Terms of Reference Template

Testing Task Force (TTF)

**INSTRUCTIONS for completing the document:**

The template is for TTF use and it consists in four parts:

Part I – TTF technical proposal: Provides the D-G/OCG/Board with the essential elements to mainly understand the rationale and objective

**The parts hereinafter are composed of the TTF details that may be updated prior to the final set-up of the project team.**

Part II – Details of the TTF Technical Proposal: Organisation of the work and links with other stakeholders.

Part III - Execution of the work: detailed description of the work to be done, deliverables to be produced, tasks structure, milestones estimate of the maximum budget to be allocated. The information provided in this is part must be precise enough to be used to select contractors in the Call for Expertise.

Part IV - Performance Indicators: these must provide the elements for the Reference Body report to the D-G on the performance of the TTF.

**PLEASE REMOVE ALL GUIDELINE TEXT IN THE FINAL VERSION OF THE ToRs
(hint: search for style “Guideline” and delete the paragraphs)**

**For any questions e-mail to CTI Director** **Ultan.Mulligan@etsi.org**

|  |
| --- |
| ToR TTF XXX (TC MTS / WG AI) |
| Version: 0.2 |
| Author: Dr. Jürgen Großmann, Philip Makedonski, Finn Kristoffersen – Date: 2023-08-07 |
| Last updated by: Firstname Lastname – Date: 20YY-mm-dd |
| page 1 of 4 |

Terms of Reference – Testing Task Force

TTF XXX (TC MTS / WG AI)

Towards a Harmonized Documentation Scheme for Trustworthy AI

Summary information

|  |  |  |
| --- | --- | --- |
| Approval status | Approved by TC MTS (doc ref: XXXX) | **YES** |
| Reference Body | TC MTS / WG AI |
| ETSI Funding | **Maximum budget: 96 500 EUR** |
| Minimum of 4 ETSI Members Support | **YES** |
| Time scale | **From** | 2024-02-05 |
| **To** | 2025-02-10 |
| Work Items  | See clause 3.2 below |
| TTF Roadmap reference | [https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2023//MTS(23)000046\_Harmonized\_Documentation\_Scheme\_for\_Trustworthy\_AI\_Roadmap.docx](https://docbox.etsi.org/MTS/MTS/05-CONTRIBUTIONS/2023//MTS%2823%29000046_Harmonized_Documentation_Scheme_for_Trustworthy_AI_Roadmap.docx)  |

Part I –TTF Technical Proposal

# Rationale & Objectives

## Rationale

The ETSI TC MTS provides technologies, tools, and guidelines on conformance and interoperability testing and certification of protocols and other systems, including AI systems, that are under standardisation at various ETSI groups and committees.

The European AI regulation (EU) 2021/xxxx classifies AI use by risk level and imposes documentation, auditing, and process requirements on providers and deployers of AI systems[[1]](#footnote-2). Thus, ‘high-risk’ AI systems must undergo a rigid conformity assessment and providers and deployers must provide a technical documentation demonstrating major properties of the AI system before they can enter the European market. It is up to the standardization organizations to provide:

1. technical specifications and to define detailed technical requirements and measures by which conformity can be reached;
2. methods through which such a conformity assessment can be operationalized in an efficient manner;
3. procedures and templates for a stakeholder-oriented documentation of the properties and capabilities of an AI system[[2]](#footnote-3)**.**

With regard to the documentation of AI systems, the European AI Regulation (EU) 2021/xxxx sets out detailed requirements for the scope and manner of documentation. Compliant documentation must

* be complete, accurate, understandable, and unambiguous;
* contain information on the functioning and limitations of the AI system;
* contain information on the data used for the development and training of the AI system;
* contain information on how the AI system was tested and what results were obtained;
* must contain information on how the AI system can be updated or improved;
* contain information on who is responsible for the development, training, and deployment of the AI system;
* must contain information on how the AI system can be used and what limitations or recommendations apply.

## Objectives of the work to be executed

While ETSI already addresses some aspects regarding bullets 1. and 2. from the rationale above by ETSI TR 103910 and ETSI TS 6756, this proposal extends the current efforts to also address bullet 3. by providing a systematic outline on

* documentation requirements associated with the European AI Act and associated standardization activities,
* an overview on existing documentation approaches established in the industry, as well as
* recommendations for a harmonized documentation scheme considering regulatory requirements, different stakeholder profiles and industry best practices.

The content of this proposal is meant to underline the need for a harmonized documentation approach and as such addresses one of the most important aspects of European AI regulation, connects to the current AI related work at ETSI MTS and represents a distinct and relevant contribution of ETSI in the context of European AI standardization.

Even though there is a number of documentation approaches developed by the industry, e.g., ModelCards[[3]](#footnote-4) for models, DataSheets[[4]](#footnote-5) for data sets, FactSheets[[5]](#footnote-6) to account for transparency and accountability (see HuggingFace[[6]](#footnote-7) for an overview), at this time there is no documentation approach or standard that directly addresses the requirements and obligations of the European AI regulation. However, some existing guidelines and frameworks, such as the AI Ethics Guidelines[[7]](#footnote-8) developed by the High-Level Expert Group on AI and the OECD AI Principles[[8]](#footnote-9), provide some guidance on more precise documentation requirements for AI systems.

This TTF will contribute to the implementation of the European AI Act, based on the guidelines mentioned above, ongoing standardization activities, as well as on references to industrial best practices as a starting point to work towards a comprehensive documentation approach for the European industry. The approach encompasses a detailed technical documentation by including system architecture, algorithmic design, model specifications, as well as the documentation of data and data sets being used. Moreover, it documents the system’s capabilities and limitations and considers aspects that deal with quality properties like robustness, transparency and bias on data, model and system level.

Specifically, the TTF will create the following outcomes.

1. A consolidated set of documentation requirements considering different stakeholders like users, developers, authorities and with different scope e.g., data-focused, models-and-methods-focused, as well as systems-focused.
2. An overview on existing approaches and best practices with reference to their target of documentation and the respective application domain.
3. An analysis of the shortcomings and necessary additions to comply with the European AI Regulation.
4. Recommendations for industry and standardization for the design of a Harmonized Documentation Scheme for AI Systems.

The outcomes from the TTF may contribute to subsequent work on standardised documentation schemes, potentially also machine-readable formats to facilitate automated validation and certification activities.

## Previous funded activities in the same domain

ETSI MTS currently does not have any STF or TTF work addressing the topic of AI. However, ETSI MTS already defines important building blocks for a test-based conformity assessment for AI-based systems.

* ETSI TR 103910 (planned publication date 2024-07-11) outlines a catalogue of test approaches and methods intended for determining and approving the quality characteristics of AI systems.
* ETSI TS 6756 (planned publication date 2024-09-26) defines a certification and approval scheme based on continuous audits, which allows a flexible introduction of certification and approval procedures to meet the requirements of the EU AI act as well as the need for efficient industrial procedures.

## Consequences if not agreed

The TTF proposed here is working on foundations for documenting AI systems. If this work does not take place, takes place later, or is realized by other standardization bodies, a high coordination effort would be necessary to harmonize the work already taking place on AI in ETSI and MTS with the requirements for the documentation of AI systems and their review. Proliferation of non-standardised documentation, formats and approaches may lead to challenges with comparability, interoperability, and assessment of AI-enabled systems. In addition, ETSI loses the opportunity to make a relevant contribution in a central area of European AI standardization. Lack of standardised documentation and potential machine-readable formats would limit automation in certification and validation activities.

# ETSI Members Support

|  |  |  |
| --- | --- | --- |
| **#** | **ETSI Member** | **Supporting delegate** |
| 1 | Fraunhofer FOKUS | Dr. Jürgen Großmann |
| 2 | Institut für Informatik, Universität Göttingen | Dr. Phillip Makedonski |
| 3 | Cinderella ApS | Finn Kristoffersen |
| 4 | Bundesnetzagentur | Taras Holoyad |
| 5 | Siemens AG | Dr. Andreas Ulrich |

# Deliverables

## Base documents

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Status** |
| ETSI TR 103901  | MTS AI Testing Test Methodology and Test Specification for AI-enabled Systems | Early Draft |
| ETSI TS 6756 | MTS Continuous Auditing Based Conformity Assessment for AI-enabled systems | Early Draft |
| 15698/22 | European AI regulation (EU) 2021/xxxx (see footnote 1) | Final Draft |
|  | AI Ethics Guidelines<https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai> | published |
|  | OECD AI Principles“Ministerial Statement on Trade and Digital Economy”, Ministry of Foreign Affairs of Japan, 09.06.2019.<https://www.mofa.go.jp/files/000486596.pdf>  | published |
|  | Relevant contributions from industry and academia (e.g., see footnotes 3 - 6) |  |

## New deliverables

**Objective:**

* Deriving recommendations for a documentation scheme that supports the continuous and consistent documentation of quality and quality related attributes for AI-enabled systems.

**Tasks:**

* T1: Documentation requirements considering different stakeholders like users, developers, authorities and with different scope e.g., data-focused, models-and-methods-focused, as well as systems-focused[[9]](#footnote-10).
* T2: Overview on existing approaches and best practices with reference to their target of documentation and the respective application domain
* T3: An analysis of the shortcomings and necessary additions to comply with the European AI Regulation.
* T4: Recommendations for industry and standardization for the design of a Harmonized Documentation Scheme for AI Systems[[10]](#footnote-11),

**Deliverables:**

* Guidelines for transparent documentation of quality and quality related measures for trustworthy AI

*Working titles sufficient for part I. Complete with full WI reference when final ToR are submitted*

|  |  |  |  |
| --- | --- | --- | --- |
| **Deliv.** | **Work Item code****Standard number** | **Working title** | **Expected date for publication** |
| D1\* | D/XXX-XXXXX-XXXXX XXX-X | Guidelines for transparent documentation of quality and quality related measures for trustworthy AI | 4/2025 |

\* Work Item number to be added after creation. Additional deliverable may be added to capture any normative content from the work of the TTF.

# Maximum budget

## Task summary/Manpower Budget

|  |  |  |
| --- | --- | --- |
| **Task** | **Task short description** | Budget (EUR) |
| T0 | Project management | 7000 |
| T1 | Requirements analysis | 20000 |
| T2 | Overview on existing approaches and best practices  | 20000 |
| T3 | An analysis of the shortcomings and necessary additions to comply with the European AI Regulation. | 15000 |
| T4 | Recommendations for industry and standardization for the design of a harmonized documentation scheme for AI systems | 30000 |
|  | **TOTAL** | 92000 |

## Travel budget

Although coordination meetings, technical work and reporting can be conducted remotely, experts should anticipate that travels may become necessary, e.g., for participating at TB meetings, possibly also CEN/CENELEC, ISO/IEC meetings, as well as for promoting the work of the TTF, e.g. at the UCAAT.

|  |  |
| --- | --- |
| **Expected travels** | **Cost estimate (EUR)** |
| Participation at 3 MTS/other group meetings | 3000 |
| Participation at UCAAT 2024 to promote the work towards a harmonized documentation scheme for trustworthy AI | 1500 |
| **TOTAL** | **4500** |

## Other budget line

Indicate here if the TTF budget requires other cost than manpower and travel.

If not applicable, you can remove this section.

None.

Part II – Details on TTF Technical Proposal

*Detailed task descriptions in Part II will be submitted with the final ToR*

# Tasks, Technical Bodies and other stakeholders

## Organization of the work

Describe how the work will be organized.

Indicate whether a Steering Group (SG) will be created, its role, the frequency of the meetings, participants to this SG

Identify how the relation with other Reference Bodies and stakeholders will be managed, the interfaces and the critical timing.

All deliverables will be subject to established quality management approaches within ETSI, including multi-stage drafting with early, stable, and final drafts presented to the technical reference bodies, as well as disseminated for feedback to other relevant technical bodies and stakeholders. Outcomes of the project will be disseminated in other venues such as the ETSI UCAAT**(D1.1)** to gather further feedback from interested parties. All deliverables are new work items. Final drafts for all deliverables are expected at the end of the project as the work will be done largely independently, except for selected aspects of e.g. D4.1 which builds on the progress on other deliverables. The multi-stage drafting will help to ensure that required content is provided sufficiently early to avoid blocking the work on dependent deliverables.

## Other interested ETSI Technical Bodies

List the other ETSI Reference Bodies that must be involved in this activity.

This is more than a “bullet points” list. For each Reference Body you must identify their role (e.g. consultation, dissemination, joint review/approval of deliverables, etc.). The interactions with these Reference Bodies must be specified in the Work Plan.

## Other stakeholders

Provide the same information concerning stakeholder inside and outside ETSI (e.g. other Standard Organizations, governmental institutions, industry partners, research projects, Universities etc.).

For the coordination of standardization work, exchanges with ISO/IEC JTC1 SC42 "Artificial Intelligence" as well as CEN-CENELEC JTC 21 "Artificial Intelligence" can be targeted, so that duplication of work can be avoided and a focus can be placed on the topics relevant to AI in the European legislative proposal.

With regard to ISO/IEC JTC1 SC42 "Artificial Intelligence", an exchange on topics relevant to test requirements, basic standards, data, trustworthiness, and computational approaches can take place. As well, coordination with the European committee CEN-CENELEC JTC 21 "Artificial Intelligence" should take place on topics such as conformity assessment, risk management and classification of artificial intelligence. Due to ETSI's strong focus on telecommunications, coordination with CEN-CENELEC and ISO/IEC is important, since the industrial policy goals and the European Commission's priority legal requirements can be achieved efficiently together.

Part III: Execution of Work

# Work plan, time scale and resources

## Task description

This section must provide detailed information on the tasks to be performed by the TTF.

The suggested structure “Objectives/Input/Output/Interactions/Resources” may be consolidated in the table below, if this can provide the equivalent information. However, task descriptions cannot be limited to text such as “producing the stable draft”: these are milestones.

Fill-in as many tables as tasks needed

|  |  |
| --- | --- |
| **Task #** | **Title** |
| **Objectives** | Indicate here the objective of the task in general terms. |
| **Input** | Identify the base documents/information/decisions that are required to perform the task and, if these are not yet available, at which point in time they are needed and who is responsible to provide. |
| **Output** | Give a precise description the outcome of the task in qualitative and, if possible, quantitative terms. |
| **Interactions** | Identify the interactions with the Reference Body and other stakeholders that are required to complete the task (e.g. guidance, consultation, approval). |
| **Resources required** | Identify the type of resources and expertise required.The estimated effort may be summarized in the task table below. |

## Milestones

Milestone A – Title

Objectives to be achieved (e.g. maturity and content of the deliverables)

Date at which the documents must be available (e.g. with respect to the Reference Body meeting calendar).

Level of approval required

Reproduce as much milestones as needed

|  |  |  |
| --- | --- | --- |
| **Milestone** | **Description** | **Cut-Off Date** |
| **A** | General Description | 20YY-MM-DD |
| Reference Body Deliverable | Early/Stable Draft approved by Reference Body |
| ETSI Deliverable | Progress/Interim/Final Report approved by Reference Body |

Examples:

Tasks 1 and 2 completed. Early draft XX/X-XXX available for review. Progress Report approved by Ref. Body#XX (date). Documents must be uploaded on the Ref. Body docbox at least two weeks before the start of the Ref. Body plenary.

Final draft XX/X-XXXX approved by Ref. Body #XX (date) and accepted by the ETSI Secretariat for publication. TTF Final Report approved by Ref. Body.

## Task summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Code** | **Task / Milestone**  | Target Date | Estimated Cost (EUR) |
| From | To |
|  | Start of work |  |  |  |
| T1 |  |  |  |  |
| T2 |  |  |  |  |
| Milestone A |  |  |  |  |
| T3 |  |  |  |  |
| T4 |  |  |  |  |
| Milestone*Z* | Deliverables published, TTF closed |  |  |  |
|  | **0** |

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| **Task/ Mil.** | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |  | **J** | **F** | **M** | **A** | **M** | **J** | **J** | **A** | **S** | **O** | **N** | **D** |
| T1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| T4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MB |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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# Expertise required

## Team structure

Define precisely the type of competence required. These items will be used in the Call for Expertise to assess whether the applicants are qualified to be short-listed for the final selection.

(Up to) X participants to ensure the following mix of competences:

The team should be made of up to 5 experts to ensure the following mix of competences, and includes one project leader:

* Organizational and consensus building skills (project leader).
* Artificial intelligence and machine learning operational expertise
* Test methodology and test specification expertise
* Expertise in the testing of AI and ML -enabled systems
* ? Expertise in the certification and auditing of industrial systems
* Hands-on experience with AI and ML tools

All participants will have to demonstrate report writing skill and the ability to work in an international environment.

|  |  |
| --- | --- |
| **Priority** | **Qualifications and competences** |
| High/Low |  |
| High/Low |  |
| High/Low |  |
| High/Low |  |
| High/Low |  |

Part IV: TTF performance evaluation criteria

# Performance Indicators

In this section you must identify indicators to assess the quality of the result and the interest of ETSI Members and other stakeholders.

In the course of the activity, the TTF Leader will collect the relevant information, as necessary to measure the performance indicators. The result must be presented in the Final Report.

After the conclusion of the TTF, the Reference Body Chair will report to the D-G on the actual achievement of the performance indicators set in these ToRs. This information will be used to assess further requests from the Reference Body.

The performance indicators must include qualitative and quantitative assessment of the following elements, as applicable:

|  |
| --- |
| **Select relevant Performance indicators applicable for these ToR (X)** |
| Contribution from ETSI Members to TTF work |
| Direct financial contribution (co-funding) |  |
| Support to the TTF work (e.g., provision of test–beds, organization of workshops, events) |  |
| Steering Group meetings (number of meetings / participants / duration) |  |
| Number of delegates directly involved in the review of the deliverables |  |
| Contributions/comments received from the Reference Bodies |  |
| Contributions/comments received from other Reference Bodies |  |
|  |  |
| **Contribution from the TTF to ETSI work** |
| Contributions to Reference Body meetings (number of documents / meetings / participants) |  |
| Contributions to other Reference Bodies |  |
| Presentations in workshops, conferences, stakeholder meetings |  |
|  |  |
| **Liaison with other stakeholders** |
| Stakeholder participation in the project (category, business area) |  |
| Cooperation with other standardization bodies |  |
| Potential interest of new members to join ETSI |  |
| Liaison to identify requirements and raise awareness on ETSI deliverables  |  |
| Comments received on drafts (e.g. on WEB site, mailing lists, etc.) |  |
|  |  |
| **Quality of deliverables** |
| Approval of deliverables according to schedule |  |
| Respect of time scale, with reference to start/end dates in the approved ToR |  |
| Comments from Quality review by Reference Body |  |
| Comments from Quality review by ETSI Secretariat |  |
|  |  |

# Document history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Author** | **Status** | **Comments** |
| 0.0 | 20YY-mm-dd |  |  |  |

1. Draft AI Act, 21.04.2021 “REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL LAYING DOWN HARMONISED RULES ON ARTIFICIAL INTELLIGENCE (ARTIFICIAL INTELLIGENCE ACT) AND AMENDING CERTAIN UNION LEGISLATIVE ACTS”, 06.12.2022, http://data.consilium.europa.eu/doc/document/ST-15698-2022-INIT/EN/pdf [↑](#footnote-ref-2)
2. Transparent documentation of quality and quality-related measures for trustworthy AI” relates, among others, to AI Act Article 13. [↑](#footnote-ref-3)
3. ModelCards, https://github.com/huggingface/huggingface\_hub/blob/main/src/huggingface\_hub/templates/modelcard\_template.md [↑](#footnote-ref-4)
4. Data Sheets, https://www.fatml.org/media/documents/datasheets\_for\_datasets.pdf [↑](#footnote-ref-5)
5. IBM Fact Sheets, <https://dataplatform.cloud.ibm.com/docs/content/wsj/analyze-data/factsheets-model-inventory.html?audience=wdp> [↑](#footnote-ref-6)
6. Hugging Face, https://huggingface.co/docs/hub/model-card-landscape-analysis) [↑](#footnote-ref-7)
7. AI Ethics Guideline, Ethics guidelines for trustworthy AI, https://digital-strategy.ec.europa.eu/en/library/ethics-guidelines-trustworthy-ai [↑](#footnote-ref-8)
8. OECD AI Principles overview, https://oecd.ai/en/ai-principles [↑](#footnote-ref-9)
9. If the outcome of this task results into any normative content, then a separate technical specification will be created to capture the normative content. [↑](#footnote-ref-10)
10. If the outcome of this task results into any normative content, then a separate technical specification will be created to capture the normative content. [↑](#footnote-ref-11)