

Sharing Incident and Threat Information for Common Situational Understanding (INSITU)

Project report:

Lessons learned from terminology harmonisation

SAMRISK project 295848

October 2022

Mikael Snaprud



Preface

The SAMRISK project “Sharing incident and threat information for common situational understanding” (INSITU) started in May 2019. The project focuses on common terminology and exchange of geospatial information to establish a common operational picture and a common situational understanding.

Based on the needs expressed by emergency management stakeholders and our analysis of the current practices, we have prepared software tools for easier access to dictionary records and for terminology comparisons and a methodology for terminology harmonisation. The software tool is established on the project webpages and on <https://insitu.termmer.no/search>. The tool for easy dictionary access is used on webpages and PDF documents presented from the Norwegian Joint Rescue Centres (Hovedredningsentralen.no) and The Norwegian Industrial Safety Organisation (NSO.no) since 2020.

We planned to validate and revise the harmonisation methodology for the revision of the national Rescue Handbook (Redningshåndboka) scheduled for 2021. This revision is delayed and the new date for starting the revision is not known at the time of writing this report. Therefore this report will focus on the other lessons learned from terminology harmonisation, in particular standardisation, and exercises. We also outline the status and outlook for use of the INSITU TERMER service for harmonisation on learning materials, websites, an event management application and more generally in web browsers.

Lillesand, October 2022

Mikael Snaprud
CEO
Tingtun AS

Full citation for the report:

Snaprud, M. (2022). Project report: Lessons learned from terminology harmonisation. SAMRISK project INSITU. University of Agder, Norway. ISBN 978-82-8427-098-2.

Abstract

A common understanding of language and the meaning of concepts is needed for communications in general, and can be crucial to save lives in large rescue operations. Redningshåndboka (the National Rescue handbook) provides a common glossary for first responders' communications across all sectors in training and practice. However, today each sector maintains their own glossaries, acronyms and jargon, causing potential misunderstandings in joint operations.

In this report we outline lessons learned from national and international standardisation and additional practical project outcomes to contribute to terminology harmonisation from the INSITU project.

Table of Contents

1 Introduction.....	1
2 Terminology in standardisation	2
3 ISO TC 292 Security and Resilience.....	3
3.1 Translation of the security and resilience vocabulary	3
3.2 Lessons from the revision of the ISO vocabulary	8
3.3 Proposal to use INSITU results in standardisation	9
4 INSITU contributions to terminology harmonisation	9
4.1 Provide better access to terminology	9
4.2 Harmonisation and standards	14
4.3 Communication with users.....	14
4.4 Terminology in training.....	15
4.5 Privacy protection	15
5 Concluding remarks.....	15
6 References	17
7 Annex 1 – Poster with early methodology ideas.....	18
8 Annex 2 – Project plan for translation work	19

1 Introduction

The project “Sharing incident and threat information for common situational understanding” (INSITU) is funded by the SAMRISK programme of the Research Council of Norway for the period May 2019 – September 2022.

The project is addressing expressed challenges from emergency managers at both the national and regional level related to information sharing for common situational understanding. Despite increasing access to digital information services relevant for emergency preparedness and response, an overview is lacking of how this information can be effectively collected and combined, and of the needs for information sharing between the agencies collaborating in a crisis situation. Different terminologies are also being used across disciplines, causing possible challenges for effective crisis communication and coordination of resources. Further, there is a lack of standardised map services for supporting cross-agency collaboration.

During emergency response, the information that is shared and received among the different first responder organisations has to be precise and clear. To underpin the communications we need a well-established crisis management terminology. Several collections of terms have been prepared to cover different events and situations such as pollution, radiation, fire safety, and dangerous goods. Today such terminologies are provided in different locations, depending on how the crisis management is organised. This distribution across web sites and documents and a range of different formats make them hard to use and maintain.

For the INSITU project we have collected around 40 sources covering concepts in Norwegian and English. Some of these sources cover many additional language combinations, including the General Multilingual Environmental Thesaurus (GEMET) and EU climate change key terms, with over 500 language combinations each. Translations with such combinations can be useful for the collaboration needed to handle large events such as forest fires where international support is needed. To enable translation of phrases, in addition to terms, we have integrated eTranslation from the European Commission covering translations among 38 languages, including Norwegian, and from 2022 also Ukrainian.

To support the progress towards a harmonised terminology we have developed the INSITU Methodology for terminology harmonisation [1]. Earlier ideas for the methodology were outlined in [Svindseth paper 2] and presented as a poster session shown in Annex 1. To prepare the methodology we build on Termlosen [3], and a more general method to harmonise or differentiate terms from the Norwegian Digitalisation Agency (Digdir) [4].

In 2018 the The Joint Rescue Coordination Centre published Redningshåndboka (the National Rescue handbook) including concept definitions for joint rescue operations. Emergency responders from all sectors as well as NGOs are encouraged to use these concepts.

A revised version of this handbook with an updated list of concepts was scheduled for release in the autumn of 2021. The initial plan for this report was to apply and revise the INSITU Methodology for terminology harmonisation to support the handbook revision. Due to the revision delay, this report instead focuses on lessons learned from standardisation and additional ways to contribute to harmonisation.

2 Terminology in standardisation

To make standards easy to understand they must be well written with a clear language and a consistent use of domain specific terms. Standards generally have an introductory section with definitions of the terms used in the document. What terms to include here and how to maintain them may be harder to handle than expected at first glance. Although both ISO and Standards Norway have their terminology databases available online there is currently no clear procedure in use to prevent a committee to define an existing term in a new way, or to define general language terms.

Moreover, experts from different first respondent sectors like health, fire or police may define the same term in different ways. Further complicating issues include different expert opinions on what terms to define, the form and content of the definition, legacy definitions from related or older versions of a standard, use of terms in a different way in other related standards, in legal documents or in other related documents such as guidelines, procedures, checklists or product descriptions.

Finally, standards are written by experts coming from different organisations. They are working on standards on a voluntary basis not being paid by the standardisation agency. This appears to us to make it harder to enforce strict terminology rules or to require that the terminology work is coordinated among the different committees. For example, the terms “risk” and “security” will have very different meanings for a standard about cyber security compared to a standard about resilience of society.

Standards Norway, the Swedish Institute for Standards (SIS) and ISO have established databases for glossaries. Standards Norway and ISO have their terminologies available online, [Snorre](#) [5] and the [Online Browsing Platform \(OBP\)](#) [6], whereas the SIS database is only available via subscription.

Snorre is easy to find but a little hard to use with a clunky user interface with many filter fields for the search. The ISO glossary is hard to find online. A search for “glossary” on ISO.org gives 92 hits in 5 ms but the OBP is not among the first 10 hits. The OBP is also not found on the first page of hits from Google, for the author’s user profile. Here the first hit is <https://www.iso.org/glossary.html>, which is a webpage with a list of abbreviations and terms used for roles and activities related to ISO. The searches were carried out after all cached data in the browser was deleted and under a new browser user to reduce the impact of personal profiling.

SIS provide glossaries through an application called SIS-Wordfinder, which is not openly available online. Users can request access to the application via a webform on the [SIS website](#) [7]. Wordfinder offers a search page and native applications for Windows and iOS and lets users look up terms from an application by selecting a term and activate Wordfinder. We note that Wordfinder does not underline the available terms in a text which means the user may attempt to look up terms that are not defined.

An interesting option for wider use of terms and their definitions is that the ISO platform has an Application Programming Interface (API). As this API is currently only available for the national standardisation bodies we have not yet been able to access and verify this functionality.

3 ISO TC 292 Security and Resilience

ISO TC292 is dealing with Security and Resilience [8]. It was established on January 1st 2015 and is a committee with 69 involved countries that works with standardization in the field of security to enhance the safety and resilience of society. The committee is currently responsible for 46 published International Standards, and 22 ongoing projects. The current topics include:

Authenticity, integrity and trust for products and documents, Business continuity management, Community resilience, Crisis management, Emergency management, Event management, Organizational resilience, Protective security, Supply chain security, and Terminology.

The Working Group 1 (WG1) is tasked to prepare the overall terminology from all of the committee standards in a dedicated standard called Security and resilience Vocabulary (ISO 22300).

The terminology content for ISO TC 292 WG 1 is discussed and translated in national mirroring committees like the Norwegian SN/K 211.

3.1 Translation of the security and resilience vocabulary

The mirroring committee SN/K 211 Samfunnssikkerhet (Resilience of society) organised by Standards Norway will consolidate the Norwegian translation of the ISO standards including the vocabulary. The plan used for this work is included in Annex 2.

Members of the national mirroring committees are represented in a selection of the ISO committees. The vocabulary is created in the ISO committee and then translated in the different mirror committees in the ISO member countries.

Given the INSITU focus on Terminology, Tingtun was appointed to represent the Norwegian national committee for the Security and resilience Vocabulary (Working Group 1). The work in this group had mainly been to compile the lists of terms prepared in the other standards. From 2022 Stefan Tangen from the Swedish Civil Contingencies Agency (MSB) took over as convenor of this group and the work on edition 4 of ISO 22300 was changed as the TC 292 decided to continuously work on this standard as it represents the common language for all standards produced in the committee. New terms and definitions are frequently being added and it's the role of WG 1 to guide the other WGs regarding terminology and also ensure that we stay consistent.

The previously translated Security and resilience Vocabulary (NS-EN ISO 22300:2018) from 2018-06-01 covers 277 terms and presents them all in clause 3 and use a numbering scheme with one running number. The updated ISO vocabulary from 2021-03-25 contains 360 terms organised in four sub clauses with four running numbers.

In the following we outline the translation process applied in 2021 of the Security and resilience Vocabulary (ISO 22300) into Norwegian.

The English version from 2018 and the corresponding Norwegian translation formed the basis to translate the new version of the standards from 2021. Standards Norway provided a professional translation service. The task of the Norwegian mirror committee is to revise and consolidate this translation. The general procedure with a convenor to organise notes, comments, discussions and convergence in a sequence of meetings with a group of selected experts was given. The tools used

for this process are email, Video conferencing, Word processor, and the ISO platform for sharing documents.

We note six areas where tool support may be useful.

1. Filter out the changes to target translation efforts. We do not need to make a new translation of the parts of the standard that are not changed from the previous version.
2. Find a better way to handle comments. Comments are currently stored in meeting notes and as tracked changes in Microsoft Word documents. For discussions spanning several meeting notes or internal document versions, these representations of comments may be hard to find and use both to address them and to understand the arguments leading up to a decision in retrospect.
3. Automate checks of the terms and definitions to meet the formal requirements.
4. Support authors to find existing similar terms in OBP, in Snorre or in general dictionaries, and require justifications to add new terms.
5. Keep track of where terms are defined and used across standards. Generate graphs to show how terms are defined and used across the documents to support the consolidation and change process for terms and definitions.
6. Better support the asynchronous and distributed work. This was necessary to assure progress in the pandemic phase, and is expected to be helpful to support also later revisions.

1. Filter out the changes

To focus the work for the professional translator we wanted to find the new, deleted or changed terms from the previous translation. A text processing tool like Microsoft Word can be used to indicate the differences between two files. This approach did not work for two reasons. Firstly, we did not have access to the old version of the glossary in the Microsoft Word format. Secondly, not only the terms were changed, but also the numbering scheme and the overall structure in the update. If we could obtain the preceding version in MS Word format we would still not be able to use the MS Word comparison feature to find the term changes, due to the structure changes of the document. The tables of content depicted in

NS-EN ISO 22300:2018		ISO 22300:2018(E)
Contents		Page
Foreword		iv
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
Bibliography		35

Figure 1 and 2 indicate the changes in clause 3, also used for the numbering of the terms.

Contents		Page
Foreword		iv
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
Bibliography		35

Figure 1: Table of contents for ISO 22300:2018.

The 2018 version had one running number for a simple alphabetical list of terms, whereas the 2021 version restart the numbering four times according to the sub-clauses. The clause titles and the number of terms are as follows.

- 3.1 Terms related to security and resilience (297),
- 3.2 Terms related to counterfeiting and tax stamps (44),
- 3.3 Terms related to supply chain (13) and
- 3.4 Terms related to CCTV (6).

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
3.1	Terms related to security and resilience.....	1
3.2	Terms related to counterfeiting tax stamps.....	38
3.3	Terms related to supply chain.....	43
3.4	Terms related to CCTV.....	44
Bibliography		46
Index		47

Figure 2: Table of contents from ISO22300: 2021, with new structure and new numbering of the terms.

Although such structures may be useful to help the user to locate relevant terms, it is clear that one structure will not meet all the conceivable needs. The updated version of the Vocabulary includes both the new sub-clauses and an alphabetical list of the terms with references to the term numbers in the

clauses, adding almost 20 pages to the document. For new revisions, additional structures may be requested to meet other needs. We also note that structure discussions can be very time consuming and that adding new ones will increase the size of the document.

A manual comparison to find the changes in terms, definitions, and notes for a list of 361 terms would be both exhaustive and error prone to carry out. To deal with this situation we developed a tool to compare the content of two PDF documents. In this way, we were able to find the changed, deleted and added terms as well as changes to definitions and notes, disregarding the structure changes.

The data was extracted from the two PDF documents using a tool called Tabula [9]. The records from Tabula were used to identify and store term numbers, terms, definitions and term notes into a database. This way, the tool was able to present a list of the records where any of the record attributes, except the term number, were changed.

The new tool was used to generate a list of changes stored in a spreadsheet, which was then used by Standards Norway as input for the professional translator. The same list was also used together with the newly translated terms as input to the revision process carried out in the Norwegian technical committee.

A variant of the tool used a Levenshtein distance algorithm [10], to find out to what extent records in two different glossaries or in the same glossaries are similar. This algorithm is assigning a score to indicate how many characters must be changed to make two strings equal. This was prepared to support the harmonisation process for the Rescue handbook revision. Due to the revision delay this functionality has not yet been tested for the task in practice.

2. Find a better way to handle comments

A process to combine all experts' comments and other inputs into one Microsoft Word document with tracked changes was considered but discarded as it turned out that multiple commented versions in attached emails were hard to manage. Standards Norway does not have any co-authoring tool in use for this and it is not permitted to share the standards or their drafts on open platforms like Google docs, to protect intellectual property rights. There was no template or documented method to track comments or support the translation work for the previous versions of the standard.

Therefore we chose to organise the inputs using a spreadsheet based on the outcomes of the comparison tool above, with the list of newly translated terms and comments to the translations from each round. For each iteration the group members could send in their comments in writing in a new column, to be compiled by the facilitator. In this way we could assure progress even if we were not able to gather all group members at the same time in an online meeting.

The translation of the vocabulary standard does not allow for changes to the meaning of the original text. The translation can contain additional notes to capture possible issues related to the given translated term. Much of the discussions focused on the use of some terms in more than one standard in different ways, such as the terms "Crisis management" and "Crisis", and specific words to use for the translation.

A co-authoring tool provided by the standards organisation could be a better solution than a spreadsheet attached to emails to support the collaboration process and to reduce the need to align comments. We would also propose a way to record the comments and decisions taken to arrive at a given translation for use in the next version to be translated.

A repository to store and manage comments can support the revision work and increase accountability. There are several tools used in software engineering for this task, such as Gitlab [11] or

Jira [12]. These tools can support the handling of issues with functions to open, assign, comment, or delete them. They can store discussions leading up to a decision, e.g. to close an issue. In addition, they can support search across all the generated process content.

A better way to store and retrieve comments and terminology discussions can also support the standardisation committees in their revision work in a similar way like “explanatory notes” do for law makers.

3. Automate checks of the terms and definitions

The ISO Directive, Part 2, Principles and rules for the structure and drafting of ISO and IEC documents, clause 16, [13] states a set of requirements for the definitions of terms in standards. These requirements establish that term definitions must be given in Clause 3 of the standard, and specify several additional requirements. We propose to use tools to verify that these requirements are fulfilled to support the revision of standards.

- Assure that “high level structure terms” are not changed. Such terms are given by ISO to be valid across standards and are not to be redefined in the standards.
- Verify that the Terms and definitions clause appear only once in each document.
- Verify that each terminological entry is drafted in accordance with ISO 10241-1.
- Toggle between two versions of the text where one includes the defined terms and the other shows the text with the terms replaced with their (colour coded) definition. This is to test that both versions read well.
- Verify that definitions are not ended with a full stop. This is to support the toggle test above.
- Verify that the introductory wording in Clause 3 is correct depending on the given case from the ISO directive.
 - all the specific terms and definitions are provided in Clause 3
 - reference is given to an external document
 - terms and definitions are provided in Clause 3, in addition to a reference to an external document
 - no terms and definitions provided
- Retrieve already existing definitions from the ISO online browsing platform [6], and from Electropedia [14], to detect common terms a qualified user would already know, and therefore should be excluded.
- Verify that a term type is given (Preferred term, Admitted term, Deprecated term)
- Verify that definitions are not repeating the term in the definition
- Verify that a term is actually used in the current version of the standard.

4. Keep track of where terms are defined and used across standards.

The harmonisation of terms and definitions across standards is demanding. The terms are defined in dedicated communities with their targeted expertise. When a term is introduced or changed we need to find out if it is already defined or used in other standards. We propose to prepare a tool to keep track of terms defined and used in the relevant selection of standards. The tool can report where terms are defined, and where the terms are used with a count for each standard. The tool should also be able to retrieve the pages and text snippets from the standards where the term is used.

5. Better support the asynchronous and distributed work

This revision process was organised as a sequence of online meetings with a smaller group of experts from the full committee with the Norwegian Directorate for Civil Protection (DSB), the consultancy companies BDO AS, Proactima AS and Tingtun AS, and external participants consisting of representatives from Språkrådet (The Norwegian Language Council) and the Norwegian Joint Rescue Coordination Centres (JRCC). To include the relevant expertise we were granted permission from Standards Norway to include the Norwegian JRCC and the Language Council in this specialised group although they are not formal members of the SNK/211 committee. The work of this group was coordinated by Mikael Snaprud (Tingtun AS) from the INSITU project.

The external contributors were not able to take on the commitment to join the SN/K 211 committee, but they were willing to contribute to a limited translation task. A mechanism to include external contributors for such limited task in the committee would be useful.

Lars Erik Jensen from Standards Norway edited the consolidated translations and comments from the group as tracked changes into the Microsoft Word document for the translator. This translated document was then presented for the full SNK/211 committee for final revisions and approval.

A tool to support co-authoring to develop standards and to consolidate translations would be useful to keep track of proposed changes and comments, and to eliminate the need to transfer content from a spreadsheet to the Word document.

3.2 Lessons from the revision of the ISO vocabulary

One example for a requested change is for the term “Contingency”, which has a definition in 22300. A request came from the committee working on ISO 22379:2022 Security and resilience — Guidelines for hosting and organizing citywide or regional event, to change this definition.

Current definition: “possible future event, condition or eventuality”

Proposed updated: “preparation for and handling of unwanted situations”

We note that these are quite different definitions and we cannot claim that the new one is a more specific definition than the current one. A sound terminology should not have more than one definition for one term. Two possible ways to deal with this can be to allow for a local definition valid only in ISO 22379, or to introduce a compound term called for example “large event contingency” to differentiate from a more general “contingency”.

The TC 292 spans a wide array of topics and therefore the overall list of terms contains different styles and even the same terms defined in different ways in the individual working groups.

The structure of the document has been much discussed. We think the most suitable structure will depend on the use, and therefore propose to provide a flexible digital version of the vocabulary to allow users to search or extract content, and enable them to generate different lists such as by alphabetical order, order by date for most recent change, groupings for domains, or according to where the terms are defined or used in a selected set of standards, etc.

There are several ISO resources to guide the terminology work. Most importantly the ISO Directive, Part 2, Principles and rules for the structure and drafting of ISO and IEC documents, clause 16 (Terms and definitions) [13]. Standards covering terminology topics include

- ISO 704:2009 Terminology work – Principles and methods [15]
- ISO 860:2008 Harmonization of concepts and terms [16]
- ISO 10241:2011 Terminological entries in standards – Part 1: General requirements and examples of presentation [17]
- ISO 15188:2001 Project management guidelines for terminology standardization [18]
- ISO 1087:2019 Terminology work and terminology science — Vocabulary [19]

The above list of standards is a large amount of information to digest. WG 1 has decided to prepare a terminology guidance note to pave the way for the practical terminology collaboration among the working groups of TC 292. The note will establish procedures for how to select and define terms and for more coherent terminology collaboration among the working groups.

3.3 Proposal to use INSITU results in standardisation

The INSITU project, Termer and the harmonisation report from INSITU was presented to the ISO TC 292 WG 1 in June 2022. We were then invited to propose steps to proceed with testing INSITU TERMER in the WG1, in the online meeting held August 22nd, 2022. The steps should cover easy use and take the IPR requirement from ISO into account. In this meeting it was shown that installation and use is carried out within 5 minutes, and that the use does not give rise to any new IPR issues.

The purpose of using INSITU TERMER for standardisation is to allow the committee members to quickly look up the meaning of terms directly from the standard they are reviewing. This is expected to raise awareness among committee members of the common vocabulary and the need to assure that it is maintained and harmonised. A decision on the possible use of INSITU TERMER to support the process is not yet taken.

4 INSITU contributions to terminology harmonisation

4.1 Provide better access to terminology

The Rescue handbook refers to a planned online terminology resource with word lists to be available in 2018 from the Joint Rescue Coordination Centre web site (JRCC). However, the handbook was published with the word lists only available in the PDF document from the JRCC website [20].

A collaboration between the JRCC and the INSITU project has implemented a service to deliver the planned online resource both for the Rescue handbook and for the overall website Hovedredningssentralen.no. The service is based on INSITU TERMER [21] and can search across the glossaries from Redningshåndboka, and a selection of additional sector-specific glossaries. An example lookup is shown in Figure 3.

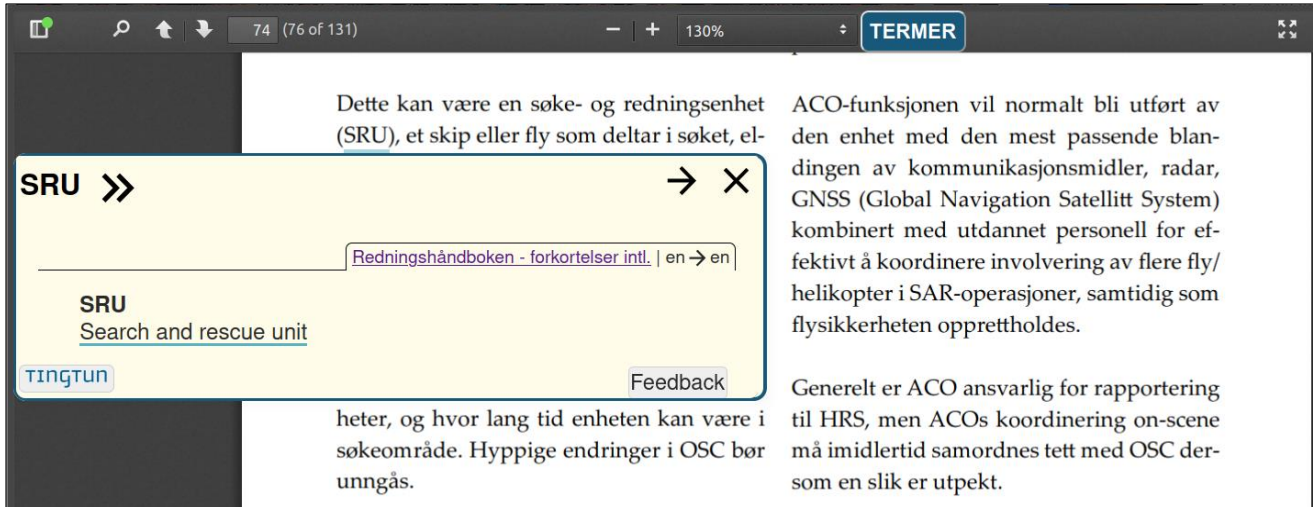


Figure 3: Example lookup of the abbreviation "SRU" (Search and Rescue Unit) from the Rescue handbook.

A similar implementation has been delivered to The Norwegian Industrial Safety Organisation's (NSO) web page (Figure 4). One difference is that the NSO installation has the Industrial Safety regulation ("Forskrift om industrivern") as the most highly ranked source in their configuration.



Figure 4: INSITU Termer included in the NSO website.

References to regulations and paragraphs in the national law may be needed for to make sure a piece of information is precise and underpinned. On the NSO website we find a reference to paragraph 34 in the Civil protection act (Sivilbeskyttelsesloven). All of the Norwegian acts are made available and can be searched on Lovdata.no. With INSITU TERMER we can show the referenced paragraph on top of the NSO web page to allow the user to stay on the page and keep the reading flow, see Figure 5.

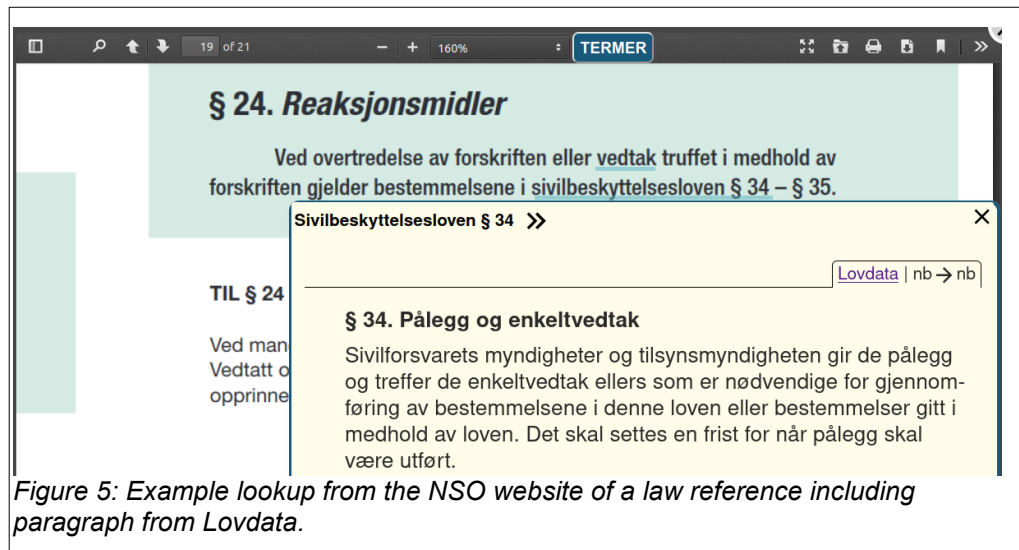


Figure 5: Example lookup from the NSO website of a law reference including paragraph from Lovdata.

CIM is a crisis management system widely used in the Norwegian public sector, delivered by the company F24. The INSITU TERMER functionality has also been provided for F24 and is implemented in a test version of CIM. This test version seen in Figure 6 is delivered to the Centre for Integrated Emergency Management (CIEM) [22], hosted by the University of Agder



Figure 6: Example lookup from CIM for "response".

To meet the security requirements from F24, two adjustments have been carried out. First, F24 have made the service available for the exercise mode only and not for sharp events. This is in line with the idea to use the service for training, assuming that when a sharp event occurs, then the responders are already trained and prepared. Second, we have delivered INSITU TERMER as a docker image. This means the Tingtun server can be eliminated as a point of attack for intruders and the INSITU TERMER script can be retrieved from a server maintained by F24. CIM users from Norwegian universities have welcomed the functionality and some have also started to collect their own glossaries. However, F24 has not yet decided how to proceed with a further integration of INSITU TERMER into CIM beyond the project duration.

Exercises are an important learning arena with wide use of terminology, in some cases also involving participants from more than one country. We have presented INSITU TERMER in a planning session for the international exercise Barents Rescue 2022 (BR22) and imported the associated

Norwegian/English terminology. Unfortunately, this event has been postponed due to the Russian assault on Ukraine. Finally, we have included a dedicated glossary for the draft handbook on Search and Rescue in Radiological and Nuclear environments (Figure 7).

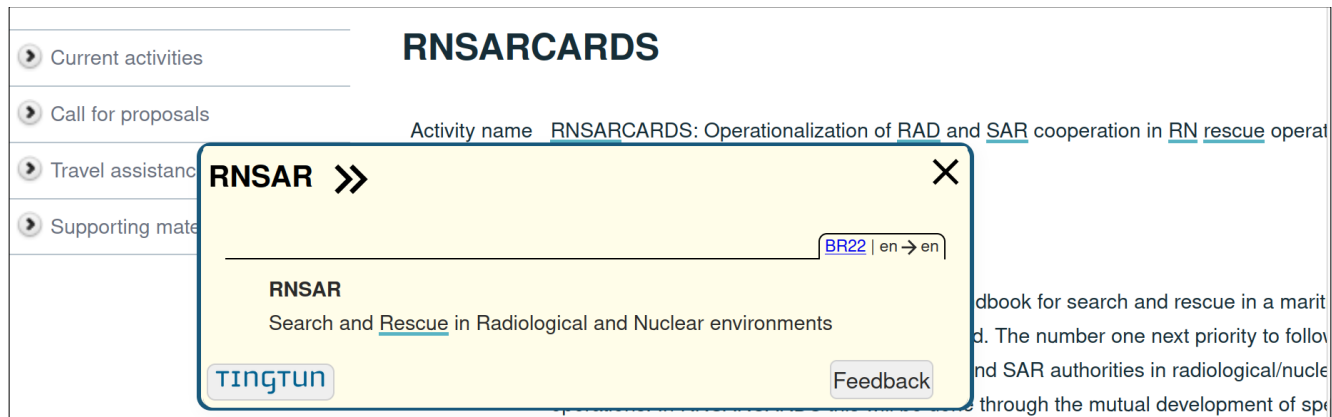


Figure 7: Example lookup with Barents Rescue 2022 exercise glossary, applied on a page from the Nordic Nuclear Safety Research website, www.nks.org.

All known sector-specific glossary sources have been collected and are made available for search from the INSITU TERMER website to facilitate further harmonisation [21]. See Figure 8 for an example resulting in hits from three sources.

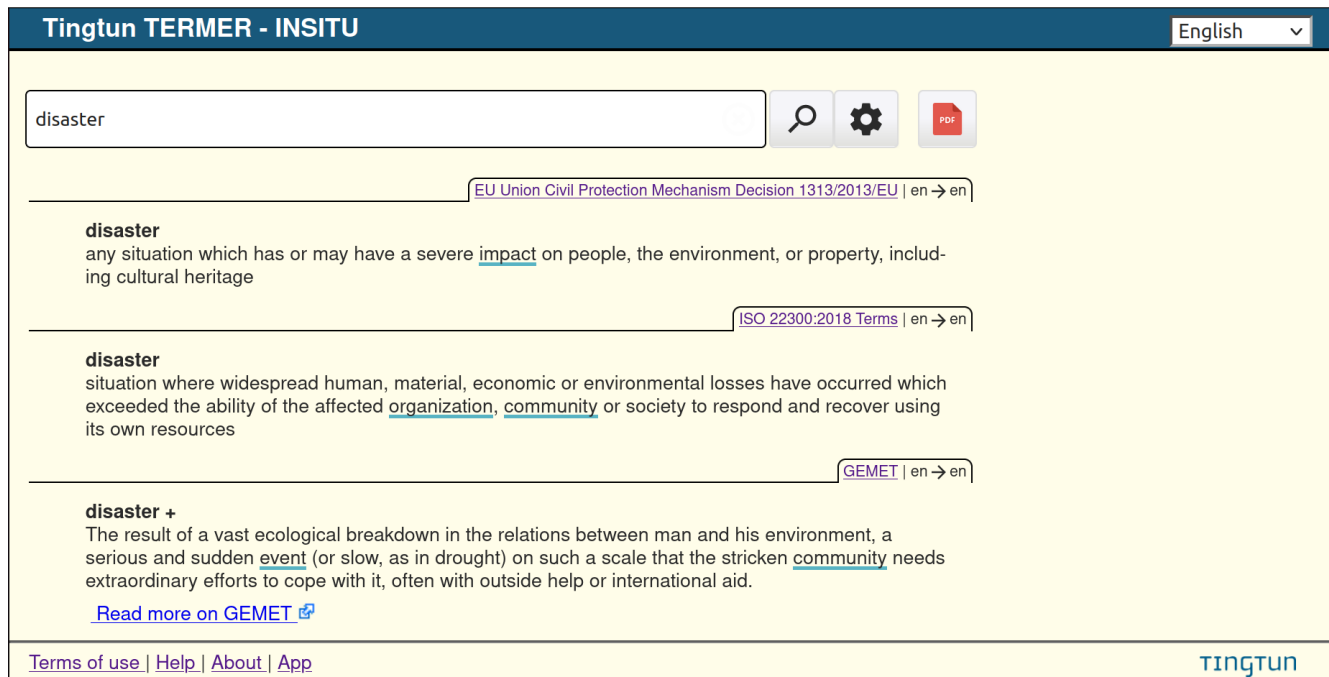


Figure 8: Example lookup of "disaster" returning hits from three sources: European Union Civil Protection Mechanism, ISO 22300, and the General Multilingual Environmental Thesaurus (GEMET).

To enable students, exercise participants and others to use INSITU TERMER while reading content online we have prepared a page with instructions for how to include the service in the browser [22],

see Figure 9. The installation takes less than one minute to conclude, works in all browsers and can be done anonymously.



Figure 9: Installation page to include INSITU TERMER in the browser.

The service is also available as an app [23], to facilitate use in the field for exercises (Figure 10).

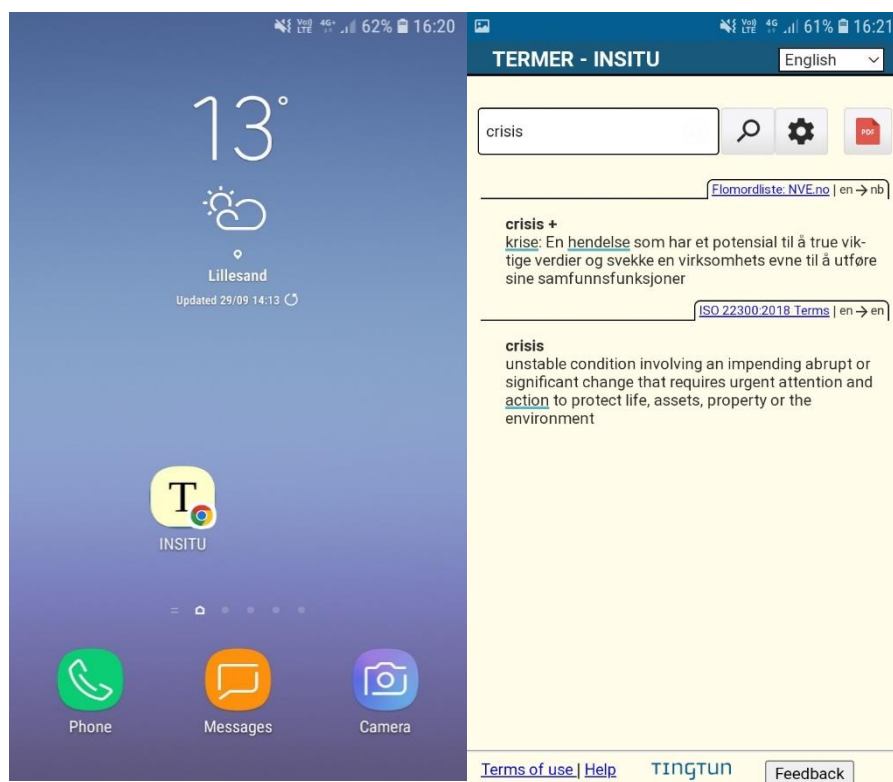


Figure 10: INSITU TERMER as an app in Chrome on Android.

Finally, to simplify the installation of INSITU TERMER on websites we have prepared a self-service webpage [23]. On this page the website admins can select the languages and glossaries to apply and generate the script to use on their website, see Figure 11:

4. Legg til skriptet på ditt nettsted

Legg til skript som vist under for å ta i bruk Termer-knappen med dine innstillinger. Merk at skriptet under blir oppdatert automatisk om du endrer innstillingene.

```
<script type="text/javascript" id="tingtunGlossary" data-site="insitu" src="https://termer.no/glossaryjs/glossary.js">  
// Generate a new script from https://insitu.termer.no/site_install to change the settings. In case of any issues please visit https://insitu.termer.no/help  
</script><script id="termer-custom-settings" type="application/json">{"site":"insitu"}</script>
```

Figure. 11: Example generated INSITU TERMER script to include on a website. The script contains information about the selected settings for languages and sources.

This kind of script has been used for the installations on the INSITU project pages from the University of Agder (UiA), the Norwegian Joint Rescue Coordination Centres, and on NSO.

4.2 Harmonisation and standards

Standards are a great way to facilitate harmonisation. A limitation for spreading and using some of them is that they are not available free of charge. We are therefore pleased to report that Standards Norway has granted Permission to use Norwegian translations of the ISO 22300 in the revised Rescue handbook free of charge. The terms with their definitions are already available online in Snorre [5]. Clearly terms taken from the standard need to be provided with a reference to the standard, and can in this way serve as an entry point for users to find and appreciate additional standards.

In the INSITU project we have facilitated the translation of the English Security and resilience Vocabulary (ISO 22300) into Norwegian, and in Section 3 in this report we provide suggestions for tool support for the WG1 work to maintain and develop the same vocabulary onwards.

4.3 Communication with users

In the INSITU project we have many interaction points with users in the reference group. In addition to the main meetings we have also carried out a sequence of workshops with smaller groups to demonstrate and assess the usefulness of INSITU TERMER. The importance of harmonisation has been communicated in these meetings and we have also received important inputs for improvements of the tool and for additional sources to include, such as a new release of the Police preparedness system (PBS) and the glossary from Folk og Forsvar (People and Defence). People and Defence is a party politically neutral organisation, which provides public information about Norwegian defence and security policy [24].

4.4 Terminology in training

Training seems to be the most natural place to start with terminology harmonisation. We have had discussions about ways to use INSITU TERMER with the Norwegian school for firefighters (Brannskolen), the Norwegian Police University College (PHS) and Nord University. We have received several expressions of interest but have not yet managed to organise practical use for training. One obstacle for deployment has been that both the new school for firefighters and the study program for On scene commanders (Innsatsleder) to be provided by PHS are in the process of being established. Nord University will explore ways to use INSITU Termer for learning and for exercises.

As mentioned, we have prepared a version of INSITU TERMER for use in the next Barents Rescue large scale exercise, the time of which depends on the situation in Ukraine.

Preliminary results from testing with nursing students from the University of Agder (UiA), and from the Norwegian University of Science and Technology (NTNU) show promising results, for access to professional terminology in the health sector. Students with Norwegian as their second language have also responded that the included translation service has been useful.

4.5 Privacy protection

The INSITU TERMER implementation has been built to protect users' privacy and to keep data in Europe, and if needed the service can be implemented and used behind the organisation's firewall without any external communication.

Standardisation committee members will not be able to contribute anonymously to the development of standards. However, the users of standards or terminology defined in standards can remain anonymous.

On 16 July 2020, the European Court of Justice issued the Schrems II judgement [25] with significant implications for the use of US cloud services. Customers of such services must now themselves verify the data protection laws of the recipient country, document its risk assessment and confer with its customers. INSITU TERMER is maintained and developed and provided from Norway.

Moreover, users can install the service in the browser anonymously with no need for authentication or logging into platforms like Google play or App Store.

5 Concluding remarks

Language matters and seems to receive increased attention for training and higher education. The Norwegian language law (Spåkloven) was revised to better support the use of Norwegian in all aspects of society and came into force from January 1, 2022 [26, 27]. The directorate responsible for Higher Education and Skills (KH-Dir) held a workshop about Norwegian language and language strategies in graduate education and research on September 21, 2022 (Norsk fagspråk og språkstrategiar i høgare utdanning og forskning) [28].

To follow up on the official Norwegian language policy to increase the share of terminology provided in "Nynorsk" we propose to consider the inclusion of a Nynorsk vocabulary in the Rescue handbook (Redningshåndboka) and in the translations of vocabulary from TC 292.

The lessons learned from the standardisation work uncover a significant potential to improve the quality of the vocabulary and to reduce the effort needed to use, revise and harmonise the vocabulary. We propose to refine methods and develop tool support to realise this potential.

A terminology guidance note in preparation in WG 1 of TC 292 can contribute to such method refinement to support the terminology work carried out in preparing the standards of TC 292.

The INSITU project has delivered the following three services to support standardisation work:

1. Enable users to read standards with direct access to the terminology definitions (ISO 22300) from the text.
2. Enable authors to comment on terms and their definition directly from the text.
3. Filter out the changes to target translation efforts.

A wider user testing is yet to be carried out to verify the impact for authoring and for the use for standards readers.

We propose to explore and develop the following functionality for the terminology harmonisation task in WG1 and to support the translation task:

1. Find a better way to handle comments on terms from committee meetings.
2. Automate checks of the terms and definitions to meet the formal requirements.
3. Support authors to find existing similar terms in OBP, in Snorre or in general dictionaries, and require justifications to add new terms.
4. Keep track of where terms are defined and used across standards.
5. Better support the asynchronous and distributed work.

We think that training is the key to harmonisation. Both education towards a degree and training in exercises can be used to establish the common basis for more efficient communications in sharp assignments. The project terminology results have not yet been used for training. However, we have prepared a solution for the postponed exercise Barents Rescue 2022 and in the concluding phase of the project we have held meetings with the Norwegian Civil Defence, the Norwegian Police University College and Nord University about such use in the near future. The two first organisations have confirmed that they are proceeding to test.

Last but not least, to cater for a better connection to international development in the area of Civil protection and societal resilience we also propose to coordinate the revision of the concepts in Redningshåndboka with the concepts in ISO 22300, Security and resilience – Vocabulary. This ISO vocabulary is translated into a range of languages and can thereby form the basis for more efficient international joint rescue operations. Potential intellectual property rights issues have been clarified for the use in Norway to cater for efficient coordination.

6 References

- [1] INSITU: Methodology for terminology harmonisation, <https://uia.brage.unit.no/uia-xmlui/handle/11250/2724533>, accessed 2022-09-21.
- [2] Snaprud, M., Radianti, J., Svindseth, D. (2017). Better Access to Terminology for Crisis Communications. In: Information Technology in Disaster Risk Reduction. ITDRR 2016. IFIP Advances in Information and Communication Technology, vol 501. Springer, Cham.
- [3] Termlosen, <https://www.sprakradet.no/Vi-og-vart/Publikasjoner/Termlosen/Digitaliseringsdirektoratet>. (2020), accessed 2022-09-20.
- [4] Forvaltningsstandard for begrepsharmonisering og begrepsdifferensiering - Versjon 2.0.1. <https://data.norge.no/specification/forvaltningsstandardbegrepskoordinering/>, accessed 2022-09-20.
- [5] Snorre, <https://www.standard.no/termbasen/>, accessed 2022-09-21.
- [6] ISO Online browsing platform, <https://www.iso.org/obp/ui>, accessed 2022-09-21.
- [7] <https://www.sis.se/onlinetjanster/sis-wordfinder/>, accessed 2022-09-21.
- [8] <https://www.isotc292online.org/>, accessed 2022-09-21.
- [9] Tabula, <https://tabula.technology/>, accessed 2022-09-20.
- [10] Levenshtein distance algorithm, https://en.wikipedia.org/wiki/Levenshtein_distance
- [11] <https://about.gitlab.com/>, accessed 2022-09-20.
- [12] <https://www.atlassian.com/software/jira/service-management/ticketing-software>, accessed 2022-09-20.
- [13] ISO Directives, Part 2, clause 16, <https://www.iso.org/sites/directives/current/part2/index.xhtml>, accessed 2022-09-20.
- [14] Electropedia, <https://www.electropedia.org>, accessed 2022-09-20.
- [15] ISO 704:2009 Terminology work – Principles and methods, <https://www.iso.org/standard/79077.html>, accessed 2022-09-20.
- [16] ISO 860:2008 Harmonization of concepts and terms, <https://www.iso.org/standard/40130.html>, accessed 2022-09-20.
- [17] ISO 10241:2011 Terminological entries in standards – Part 1: General requirements and examples of presentation, <https://www.iso.org/standard/40362.html>, accessed 2022-09-20.
- [18] ISO 15188:2001 Project management guidelines for terminology standardization, <https://www.iso.org/standard/26698.html>, accessed 2022-09-20 .
- [19] ISO 1087:2019 Terminology work and terminology science — Vocabulary, <https://www.iso.org/standard/62330.html>, accessed 2022-09-20.
- [20] The Norwegian Joint Rescue Coordination Centres website with INSITU TERMER, <https://www.hovedredningssentralen.no/redningshandboken-er-endelig-her/>, accessed 2022-09-20.
- [21] The INSITU TERMER search page, <https://insitu.termer.no/search>, accessed 2022-09-20.
- [22] Centre for Integrated Emergency Management (CIEM), <https://uia.no/en/ciem>, accessed 2022-10-19.
- [23] The INSITU TERMER site installation page, https://insitu.termer.no/site_install, accessed 2022-09-20.
- [24] People and Defence dictionary, <https://folkogforsvar.no/leksikon/>, accessed 2022-09-20
- [25] The Court of Justice of the European Union judgment in the Schrems II case, [https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/652073/EPRS_ATA\(2020\)652073_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2020/652073/EPRS_ATA(2020)652073_EN.pdf), accessed 2022-09-20
- [26] Website about the Norwegian Language law, <https://www.sprakradet.no/spraklov/>, accessed 2022-09-29
- [27] Norwegian Language law, <https://lovdata.no/dokument/NL/lov/2021-05-21-42>, accessed 2022-09-29.
- [28] Workshop on “Norsk fagspråk og språkstrategiar i høgare utdanning og forskning” (Norwegian language and language strategies in graduate education and research), <https://hkdir.no/arrangement/norsk-fagspraak-og-spraakstrategiar-i-hoegare-utdanning-og-forsking>, accessed 2022-09-20.

7 Annex 1 – Poster with early methodology ideas

Snaprud, Munkvold and Radianti, A novel approach to harmonize terminologies, EAFT, Bilbao 2019.

CIEM CENTRE FOR INTEGRATED EMERGENCY MANAGEMENT

UNIVERSITETET I AGDER

TINGTUN



A novel approach to harmonize terminologies

Mikael Snaprud, Bjørn Erik Munkvold and Jaziar Radianti

Same emergency - different terms



Approach to harmonize terminology



Lookup definitions from text

The screenshot shows search results for 'Crisis management'. The top result is from Wikipedia (EN), defining crisis management as the process by which an organization deals with a disruptive and unexpected event that threatens to harm the organization or its stakeholders. Other results include 'Crisis Management Initiative' (a Finnish non-governmental organization) and 'Crisis Management State Academy' (CMSA, Armenia). The page also features a collage of emergency-related images like ambulances, fire trucks, and a helicopter.

For more information see <http://ciem.uia.no/>

EAFT 2018

Supported by CIEM, and the Mobile Age project (H2020)

8 Annex 2 – Project plan for translation work

The plan below was prepared and carried out for the revision process of the Norwegian terminology translation. A copy of a previous plan or a template would have been helpful for the coordination. Justifications for prior terminology translation resolutions would be very helpful for the new translation process. Such information is currently not stored together with a given translation version.

Plan			Side 1 av
Vår saksbehandler/referanse Lars Erik Jensen, prosjektleder (PL) Mikael H. Snarprud, gruppeleder	Vår dato 2021-05-03	Arkivnr. SN/K 211	
Prosjektplan for oversettelse av NS-ISO 22300 Sikkerhet og resiliens — Terminologi			
Standarden er til oversettelse og komiteen skal gjennomføre faglig kontroll. Frist for godkjenning av standardens faglige innhold er 15. august 2021.			
Komiteen skal innen 4 måneder fra oversettelse foreligge gjennomføre faglig kontroll og godkjenne standarden for fastsetting. Det planlegges for maks 2 møter for faglig kontroll, med publisering senest 30. august 2021.			
Start	Oppgave	Ansvarlig	
27. april	Sende startpakke til arbeidsgruppe med regneark med alle endrede termer + skjema for merknader	MHS	
3. Mai kl 10-11	Startmøte. Arbeidsmetode, mål, forventning, bruk av resultat.	Mikael følger opp med telefon til deltakerne som ikke kan delta.	
11. mai kl 1500	Første frist for å sende inn merknader	Arbeidsgruppe 1	
12. mai kl 12-14	Første møte for faglig kontroll – basert på samlede merknader	Arbeidsgruppe 1 PL/ Gruppeleder Regneark med alle endringsforslag	
18. mai	Sende ut revidert utkast med samlede merknader og forslag til konklusjoner	MHS	
27.mai kl 1500	Siste frist for å sende inn merknader	Arbeidsgruppe 1	
28.mai kl 12-14	Andre møte for faglig kontroll	Arbeidsgruppe 1 PL/ Gruppeleder endringsforslag sporede endringer	
4.juni	Revidert versjon med tracked changes.	LEJ	
9.juni?	Komitemøte - faglig kontroll av NS-EN 22300 første utkast oversettelse	Komiteen/ Gruppeleder presenterer for komiteen forslag til oversettelse. Komiteen skal godkjenne oversettelsen	
30.juni	Mulige justeringer etter tilbakemelding fra komiteen	PL	
15. August 2021	Faglig kontroll avsluttet og sendt til oversettere	PL	

Postadresse Standard Norge Postboks 242 1326 Lysaker	Besøksadresse Mustads vei 1 0283 Oslo	Tel. 67 83 86 00 info@standard.no www.standard.no	Foretaksregisteret NO 985 942 897	Sertifisert i henhold til NS-EN ISO 9001:2015 NS-EN ISO 14001:2015
--	--	--	---	---