



SUNER-C

Deliverable 8.5: Updated
Risk Management Report



Funded by
The European Union,
Grant Agreement No. 101058481



Table 1

Project Summary	
Project Number	101058481
Project Acronym	SUNER-C
Project Name	SUNER-C: SUNERGY Community and eco-system for accelerating the development of solar fuels and chemicals
Starting date	01/06/2022
Duration in months	36
Call identifier (part)	HORIZON-CL4-2021-RESILIENCE-01
Topic	HORIZON-CL4-2021-RESILIENCE-01-16
Type of action	HORIZON-CSA (Coordination and Support Actions)
Service	HADEA/B/03

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Table 2

Management Information	
Final version	29 November 2022
WP	8 – Project management and coordination
Lead and co-lead beneficiaries	UNIVERSITEIT UTRECHT (1-UU) & COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (2-CEA)
Dissemination Level	Public
Authors	Frédéric CHANDEZON (CEA) & Nathan COUTARD (UU)
Deliverable Number	D8.5
Deliverable Name	Updated Risk Management Report
Reviewers	Project Coordination Team (UU, CEA, CVE & ICIQ) & SUNER-C Quality and Impact Assurance (Q&IA) Board
Abstract	This risk management report addresses the critical risks for the correct implementation of the SUNER-C project and the related corrective actions. This document is an update of the risk management report (D8.1) submitted at M6 of the SUNER-C project.





Table 3

Document History			
Version	Date	Responsible	Action
Draft 1	20 Nov. 2023	F. Chandezon (CEA), Nathan Coutard (UU)	Revision 1 of RMP
Final version	27 Nov. 2023	F. Chandezon (CEA), Nathan Coutard (UU)	Final version



Table 4

Consortium Information

Coordinator: 1. UNIVERSITEIT UTRECHT (UU)

Beneficiaries:

2. COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (CEA)
3. EUROPEAN RESEARCH INSTITUTE OF CATALYSIS A.I.S.B.L. (ERIC)
4. UNIVERSITEIT GENT (GU)
5. UNIVERSITEIT LEIDEN (LU)
6. UNIWERSYTET WARSZAWSKI (UW)
7. FUNDACIO PRIVADA INSTITUT CATALA D'INVESTIGACIO QUIMICA (ICIQ)
8. SIEMENS ENERGY GLOBAL GMBH & CO. KG (SE)
9. DECHEMA GESELLSCHAFT FUR CHEMISCHE TECHNIK UND BIOTECHNOLOGIE (DECH)
10. FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV (Fraunhofer)
11. CARBYON BV (CAR)
12. TURUN YLIOPISTO (UTU)
13. USTAV FYZIKALNI CHEMIE J. HEYROVSKEHO AV CR, v. v. i. (HIPC)
14. UPPSALA UNIVERSITET (UppU)
15. COVESTRO DEUTSCHLAND AG (COV)
16. CO2 VALUE EUROPE AISBL (CVE)
17. FUNDACION IMDEA ENERGIA (IME)
18. ALMA DIGIT SRL (AD)
19. INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM (IMEC)
20. AVANTIUM CHEMICALS BV (AVT)
21. ALLIANCE EUROPEENNE DE RECHERCHE DANS LE DOMAINE DE L'ENERGIE (EERA)
22. SYNERGEIES STIN EPISTIMI KAI TECHNOLOGIA-SYNEST IDIOTIKI KEFALAIOUCHIKI ETAIREIA (SYN)
23. UNIVERSITATEA DIN BUCURESTI (UB)
24. ARCELORMITTAL BELGIUM NV (AM)
25. VICAT (VIC)
26. BELGISCH LABORATORIUM VAN ELEKTRICITEITSINDUSTRIE (ENGIE-LAB)
27. ENGIE (ENGIE) – **Affiliate Entity**
28. RHODIA OPERATIONS (SOLVAY)
29. BOND BETER LEEFMILIEU VLAANDEREN (BBL)
30. TOTALENERGIES ONE TECH BELGIUM (TEOTB) -- **Associated Partner**



Executive summary

This document, “D8.5 *Updated Risk Management Report*”, is a deliverable of the SUNER-C project, which is funded by the European Union’s Horizon Europe under Grant Agreement No 101058481. The document outlines the list of critical risks that could be faced during the course of the project, their level of likelihood and their potential impact to the project. This document also details the list of corrective actions that will be implemented in case identified risks materialise and actually impact the project.

This Updated Risk Management Report is based on a revision of the Deliverable “D8.1 *Risk Management Report*” that was submitted at M6 of the project. So far, no new potential risks have been identified compared to the list given in D8.1. Some risks have materialized and the implemented mitigation measures and their impact are described.





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List of abbreviations

List of abbreviations	
CSA	Coordination and Support Actions
D	Deliverable
EC	European Commission
HE	Horizon Europe
LSRI	Large-Scale Research and Innovation Initiative
LoS	Letter of Support
MS	Member State
RMP	Risk Management Report
WP	Work Package



1 | SUNER-C in short

1.1. SUNER-C in short

SUNER-C is a project that has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101058481. The project has officially started on 1 June 2022 and will last 36 months. Under the umbrella of the SUNERGY pan-European initiative, the newly funded SUNER-C programme entitled "SUNERGY Community and eco-system for accelerating the development of solar fuels and chemicals" will strengthen the solar fuels and chemicals community within Europe. The European Union has awarded 4 M€ to this project.

The SUNER-C consortium is a unique and balanced partnership of 31 organisations (including one affiliate and one associate partner), bringing together a large diversity of partners, expertise, fields, and representatives of all the EU regions. The consortium consists of 13 academic partners (UU, CEA, GU, LU, UW, ICIQ, Fraunhofer, UTU, HIPC, UppU, IME, IMEC, UB), 12 industrial companies (SE, CAR, COV, AD, AVT, SYN, AM, TEOTB, VIC, ENGIE-Lab, ENGIE, SOLVAY), 4 network organizations and federations (ERIC, DECH, CVE, EERA), and 1 Non-Governmental Organization (BBL).

The overarching objective of the SUNER-C project is to create an inclusive innovation community and eco-system that builds on the current SUNERGY network and includes new stakeholders across Europe. Bringing together fundamental and applied knowledge from various sectors of society as well as often unique resources, the enhanced community will prepare a Large-Scale Research and Innovation initiative (LSRI) beyond the CSA, as a partnership or another instrument to be discussed and agreed upon with the Commission and the Member States and Associated Countries. The goal is to overcome scientific, technological, organizational, and socio-economic challenges, accelerate innovation in solar fuels and chemicals, and enable the transition of existing and future technologies from laboratory and demonstrator levels to large-scale industrial and broad societal applications.

The SUNER-C consortium also works on the development of a strategic roadmap towards the broad implementation of solar fuels and chemicals, with supporting strategies for innovation and exploitation, and a firm focus on crosscutting and socio-technical aspects.

Through a holistic approach, SUNER-C will contribute to a circular economy by replacing fossil-derived fuels and chemicals with renewables and carbon recycling as a key element toward the EU net-zero emissions target by 2050. SUNER-C builds upon the work of SUNERGY, a pan-European initiative on fossil-free fuels and chemicals from renewable power and solar energy, with currently over 300 supporting organizations across and beyond Europe to date.



In Figure 1 is represented an overview of the work package structure of SUNER-C with its eight WPs. The deliverable D8.5 “Updated Risk Management Report” is a deliverable of WP8 “Project management and coordination”.

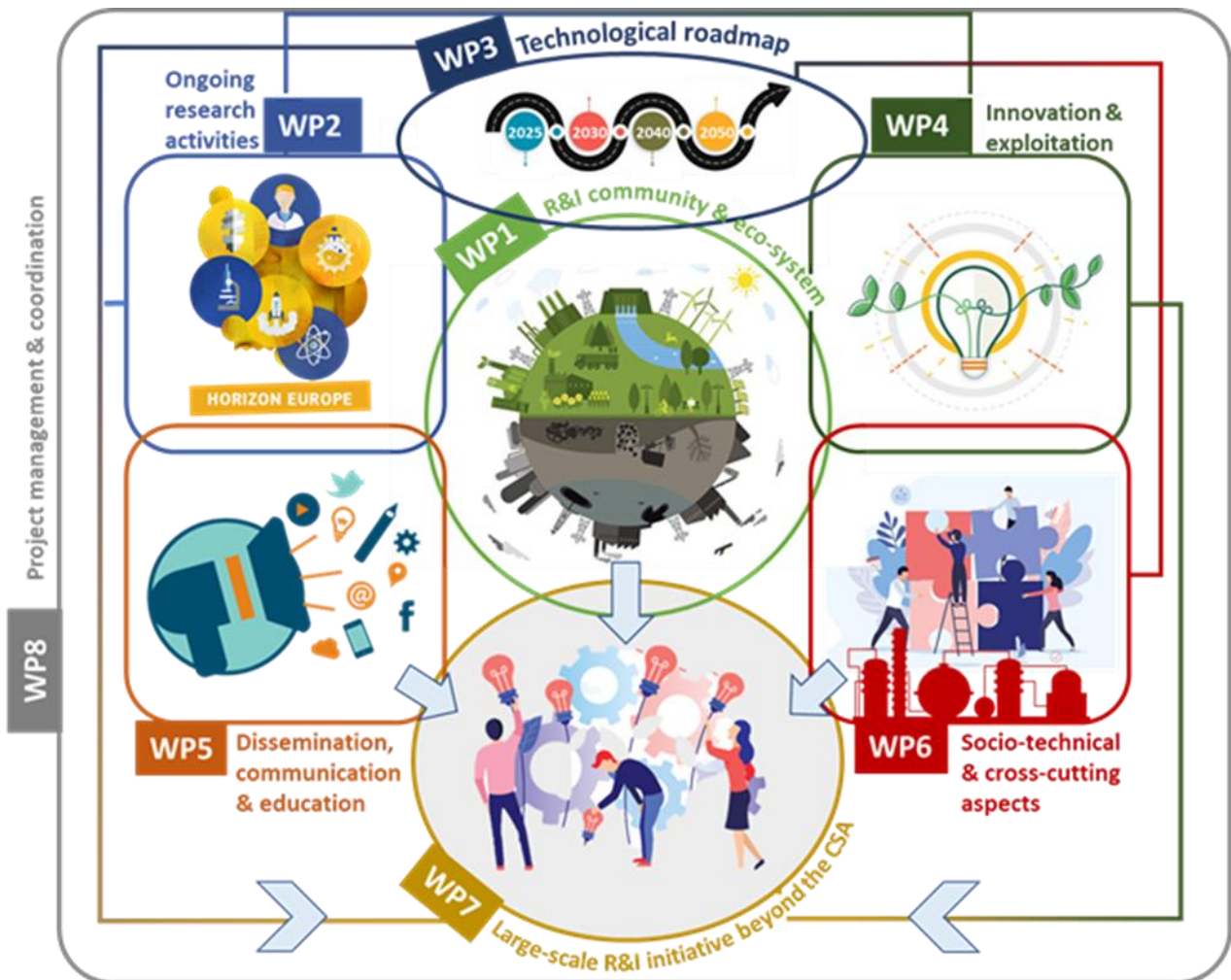


Figure 1: SUNER-C CSA project and its eight work packages. The Updated Risk Management Report (D8.5) is a deliverable of WP8 “Project management and coordination”

1.2. Purpose of the deliverable

This Updated Risk Management Report outlines the list of critical risks that could be faced during the course of the project, their level of likelihood and their potential impact. It also details the list of preventive and corrective actions to be implemented in case identified risks materialize. It builds on the list of risks identified at month M6 of the project (Deliverable **D8.1** “Risk Management Report”). It first considers if new potential risks were identified during the course of the project so far. Then it describes the risks materialized so far and the implemented mitigation measures and their impact.

2 | Update of the list of potential risks

No new risks and related mitigation measures were identified in addition to those already listed in the Deliverable D8.1.

3 | Risks that materialized and related mitigation measures and their impact

For each risk that materialized during the course of the project, a table first reminds this risk and the countermeasures identified (from the table in section 2 of this report). A short text then details the exact risk faced and the mitigation measures implemented and their impact.

Description of risk	Level of (i)likelihood (ii) severity	Updated risk mitigation measures	WPs involved
1) Insufficient engagement of a partner leads to delays in providing deliverables and delays in the progress of the overall project	(i) Likelihood: Low (ii) Impact: Medium	SUNER-C project coordination and office will send reminders at least one month before the delivery date of each deliverable. If a partner misses the deadline, the project (co-)coordinator (PC) and the WP (co-)leaders will contact the partner in charge of the deliverable to jointly decide on corrective actions and will directly inform the EC program officer to explain the reasons for the delay. If corrective actions are not enough, take-over by other partners will be considered. Key project deliverables (related to the community and ecosystem, the roadmap, the blueprint and the LSRI) will be under scrutiny by the PC, the project executive board and office to anticipate any delays and implement corrective measures. This risk is internal.	All WPs
Risk faced and mitigation measures implemented		In reporting period 1 (M1-M18), the following deliverables and milestones were postponed with agreement from the project adviser at the EC: D1.1 from M12 to M16, D7.1 from M15 to M16, and MS1 from M12 to M17. These delays did not impact the implementation of the project or of other deliverables. All deliverables and milestones planned in Reporting Period 1 were delivered before within the reporting period.	



Description of risk	Level of (i) likelihood (ii) severity	Updated risk mitigation measures	WPs involved
3) Insufficient involvement of the identified European/national community in the actions of CSA	(i) Likelihood: Medium (ii) Impact: Medium	<p>Starting from the SUNERGY existing community of supporters, SUNER-C will develop a larger community (target at least 600 stakeholders as supporters) and an active eco-system. The objective is to achieve a large involvement in the project from the start, especially on tasks requiring a contribution from all the community, beyond the SUNER-C consortium partners (e.g. vision, roadmap, blueprint). It will thus organize a network of contacts in MS building at first on the consortium partners, for the MS represented in the consortium. For the other MS, SUNER-C will identify potential nodes in the SUNER-C's community of supporters or will build upon stakeholders involved in EU- or national-funded projects relevant to SUNER-C's scope and project portfolio to endorse them with this role of SUNER-C national node. Enlarging the community to new countries will also build upon stakeholder events at the national level (or alternatively for a group of EU-countries) to reach out to national communities and new supporters.</p> <p>Furthermore, to reach-out to the largest community, SUNER-C will publish online news and a newsletter with main achievements and benefits to the community. It will also communicate via opinion/perspective articles and white papers in top scientific journals. SUNER-C partners will also participate to key conferences (National, European and International) to raise awareness on SUNER-C' scope and achievements. The SUNER-C community will also be regularly consulted for contributing to key activities of the project (e.g., vision, roadmap, blueprint, LSRI beyond the CSA).</p> <p>This risk bears both internal and external aspects.</p>	3) Insufficient involvement of the identified European/national community in the actions of CSA
Risk faced and mitigation measures implemented		<p>The target of 600 stakeholders as supporters is ambitious. Currently, approx. 320 parties have expressed their support for SUNER-C with a letter of support. We launched a broad campaign to the community and potential stakeholders through newsletters but these wide-ranging actions have not had as high an impact as expected. Experience shows that a more targeted approach is more appropriate. This has been launched as part of WP1 (T1.2 Community mapping) with a business developer based in LU working on it. Another lever for action with</p>	

Description of risk	Level of (i)likelihood (ii)severity	Updated risk mitigation measures	WPs involved
		national communities (academic and industrial) is via SUNERGY/SUNER-C dedicated national or regional stakeholder workshops, several of which have already taken place: France (March 2023), Czech Republic and Central Europe countries (September 2023), Sweden (October 2023). Others will be organized.	
Description of risk	Level of (i)likelihood (ii)severity	Updated risk mitigation measures	WPs involved
4) Insufficient engagement of industrial stakeholders	(i) Likelihood: Medium (ii) Impact: High	The success of the project relies on a strong participation of the industrial stakeholders taken in a broad sense, <i>i.e.</i> meaning those belonging to the consortium, those which are SUNERGY/SUNER-C supporters (having provided a LoS), and those with activities falling in SUNER-C's scope and targeted value chains but which have not (yet) provided a LoS. A first objective is to increase the number of industrial stakeholders in the SUNERGY/SUNER-C community. In order to achieve this aim, the consortium will launch a pro-active campaign towards industrial stakeholders via communication campaigns, participation to national and European major events, by organizing dedicated events at the national level to reach stakeholders of a given MS and also dedicated events targeting industry (WP4, WP7). It will also build on established connections of SUNER-C consortium partners as well as on the SUNERGY/SUNER-C community. Finally, SUNER-C will also reach out to industrial partners contributing to EU or national proposals for which SUNER-C provided a letter of endorsement. SUNER-C will then build on this network to further engage industrial players in common activities organized during the CSA: brainstorming events during community building events planned in WP1 and WP3; building the roadmap and the blueprint for defining priority research directions and hurdles to be tackled early on.	4) Insufficient engagement of industrial stakeholders

Description of risk	Level of (i) likelihood (ii) severity	Updated risk mitigation measures	WPs involved
		<p>Furthermore, beyond the participation of industrial stakeholders to the SUNERGY/SUNER-C community, it is also essential to ensure that the project and its achievements take into account their needs and expectations in particular, on the mid- to long-term objectives with the LSRI. In order to ensure a strong and long-term commitment of industry to the CSA and beyond (LSRI), SUNER-C will thus negotiate with the industrial stakeholders together with the EC/MS an appropriate funding model for the implementation of its vision and of its technologies along all the TRL and value chains. Financial incentives and visionary investment strategies agreed by all parties is essential for efficient technology progress to be made.</p> <p>This risk bears both internal and external aspects.</p>	
Risk faced and mitigation measures implemented		<p>Related to the risk discussed above. The targeted actions listed above (communication campaign, organization of national and regional events) aim also at reaching and involving more industrial stakeholders stakeholders in the SUNERGY/SUNER-C community.</p>	

Description of risk	Level of (i) likelihood (ii) severity	Updated risk mitigation measures	WPs involved
5) Community fatigue due to uncoordinated European activities	(i) Likelihood: Medium (ii) Impact: High	<p>A key challenge is building a clear identity and vision for SUNER-C compared to other European LSRI and communities and emphasize how a SUNER-C dedicated LSRI will complement the European landscape of European LSRI as well as the synergies and benefits it could bring for Europe and its MS.</p> <p>In order to foster cooperation and complementarities with other LSRI of interest, SUNER-C will establish contacts with them to engage them to contribute to SUNER-C's activities in order to build complementarity and</p>	All WPs

Description of risk	Level of (i)likelihood (ii) severity	Updated risk mitigation measures	WPs involved
		<p>synergies. Whenever possible, SUNER-C will follow and adapt the calendar of its own events to avoid overlapping with other European LSRI events of interest. It will also favor the participation of representatives of SUNER-C to events of other LSRI of interest with communication material on the CSA (poster, slides of introduction on SUNER-C and its activities) to serve as a basis for discussion and cooperation.</p> <p>This risk bears both internal and external aspects.</p>	
Risk faced and mitigation measures implemented		<p>In a crowded landscape of existing LSRI (including European partnerships as this as been identified as the most relevant instrument for a SUNER-C LSRI, see D7.1), it is key to identify a topic that ensures complementarity and fills a gap while avoiding thematic overlap with existing LSRI. A detailed analysis of this landscape was thus carried out as part of WP7 and is detailed in D7.1. Sustainable fuels were identified as the topic that best meets these various criteria. It covers a large part of the SUNERGY topics yet integrating topics which were not at the heart of SUNERGY, such as advanced biofuels, but which share a common objective, namely sustainable fuels based on chemical energy storage.</p> <p>A proposal for a public-private co-programmed partnership entitled "Sustainable fuels as energy carriers" has therefore been submitted to the EC and the Member States as part of the preparation of the HE 2025-2027 strategic plan and the 2nd wave of European partnerships.</p>	

Description of risk	Level of (i)likelihood (ii) severity	Updated risk mitigation measures	WPs involved
7) Lack of perspective for SUNER-C: crowded landscape with no new LSRI launched in HE	(i) Likelihood: Medium (ii) Impact: High	The WP7 has a dedicated task to build scenarios and identify instruments for the future LSRI beyond the CSA (Task 7.1). In this task, a main scenario will be defined but alternative scenarios will also be elaborated in case a SUNER-C dedicated LSRI could not be implemented right after the CSA. This could be the participation to activities of other relevant LSRI or as an alternative to a LSRI the possibility of an AISBL with fees to continue beyond the CSA. Dedicated workshops will be organized in the frame of Task 7.1 to discuss and elaborate the main and alternative scenarios and contingency plans will be developed in this regard. This risk is mainly external.	WP7
Risk faced and mitigation measures implemented		The main scenario identified by the consortium is that of a co-programmed public-private partnership on “Sustainable fuels as energy carriers”. The proposal was provided to the European Commission and the Member States for consideration. When submitting this report, the decision is not yet known. It is expected in early 2024. There is nevertheless a real risk that the partnership proposal will not be selected for the final list of new European partnerships. Bearing this in mind, we identified back-up scenarios for capitalising on and continuing the work already done (see D7.1). As several tasks and deliverables planned for the second half of SUNER-C directly depend on whether or not the partnership is launched, the actions planned could be revised to adapt them to the new context.	

Description of risk	Level of (i) likelihood (ii) severity	Updated risk mitigation measures	WPs involved
9) Withdrawal of a partner	(i) Likelihood: Low (ii) Impact: Medium	<p>The approach depends first, on the role of the partner (WP/task leader or not) and its involvement in the project (in terms of PM) and second, at which moment of the project the withdrawal occurs.</p> <p>Replacement of the withdrawing partner is to be favored for a highly involved partner having WP/task lead and high total allocated PM. For partners with a low involvement (no WP or task lead, low total PM allocated, below 6 PM), the role, tasks and budget of the withdrawing partner can be reallocated to remaining consortium partners with a distribution to be agreed with the whole consortium. When the withdrawal occurs at late stage (after month 12 of the project), the redistribution of task and budget will be preferred.</p> <p>This risk is internal although induced by possible external policy related the internal strategy of partners.</p>	All WPs
Risk faced and mitigation measures implemented		<p>This risk materialized when partner NEXT #21 requested to withdraw from the consortium in August 2022 after an internal change of priorities at NEXT following a change of leadership at NEXT. After deliberation with the Executive Board and all other beneficiaries and associated parties, a decision was made to transfer the funding allocated to NEXT to coordinator UU for use as subcontracting to carry the tasks of NEXT, which had not been started. An amendment to the grant agreement towards this goal is still being processed at the time of writing this report, with hopes that it will be finalized before the end of the first reporting period.</p>	



3 Conclusion

The overarching objective of the SUNER-C Coordination and Support Action is to create an inclusive innovation community and eco-system on solar fuels and chemicals as well as to prepare a European Large-Scale Research and Innovation initiative to be launched after the CSA. The project has ambitious objectives and has established a work plan to address all its aspects. The consortium gathers 31 partners representing the diversity of the solar fuels and chemicals community in Europe, all partners acting as nodes to reach out to more stakeholders in their country, networks and/or sectors.

All elements are present in SUNER-C in order to turn it into a full success. There are nevertheless risks inherent to the project that could impact (part of) it. In a CSA project as SUNER-C, a key aspect will be to involve a community much beyond the consortium. Therefore, risks can be of different nature. Some risks are internal to the project and consortium and solution will rely solely on the consortium to avoid them or mitigate their effects if they materialize. Other risks are due to external factors to the project, some risks hold both internal and external effects.

The present updated risk management report lists the identified risks and those which have materialized. So far, no new risks have been identified compared to the list given in the initial RMP (see D8.1). Some risks have materialized and corrective actions that were implemented allowed to face them so far.

The greatest risk faced so far is the possibility that despite all efforts, the proposed co-programmed public-private partnership "on "Sustainable fuels as energy carriers" identified for the LSRI beyond the SUNER-C CSA is not selected by the EC and MS. To face such situation, we identified back-up scenarios for capitalizing on and continuing the work already done (see D7.1). In addition, as several tasks and deliverables planned for the second half of SUNER-C directly depend on whether or not this partnership is launched, the actions planned will be revised to adapt them to the new context when the final decision is known (in early 2024).