

Background

This pilot project is a sub-project of the CEN-CENELEC Digital Transformation Project 2 'Standards of the Future' and aims to understand and contribute to defining how the standards development process needs to be adapted to better serve the future needs of industry by providing guidelines for drawing up the future rules for the creation of machine readable and machine interpretable standards.

Today, standards are supplied to customers on paper, in PDF and in some cases, HTML format. This gives the user no possibility to exploit the content in a flexible or tailored manner, that is to easily integrate the content in processes and applications. Add to this that the rules for writing standards are largely gaged to a human and not a digital use. And they are not always written in a clear and unambiguous way making human interpretation essential.

Machine readable and interpretable standards will put CEN-CENELEC in a position to provide digitally adapted standards content to facilitate the CEN and CENELEC members in supporting industries' digital transformation. The challenge is to clarify what is necessary to be able to adapt CEN-CENELEC processes in order to deliver machine readable and interpretable standards content.

The pilot project will focus on understanding the needs of the Construction sector and how to adapt the structure of the standards content, and in particular the requirements, to better respond to their needs, by analyzing concrete cases.

Approach

The initial phase will concentrate on information gathering to more clearly define end user needs in the *Construction sector* and existing knowledge gathered in previous projects and standards related to structured information.

The approach in the second phase will be to take one or more *existing* 'requirements-rich' CEN-CENELEC standard(s) in the sector and, based on an iterative process, create redefined rules for the creation of the standard(s). Existing standards will be used to avoid complications involved in the standards development timeframe and process of consensus. For the moment we have selected 4 standards, with a variation in type, application and complexity:

- EN-ISO 52010-1 'Energy performance of buildings – External climatic conditions – Part 1: Conversion of climatic data for energy calculations'
- EN 1992-1-1 'Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings'
- EN 12201-2 'Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE) - Part 2: Pipes'
- EN 50172 'Emergency escape lighting systems'

The exercise to deconstruct and reconstruct the Standards will result in lessons learned to how to write standards in a different way. The project is characterised as an Innovation project. This implies a flexible and learning oriented approach.

Expected results

The project will deliver a report on the findings on the process of assessing standards for machine readability including proposals/guidelines for:

- Defining rules for content creation to achieve machine readability, with the focus on requirements (shall, should, can, may)
- Defining the technical requirements in the NISO XML schema to achieve machine readability focusing on the requirements (shall, should, can, may)
- Identifying content types uniquely requiring machine interpretability
- Identifying technical requirements to achieve machine interpretability of all standards content – indicating assessment of ontological methodology
- The scoping of what can be done within the standards development process and what needs to be user specific

Organisation

The project is led by the Dutch standardization institute (NEN). The project will be executed in a larger structure of groups (project team, standardization rules and content group, advisory group and user group) that will be involved in different stages of the process. We have installed an active and broad project team which represents from a.o. BSI, AFNOR, DIN, SIS and NEN.

Planning

The project started in March 2019 and will be finalised in December 2019. The main part of the work will be done between May 2019 and October 2019.

Request for expertise

The project team seeks expertise and support to facilitate the process to deconstruct and reconstruct the standards. The intention is to establish a specific team per standard to realise this. This would mean that 4 small teams will do the work. The external expert will support this process.

The external expert:

- Draws up and coordinates their plan, approach and knowledge input per team
- Trains the participants on their tasks
- Supports the teams in the deconstructing and reconstructing of the standard
- Supports the teams in finding practical solutions in writing requirements
- Standardizes the output per team
- Assists in the discussion between teams and the discussion with the committee experts
- Provides concrete lessons learned, both on process as on guidelines for writing standards
- Gives input on the required competencies to be developed
- Gives advice on what can be done generically in standards development and what can be done by market parties

The exact scope and activities will be determined in close cooperation. Language in English.

Criteria for selection

- Minimal 5 years' experience with system engineering (to be applied to standards) (25%)

- Experience of writing clear requirements for content, structure and consistency of content (to be applied to standards) (25%)
- Minimal 5 years' experience in coordination of teams (25%)
- Best value for money offer (25%)

Proposal

- Candidates are asked to describe how they would approach the pilot and what specific expertise they would bring to the process if they are selected.
- Candidates are also asked to provide a day tariff.
- The total time investment required, estimated in days is between 20-30 days.
- Proposals, written in English, can be sent to Jo Collins (jo.collins@nen.nl) **before 14 June**. Offers received beyond this deadline will not be taken into consideration.
- Interviews with candidates will be held in week 26 (24 June and 25 June), in Delft
- More information can also be given by Jo Collins (jo.collins@nen.nl, Tel: +31 (0) 15-2690288)