quality of life. However, it consumes vast material resources and energy. For this reason, it is of paramount importance that prospective engineers, who will design, construct, and maintain these systems for the next 50 or more years, are equipped with the awareness and knowledge of sustainable infrastructure design.

Civil engineering covers a wide range of disciplines that incorporates infrastructures: construction, environmental, geotechnical, water resources, structural and transportation engineering. Therefore, it is imperative civil engineering undergraduate students get accustomed to concepts and principles needed to meet the requirements of sustainability in civil engineering projects. As a response, SUSTAIN-CE project will attempt to enrich the contemporary civil engineering undergraduate programs' curricula, which are mainly focused on regulations, standards, codes and safety and serviceability of infrastructure systems, by incorporating sustainability, resilience and circular economy concepts in various stages of the design courses.

SUSTAIN CE will result in the co-creation of a new innovative undergraduate civil engineering curriculum that covers sustainable infrastructure design to ensure graduates can apply concepts and principles of sustainable design (SD) and circular economy (CE) in the design and construction of civil engineering projects.



In short, SUSTAIN-CE will result in the following deliverables:

- 1) The syllabus and contents of a new course supporting the SD/CE concepts in civil engineering
- 2) Three Training Events – Training Academies - implemented in Portugal, Greece, and Turkey.
- 3) Three evaluation reports summarizing the results of the three Training Academies
- 4) A guideline for other educational institutions willing to implement SUSTAIN-CE Training Academies.
- 5) One VLE platform (design, develop and content)

## PARTNERSHIP

SUSTAIN project is being conducted by a consortium of six partners from three European countries: Turkey, Greece and Portugal. Comprised of three universities, one research centre, one construction company and one partner with extensive experience in curriculum design and circular economy, SUSTAIN consortium covers the expertise needed to successfully implement the project goals. Table 1 presents all six partners.

Table 1

| <b>PARTNER</b>  | <b>Acronym</b> | <b>COUNTRY</b> |
|---|----------------|----------------|
| YASAR UNIVERSITESI<br>COORDINATOR   | YU             | Turkey         |
| IZMIR INSTITUTE OF TECHNOLOGY   | IYTE           | Turkey         |
| ARISTOTLE UNIVERSITY OF THESSALONIKI<br>(ARISTOTELIO PANEPISTIMIO THESSALONIKIS)                                | AUTh           | Greece         |
| SOUTH-EAST EUROPEAN RESEARCH CENTRE<br>(KENTRO EREVNON NOTIOANATOLIKIS EVROPIS ASTIKI MI KERDOSKOPIKI ETAIREIA) | SEERC          | Greece         |
| INSTITUTE FOR TECHNOLOGY AND QUALITY<br>(INSTITUTO DE SOLDADURA E QUALIDADE)                                    | ISQ            | Portugal       |
| FOLKART YAPI SANAYI TICARET A.S.  | FOLKART        | Turkey         |

## 2 QUALITY EVALUATION AND MONITORING STRATEGY

ISQ approved a Quality and Evaluation Handbook where the methodology and tools that will be used to evaluate and monitor the quality of the project and its deliverables were defined and agreed upon by all partners.

Focusing on the 3P model<sup>1</sup> developed by ISQ (see next sub-section), the Quality and Evaluation Handbook was designed to support the project management and to guide all partners on evaluation and quality issues. As such, besides the definition of the evaluation methodology, rooted in the 3P model and in specific questionnaires designed for the evaluation of (a) meetings, (b) training activities and (c) multiplier events, the Quality and Evaluation Handbook includes a set of **performance indicators** (see table 4 of the Quality and Evaluation Handbook), agreed upon by all partners, aiming at providing a quantitative measure of the project quality and performance and, hence, the possibility to act upon any less positive result in due time.

In terms of quality evaluation and monitoring, major milestones are the *interim* and *final* reports, delivered at the middle (month 16) and the end (month 32) of the project lifecycle. These will be the most important quality evaluation and monitoring documents, comprising a combined analysis of all the quality data collected up to the time the report is released, including results from the 3P questionnaire. The main goal of the interim report is to demonstrate the strengths and the issues that need to be addressed in the project, as well as identify possible risks and mitigation actions. The Final report then evaluates whereas whatever was hindering the project best results was overcome, as well as main results achieved by the consortium.

In-between these, quality evaluation will be made every 6 to 7 months in the form of biannual quality reports which aim at gathering all quality results collected by the quality evaluation tools applied in that period. These comprise quality evaluation questionnaires specifically designed for (1) meetings, (2) learning activities and (3) multiplier events.

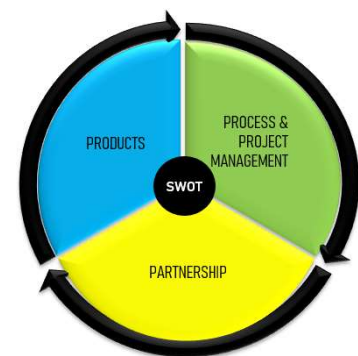
This is the **Interim Evaluation Report**, thus pertaining to the 1<sup>st</sup> half of the project lifetime (months 1 to 16).

### THE 3P EVALUATION AND MONITORING MODEL

The 3P evaluation model adopted for SUSTAIN project allows a tri-dimensional assessment of project progress: i) Process and Project Management; (ii) Partnership; (iii) Products.

This model aims to:

- ✓ Develop clarity and realism about the project objectives;
- ✓ Recognize the importance of a partnership in creating value;
- ✓ Facilitate an environment of knowledge sharing;
- ✓ Increase motivation and confidence;
- ✓ Monitor and assess performance;
- ✓ Identify strengths and weaknesses of the project;
- ✓ Implement improvement measures just in time;
- ✓ Create useful products and value for end-users.



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<sup>1</sup> 3P stands for (i) Process and Project Management; (ii) Partnership and (iii) Products, the three dimensions evaluated at the middle and at the end of the project lifecycle.

The way **SUSTAIN project** is driven forward and managed is to be assessed and measured considering the following aspects:

- ✓ Clarity and feasibility of the project objectives;
- ✓ Fulfilment of the planned schedule;
- ✓ Adequacy of the management model;
- ✓ Efficiency of the project communication processes;
- ✓ Adequacy of the planning, logistics and usefulness of project activities;
- ✓ Reengineering working processes;
- ✓ Involvement of all partners in the continuous improvement of processes.



Checking the effectiveness of the **partnership** will give a sense of progress and direction for the future. The partnership interaction is to be evaluated at an internal level, considering the following aspects:

- ✓ Clarity and importance of the project objectives for each partner;
- ✓ Level of sharing, SUSTAIN, clarity of responsibilities and tasks;
- ✓ Promotion of high-quality results within working groups;
- ✓ Geographic distance between partners and ways to overcome it;
- ✓ Assurance of the IOs planning and control;
- ✓ Promotion of empowerment and communication;
- ✓ Monitoring of partnership performance;



The level of quality of the **products**, their usefulness to partners, end-users and stakeholders and how they are developed will be explored, in a context of future sustainability, considering the following topics:

- ✓ Level of the products quality taking into account the specified set of attributes or requirements defined by the partnership;
- ✓ Level of the products incorporation potential by each of the partners;
- ✓ Level of the products transferability potential to external stakeholders;
- ✓ Identification of weak and strong points of the products;
- ✓ Reengineering of products to ensure their sustainability.



In Chapter 3 we present an analysis of the SUSTAIN evaluation results for the first year of the project.

## MEETINGS

Meetings are a key component of project management and development: they are a much-needed opportunity for discussion and decision-making. And for that reason, aspects pertaining to the preparation of the meeting by the coordinator, how prepared each partner attends the meeting and presents their point of view and work progress to date, and the overall attitude of a given partner during the meeting, do have considerable impact on the way work progress and quality go.



For quality evaluation purposes, two types of meetings are considered: Transnational Project Meetings (TPMs) and Follow-Up meetings (FUMs). TPMs are project meetings foreseen by the proposal and hence destined for specific decision-making moments, according to the project status when the meeting takes place.

Follow-up meetings are online meetings scheduled as and when the consortium feels the need to discuss and decide on a given subject.

In the case of the SUSTAIN-CE project, it was decided not to evaluate follow-up meetings given the fact that a considerable number of them were attended by the members of a specific working group and, hence, it would not be possible to compare meetings held by different groups of partners and hence to draw reliable conclusions from evaluating individual FUMs. So, for the case of SUSTAIN project, only TPMs were evaluated at the end of each meeting.

The questionnaires developed by ISQ for transnational project meetings are organized around three main moments: **before** (meeting preparation), **during** and **after** the meeting. Additional dimensions evaluated are **attendance** and **technical discussions**. Please see next section for the evaluation results of the first TPM – the kick-off meeting.

## LEARNING, TEACHING AND TRAINING ACTIVITIES

The teaching and training activities play an important role in achieving the objectives of SUSTAIN-CE. They will take the form of one train-the-trainers event (C1) and three training academies (C2, C3 and C4). These academies constitute part of the quadruple helix co-creation process.

The new innovative curriculum developed for the design courses in selected areas of civil engineering will be tested in the three training academies. Each training academy will have a different thematic. The anticipated thematics that will be evaluated and finalized in O1, to be covered in the academies are as follows:

- C2 will focus on water resources and transportation engineering,
- C3 will focus on construction materials and buildings and
- C4 will focus on structural and geotechnical engineering.

In each of the academies, trainees selected at a national level (junior and senior undergraduate students, recent graduates and professionals) and partner experts as trainers/mentors, will collaborate and test the training material developed in O2 and the training methodology (O3) and co-design a selected civil engineering project using SD/CE applications on the chosen thematic of the academy. The effect of SD/CE concepts on the design process will be evaluated. After each Training Academy, the organizing partner will assess the results of the academy and will produce a thorough evaluation report, in order to reengineer and further improve the course contents related to SD/CE and the deliverables of O2 and O3.

Moreover, in C3 and C4 the SUSTAIN-CE VLE platform, developed for offering open and distance learning opportunities to a broader audience of trainees will be piloted during the trainings. Therefore, the Training Academies will also enable the improvement of the VLE platform based on the feedback comments of the trainees and the trainers.

## MULTIPLIER EVENTS

Three multiplier events will be organized to promote and disseminate the results of the project. The first two will be organized in combination with the scheduled training activities (trainers' lab and the three training academies) in different partner countries. The third multiplier event will be in the form of a Final Conference disseminating the final outputs of the project and opening the floor for a discussion on the recent trends and further developments in the fields of Sustainable Design and Circular Economy.



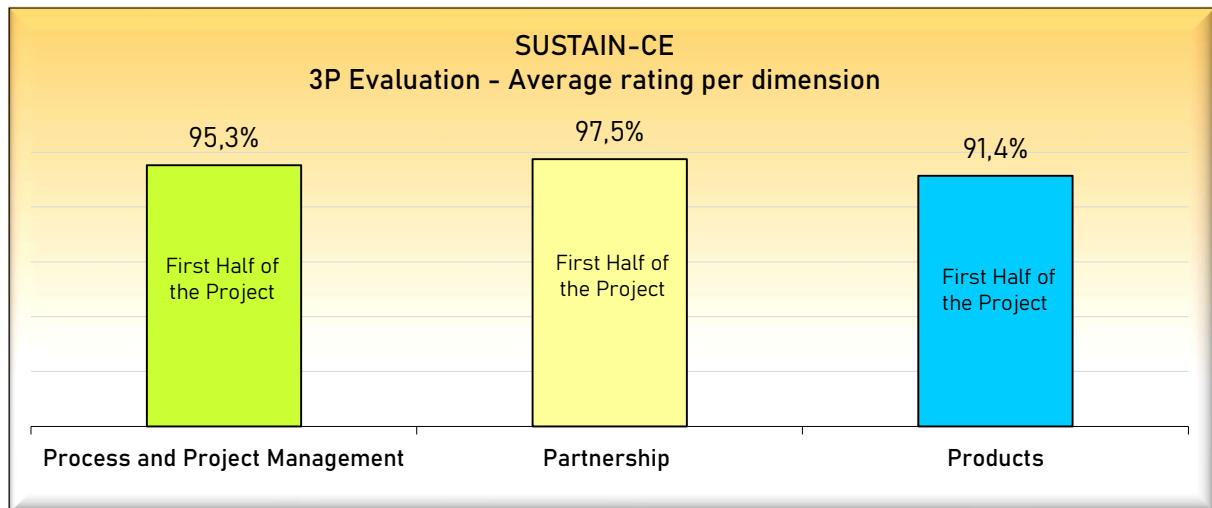
The final multiplier event will take place at the same time with the last Transnational Project Meeting in Izmir and therefore representatives of each partner will be able to attend and contribute to it.

Multiplier events not only provide feedback to the project but also reverse-feedback to these stakeholders and increase their awareness. It will force them to think and ask questions on the subject. Therefore, in the short-term a change in their approach to the SD and CE could be expected. In the long term, the developed sensitivity is expected to steer their decisions become SD and CE friendly. The civil engineering graduates that go through the new innovative curriculum will be able to perform the necessary tasks with the new approach. The local people, economy and the environment will benefit from these changes.



### 3 THE 3P EVALUATION RESULTS

The global results of the 3P evaluation questionnaire for the first 16 months of the project were clearly very positive, with the “**Process and Project Management**” and “**Partnership**” dimensions rating as *excellent* (rating above 95%<sup>2</sup>) and the “**Products**” dimension evaluated as *Good*<sup>2</sup> (see Graph 1).



Graph 1

Each of the 3P dimensions’ evaluation will be looked at with more detail in the following sections.

#### 3.1 Process and Project Management

To evaluate the “Process and project management” 3P dimension, the 3P questionnaire included a total of 20 questions: 19 closed and 1 open.

The closed-end questions considered seven sub-dimensions, namely:

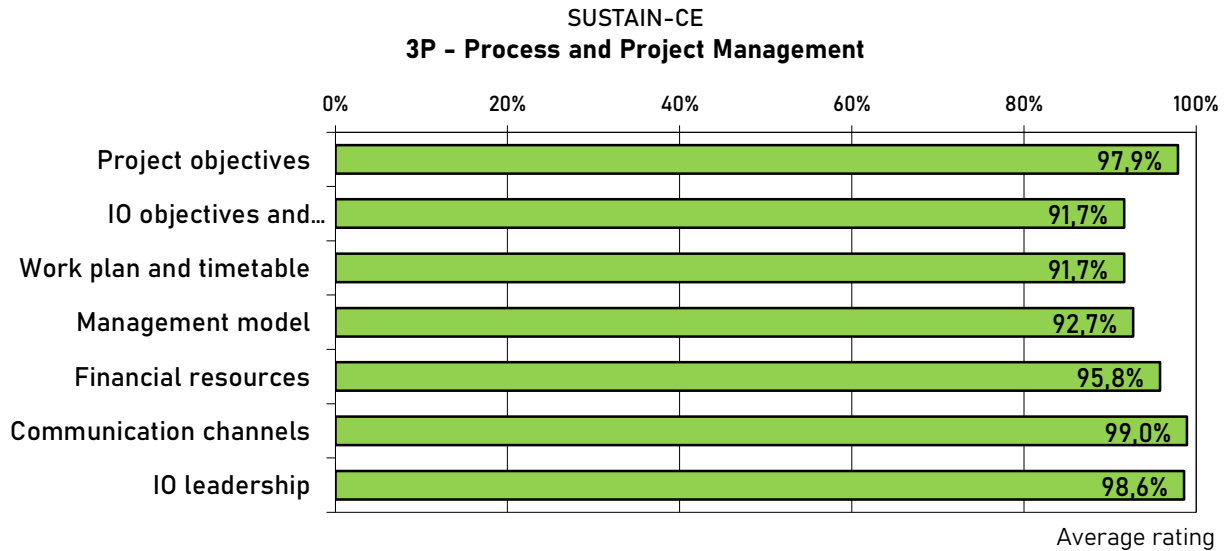
- Project objectives (2 questions)
- Intellectual Output (IO) objectives and activities (2 questions)
- Workplan and timetable (2 questions)
- Management Model (4 questions)
- Financial resources (2 questions)
- Communication channels (4 questions) and
- Intellectual Outputs’ leadership (2 questions) – see Graph 2.

From these, the best rating subdimensions were **Communication Channels**, with almost 100% satisfaction (see Graph 2), followed by **IO Leadership** (98,6%) and **Project Objectives** (97,9%). Overall, all subdimensions under “**Process and Project management**” rated above 90% satisfaction.

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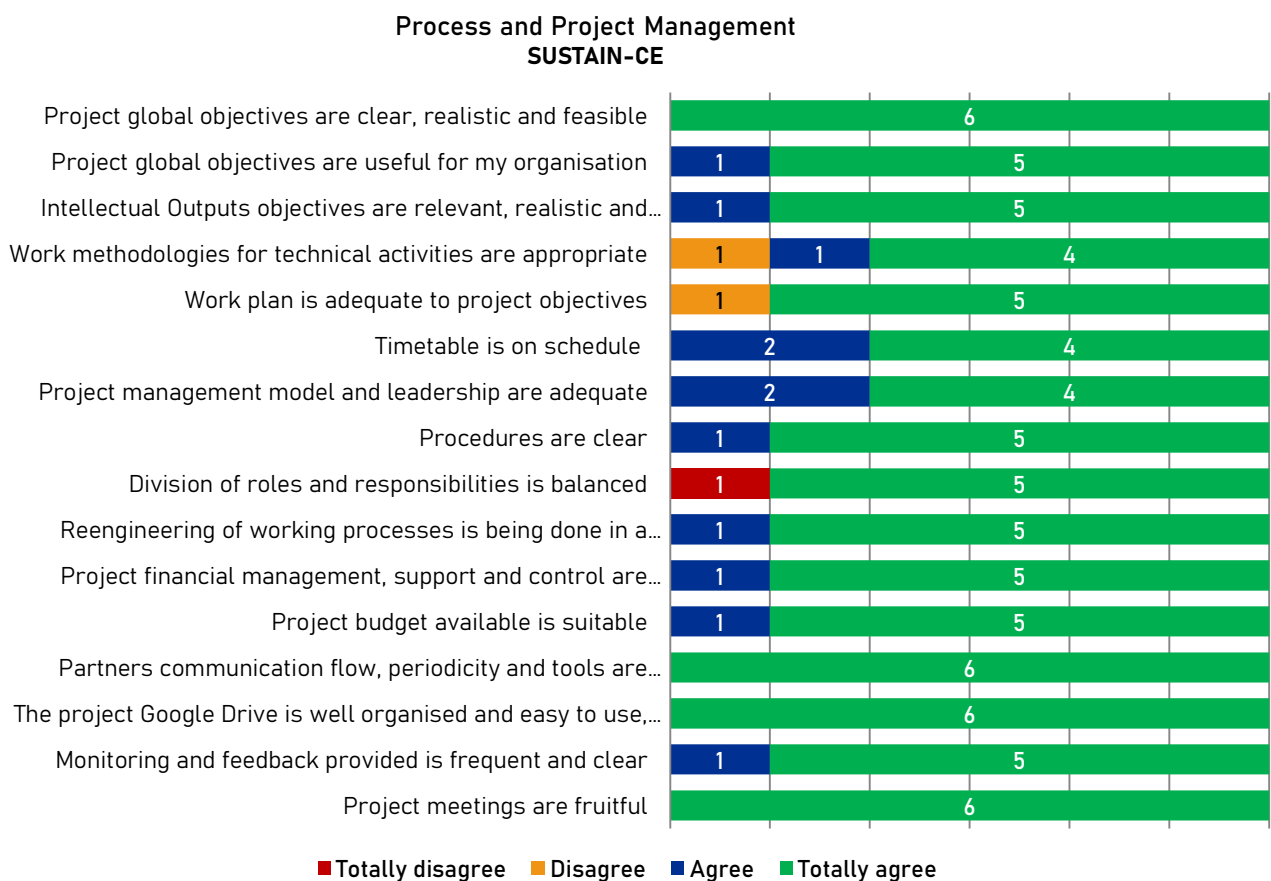
<sup>2</sup> Performance scale used:

- ➔ Bad (if less than a 60% rating),
- ➔ Adequate (is more or equal to 60% and less than 85%);
- ➔ Good (if more or equal to 85% and less than 95%)
- ➔ Excellent (if more or equal to 95%)



Graph 2

Graph 3 depicts the results obtained for each individual question under the first five sub-dimensions of the “*Process and Project Management*” 3P descriptor (all but “IO Leadership”).



Graph 3

As shown in Graph 3, despite the overall good results obtained for the “*Process and Project Management*” descriptor, there seems to be still room for improvement, given the negative evaluation give to certain individual questions.

In fact, three questions received negative ratings, namely:

- “Division of roles and responsibilities is balanced”, with one “totally disagree” answer,
- “Work methodologies for technical activities are appropriate” and “Work plan is adequate to project objectives”, both with one negative (“disagree”) evaluation.

Answers to the open question “Please state your comments regarding this dimension of the 3P model. Any less positive rating given in the aspects above should be justified here” are shown in **Error! Not a valid bookmark self-reference.**, which shed some light onto the underlying reasons for the negative ratings given to these three questions. According to these, work on contents needs to be more shared and participated by all the partners.

**Box 1: Comments regarding the Process and Project Management dimension of the 3P model**

**Comment 1**

N/A

**Comment 2**

1. Regarding the work plan and methodologies, I think we should be more target focused. For instance, I don't think we gave any use to the document "Methodology for the quadruple-helix co-creation". The questionnaire we developed is another example: in my opinion, rather than using our time around a questionnaire designed to assess what people know on the areas of circular economy and sustainable construction, we should focus on getting to know the state of the art in terms of circular economy solutions in the construction sector, in particular to what regards the work of civil engineers and develop content accordingly.

2. As per the division of roles, the tendency so far has been for the academia partners to decide on all contents and structure. That needs to change. Despite their particular interest in adopting the project outcomes in their own courses, this is an ERASMUS+ project, which will benefit enormously from everyone's contribution.

**Comment 3**

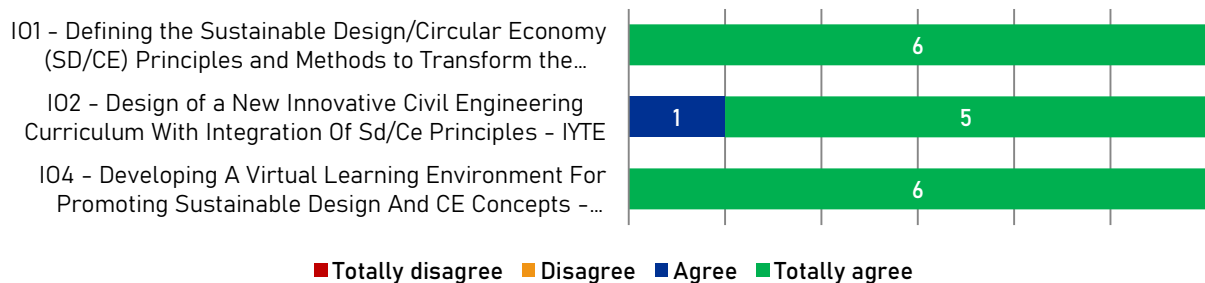
The project management is very well organised and implemented.

**Comment 4**

Comment for further improvement: Task Groups under IO2 need to meet more frequently and exchange ideas and know how.

As per the individual questions under IO leadership, - the best evaluated sub-dimension of the 3P “Process and Project management” descriptor (see Graph 2) – results were overall very positive, as expected and as shown in Graph 4.

**Performance of the IO leading organisation was satisfactory**  
**SUSTAIN-CE**



Graph 4

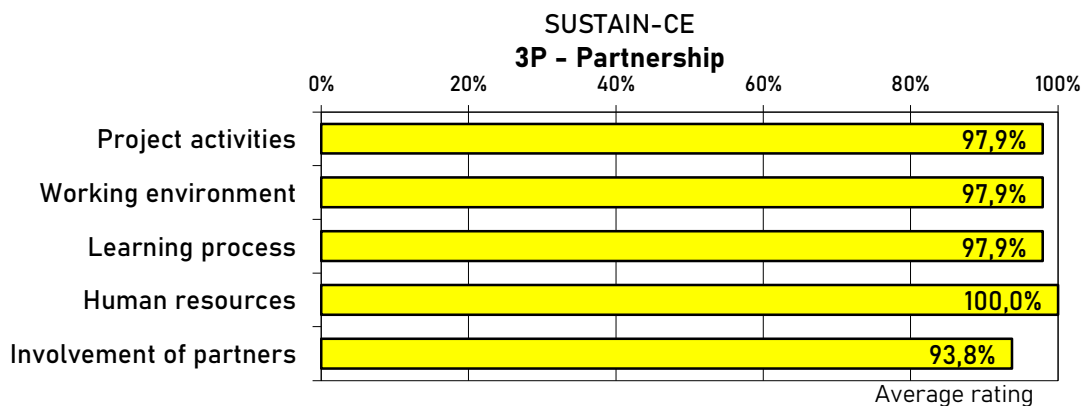
### 3.2 Partnership

To evaluate the “Partnership” 3P dimension, a total of 17 questions (16 closed and 1 open) were developed, organized in five sub-dimensions, namely:

- a) project activities (2 questions),
- b) working environment (3 questions),
- c) learning process (2 questions),
- d) human resources (3 questions), and
- e) involvement of partners (6 partners),

considering, among others, aspects such as commitment and preparedness of partner organisations to the project, level of sharing, trust, clarity of responsibilities and tasks, promotion of empowerment and communication.

Graph 5 depicts overall results obtained for this dimension. “*Human resources*” was the best evaluated sub-dimension (rated 100% satisfaction), but all sub-dimensions were very well evaluated, all but “involvement of partners” being rated as excellent<sup>2</sup>.



Graph 5

Graph 6 shows the results obtained for all individual questions under the first four sub-dimensions (all but “Involvement of partners”).

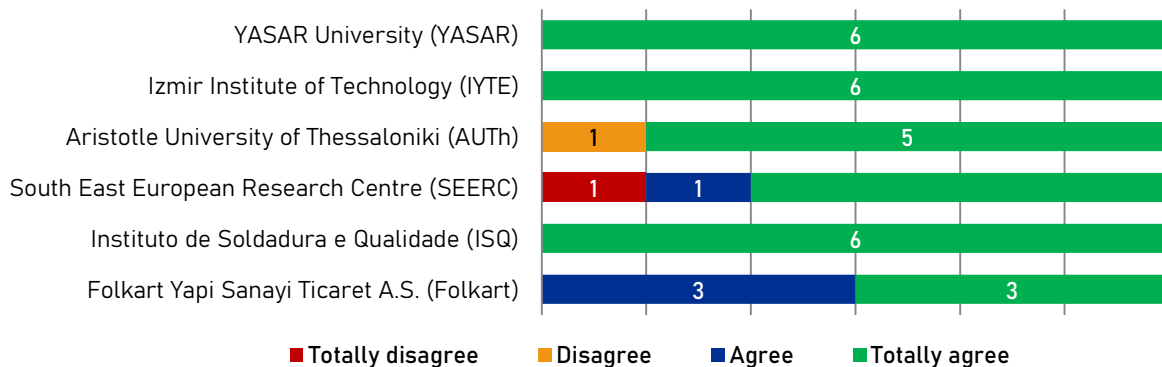


Graph 6

Results obtained to the evaluation of partners performance and participation are shown in Graph 7.

Two partners received one negative evaluation: Aristotle University of Thessaloniki and SEERC. However, replies to the open question on this sub-section of the questionnaire (see Box 2) do not provide the reasons for this, rather confirming an overall satisfaction regarding the groups of partners forming the SUSTAIN-CE consortium.

**Involvement of Partners in the SUSTAIN-CE project:**  
There is an active participation and usefulness of...



Graph 7

**Box 2: Comments regarding the *Partnership* dimension of the 3P model**

**Comment 1**

N/A

**Comment 2**

I personally grew very fond of all the partner members of this Consortium

**Comment 3**

None

**Comment 4**

The mixture of experienced and less experienced partners in SUSTAIN-CE project is working really nicely up to now. Partners collaborate efficiently and balance each other.

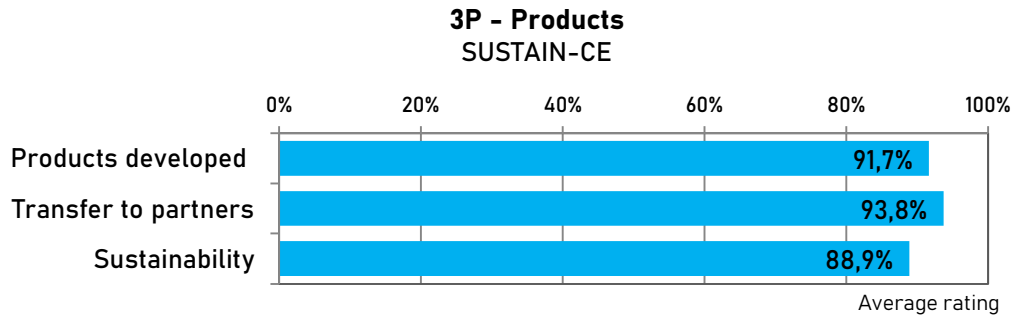
### 3.3 Products

The last 3P dimension was the one obtaining the lower overall evaluation (see Graph 1), albeit very positive (91,4%). It was assessed by 11 questions (10 closed and 1 open). The closed questions considered three sub-dimensions, namely

- a) Products developed (5 questions) – see Graph 9
- b) Transfer to partners (2 questions) and
- c) Sustainability (3 questions).

The open question was designed to provide more insight and, preferably, a justification for less positive evaluations.

Graph 8 shows overall results obtained for each of these subdimensions' rating. **Transfer to partners** and **Products developed** were the best evaluated ones, rating 93,8% and 91,7% satisfaction respectively. The least positively evaluated but still rating 91,7% satisfaction, was the **Sustainability** subdimension.

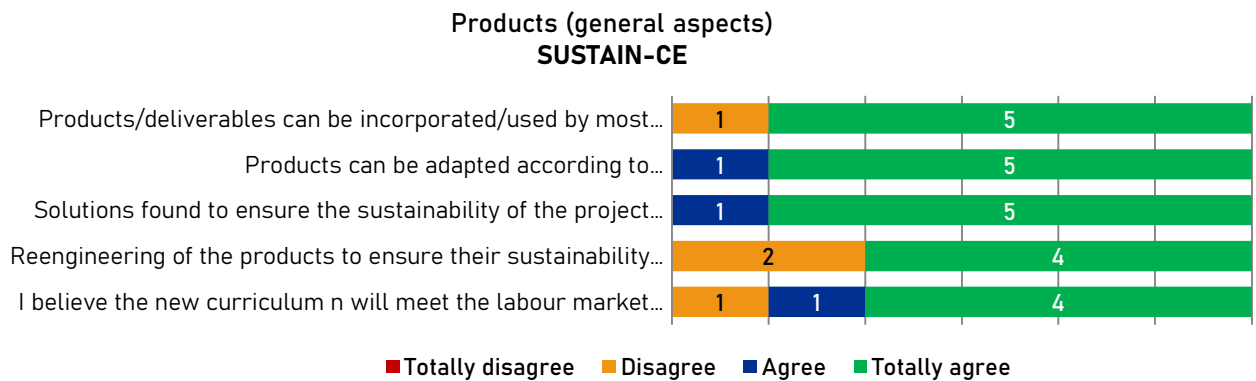


Graph 8

Graph 10 shows results obtained for each question under the the subdimensions “transfer to partners” and “sustainability” and Graph 10 depicts results specific to the “products developed” subdimension.

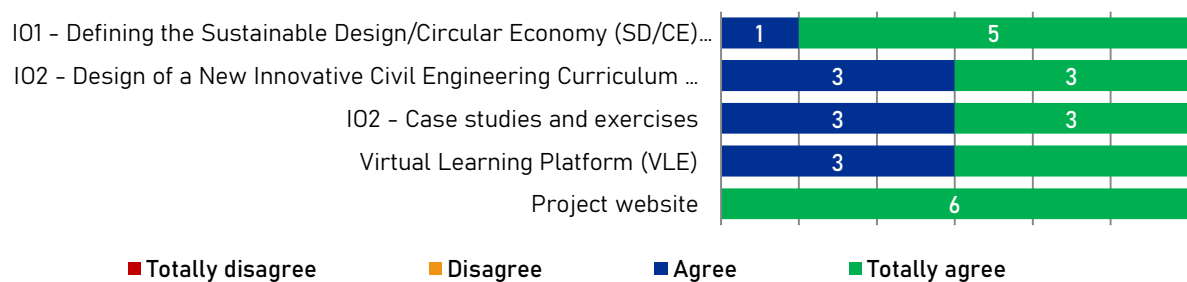
Regarding the first two subdimensions – “Transfer to partners” and “Sustainability” (Graph 9) –, these received some less positive evaluations, in particular the latter (questions 4 and 5). A look into the answers given to the open question in this section of the questionnaire (see Box 3) seems to suggest this may be related to the choice of contents and to the necessary work for the adaptation of products aiming at their sustainability.

As for the evaluation of the final products developed so far - “products developed” sub-dimension -, this was overall positive, with no negative ratings given (see Graph 10).



Graph 9: Answers to the questions under the sub-dimensions “transfer to partners” (1-2) and “sustainability” (3-5)

### General quality and usefulness of deliverables developed in the 1st year of the project were adequate SUSTAIN-CE



Graph 10: Answers to the questions under the “Products developed” subdimension

**Box 3:** Comments regarding the *Products* dimension of the 3P model

**Comment 1**

N/A

**Comment 2**

In my opinion we are failing to grasp the innovative thematic and concepts we should be working on. I also think we need to centre our analysis on the right rationale, instead of simply trying to make the best use of the resources held by the academic partners.

**Comment 3**

Case studies and VLE are in progress

**Comment 4**

re-engineering of the products to ensure their sustainability has not been fully done until now. It will be performed towards the end of the project.

### 3.4 SWOT Analysis

In the SWOT analysis part of the questionnaire, partners were asked to list what, in their opinion, were the main strengths (S), weaknesses (W), opportunities (O) and threats (T) regarding the SUSTAIN-CE project.

As it was clearly explained in the questionnaire text:

- Strengths refer to those characteristics of the project that give it an advantage over others
- Weaknesses are aspects that place the team at a disadvantage relative to other projects
- Opportunities include anything that the project could exploit to its advantage and
- Threats refer to any event, action, or elements in the environment, that could hinder project objectives and outcomes.

Table 2 shows all the answers under SWOT analysis.

What immediately stands out in table 2 is the number of opportunities listed by partners, in comparison to the threats identified. This speaks of a project with a high potential for success, considering not only the final intellectual outputs expected at the end of the project lifecycle, but also in terms of its legacy and, hence, the sustainability of its results. In fact, some partners referred not being able to identify any threats at all! Opportunities account as well for the future collaboration between the SUSTAIN-CE partners, confirming the good working relationship among the SUSTAIN-CE consortium.

Table 2: Answers to the SWOT analysis part of the 3P questionnaire

| STRENGTHS   | WEAKNESSES  |
|---|---|
| <ul style="list-style-type: none"> <li>▪ A strong and committed consortium dedicated to achieving the objectives of the project. Strong teamwork among the partners of the project and very detailed work plan.</li> <li>▪ The timing (as people are becoming aware of the need to shift the way we build and use our built environment)</li> <li>▪ The consortium gathered</li> <li>▪ Its topic and the partnership</li> <li>▪ It will fill the gap in CE curriculum about SE/CE concepts.</li> <li>▪ A strong partnership with a very interesting and challenging and contemporary project idea, useful and practical for every HEI that will apply the new designed curriculum.</li> </ul> | <ul style="list-style-type: none"> <li>▪ N/A</li> <li>▪ A certain reluctance to discuss things among all consortium members. It is as if no one is supposed to think about a given thematic if they are not from the responsible University Department.</li> <li>▪ COVID and low budget for the meetings.</li> <li>▪ It is not very easy to provide case studies that will be very efficient for the purpose. It is necessary to be creative at this front.</li> <li>▪ The COVID-19 influence on the project that has limited the opportunities that the partners had to work and collaborate together. The project partners worked completely on an on-line basis for the first year, this resulting in a slight delay in the project activities.</li> </ul> |



### THREATS

- Potential delays due to Covid-19
- Insufficient attendance to the project activities by external stakeholders
- I do not believe there are any
- Fast development in real life have the potential to leave the case studies obsolete quickly.
- Can't think of any threats.

### OPPORTUNITIES

- Very detailed competence development based on skill-gap analysis, and a cutting-edge and innovative curriculum fulfilling the needs in the market.
- An innovative curriculum to be used and taught by the Universities in the consortium, that is in line with the state of the art and the latest trends in sustainable construction practice.
- The possibility of really making a change for future generations of civil engineers
- The possibility of defining new labour market needs that could be addressed by the consortium partners.
- New ideas for the training of civil engineers. Foundation of new collaborations
- Project brings the participating countries into same page about education in civil engineering about SD/CE concepts, which could pave for future collaboration possibilities.
- The modular format of the new designed curriculum that can be adopted in a whole or on a module basis, that provides flexibility and ease of applicability to the educational institutions. Plus, the VLE that will increase the number of impacted target users and stakeholder organisation, as well as secure the sustainability of the project results in the future, after the project's completion.

The (highly rated) partnership is also the main theme under the Strengths dimension of the SWOT analysis. COVID-related delays and issues pertaining to the decision-making process are pointed out as possible weaknesses by some partners.



## 4 MEETINGS

Table 3 presents all meetings held in the first half of the SUSTAIN-CE project: from November 2020 to February 2022, including Transnational Project Meetings (TPMs) and online Follow-Up Meetings (FUMs).

**Table 3:** Meetings held in the period under analysis

| MEETING                | DATE       |
|------------------------|------------|
| TPM1: Kick-off meeting | 14/12/2020 |
| FUM1 - Online          | 07/05/2021 |
| FUM2 - Online          | 08/06/2021 |
| FUM3 - Online          | 13/07/2021 |
| FUM4 - Online          | 01/10/2021 |
| TPM2 - Thessaloniki    | 2&3/Nov/21 |
| FUM5 - Online          | 19/01/2022 |

Consortium meetings (TPMs) are the only meetings evaluated for quality purposes, by means of a questionnaire designed by ISQ which considers 4 subdimensions, namely:

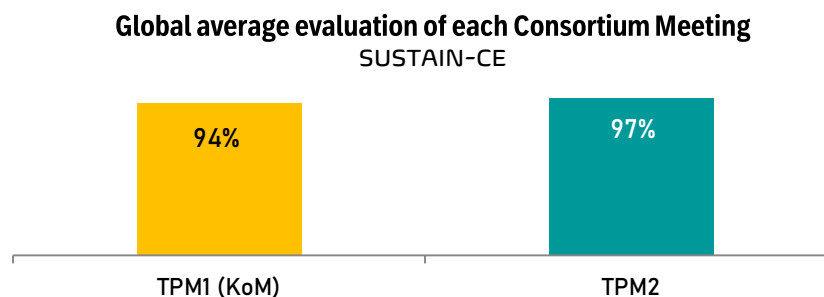
- (1) Before the meeting
- (2) During the meeting
- (3) After the meeting
- (4) Technical discussions

The SUSTAIN-CE consortium agreed not to evaluate follow-up meetings.

### 4.1 Transnational project meetings 'quality evaluation results

Evaluation results for the first transnational project meeting (the kick-off meeting) were presented in the first biannual evaluation report. Results for the second transnational project meeting, as well as TPMs evaluation evolution results, were included in the second biannual report. As such, only the overall and quality evaluation evolution results are shown below. Nonetheless, all the detailed information collected and already presented in the first and second biannual reports will be taken into consideration for the overall analysis under the interim quality evaluation exercise this report aims to deliver.

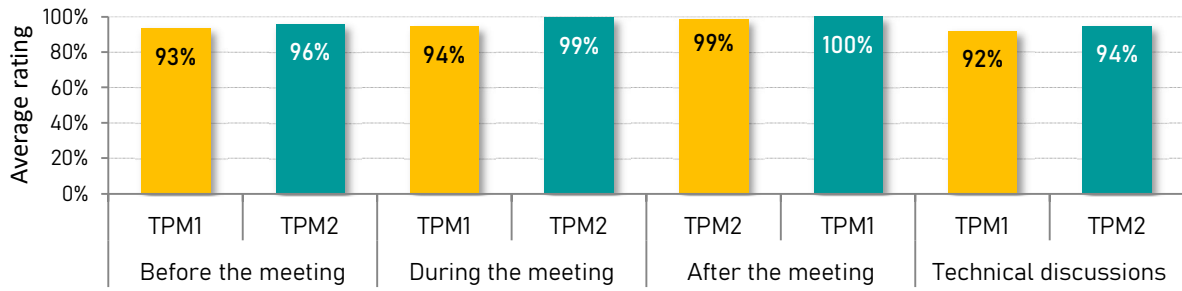
Graphs 11 and 12 present these overall results.



Graph 11

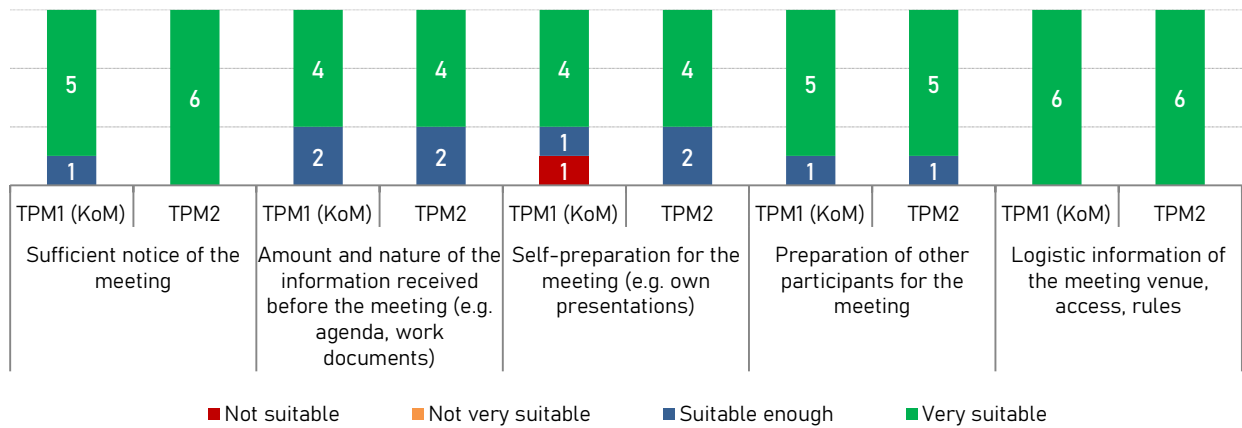
As graphs 11 and 12 show, overall results for both TPMs were very positive, mostly pertaining the DURING and AFTER THE MEETING subdimensions. Also, satisfaction seemed to have improved for TPM2, as Graph 11 suggests. A look into graphs 13 to 16 helps understand why TPM2 performed better than the KOM, particularly regarding the DURING THE MEETING dimension (see Graph 14).

### Consortium meetings evaluation evolution SUSTAIN-CE



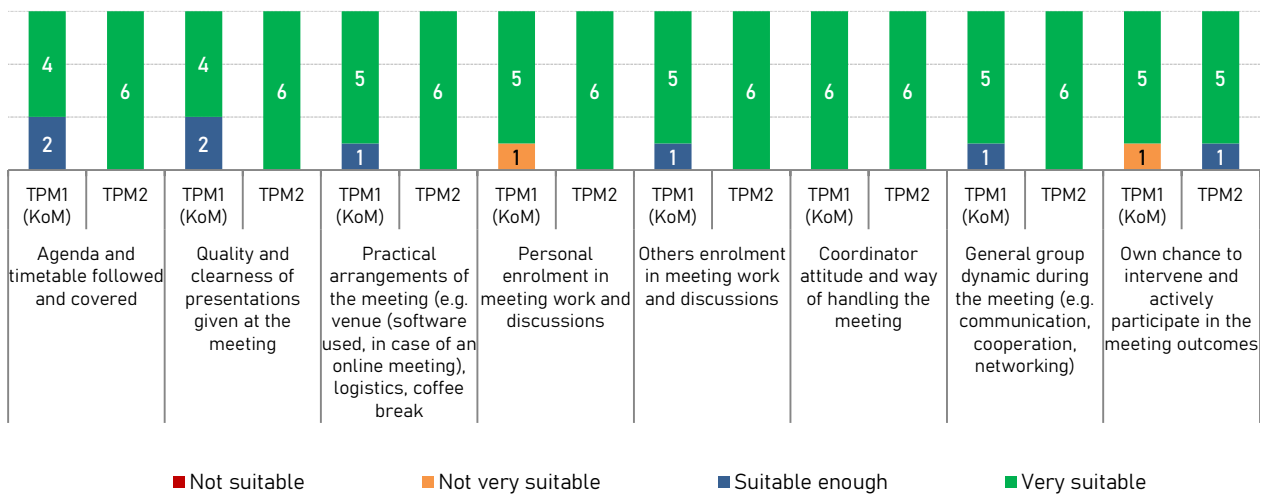
Graph 12

### Before the meeting SUSTAIN-CE



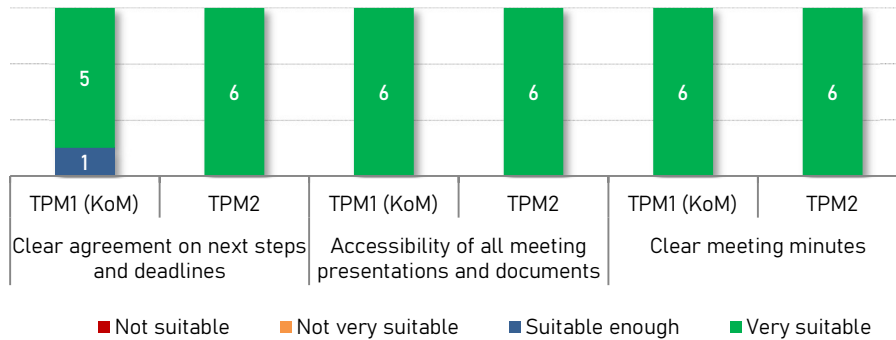
Graph 13

### During the meeting SUSTAIN-CE



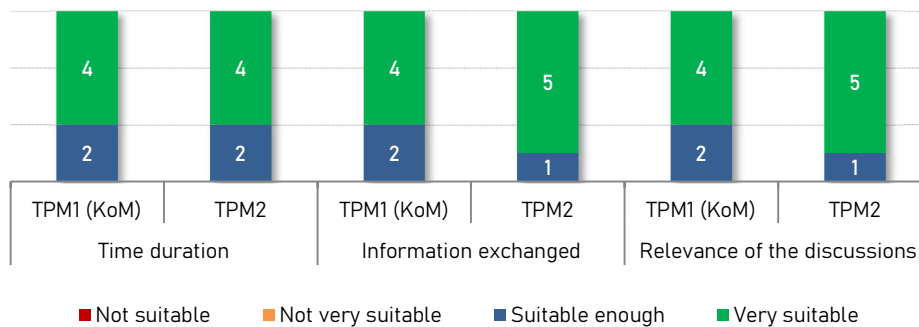
Graph 14

### After the meeting SUSTAIN-CE



Graph 15

### Technical Discussions SUSTAIN-CE



Graph 16

To begin with, unlike the Kick-off meeting (KOM), TPM2 had no negative ratings. In the case of the KOM, these pertained to one negative evaluation for the BEFORE THE MEETING dimension (“Self-preparation for the meeting”) and two negative ratings for the DURING THE MEETING dimension (“Personal enrolment in meeting work and discussions” and “Own chance to intervene and actively participate in the meeting outcomes”). Even if these questions seem to relate to one’s own evaluation, they aim at measuring how much room for participation and for taking part on the decision-making process a given partner perceives to have, which is a function of the general group dynamics. In any case, these aspects seem to have improved from the first to the second consortium meeting.

Furthermore, graphs 13 to 16 also show that some questions rated as 3 (“suitable enough”) in the kick-off meeting improved to 4 (“very suitable”), which accounts for an improvement in terms of those aspects less positively rated for the KOM and resulted in higher levels of satisfaction for the second TPM, as depicted in Graphs 11 and 12. In fact, as Graph 12 shows, overall satisfaction increased on all dimensions, for the second TPM.

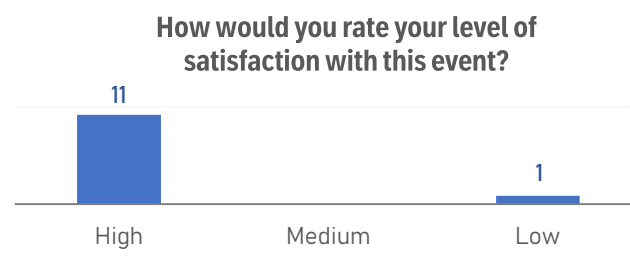
## 5 TRAINING ACTIVITIES

In the period under evaluation in this report, only C1 – Train the Trainers took place. Quality evaluation results were already presented in the second biannual quality report.

### 5.1 C1 – Train the Trainers

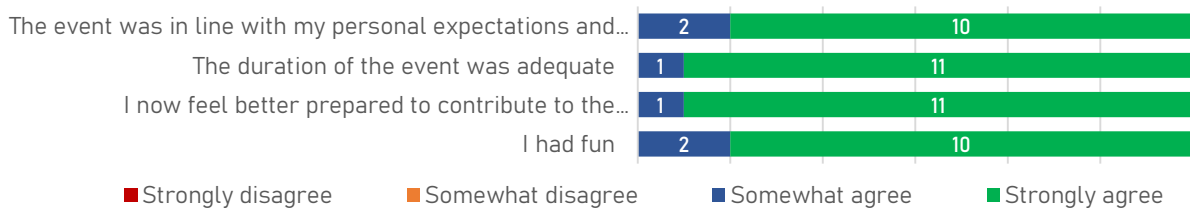
C1 took place in Thessaloniki from the 1<sup>st</sup> to the 4<sup>th</sup> of November 2021. This first training activity was hosted by SEERC. 12 (out of 14) participants responded the quality evaluation questionnaire designed by ISQ. Of these, 11 reported a high level of satisfaction with the event, and one reported a low level of satisfaction (Graph 17).

Graphs 18 and 19 depict the results obtained for the questions evaluating *general satisfaction* and *satisfaction with the content delivery*. For this latter one, one question (“The event provided the opportunity to learn about the SUSTAIN-CE curriculum”) received one negative evaluation but, overall, the event was very satisfactory.



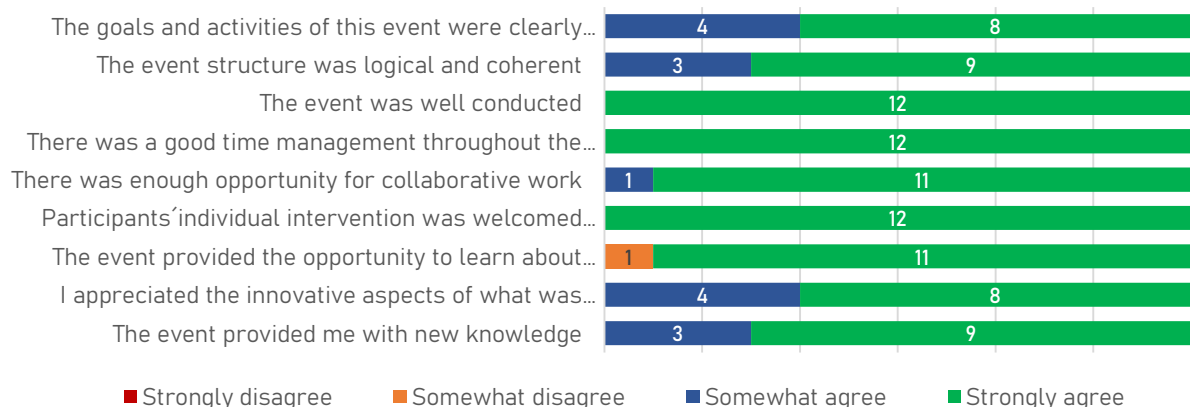
Graph 17

### General Satisfaction



Graph 18

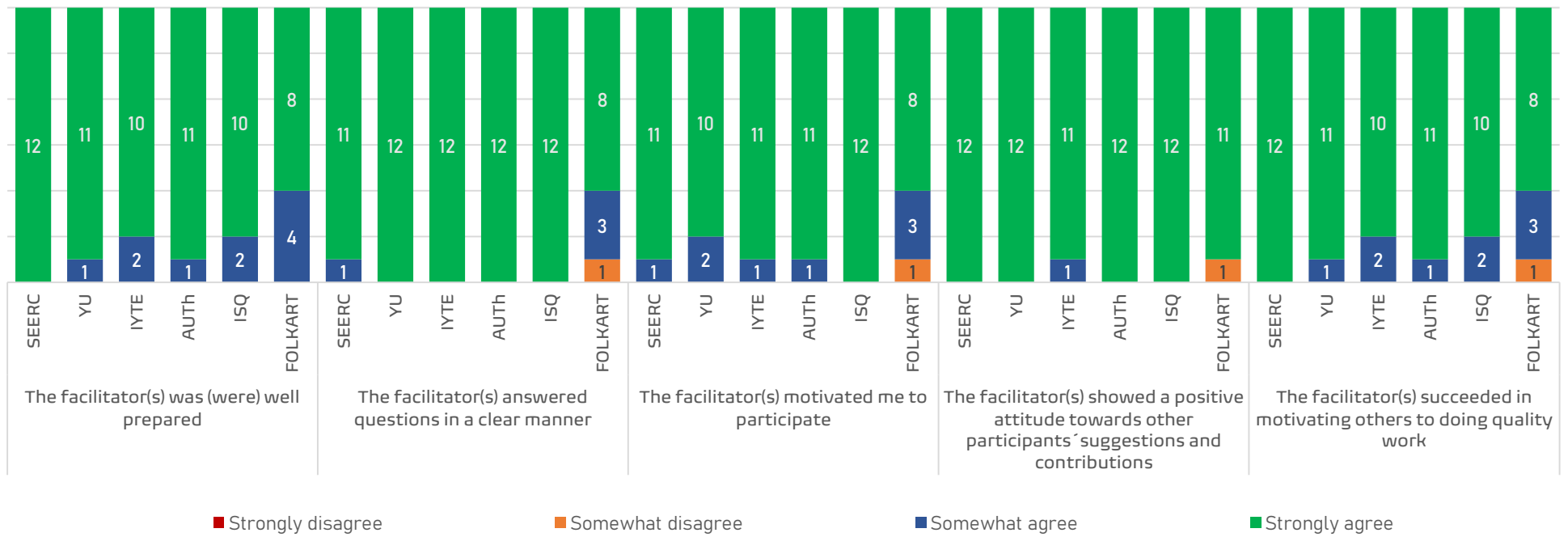
### Content Delivery



Graph 19

Graph 20 depicts the results obtained for the partners evaluation by their peers. The best evaluated partner was SEERC, maybe due to them being the event host, followed by AUTH. Still, all partners were overall well evaluated. The only partner receiving less positive ratings was FOLKART.

Partners (facilitators) evaluation



Graph 20



## 6 PERFORMANCE INDICATORS

Table 4 depicts results for the performance of the quality indicators applicable (bound to be evaluated) in the current state of the project. These are classified according to a 3-colour scale:

- (1) **Green** for absolute compliance
- (2) **Amber** for minor deviations
- (3) **Red** for unaccomplished targets

Table 4

| IO/Activity                    | LEADER | PI   | RATING |
|--------------------------------|--------|--|--------|
| IO1                            | SEERC  | <p><b>1.1.</b> A quadruple-helix co-creation methodology is created identifying, at least 24 best practices;</p> <p><b>1.2.</b> Three stakeholders' lists (1 per country) are created;</p> <p><b>1.3.</b> Minimum of 120 responses, in total, from project stakeholders to the skills gap survey;</p> <p><b>1.4.</b> Minimum of 60 best practices, in total, on a global or national level, are identified by partners on a benchmarking exercise of SD/CE;</p> <p><b>1.5.</b> One focus group per country (three in total) is formed to confirm and further elaborate on the skills matrix and benchmarking results;</p> <p><b>1.6.</b> The blueprint has recommendations for the new innovative curriculum be compatible with ECTS, ECVET and EQAVET systems;</p> <p><b>1.7.</b> Partners are satisfied by the time of the Final Output quality check (all positive feedback);</p> <p><b>1.8.</b> All partners evaluate the IO leadership in a positive way.</p>   | Green  |
| IO2                            | IYTE   | <p><b>2.1.</b> A list of SD/CE concepts is produced by the academic partners and incorporated to existent courses of Civil Engineering Curricula, for each of the previous selected thematics;</p>   | Green  |
| Project management             | YU     | <p><b>6.3.</b> At least, two "catch-up" virtual project meetings are organised during the project lifetime;</p> <p><b>6.4.</b> TPM meeting agenda sent to all partners at least 3 weeks before the meeting;</p> <p><b>6.5.</b> Virtual project meetings sent to all partners at least 1 weeks before the meeting;</p> <p><b>6.6.</b> Meeting minutes sent to all partners within 2 weeks after the meeting;</p> <p><b>6.7.</b> To-do lists updated every 3 months;</p> <p><b>6.8.</b> All partners evaluate the project meetings in a positive way<sup>2</sup>;</p> <p><b>6.9.</b> All partners evaluate the management model in a positive way<sup>2</sup>;</p> <p><b>6.11.</b> Minimum 85% positive feedback from partners concerning Project Coordination &amp; Management (management, communication, coordination capabilities);</p> <p><b>6.12.</b> Minimum 85% positive feedback from partners concerning internal communication process (platforms, shared drive, etc.);</p> <p><b>6.13.</b> Minimum 85% positive feedback from partners concerning project's Financial Management;</p> <p><b>6.14.</b> Financial reports sent by partners to the coordinator according to the schedule.</p> | Amber  |
| Dissemination and Exploitation | YU     | <p><b>7.1.</b> The project website is created within the first six months of the project;</p> <p><b>7.5.</b> At least, 2 project e-newsletters are released, per year, by the partnership during the project lifetime;</p> <p><b>7.6.</b> Minimum of three social media channels, for dissemination purposes, are identified and used during the project lifetime (Facebook, LinkedIn, Twitter and other(s));</p>  | Amber  |
| Quality and Evaluation         | ISQ    | <p><b>8.1.</b> Quality and Evaluation Handbook with inputs from all partners;</p> <p><b>8.2.</b> All partners answer to the evaluation tool for the project meetings;</p> <p><b>8.3.</b> All partners answer to the evaluation tool for the project annual assessment focused on 3P model;</p> <p><b>8.8.</b> Interim Evaluation report delivered on time;</p>   | Green  |



As can be seen from Table 4, only 4 performance indicators (out of 27) were not fully complied with and account for minor to medium deviations. These pertain to

- (a) project management PIs defined for the notice meetings agendas should be sent with, prior to the meeting (PIs 6.4 and 6.5), and to how long it takes for the coordinator to send the meeting minute (PI 6.6) and
- (b) the dissemination objective of having at least three communication and dissemination channels, as there is still none. This should be amended as soon as possible, so that project results reach as many people as possible.

There were no *red*-rated PIs.



## 7 FINAL REMARKS

The interim quality evaluation exercise this report refers to aims at identifying any shortcomings or features needing improvement that may not be easily captured by the quality evaluation tools designed for the evaluation of meetings, training activities or multiplier events. This is done according to the 3P Model developed by ISQ (see chapter 2).

In the case of the SUSTAIN-CE project, results obtained for the 3P questionnaires were overall very positive, with the **Process and Project Management** and **Partnership** dimensions rating as excellent<sup>2</sup> and the **Partnership** dimension as good<sup>2</sup>.

**Partnership** was the best rated dimension, reaching almost 98% satisfaction. All but one (*involvement of partners*) of its sub-dimensions<sup>3</sup> rated above 97% satisfaction. As per the “*involvement of partners*” sub-dimension, rating under 94%, two partners received one negative evaluation - AUTH and SEERC -, in clear contrast with previous results obtained for the C1 activity, where these were the best evaluated partners. As the response to the open question under the 3P Questionnaire Partnership dimension (see Box 2) provides for no clue for the possible reasons underlying this result, it is not possible to establish a causal relation for it. Furthermore, these partners were positively evaluated by all other peers.

**Process and Project Management** was the next best rated 3P dimension, obtaining 95,3% satisfaction. Still, some questions received one negative evaluation, pertaining to the evaluation of (1) work methodologies, (2) work plan and (3) division of roles. These may be considered as aspects with room for improvement, whereby they should be discussed by the consortium group.

Finally, the **Products** dimension was the least well evaluated, but still rated as *Good*<sup>2</sup>. What is curious about the results obtained for this 3P dimension is that, although some questions under the “transfer to partners” and “sustainability” subdimensions were negatively evaluated (see Graph 9), the products themselves were positively evaluated by all the partners (Graph 10). This suggests this to be mainly a matter of the work methodologies being used, rather than the quality of the final products.

As for answers to the **SWOT analysis** section of the 3P questionnaire, a considerable number of opportunities were listed, accounting for a project with a high potential for success, considering not only the final intellectual outputs expected at the end of the project lifecycle, but also in terms of its legacy and, hence, the sustainability of its results. Opportunities identified also included the possibility of future collaboration between the SUSTAIN-CE partners, confirming the good working relationship among the SUSTAIN-CE consortium, which was also regarded as a strength by some respondents.

COVID-related delays and issues pertaining to the decision-making process are pointed out as possible weaknesses by some partners and, hence, aspects that should be addressed in order to make the most of the identified potential, for both the project objectives and goals.

Regarding the evaluation of **consortium meetings**, results reveal that all aspects improved considerably from the first to the second consortium meeting.

As per training activities and multiplier events, only C1 occurred in the period this report refers to and was very positively evaluated.

Finally, the analysis on the **project performance indicators** set in the Quality Evaluation Handbook reveals a project performing well, according to schedule, and with a few aspects still with room for improvement, regarding the send out of meetings agendas and minutes, as well as dissemination channels.

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<sup>3</sup> (1) Project activities, (2) working environment, (3) learning process, (4) human resources, and (5) involvement of partners.