

Horizon Europe Framework Programme (HORIZON)
HORIZON- RIA

GA No. 101075725

TRIUMPH

Triple junction solar modules based on perovskites and
silicon for high performance, low-cost and small
environmental footprint



Deliverable report

D1.5- Final Project Management Plan

Disclaimer/ Acknowledgment



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

About TRIUMPH

TRIUMPH is aimed at developing the next generation PV technology to come after tandems, i.e., an advanced triple junction cell concept. The devices will be based on the cost-effective and highly-efficient perovskites for the middle and top cells and the robust and well-proven silicon for the bottom cell. The **4 objectives** of are:

1. Achieving highly-efficient triple junctions **>33%** with **high stability** on 1 cm² area
2. Demonstrating a cost-effective and scalable route for triple junctions on **large-area (≥100 cm²)** with minimal upscaling losses (efficiency **>90%_{rel}** to small-area devices) with **3J modules** passing accelerated reliability testing.
3. Designing triple junction cells and modules for **sustainability** by **reducing CRMs** such as In and Ag, and by introducing **circular concepts** that allow easy recycling at end-of-life of the 3J modules.
4. Establishing the **value chain within EU** for future multi-junction modules.

The project consortium, coordinated by IMEC in Belgium, consists of **15 complementary partners** from renowned research institutions, illustrious universities as well as strong industrial players from across the value chain.

TRIUMPH consortium members

No.	Participant Legal name	Acronym	Country
1 (Coord.)	INTERUNIVERSITAIR MICRO-ELECTRONICA CENTRUM	IMEC	BE
2	FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V	F-ISE	DE
3	L'INSTITUT PHOTOVOLTAÏQUE D'ÎLE-DE-FRANCE	IPVF	FR
3.1	ÉLECTRICITÉ DE FRANCE	EDF	FR
4	NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK	TNO	NL
5	SALD B.V.	SALD	NL
6	DYENAMO AB	DYN	SE
7	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE	CNRS	FR
7.1	UNIVERSITE PARIS-SACLAY	UPS	FR
8	ALBERT-LUDWIGS UNIVERSITÄT FREIBURG	ALUF	DE
9	HANWHA Q CELLS GMBH	QC	DE
10	RENA TECHNOLOGIES GMBH	RENA	DE
11	ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE	EPFL	CH
12	CENTRE SUISSE D'ELECTRONIQUE ET DE MICROTECHNIQUE SA - RECHERCHE ET DÉVELOPPEMENT	CSEM	CH
13	VON ARDENNE GMBH	VA	DE
14	ODTU GUNES ENERJISI UYGULAMA VE ARA STIRMA MERKEZI (ODTU-GUNAM)	OG	TK

Document information

Deliverable No.	D1.5
Related WP	WP1
Deliverable Title	Final Project Management Plan
Deliverable Date	30.06.2025
Deliverable Type	Report
Lead Author	Veroni Ballet (IMEC)
Co-Author(s)	
Reviewed by	Hari Sivaramakrishnan

Document history

Date	Revision	Prepared by	Approved by	Description
22.06.2025	1	Veroni Ballet		Proposed
	2	Veroni Ballet	Hari Sivaramakrishnan	Reviewed
	3	Veroni Ballet		Accepted

Dissemination level

PU	Public	
SEN	Sensitive	X

Publishable summary

This deliverable is an internal deliverable describing the detailed Project Management Plan (PMP) with an updated Gantt chart and a Work Breakdown Structure (WBS), including a schedule per task, responsible partner, related subtasks, related deliverables, and dependencies with respect to other tasks.