

Proposal Evaluation Form



EUROPEAN COMMISSION

Horizon Europe (HORIZON)

Evaluation Summary Report - Research and innovation actions

Call: HORIZON-CL4-2025-03
Type of action: HORIZON-RIA
Proposal number: 101296770
Proposal acronym: ReTexSens
Duration (months): 58
Proposal title: Reusable and Sustainable Smart Textiles for Flexible, Stretchable Electronics and Biosensing Applications
Activity: HORIZON-CL4-2025-03-MATERIALS-47

N.	Proposer name	Country	Total eligible costs	%	Grant Requested	%
1	V-Trion GmbH	AT	997,633.75	19.95%	997,633.75	19.95%
2	LifeSense Group B.V.	NL	878,250	17.57%	878,250	17.57%
3	STICHTING IMEC NEDERLAND	NL	807,500	16.15%	807,500	16.15%
4	GRABHER GROUP GMBH	AT	472,100	9.44%	472,100	9.44%
5	INSTITUTUL NATIONAL DE CERCETARE DEZVOLTARE PENTRU FIZICA MATERIALELOR	RO	605,000	12.10%	605,000	12.10%
6	AALTO KORKEAKOULUSAATIO SR	FI	613,997.5	12.28%	613,997.5	12.28%
7	TECHNISCHE UNIVERSITAET BERGAKADEMIE FREIBERG	DE	625,000	12.50%	625,000	12.50%
Total:			4,999,481.25		4,999,481.25	

Abstract:

ReTexSens draws inspiration from Hollywood films, where clothing grants superhuman abilities. Our goal is to move this vision from fiction to reality. ReTexSens will create a new class of reusable, biodegradable, and durable smart textiles that function as substrates, conductive tracks, and active components for flexible electronics, enabling health monitoring, wound care, and performance augmentation in healthcare and sports. Current functional textiles—based on conductive inks, MXenes, or graphene—show promise for electronics but face critical barriers: reliance on non-biodegradable polymers, rigid encapsulation reducing comfort, poor recyclability, and limited scalability. ReTexSens overcomes these by engineering MXene–graphene fibre networks with advanced encapsulation and hybrid integration of ultra-compact, ultra-low-power flexible micro-electronics, connected via novel interconnects. This “best of both worlds” approach ensures high performance, sustainability, and washability while minimising e-waste.

The project follows a two-generation R&D pathway: broad exploration at TRL 2–3 to identify optimal materials and designs, then refinement and validation to TRL 6 in relevant environments. Co-creation with the end user and relevant stakeholders (athletes, healthcare professionals) guarantees usability and adoption.

ReTexSens directly addresses Horizon Europe priorities on resilient health systems, secure societies, and the Green Deal. Capturing just 5% of Europe’s sportswear market could generate €250–300M revenue within five years, while healthcare adoption could deliver €1–2B in cost savings and improved readiness. By establishing European leadership in sustainable smart textiles and flexible electronics, ReTexSens will catalyse cross-sector innovation, support SMEs and patent generation, and advance EU strategic autonomy—transforming advanced wearable technology from prototypes into mainstream solutions for millions of Europeans.

Evaluation Summary Report

Evaluation Result

Total score: 12.00 (Threshold: 10)

Criterion 1 - Excellence

Score: **3.50** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
 - Clarity and pertinence of the project's objectives, and the extent to which the proposed work is ambitious and goes beyond the state of the art.
 - Soundness of the proposed methodology, including the underlying concepts, models, assumptions, inter-disciplinary approaches, appropriate consideration of the gender dimension in research and innovation content, and the quality of open science practices, including sharing and management of research outputs and engagement of citizens, civil society and end users where appropriate.

The objectives of the proposal are clear and pertinent.

KPIs are not sufficiently detailed except for the supercapacitors.

Without specific details to support the differentiation, the project's assertion that it will move beyond state-of-the-art by using these techniques is not credible. The level of ambition is moderate.

The methodology adopts an iterative, co-design process, which is an excellent approach; this could ensure that the quality of the results is suitable for the foreseen use cases.

The description of the R&D pathway from TRL 2/3 to TRL 6 lacks details.

Challenges related to sustainable electronics and circularity are not appropriately addressed.

The project is interdisciplinary.

Appropriate gender considerations embedded at every stage of the work are included.

Open science practices are well-considered and directly linked to the work to be performed.

Criterion 2 - Impact

Score: **4.00** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
 - Credibility of the pathways to achieve the expected outcomes and impacts specified in the work programme, and the likely scale and significance of the contributions from the project.
 - Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities.

Scientific, industrial, and societal impacts are addressed thoroughly.

The sections addressing the unique contributions to topic outcomes and broader impact are well presented.

The potential for environmental benefits arising from the proposed textile electronics is addressed.

No convincing strategy is provided to demonstrate how the project's results could lead to a measurable reduction of the environmental footprint of wearable electronics at scale, this is a minor shortcoming.

The proposal does not sufficiently elaborate on the direct impact of the newly developed materials themselves.

Measures to maximise impact are described with satisfactory detail. The proposal includes a well-structured plan for dissemination, exploitation, and communication activities targeting relevant academic, industrial, and public audiences. The management of the IP is appropriately addressed.

The presence of two SMEs in the consortium provides credibility to the exploitation plan.

Criterion 3 - Quality and efficiency of the implementation

Score: **4.50** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
 - Quality and effectiveness of the work plan, assessment of risks, and appropriateness of the effort assigned to work packages, and the resources overall.
 - Capacity and role of each participant, and the extent to which the consortium as a whole brings together the necessary expertise.

The work plan is mostly well-structured into work packages and tasks, following the methodology and focusing on the stated objectives.

A minor shortcoming concerns the strict separation between materials processing and characterization, which are presented as two distinct work packages. This division appears somewhat artificial and may limit effective feedback loops between synthesis, optimization, and performance evaluation.

There are some inconsistencies with the workplan regarding milestones and deliverables, for example, D2.4 is a "comprehensive characterization report, including datasets on materials properties", with a delivery date in M12; it is unclear how this can be a comprehensive characterization report if the activities dealing with the synthesis of materials are scheduled to follow well after M12.

The list of potential risks is a complete assessment of logistical, management/administrative, and technical risks.

The complementarity between partners is well demonstrated, and their roles are adequately established and aligned to their knowledge and capabilities.

Scope of the application

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

Exceptional funding

A third country participant/international organisation not listed in [the General Annex to the Main Work Programme](#) may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the [HE programme guide](#))

Please list the concerned applicants and requested grant amount and explain the reasons why.

Based on the information provided, the following participants should receive exceptional funding:

Not provided

Based on the information provided, the following participants should NOT receive exceptional funding:

Not provided

Use of human embryonic stem cells (hESC)

Status: No

If YES, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not, because of a lack of information.

Not provided

Use of human embryos

Status: No

If YES, please explain how the human embryos will be used in the project.

Not provided

Activities excluded from funding

Status: No

If YES, please explain.

Not provided

Exclusive focus on civil applications

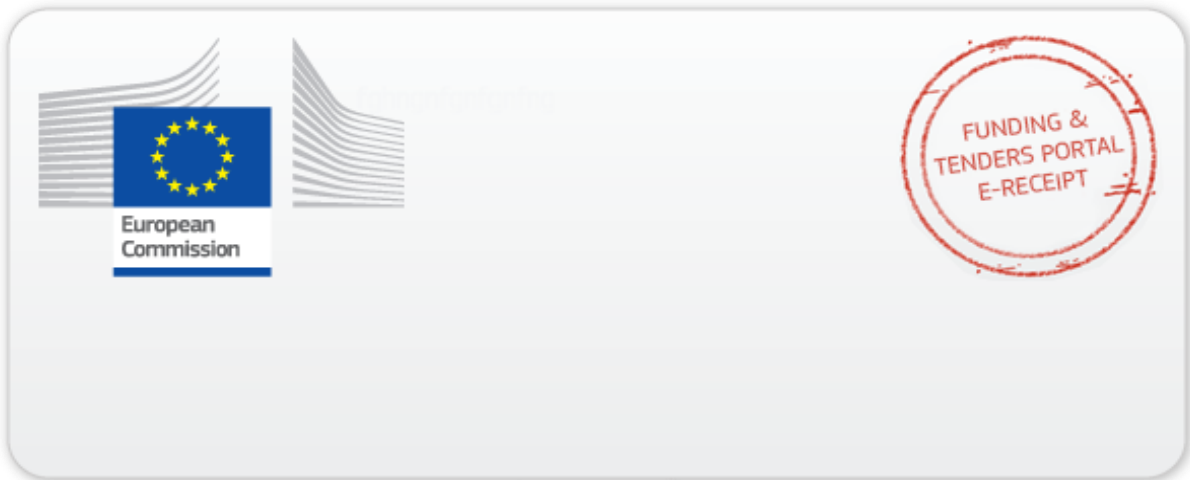
Status: Yes

If NO, please explain.

Not provided

Overall comments

Not provided



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