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| ETSI_logo_Office_Colour_Small | ***ToR STF CV (TC SmartM2M)*** |
| Version: 2.4 |
| Author: TC SmartM2M - EC/EFTA – Date:23 Jun 2018  |
| Last updated by: Patrick Guillemin– Date: 11 Oct 2018  |
| page 1 of 13 |

Terms of Reference - Specialist Task Force

STF CV (SmartM2M)

**SAREF extensions for Automotive, eHealth/Ageing-well, Wearables and Water**

Summary information

|  |  |
| --- | --- |
| Funding | **EC/EFTA. Specific agreement N°ETSI/2018-02.** Total budget 147.957,81 € EUR* Manpower budget: 136 000 €
* Travel budget: 11 957.81€
 |
| Time scale | Start date: 19-Dec-2018End date: 31-Jul-2020 |
| Work Items  | DTR/SmartM2M-103508, TR 103 508: SAREF Investigation for AutomotiveDTR/SmartM2M-103509, TR 103 509: SAREF Investigation for eHealth/Ageing-wellDTR/SmartM2M-103510, TR 103 510: SAREF Investigation for Wearables DTR/SmartM2M-103547, TR 103 547: SAREF Investigation for WaterDTS/SmartM2M-103410-7-SRF4AUTO, TS 103 410-7: SAREF4AUTO, Extension to SAREF; Part 7: Automotive DomainDTS/SmartM2M-103410-8-SRF4EHAW, TS 103 410-8: SAREF4EHAW, Extension to SAREF; Part 8: eHealth/Ageing-well Domain.DTS/SmartM2M-103410-9-SRF4WEAR, TS 103 410-9: SAREF4WEAR, Extension to SAREF; Part 9: Wearables DomainDTS/SmartM2M-103410-10-SRF4WTR, TS 103 410-10: SAREF4WATR, Extension to SAREF; Part 10: Water Domain. |

Part I – Policy relevance and expected market impact

# Policy relevance

The Internet of Things (IoT) is a key priority area of the digital single market. The IoT is an emerging technology that connects more objects to the internet — including household equipment, wearable electronics, vehicles and sensors. The number of such connected devices is expected to exceed 20 billion by 2020. Besides the innovation potential in many industrial sectors, the IoT also has the potential to help address many societal challenges including climate change, resource and energy efficiency and ageing population.

## EC Annual Union Work Programme relevance

The current technical proposal on “SAREF extensions for Automotive, eHealth/Ageing-well and Water domains” is addressing key topics for the EC Annual Union Work Programme <http://ec.europa.eu/growth/single-market/european-standards/policy/>:

* Internet of Things,
* eHealth,
* connected and automated vehicles,
* IoT (semantic) interoperability
* IoT standardization involving ESOs and international Standards Development Organisations

This is mentioned in COM(2016) 357 final, the Communication on the annual work programme for 2017, adopted in June 2016:
<http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016DC0357&locale=en>

As written and **highlighted** in the following extract of COM(2016) 357 final:

*Section 2 on “STRATEGIC PRIORITIES FOR EUROPEAN STANDARDISATION”*

*Section 2.1 on “ICT Standardisation”*

*The Commission Communication on ICT Standardisation Priorities for the Digital Single Market identifies a list of priority building blocks for the Digital Single Market (DSM) where improved ICT standardisation is most urgent: 5G communications, cloud computing,* ***the internet of things (IoT),*** *(big) data technologies and cybersecurity. These are essential technology building blocks where areas such as* ***eHealth****,* ***connected and automated vehicles****, smart energy, advanced manufacturing or smart cities will rely. At this stage, the Commission does not foresee to send any standardisation requests to the ESOs but will ask for their involvement in a number of preparatory activities aiming at mapping and developing the appropriate standards. In the* ***internet of things (IoT)****, the Commission will* ***foster an interoperable environment*** *for the Internet of Things, working with* ***ESOs and international Standards Development Organisations****.*

## ICT MSP RP2017 Actions relevance

The ICT MSP Rolling Plan for ICT Standardisation 2017 is organized around four thematic areas: **key enablers**, societal challenges, innovation for the single market and sustainable growth. The present technical proposal is mainly addressing the **key enabler** Internet of Things and answers to the following IoT Actions:

**ACTION 1**: Finalize the IoT standards gap analysis.

This should include an understanding of user needs, including the accessibility needs of users. Continue activities on standards landscaping and gap analysis as set up in ETSI with a specialist task force to perform these tasks, aiming to develop a set of deliverables as a reference for the LSPs: Standards landscape for IoT (who does what, what are the next milestones) and identification of potential interworking frameworks (e.g. oneM2M) Analysis of any remaining gaps to be addressed in standards to achieve the IoT vision.

**ACTION 2**: Establish some cooperation among SDOs working on standards landscaping and gap analysis in order to leverage on the results and reduce duplication of work and efforts.

**ACTION 3**: Address the semantics of standards for better data interoperability.

**ACTION 4**: High-level events — Hold thematic workshops for specific industries.

DG CNECT is following up internet standardization and maintains contacts at the highest level with key European and international SDOs that could be used to organize roundtables or other high-level events involving key SDO figures, policymakers and global industry and the Commission.

# Rationale

In November 2015, the first version of the SAREF standard for smart appliances was published by ETSI TC SmartM2M (TS 103 264 V1.1.1). This specification subsequently evolved in a new version published in March 2017 (TS 103 264 V2.1.1) and currently includes also TS 103 410, parts 1 (SAREF4ENER), -2 (SAREF4ENVI), -3 (SAREF4BLDG), TS 103 267 (Smart Appliances Application of oneM2M Communication Framework) and the related testing suite in TS 103 268, parts 1 (Methodology), -2 (PICS), -3 (TSS&TP) and -4 (PIXIT).

The standard is based on the Smart Appliance REFerence ontology (SAREF), which was originally created in a standardization initiative launched by the European Commission (EC), DG CNECT, conducted in collaboration with ETSI TC SmartM2M. The EC, as a first step, identified an immediate need of the current market to reduce the energy utilization by managing and controlling Smart Appliances (for example, in a house or an office building) on a system level. In particular, the Industry and the EC raised the need for a common architecture with standardized interfaces and a common data model to assure interoperability. Without these two components, the current market would continue to be fragmented and powerless. Therefore, the development of a reference ontology was targeted as the main interoperability enabler for appliances relevant for energy efficiency, and ETSI accepted to cover the communication aspect and provide the necessary standardization process support.

As a result, following a broad consultation with stakeholders to address clear market needs, the EC financially supported a study to create a language (so-called 'reference ontology') for smart appliances. TNO performed the study (SMART 2013/0077) to create the first version of this reference ontology (SAREF), which was completed on April 1st, 2015. The outcomes of the study were then transferred to ETSI, to turn the study outcome into a Technical Specification. This task was executed by ETSI TC SmartM2M, and the specification was published in November 2015 (TS 103 264 V1.1.1).

This ETSI specification defines a new reference conceptual language for energy-related applications. This language will be used by devices in the home (from lamps and consumer electronics to white goods like dishwashers) to allow them to exchange information with any energy management system, which could physically be in the home or in the cloud.

SAREF will enable demand-response to flourish, will bring additional energy and cost savings for building owners and users, and will foster new markets. The intention is to build on converging standardization work and on the development of open platforms on which technologies and solutions will co-exist and interact across application domains.

In 2016, ETSI TC SmartM2M requested a Specialist Task Force (STF) to provide input on the management of SAREF, and identify and create possible SAREF extensions in specific domains. STF 513 was established and developed 3 extensions for SAREF in the energy, environment and building domains. These extensions have been published in January 2017 as follows:

* **TR 103 411** “SmartM2M; Smart Appliances; SAREF extension investigation”
* SAREF for Energy (SAREF4ENER): **TS 103 410-1** “SmartM2M; Smart Appliances Extension to SAREF; Part 1: Energy Domain”
* SAREF for Environment (SAREF4ENVI): **TS 103 410-2** “SmartM2M; Smart Appliances Extension to SAREF; Part 2: Environment Domain”
* SAREF for Building (SAREF4BLDG): **TS 103 410-3** “SmartM2M; Smart Appliances Extension to SAREF; Part 3: Building Domain”

TR 103 411 describes the use cases covered by the three extensions SAREF4ENER, SAREF4ENVI and SAREF4BLDG, and the requirements from the energy, environment and building domains that were used to build these extensions. TR 103 411 further proposes a strategy for the extension and maintenance of SAREF and its extensions in the future. Furthermore, it identifies additional domains where an extension of SAREF could be beneficial.

STF 513 has additionally developed a new version of SAREF, taking into account the feedback received from the industrial stakeholders since its first release in April 2015. As a result, a new version of SAREF was published in March 2017 (TS 103 264 V2.1.1), which contains the specification of SAREF 2.0, including the changes compared to the previous version, and an updated mapping to the oneM2M base ontology. This mapping was developed by STF 513 in collaboration with the oneM2M experts responsible for the oneM2M base ontology.

# Objective

The SAREF initiative has been welcomed by the Smart Appliance and IoT Industry which clearly indicated the intention to adopt the SAREF ontology and its related communication framework. As confirmed in the EC Rolling Plan for ICT Standardisation 2017, SAREF is a main ontology standard in the IoT ecosystem, and sets a template and a base for the development of similar standards for the other verticals to unlock the full potential of the IoT.

Since its first creation in 2015, SAREF has gradually become a “brand” to indicate (the network of) standardized semantic models that continues to grow systematically within the SmartM2M TC in ETSI. Currently, the proposal to change the SAREF acronym from the original “Smart Appliances REFerence ontology” to, e.g., “Smart Anything REFerence ontology” is under discussion, to better reflect the fact that SAREF is not limited to smart appliances and energy efficiency, but can serve as upper reference model to enable better integration of data from various vertical domains in the IoT. To that end, requirements are needed from new domains (e.g., Smart Cities, Smart AgriFood, Smart Industry and Manufacturing, Automotive, eHealth/Ageing-well, Wearables) to create new (and reuse existing) semantic models aligned with SAREF, while guaranteeing a consistent cross-domain maintenance and evolution of the network of extensions sprouting from SAREF.

During the work of STF 513, a number of industrial sectors expressed the interest to extend SAREF into their domains in order to fill the gaps of the semantics not yet covered by the first version of the ETSI specification published in 2015 and the extensions created in 2016.

Some organizations, such as organizations involved in the eHealth and Automotive sectors, also suggested that SAREF could additionally cover the domains where they are active, or made explicitly clear that they find it particularly important to be able to make full use of SAREF and its extensions for cross-domain semantic interoperability.

The proposed work of this STF is therefore to extend the SAREF standard taking into account:

* Automotive domain use cases and available existing data models, in close collaboration with AIOTI, the H2020 Large Scale Pilots (e.g. AUTOPILOT, SYNCHRONICITY) and other projects on mobility managed by INEA/EASME, ETSI and oneM2M.
* eHealth/ Ageing-well domain use cases and available existing data models, in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular EP eHealth and TC SmartBAN) and oneM2M.
* Wearables domain use cases and available existing data models, in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN) and oneM2M.
* Water domain use cases and available existing data models, in close collaboration with AIOTI, the H2020 Large Scale Pilots, results of the projects from the ICT4WATER cluster, ETSI and oneM2M.

To that end, the current technical proposal will produce 4 Technical Reports, one for each domain (i.e., Automotive, eHealth/ Ageing-well, Wearables and Water domains), with the scope to determine the requirements from the considered domains, collect use cases and identify available existing data models. Moreover, the current technical proposal will produce 4 Technical Specifications, one for each domain, with the scope to specify an initial extension to SAREF for each of these domains based on the requirements expressed in the corresponding TR.

It is of particular importance that, for identifying the requirements and defining the extensions in these domains, the stakeholders in the domains are consulted and actively involved to ensure that the extension is supported from the beginning of its development.

Coordination with major activities in the semantic interworking context is envisaged, in particular with the already active STF 534 (SAREF extension for smart cities, smart agrifood and smart industry and manufacturing).

# Market Impact

The availability of a network of standardized semantic models that consistently grow and systematically extend SAREF within TC SmartM2M in ETSI will allow not only implementers and manufacturers of Smart Appliances - and more in general IoT devices - to fully support various, multiple and cross-domain use cases for their devices. It will enhance the interoperability between their devices and the devices of other manufacturers and will allow them to broaden their market.

The overall deployment of Smart IoT devices (e.g. in the automotive domain) will directly lead to a quick adoption of the related M2M ETSI standards as developed by oneM2M. These standards potentially address a multi-billion product market.

The ETSI Smart Appliances specification aims to be deployed in the European market in a potential of 250 million European dwellings as a first step, and potentially worldwide later. If SAREF is not quickly extended to other domains, this may have a strong negative impact on the adoption of the ETSI SAREF standard and consequently on the adoption of the oneM2M IoT communication framework. On the contrary, it will leverage on the Smart Appliance initiative launched by the EC and the existing momentum around smart cities, smart agrifood, smart industry, etc.

Part II – Execution of the work

# Working method / approach

## Specialist Task Force (STF)

ETSI will perform this work by the creation of an ETSI STF, reporting the milestones to the ETSI SmartM2M Technical Committee (TC SmartM2M), according to the planned TC meeting agenda (as described in clause 7) and additional dates agreed by the TB chairman. TC SmartM2M will lead an active role in steering and contributing to this work. An STF Steering Committee (STF-SC) will be set up by TC SmartM2M in order to perform the steering task. The STF-SC will consist of

* TC **SmartM2M** Chairman and Vice-Chairman/Chairmen,
* ETSI Secretariat **IoT Support Officer** and EC/ETFA Relations Manager,
* STF Leader (when selected),
* **European Commission** (ETSI Counsellor) representative (from DG GROW and DG CONNECT),
* ETSI TC SmartM2M official liaison officer to the ETSI **oneM2M** Partnership Project**.**

The STF will report regularly to the STF-SC and at TC SmartM2M meetings.

The technical content described in section 7 will be developed through consultation, workshops, participation to the meetings of the projects and of AIOTI, experts’ collaboration and desk-based research. Close collaboration with the STF-SC members will be setup, as well as with the members of the main external organizations listed in section 5.2.

In particular, the STF will:

* organize periodic internal meetings of the STF to share the latest content produced
* organize periodic meetings with the STF-SC to consult on the latest advances
* attend the SmartM2M meetings and report on its activities, presenting drafts of the latest technical content produced for comments
* attend the AIOTI WG3 meetings and phone conferences
* participate to the organization of the AIOTI WG03 and SmartM2M/oneM2M workshops
* prepare contributions to the workshops and events organized by the running project clusters and LSPs (the H2020 Internet of Things Large Scale Pilots)
* organize reviews of its draft documents by the stakeholders described in section 5.2, in addition to the TC SmartM2M members

## Other interested actors

* ETSI TC SmartBAN
* ETSI EP eHealth
* STF 534 SAREF extension for smart cities, smart agrifood and smart industry and manufacturing.

In addition it is expected that the STF will collaborate / exchange with the following organisations for its action:

* **AIOTI** (the Alliance for the Internet of Things Innovation <http://www.aioti.eu>) and in particular AIOTI WG3 on IoT Standardization that is chaired by ETSI and AIOTI WG4 on IoT Policy;
* **2017-2019 running H2020 IoT LSP**: Smart Living for aging well : ACTIVAGE; Smart Farming and Food Security: IoF2020; Wearables for Smart Ecosystems: MONICA; Reference zones in EU Cities: SYNCHRONICITY and Autonomous vehicles in a connected environment: AUTOPILOT + 2 CSA CREATE-IoT and U4IoT ;
* other interested SDOs and Fora (e.g. oneM2M);
* other projects under preparation.

## Expertise required (qualifications, experience, required, mix of skills)

The STF will be selected and recruited following the agreed ETSI procedures and in compliance with the terms and conditions of the Framework Partnership Agreement (FPA) signed on 26th June 2014 between the EC and ETSI as amended by Amendment 1 dated the 6th August 2015. The ETSI STF will be recruited following the issuing of an ETSI Collective Letter, and this will also be available from the ETSI STF page on the ETSI Portal via the ETSI website.

Considering the above process for selecting the expertise required to perform the work described in this proposal, it is not possible at this stage to specify the individual profiles that will be recruited, however the STF will need to possess the following mix of skills and expertise:

* Expert knowledge of ETSI SmartM2M and oneM2M standards, semantics and IoT vertical domains (i.e., Automotive, eHealth/Ageing-Well and Water domains).
* Experience in industry-specific ontology development, especially SAREF
* Networks within the domains targeted for extensions
* Expertise in standardisation (consensus building, technical diplomacy) of IoT/M2M (technical, organizational and semantic) at the international level.
* Knowledge about the global IoT standardisation landscape and ecosystem.
* Strong personal networking ability, communications and presentation skills.
* Leadership and project management for the STF Leader position.
* Organizational skills, strong writing and reporting skills, creativity and capacity to work in a team and commitment to deliver.

We propose an efficient and agile approach on the call and selection of experts:

- the exact number of experts and their mix of skills will depend on the number and the skills of the applications received and will be decided when setting up the STF, but it is expected that the proposed STF will comprise up to a maximum of 3 experts including the STF Leader.

- to be efficient and to avoid too much internal coordination overhead, the ideal configuration would be a leader (STF Leader) engaging a minimum of agile and motivated STF experts in parallel.

## Previous work

* SMART 2013/0077 on Smart Appliances (120 000 EUR), Jan 2014-March 2015. Study for the European Commission (DG-CNECT) to bring together semantics and data from smart appliances in buildings and households. These smart appliances all communicate in a different manner, and the information they exchange differs. The study brought the information together in the Smart Appliances reference ontology (SAREF).
* ETSI STF 513 (95 800 EUR, ETSI Funded Work Programme) - Three extensions of SAREF for the following domains:
* Energy demand & response: SAREF4ENER
* Building: SAREF4BLDG
* Environment: SAREF4ENVI

The three extensions are specified in TS 103 410 parts 1 (SAREF4ENER), 2 (SAREF4ENVI) and 3 (SAREF4BLDG) and the requirements for these extensions are described in TR 103 411.

* SMART 2016/0082 on ensuring interoperability for enabling Demand Side Flexibility (99 000 EUR), Feb 2017 – Nov 2017. The European Commission (DG-CNECT) issued a study concerning the interoperability for demand side flexibility. A consortium consisting of DNV GL, TNO and ESMIG identified gaps in standardisation, recommended on alignments needed to achieve DSF interoperability and demonstrated an integrated infrastructure based on SAREF and oneM2M.

# Key Performance Indicators

## 6.1 Effectiveness and efficiency

The effectiveness of the project will be measured by

1. The number of presentations made on the activity, at the technical meeting and at the dissemination events, at least **14**.
2. The ability of the STF to achieve the objectives within the project plan provided
3. The delivery of drafts and publications on schedule
4. The number of drafts for consultation: including early draft, stable draft and final draft (for approval) of each of the 8 deliverables, for a total of at least **16** consultations
5. The evaluation of feedback received (e.g. on WEB site, mailing lists, etc.) as minuted in **2** SmartM2M plenary meetings reports
6. The number of meetings actively participated by this project: (minimum **23)** Including at least: -Participation and reporting/contribution to **8** technical meetings (TC SmartM2M, AIOTI, optionally ETSI TC SmartBAN and others as needed) -Presentation of the results at **one** annual ETSI IoT Week event will be used to engage and disseminate -**10** regular project meetings -**3** Steering Committee meetings
7. The number of participants at the meeting (ref. vi) and their category: including a minimum of **25** Standard experts and **50** experts from related sectors i.e. IoT, Smart Water, Automotive (Connected and Automated Vehicles, Intelligent Transport Systems), eHealth (telemedicine and Aging Well), Wearables, Smart Living, Smart Homes, Smart Cities, Cloud Computing, Big Data, Cybersecurity, Smart Energy, Advanced Manufacturing, and Smart Farming.

## 6.2 Technical content

Technical content of the provided deliverables (draft Technical Reports) will be evaluated by ETSI TC SmartM2M and reported a **minimum of 2 times** in the ETSI TC SmartM2M mailing list using the remote consensus ETSI tool to collect comments and suggestions.

## 6.3 Stakeholder engagement

An analysis of the effective stakeholder representation and engagement capacity in the project will be given and measured by

 Stakeholder participation in the project

 Cooperation with other external bodies, ETSI TCs, PPPs, LSPs (AUTOPILOT, SYNCHRONICITY, MONICA, ACTIVAGE), ICT4Water cluster and AIOTI:

The 25 Standard experts (minimum) and 50 experts (minimum) from related sectors *i.e. IoT, Smart Water, Automotive (Connected and Automated Vehicles, Intelligent Transport Systems), eHealth (telemedicine and Aging Well), Wearables, Smart Living, Smart Homes, Smart Cities, Cloud Computing, Big Data, Cybersecurity, Smart Energy, Advanced Manufacturing, and Smart Farming* cited in clause “6.1 Effectiveness and efficiency” bullet “vii” and additional stakeholders consulted will be listed, sorted, analysed by categories in the project’s reports (R1 and R2).

 Liaisons to identify requirements and raise awareness on the STF deliverables

## 6.4 Dissemination of results

Information will be provided on the effectiveness of activities related to the dissemination of project deliverables and efforts made to raise industry and end users awareness of the activity and project deliverables. Engaged stakeholders and STF members will make every effort to contribute to relevant conferences/workshops to disseminate the project results and receive comments on the on-going work.

Information covering the dissemination activities including the presentations given and the potential press releases will be provided in the reports.

# Work plan, milestones and deliverables

## Deliverables

**Table 1: List of deliverables and reports**

|  |  |  |
| --- | --- | --- |
|  | **Work Item code,****Standard number** | Title**, Working title,** Scope |
| D1 | DTR/SmartM2M-103508, TR 103 508 | SmartM2M; SAREF extension investigation; Requirements for Automotive. **SAREF Investigation for Automotive**Scope: Determine the requirements for an initial semantic model for the Automotive domain based on at least 2 use cases and from available existing data models. This work is expected to be developed in close collaboration with AIOTI and, the H2020 Large Scale Pilots, with ETSI and oneM2M. Further extensions are envisaged in the future to entirely cover the Automotive domain. |
| D2 | DTR/SmartM2M-103509, TR 103 509 | SmartM2M; SAREF extension investigation; Requirements for eHealth/Ageing-well. **SAREF Investigation for eHealth/Ageing-well**Scope: Determine the requirements for an initial semantic model for the eHealth/Ageing-well domain based on at least 2 use cases and from available existing data models. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, and ETSI activities (in particular EP eHealth). Further extensions are envisaged in the future to entirely cover the eHealth/Ageing-well domain |
| D3 | DTR/SmartM2M-103510, TR 103 510 | SmartM2M; SAREF extension investigation; Requirements for Wearables. **SAREF Investigation for Wearables**Scope: Determine the requirements for an initial semantic model for the Wearables domain based on at least 2 use cases and from available existing data models. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN), and oneM2M. Further extensions are envisaged in the future to entirely cover the Wearables domain. |
| D4 | DTR/SmartM2M-103547, TR 103 547 | SmartM2M; SAREF extension investigation; Requirements for Water. **SAREF Investigation for Water**Scope: Determine the requirements for an initial semantic model for the Water domain based on at least 2 use cases and from available existing data models, starting from the results of the ICT4WATER cluster. |

**Table 1 (cont): List of deliverables and reports**

|  |  |  |
| --- | --- | --- |
| D5 | DTS/SmartM2M-103410-7-SRF4AUTO, TS 103 410-7 | SmartM2M; Extension to SAREF; Part 7: Automotive Domain. **SAREF4AUTO** Scope: Specify an initial extension to SAREF to include the semantic model for the Automotive domain. This initial extension will be based on at least 2 use cases and available existing data models identified in the corresponding requirements TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI and oneM2M. Further extensions are envisaged in the future to entirely cover the Automotive domain. |
| D6 | DTS/SmartM2M-103410-8-SRF4EHAW, TS 103 410-8 | SmartM2M; Extension to SAREF; Part 8: eHealth/Ageing-well Domain. **SAREF4EHAW**Scope: Specify an initial extension to SAREF to include the semantic model for the eHealth/Ageing-well domain. This initial extension will be based on at least 2 use cases and available existing data models identified in the corresponding requirements TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular EP eHealth and TC SmartBAN) and oneM2M. Further extensions are envisaged in the future to entirely cover the eHealth/Ageing-well domain. |
| D7 | DTS/SmartM2M-103410-9-SRF4WEAR, TS 103 410-9 | SmartM2M; Extension to SAREF; Part 9: Wearables Domain. **SAREF4WEAR** Scope: Specify an initial extension to SAREF to include the semantic model for the Wearables domain. This initial extension will be based on at least 2 use cases and available existing data models identified in the corresponding requirements TR. This work is expected to be developed in close collaboration with AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN) and oneM2M. Further extensions are envisaged in the future to entirely cover the Wearables domain. |
| D8 | DTS/SmartM2M-103410-10-SRF4WTR, TS 103 410-10 | SmartM2M; Extension to SAREF; Part 10: Water Domain. **SAREF4WATR**Scope: Specify an initial extension to SAREF to include the semantic model for the Water domain. This initial extension will be based on at least 2 use cases and available existing data models identified in the corresponding requirements TR and based upon the results of the ICT4WATER cluster. This work will also be developed in collaboration with AIOTI (WG10 Smart Watering and WG08 Smart Cities), ETSI and oneM2M. Further extensions are envisaged in the future to entirely cover the Water domain. |
| R1 |  | **Interim Report to EC/EFTA**  |
| R2 |  | **Final Report to EC/EFTA**  |

The STF will produce the deliverables D1, D2, D3, D4, D5, D6, D7 and D8 for TC approval and publication by ETSI

The STF will produce the following other key documents:

* **R1: Interim Report**The Interim Report provides EC/EFTA with an overview of the work performed by the STF from the beginning of the activity to the date the report is produced. The report promotes the activity performed within the context of the objectives set. It provides figures and facts but also a rationale and background information for the STF achievements, working methods and technical approach. The report outlines the main difficulties and proposes corrective actions to be taken by the STF itself and/or requiring the intervention of EC/EFTA, ETSI or the reference TB. It includes latest drafts of the deliverables under the Work Items.
The Interim Report requires approval by the EC/EFTA.
* **R2: Final Report**The Final Report will be produced after the completion of the STF activity, i.e. after the deliverables have been TB approved for publication. The Final Report provides EC/EFTA with an overview of the work performed by the STF from the beginning of the activity to the date the report is produced. The report promotes the activity performed within the context of the objective set. It provides figures and facts but also a rationale and background information for the STF achievements, working methods and technical approach. The report includes the links to the published versions of the deliverables (TRs and TSs) promised.

The Final Report needs approval by the EC/EFTA.

**Table 2: Schedule of deliverables (S=Start=19Dec2018, time=S+#month)**

|  |  |
| --- | --- |
| **D1: TR 103 508**DTR/SmartM2M-103508SAREF Investigation for Automotive | * Early draft requirements overview S+4 (19 April 2019)
* Stable draft requirements overview S+7 (19 July 2019)
* Final draft requirements overview S+9 (19 September 2019)
 |
| **D2: TR 103 509**DTR/SmartM2M-103509SAREF Investigation for eHealth/Ageing-well | * Early draft requirements overview S+4
* Stable draft requirements overview S+7
* Final draft requirements overview S+9
 |
| **D3: TR 103 510**DTR/SmartM2M-103510SAREF Investigation for Wearables | * Early draft requirements overview S+4
* Stable draft requirements overview S+7
* Final draft requirements overview S+9
 |
| **D4: TR 103 547**DTR/SmartM2M-103547SAREF Investigation for Water | * Early draft requirements overview S+4
* Stable draft requirements overview S+7
* Final draft requirements overview S+9
 |
| **D5: TS 103 410-7**DTS/SmartM2M-103410-7-SRF4AUTO | * Early draft extension S+9 (19 September 2019)
* Stable draft extension S+12 (19 December 2019)
* Final draft extension S+17 (19 May 2020)
 |
| **D6: TS 103 410-8**DTS/SmartM2M-103410-8-SRF4EHAW | * Early draft extension S+9
* Stable draft extension S+12
* Final draft extension S+17
 |
| **D7: TS 103 410-9**DTS/SmartM2M-103410-9-SRF4WEAR | * Early draft extension S+9
* Stable draft extension S+12
* Final draft extension S+17
 |
| **D8: TS 103 410-10**DTS/SmartM2M-103410-10-SRF4WTR | * Early draft extension S+9
* Stable draft extension S+12
* Final draft extension S+17
 |
| **R1: Interim Report** | * Draft to ETSI (1st August 2019)
* Complete to EC/EFTA (1st September 2019)
 |
| **R2: Final Report** | * Draft to ETSI (1st June 2020)
* Complete to EC/EFTA -1st July 2020)
 |

## Work plan

## Table 3: Work Plan S=19 December 2018

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task/month after Start | *-1* | *0* | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | *19* | *20* |
| ***Task 0****: Recruitment of Experts* |  | **S** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Task 1**: Project Management |  |  |  |  |  | M1 |  |  |  |  | M2 | MA |  |  |  |  |  |  | M3 | M4 |  |  |
| **Task 2**: SAREF requirements gathering |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Task 3**: SAREF extension development |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Task 4:** Completion of administrative obligations |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | MB |

**Table 4: Milestones**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Name** | **Details** | **Date** |
| Milestone S | S | Start of STF | S=19Dec2018 |
| Milestone 1 | M1 | Early draft TRs (Task 2) for TC review Start of work on TS (Task 3)Progress report approved by TC SmartM2M | S+4=19Apr2018 |
| Milestone 2 | M2 | Final draft TRs (Task 2) and Progress Report approved by TC SmartM2MEarly drafts TS (Task 3) submitted for TC review | S+9=19Sep2018 |
| Milestone A | MA | Interim Report approved by ETSI Secretariat | 01-Aug-2019 |
| Milestone 3 | M3 | Final drafts TS (Task 3) approved by TC SmartM2M and publication | S+17 |
| Milestone 4 | M4 | Deliverables published, STF closed | S+18 |
| Milestone B | MB | Final Report approved by ETSI Secretariat | 01-Jun-2020 |

**Organisation of the work**

The work must be performed in cooperation by 3 service providers maximum, which must be prepared to share tasks as required. The actual number of contributors will depend on the mix of skills that will be available from the applications proposed and will be decided by the ETSI Secretariat in consultation with the TC Chairman, when setting up the STF.

The work of the current technical proposal is split in 5 tasks:

* Task 0: Recruitment of expertise by ETSI (before STF start)
* Task 1: Project Management
* Task 2: SAREF requirements gathering to result in 4 ETSI TRs (D1,D2,D3 and D4)
* Task 3: Production of SAREF extensions, SAREF extension development to result in 4 ETSI TS (D5,D6,D7 and D8)
* Task 4: Completion of administrative obligations (after STF closure)

Task 0: Recruitment of expertise

The STF will be selected and recruited as described in Clause 5.3.

It is to be recalled that ETSI Director-General has the responsibility for the selection of the experts in consultation with the TC SmartM2M Chairman. The ETSI Secretariat and the TC SmartM2M Chairman, possibly assisted by the STF-SC, will assess the qualifications of the candidates for the STF during the selection.

**Resource required for Task 0:**

|  |  |  |  |
| --- | --- | --- | --- |
| **# experts for the task** | **Funded Manpower (units)** | **Duration** | **Funded Travels** |
| not applicable | not applicable | 2 months before the Start of the STF | not applicable |

Task 1: Project Management

**Objectives:** Coordination, communication, reporting and leading of the STF team activities, in collaboration with the ETSI secretariat and TC SmartM2M. The project will be organized in an Agile/Scrum way for the sake of efficiency and to foster the quick development of the new SAREF extensions.

**Interactions:** EC,ETSI secretariat, TC SmartM2M, other interested ETSI Technical Bodies (as described in section 5.2) and interested Organizations outside ETSI (as described in section 5.3).

**Resources required for Task 1**:

|  |  |  |  |
| --- | --- | --- | --- |
| **# experts for the Task 1** | **Funded Manpower (units)** | **Duration** | **Funded Travels** |
| 1 | 23 | S -> S+18 (18 month) |  5 |

Task 2: SAREF requirements gathering

**Objectives:** This task will gather requirements from the domains interested in a SAREF extension.

**Interactions:** EC,TC SmartM2M, other interested ETSI Technical Bodies (as described in section 5.2), interested Organizations outside ETSI (as described in section 5.3) and stakeholders from the domains of interest, namely

* Automotive, including partners from AIOTI, the H2020 Large Scale Pilots (e.g., AUTOPILOT), ETSI and oneM2M.
* eHealth/well-ageing, including partners from AIOTI, the H2020 Large Scale Pilots, ETSI (in particular EP eHealth and TC SmartBAN) and oneM2M.
* Wearables, including partners from AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN) and oneM2M.
* Water, including partners from AIOTI, the H2020 Large Scale Pilots, projects from the ICT4WATER cluster , ETSI and oneM2M

**Input:** Base documents.

**Table: Base documents for the technical proposal**

|  |  |  |
| --- | --- | --- |
| **Document** | **Title** | **Stable draft** |
| ETSI TS 103 264 | SmartM2M Smart Appliances Common Ontology and oneM2M mapping | Published |
| ETSI TS 103 267 | SmartM2M Smart Appliances – Communication framework | Published |
| ETSI TR 103 411 | SmartM2M; Smart Appliances; SAREF extension investigation | Published |
| ETSI TS 103 410-1 | SmartM2M; Smart Appliances Extension to SAREF; Part 1: Energy Domain | Published |
| ETSI TS 103 410-2 | SmartM2M; Smart Appliances Extension to SAREF; Part 2: Environment Domain | Published |
| ETSI TS 103 410-3 | SmartM2M; Smart Appliances Extension to SAREF; Part 3: Building Domain | Published |

**Output**: Four Technical Reports D1, D2, D3 and D4, i.e., DTR/SmartM2M-103508, DTR/SmartM2M-103509, DTR/SmartM2M-103510 and DTR/SmartM2M-103547(as described in section 7.1).

**Resources required for Task 2**:

|  |  |  |  |
| --- | --- | --- | --- |
| **# experts for the Task 2** | **Funded Manpower (units)** | **Duration** | **Funded Travels** |
| Up to 3 | 73 | S -> S+9(9 month) |  5 |

Task 3: SAREF extension development

**Objectives:** The objective is to include input from the industrial actors of the IoT domains of interest and domain-specific aspects to produce four extensions of SAREF, one for each considered domain, based on the study described in the corresponding Technical Reports.

**Interactions:** TC SmartM2M, other interested ETSI Technical Bodies (as described in section 5.2), interested Organizations outside ETSI (as described in section 5.3) and stakeholders from the domains for which the extensions will be produced, namely

* Automotive, including partners from AIOTI, the H2020 Large Scale Pilots (e.g. AUTOPILOT, SYNCHRONICITY) and other projects on mobility managed by INEA/EASME, ETSI and oneM2M.
* eHealth/ well-ageing, including partners from AIOTI, the H2020 Large Scale Pilots, ETSI (in particular EP eHealth and TC SmartBAN) and oneM2M.
* Wearables, including partners from AIOTI, the H2020 Large Scale Pilots, ETSI (in particular TC SmartBAN) and oneM2M.
* Water, including partners from AIOTI, the H2020 Large Scale Pilots, ICT4WATER cluster, ETSI and oneM2M

**Input:** Results of Task 2

**Output:** Four Technical Specifications D5, D6, D7 and D8, i.e.,DTS/SmartM2M-103410-7SRF4AUTO, DTS/SmartM2M-103410-8SRF4EHAW, DTS/SmartM2M-103410-9SRF4WEAR and DTS/SmartM2M-103410-10-SRF4WTR (as described in section 7.1).

**Resource required for Task 3:**

|  |  |  |  |
| --- | --- | --- | --- |
| **# experts for the Task 3** | **Funded Manpower (units)** | **Duration** | **Funded Travels** |
| Up to 3 | 135 | S+3 -> S+18(16 month) | 4 |

Task 4: Completion of administrative obligations

The ETSI secretariat has to complete some administrative obligations in order to finalize the project.

**Resource required for Task 4:**

|  |  |  |  |
| --- | --- | --- | --- |
| **# experts for the Task 4** | **Funded Manpower (units)** | **Duration** | **Funded Travels** |
| not applicable | not applicable | 3 months after the closure of the STF |  |

## Task Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **N** | **Task / Milestone / Deliverable** | Target date | Estimated cost |
| EUR |
| M0 | Start of work | 19-Dec-2018 |  |
| T0 | Recruitment of expertise by ETSI (before STF start) | Oct-Nov 2018 | 0 |
| T1 | Project management | Dec 2018 - Jun 2019 | 13 500 |
| T2 | SAREF requirements gathering to result in 4 ETSI TRs (D1,D2,D3 and D4) | Dec 2018 - Sep 2019 | 43 000 |
| T3 | Production of SAREF extensions, SAREF extension development to result in 4 ETSI TS (D5,D6,D7 and D8) |  Mar 2019 - Jun 2019 | 79 500 |
| T4 | Completion of administrative obligations (after STF closure) | Jun 2020 - Aug 2020 | 0 |
| M1 | Early draft TRs (Task 2) for TC review Start of work on TS (Task 3)Progress report approved by TC SmartM2M | Apr-2019 |  |
| MA | Interim Report approved by ETSI Secretariat | 01-Aug-2019 |  |
| M2 | Final draft TRs (Task 2) and Progress Report approved by TC SmartM2MEarly drafts TS (Task 3) submitted for TC review | Sep-2019 |  |
| M3 | Final drafts TS (Task 3) approved by TC SmartM2M and publication | May-2020 |  |
| MB | Final Report approved by ETSI Secretariat | Jun-2020 |  |
| M4 | Deliverables published, STF closed | Jun-2020 |  |
| **Total** | **136 000** |

In addition to the man power total budget of 136 000 EUR, the 14 travels budget is 11 957,81 EUR for a total funded budget of 147 957,81 EUR.