Proposal for a more efficient and inclusive process for writing harmonized standards

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1 Introduction

As indicated in our answers to the main questions of this consultation, we consider the standards process run by CEN-CENELEC to be not fit for purpose, when it comes to the timely, efficient, and inclusive delivery of harmonized standards for new digital or green legislation under a Standards Request (SR).

In this document, we propose a more streamlined harmonised standards writing process. This process could be used by a new European standards organisation capable of responding to SRs, or on a project-by-project basis, where instead of assigning requests to a standards organisation, the EC assigns each request to a new project which it starts, funds, and oversees.

1.1 About the primary author

Dr. Koen Holtman is an independent AI safety researcher who is currently working as resident standards expert and co-lead of the AI Standards Lab. He has a PhD in Software Design from Eindhoven University of Technology, He has 20 years of experience as a systems architect in industrial R&D and 12 years of experience in standards creation. He has made contributions to several standards, most notably the standards defining the HTTP/1.1 protocol and the Blu-ray Disk system, and the upcoming CEN-CENELEC JTC21 AI safety standards in support of the EU AI Act. He has been a member of the JTC21 WG2 Risk project Editorial Team, a co-convener of the JTC21 WG1 task group 'horizontal/vertical standardization', and is a member of the JTC21 Inclusiveness Task Group.

1.2 What is a harmonised standards process intended to achieve?

Before we go into the details, it makes sense to review the purpose of the harmonised standards writing process.

The EU standards request mechanism implies a division of labour. It allows the EU legislator to simply specify in a new piece of legislation *that* certain safety related outcomes have to be achieved by parties subject to the regulation, and specify *that* generally acknowledged state-of-the-art methods of safety engineering shall be applied when achieving these outcomes.

The text of the legislation then does not need to go into technical detail about what these state-of-the-art methods actually are. The expectation is that technical experts writing standards will fill in these details. The legislator further anticipates that these standards will be updated if the state of the art changes.

Under the NLF, these technical standards can become officially approved ‘manuals’ that describe how companies and other actors can comply with EU safety regulations. The central idea is that such standards, known as ‘harmonized and cited standards’ when approved, will provide a presumption of conformity of legal requirements. If a company demonstrates that their product or system complies with a harmonized and cited standard, market surveillance authorities and courts will presume that they comply with the corresponding legal requirements.

In light of the above, a harmonised standards writing process needs to fulfill a set of requirements:

1. The process needs to produce technically valid standards, that neither strengthen nor weaken the requirements in the legislation concerned, but that instead provide interpretative and technical guidance in a way that lowers legal risks for the users of the standards.

2. The process needs to realise frank discussions between diverse experts (from industry, from civil society, from academia) allowing them to agree on what the nature of the generally acknowledged state of the art is, for processes and activities needed to implement the requirements in the legislation.
    a. Disagreements in such discussions cannot be settled by mere voting. Achieving a 51% majority which backs a certain statement does not yet mean that this statement is ‘generally acknowledged’, or should become ‘generally acknowledged’.
    b. The generally acknowledged state of the art consists of safety engineering know-how, present in both industry and certain parts of academia, know-how about which approaches are likely to work and which approaches must definitely be avoided. This know-how is preferably backed up by academic studies (studies doing statistics of both successes and disasters, and studies identifying problems and failure modes), but in novel areas where no body of statistical knowledge has been built up yet, the state of the art ultimately needs to reflect the ‘informed gut feeling’ of the safety engineering community.
    c. The description of the generally acknowledged state of the art therefore has to be informed by assembling safety engineering knowledge and experience found across persons and organisations. The correct way to agree on the ‘generally acknowledged’ nature of such knowledge is by expert consensus, according to a process which has safeguards allowing all experts to be heard.
    d. Attempts to reach consensus on a topic might sometimes encounter deadlocks that cannot be resolved: in that case the productive way forward is for experts to agree to disagree, and to simply not provide any interpretative or technical guidance on the topic.

3. The process needs to deliver the standards in a timely way, and if this is impossible because of unforeseen developments, it needs an orderly way to scale down in the completeness of its deliverables
    a. To ensure timeliness as well as broad inclusivity, the process should be as efficient as possible
        - As discussed below, the CEN-CENELEC process, as it exists on paper and as it is executed in practice, has a great number of avoidable inefficiencies
    b. To ensure timeliness, the process needs to be designed to create and uphold a certain team spirit among the experts participating in the discussions, as well the mutual trust

among experts that they are all both willing to contribute their independent and objective expertise, in a way that puts the interests of society as a whole ahead of the interests of their employer. This trust needs to be created even in the face of circumstances where some employers are well known to oppose, or have opposed, the legislation concerned.

4. As the delivered standards will have a legal effect, the standards process also needs to convey *legitimacy* on the result. It is not enough that the standards satisfy the first and second criteria above, it is also necessary that they are *broadly believed* or *trusted* to satisfy these criteria, that this trust is present in both parties who participated in the writing process, and in parties outside of it.
    a. Such legitimacy is created in part by ensuring that interested stakeholders with necessary expertise have the time, funding, and motivation needed to participate in the process, and that the participating stakeholders together cover all types of expertise (e.g. technical expertise, human rights expertise) required.

In most standards processes, the standards created are voluntary to adopt, and legitimacy is created by voluntary adoption. This route to legitimacy is not available for harmonised standards. This makes the use of other instruments, specifically the instruments of transparency and openness, more important than it is in the voluntary standards creation process.

2 Proposed standards process

In order to keep the size of this document reasonable, this proposal is written for a target audience of readers who are already familiar with the general features of standards writing and standards processes.

In the subsections that follow, we define our proposed standards process by discussing its elements in turn. *We often use text in italics to explain in detail where, and why, our proposal differs from the CEN-CENELEC process for writing harmonised standards.*

We are participants with an inside view of what has happened in the CEN-CENELEC JTC21 standards writing effort. To maintain the required confidentiality, our text in italics often refrains from explaining our full set of reasons for proposing a different approach.

2.1 Publishing of completed standards documents

We propose that the completed standards documents resulting from the standards writing process are published for free on the open internet. These standards documents are also written to avoid normative references to standards that are published behind paywalls, because such normative references would force users to buy these referenced standards.

Though this weakness might be resolved soon because of certain court rulings, a major weakness of the CEN-CENELEC and ISO-IEC processes is that they end up with standards behind paywalls. This lack of transparency does nothing for their credibility. It prevents society from having an academic or

public debate which might conclude that yes, harmonised CEN-CENELEC standards or any other CEN-CENELEC or ISO-IEC standards are not actually that bad.

2.2 Use of English only

In our proposed process, working drafts of standards that are circulated for open commenting, as well as the final versions of standards, are all written in English only. The process has no steps that perform or require translations in other languages.

The above rule avoids the costly and slow (because of CEN-CENELEC capacity constraints) translation steps into French and German, which are required at various points in the default CEN-CENELEC process.

It is up to the European Commission to fund translation of the final versions of the delivered standards into other languages, if the Commission or the legislator deem this desirable.

2.3 Timing and duration

The standards writing process is planned so that

- it will take a minimum of 3 years between the start of the project concerned and the publication of the first edition of its standards
- it will take a minimum of 2 years between the point in time when the final legislation to which the standards request applies has been published in the Official Journal of the European Union, and the publication of the first edition of its standards
    - This means that if there are delays among the legislators to agree on the legislation, the timing of the standards delivery will automatically shift to compensate
- first editions will always be published when the minimum time period as defined by the two points above is over
- preview editions of the standards are regularly published while the process is running.

The standards project can start as soon as a draft Standards Request for the legislation concerned has been published by the EC. It needs to start with an open call for technical expert participation which leaves at least 3 months between initiation of the call and the first meeting by technical experts.

Note: the above numbers in years are for a project with about the complexity of the Standards Request for the EU AI Act. For less complex new legislation, and for projects that update existing standards, shorter timelines could be used.

2.4 Organisational setup

The process involves the following organisational entities:

1. The hosting project which organises and runs the standards writing

2. The hosting organisation of the above project, which can be either a new European standards organisation or the Commission
3. Paid personnel, which works for the project to perform certain organisational, writing, and record keeping tasks, while they maintain strict neutrality and divest themselves from having any technical views on the exact nature of the generally acknowledged state of the art.
4. Participating technical experts, who are expected to express their technical views on the exact nature of the generally acknowledged state of the art, while taking the stance that they need to apply their personal expertise in an objective way for the net benefit of the European community, and divest themselves from the specific organisational views or goals of their employer. While they are called 'technical experts', their expertise may range more broadly to topics beyond mere technology, e.g. they may provide expertise in the organisation aspects of safety engineering, in fundamental rights, or in applicable laws and case law.
    a. The only admission criterion for becoming an expert is that the expert is an European Union citizen or European Union resident. Experts do not have to pay any participation fees.
    b. Experts are in principle not paid for their work, but can apply for project-specific subsidies that would cover some or all of their time and travel expenses.
    c. The project-specific subsidy scheme for experts will have to apply stricter selection than the above criteria in providing subsidies, to divide the available funds in a way where a sufficiently large pool of experts having all needed kinds of relevant expertise and experience is assured. While participation of experts from large companies might not need to be subsidised, the sufficient participation of experts with applied safety engineering expertise in SMEs or startups may need to be subsidised.
5. The European Commission, which will take primary responsibility for clarifying, in writing, identified ambiguities in the legislation covered by the Standardisation Request (or ambiguities in the different legislative proposals before the legislation has passed), as well as identified ambiguities in how the legislation or proposed legislation might interact with other legislation.
    a. Commission representatives divest themselves from having any technical views on the exact nature of the generally acknowledged state of the art.
    b. Even so, experts have the right to invite legal personnel active in their own organisations, in other organisations, or in the other two legislative branches (the Council and the EU Parliament) to write and submit interpretative opinions.
6. Participants in the open commenting rounds of the writing process, who can be any citizens or residents of the EU, as any organisation that has economic activities in the EU, and any observer organisation
7. EU citizens or organisations (EU or non-EU based) who are observers, where, outside of open commenting rounds, these observers have no input to the process.
    a. Observers always have the option of adding qualifying technical experts to the process if they want to provide input.
    b. Members of the press and academics studying the standards system can be observers.

New experts and observers can join the project at any time. The subsidy scheme for experts is arranged to make calls for expertise which ensure that sufficient experts will join the process early enough. It should also aim to spend the available funds evenly over the entire duration of the project.

Compared to the CEN-CENELEC process, the most notable simplification above is that there are no layers of indirection or decision making involving national standards bodies.

2.5 Allocation of subsidies to support participating experts

At least in the first 5-10 years that this proposed process is used, it will be necessary to allocate substantial funding to support participating experts.

This is because the business community is currently quite successful in using the strategy where individual firms and industry associations simply do not fund any manpower to participate in harmonised standards writing, so that they can obtain delays to the entry into force of the corresponding legislation. This strategy has been working very well, and it is also very cheap. Businesses who have trouble finding or funding standard experts can very easily convince themselves that this is the only strategy available to them. There have been some positive exceptions where businesses have actually engaged, but collectively they have often not.

The legislator will have to own the problem that its past actions have created a situation where the above business strategy has become routine and where it predictably works; the legislator will have to take responsibility for breaking this cycle. To break this cycle, the legislator must allocate substantial funding to the standards writing process, to fund and draw in technical experts who work for

- Academia
- Non-profits who either aim to support broad societal concerns or specific concerns like business community concerns
- The governmental and quasi-governmental sectors, when it is also subject to the legislation concerned
- Industry regulators, notified bodies, and auditing firms
- Small and large firms who will be subject to the legislation concerned

where it is to be expected that the last category above will initially be reluctant to even seek this funding. A calculation of the exact amount of funding to subsidise expert participation that is needed is in a later section.

Beyond money, there are many other barriers, e.g. required skills and the pleasantness of the working environment, which prevent a sufficient number of experts from being found who can or will participate in standards writing. This proposal tries to lower these other barriers too, but we consider the use of money to break the cycle to be essential. Money sends a clear signal about changed intent, both to the business and the academic communities, with a signal clarity that is not possible by using mere words.

As a side note, we observe that the CEN-CENELEC standards organisations and associated national standards organisations have historically been very bad at estimating how many resources would really be needed in order to support a pleasant and productive working environment for technical experts. We have generally seen them underestimate the need for support, forcing volunteer experts, conveners, and project leaders to take up the slack by doing at least 80% of the administrative and secretarial duties needed to make the process run. Having volunteer experts perform these duties also creates unavoidable trust issues about whether such experts might occasionally be making mistakes to favor their own employers, or mistakes to slow down the work in general. These trust issues are typically resolved by other experts using the strategy of 'trust but verify', with substantial

investment to double-check work. Rather than being alarmed at this waste of human resources, as many experts are, we have observed that CEN-CENELEC and the national standards organisations generally have an organisational culture where they treat this situation as business as usual.

2.6 Work planning process that anticipates the possibility of a lack of consensus, expertise, and time

The standards writing process works by expert consensus – however it cannot be guaranteed in advance that the experts present will be able to come to a consensus on every topic raised by the legislation that would hypothetically benefit from being clarified based on expert consensus. Experts might lack the relevant expertise, may find that they have disagreements that cannot be overcome, or may run out of time to have the needed discussions. The planning and tracking process defined here anticipates and embraces this problem, rather than being in denial of it.

The process takes into account that for any particular topic, a lack of consensus might be the only outcome that can be achieved from discussion. The process has explicit mechanisms to alert the Commission about topics where this might be the case or become the case. This then allows the Commission to take an initiative to clarify the topic by alternative means that uses other means to achieve (a certain level of) legitimacy, e.g. by unilaterally deciding on and publishing guidance, by publishing guidance based on a public consultation, or by creating hard-law guidance backed up by an implementing act.

The lack of an explicit mechanism to defuse the situation, to hand some problems back to the Commission if consensus cannot be achieved, has been a major problem affecting the project management in CEN-CENELEC JTC21 when implementing the Standards Request for the EU AI Act.

In detail, the proposed work planning process works as follows. A list of ‘work items’ is maintained, where each work item defines a topic for which a piece of text will need to be written into one of the standards documents to be produced under the SR.

Work items are defined to be small, while still being internally coherent, e.g. not ‘write requirements text that mirrors Article 5 of the legislation’ but ‘write requirements text that mirror the specific requirements in article 5(2)(a)-(e)’. Other work item examples are ‘write introductory remarks that explain the logic of the entire Article 5, but without containing any requirements’, and ‘write requirements showing how to apply certain part of the generally acknowledged state of the art, for a process that needs to be done as cross-cutting concern to achieve the outcomes required in several parts of articles.’

An initial list of work items is defined by the paid personnel, as a first-approximation of the decomposition of the work to be done to create at least a ‘minimum viable product’ set of standards responding to the SR. This work item list can then be modified or amended by technical experts, based on consensus in meetings.

The list also assigns a priority level to each work item (e.g. a number from 1-5), where priority levels are initially assigned by the paid personnel. Priority levels reflect a) the expected value, to the eventual readers of the standard, of writing text about this topic into the standard, and b) mutual

dependencies between work items, circumstances where work on a certain item cannot really start before the first draft for another item is finished.

The paid personnel also initially defines between 2 and 5 working groups, each of which will write a single standards document, while assigning the items to the different working groups.

The above proposal of paid personnel pre-defining the number of standards documents and allocating topics to them differs strongly from the CEN-CENELEC and ISO/IEC processes. In these processes, many time consuming steps are needed (NWIP writing, scope negotiations, national body consultation and voting, administrative steps) before a working group can even start writing a standards document using the digital tooling. Historically, and this is visible in public information, JTC21 spent a huge amount of time, and used a huge amount of manpower, just to get to the stage where a set of projects covering the entire Standards Request for the EU AI Act were indeed agreed on and active and working on draft documents.

Working groups will periodically review the priority settings of each work item that has been assigned to them, and may change the priority levels based on consensus in the respective working group meeting. A group may also transfer items to a different working group, based on a consensus in both groups.

An additional coordination working group is created to discuss and advise on cross-cutting concerns that arise between the working groups. This working group does not write any standards documents itself, but does own the work item of writing and maintaining a list of common terms that will be included in the terminology sections of each of the standards documents written by the other working groups, with the understanding that each standard may also define several extra terms specific to only that standard.

Working group chairs are responsible for scheduling the working group work on the different work items. The scheduling will be informed by straw polls and/or other types of surveys conducted among working group members, and will aim to make progress on any of the the highest-priority work items first. More details on how drafting and scheduling works are in a section further below.

2.7 Lifecycle of a work item

A work item initially starts in the ‘planned’ phase of its lifecycle, and can then move forwards (or sometimes backwards) between lifecycle phases based on consensus decisions made by its working group, and also sometimes based on the overall clock which initiates open commenting rounds on mature work item text.

The lifecycle phases are

1. Planned (a description, workgroup assignment, and priority are available for the work item)
2. Work started but no text: no text for the work item is yet available in the editing platform where the draft standards are maintained
3. Partial text, comments on text requested. At least some text for the work item has been entered into the respective draft standard, based on a consensus decision
4. Full text, under maturation. Working group comments on text requested, working group will resolve comments as it goes along until they declare the text mature.

5. Mature text: full text for the item is available in the editing platform where the draft standards are maintained, and the working group also has a consensus that the text is mature enough to be included in a general call for comments
6. Mature text, general call for comments is in progress
7. Mature text, general call for comments has ended and working group is processing comments
8. Mature text, general call for comments has ended and working group has resolved comments (this is the typical end step in the lifecycle)

The lifecycle of a work item ideally proceeds linearly from 1 to 8 above. However, an item may also, by a consensus decision, enter one of the following phases:

9. Work on item abandoned by consensus agreement (this is a possible end step in the lifecycle)
10. Text considered immature, further work on item paused by consensus agreement, were the pause will last at least til [some time or some event]
11. Mature text, but some comments on it have been made which have not yet been fully examined or processed. In order to prioritize other work items, work on comment processing is paused by consensus agreement, where the pause will last at least till [some time or some event].

A working group may decide, based on comments received, that an earlier thought mature work item is demoted back in its lifecycle to ‘partial text’ or ‘full text under maturation’. The working group is expected to do this if the comments indicate that full rewrite or reconceptualisation is the best route forward. Based on comments or other inputs received, working groups may also decide to pause or abandon items, e.g. when they estimate that duly processing the comments to achieve good maturity cannot be achieved before the next tick of the overall process clock.

The final (first edition of) a standard to be published by a working group at the end of its work will contain the text for all work items that have the mature status. It is possible that time constraints will prevent all published work items from reaching ‘has resolved comments’ status: as it is well possible that there will be a lot more comments than processing capacity, there may not be enough time to fully read and process all comments before the (first edition) deadline, but a working group may have consensus to publish the work item text anyway, instead of changing the work item status to ‘under maturation’, ‘abandoned’, or ‘paused’.

A live dashboard of all work items, with their descriptions, workgroup allocations, and lifecycle status, is maintained by the paid personnel, in a place where all participants can access it. Appropriate search functions will be made available.

2.8 Overall process clock

The overall timeline, or process clock, for each working group is as follows.

In the first 3 months, paid personnel prepared the work while a public call for experts is being held.

In the remaining time period, until the requested delivery date of the standards, each working group will periodically switch between two modes:

A. Working group level work on their working draft

B. Pausing work while waiting for comments to arrive in an open call for comments, with each open call taking two months.

An open call for comments invites all stakeholders inside and outside of the project to study and comment on all parts of the working draft that are in the ‘mature’ state. A draft document containing only the mature work item text is constructed to support each open call. More details on the mechanics of commenting during an open call are in a section further below.

Each working group maintains a plan of record which shows a timeline with at least 3 open calls for comments, each taking 2 months, happening between the start and the end of the project, where the last call for comments must be followed by at least 3 months of working group activity to finalise the (first edition of) the standard. The open calls should generally be evenly spaced across the available project time – early calls should be calculated to have the side effect of increasing the visibility of the work and potentially attracting technical additional experts, even if there is not yet a lot of content.

The initial plan or record for each working group is developed by the paid personnel. Drafting and updating of plans of record should take into account that it is not optimal if all working groups do their open calls at exactly the same time. By consensus, working groups may decide to change open call timings in their plans of record. Working groups may also, by consensus, add additional open calls for comments. These calls could be limited to covering only a subset of the mature text work items in the draft.

If a working group expects to deliver a first edition of their standard under circumstances where
- a significant number of valuable work items have ‘immature’ or ‘paused’ status, or
- where some comments received on mature items were still unexamined and unresolved,

then it shall draw up a plan of record for an activity to develop a second edition.

2.9 Organisation of meetings

Meetings happen at the level of working groups. Most meetings are virtual meetings, online via video call, and last 2-3 hours.

All meetings happen under the Chatham house rule.

The details in the paragraphs below are not much different from those found in the CEN-CENELEC and ISO-IEC processes, except for the occasional change in emphasis, openness, and which roles are done by paid personnel.

Each working group has a chair, a person from the paid personnel, who is responsible for planning meetings, sending meeting agendas, and chairing meetings. Meetings are also supported by a second person from the paid personnel acting as secretary, who is in charge of taking minutes recording the decisions of the meeting, and making decided-on edits to the working draft.

Hybrid meetings which allow face to face participation at a location, as well as online participation via video, will occasionally be organised, and should last 2-4 full days when they are devoted to a single working group, 3-5 days if they bring several working groups together at a single location. At least 3 hybrid plenary events, involving all working groups and lasting 4 days, will be organised per year, with

these events having the goal of allowing the participants of different working groups to mingle. These plenary events shall have long and unstructured lunch and coffee breaks, taking up at least ⅓ of the entire meeting time.

Joint virtual or hybrid meetings between different working groups may be organised if this facilitates progress or coherency in the work.

The timing of all meetings is preferably planned way in advance. Virtual meetings need a minimum need to be announced two weeks in advance, with the detailed agenda also available two weeks in advance. Hybrid meetings need to be announced at least 4 weeks in advance, plenaries 8 weeks.

Technical experts and observers can register which working groups they are interested in attending, which will subscribe them to an e-mail feed containing all new meeting invitations and meeting related documents. This e-mail feed is complemented by an online platform where all past and new documents, including meetings agendas, contributions, and minutes are stored, and where the entire meeting calendar is visible. Appropriate search functions will be made available. The platform also gives access to a live view of each working draft of each working group.

Registered experts can upload documents to be discussed in meetings of a working group to the respective working area of the working group. Documents can be written and submitted either based on invitations to submit documents on a certain topic, or based on their own initiative on any relevant topic. Chairs will schedule the discussion of such documents on future meeting agendas. While the chair has the sole scheduling power, chairs are expected to use straw polls in meetings to gather working group technical input on what topic is best discussed next, whether a topic should be discussed further only after a call for contributions on it yields some new contributions, etc.

Documents on new topics need to have been uploaded at least 2 weeks before they appear on the meeting agenda, documents that comment on further discussions in a recent meeting need to be uploaded 1 week in advance in order to appear on the meeting agenda.

The secretary will create two versions of the minutes for each meeting:

1. A version for internal use, which records the names and affiliations of meeting participants, and decisions. Minutes may, but do not need to, record highlights of discussions that happened in a meeting. Such a record of highlights may name participating individuals when it is useful to record who said what, and who wrote a certain contribution that was discussed. This version is available to all participants in the standards process, including observers.
2. A public version of the minutes, which records only the number of attending experts, decisions, and records highlights of discussions without mentioning identities, instead roles will be used: ‘chair’, ‘secretary’, ‘an expert’, ‘a Commission representative’.

An expert may explicitly ask to have their name name and/or affiliation, and a certain statement made by them, to be included in the minutes. If so this request will be granted as long as no legal concerns stand in the way. In this case experts also may request that their name and/or affiliation also remains preserved in the public version of the minutes, instead of being anonymised away.

Meetings may be recorded by the secretary for the purpose of minute taking. All participants are allowed to maintain private logbooks where they record what happened in the meeting, including

information shared on screen, or in the meeting chat, and can use these logbooks within the constraints of the Chatham house rule.

If meetings run out of time to discuss all topics on the agenda, then topics will be rescheduled for a next meeting, to be chosen by the chair, who may also seek input via a straw poll. A chair may take the action to invite further contributions on a topic, and wait with scheduling further discussion until they have been received.

Meeting participants shall treat each other more or lease as academics in the same field would treat each other. Specifically, they shall treat all experts as persons who apply their personal skills or expertise for the net benefit of the European community.

Experts with knowledge of specific needs or concerns of certain societal stakeholders (e.g. the needs of certain branches of business, certain groups of persons) shall feel free to explain these needs or concerns or to draw attention to them. They should also feel free to make change proposals to existing text, proposing versions that they feel would meet the concerns of these stakeholders better, or that would create a better balance between addressing different stakeholder needs or concerns.

Experts who verbally announce in meetings that they are abandoning their earlier proposal or position, e.g. in order to support a good-enough compromise or to accelerate progress even while they have doubts, shall always be verbally thanked by the chair for their support of the group making progress.

2.10 Transparency of information

Beyond the use of the Chatham house rule, which allows participants and observers to report on discussions to broader society, as long as information identifying specific people is not reported, the following transparency measures are in place.

- Meeting agendas and the public versions of the minutes are published on the open web (if needed under the Chatham house rule, certain identifying information is removed from the agendas before they are published).
- Experts are explicitly allowed to re-publish submissions they upload on the open web, after redacting them as necessary to satisfy the Chatham house rule.
- Documents written by the Commission in response to questions to clarify legal ambiguities are published on the open web
- At least every month, the secretaries publish snapshots on the open web of
    - The current working draft text of the working groups (minus comments present on them), including all text even text considered to be immature
    - The work item dashboard
- Old snapshots will not be deleted: the series of snapshots will serve to create a record in time.

The purpose of this transparency is to build legitimacy, and to make it easier to attract additional expert manpower.

2.11 Expert rights and duties in preparing for meetings

Experts participating in a meeting are expected to have pre-read and formed opinions on all submitted documents on the meeting agenda. If experts do not wish to read the documents on a certain agenda item because of a lack of interest, or run out of time to do pre-read on an agenda item, they shall refrain from participating in discussions on that agenda item.

The above rule places stronger requirements on experts who want to speak, or ask clarifying questions, than is done in the CEN-CENELEC process. It is supposed to create an environment where all participants are well-prepared and where discussions can be efficient.

If the meeting moves to trying to make a decision on an agenda item, a decision leading to edits of the working draft, experts who have not pre-read all materials may exceptionally announce that they need more time to study the issue, in which case the decision can be postponed to a later meeting.

Postponement happens by a decision of the chair, informed by a straw poll, where the chair and the meeting will take into account both the need for speed and the need for an inclusive and thorough discussion involving different kinds of expertise. Postponement of a topic may happen at most 2 times for each topic.

Experts are free to organise additional meetings between themselves outside of the regular meetings, potentially also involving participants who are not present as technical experts in the project, for example to brainstorm, collect input, to find mutual points of agreement or disagreement, or write a joint proposal. These meetings can be announced as open meetings where all experts are invited to participate, but this is not required. No minutes need to be taken of these meetings. These meetings do not need to be under the Chatham house rule.

Experts shall obey antitrust law at all times. Even when they are not market parties, they shall never make agreements between themselves or their organisations where they create ‘voting blocks’, that pre-commit them or their organizations to support certain proposals to be made later in working group meetings.

2.12 Time commitment of experts

Experts who wish to participate in the handling of all work items allocated to a working group should be able to do so with an average time commitment of at most 20 hours per week. The meeting chair shall seek occasional feedback from such experts, and use this feedback to either accelerate or decelerate meeting frequency and the handling of work items.

Depending on the phase the standards writing is in, the above 20 hours per week might be spent mostly outside of meetings, or mostly outside of meetings. The chair decides on meeting durations and frequencies.

Working group meetings do not necessarily have to last the full allocated time as specified on the meeting agenda. Ff, due to good preparation by experts, or the lack of preparation by experts, certain topics are finished fast, or need to be postponed to a next meeting, then meetings should be ended before the allocated time.

To allow for experts who have only an interest or expertise in selected work items to participate in the standards writing at a time commitment of less than 20 hours per week, the following scheduling rule for work items applies. The time elapsed between a work item appearing on the agenda in a first and a second meeting should at least be two weeks. (Hybrid meetings lasting several days are counted as a single meeting, when applying this rule).

2.13 Estimation of funding needed to encourage and subsidize expert participation

We now provide an estimate of the funding that will need to be allocated to subsidize expert participation.

These estimates are given assuming a Standards Request of similar complexity as the currently active one for the EU AI Act, and a 3 year duration of the process, and appropriate ambitions for the completeness of the standards.

- We estimate that 5 working groups are needed to write 4 standards documents
    - *In our opinion, JTC21 ended up with too many separate projects to support its SR, and a major mistake made in the original SR was to ask for 10 different set(s) of deliverables. This biased the early discussions in JTC21 towards planning a standard architecture more complex than needed and a number of separate documents much higher than needed.*
- For each above working group we need 5 experts, fully supported by subsidies, to pay attention to all the work (meaning they needs to be supported at 20 hours per week)
- For each working group we also need 5-15 more experts supported by subsidies to work on at least some of the topics and review working drafts, at 5-10 hours per week.
- Total: 5x20+10x7.5=175 hours per week per working group, making for a total of 5x175=875 hours per week (plus travel and lodging costs for attending hybrid meetings) to be covered by subsidies.
- Work should be remunerated for selected experts based on a written declaration of hours actually worked – it can be hard for an expert to estimate their workload over e.g. a 6 month period in advance.
- Work should be remunerated at a salary level appropriate for a mid-career academic in a technical field.
- The above estimates are for the expert time that needs to be subsidised, not for all expert time realistically needed to complete the standards. The assumption is that actual expert participation time will be at least twice of what is subsidised, with peak participation of non-subsidized experts happening near the end of the process.

Note that the above estimates assume the use of this proposed process. The CEN-CENELEC process has a set of built-in inefficiencies that would require at least a 3-fold increase in expert funding, compared to the above estimate, to achieve the same deliverables.

2.14 Specific measures to attract technical experts who are academics

The current situation is that academics are generally reluctant to participate in CEN-CENELEC or ISO/IEC standards writing process, because it does not create any citable publications or other career capital for them.

The publication format of finished standards out of a working group should therefore be designed so that any party in the respective working group who has contributed text to it will

1. be able to request that their name and affiliation as a contributor is mentioned in the standard
2. be able to list the standard in their list of publications, according to the prevailing norms for claiming co-authorship of a publication in their field.

The above rules of course break with the traditions in many standards writing organisations, except for the IETF, which demand that standards contributors remain anonymous.

The above publication rules should not only apply to the final standard, but also to the earlier subsequent working drafts of the standard that are published for open commenting. This early route to visibility for participating authors is particularly important for graduate students who might be considering participation.

Another measure is that working groups should maintain a generous policy allowing for the inclusion of informative references to academic papers or reports in their standard. For example, such informative references could be attached to examples included in the standard. Academic authors who participate in standards writing should be allowed to constructively leverage and cite their own past work.

Again, this breaks the usual traditions in ISO-IEC and CEN-CENELEC, where there seems an almost strange reluctance to cite relevant academic literature, to the extent where it often appears that certain explanatory information is only considered to exist to be referenced after it has been written up in a standards document or technical report sitting behind a standards organization paywall.

An explicit goal of our proposals above is to piece this cross-citation firewall between the standards writing and academic domains, which we see as one of the barriers to greater participation from academia.

2.15 Time commitment for chairs and secretaries

A member of the paid personnel acting as working group chair should expect to take a time commitment of at least 20 hours a week to prepare meeting agendas and longer-term scheduling proposals, attend meetings, and pre-read documents or comments submitted to the meeting.

A member of the paid personnel acting as working group secretary should expect to take a time that is double the number of hours during which meetings are held.

2.16 Rotation and term limits of chairs and secretaries

Chairs and secretaries shall rotate to a different working group at least every 6 months, and there shall be at least a 6 month period before they rotate back to the same working group.

A chair can perform at most two 6-month terms in the same working group. A secretary at most four terms.

Regardless of the above rules, it is allowed for chairs and secretaries to occasionally ask for another chair or secretary, or member of the paid personnel, to do chairing or secretarial duties for a working group meeting.

It is always possible that chairs who look promising on paper will be appointed, who will then turn out to perform badly. A chair needs a lot of diplomatic and social skills, and there is also an ineffable aspect of chemistry with the experts participating in the group. No selection criterion and no set of process rules can fully guard against the outcome where a chair or a working group will end up performing badly. So the option chosen in this proposal is to create a mechanism where replacement can happen without much fuss and without the need to determine or allocate blame.

The hosting organisation should treat the selection and appointment of paid personnel acting as chair or secretary in the way that major league soccer clubs treat the appointment of team coaches. If the team is not performing efficiently, it will be the coach, not the players, who will be asked to leave.

In the CEN-CENELEC and ISO-IEC processes, chairs (conveners) are elected and appointed for 6 years, project leaders till the end of the project, and secretaries basically till the end of the working group. The result is that CEN-CENELEC harmonised standards efforts have suffered a lot from the unlucky election and appointment of officers who have later turned out to be performing very badly, with their performance being a drag on the efficiency and atmosphere in the working group, without any mechanism being there to replace them. For communities writing voluntary standards on a topic, there is always the workaround abandoning a working group to start a similar project on that topic somewhere else, with a fresh chair, project leader, or convener, but this workaround is not available for harmonised standards writing.

The above term limits do raise the question of how sufficient candidates to perform paid personnel duties can be found by the hosting organisation, with reasonable effort and within reasonable time.

The hosting organisation should explicitly seek out the option of asking technical experts who have been contributing to the project, or other standards projects, if they would be willing to serve a 6 month term, or several such terms, as paid personnel. If an expert accepts such an offer, this means they are barred from operating as a technical expert at the same time in the project, but they are allowed to return as technical expert after their term is over.

2.17 Decisions and consensus

Working groups make decisions, in order of preference, by

1. Unanimous agreement among working group participants present in a meeting
2. Consensus among working group participants present in a meeting

where consensus is defined according to the ISO/IEC definition as being '*general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments*'.

Consensus does not imply unanimity.

Further constraints are that unanimous or consensus decisions can only be made on a topic if the intent to make decisions on that topic is declared in the agenda of the meeting, where the agenda is circulated at least 2 weeks in advance.

It needs to be understood, when reading the above ISO/IEC definition, that all of the 'concerned interests' in this case are the interests of experts working in a personal capacity, making their informed judgement on what would advance the net benefit of the European community.

According to certain parties, ISO consensus works by the principle that a convener (leader of the meeting) is allowed to declare a consensus decision if they believe that further discussion will not in fact be able to overcome '*sustained opposition to substantial issues by any important part of the concerned interests'.* Consensus can then be declared by registering which experts sustained the opposition. This in theory allows a convener to overcome opposition to a decision even in cases where the opposition comes from a supermajority of the experts present. This gives the convener too much power, calling into question the legitimacy of the standards process. Therefore, this supposed ISO principle, which exists according to certain parties, is not to be applied here.

That being said, it is possible to enter situations where most experts will feel that a certain opposing experts are being unreasonable in sustaining their disagreement to consensus. If a straw poll shows that a solid majority of experts, including at least one expert with the same background as the dissenting experts, agrees to the assessment that the dissenting experts are being unreasonable, then it is possible for the chair to declare a consensus.

In difficult or borderline situations, the chair shall not rely just on their own feelings about what consensus is supposed to be. To ensure that the process and the resulting decisions have legitimacy, they should seek to have their declaration of consensus in difficult situations backed up by a solid majority in a straw poll: a straw poll of experts on the question if they would have made the same decision to declare consensus if they had been the chair.

Meetings should not be afraid to reach a consensus on making the decision that the experts agree to disagree, which implies abandoning a work item altogether. A less drastic agreement would pause discussion on the item for e.g. 6 months.

2.18 Process and digital tools for submitting and handling comments on working drafts

ISO/IEC and CEN-CENELEC both use an in-house developed authoring and commenting platform called the 'OSD' to support working group activities to develop working drafts. Unfortunately, this platform locks in some huge process inefficiencies, especially in the process steps of working draft

consultation (working draft commenting by all national bodies) and enquiry phase commenting. Before we discuss the use of specific digital tools in our proposal, we first need to discuss these huge process inefficiencies.

Strangely and inefficiently, the ISO/IEC and CEN-CENELEC working draft commenting processes (the processes enabling comments by people who are not direct working group members) require national bodies to gather and assemble national level comments on the working draft first, and then send them on to be compiled into a single commenting file that is then given to the working group. This compilation typically involves the merging of large comment tables in word documents, with these comments linking back to the text via line number, instead of being immediately browsable in the online authoring platform. This use of Word documents is a source of inefficiency, and attempts are in progress to introduce more streamlined digital practices. But this source of inefficiency is not the main one we wish to highlight.

The main source of inefficiency is that the above process creates no opportunity for reviewers submitting comments to see comments already submitted by other reviewers, in their own country or in another country.

All of this results in a situation where a single problem in a working draft, one that would be clear to many stakeholders, is likely to receive some 10 separate comments in the final commenting file. We also need to consider the detail that each separate commenter is encouraged to individually come up with a proposal on how to fix the problem they comment on, creating a lot of duplicative work for commenters. This also means a working group is typically faced not only with having to read and merge 10 separate comments that identify the same problem, but also having to decide which of the 10 submitted change proposals would actually be the preferred one. This is deeply wasteful of working group time.

The route we propose to resolving these inefficiencies is a process where public commenting avoids any such national body steps or delays in comments being disclosed.

We propose that during an open commenting period, the current working draft (consisting of those work item texts that have mature status) is published directly on the open Internet, on a web platform that provides commenting functionality, in a way where every comment submitted by a first commenter becomes (almost) immediately visible in the online text to all subsequent commenters.

The platform should also allow comment threads with comments on comments. This allows for comments like ‘I support this change proposal’ or ‘I do not support’ or ‘I agree with the identified problem but propose the following alternative way to address it’. By being able to browse and append to existing comments, the commenters can be expected to self-organise in a way where gross duplicate writing of essentially the same comment and change proposal is avoided, and the working group can expect to see a much smaller set of comments that needs to be handled.

As a side effect of our proposal, all comments made will be visible to all on the Internet. This is desirable for transparency anyway, but to balance it with a need for inclusivity, there should be the ability for commenters in the open commenting phase to comment anonymously. To prevent abuse, a member of the paid personnel could install spam filters and/or periodically inspect submitted comments to remove comments with illegal or spammy content. They might also maintain a moderation queue for comments submitted anonymously.

The above open commenting process features could be supported by several widely used web-based platforms. Google Docs and Microsoft Word Online, with their commenting features, may be the choices that first come to mind, but they lack certain robustness features desirable for the open commenting phase. Using WordPress with commenting plugins like ‘wpDiscuz’ or ‘Front Inline Comments’, plugins that allow commenters to select a phrase or a word in a document and then attach a comment to it, would probably be a better option for open commenting. Both these plugins have open source versions, so they might be customized to e.g. automatically insert unique reference numbers for each comment and each response to a comment.

When it comes to commenting by working group members on the working draft during normal working group operations, and the process of the editor applying agreed edits to the working draft, the above Wordpress solution might also be used. But a more familiar (though less hardened against abuse) platform like Google Docs and Word Online might be more efficient, when supported by clear agreement that no expert shall use the ‘resolve comment’ or ‘delete comment’ buttons, only the secretary shall use them. (Accidental use of ‘resolve comments’ can be recovered from easily, at least in Google Docs. We are less familiar with how this would work in Word Online). The advantage of these two platforms is that they support not only plain commenting but also making ‘suggested edits’. The use of a more specialised online collaborative editing platform like Overleaf, which has specific ‘reviewer’ commenting and comment resolution functionality more advanced than that found in Google Docs or Word Online, could also be considered.

Regardless of the choice made, all shared editing platforms we have seen tend to have issues with intuitive navigation of many comments when many different comments are attached to the short same piece of text. The comments then tend to flow onto the next page, appearing far below the text they refer to. The easy but manual solution to this problem is to empower the working group secretary to judiciously insert vertical white space into the working draft whenever this happens. While more automated solutions could be imagined, we advise against attempts to pursue them because they’d take up more time than they’d save.

2.19 Proposing resolutions to comments

Working groups have the task of examining all comments received and deciding how to resolve the issues raised in the comments.

The comment resolution process is traditionally sped up in standards writing by empowering the chair to propose draft resolutions to the comments (received, where working group members are then asked to review these proposed draft resolutions and register any objections to specific ones. If no objections to a draft proposed resolution for a comment is received within a reasonable deadline, that draft proposed resolution then becomes the automatically accepted resolution for the comment.

We also propose the use of this process here, but with one important twist compared to the process as used in CEN-CENELEC. The twist is that the chair is both empowered and encouraged to outsource the writing of proposed comment resolutions to experts who volunteer to help with this task.

In CEN-CENELEC, we have seen that the absence of this option has led to project leaders and co-leaders (the equivalent position for what we call a chair) becoming over-worked and/or being a bottleneck to progress during comment handling.

That being said, the chair should do some quality control on invited and received proposed resolutions, and feel empowered to reject an invited proposed resolution, or ask for more work on it to be done, before bringing it to the meeting.

2.20 Writing text for standards and the standards writing help desk

As in most standards processes, our proposed process is organised so that the initial drafts of the standards texts for each work item have to be written and contributed by technical experts. Experts will submit these draft texts for consideration of the working group by uploading documents for meetings. The attendees in the meeting can then decide to ask the secretary to insert the uploaded text, or a variant, into the working draft present in the online authoring system environment.

Standards texts have to be written according to a logic that allows for conformity assessment to be done, conformity assessment against claims that a party has faithfully implemented the requirements in the standard. This logic makes standards writing different from other writing, e.g. of academic papers, textbooks, or legal briefings on the meaning of legislation.

In spite of these differences, we believe that it is very possible for newcomers to the standards world, coming in from academic writing or other fields, to write standards texts. But at the same time, there are certain barriers to be overcome by such newcomers, and in CEN-CENELEC we have often seen that these barriers were sometimes so high that the newcomers lost their desire to try to participate in the writing process.

Specifically, while documents like the Blue Guide, the HAS assessment common checklist, the CEN-CENELEC internal regulations part 3 (and the largely equivalent ISO / IEC Directives Part 2), and the ISO CASCO guidelines give useful guidance on the writing and formatting conventions for standards texts, they also contain many random rules that are completely unnecessary, as well as basic rules that have have developed a random and counter-intuitive interpretative lore around them.

This abundance of random details has led to discouraging effects where seasoned experts have often, advertently or inadvertently, nitpicked or criticized the submissions of new technical experts, who have then often been left on their own in order to find a solution. The rules-driven ‘content quality check’ tools available in the ISO-IEC and CEN-CENELEC online editing platforms have only been adding fuel to this negative spiral.

To overcome these chilling effects, and the inefficiency of chasing after obscure and random rules, we propose a process where a well-resourced standards writing help desk is available, a help desk staffed by paid personnel. This help desk is there to be called on by experts who want to refine their contributions, and work groups who want to have an authoritative answer on the question if a certain proposed or considered wording is good enough.

This help desk should definitely not be applying the somewhat counterproductive tradition that has been developed in ISO/IEC and CEN-CENELEC; instead it should take and broadcast a much more relaxed attitude.

To prevent the help desk from becoming overloaded, a rule can be created where experts can ask their working group for a consensus decision requesting the help desk to give priority to supporting that expert in developing a contribution further.

The help desk should also get ahead of the problem by writing and publishing style guides, and provide training sessions.

2.21 Process Ombudsman

Conflicts about the interpretation of rules and duties can easily arise in a high-pressure setting like harmonised standards writing. The hosting organization shall therefore appoint an ombudsman, as a member of the paid personnel who has no other duties, to whom conflicts can be escalated.

Even though all participants are responsible for upholding a legitimate and inclusive process, the ombudsman has special rights and duties to guard inclusiveness and legitimacy. The ombudsman can act as a mediator but can also force certain actions to be taken.

Based on complaints, and after due investigation and discussion about complaints, the ombudsman can instruct working groups to delete certain decisions and re-schedule a discussion of the topic, when the ombudsman believes this is needed to restore inclusiveness and legitimacy. Such binding instructions will inevitably delay progress towards a more complete standard, but instructions to restore inclusiveness and legitimacy shall be formulated while disregarding any such delaying effects.

The ombudsman can invite participants in the process to leave. If they detect a pattern of gross disregard of rules and duties in a participant, they can send a written warning about this to the participant, which should be accompanied by an invitation for a discussion. If the pattern persists for at least 6 months after the first written warning, and after at least 2 written warnings, the ombudsman can force the participant to leave.