



CEN/CLC/JTC 19 N 152

CEN/CLC/JTC 19 "Blockchain and Distributed Ledger Technologies"

Secretariat: **UNI**

Secretary: **Sirocchi Carla Ms**



NWI TR Sustainability Classification Methodology of Consensus Mechanisms v. 21 03 23

Document type	Related content	Document date	Expected action
Project / Other	Meeting: VIRTUAL 28 Mar 2023	2023-03-22	INFO

Description

item 9 Draft agenda of 9th meeting



New Work Item Proposal

* to be attached to the CIB

CEN/CLC/JTC 19 Blockchain and Distributed Ledger Technologies

Secretariat:

Proposal documented in N xx

Date of circulation:

Closing date for voting:

Decisionreference:

Decisiondate:

Proposal

0. This proposal relates to

- the adoption of a New Work Item in the committee's work programme (stage 10.99)
- the adoption of a Preliminary Work Item in the committee's work programme (stage 00.60)
- the activation of a Preliminary Work Item in the committee's work programme (stage 10.99): PWI XXXXX

1. Deliverable

- European Standard (EN)
- Technical Specification (TS)
- Technical Report (TR)

2. This item corresponds to

- A new project
- An amendment to the EN XXX
- The revision of EN XXX
- The conversion of TS XXX into an ENXXX
- The revision of TS XXX
- The revision of TR XXX

2.1 - Only for WIs of CEN/TCs (not applicable to CEN-CLC/JTCs WIs): if this item corresponds to an amendment/revision of an EN indicate if:

- the scope will change (weighted vote required -select the right option in the CIB)
- the scope will not change (simple majority vote required -select the right option in the CIB)

3. Explain the purpose and give a justification for this proposal(max.4,000 characters). This text should provide information on technical topics to be discussed.

Purpose:

The purpose of the proposal is to develop a Technical Report for the environmental sustainability of consensus mechanisms for Blockchain and Distributed Ledger Technologies. These document will:

- complement and support the European Securities and Markets Authority’s task of developing draft regulatory technical standards on the environmental footprint of crypto assets (see Article 5 paragraph (11a) [Markets in Crypto Assets Regulation](#)).
- feed into a report on /support the creation of energy efficiency labels for Blockchain and DLT according to section 6.4 of Commission Communication “[Digitalising the energy system - EU action plan](#)”
- support green public procurements of governmental agencies for blockchain technologies (including future pre-commercial procurements for capacity of the [European Blockchain Services Infrastructure](#)).

The primarily goal of this NWI is to develop a classification of blockchain-based consensus mechanisms according to their potential impact on sustainability (energy consumption), in order to support regulatory reporting and labelling.

If possible, this work item could be conducted in cooperation with the [European Observatory for Blockchain](#), the International Association for Trusted Blockchain Applications ([INATBA](#)) and the ESMA.

Justification:

The **London Declaration** was approved in September 2021 by ISO members and the IEC Council Board. The document commits the international standard-setting community to contribute to the achievements set out in the **Paris Agreement** and the United Nations **Sustainable Development Goals** (UN SDGs) that support the **Climate Agenda**.

At the European level, **CEN and CENELEC**, consider the **Green Transition** as a priority and have identified the digital and green twin transition as a core driver for their joint **2030 Strategy**, recognizing that standards are a critical enabler of the solutions needed for the Green Deal transition.

The new **European Standardization Strategy**, and its five main lines of action: anticipate, prioritize and address urgent standardization needs in a strategic environment developing standards in line with the European political and innovation agenda.

This NWIP is **consistent** with the ambition of the **European Green Deal**, the **REPowerEU Plan**, the **Sustainable Finance Agenda**, and the **European Digital Single Market Strategy**-

More concretely, Blockchain and Distributed Ledger Technologies, as digital enabler technologies and their applications, have a great potential for supporting use cases that increase the sustainability of the economy. At the same time, the so-called “proof of work” consensus mechanism (used in large blockchains such as Bitcoin) has raised concerns as it consumes almost as much electricity as small states and ramps up power consumption per transaction as the network grows. Alternative consensus mechanisms are significantly more sustainable, but there is no methodology yet to rank those according to environmental footprint.

Note: in case the WI is based on documents from other organizations than ISO/IEC, please specify it here

<p>4. Titles</p> <p>English title:</p> <p>Environmental and sustainability classification methodology of consensus mechanisms of Blockchain and DLTS.</p> <p>French title: (Optional)</p> <p>German title: (Optional)</p>															
<p>5. Scope of the proposed work item (max 4000 characters)</p> <p>Develop methodology for an environmental and sustainability classification of consensus mechanisms of Blockchain and Distributed Ledger Technologies that can serve as a basis for labelling these technologies and crypto assets according to categories of energy consumption efficiency.</p>															
<p>6. Digital aspects</p> <p><input checked="" type="checkbox"/> The deliverable is intended to be developed using the Online Collaborative Authoring platform</p> <p><input type="checkbox"/> The deliverable is intended to include non-Word/PDF content, e.g. audio files, XML schemas, machine-readable formats or software. Please provide details of the non-Word/PDF content:</p> <p><input type="checkbox"/> None of the above.</p> <p>If yes to either of these questions, CCMC will contact you for feasibility and organizational aspects.</p>															
<p>7. Stakeholder categories immediately affected by the proposal</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Industry and commerce</td> <td><input type="checkbox"/> Societal consumer groups</td> <td><input checked="" type="checkbox"/> Standards application</td> </tr> <tr> <td><input checked="" type="checkbox"/> SMEs</td> <td><input type="checkbox"/> Labour</td> <td><input checked="" type="checkbox"/> Non-governmental organization (NGO)</td> </tr> <tr> <td><input checked="" type="checkbox"/> Government</td> <td><input checked="" type="checkbox"/> Academic and research bodies</td> <td><input checked="" type="checkbox"/> Environmental stakeholders</td> </tr> <tr> <td><input checked="" type="checkbox"/> Consumers</td> <td></td> <td></td> </tr> <tr> <td colspan="3"><input type="checkbox"/> None of the above categories</td> </tr> </table>	<input checked="" type="checkbox"/> Industry and commerce	<input type="checkbox"/> Societal consumer groups	<input checked="" type="checkbox"/> Standards application	<input checked="" type="checkbox"/> SMEs	<input type="checkbox"/> Labour	<input checked="" type="checkbox"/> Non-governmental organization (NGO)	<input checked="" type="checkbox"/> Government	<input checked="" type="checkbox"/> Academic and research bodies	<input checked="" type="checkbox"/> Environmental stakeholders	<input checked="" type="checkbox"/> Consumers			<input type="checkbox"/> None of the above categories		
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<p>8. How will these Stakeholders benefit from or be impacted by the proposed deliverable?</p> <p><i>Under discussion</i></p>															

Industry and commerce –large industry and SMEs-: In the pre-commercial and commercial stage of applications of Blockchain and Distributed Ledger Technologies, one of the main bottlenecks is Stakeholder engagement and adoption. Guiding the applications to provide environmental sustainability information and easier compliance with the new EU legislation, will allow the attraction of investment and stakeholders' adoption. It also promotes trust and interoperability, comparability and integrability of applications, and contributes to the Digital Single Market.

Government, Consumers, and Non-governmental organizations (NGO): The deliverable would support the achievement of the Green Deal objectives, and the SDGs, as well as the European Commission's political goals and support for the New European standardization strategy. In addition, it promotes improvement in the efficiency of public services with the use of trusted applications and technologies that contributed to sustainable development. As has been mentioned, this proposal's pursuits complement and support the European Securities and Markets Authority's; support for the creation of energy efficiency labels for Blockchain and DLT, and support green public procurements of governmental agencies for Blockchain and DLTs. The proposal pursuits provide a key tool to support the implementation of the Digitalising the energy system - EU action plan, which can help improve the efficient use of energy resources, facilitate the integration of renewables into the grid, and save costs for EU consumers and energy companies.

Academic and research bodies: The standards play the role to facilitate frameworks and best practices for current applications and technologies, but also for future research and developments. Currently, there is a huge trend and research in the sustainability scope, however, one of the main shortcomings is the lack of adequate methodologies, references, and tools in the new technologies for environmental understanding and management. This proposal could facilitate an adequate tool for the scientific community to provide research and innovation management.

Standards application: As it is mentioned, there is a lack of methodologies to calculate and rank according to the environmental footprint of the blockchain applications and their consensus mechanisms. This standard could represent a cornerstone for facilitating the posterior standards development.

Environmental stakeholders: the documented proposed is also a cornerstone to understanding and reporting, facilitating better environmental impact management and proactive risk management.

9. Document developed in drafting body

Existing drafting body(*please give name and title*):

New drafting body(*please give name and title*): Environmental Sustainability

CEN/CLC JTC 19 /WG WG 2 on environmental sustainability

10. Proposed Project Leader (including contact details) - *Optional*

Belen Suarez, belensuarez@gotoinnovation.eu, bsl1172@gmail.com

Vocal at UNE CTN71/ SC 307 Blockchain y Tecnologías de RegistroDistribuido, coordinadoraSC 307/GT· Sostenibilidad de Blockchain y DLT

Vocal at UNE CTN 166 Actividades de investigación, desarrollotecnológico e innovación (I+D+i).

Liaison between ISO TC 307 and ISO TC 279 Innovation Management, and to ISO TC 207 Environmental Management

11. United Nations Sustainable Development Goals (SDGs)

Please select any United Nations Sustainable Development Goals (SDGs) that this document will support. For more information, please visit the SDG section of the CEN website(currently under development).

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequality
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace and Justice Strong Institutions
- GOAL 17: Partnerships to achieve the Goal)
- None of the above

Proposed rationale for the selected SDG(s)- (optional):

12. Accessibility aspects

See CEN-CENELEC Guide 6:2014 'Guide for addressing accessibility in standard'

Accessibility aspects are relevant for this NWI (please indicate which ones):

See the 'protocol' to help you decide when accessibility following a Design for All approach is relevant:

<https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/accessibility/design-for-all/>

- Accessibility aspects are not relevant for this NWI

Please provide a written explanation detailing why accessibility aspects do not apply to the current proposed WI:

It is not clear a preliminary direct connection with the accessibility aspect, anyhow it could be re-evaluated in a later stage.

<p>13. Environmental aspects</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Discharges to soil</td> <td style="width: 33%;"><input type="checkbox"/> Discharges to water</td> <td style="width: 33%;"><input type="checkbox"/> Emission to air</td> </tr> <tr> <td><input type="checkbox"/> Heat</td> <td><input type="checkbox"/> Noise/Vibration</td> <td><input type="checkbox"/> Use of land</td> </tr> <tr> <td><input type="checkbox"/> Radiation</td> <td><input checked="" type="checkbox"/> Use of energy</td> <td><input type="checkbox"/> Other effects on biodiversity</td> </tr> <tr> <td><input type="checkbox"/> Use of material</td> <td><input type="checkbox"/> Use of water</td> <td><input type="checkbox"/> Waste</td> </tr> <tr> <td><input type="checkbox"/> Risk to the environment from accidents/misuse</td> <td></td> <td><input type="checkbox"/> Chemicals</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> Other:</td> </tr> <tr> <td colspan="3"><input type="checkbox"/> None of the above.</td> </tr> </table> <p><i>Please provide a written explanation detailing why these environmental aspects do not apply to the current proposed WI:</i></p>	<input type="checkbox"/> Discharges to soil	<input type="checkbox"/> Discharges to water	<input type="checkbox"/> Emission to air	<input type="checkbox"/> Heat	<input type="checkbox"/> Noise/Vibration	<input type="checkbox"/> Use of land	<input type="checkbox"/> Radiation	<input checked="" type="checkbox"/> Use of energy	<input type="checkbox"/> Other effects on biodiversity	<input type="checkbox"/> Use of material	<input type="checkbox"/> Use of water	<input type="checkbox"/> Waste	<input type="checkbox"/> Risk to the environment from accidents/misuse		<input type="checkbox"/> Chemicals	<input type="checkbox"/> Other:			<input type="checkbox"/> None of the above.		
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<input type="checkbox"/> None of the above.																					
<p>14. How do you plan to address these environmental aspects?</p> <p><input checked="" type="checkbox"/> Bring in environmental expertise to the WG</p> <p><input checked="" type="checkbox"/> Contact EHD for help/support (cen.ehd@cencenelec.eu) and/or use examples from Environmental Framework https://www.cencenelec.eu/areas-of-work/cen-cenelec-topics/environment-and-sustainability/environmental-helpdesk-and-trainings/</p> <p><input checked="" type="checkbox"/> Use of environmental checklist and guides (please visit the dedicated section in the CENwebsite https://boss.cen.eu/reference-material/guidancedoc/pages/environment/)</p> <p><input type="checkbox"/> Other:</p>																					
<p>15. Vienna Agreement (parallel procedure)</p> <p><input checked="" type="checkbox"/> No or Vienna Agreement with CEN lead proposed</p> <p><input type="checkbox"/> Yes – Vienna Agreement Parallel with ISO Lead</p> <p style="margin-left: 20px;">ISO project reference:</p> <p style="margin-left: 20px;">ISO project ID:</p> <p style="margin-left: 20px;">ISO/TC:</p>																					
<p>16. The project is based on</p> <p><input checked="" type="checkbox"/> No document from another organization</p> <p><input type="checkbox"/> An ISO or ISO/IEC document (not covered by a parallel procedure)</p> <p style="margin-left: 20px;"><input type="checkbox"/> Identical</p> <p style="margin-left: 20px;"><input type="checkbox"/> Non-identical</p> <p style="margin-left: 40px;">ISO/IEC project reference:</p> <p style="margin-left: 40px;">ISO/IEC project ID:</p> <p style="margin-left: 40px;">Publication date:</p> <p><input type="checkbox"/> A document from another organization than ISO or ISO/IEC:</p> <p style="margin-left: 20px;">Note: Please explain the purpose and give a justification for this proposal in Section 3.</p>																					
<p>17. Please indicate whether the proposed project is linked to a specific European Research and Innovation Project</p> <p><input checked="" type="checkbox"/> No</p> <p><input type="checkbox"/> Yes</p> <p style="margin-left: 20px;">Research and/or Innovation project code:</p> <p style="margin-left: 20px;">Research and/or Innovation project acronym:</p> <p style="margin-left: 20px;">Research and/or Innovation project title:</p>																					
<p>18. Track</p> <p><input type="checkbox"/> Enquiry + Formal Vote (for EN)</p> <p><input checked="" type="checkbox"/> Vote on TS or TR by correspondence</p>																					

19. Please provide the target dates for the below key stages.

19.1 – For ENs

This section applies only to WIs for homegrown CEN standards (excluding ISO adoptions), WIs under VA with CEN lead only and homegrown standards developed by a CEN-CLC/JTC (with CEN lead). This section does not apply to the adoption of PWIs. For JTCs also add the durations in week.

<u>Project start date (10.99)</u>	<u>Dispatch of 1st WD (20.60)</u>	<u>Dispatch of ENQ (30.99)</u>	<u>Dispatch of FV draft(45.99)</u>
	It is half the number of weeks planned for ENQ (30.99) For CEN/TC: automatically calculated via Working Area For JTC: date will be added by CCMC	For JTC only: to indicate the duration in weeks from 10.99 10.99 + weeks	For JTC only: to indicate the duration in weeks from 40.60 <u>40.60 + X weeks</u>

19.2 –For TSs and TRs

<u>Project start date (10.99)</u>	<u>Dispatch of 1st WD (20.60)</u>	<u>Dispatch of draft for Vote (30.99)</u>
2023-03-27	2023-12-30	2024/03/30

20. Related standardization request(s) (formerly mandate):

- No
 Yes (please specify):

21. Related directive(s)/regulation(s)

<input type="checkbox"/> No		
	Directive/ Regulationreference	Candidate for citation in Official Journal?
<input checked="" type="checkbox"/> Yes		<input type="checkbox"/> Yes
		No
		<input type="checkbox"/> Yes
		No

Regulation (EU) 2022/858 of the European Parliament and of the Council of 30 May 2022 on a pilot regime for market infrastructures based on distributed ledger technology

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Markets in Crypto-assets, and amending Directive (EU) 2019/1937

Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment (the "Taxonomy Regulation")

Regulation (EU) 2022/1925. Amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act, published in the Official Journal on 12th October 2022.

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on a Single Market For Digital Services (Digital Services Act) and amending Directive 2000/31/EC.

Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on European data governance (Data Governance Act).

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive 2013/34/EU, Directive 2004/109/EC, Directive 2006/43/EC and Regulation (EU) No 537/2014, as regards corporate sustainability reporting.

Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937

22. Relation to other legislation or established public policy.

No Yes

Please specify which legislation or established public policy is/are in relation with the proposed project:

This initiative is aligned with several policies and strategies, such as

The **OECD Recommendation of the Council on Blockchain and other Distributed Ledger Technologies**, adopted by the Council at the Ministerial level on 10 June 2022, to encourage an ethical and responsible approach to Sustainable Blockchain Innovation and Adoption.

The **European Digital Single Market strategy**, as well as specific initiatives in the European context. For instance, the **Data Governance Act**, which seeks to promote the use of data to enable the achievement of public policy goals, or the pilot regime for market infrastructures based on distributed ledger technology, which should be aligned with sustainable finance goals. Within this strategy, **the European Blockchain Services Infrastructure (EBSI)** can also serve as a neutral trusted space where the outcomes of this standardisation process can be implemented.

The efforts in the European space are in continued legislative and regulatory facts and the future Data Act and eIDAS 2.0 are other regulations with which this initiative will take the track to harmonise.

It is aligned with the new European Standardization Strategy, and its five main lines of action: anticipate, prioritize and address urgent standardization needs in a strategic environment developing standards in line with the European political and innovation agenda.

Various regulatory initiatives at both European and international levels seek to broaden the quality and scope of sustainability reporting, aiming to measure and monitor sustainability-related risks more effectively. On the very specific issue of blockchain, the **EU action plan on digitalizing the energy system** (COM(2022) 552 final) expresses the Commission's intention to cooperate internationally with, and build on the technical expertise of, standardisation bodies to **develop an energy-efficiency label for blockchains**.

In a **draft Regulation on Market in crypto-assets**, endorsed by the EU legislature in October 2022 (not yet published), issuers of crypto-assets that currently fall outside the scope EU financial services acts and providers of related services will be required to disclose the principal adverse environmental and climate-related impact of the consensus mechanisms. European Supervisory Agency will further specify the disclosure requirements in Regulatory Technical Standard adopted by the Commission. The Commission will need to revisit this issue as part of the broader review of the Regulation in 24 months and 48 months after its entry into force.

This NWI seeks to use blockchain technology to support the achievement of these objectives. The goal of this NWI is to develop a classification of the consensus mechanism of blockchain-based applications and technologies according to their impact on sustainability, starting from energy consumption, in order to clarify the reporting of such activities.

Other references of this NWIP:

- ISO 22739:2020 Blockchain and Distributed Ledger Technologies –Vocabulary
- ISO/TS 23258:2021 Blockchain and Distributed Ledger Technologies - Taxonomy and Ontology
- ISO /TR 23244: 2020 Blockchain and Distributed Ledger Technologies – Privacy and personally identifiable information consideration;
- ISO /TS 23635 Blockchain and Distributed Ledger Technologies –Guidelines for Governance;
- ISO/TC 307/WG6 Blockchain and Distributed Ledger Technologies – Use Cases;
- ISO 26000, Guidance on Social Responsibility;
- Series CENT/TS 16555, Innovation Management;
- Series CWA 17145 Ethics assessment for research on Innovation;
- CWA 17796: Responsibility by Design;
- ISO 56002 Innovation Management System;
- ISO 9001, Quality Management System;
- ISO 14001, Environmental Management System

23. Is the proposed project covered by Intellectual Property Rights (IPR)?

Please indicate whether there is any knowledge of items covered by IPR(s), for instance patents, copyright, trademark, etc.

No

Yes

Please provide full information about these items and the identified IPR(s):

24. Commitment This section applies only to CEN-CLC/JTC To be completed for NWI request to be approved by CEN and CENELEC BTs.

The following members (at least five) are committed to participate in the development of the project: