DEFACTO

Battery DEsign and manuFACTuring Optimization through multiphysic modelling

DEFACTO - battery DEsign and manuFACTuring Optimisation through multiphysic modelling

D.8.11 Report on the contribution to standardization(II)

Date: 30/06/2022

This document is a description of the DEFACTO D8.11 deliverable (contract no. 875247 coordinated by CIDETEC). This deliverable describes the activities carried out in relation to the Subtask T8.5.2: Contribution to the ongoing and future standardization developments (M7-M42). It covers the activities developed from M13 to M30.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247.

Project details

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Type of Action	Research and Innovation Action (RIA)	**Coordinator**	*CIDETEC*
Contact persons	*Elixabete Ayerbe*		
Website	**www.defacto-project.eu**		

Deliverable details

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Dissemination level	Public	**Nature**	*Report*
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Deliverable responsible	**UNE**	**Contact person**	***José Antonio Jiménez Caballero jjimenez@une.org***

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Document History

Date	Version	Name	Changes
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24.06.2022	2.0	María Yáñez & Elixabete Ayerbe (CID)	Revision by PC

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1 Executive Summary

This deliverable contains a description of the activities carried out between M13 and M30 related to Subtask T8.5.2: Contribution to the ongoing and future standardization developments (M7-M42). Subtask T8.5.2 covers two aspects:

- The utilization of the standardization as a dissemination tool to the market stakeholders. This aspect is covered in Section 3.
- The inclusion of the outcomes of the project in new or future standards, external to the consortium that can be easily used by the EU or international industry and research. This aspect is covered in Section 4.

2 Acronyms and abbreviations

CEN	European Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
EU	European Union
TC	Technical Committee
UNE	Spanish Association for Standardization
CWA	CEN/CENELEC Workshop Agreement

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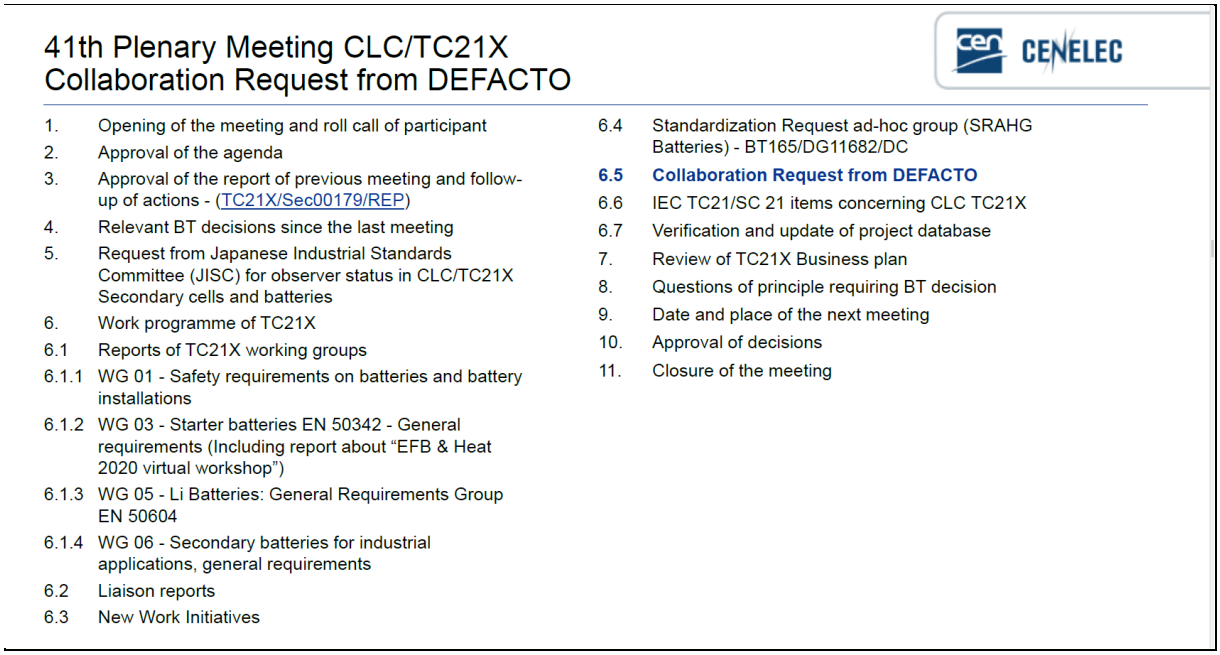
3 Dissemination activities

For the context in which these activities take place, see chapters 4 and 5 of the Deliverable D8.10 Report on the contribution to standardization(I).

3.1 Interaction with standardization TCs

Among the committees to which the documentation was sent as indicated in subclause 5.3 of Deliverable D8.10, the information has been distributed among the participants of the *CENELEC TC 21X Secondary cells and batteries* committee at its Plenary Meeting on December 17th, 2020 (Online-Meeting). See in the figure below the extract of the minutes of this meeting.

NOTE Participation in the standardization committees is organized by country delegates representing their national committees. External projects are not native participants of these committees, and the distribution of this external documentation is at the discretion of the secretariat/chairman of these committees.



41th Plenary Meeting CLC/TC21X
Collaboration Request from DEFACTO

CENELEC

1. Opening of the meeting and roll call of participant
2. Approval of the agenda
3. Approval of the report of previous meeting and follow-up of actions - (TC21X/Sec00179/REP)
4. Relevant BT decisions since the last meeting
5. Request from Japanese Industrial Standards Committee (JISC) for observer status in CLC/TC21X Secondary cells and batteries
6. Work programme of TC21X
6.1 Reports of TC21X working groups
6.1.1 WG 01 - Safety requirements on batteries and battery installations
6.1.2 WG 03 - Starter batteries EN 50342 - General requirements (Including report about "EFB & Heat 2020 virtual workshop")
6.1.3 WG 05 - Li Batteries: General Requirements Group EN 50604
6.1.4 WG 06 - Secondary batteries for industrial applications, general requirements
6.2 Liaison reports
6.3 New Work Initiatives
6.4 Standardization Request ad-hoc group (SRAHG Batteries) - BT165/DG11682/DC
6.5 Collaboration Request from DEFACTO
6.6 IEC TC21/SC 21 items concerning CLC TC21X
6.7 Verification and update of project database
7. Review of TC21X Business plan
8. Questions of principle requiring BT decision
9. Date and place of the next meeting
10. Approval of decisions
11. Closure of the meeting

Figure 1. Extract from the minutes of CLC TC21X meeting 2020/12/17

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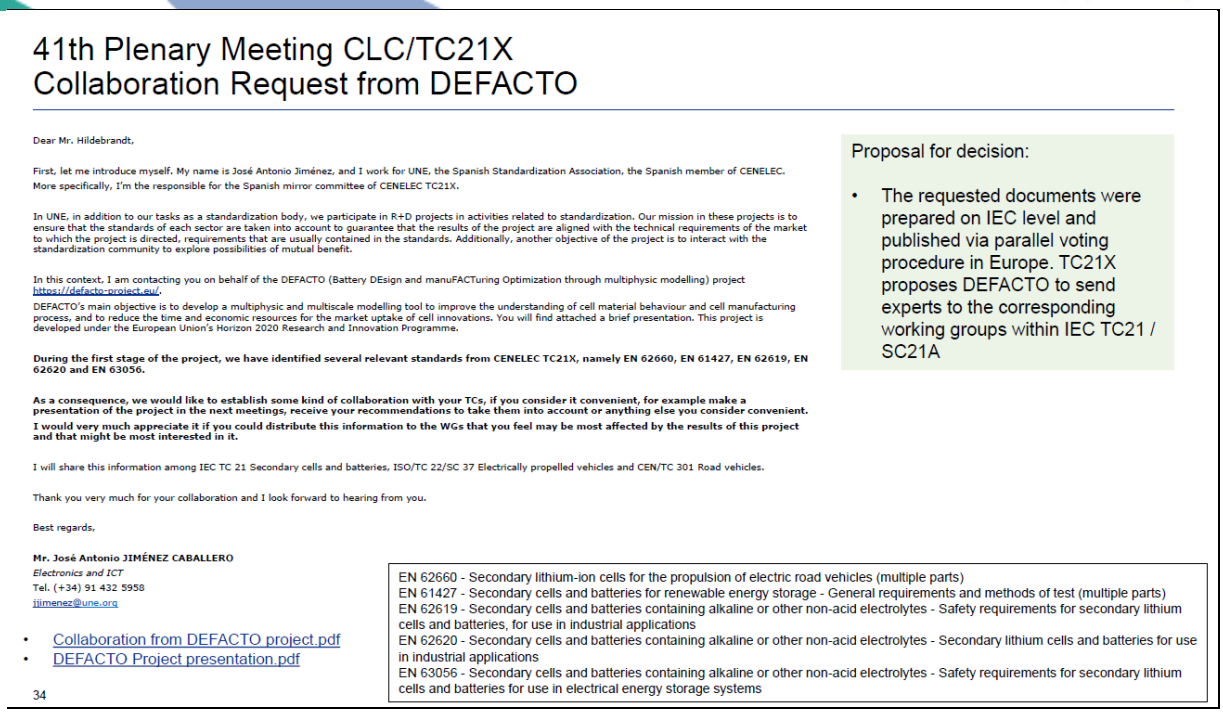

41th Plenary Meeting CLC/TC21X
Collaboration Request from DEFACTO

Dear Mr. Hildebrandt,

First, let me introduce myself. My name is José Antonio Jiménez, and I work for UNE, the Spanish Standardization Association, the Spanish member of CENELEC. More specifically, I'm the responsible for the Spanish mirror committee of CENELEC TC21X.

In UNE, in addition to our tasks as a standardization body, we participate in R+D projects in activities related to standardization. Our mission in these projects is to ensure that the standards of each sector are taken into account to guarantee that the results of the project are aligned with the technical requirements of the market to which the project is directed, requirements that are usually contained in the standards. Additionally, another objective of the project is to interact with the standardization community to explore possibilities of mutual benefit.

In this context, I am contacting you on behalf of the DEFACTO (Battery DEsign and manuFACTuring Optimization through multiphysic modelling) project https://defacto-project.eu/.
DEFACTO's main objective is to develop a multiphysic and multiscale modelling tool to improve the understanding of cell material behaviour and cell manufacturing process, and to reduce the time and economic resources for the market uptake of cell innovations. You will find attached a brief presentation. This project is developed under the European Union's Horizon 2020 Research and Innovation Programme.

During the first stage of the project, we have identified several relevant standards from CENELEC TC21X, namely EN 62660, EN 61427, EN 62619, EN 62620 and EN 63056.

As a consequence, we would like to establish some kind of collaboration with your TCs, if you consider it convenient, for example make a presentation of the project in the next meetings, receive your recommendations to take them into account or anything else you consider convenient.
I would very much appreciate it if you could distribute this information to the WGs that you feel may be most affected by the results of this project and that might be most interested in it.

I will share this information among IEC TC 21 Secondary cells and batteries, ISO/TC 22/SC 37 Electrically propelled vehicles and CEN/TC 301 Road vehicles.

Thank you very much for your collaboration and I look forward to hearing from you.

Best regards,

Mr. José Antonio JIMÉNEZ CABALLERO
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Tel. (+34) 91 432 5958
jjimenez@une.org

- Collaboration from DEFACTO project.pdf
- DEFACTO Project presentation.pdf

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Proposal for decision:

- The requested documents were prepared on IEC level and published via parallel voting procedure in Europe. TC21X proposes DEFACTO to send experts to the corresponding working groups within IEC TC21 / SC21A

EN 62660 - Secondary lithium-ion cells for the propulsion of electric road vehicles (multiple parts)
EN 61427 - Secondary cells and batteries for renewable energy storage - General requirements and methods of test (multiple parts)
EN 62619 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries, for use in industrial applications
EN 62620 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Secondary lithium cells and batteries for use in industrial applications
EN 63056 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries for use in electrical energy storage systems

Figure 2. Extract from the minutes of CLC TC21X meeting 2020/12/17

3.2 Webinar "Safety and Standards of the Batteries in the Electric Vehicles"

The project has participated in the webinar "Safety and Standards of the Batteries in the Electric Vehicles" organized by i-HeCoBatt, held on November 4th, 2021. See more information at https://ihecobatt.eu/archivos/5813.

During this webinar, a presentation on "Safety Standards and Certification for Batteries in EV" was given, where it has been explained :

- The functioning of the international standardization system.
- The existing standards related to both safety and performance of EV batteries.
- The use of standards for market access and also for regulatory compliance.

The presentation had a great impact among the attendees and according to a live survey, 47% of the participants planned to use the knowledge acquired about the standards in their daily work. See figure below.

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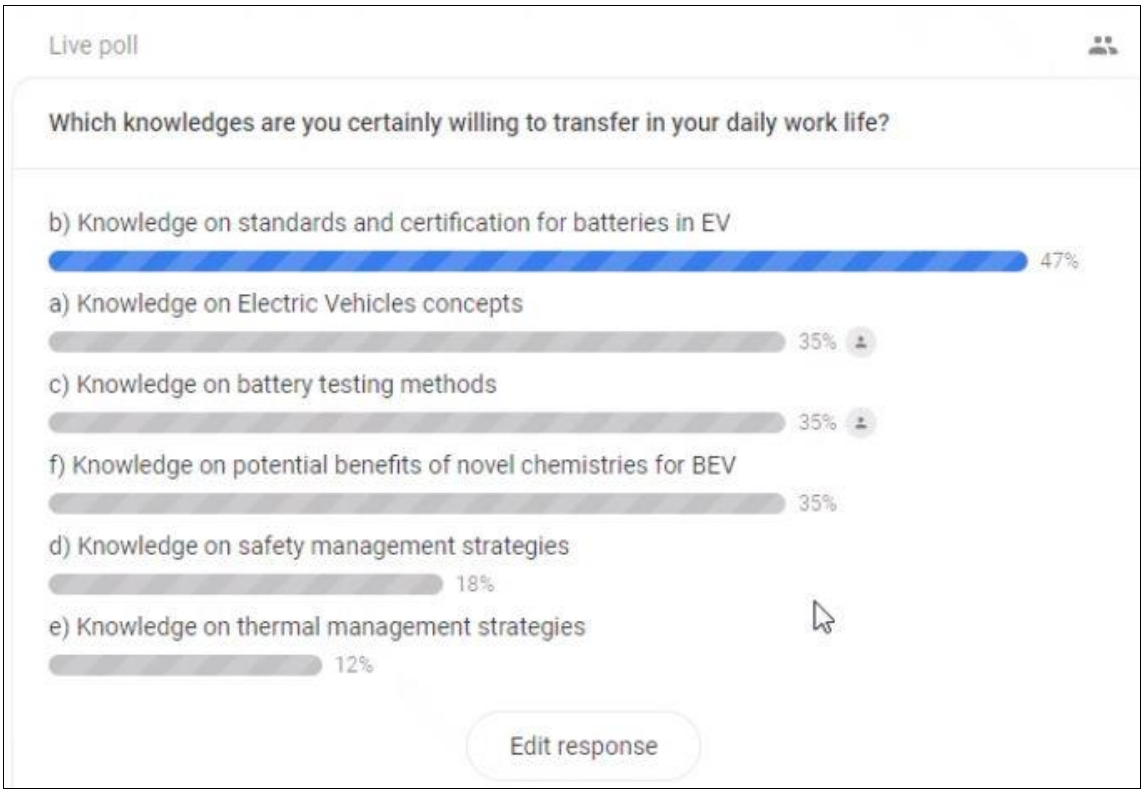

Figure 3. Live survey results among i-HeCoBatt webinar participants

The presentation is available in Annex A. The presentation includes the download link of Deliverable *D8.9 Report on the standardization landscape and applicable standards*, very useful for other H2020 projects that do not include a standardization task.

3.3 Collaboration with European Commission-DG Research & Innovation

As part of the implementation of the Communication on 'A new ERA for Research and Innovation' DG Research and Innovation (DG R&I) is developing Guiding Principles for knowledge valorisation as set out by Action 7 of the Communication. A set of codes of practice have been proposed in order to implement these Guiding Principles. One of these codes of practice is a *Code of Practice for researchers on standardisation*. This code has been co-created with relevant stakeholders to ensure its usefulness, relevance and create ownership. As part of this exercise, DG R&I launched a comprehensive on-line survey to collect and understand the experiences and views of beneficiaries on the role of standardisation in valorising R&I results.

The DEFACTO project was selected as relevant for standardisation as means of valorisation of R&I results. The project completed the on-line survey by May 2021. As a result of the survey, the DEFACTO project was selected among the projects to carry out a more in-depth study. The project held an interview with an expert from the project "Scoping study for supporting the development of a Code of Practice for researchers on standardisation - RTD/2021/SC/005" on November 16th, 2021, to draft a case study specific to the DEFACTO project.

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The project participated in the workshop "Scoping study for supporting the development of a Code of Practice for researchers on standardisation-Stakeholder Workshop" on December 3rd, 2021.

The case study of the DEFACTO project is included in the final publication, available at Scoping study for supporting the development of a code of practice for researchers on standardisation.

4 Contribution to standardization

For the context in which these activities take place, see chapters 4 and 6 of the Deliverable D8.10 Report on the contribution to standardization(I).

The activities described in this clause are related to the Specific Objective SO7 "Contribution to new standardisation in the batteries sector, especially regarding shortened validation of cell endurance (measurement of functionalities, ageing and safety…) and cell production" and KPI14 "At least 2 proposals for new standardization submitted".

4.1 Preparation of a proposal for the consortium

The first step in developing standards is to carefully choose both the type of document to be proposed and the subject of the document. The standardisation system is governed by strict rules that must be followed if the process is to be successful.

UNE has prepared a proposal for submission to the consortium, considering:

- The timeframe needed to develop the different types of normative documents.
- The deliverables of the project.

The proposal is available in Annex B. The proposal was submitted to the consortium and accepted on December 2nd, 2021.

4.2 Development of the proposal in CEN/CENELC

Once the development of two CWA documents in CEN/CENELEC and the topic of these documents has been chosen, UNE has started the development process in CEN/CENELEC, according to the document CEN-CENELEC GUIDE 29 "CEN/CENELEC Workshop Agreements – A rapid way to standardization".

The process followed consists of:

- Preparation of the document CEN/CENELEC Workshop proposal form, aimed to facilitate consultations of the relevant stakeholders and bodies on the launch of the CEN/CENELEC Workshop, by allowing for a quick review of the main aspects of the project. This document is shared with CEN/CENELEC BT members and interested technical committees included in CEN/CENELEC BT. It is a document for internal use by standardization bodies.
- Preparation of the draft project plan for the workshop. This document is used to conduct a reflection on how to disseminate and involve a wider range of interested parties throughout the development of the CWA and after its publication. It is a document for external communication of the project.

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Both documents can be consulted in Annex C.

- Distribution of the documents to the CEN/CENELEC BTs and interested technical standardization committees identified in the proposal document. The documents have been distributed on June 1st, 2022. See Annex C.

- Public announcement of the workshop on the CEN/CENELEC website. The Draft Project Plan, Kick-off Meeting Agenda, WS Registration Form and the Commenting Form are available on CEN/CENELEC website for a period of 30 days. See the link https://www.cencenelec.eu/news-and-events/news/2022/workshop/2022-05-24_defacto/.
- The kick-off meeting will be held on June 28th, 2022.

5 Conclusions

Both aspects of task 8.5.2 are proceeding satisfactorily and on schedule.

Regarding dissemination :

- The basic project information has been distributed to the members of one of the standardization TCs identified at the beginning of the project as being of interest. At the time the project documentation was distributed to them it was not yet known how the project's contribution to standardization would proceed, but now that it is known, experts from the TCs will be invited to participate in the development of the CWAs.
- Knowledge related to standardization of the DEFACTO project has been shared with other projects that do not include a standardization part, with a very good reception on their part.
- A case study on the project has been included in an EU report.

Regarding the contribution to standardization, the process has been initiated and is proceeding as planned.

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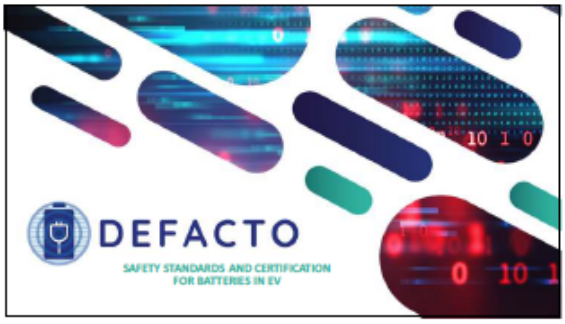
Annex A Presentation "Safety Standards and Certification for Batteries in EV"



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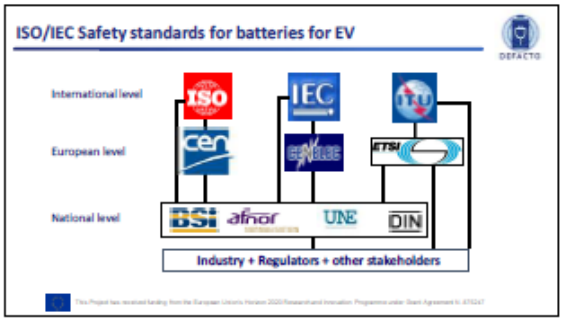

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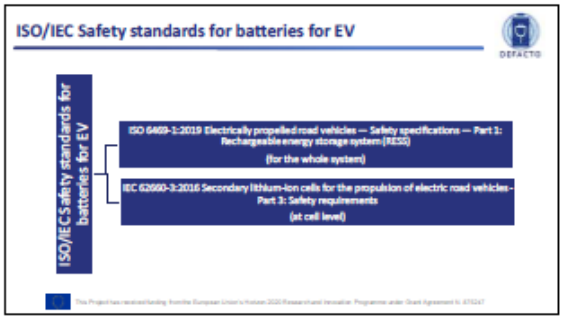

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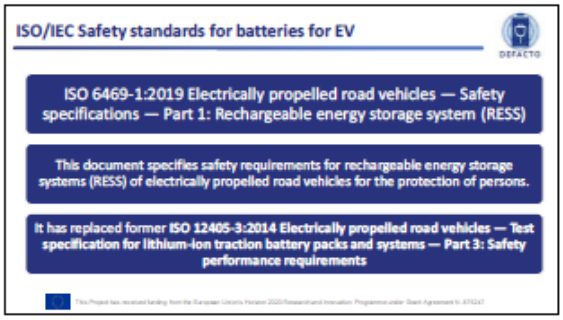

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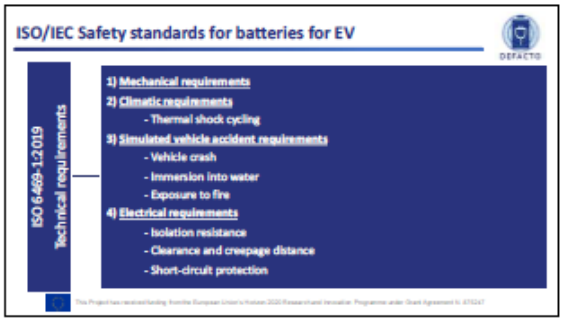

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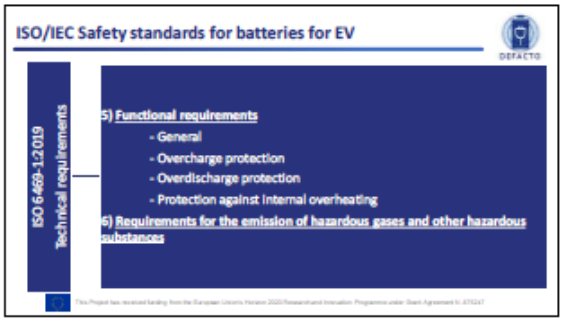

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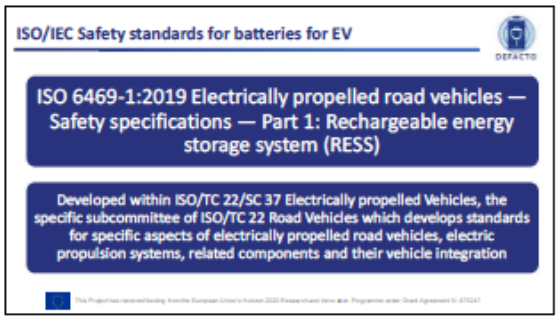

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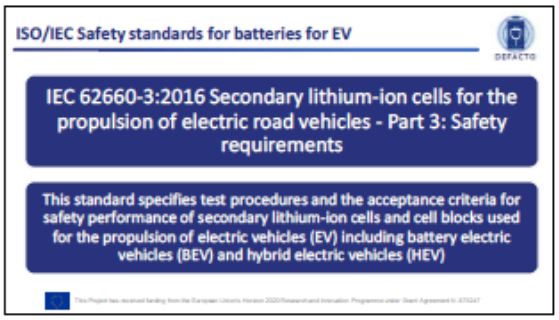

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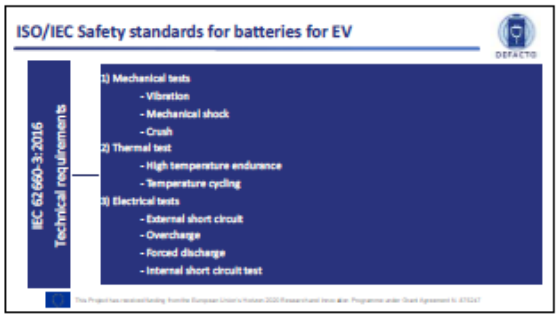

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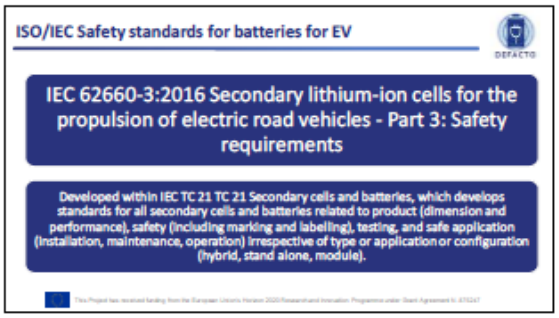

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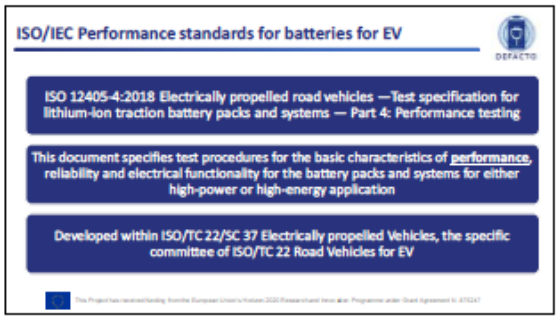

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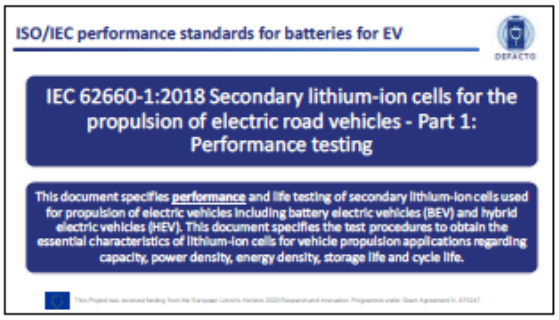

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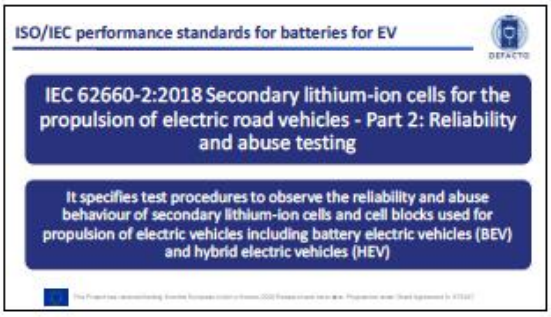

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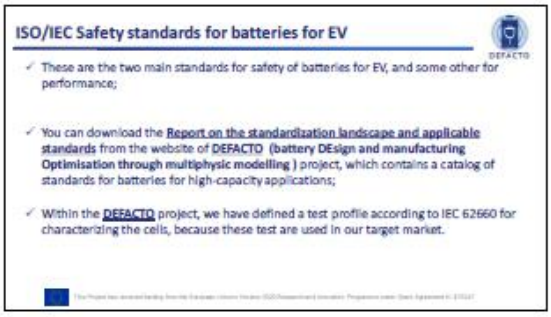

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Annex B Proposal on Standardization topics

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Proposal for the development of two CWA

1 Introduction and justification

This document contains a proposal on the contribution to standardization to be made by the DEFACTO project.

According to the Grant Agreement, the project shall contribute to new standards developments in specific topics, related to the objectives of the project (cell production, systematic measurements…), within Subtask T8.5.2: Contribution to the ongoing and future standardization developments (M7-M42).

Specific Objective SO7 "Contribution to new standardisation in the batteries sector, especially regarding shortened validation of cell endurance (measurement of functionalities, ageing and safety…) and cell production" and the corresponding KPI14: « At least 2 proposals for new standardization submitted », are also included in the Grant Agreement.

2 Proposal for the development of two CWA

This proposal has been drafted according to the chapter *6 Contribution to new standardizations applying to batteries* of Deliverable *D8.10 Report on the contribution to standardization(I)*. It is proposed to follow option c) "To directly propose the elaboration of a normative document led by the experts of the project", since options a) and b) would introduce too many uncertainties.

2.1 CEN/CENELEC Workshop Agreements (CWA)

A CEN/CENELEC Workshop Agreement (CWA) is a CEN/CENELEC deliverable, developed by a Workshop open to the participation of any interested parties, which reflects an agreement between identified individuals and organizations responsible for its contents.

For research projects related to innovative technologies, which have not yet achieved a sufficient degree of stability, a European Standard may not be the best way of meeting this need, because of the nature of the standardization process and the requirement that all CEN/CENELEC national members shall adopt the resulting standard. For this kind of projects, a CWA is the best way to transfer the knowledge generated in the project to the standardization ecosystem.

The process for developing a CWA is specified in detail in the document CEN-CENELEC GUIDE 29 "CEN/CENELEC Workshop Agreements – A rapid way to standardization".

The administrative part of the process including the workshop secretariat will be developed by UNE, as a member of CEN/CENELEC.

For the development of a CWA, first step is the selection of the topic on which it will be developed. Although the areas on which to develop a CWA are quite open as they are aimed at emerging topics, there are a number of restrictions to be taken into account, because it is important to ensure the

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coherence of all the different CEN/CENELEC deliverables in order to protect the credibility of European standardization.

The restrictions applicable to the development of a CWA are the following:

1) It shall not conflict with a European Standard.
2) Safety matters, management system and conformity assessment aspects and Security matters should be avoided. These topics are not strictly prohibited by Guide 29, but the approval process by CEN/CENELEC is more complicated and increases the probability of rejection.
3) A CWA is a public document, so confidential project content or content protected by NDA/MTA agreements should be avoided.

In addition to these restrictions of the CWA development process, the topic on which to develop the document must come from a deliverable of the project, since the intention is to promote the acquired knowledge and, on the other hand, it is necessary to avoid having to develop additional content in order not to overload the work of the WPs.

During the process, it should also be taken into account that the Workshop in which the CWAs will be developed will be open to entities external to the DEFACTO project, so although the starting document will be the one we propose, it is possible that it may undergo changes with the contributions of these other parties.

The proposal for the topics on which to develop the CWA included in this document has been selected considering these restrictions.

2.2 Proposal on the topics for the CWAs

2.2.1 Multiphysics and multiscale modelling of the material, cell and manufacturing process behaviour for cells for the automotive market

This proposal is based on deliverable D2.1. Report on the definition of parameters required for modelling and description of the validation protocol. This deliverable contains the parameters required for modelling and describes the associated validation protocols. The content of this deliverable is very useful for the cells and batteries industry, and it can be enriched with input from other external parties. It meets the restrictions explained in subclause 2.1.

The content of the deliverable D2.1 can be divided into two CWA in a suitable manner.

2.2.2 Other topics on which CWAs can be developed

In case the abovementioned option is considered not suitable, the following deliverables could be considered as topics for potential CWAs:

- D3.1 Report on DEM contact model development and parameterization
- D4.1 Report on a LBM model for electrolyte intrusion"

These deliverables meet the restrictions explained in subclause 2.1.

The rest of deliverables of the project are confidential and they should be avoided as CWA candidates.

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Annex C Workshop proposal and project plan

CEN CENELEC

CEN Reference: BT N 13072
CENELEC Reference: BT172/DG12722/INF

Simultaneous circulation to CEN and CENELEC TECHNICAL BOARDS

BT by correspondence CENELEC Agenda item: 5.1.9

For information

Issue date: 2022-06-01

SUBJECT

CEN-CLC/WS DBCAM **Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market**

Announcement

BACKGROUND

UNE has put forward a proposal for a CEN-CENELEC Workshop on 'Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market' (DBCAM).

This workshop is created under Task T8.5 'Standardization activities' of the Project DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling' project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 875247.

The DEFACTO project has a specific objective of making an effective contribution to new standardisation in the batteries sector, especially regarding shortened validation of cell endurance (measurement of functionalities, ageing and safety…) and cell production. This workshop is proposed to meet this objective, and to allow interaction with the project stakeholders so that the knowledge generated in the project is transmitted to the industrial community and the stakeholders can also specify their requirements.

The CEN-CENELEC Workshop intends to develop two CWAs (Workshop Agreements):

- CWA on 'Data required for modelling the material, cell and manufacturing process for cells for the automotive market'

  Scope: This CWA specifies the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.

- CWA on 'Experiments and characterisation techniques for data required for modelling cells'

  Scope: This CWA specifies the most suitable experiment(s) needed for obtaining the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.

Draft Project Plan

1

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247

The draft Project Plan of the Workshop can be found in Annex 1.

Workshop Proposal Form

According to the Workshop Proposal Form (see Annex 2), there is no need for approval by the BTs before proceeding to launch the workshop, as:

- The proposed Workshop does not deal with safety matters;
- The proposed Workshop does not deal with conformity assessments aspects;
- The proposed Workshop does not deal with management systems aspects;
- The proposed Workshop does not deal with security matters;
- The scope of the proposed CWA does not fall within the domain of CEN or CENELEC TCs.

Kick-off meeting

The kick-off meeting of the Workshop will be held on **Tuesday 28 June 2022** (online). The agenda can be found in Annex 3. The Workshop and the kick-off meeting agenda are also announced on the CEN-CENELEC website at
https://www.cencenelec.eu/news-and-events/news/2022/workshop/2022-05-24_defacto/

Secretariat

UNE will provide the Workshop secretariat, subject to formal approval of the Project Plan during the kick-off meeting. The proposed secretary is Mr. José Antonio JIMÉNEZ CABALLERO (jjimenez@une.org). Should you need further information or have any comments on this proposed Workshop, you are invited to contact Marc-Antoine Carreira da Cruz, CCMC Project Manager (macarreira@cencenelec.eu).

2022-05-25 – MAC

Horizon 2020
European Union Funding
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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247

CEN CENELEC

Draft Project plan for the CEN-CENELEC Workshop on "Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market"

Requests to participate in the Workshop and/or comments on the project plan are to be submitted by 2022-06-24 to jjimenez@une.org

Recipients of this project plan are kindly requested to name all patent rights known to them to be relevant to the Workshop and to make available all supporting documents.

Madrid, 2022-05-19 (Version 1.0)

Horizon 2020 European Union Funding for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247

CEN CENELEC

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CEN CENELEC

1 Status of the project plan

Draft project plan for public commenting (Version 1.0).

This draft project plan is intended to inform the public of a new Workshop. Any interested party can take part in this Workshop and/or comment on this draft project plan. Please send any requests to participate or comments by e-mail to jjimenez@une.org.

All those who have applied for participation or have commented on the project plan by the deadline will be invited to the kick-off meeting of the Workshop on 2022-06-28.

2 Workshop proposer and Workshop participants

2.1 Workshop proposer

Person or organisation	Short description and interest in the subject
This workshop is proposed by the project DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling'. See subclause 3.1 for more information.	
Name: Elixabete Ayerbe Organization: CIDETEC Postal address: Parque Científico y Tecnológico de Gipuzkoa Pº Miramón, 196 20014 Donostia-San Sebastián, Spain Email: eayerbe@cidetec.es Phone: +34 943 30 90 22 Webpage: www.cidetec.es	CIDETEC is a private organization for applied research founded in 1997. Located in the city of Donostia-San Sebastián, CIDETEC is comprised of three international technological reference institutes in Energy Storage, Surface engineering and Nanomedicine. CIDETEC Energy Storage is specialised in creating new battery technologies according to specific challenges, and its ultimate transference to the industry. The institute has the capacity to develop complete products and processes and offers material validation, pilot manufacture, pack engineering and battery testing services.

2.2 Other potential participants

This CWA will be developed in a Workshop (temporary body) that is open to any interested party. The participation of other experts would be helpful and is desired. It is recommended that:

- Manufacturers of cells/batteries,
- Material manufacturers
- OEMs
- COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (France)
- ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (Greece)
- DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV (Germany)
- FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. (Germany)
- ESI GROUP (France)
- ASOCIACION ESPANOLA DE NORMALIZACION (Spain)
- IRIZAR E-MOBILITY SL (Spain)
- LECLANCHE GMBH (Germany)

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- TECHNISCHE UNIVERSITAET BRAUNSCHWEIG (Germany)
- UNIVERSIDAD POLITECNICA DE MADRID (Spain)
- AVESTA BATTERY & ENERGY ENGINEERING (Belgium)

take part in the development of this CWA.

3 Workshop objectives and scope

3.1 Background

This workshop is created under the Task T8.5 "Standardization activities" of the DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling' project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247.

The DEFACTO project has a specific objective of making an effective contribution to new standardisation in the batteries sector, especially regarding shortened validation of cell endurance (measurement of functionalities, ageing and safety…) and cell production. This workshop is proposed to meet this objective, and to allow interaction with the project stakeholders so that the knowledge generated in the project is transmitted to the industrial community and the stakeholders can also specify their requirements.

The DEFACTO project is aimed at developing a multiphysics and multiscale modelling integrated tool to better understand the material, cell and manufacturing process behaviour, therefore allowing to accelerate cell development and the R&I process. This approach will allow developing new high capacity and high voltage Li-ion cell generation 3b battery. This will increase the understanding of multiscale mechanisms and their interactions, reducing the R&D cell development resources, therefore unlocking an innovation-led cell manufacturing industry. The validated computational simulations will be a powerful tool to (i) tailor new optimum cell designs, (ii) optimise manufacturing steps of electrode processing and electrolyte filling, and (iii) shape new generation 3b materials. In order to perform this modelling, it is essential to define the required input parameters and the appropriate experiments and characterisation techniques.

This workshop will not develop documents related to cell safety. The final validation of the prototype developed by modelling will be performed according to the applicable standards according to the final application (IEC/EN 62660, IEC/EN 61427, IEC/EN 62619, etc). To integrate with existing industry standards, the project is developing a test profile according to the IEC/EN 62660 standard.

No legal issues related to this proposal have been identified. The modelling process can provide an estimate of the final product performance according to applicable standards or legislation, but it is not a substitute for the usual conformity assessment processes. But it can be considered useful for meeting the requirements of the applicable regulation, for example, UN Regulation No. 100 - Electric power trained vehicles, UN Manual of Tests and Criteria (UN Transportation Testing) or the proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning batteries and waste batteries.

3.2 Scope

The planned Workshop defines the data required for modelling the material, cell and manufacturing process for cells for the automotive market and the experiments and characterisation techniques for these data.

This WS will develop two CWAs, namely:

- CWA on Data required for modelling the material, cell and manufacturing process for cells for the automotive market
  Scope: This CWA specifies the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.
- CWA on Experiments and characterisation techniques for data required for modelling cells
  Scope: This CWA specifies the most suitable experiment(s) needed for obtaining the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.

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3.3 Related activities

The scope of the planned CWAs is not at present the subject of a standard. However, there are committees, standards and/or other technical specifications that deal with related subjects and thus need to be taken into account and involved, where necessary during this Workshop:

- CLC/TC 21X Secondary cells and batteries
- CEN/TC 301 Road vehicles
- CEN-CENELEC eMobility Coordination Group
- IEC TC 21 Secondary cells and batteries
- ISO/TC 22/SC 37 Electrically propelled vehicles

4 Workshop programme

4.1 General

The kick-off meeting is planned to take place on 2022-06-28 by web conference.

A total of 5 Workshop meetings (kick-off meeting and Workshop meetings) and web conferences will be held, during which the content of the CWA(s) will be presented, discussed and approved.

The CWA will be drawn up in English (language of meetings, minutes, etc.). The CWA will be written in English.

4.2 Workshop schedule

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Table 1: Workshop schedule (preliminary)

CEN/CENELEC Workshop	04/22	05/22	06/22	07/22	08/22	09/22	10/22	...	04/23	05/23	06/23	07/23	...
Initiation													
1. Proposal form submission and TC response													
2. Project plan development													
3. Open commenting period on draft project plan (mandatory)													
Operation													
4. Kick-off meeting													
5. CWA(s) development													
6. Open commenting period on draft CWA(s) (optional)													
7. CWA(s) finalised and approved by Workshop participants													
Publication													
Dissemination													
Milestones				K	V		V	V		V / A	P D		

B CEN/CENELEC BT meeting deciding on establishment of a CEN/CENELEC Workshop
K Kick-off
M Workshop meeting

6

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V Virtual Workshop meeting
A Adoption of CWA
P Publication of CWA
D Online distribution of CWA

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5 Resource planning

This workshop is financed by the DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling' project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247.

All costs related to the participation of interested parties in the Workshop's activities have to be borne by themselves. The meetings will be held by teleconference, so no major expenses are expected.

6 Workshop structure and rules of cooperation

6.1 Participation in the Workshop

The Workshop will be constituted during the course of the kick-off meeting. By approving this project plan, the interested parties declare their willingness to participate in the Workshop and will be formally named as Workshop participants, with the associated rights and duties. Participants at the kick-off meeting who do not approve the project plan are not given the status of a Workshop participant and are thus excluded from further decisions made during the kick-off meeting and from any other decisions regarding the Workshop.

As a rule, the request to participate in the Workshop is closed once it is constituted. The current Workshop participants shall decide whether any additional members will be accepted or not.

Any new participant in the Workshop at a later date is decided on by the participants making up the Workshop at that time. It is particularly important to consider these aspects:

a. expansion would be conducive to shortening the duration of the Workshop or to avoiding or averting an impending delay in the planned duration of the Workshop;
b. the expansion would not result in the Workshop taking longer to complete;
c. the new Workshop participant would not address any new or complementary issues beyond the scope defined and approved in the project plan;
d. the new Workshop participant would bring complementary expertise into the Workshop in order to incorporate the latest scientific findings and state-of-the-art knowledge;
e. the new Workshop participant would actively participate in the drafting of the manuscript by submitting concrete, not abstract, proposals and contributions;
f. the new Workshop participant would ensure wider application of the CWA.

All Workshop participants who voted for the publication of the CWA or its draft will be named as authors in the European Foreword, including the organisations which they represent. All Workshop participants who voted against the publication of the CWA, or who have abstained, will not be named in the European Foreword.

6.2 Workshop responsibilities

The Workshop Chair is responsible for content management and any decision-making and voting procedures. The Workshop Chair is supported by the Workshop Vice-Chair and the responsible Workshop secretariat, whereby the Workshop secretariat will always remain neutral regarding the content of the CWA(s). Furthermore, the Workshop secretariat shall ensure that CEN-CENELEC's rules of procedure, rules of presentation, and the principles governing the publication of CWA(s) have been observed. Should a Workshop Chair no longer be able to carry out her/his duties, the Workshop secretariat shall initiate the election of a new Workshop Chair. The list below covers the main tasks of the Workshop Chair. It is not intended to be exhaustive.

- Content related contact point for the Workshop
- Presides at Workshop meetings
- Ensures that the development of the CWA respects the principles and content of the adopted project plan
- Manages the consensus building process, decides when the Workshop participants have reached agreement on the final CWA, on the basis of the comments received
- Ensures due information exchange with the Workshop secretariat
- Represents the Workshop and its results to exterior

The Workshop secretariat, provided by a CEN/CENELEC national member, is responsible for organising and leading the kick-off meeting, in consultation with the Workshop proposer. Further Workshop meetings and/or web conferences shall be organised by the Workshop secretariat in consultation with the Workshop Chair. The list below covers the main tasks of the Workshop secretariat. It is not intended to be exhaustive.

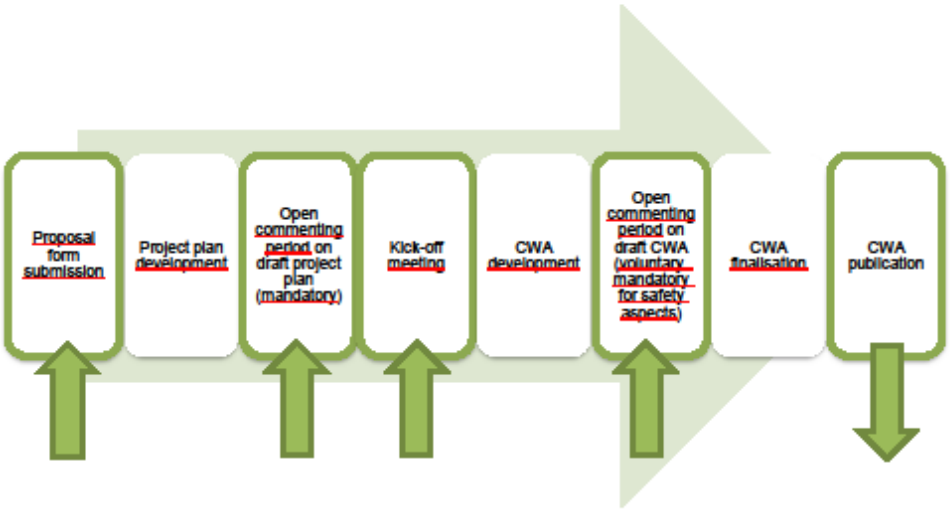
- Administrative and organisational contact point for the Workshop
- Ensures that the development of the CWA respects the principles and content of the adopted project plan and of the requirements of the CEN-CENELEC Guide 29
- Formally registers Workshop participants and maintains record of participating organisations and individuals
- Offers infrastructure and manage documents and their distribution through an electronic platform
- Prepares agenda and distribute information on meetings and meeting minutes as well as follow-up actions of the Workshop
- Initiates and manage CWA approval process upon decision by the Workshop Chair
- Interface with CEN-CENELEC Management Centre (CCMC) and Workshop Chair regarding strategic directions, problems arising, and external relationships
- Advises on CEN-CENELEC rules and bring any major problems encountered (if any) in the development of the CWA to the attention of CEN-CENELEC Management Centre (CCMC)
- Administrates the connection with relevant CEN or CENELEC/TCs

6.3 Decision making process

Each Workshop participant is entitled to vote and has one vote. If an organisation sends several experts to the Workshop, that organisation has only one vote, regardless of how many Workshop participants it sends. Transferring voting rights to other Workshop participants is not permitted. During voting procedures, decisions are passed by simple majority; abstentions do not count.

If Workshop participants cannot be present in the meetings when the CWA or its draft is adopted, an alternative means of including them in the voting procedure shall be used.

7 Dissemination and participation strategy



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Proposal form submission, Open commenting period on draft project plan, CWA publication

These stages of the workshop will be disseminated to the following relevant stakeholders and bodies for consultation:

- The standardization technical committees identified in subclause 3.3.
- LiPLANET project consortium, where there is a EG working on standardization protocols
- Battery2030+ initiative, that are working on the standardization activities

In addition to the CCMC website, these stages of the workshop will be advertised on the DEFACTO communication channels to raise awareness.

To allow maximum diffusion of the resulting CWAs, they will be freely downloadable from the CEN/CENELEC website. UNE will cover the pre-payment for compensation for the possible loss of revenue to the CEN and CENELEC members.

8 Contacts

- Workshop Chair:

  <name>
  <Organisation>
  <address>
  <tel>
  <fax>
  <e-mail>
  <web>

- **Workshop Secretariat:**

  Mr. José Antonio JIMÉNEZ CABALLERO

  Asociación Española de Normalización, UNE

  Génova, 6. 28004 MADRID - SPAIN

  (+34) 914 325 958. Fax: 913 104 596

  jjimenez@une.org

  www.une.org

- CEN-CENELEC Management Centre

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https://www.cencenelec.eu/Pages/default.aspx

- Workshop proposer

Elixabete Ayerbe

CIDETEC

Parque Científico y Tecnológico de Gipuzkoa, Pº Miramón, 196, 20014 Donostia-San Sebastián, Spain

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www.cidetec.es

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CEN CENELEC

Proposal for a CEN-CENELEC Workshop on "Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market"

Horizon 2020
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for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247

1 Proposal Form for the Workshop proposer

Details of the Workshop proposer:

Name: Elixabete Ayerbe
Organization: CIDETEC
Postal address: Parque Científico y Tecnológico de Gipuzkoa
Pº Miramón, 196
20014 Donostia-San Sebastián, Spain
Email: eayerbe@cidetec.es
Phone: +34 943 30 90 22
Webpage: www.cidetec.es

Already known partners:

- COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES (France)
- ETHNIKO KENTRO EREVNAS KAI TECHNOLOGIKIS ANAPTYXIS (Greece)
- DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV (Germany)
- FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. (Germany)
- ESI GROUP (France)
- IRIZAR E-MOBILITY SL (Spain)
- LECLANCHE GMBH (Germany)
- TECHNISCHE UNIVERSITAET BRAUNSCHWEIG (Germany)
- UNIVERSIDAD POLITECNICA DE MADRID (Spain)
- AVESTA BATTERY & ENERGY ENGINEERING (Belgium)

Title of the proposed Workshop:

Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market

Background/Objectives:

This workshop is created under the Task T8.5 "Standardization activities" of the DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling' project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247.
The DEFACTO project has a specific objective of making an effective contribution to new standardisation in the batteries sector, especially regarding shortened validation of cell endurance (measurement of functionalities, ageing and safety…) and cell production. This workshop is proposed to meet this objective, and to allow interaction with the project stakeholders so that the knowledge generated in the project is transmitted to the industrial community and the stakeholders can also specify their requirements.
The DEFACTO project is aimed at developing a multiphysics and multiscale modelling integrated tool to better understand the material, cell and manufacturing process behaviour, therefore allowing to accelerate cell development and the R&I process. This approach will allow developing new high capacity and high voltage Li-ion cell generation 3b battery. This will increase the understanding of multiscale mechanisms and their interactions, reducing the R&D cell development resources, therefore unlocking an innovation-led cell manufacturing industry. The validated computational simulations will be a powerful tool to (i) tailor new optimum cell designs, (ii) optimise manufacturing steps of electrode processing and electrolyte filling, and (iii) shape new generation 3b materials. In order to perform this modelling, it is essential to define the required input parameters and the appropriate experiments and characterisation techniques.
This workshop will not develop documents related to cell safety. The final validation of the prototype developed by modelling will be performed according to the applicable standards according to the final application (IEC/EN 62660, IEC/EN 61427, IEC 62619, etc). To integrate with existing industry standards, the project is developing a test profile according to the IEC/EN 62660 standard.

Scope of the proposed Workshop (planned area of application):

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The planned Workshop defines the data required for modelling the material, cell and manufacturing process for cells for the automotive market and the experiments and characterisation techniques for these data.

Are the following aspects potentially affected?

	YES	NO
Safety matters	☐[1]	☒
Management system aspects	☐[2]	☒
Conformity assessment aspects	☐[3]	☒
Security matters	☐[4]	☒

<Add information/explanations to the points marked „yes">

Theme related standardization Technical Bodies, standards or regulations, if applicable:

Currently there is no TC working on the topic covered by this Workshop.
The following TCs have in their scopes the standardization in the battery/cell sector, although they do not develop standards related to modelling, but their involvement would be desirable:
CLC/TC 21X Secondary cells and batteries
CEN/TC 301 Road vehicles
CEN-CENELEC eMobility Coordination Group
IEC TC 21 Secondary cells and batteries
ISO/TC 22/SC 37 Electrically propelled vehicles

Optional attachments:

The initial document for the proposed CWAs will be the Deliverable D.2.1 "Report on the definition of parameters required for modelling and description of the validation protocol" developed within the DEFACTO project, available here. This document will be modified according to the contributions from the external experts involved in the WS.
The expected duration of the WS is 12 months.
More information about the DEFACTO project is available on https://defacto-project.eu/.

[1] For CEN: The CEN/CENELEC Workshop proposal shall be submitted to CEN/BT for decision. For CENELEC: Work on the proposed CEN/CENELEC Workshop shall not be initiated.
[2] The CEN/CENELEC Workshop proposal shall be submitted to the CEN/CENELEC BT(s) for decision.
[3] CEN/CENELEC Internal Regulations - Part 3, 33 applies.
[4] For projects dealing with security matters the security risk analysis provided below (item 3) shall be carried out.

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2 Proposal Form for the Workshop secretariat

CENELEC **Workshop on "Definition of parameters required for modelling of the material, cell and manufacturing process behaviour for battery cells for the automotive market"**

Details of the Workshop secretary:

Name: José Antonio Jiménez Caballero
Organization: Asociación Española de Normalización (UNE)
Postal address: Génova, 6. 28004 Madrid
Email: jjimenez@une.org
Phone: (+34) 91 432 5958
Webpage: www.une.org

Finance:

The costs associated to the secretary of the workshop will be covered by the DEFACTO 'Battery DEsign and manuFACTuring Optimization through multiphysic modelling' project. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247.
The participation in the WS for the interested expert will be free of charge.

Drafting and Dissemination:

This WS will develop two CWAs, namely:
- CWA on Data required for modelling the material, cell and manufacturing process for cells for the automotive market

Scope: This CWA specifies the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.
- CWA on Experiments and characterisation techniques for data required for modelling cells

Scope: This CWA specifies the most suitable experiment(s) needed for obtaining the data required for modelling the material, cell and manufacturing process for cells for the automotive market, based on physical and chemical characteristics of cells of NMC622/G, NMC811/G-Si, LMNO/G-Si chemistry types.

The resulting CWAs will be freely downloadable from the CEN/CENELEC website. UNE will cover the pre-payment for compensation for the possible loss of revenue to the CEN and CENELEC members.

Does the proposed CWA conflict with an EN or an HD?

	YES	NO
EN	☐[5]	☒
HD (CENELEC)	☐[5]	☒

Is the proposed CWA within the domain of an existing CEN and/or CENELEC Technical Body?

The topic covered by the proposed CWAs is not currently covered by CEN/CENELEC technical bodies, but it is desirable the involvement of the following TC:
- CLC/TC 21X Secondary cells and batteries
- CEN/TC 301 Road vehicles
- CEN-CENELEC eMobility Coordination Group

CEN/CENELEC Management Centre (to be completed by CCMC):

Name of the CCMC project manager: Marc-Antoine Carreira da Cruz
Organization: CCMC

[5] Work on the proposed CWA shall not be initiated.

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Postal address: Rue de la Science 23, 1040 Brussels
Email:
Phone: +32 2 550 xxxx
Webpage: https://www.cencenelec.eu/aboutus/MgtCentre/Pages/default.aspx

Response of identified potentially affected CEN/CENELEC TCs

	YES	NO
Is there an active work item covering the scope of the planned CWA?	☐	☒
Are there arguments against the topic of the planned CWA?	☐	☒

<Add information/explanations to the points marked „yes">

4

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875247

3 Security risk analysis

3.1 General

Security risk analysis is a process of identifying and analysing the main negative factors that may affect a standardization project's objectives. The following is targeted at secretariats of CEN/CENELEC Workshop Agreements (CWA) dealing with security issues. Its purpose is to help them identify and mitigate the risks associated with their project. It is structured around two main security threats that can affect the success of the work: major diverging interests among stakeholders and sensitive information.

3.2 Risk analysis on major diverging interest among stakeholders

Diverging interests among stakeholders can impede the process in reaching agreement on the CWA and even lead to failure to deliver the planned CWA. In order to identify and possibly mitigate the risks, the following questions should be reviewed:

- Is the planned CWA expected to have a major impact on the security policy/strategy of the core stakeholders?
- Does the scope of the CWA cover products or services with a clear dual-use purpose (i.e. which can be used for military purposes)?

3.3 Risk analysis on sensitive information

- In light of the scope of the CWA, is it likely that it may deal with sensitive information? If so, what is the information sensitivity level?
- Is there a need for a (non-)disclosure agreement?
- Is there any conflict of interest for stakeholders involved in the CEN/CENELEC Workshop, regarding especially the use they may make of any information they receive during the development of the CWA?
- What steps should be taken to manage information dissemination and storage (e.g. memory stick, emailing, storage) during the development process of the CWA?

<Add statement here>

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