Project plan for the CEN Workshop on Review the contents of CWA 17815:2021 "Materials characterisation - Terminology, metadata and classification"

Requests to participate in the Workshop and/or comments on the project plan are to be submitted by
2024-05-22 to
<chiara.pia@uni.com>[1]

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.

[1] Applications for participating in the Workshop and comments on the project plan that are not received by the deadline do not need to be taken into consideration. Once constituted, the Workshop will decide whether or not to consider the comments received in good time.

Milan,
28/02/2024
(Version 1)

Contents

Page

Foreword (TO BE DELETED BEFORE THE PUBLICATION OF THE DRAFT PROJECT PLAN) **.....** Errore. Il segnalibro non è definito.

Summary ..... Errore. Il segnalibro non è definito.

1 Status of the project plan 4

2 Workshop proposer and Workshop participants 4
2.1 Workshop proposer 4
2.2 Other potential participants.....4
2.3 Participants at the kick-off meeting.....4
2.4 Registered Workshop participants.....5

3 Workshop objectives and scope.....6
3.1 Background.....6
3.2 Scope 7
3.3 Related activities 7

4 Workshop programme 7
4.1 General 9
4.2 Workshop schedule 9
4.3 Work already delivered ..... Errore. Il segnalibro non è definito.

5 Resource planning 11

6 Workshop structure and rules of cooperation 11
6.1 Participation in the Workshop.....11
6.2 Workshop responsibilities.....11
6.3 Decision making process 12

7 Dissemination and participation strategy.....13

8 Contacts 14

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 **chiara.pia@uni.com**.

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 **<2024/05/24>** **TBC.**

2 Workshop proposer and Workshop participants

2.1 Workshop proposer

Person or organisation	Short description and interest in the subject
National Technical University of Athens (NTUA), School of Chemical Engineering, 9 Heroon Polytechniou St., Zographos, Athens	Develop protocols for multi-technique, multi-scale characterisations of mechanical properties in a range of industrially relevant sectors, together with novel tools for data sharing and wider applicability.

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:

- Academic and research bodies
- Funded European Projects (i.e. Horizon 2020, Horizon Europe)
- Industry and commerce
- Non-governmental organizations (NGO)
- Standards application

take part in the development of this CWA.

2.3 Participants at the kick-off meeting

At least one expert from each project partners (NanoMECommons & HSBooster) will be invited to attend the kick-off meeting. Since the aim is the revision of CWA 17815:2021, the experts who had participated in the drafting of this document will be invited to participate in the new workshop

The list of individual participants will be included in the table at a later stage.

Person	Organisation

Workshop proposer Theodoros Tsatsoulis	National Technical University of Athens (NTUA), School of Chemical Engineering, 9 Heroon Polytechniou St., Zographos, Athens
Workshop Chair Gerhard Goldbeck	GOLDBECK CONSULTING LIMITED (GCL)
Workshop Vice Chair TBD	TBD
Project leader TBD	
Participant	Participant HSBooster (at least one representative)
Participant	Participant NanoMECommons (at least one representative)
Workshop secretariat Adriano Ferrara Chiara Pia	Workshop secretariat UNI UNI

2.4 Registered Workshop participants

At least one expert from each project partners (NanoMECommons & HSBooster) will be invited to attend the kick-off meeting

Person	**Organisation**
Workshop Chair Gerhard Goldbeck	Goldbeck Consulting Limited (GCL)
Workshop Vice-Chair TBD	Workshop Vice-Chair
Workshop secretariat	Workshop secretariat

Chiara Pia Adriano Ferrara (in support)	UNI

3 Workshop objectives and scope

3.1 Background

3.1.1 General

Materials characterisation includes the identification and measurement of properties that are either intrinsic or manifest in a material. These properties categorise the type, structure and the state of the material.

Characterisation, besides experimentation and materials modelling, is regarded as one of the pillars supporting the development of new and advanced materials and their engineering and upscaling into new products. It has been demonstrated in many individual cases that materials characterisation is a key enabler of research and development efficiency and innovation and that the use of this technology can generate a huge economic impact. For example, in a survey by the Engineering & Upscaling Cluster carried out in 2015 on behalf of the European Commission DG RTD, characterisation was found to be applied by 95% of NMBP projects and method developments carried out by 50% of projects. It ranked 9/10 in importance as a methodology to support engineering and upscaling of materials.

Due to the huge variety and complexity of materials and the wide range of applications the materials characterisation field consists of many communities. These communities have established different terminologies which typically focus on specific application domains and on types of characterisation methods. Two broad categories of characterisation methods can be those used to identify the nature (structure, chemistry) of the material and those evaluating material performance. As a result, a wide range of domain specific characterisation methods have evolved. However, applications to industrial problems in advanced materials and nanotechnology require a strong interdisciplinary approach among these fields and communities. There is therefore a need to establish a common terminology (definition of concepts and vocabulary) in materials characterisation.

This requires revision of CWA 17815:2021, as new Horizon Europe projects bring in new open innovation environments that create novel characterisation workflows which are often interwoven with materials modelling. The CWA we are planning here will augment the previous one and future proof it. The CEN workshop will be based on Horizon 2020 EU project NanoMeCommons (Grant Agreement no. 952869), offering protocols for multi-technique, multi-scale characterisations of mechanical properties in a range of industrially relevant sectors, together with novel tools for data sharing and wider applicability across NMBP domain: reference materials, specific ontologies and standardised data documentation.

It is very important to involve sister and related projects, to make sure we establish one standard rather than individual best practises. Other projects we will involve are those of our call, NMBP-35-2020 - Towards harmonised characterisation protocols in NMBP (RIA), which are EASY-STRESS (Grant Agreement no 953219) and CHARISMA (Grant Agreement no 952921). The call DT-NMBP-11-2020 - Open Innovation Platform for Materials Modelling (RIA) also requires standards beyond CWA 17815:2021, to better document the “open innovation” and give it provenance. Hence, projects OpenModel (Grant Agreement no 953167), VipCoat (Grant Agreement no 952903) and MusiCode (Grant Agreement no 953187) will be encouraged to take part.

The Horizon Europe call HORIZON-CL4-2022-RESILIENCE-01-19 – Advanced materials modelling and characterisation (RIA), states already in its name that materials modelling and characterisation are supposed to advance even more and this also calls for a new CWA. Thus, we will invite the Horizon Europe Projects AID4GREENEST (Grant Agreement no 101091912), KNOWSKITE-X (Grant Agreement no 101091534), AddMorePower (Grant Agreement no 101091621), D-STANDART (Grant Agreement no 101091409), MatCHMaker (Grant Agreement no 101091687), and CoBRAIN (Grant Agreement no 101092211) to join our CEN workshop.

(2021)

All of these projects have industrial beneficiaries onboard, who may want to get involved. Finally, the project is supported by the European Materials Modelling Council (https://emmc.info/) and European Material Characterization Council (http://www.characterisation.eu/).

3.1.2 Motivation for the CEN Workshop

A standardised terminology will improve future exchanges among experts in the entire area of materials characterisation, facilitate the exchange with industrial end-users and experimentalists and reduce the barrier to utilising advanced materials characterisation. The common language is expected to foster dialogue and mutual understanding between industrial end-users, equipment manufacturers, and academic researchers. Standardisation of terminology and classification has been identified as critical to collaboration in and dissemination of European research projects. In particular, standards will facilitate interoperability between methods and databases. The standardization is relevant for an integrated technological development and brings benefits for industrial end-users due to simplified and much more efficient communication in the field of materials characterisation.

The classification helps data interpreters by translating industrial problems into problems that can be analysed with characterisation methods. It assists workflow development where several methods can interoperate in addressing a specific end-user question.

In future, this standardised terminology and classification can be formalised into a taxonomy and an ontology of materials characterisation. Such an ontology will form the basis for formal metadata development with which methods and databases can be linked. These developments will support efficient solutions for materials characterisation, enhance the communication, dissemination, storage, retrieval and mining of data about materials characterisation and contribute to efforts for materials digitalisation. The CEN workshop will be based on EU project NanoMECommons results, but other participants will be encouraged to add their results and make this CWA a true bottom-up approach.

3.2 Scope

Standardisation is relevant for an integrated technological development. Particularly, early standardisation of terminology has been identified as critical in and to European research projects. The need for standardisation of terminology and metadata in materials characterisation (and for wider materials digitalisation in general) has been outlined in the European Materials Characterisation Council Roadmap (2018), on which this CWA is based. The workshop scope follows the footsteps of the CEN Workshop on Materials modelling terminology, classification and metadata (CWA17284). Similarly to the materials modelling field, the objective is to agree on a high level materials characterisation terminology, categorization and a framework for documentation. Hence, this CWA includes definitions of fundamental terms for the field of materials characterisation. The definitions categorisation of materials characterisation methods based on a relatively small number of fundamental aspects of any type of characterisation such as the sample (which include testing environment and length scale), probe, environment and property concepts, replacing the current situation of opacity of materials characterisation methods that make the field hard to access for outsiders.

Based on these categories, this CWA provides a systematic description and documentation of methods including the user case, method, raw data generation and analysis and post- processing of data: the “materials CHAracterisation DAta” (CHADA). This is similar to the Materials Modelling Metadata (MODA) The CHADA seeks to organise the information so that even complex characterisation workflows can be conveyed more easily and key data about the methods, raw data generation and analysis, and post-processing of data and their implementation can be captured. A template CHADA is described in order to guide users towards a complete documentation of material characterisation.

3.3 Related activities

The most important existing standards and CWA to be considered in the context of the proposed CEN/WS are those developed by CEN/TC 352 – Nanotechnologies (the following in particular) and those indicated in the following table, but no existing standard covers the scope of the future CWA:

CEN ISO/TS 80004	Nanotechnologies - Vocabulary Part 1: Core terms (ISO/TS 80004-1) Part 2: Nano-objects (ISO/TS 80004-2) Part 3: Carbon nano-objects (ISO/TS 80004-3) Part 4: Nanostructured materials (ISO/TS 80004-4) Part 5: Nano/bio interface (ISO/TS 80004-5) Part 6: Nano-object characterization (ISO/TS 80004-6) Part 7: Diagnostics and therapeutics for healthcare (ISO/TS 80004-7) Part 8: Nanomanufacturing processes (ISO/TS 80004-8)
EN ISO 14577-1	Metallic materials — Instrumented indentation test for hardness and materials parameters — Part 1: Test method
EN ISO 4499-4	Hardmetals — Metallographic determination of microstructure Part 4: Characterisation of porosity, carbon defects and eta- phase content
CWA 16200:2010	A Guide to the Development and Use of Standards compliant Data Formats for Engineering Materials Test Data
CWA 16762:2014	ICT Standards in Support of an eReporting Framework for the Engineering Materials Sector
CWA 17284:2017	CEN/WS MODA - Materials modelling - terminology, classification and metadata

CWA xxx:2020	CEN/WS NATEDA Engineering materials —Electronic data interchange— Instrumented IndentationTest Data
CWA 17349:2019	Engineering materials - Electronic data interchange - Mechanical test data
ISO/TR 11360	Nanotechnologies - Methodology for the classification and categorization of nanomaterials
ISO/TR 12802	Nanotechnologies - Model taxonomic framework for use in developing vocabularies - Core concepts
ISO/TR 14187	Surface chemical analysis — Characterization of nanostructured materials
ISO/IEC Guide 99:2007	International vocabulary of metrology — Basic and general concepts and associated terms (VIM)
ISO/WD TR 4499-5	Hardmetals — Metallographic determination of microstructure Part 5: Characterisation and measurement of miscellaneous microstructural features

4 Workshop programme

4.1 General

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

4.2 Workshop schedule

Table 1: Workshop schedule (preliminary)

CEN/CENELEC Workshop	M01	M02	M03	M04	M05	M06	M07	M08	M09	M10	M11	M12	…
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													
8. CWA(s) publication													
Dissemination (see 7)													
Milestones			K	V	V	M	V				M/A	P D	

B CEN/CENELEC BT meeting deciding on establishment of a CEN/CENELEC Workshop
K Kick-off
M Workshop meeting
V Virtual Workshop meeting
A Adoption of CWA
P Publication of CWA
D Online distribution of CWA

5 Resource planning

The administrative costs of CEN Workshop Secretariat will be covered by resources from the H2020 projects: NanoMECommons Grant Agreement n. 952869 and HSbooster.eu Grant Agreement n. 101058391

6 Workshop structure and rules of cooperation

The workshop will be led by a chair or vice-chair, while the project leader will support them in the organization.

The CEN Workshop Chair is responsible for ensuring that the development of the CWA follows the principles and content of the adopted project plan and the requirements of the CEN Guide 29. The CEN Workshop Chair may take decisions on the conduct of the CEN Workshop on the basis of the comments expressed by the participants according to the CWA rules.

The workshop secretariat is responsible for the organization and management of the workshops according to the CEN Guide 29.

CEN Workshop participants draft the CWA and take in consideration the comments after the public commenting phase (if any). CEN Workshop participants are the CWA proposers (the members of NanoMECommons and HSbooster.eu Horizon 2020 projects), plus other relevant stakeholder, identified by the proposer.

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.

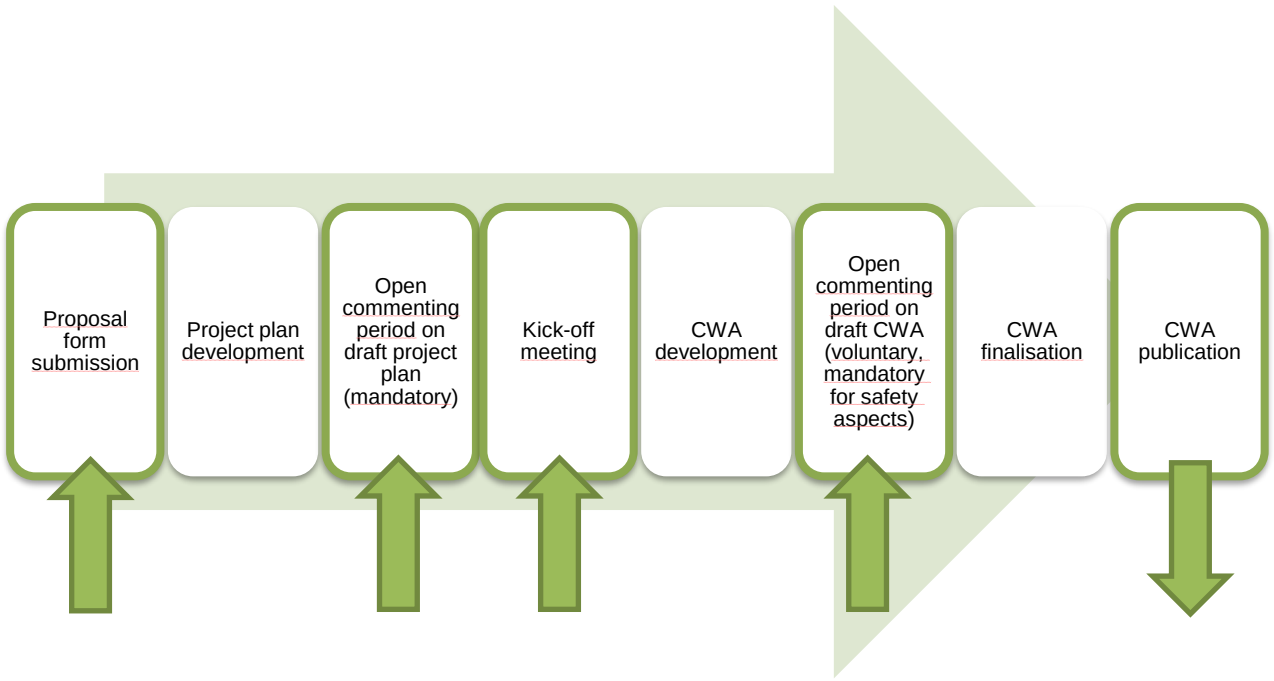
- Administrative and organisational contact point for the Workshop
- Ensures that the development of the CWA respects the principles and content of the adopted project plan and of the requirements of the CEN-CENELEC Guide 29
- Formally registers Workshop participants and maintains record of participating 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

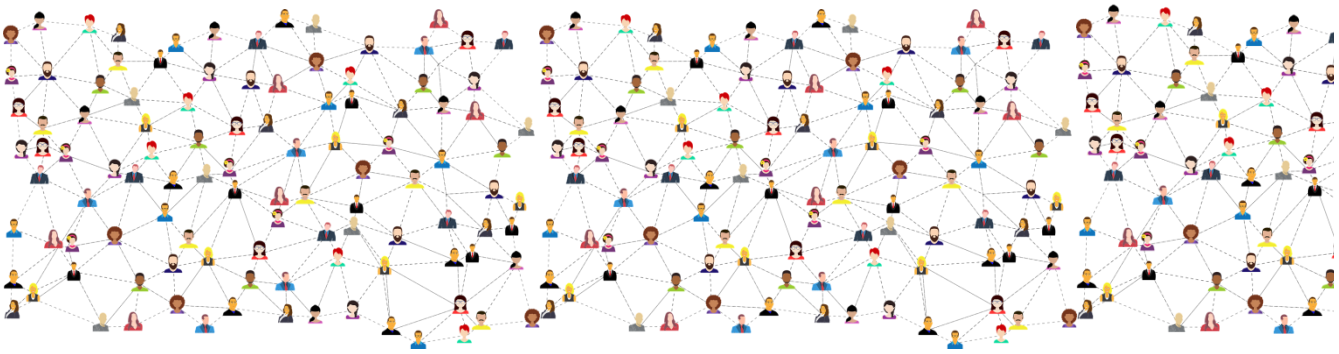
6.3 Decision making process

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





Proposal form submission

The Workshop proposal will be disseminated to the following relevant stakeholders and bodies for consultation:

- standards committee, working group etc.
- publisher of technical rules
- sector forum[Errore. Il segnalibro non è definito.]
- focus group[Errore. Il segnalibro non è definito.]
- coordination group[Errore. Il segnalibro non è definito.]
- others

Open commenting period on draft project plan

The project plan will be disseminated to the following relevant stakeholders and bodies for commenting:

- standards committee, working group etc.
- publisher of technical rules
- sector forum[Errore. Il segnalibro non è definito.]
- focus group[Errore. Il segnalibro non è definito.]
- coordination group[Errore. Il segnalibro non è definito.]
- others (NanoMECommons and HSbooster.eu sister projects)

In addition to the CCMC website, the project plan and the date of the kick-off meeting will be advertised on the NanoMECommons and HSbooster.eu website to raise awareness. Interested parties are requested to contribute either through commenting of the project plan (short term) or through Workshop participation (long term).

Open commenting period on draft CWA

The draft CWA will be disseminated to the following relevant stakeholders and bodies for commenting:

- standards committee, working group etc.
- publisher of technical rules
- sector forum[Errore. Il segnalibro non è definito.]
- focus group[Errore. Il segnalibro non è definito.]
- coordination group[Errore. Il segnalibro non è definito.]
- others (NanoMECommons and HSbooster.eu sister projects)

In addition to the CCMC website, the draft CWA will be advertised on <XYZ> to raise awareness. Interested parties are requested to contribute through commenting of the draft CWA (short term).

CWA publication

The final CWA will be disseminated to the following relevant stakeholders and bodies:

- standards committee, working group etc.
- publisher of technical rules
- sector forum[Errore. Il segnalibro non è definito.]
- focus group[Errore. Il segnalibro non è definito.]
- coordination group[Errore. Il segnalibro non è definito.]
- others (NanoMECommons and HSbooster.eu sister projects)

In addition to the CCMC website, the final CWA will be advertised on:

- sector specific newsletter
- social media, such as
  - Facebook
  - Instagram
  - LinkedIn
  - Twitter
- Research Gate
- EC Newsroom
- others

8 Contacts

- Workshop Chair:

  Gerhard Goldbeck
  Goldbeck Consulting Limited (GCL)
  gerhard@goldbeck-consulting.com

- Workshop Vice-Chair:

  <name>
  <Organisation>
  <address>
  <tel>
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- Workshop Secretariat:

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- Workshop proposer

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