

InComEss

Innovative polymer-based composite systems
for high-efficient energy scavenging and storage

Deliverable

D9.10.a Report on the contribution to standardization

Deliverable Lead: UNE

Deliverable due date: 30/11/2020

Actual submission date: 25/11/2020

Document type: Report

Dissemination level: Public

Version: v1.2



Document History					
Version	Date	Responsible	Changes	Stage	Distribution
V1.0	08/11/2020	UNE	Document creation	Draft	AR (CIRCE)
V1.1	11/11/2020	AR (CIRCE)	Minor changes	AR Reviewed	All partners
V1.2	24/11/2020	All partners	Minor changes	Reviewed by All partners	Ready for submission



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EXECUTIVE SUMMARY / ABSTRACT

This first version of deliverable D9.10 “Report on the contribution to standardization” includes a proposal of actions to be carried out throughout the InComEss project to contribute to standardization based on its results. The contribution to standardization seeks to transfer selected InComEss outputs to European (CEN/CENELEC) or international standards (ISO/IEC). This transfer to standards, which are widely recognized by the industry and developed in a system external to the consortium, will ease the market uptake of the project results as well as their impact beyond the duration of the project. In addition, the standardization system is used as a dissemination channel aimed at the stakeholders represented in the standardization committees.

D9.10 is part of Task 9.3 “Standardization activities” and is based on the conclusions of D9.9 “Report on the standardization landscape and applicable standards” which includes the information on the relevant existing and ongoing standards and the relevant standardization technical committees (TCs) to facilitate the use of existing knowledge and the compatibility and the interoperability of the results with what already exist in the market.

D9.10 shall be delivered in M42, however it is considered that a first version of the document (D9.10.a) describing the general terms of the strategy to be followed is needed for a successful contribution to standardization.

SCOPE

The purpose of deliverable D9.10.a is to define a general strategy for the contribution to standardization, including the possible steps towards a successful contribution, the actions for its implementation and a tentative schedule.

It will be updated according to the progress of the different actions carried out and their outcomes in M24, resulting in the final version of D9.10 in M42 which will include the final standardization route, the technical proposal itself and the advance reached in the consensus building process.

NOTE: The schedule of the actions described in this document is open to changes depending on the progress of the project and the standardization roadmap finally chosen.

I Definition of the strategy

I.1 Overview

The contribution to standardization by InComEss project is based on the interaction with the relevant Standardization Technical Committees (TCs) and on the initiation of a standardization process. The strategy comprises the actions represented in the following figure:

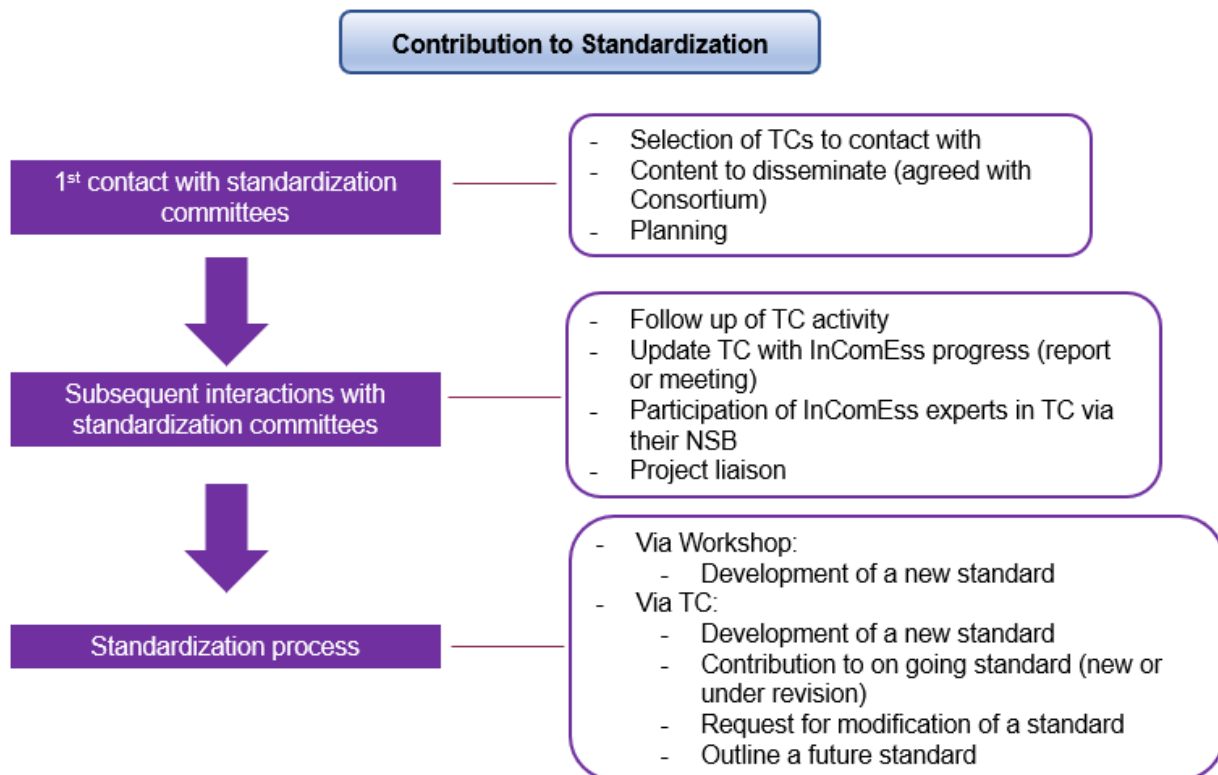


Figure 1-1: Strategy for the contribution to standardization

I.2 First contact with the Standardization Technical Committees

The objective of this first contact is to raise awareness about InComEss among the relevant standardization committees and to facilitate subsequent contacts. Different categories of stakeholders at European and international level are present in the committees, so the standardization system is used as a targeted dissemination channel. Although not all are present in every committee, typical stakeholders active in the development of standards are:

- Industry covering manufacturers, installers, suppliers, etc. either at the company level or via trade associations;
- Consumers normally organized at the national, regional or international level;
- Academia, universities and research institutes;
- Test laboratories;
- Governments and regulators.

Feedback will be asked to gather any view, opinion or advise about the project and the standardization possibilities or needs. Additionally, this first contact will be useful to determine the best path in the standardization process and will ease future contacts if this process is finally



launched within a specific standardization committee. Table 2-1 shows the potential technical committees to contact with.

1.3 Subsequent interaction with the Standardization Technical Committees

Different relationships can be established with the relevant CEN/CENELEC, ISO/IEC technical committees. Two factors determine the most suitable interactions: the impact/relevance of the standardization works of the target committees and the feasibility of starting a standardization process within a specific standardization committee versus initiating the standardization process within a standardization workshop (details are given below).

The ways of interaction of the project with the standardization committees include:

1. *Follow-up the activity of the relevant standardization committees.* Taking as reference the content of deliverable D9.9, this action allows to detect the initiation of standardization works that can be relevant for InComEss and the progress of significant ongoing standards. This could lead to update the most interesting content of D9.9.
2. *Further contact with the standardization committees to update the progress of InComEss.* This can be achieved by delivering reports, attending relevant technical committees' meetings or by holding joint events. On one hand, this action contributes to a greater dissemination of the project and can guide the start of the standardization process; on the other hand, this additional contacts will be particularly necessary with the standardization committees that directly cover (if applicable) the subject that will be promoted by InComEss to undergo a standardization process.
3. *Participation of one or more InComEss partners in standardization technical committees.* Standardization is an open activity and all interested parties can join the technical committees by appointment through their National Standardization Body, according to its policy about the nomination of experts. This option allows a deeper monitoring of the activity of a standardization committee and is very valuable if the standardization process is going to be initiated within a particular standardization committee.
4. *The establishment of a formal liaison of InComEss with the standardization committees.* This option is only recommended when the work of the standardization committee is closely linked with the main goals of the project and a direct technical contribution from the project is expected. Under the figure of [Project Liaison](#), the consortium can participate as an entity in the Technical Committee works, without voting rights. It also implies an economic cost. The project liaison is recognized in CEN/CENELEC but it is not effective in ISO/IEC; this shall be taken into account since, according to the conclusions of D9.9, there is no formal standardization activity at European level in several of the relevant topics for the project.

1.4 Standardization process

The main objective of the standardization activities in InComEss is to facilitate the market acceptance of its outputs by transferring its results and findings to standards that are widely recognized in the market. With the collaboration of the relevant partners, the feasible results to go through a standardization process will be identified. Different options to contribute to standardization shall be considered depending on the kind of the results (nature, availability and IPR) and the standardization context (existence of closely related standards and reactions from the standardization committees):

1. *Development of a new standard within a standardization workshop.* A standardization workshop consists of a group of entities with a common interest in reaching an agreement on a specific topic. It is an equivalent figure to that of the standardization committee, but the number of participants is usually smaller and the working procedures are faster and more flexible. A standardization workshop is created when there is a need to develop a precise



standard in an innovative field that is not covered by the existing standardization committees or when these committees are not interested in developing such standard (e.g. it does not fit in their work programme). If the subject to be addressed is close to the field covered by a standardization committee, it shall be informed and must agree with the start-up of the standardization workshop.

Considering that the standardization workshop option is interesting for InComEss especially in the European environment, the standardization workshop will be named hereinafter as CEN Workshop or CENELEC Workshop. The document developed by a CEN/CENELEC Workshop is called CEN or CENELEC Workshop Agreement, typically named as CWA. The nature and timeline for the development of CWAs is very suitable for the framework of the R&I projects.

2. *Standardization within a standardization committee.* It could be interesting or necessary for the InComEss results to go through the standardization process within a standardization committee. Possible scenarios are:
 - a. Development of a new standard within a technical committee. This option is feasible if there is an InComEss output that can be promoted to a standard in a field covered by an existing standardization committee and such a committee agrees to include this development in its work programme. In that case, the resulting standard would have the support of the committee members but the work shall be adapted to the internal schedule of the technical committee and could go beyond the timeframe of the project.
 - b. Contribution to a standard under development. As a result of monitoring the standardization landscape, the InComEss results may be found to be partially covered by ongoing standards, but do not fit the draft standard at that time. Gaps can be found both in standards that are being developed from a new initiative and in standards already published that are undergoing a review process.
 - c. Request the modification of a standard that is not under development or revision. The gap can be also found in published standards that are not under the standardization committee's annual work programme. In that case, a fully justified modification request can be made to the corresponding technical committee.
 - d. Outline of a future standard. Only when there is not a clear view of a complete roadmap for the contribution to standardization (like lack of agreement within the consortium or lack of expected results).

2 Implementation

According to the conclusions in D9.9, the most relevant technical committees to establish a possible first contact are those related to the energy harvesting systems:

Table 2-1: Possible technical committees for dissemination activities

Subject	Technical Committee
Piezoelectric energy harvesting	CLC/SR 49, <i>Piezoelectric and dielectric devices for frequency control and selection</i>
	IEC/TC 49, <i>Piezoelectric, dielectric and electrostatic devices and associated materials for frequency control, selection and detection</i>
	ISO/TC 61, <i>Plastics</i>
	CEN/TC 249, <i>Plastics</i>
	ISO/TC 206, <i>Fine ceramics</i>
	CEN/TC 184, <i>Advanced technical ceramics</i>



Subject	Technical Committee
	IEC/TC 47, <i>Semiconductor devices</i>
Thermoelectric energy harvesting	ISO/TC 229, <i>Nanotechnologies</i>
	IEC/TC 113, <i>Nanotechnology for electrotechnical products and systems</i>
	ISO/TC 61, <i>Plastics</i>
	CEN/TC 249, <i>Plastics</i>
	IEC/TC 47, <i>Semiconductor devices</i>
Power conditioning system	CLC/TC 22X, <i>Power electronics</i>
	IEC/TC 22, <i>Power electronic systems and equipment</i>
	CLC/TC 38, <i>Instrument transformers</i>
	IEC/TC 96, <i>Transformers, reactors, power supply units, and combinations thereof</i>
Supercapacitor	IEC/TC 40, <i>Capacitors and resistors for electronic equipment</i>
	IEC/TC 119, <i>Printed electronics</i>

Once the InComEss consortium has defined the main areas of interest that could be considered in the standardization process, a more refined selection of the committees to address could be made (M12). In those cases, in which there is both an European and international committee for the same area, it may be advisable to focus on European standardisation, taking into account the European approach of InComEss project dissemination and exploitation plans.

Considering the objectives described in 1.2, UNE will contact the officers (Chair and Secretary) of each selected committee. The support of the InComEss coordinator/partners will be needed to summarize the relevant progress of the project and validate the information to disseminate avoiding any confidential content.

Depending on the feedback received from the contacted technical committees about their interest in the project, the most appropriate approach should be considered according to the different ways of interaction described in 1.3. The goal shall be to establish a bidirectional relationship that allows a fluently interchange of information between the consortium and the relevant committee. In any case, this could be done by updating the information provided in the first contacts and, at the same time, keeping open the possibility of having a face to face interaction (e.g. attending a technical committee meeting, if feasible). In the latter case, the involvement of the coordinator/partners will be necessary to explain the technical aspects of the project. General and specific questions about the possibilities of standardizing different aspects of the InComEss project can also be raised to the committee members.

Tentative dates to provide updated information on the progress of the project could be:

- M18, Completion of T2.1 and T3.1
- M26, Completion of WP2 and WP3
- M34, Completion of WP4, WP5 and WP6
- M42, End of the project

Mid-term InComEss Workshop to be held in M24 will be also an opportunity to provide update of the project since it will be open to the main stakeholders, including standardization bodies.

Later on, based on the technical committees' reaction and the progress of the project, the most suitable roadmap will be selected and conducted from the options described in 1.4.



Special attention should be paid in case standardization related to hybrid thermo/piezoelectric materials is considered. Since there is a lack of specific normative documents on this subject, the development of a CWA could be an interesting option for InComEss.

3 Tentative schedule

Considering the previous information, a possible schedule for the strategy implementation is shown in table 3-1. It shall be noted that this schedule could be modified according to the progress of the project and the standardization route finally chosen.

Table 3-1: Tentative schedule for strategy implementation

Action	Responsible	Month
Refined selection of the committees to contact according to the areas of interest	All partners	M12
Monitoring of the standardization activities of the selected TCs	UNE	M12-M42
First contacts with the selected TCs	UNE (information to disseminate validated by coordinator)	M15
Provision of updated information to the selected TCs	UNE (content validated by coordinator)	M18 M26 M34 M42
Information to TCs at workshops and conferences	All partners	M24, Mid-term InComEss Workshop
Face to face interaction with the relevant standardization committees	UNE and Coordinator/Partners	If relevant, when TC meets
Information requests to TCs	UNE according to consortium requests	When relevant
Standardization process	UNE and Coordinator/Partners	M24-M42

In case the option of developing a CWA on some aspect of hybrid thermo/piezoelectric materials is considered, the standardization process could start as soon as a technical proposal is prepared.

The planned schedule to complete deliverable D9.10 throughout the project is:

Table 3-2: Schedule for delivering D9.10

Deliverable	Due date
D.9.10.a	M9
D.9.10.b	M24
D.9.10.c	M42