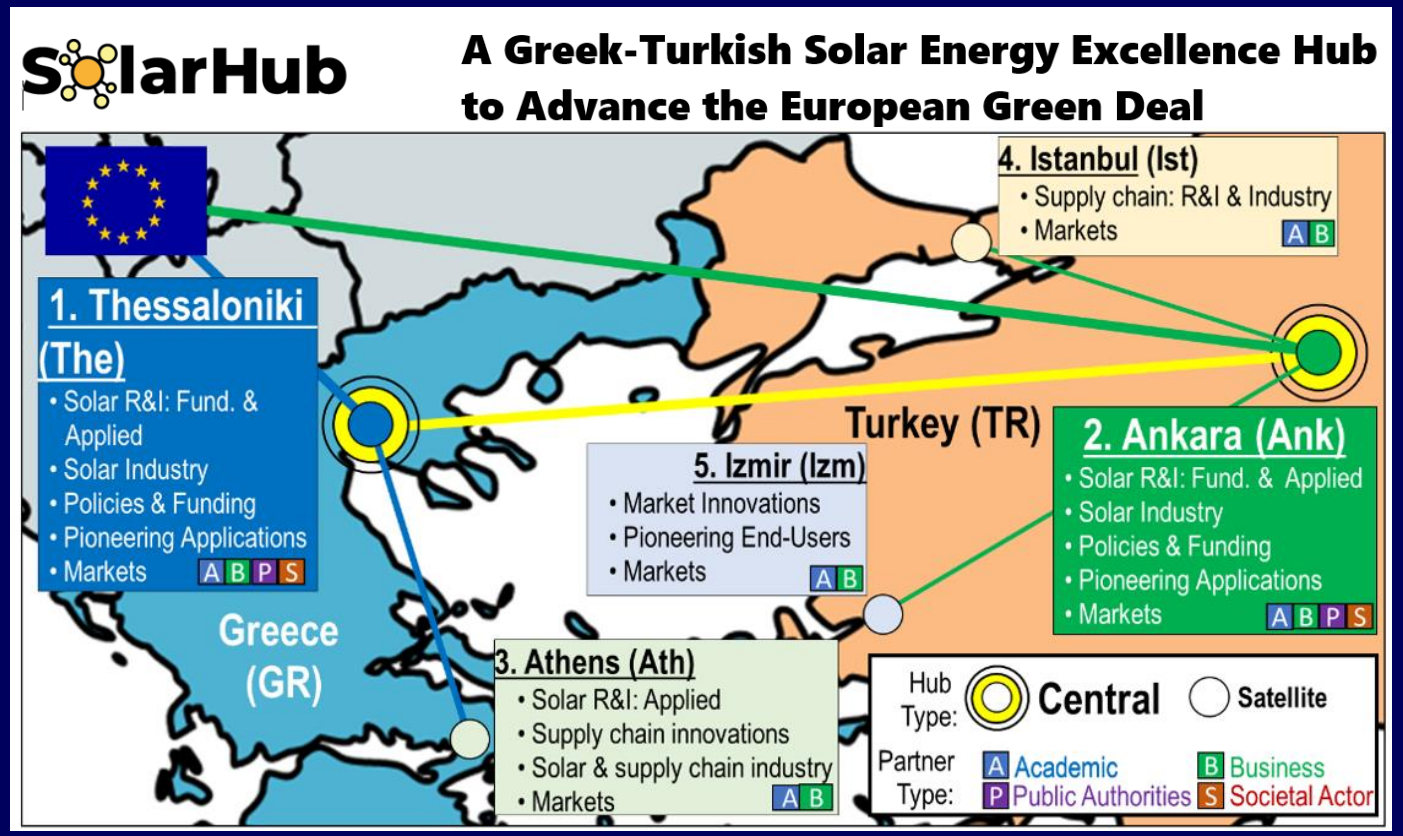
Experiences Writing Horizon Europe Proposals



TURKEY in HORIZON 2020
COOPERATION, INNOVATION, COMPETITIVENESS

National Advisory Group Meeting on Horizon Europe: Solar Energy Call topics (Hybrid Event)

Hybrid Event & Radisson Blu Şişli, İstanbul, 18 November 2022

Derek K. BAKER

ODTÜ METU
Dept. of Mech. Engr.
Middle East Tech. U.

ODTÜ GÜNAM
ODAK: Concentrating Solar Thermal

My Experiences: Support for Evaluation of EU Proposals

Programme	Evaluations Supported
Horizon 2020 (H2020)	10
Innovation Fund (IF)	3
Horizon Europe	3
Total	**16**

I typically serve as the Rapporteur in the evaluation process

Benefits: I treat this as advanced EU proposal writing training.

- Trains me to think and write according to EU project conventions.
- Gives insights into the evaluation process that I can reflect in my own proposals and in this workshop.
- Gives high-level perspectives of major trends in EU clean energy research outside my area that allow me to place my research and proposals within a broader context.
- Strengthens my networks within CINEA
- Strengthens my networks with leading researchers outside my area.

My experiences translating evaluation theory into proposal writing practice

Proposal	Year	Consortium?	My Role in Elaborating Proposal			Outcome
			Coordinated / Led Writing	Led writing of some parts	Provided Strategic Input	

Lesson-Learned:

I have become desensitized to rejection; i.e., "Comfortably Numb*"

(*Pink Floyd, The Wall, 1979)

My Experiences: Also had some successful proposals

Proposal	Year	Consortium?	My Role in Elaborating Proposal			Outcome
			Coord.	Led writing of some parts	Provided Input	

SolarTwins

- Top 8% of proposals at EU level;
- Only successful Twinning proposal coordinated by Turkiye out of 23 (top 4% nationally).
- 1st successful EU proposal coordinated (i.e., consortium) by METU (Inst. Marine Science quickly had METU's 2nd and their project started 1st)
- 1st successful EU Twinning proposal coordinated by a Turkish university.

My Question to You:
What is ***your*** competitive advantage?

- Often this geographical: i.e., having Turkiye in the proposal makes the proposal stronger.
- This could also be pure Scientific Excellence.

Conclusions & Lessons-Learned

6 On-Going / Accepted / Recently Completed EU CST Projects

Both technical and SSH (policy, economics, gender dimension, public acceptance) contributions.

Research & Innovation

1. SFERA-III: Thermal Energy Storage (TES) Standards	4. GeoSmart (June 2019 - Sept. 2024): Hybridization of geothermal with CST and biomass.	5. SolarTwins: Joint research with DLR: particles, optics, SHIP end-use	5. SolarTwins: Joint research with PSA-CIEMAT: Solar driven water treatment and desal.	6. SolarHub: AgroPV	6. SolarHub: CST to supply Solar Heat for Industrial Processes (SHIP) and produce synthetic fuels	6. SolarHub: Non-concentrated solar for SHIP.

Horizontal Capacity Building

6. SolarHub (Jan. 2023 – Dec. 2026): Strengthen Turkey and Greece's solar / green innovation capacities

5. SolarTwins (Jan. 2020 – June 2023): Strengthening METU & ODTU-GUNAM's CST capacities

3. CST4ALL (Oct. 2022 – Sept. 2025): Strengthening national and European CST sectors.

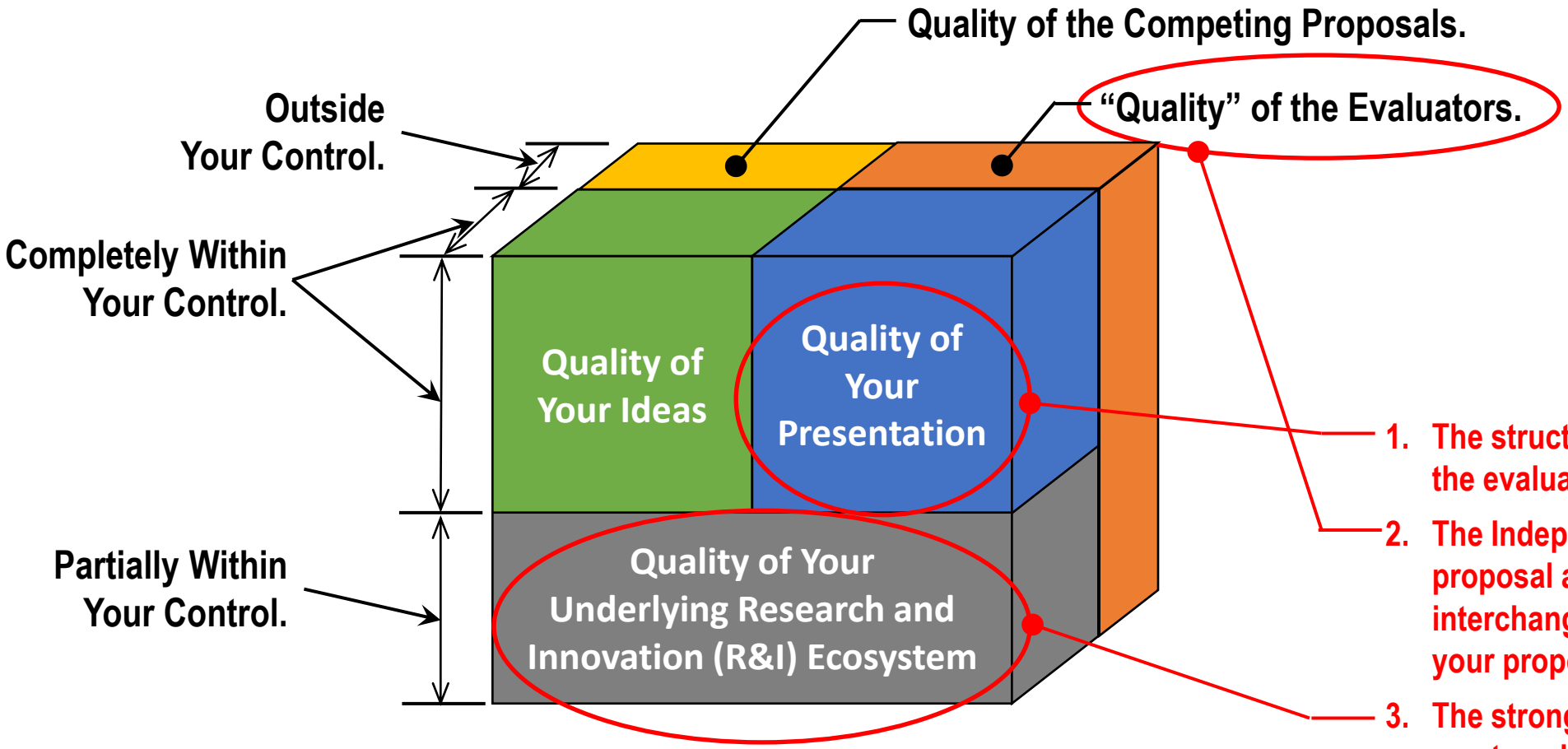
2. HORIZON-STE (Apr. 2019 – Sept. 2022): Strengthening national and European CST sectors.

1. SFERA-III (Jan. 2019 – Dec. 2023): Realize EU-SOLARIS ERIC (European Research Infrastructure Consortium)

Evaluation Process and Outcomes

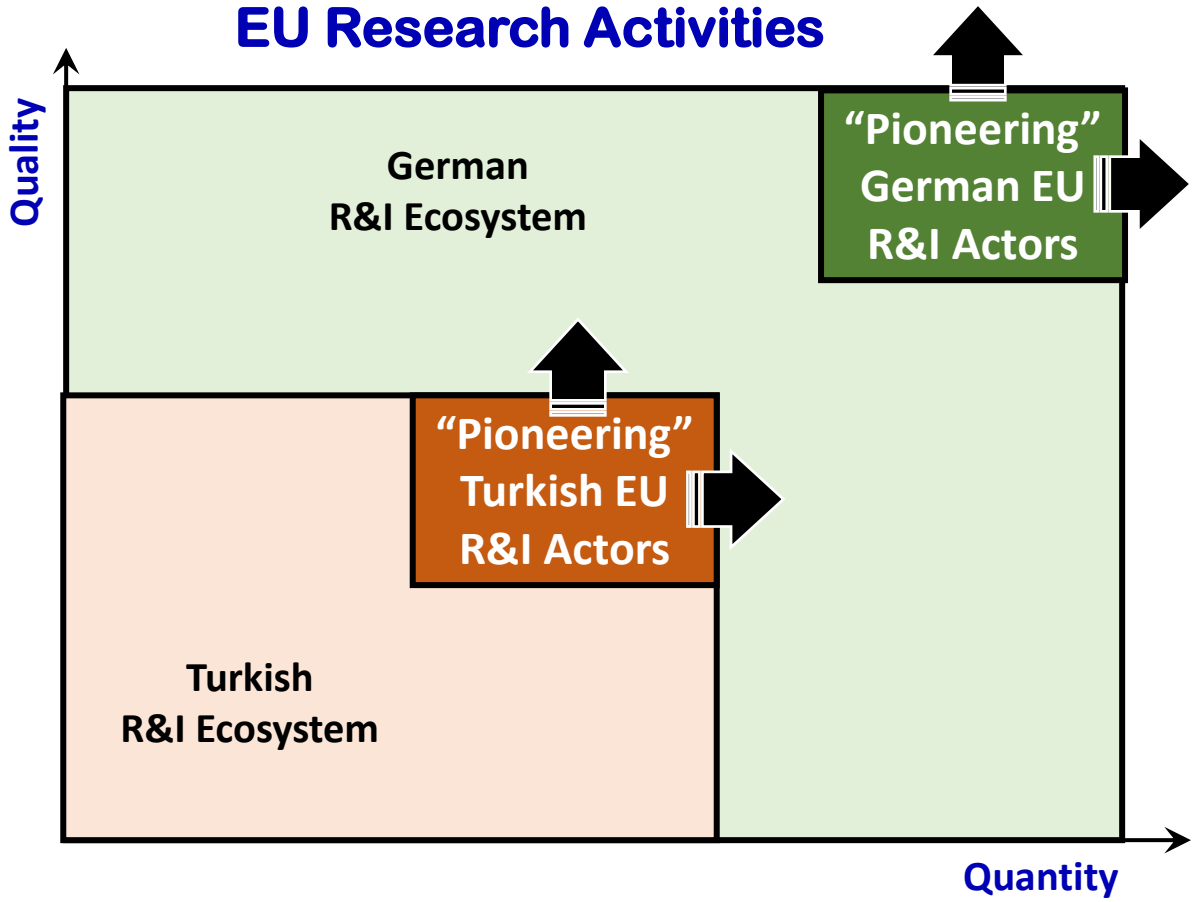
(More details given in the afternoon)

The Outcomes from Your Proposal's Evaluation will Depend on Several Factors



1. The structure of your proposal should reflect the evaluation process;
2. The Independent Experts (IEs) evaluating your proposal are unique individuals who are not interchangeable. Changing the IEs evaluating your proposal can change the evaluation.
3. The strongest proposal tend to come from the most sophisticated R&I Ecosystems.

Pioneering Structural EU Challenges



EC's Objectives for Evaluation Process:

Official Objectives
1. Identify "Best" Proposals to Fund
2. Give Feedback to Proposal Writers through Evaluation Summary Report (ESR)

Experiences: The Evaluation Summary Report (ESR) contains the main problems that are the easiest to reach consensus on and phrased in a legally defensible manner. Typically many other problems are discussed in the Consensus Meetings that are not included in the ESR. As the ranking for a proposal moves farther from funding, the accuracy of the evaluation and score often decreases due to Pragmatic IEs not wanting to spend time on these proposals.

Lessons-Learned: I treat evaluation outcomes as binary Pass / Fail and especially for failed proposals I see the ESR as noise that plays with my psychology and is best ignored.

Our Competitive Advantages

Competitive Advantage: Geography

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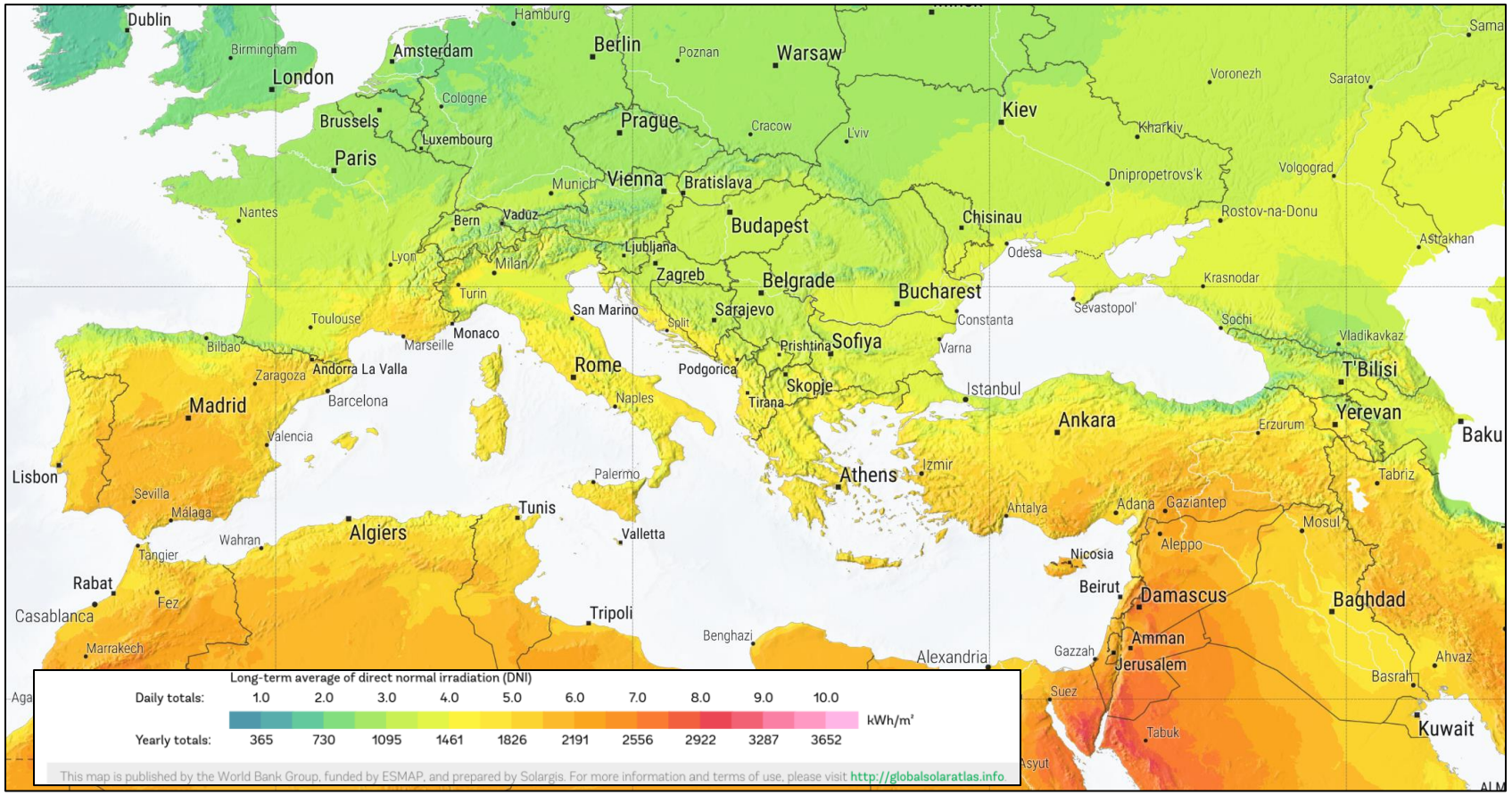
SOLAR RESOURCE MAP
DIRECT NORMAL IRRADIATION

WORLD BANK GROUP ESMAP SOLARGIS



Competitive Advantage: EU-SOLARIS


[2]


[1]

CNRS-PROMES's 1 MW Solar Furnace in Odeillo, France, is a globally unique Research Infrastructure (RI) used to advance the state-of-the-art in materials and process research requiring extreme heat fluxes and temperatures.

This RI is part of EU-SOLARIS ERIC's (European Research Infrastructure Consortium) portfolio.

[1} Source: EU-SOLARIS ERIC: Used with permission
[2] Source: http://energie.promes.cnrs.fr

Competitive Advantage: EU-SOLARIS

The EU would like to invest European Taxpayer Money in R&I projects that advance …..

ERIC affiliation demonstrates shared priorities.

We are losing this competitive advantage as Turkiye is hesitant to become associated with EU-SOLARIS.

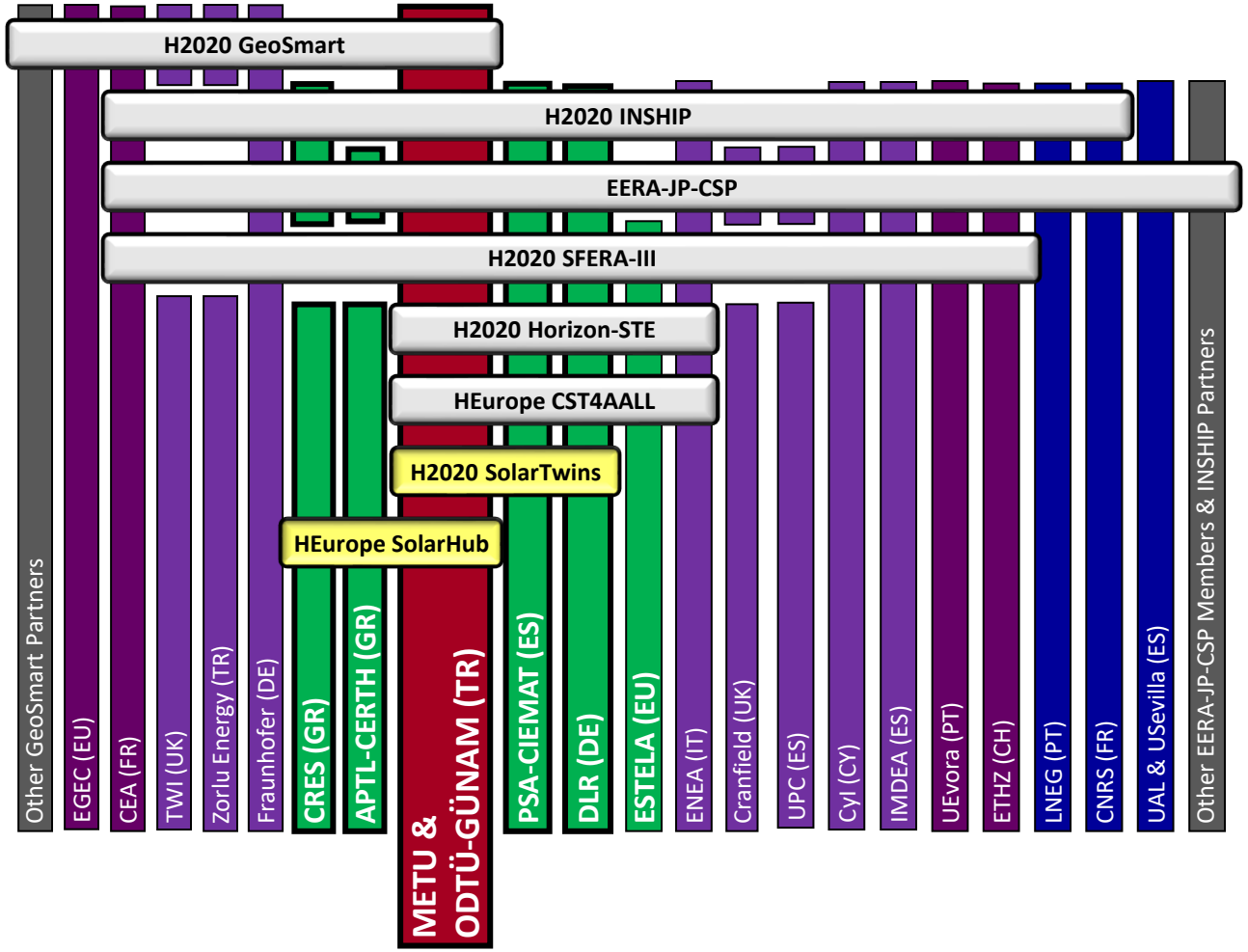
2	EU projects coordinated by Turkiye directly catalyzed by EU-SOLARIS.
5	EU proposals coordinated by Turkiye
14	EU projects with Turkish partners
€3.5M	Competitive EU CST funding to Turkiye directly catalyzed by EU-SOLARIS.
€4.1M	Competitive EU funding to Turkish solar energy industries
€5.7M	Consortium budgets coordinated by Turkiye directly catalyzed by EU-SOLARIS
€78M	Total competitive EU funds to solar energy research in which Turkey participated (sum of consortium budgets)

EU projects and coordinated EU proposals catalyzed by EU-SOLARIS.

SolarTwins · SFERA · inship · CST4ALL · EU SOLARIS · SolarHub · HORIZON STE · Solar4Society · GEOSMART

Competitive Advantage: Networks

>40 Institutions from 13 Countries.

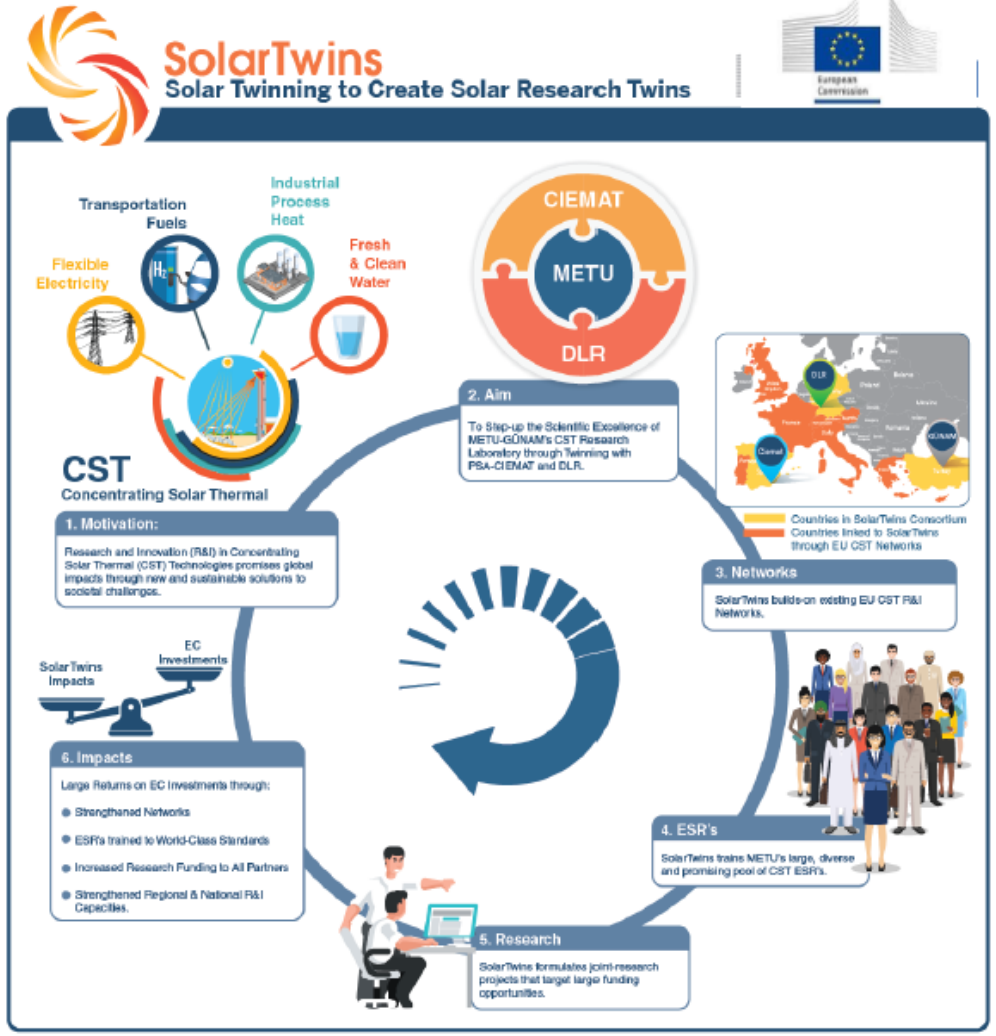


Competitive Advantage: Vision & Ambition

SolarTwins Proposal

Timeline of Elaborating Successful *SolarTwins* Twinning Proposal

Timeline	Twinning Call Closed in Nov. 2018
Context	Failed aligned proposal that was evaluated by a "Quota Guy."
Early June	Attended H2020 Proposal Writing Training and had a 1:1 (+Banu) lunch with the trainer. We discussed my failed proposal, the Twinning call, and the low success rates for Twinning, especially from Associated Countries. The trainer advised me not to waste my time writing a Twinning Proposal.
Late June	Before starting a Twinning proposal, it was critical for me to find sufficient benefits from writing a "Failed Proposal." I needed an aligned national proposal for Turkiye to join EU-SOLARIS. I thought even if I my Twinning proposal failed it would be strong, and it could form the foundation for the national EU-SOLARIS proposal.
Early July	I needed two "Leading" partners. I reached out to my most trusted collaborator as the first leading partner, and confirmed the second leading partner with him. Against the trainer's advice, I decided to write the proposal myself rather than as a team. I also decided not to use a consultant / proposal writing service, but rather to seek feedback from a few strategic people: Leading Partners and TeknoKent Project Office (Elif Karabacak).
July-August	Lots of online research into on-going Twinning projects. Completed rough draft of proposal.
September	Met 2 key people from one leading partner after an aligned meeting. They gave me very critical feedback that caused me to do a "Large" pivot.
October	Finalized the proposal and trashed many of my other responsibilities. Submitted a polished version ~5-days before the deadline, and only did minor editing over the last 5 days.



Proposal Name: SolarTwins: Solar Twinning to Create Solar Research Twins
Call: H2020-WIDESPREAD-2018-2020
Topic Identifier: WIDESPREAD-03-2018
Topic: Twinning

1.2 SolarTwins' Objectives and Key Performance Indicators (KPIs)

SolarTwins' Goal, Objectives, and Key Performance Indicators (KPIs) are as follows.

Goal: To **Step-Up the Scientific Excellence and Innovation Capacity** of the **Promising Institution** METU in the well-defined area of CST by Twinning **METU-GÜNAM**'s CST Research Laboratory ODAK to the **Leading Institutions** CIEMAT's CST research centre Plataforma Solar de Almería (**PSA-CIEMAT**) and **DLR**'s Institute for Solar Research.

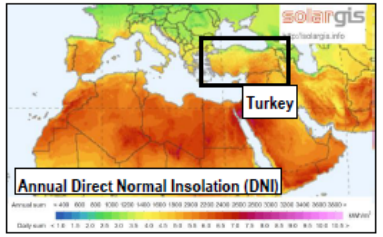
Objectives [EI[1]]:	KPI's KPI Definition		Target	Units	AM[2]
1. **To Strengthen** METU-GÜNAM's synergistic integration into EU CST **Networks** containing PSA-CIEMAT and DLR, and METU-GÜNAM's research **Profiles**. [EI1 & EI2]	1.1	Papers presented at international conferences by GÜNAM Personnel during SolarTwins.	15	No.	CR
	1.2	METU-GÜNAM trips supported by SolarTwins (Includes conferences, meetings, networking, & exch.)	45	No.	TR
	1.3	METU-GÜNAM EERA-JP-CSP Membership Level advances from Associate to Full.	Full	-	MR
2. **To Train** a large and diverse pool of promising **ESRs** through joint summer schools at METU taught by experts from PSA-CIEMAT and DLR. [EI5]	**Person-Weeks (PW) of ESRs Trained in Summer Schools at METU**				
	2.1	Total	120	PW	RR
	2.2	METU	72	PW	RR
	2.3	Female	48	PW	RR
	2.4	International (Country of origin not Turkey)	40	PW	RR
	2.5	From Countries Affected by Fragility or Conflict	20	PW	RR
	2.6	Female from Countries Affected by Fragility or Conflict	8	PW	RR
3. **To Exchange Personnel** for knowledge transfer, training, mentoring, and networking. [EI1, EI5, EI6]	3.1	Person-Weeks of METU-GÜNAM ESR Exchange for Training & Mentoring to PSA-CIEMAT & DLR	24	PW	TR
	3.2	Person-Weeks of METU-GÜNAM Staff Exchange for Training & Networking to PSA-CIEMAT & DLR	16	PW	TR
	3.3	Person-Weeks of PSA-CIEMAT and DLR Staff Exchange to METU-GÜNAM	17	PW	TR
4. **To Formulate Joint Lines of Research** that increase competitive	4.1	METU-GÜNAM Staff Exchange to PSA-CIEMAT and DLR to develop joint research proposals	8	PW	TR

1.4.4 METU-GÜNAM is Promising and Rapidly Emerging at European Level and is Leading at National Level

Turkey is making large investments in CST R&I in general and METU-GÜNAM specifically to catalyse growth in promising domestic industrial capacities and markets.

Funding from the **Turkish Ministry of Development** allowed **METU-GÜNAM** to install a **High-Flux Solar Simulator in 2018**. This High-Flux Solar Simulator allows METU-GÜNAM to conduct low TRL CST research under tightly controlled laboratory conditions. As the TRL increases and the technology is scaled-up, research activities will move to large outdoor test facilities in EU-SOLARIS, such as at PSA-CIEMAT or DLR. METU-GÜNAM's new high-flux solar simulator is unique in Turkey and one of the few in the Eastern Mediterranean region.

Open Access to this facility is provided through the European Activities **EU-SOLARIS** and **SFERA-III**.



Call	Commitment (M€) Spain	Germany	Turkey
SOLAR-ERA.NET	1.65	3.35	2.00
CSP ERANET	2.05	3.50	0.70
Total	**3.70**	**6.85**	**2.70**

These National Investments have enabled METU-GÜNAM to become a promising and rapidly emerging institution in EU CST Activities in which PSA-CIEMAT and DLR are leading partners such as the H2020 SFERA-III project.

The SFERA budgets in the table below include both budgets for the institution and budgets to support outside access to each institution's unique Research Infrastructures.

	SFERA (July 2009-Dec. 2013) M€	Rank	%	SFERA-II (Jan. 2014-Dec. 2017) M€	Rank	%	SFERA-III (Accepted Aug. 2018) M€	Rank	%
PSA-CIEMAT(Coord.)	2.16	1/12	23.9%	2.71	1/12	31.6%	1.95	1/14	21.4%
DLR	1.20	3/12	13.2%	0.81	3/12	9.5%	1.19	3/14	13.1%
METU-GÜNAM	-	-	-	-	-	-	0.08	13/14	0.93%
Total	9.04			8.56			9.10		

METU-GÜNAM's position as a promising and rapidly emerging institute at European level is reflected in METU-GÜNAM's position in the SFERA projects.

As shown in the table above, METU-GÜNAM did not participate in the 1st two phases of SFERA but is participating in the 3rd phase (SFERA-III) at a small level (~1% of the total consortium budget). This position is a result of large national investments recently made in METU-GÜNAM as part of a wider national effort to develop Turkey's solar markets, industrial capacities and R&I capacities. Turkey has large CST market potentials due to its large solar resources and land mass (see map above), the 2nd largest population among ERA countries, and high costs for conventional energy resources. Currently Turkey has the 2nd largest market globally for non-concentrating solar thermal systems and most of this market is met by domestic manufacturing (www.ren21.net/gsr-2017). In contrast to many Western European markets, these large markets exist without any market intervention such as subsidies or incentives, which demonstrates the economic viability of domestically produced solar thermal technologies to compete with traditional energy resources and technologies in Turkey. However, currently Turkey has no operational STE capacity and the installed CST capacity for other purposes (e.g. SHIP) is too small and fractured for an accurate national assessment to be made. To catalyse growth in domestic CST markets and industrial capacities, Turkey is investing heavily to develop its CST R&I capacities by making significant financial commitments to European CST Joint Actions that include Spain and Germany such as SOLAR-ERA.NET and CSP ERANET as shown above.

METU-GÜNAM's position as Turkey's leading CST research center is established by METU-GÜNAM being spun-out of METU to become Turkey's National Solar Energy Research Center, being the national node for EU-SOLARIS, and the only Turkish institution participating in SFERA-III, HORIZON-STE and EERA-JP-CSP projects.

soil nearby and is one of the main causes to end the life of an agricultural area. Decreases in productive lands causes decrease in agricultural production, which in turn leads to food security issues and economic problems for the country/region. Therefore, modeling aquifers to determine the salt contamination possibility and providing methods to treat already contaminated aquifers are essential. Currently cost-effective methods to desalinate large water bodies do not exist. R&I in desalination processes with efficient treatment and proper modeling, and development of new energy-efficient methods offer promising solutions. Combining the methodologies PSA-CIEMAT has been successfully implementing to desalinate water with the modeling experience of METU to estimate the desalination possibilities of an aquifer will create a new research line to study and develop innovative methods to desalinate contaminated groundwaters.

Decreases in the detection limits of many chemicals allows more contaminants present in our waters to be detected, and this is reflected in updated laws to preserve water bodies. Therefore, the European Union Water Framework Directive[7] was established stating that all surface and groundwater must be kept in a good condition. To achieve the goal of this directive, constant water quality monitoring programs and more effective treatment methods need to be developed constantly. PSA-CIEMAT has extensive experience in solar driven chemical treatment methods. METU on the other hand has extensive experience in water monitoring, source detection, and biological treatment methods. The synergistic integration of these two areas of expertise will lead to a new and forward looking joint-research line on treatment of emerging micronutrients, which is an area not yet included in the directive, with a specific emphasis on removing microplastics from drinking water and evaluating the impact of the treatment.

SolarTwins' ESR Incubator and Joint-Research Accelerator Programs are strongly aligned, and METU PhD students (ESRs) will be co-advised by PSA-CIEMAT and DLR experts to support developing joint-research programs, with a sample plan as follows.

SolarTwins Showcase: Sample Plan for Co-Advised PhD Students to Catalyse Joint-Research

METU Student	METU Adviser	PSA-CIEMAT Co-Adviser	Plan
 Baher Evren	 Zöhre Kurt	 Isabel Oller	Evren is an MSc student (pre-ESR) in Environmental Engineering at METU. During SolarTwins, Evren will be a PhD student (ESR) at METU advised by Kurt, co-advised by Oller and researching solar-thermal driven water treatment technologies. Earlier in her PhD career Evren will be trained by Oller at PSA-CIEMAT and later in her PhD career Evren will be mentored by Oller while performing research at PSA-CIEMAT.

3. Implementation

3.1 Work plan – Work Packages and Deliverables

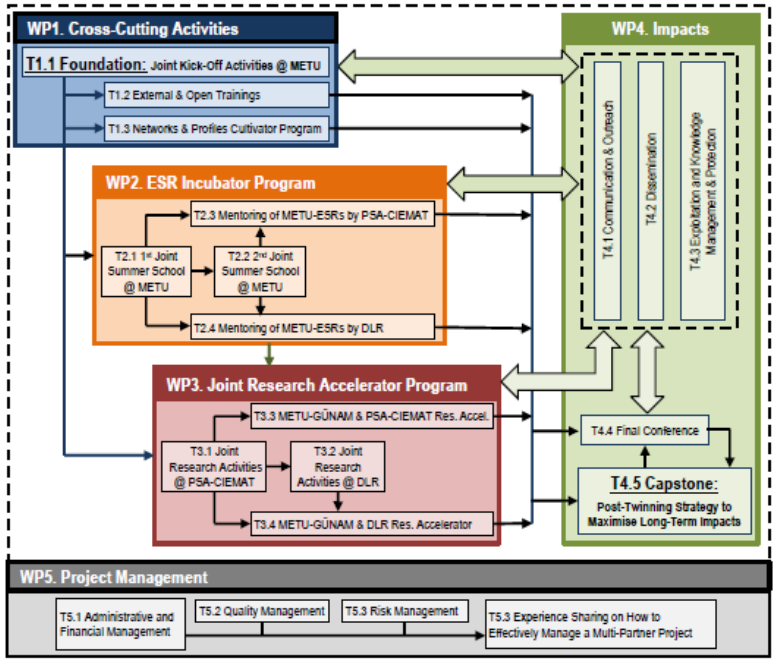
An overview of the Work Plan is presented in Section 3.1.1 through the List of Work Packages (Table 3.1 a), Pert Chart, and Gantt Chart. This is followed by a detailed description of each Work Package and Task through Table 3.1 b in Section 3.1.2, and the List of Deliverables through Table 3.1 c in Section 3.1.3.

3.1.1 Work Plan Overview: Pert Chart, Gantt Chart, and List of Work Packages (Table 3.1 a)

SolarTwins consists of three Twinning Work Packages (WP1-3), one Impact WP (WP4), and one Project Management WP (WP5). As shown in the Pert Chart below, the Foundation for SolarTwins is a set of Joint Kick-Off Activities at METU (T1.1) that includes an Open Workshop to engage Key Stakeholders from industry, research, government ministries, and funding agencies from the start. WP4 includes Communication, Outreach, Dissemination, and Exploitation (CODE) Tasks (T4.1-T4.3) that interact with all Twinning WPs. All the knowledge and experiences accumulated in the Twinning WPs, CODE Tasks, and Final Conference (T4.4) are integrated and synthesised in the Capstone Task (T4.5) to develop a Post-Twinning Strategy to Maximise Long-Term Impacts.

The Gantt Chart for SolarTwins is shown on the next page. To demonstrate the accumulation and archiving of knowledge, each Task explicitly contributes to one or more deliverables in one of two ways: 1) by being directly responsible for the elaboration of a Deliverable (denoted as D in the Gantt Chart); or 2) by supplying content to a different Task that is responsible for synthesising content from two or more Tasks into a single Deliverable (denoted as D+ in the Gantt Chart). . To demonstrate proper project monitoring, each Task is explicitly associated to at least one Milestone.

The List of Work Packages (Table 3.1 a) on the next page provides further summary information for each WP.



Gantt Chart: MS = Milestone; D = Task Responsible for Deliverable; +D = Task Provides Content to Other Task for Deliverable

WP Short Name / Task Short Name	Year 1						Year 2						Year 3					
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
WP1. Cross-Cutting Activities																		
T1.1 Foundation: Kick-Off Joint Mtg @ METU	MS	D																
T1.2 External & Open Trainings					MS		D											+D
T1.3 EU Research Network Cultivator										MS&D								+D
WP2. ESR Incubator																		
T2.1 1st Joint Summer School @ METU					MS	D												
T2.2 2nd Joint Summer School @ METU											MS	D						
T2.3 METU ESR Mentoring by PSA-CIEMAT									+D			MS						+D
T2.4 METU ESR Mentoring by DLR										+D		MS						+D
WP3. Joint Research Accelerator																		
T3.1 Joint Research Activities @ PSA-CIEMAT								MS	+D									
T3.2 Joint Research Activities @ DLR																MS	+D	
T3.3 METU & CIEMAT Joint Research Accelerator																		
T3.4 METU & DLR Joint Research Accelerator																		
WP4. Impacts																		
T4.1 Communication and Outreach	MS&D	+D																
T4.2 Dissemination		+D																
T4.3 Exploitation		MS&D	D															
T4.4 Final Conference																		
T4.5 Capstone: Post-Twinning Strategy																		
WP5. Project Management																		
T5.1 Administrative & Financial Management																		
T5.2 Quality Management																		
T5.3 Risk Management																		
T5.4 Experience Sharing on Project Management																		

2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
Year 1						Year 2						Year 3					

SolarHub Proposal

Timeline of Elaborating *SolarHub* Proposal

Timeline	Call Closed on 15 Mar. 2022
Spring 2021	Identified call as part of a larger cluster of strongly aligned calls I classified as low-hanging fruit.

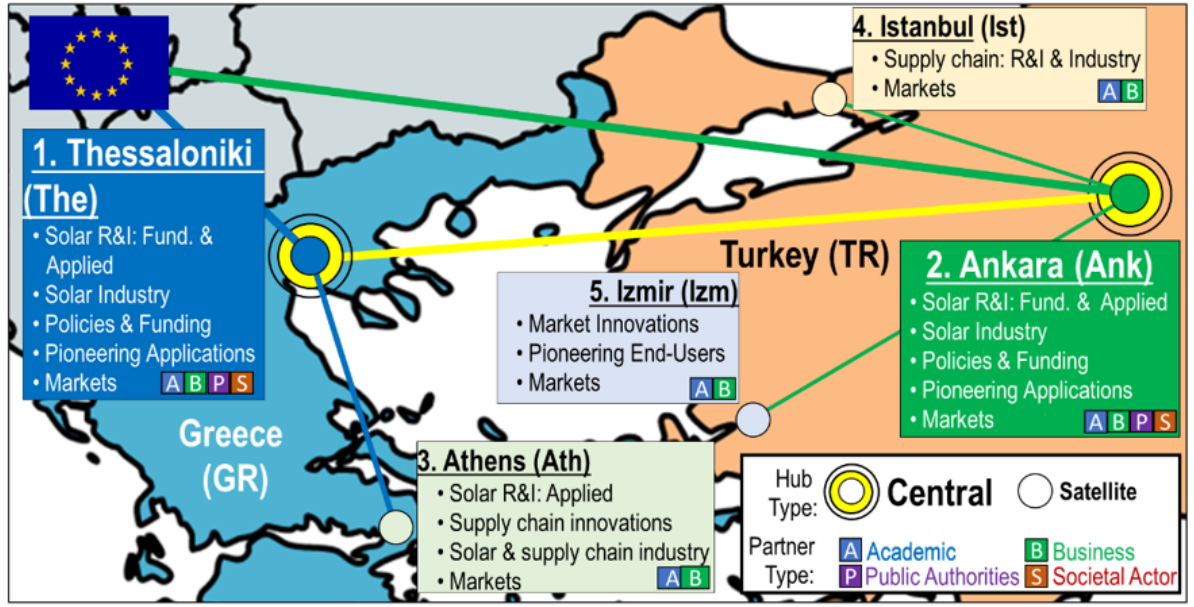
Benefits of Failed Proposal:

- Expect call to repeat 1-2x more
- Expect strongly aligned calls to open 1-2x.
- Strengthened our national and European networks.
- Strengthened our EU proposal writing skills.

SolarHub Concept

1. Objective: Synergistically transform Greece and Turkey's 5 solar energy innovation hubs to accelerate realization of National and European Green Deal aligned energy, food, economic, social and environmental priorities.

2. Four Core WPs aligned with call's 5 Core Components:
- WP1. Co-Designing Strategies & Policies
- WP2. Building SolarHub's Green Capacities
- WP3. Accelerating Joint R&I
- WP4. Maximising Impacts (Horizontal DEC)



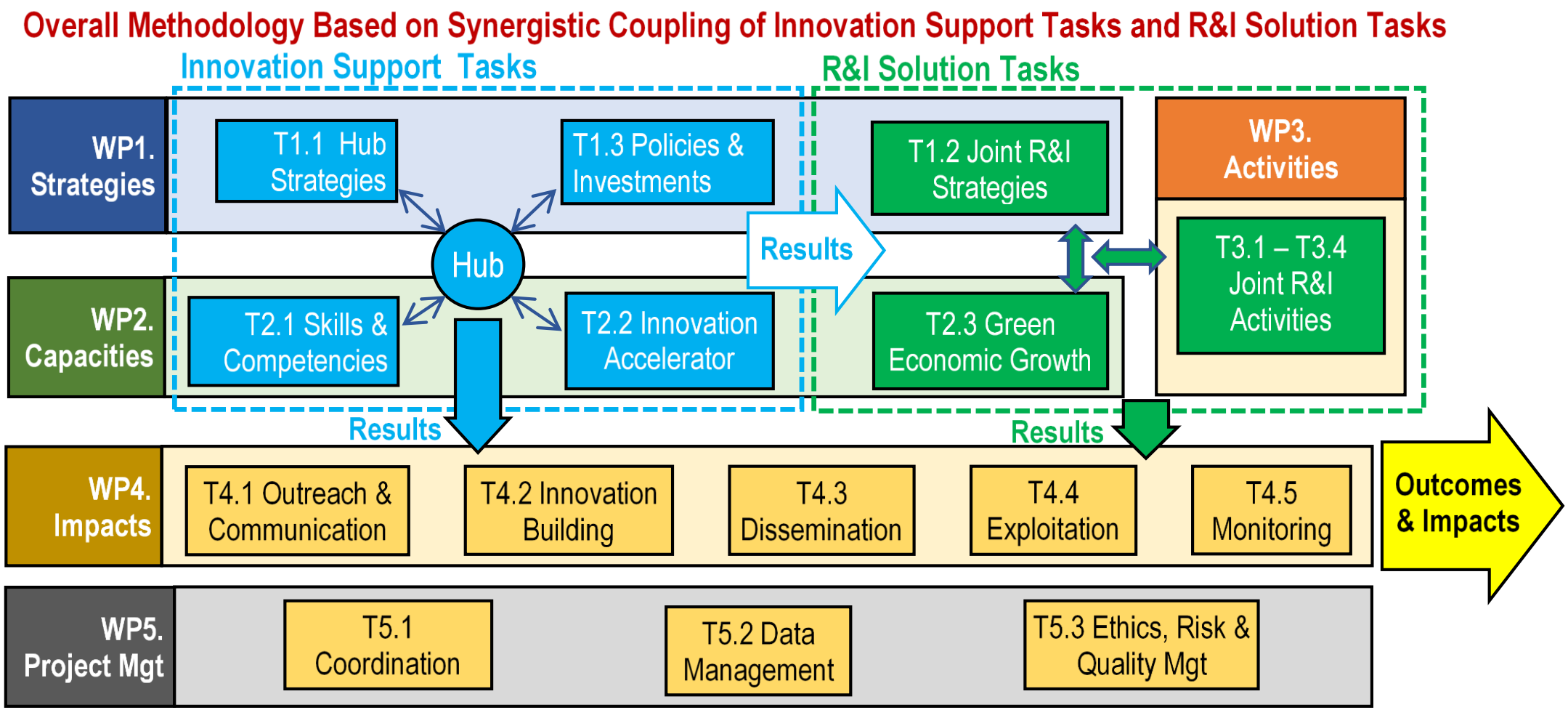
3. Four "Innovation Support" Tasks targeting all key stakeholders in all hubs.
- T1.1 Hub Strategies
- T1.3 Green Energy Policies & Investment Action Plans
- T2.1 Green competencies & skills
- T2.2 Accelerating Green Innovation.

4. Six "R&I Framework Solution" Tasks nurturing the creation of green solar energy solutions that respond to industrial and societal needs
- T1.2 Joint R&I Strategies
- T2.3 Green Economic Growth
- T3.1-T3.4 Joint R&I activities leading to 4 "Pre-Designs".

6. Impacts: Transformed Greek and Turkish solar energy innovation hubs with enhanced Strategies, Capacities, and Activities to co-create solutions that support key EU and national Green Deal aligned priorities:
- Clean & secure energy supplies;
- Sustainable & secure food supplies;
- Innovation-driven green economic growth and job creation.

5. Outcomes
- Synergistic Hub Strategies, Capacities, & Activities;
- National policies & funding aligned with EU & national strategies & priorities;
- Enhanced capacities for holistic green innovation;
- 4 Open Pre-Designs to support replication.

SolarHub Methodology



Conclusions

These projects have received funding from European Union research and innovation programmes.

Project	Programme	Years	GA No.
EU-SOLARIS	FP7	2012-2016	312833
INSHIP	H2020	2017-2020	731287
HORIZON-STE	H2020	2019-2022	838514
SFERA-III	H2020	2019-2023	823802
GeoSmart	H2020	2019-2024	818576
SolarTwins	H2020	2020-2023	856619
CST4ALL	Horizon Europe	2022-2025	101075408
SolarHub	Horizon Europe	2023-2026	In Preparation

Closing Thoughts

I was invited to speak because I am "Experienced"

- 6 failed EU proposals
  - 3 as coordinator
- 8 Successful EU Proposals
  - 2 as coordinator
  - 40% Success Rate as Coordinator (exceeds my 25% success rate goal)

Big Ideas

- Find benefits in failed proposals (networks, experiences, content, etc)
- Have a broader vision and write your proposal to enable you to achieve this broader goals (i.e., the EU project is not the end goal).
- Use the call as the structure that you fit your ideas into. Avoid trying to fit the call into your ideas.

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ODTÜ METU
ODTÜ GÜNAM

SolarHub
SolarTwins
GEOSMART
CST4ALL
HORIZON STE
inship
EU SOLARIS