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nexT gEnEration sMart INterconnectEd IoT

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Quality & Risk Manager Revision

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Panagiotis Sarigiannidis	UOWM	07/06/2023
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Acronyms

Acronym	Explanation
DOH	Declaration of Honour
OCPC	Open Call Project Committee
EC	European Commission
OC	Open Call
IOT	Internet Of Things
WP9	Work-package 9
SME	Small and Medium Enterprise
NDA	Non-Disclosure Agreement
R&D	Research & Development
KPI	Key Performance Indicators

Executive Summary

This deliverable entitled “Final Open call report” reports on the results of the TERMINET Open Call evaluation that was conducted in the frame of the TERMINET Open call. It is the public version of the “Open call report” delivered to the European Commission. This deliverable comprises the description of the TERMINET Open Call Evaluation Process as well as the evaluators’ selection process and finally the results of the TERMINET open call. The intended purpose of this public deliverable is to report to all TERMINET stakeholders including public at large on the work that has been carried out under WP9 since the beginning of the TERMINET project.

1. Introduction

1.1 Purpose of the deliverable

The purpose of this document is to describe the open call evaluation outcomes.

Task 9.3 entitled “Open Call Evaluation and Funding” has been in charge of preparing the application and communication material, planning the activities related to the open call, application and evaluation processes and communication of final results. These activities and results are presented in detail in this document.

1.2 Relation with other deliverables and tasks

This deliverable D9.3 entitled “Final Open Call report” follows the deliverable D9.1 entitled “Open call documents toolkit” submitted in June 2022 and approved by the EC July 2023 [1], as well as the deliverable D9.2 “Open Call report” that was a confidential deliverable intended for the review of the European Commission exclusively.

D9.1 comprised the information needed for the applicants to submit proposals such as the Guidelines for Applicants, application template, the declaration of honour, template of the sub-grantee agreement and FAQ. Nevertheless, TERMINET Open Call management procedures have been updated through the TERMINET Open Call Guide for Applicants [2], which is available in the TERMINET project website.

D9.2 is a confidential deliverable reporting on the results of each evaluation process of the TERMINET Open Call intended for the consideration of the European commission only.

The final deliverable D9.3 entitled “Final Open Call report” has the same delivery date as of D9.2 but is however a public deliverable. D9.3 is a summary including relevant statistics and findings that will be published on the website of the project with the completion of the Open Call process.

No further deliverables are planned related to the TERMINET open call under the ninth work-package of the project.

1.3 Structure of the Document

The deliverable D9.3 is made of 4 separate sections:

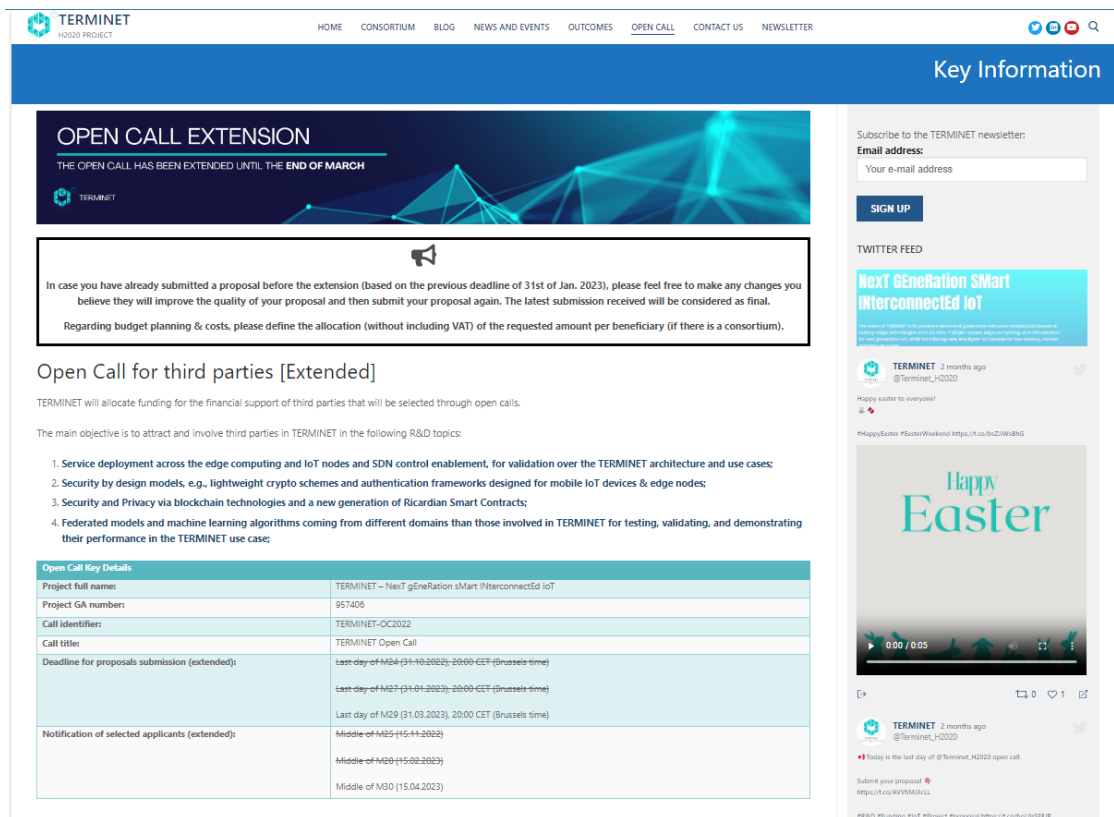
- Section 1 gives an introduction on the deliverable
- Section 2 describes the Open Call roadmap
- Section 3 provides details of the Open Call Independent Evaluators
- Section 4 records the Open Call Evaluation process
- Section 5 presents the results of Independent Evaluators

2. The TERMINET Open Call Roadmap

2.1 TERMINET Open Call Preparation

In the period that preceded the call, the activities were focused on preparing the call information document, the application form on the project website (See TERMINET Open Call Guide for Applicants [2]) promotional campaign and communication materials and on establishing the list of the experts that would assess the received proposals.

Details on the TERMINET Open Call procedures, timeline and topics are displayed in TERMINET Project website. Nevertheless, detailed guidelines for the entire TERMINET Open Call process are provided in the TERMINET Open Call Guide for Applicants [2]. Regarding the TERMINET website, key information about the call is displayed in Figure 1, while Figure 2 provides details on the funding scheme to be followed by applicants. Figure 3 display the source of the TERMINET Open Call templates to be followed for the submission of proposals.



OPEN CALL EXTENSION
THE OPEN CALL HAS BEEN EXTENDED UNTIL THE END OF MARCH

In case you have already submitted a proposal before the extension (based on the previous deadline of 31st of Jan. 2023), please feel free to make any changes you believe they will improve the quality of your proposal and then submit your proposal again. The latest submission received will be considered as final.

Regarding budget planning & costs, please define the allocation (without including VAT) of the requested amount per beneficiary (if there is a consortium).

Open Call for third parties [Extended]

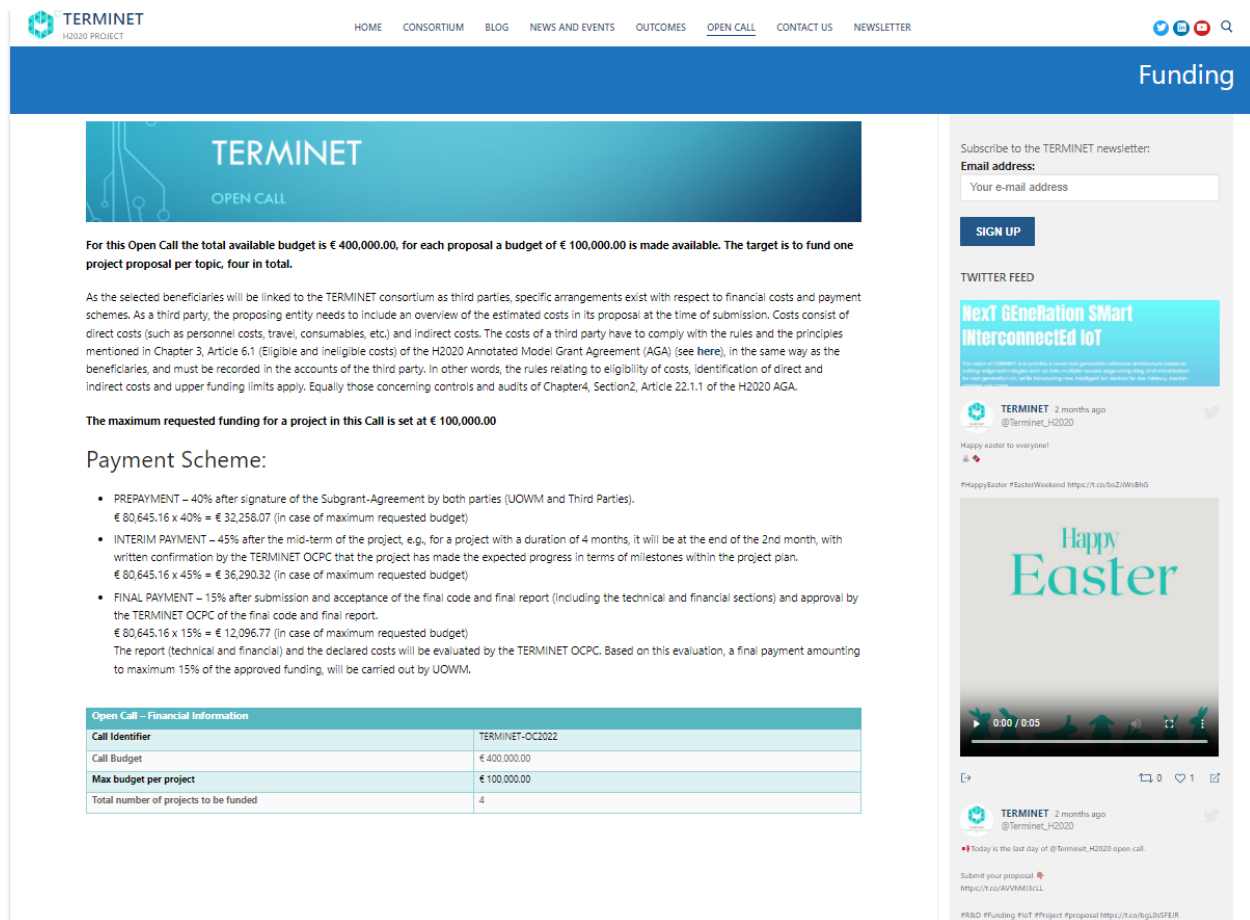
TERMINET will allocate funding for the financial support of third parties that will be selected through open calls.

The main objective is to attract and involve third parties in TERMINET in the following R&D topics:

1. Service deployment across the edge computing and IoT nodes and SDN control enablement, for validation over the TERMINET architecture and use cases;
2. Security by design models, e.g., lightweight crypto schemes and authentication frameworks designed for mobile IoT devices & edge nodes;
3. Security and Privacy via blockchain technologies and a new generation of Ricardian Smart Contracts;
4. Federated models and machine learning algorithms coming from different domains than those involved in TERMINET for testing, validating, and demonstrating their performance in the TERMINET use case;

Open Call Key Details	
Project full name:	TERMINET – Next gEneration sMart Interconnected IoT
Project GA number:	957405
Call identifier:	TERMINET-OC2022
Call title:	TERMINET Open Call
Deadline for proposals submission (extended):	Last day of M24 (31-10-2022): 20:00 CET (Brussels time) Last day of M27 (31-01-2023): 20:00 CET (Brussels time) Last day of M29 (31-03-2023): 20:00 CET (Brussels time)
Notification of selected applicants (extended):	Middle of M25 (15-11-2022) Middle of M26 (15-02-2023) Middle of M30 (15-04-2023)

Figure 1: TERMINET Open Call Key Information



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Funding

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For this Open Call the total available budget is € 400,000.00, for each proposal a budget of € 100,000.00 is made available. The target is to fund one project proposal per topic, four in total.

As the selected beneficiaries will be linked to the TERMINET consortium as third parties, specific arrangements exist with respect to financial costs and payment schemes. As a third party, the proposing entity needs to include an overview of the estimated costs in its proposal at the time of submission. Costs consist of direct costs (such as personnel costs, travel, consumables, etc.) and indirect costs. The costs of a third party have to comply with the rules and the principles mentioned in Chapter 3, Article 6.1 (Eligible and Ineligible costs) of the H2020 Annotated Model Grant Agreement (AGA) (see [here](#)), in the same way as the beneficiaries, and must be recorded in the accounts of the third party. In other words, the rules relating to eligibility of costs, identification of direct and indirect costs and upper funding limits apply. Equally those concerning controls and audits of Chapter4, Section2, Article 22.1.1 of the H2020 AGA.

The maximum requested funding for a project in this Call is set at € 100,000.00

Payment Scheme:

- PREPAYMENT – 40% after signature of the Subgrant-Agreement by both parties (UOWM and Third Parties).
€ 80,645.16 x 40% = € 32,258.07 (in case of maximum requested budget)
- INTERIM PAYMENT – 45% after the mid-term of the project, e.g., for a project with a duration of 4 months, it will be at the end of the 2nd month, with written confirmation by the TERMINET OCP that the project has made the expected progress in terms of milestones within the project plan.
€ 80,645.16 x 45% = € 36,290.32 (in case of maximum requested budget)
- FINAL PAYMENT – 15% after submission and acceptance of the final code and final report (including the technical and financial sections) and approval by the TERMINET OCP of the final code and final report.
€ 80,645.16 x 15% = € 12,096.77 (in case of maximum requested budget)
The report (technical and financial) and the declared costs will be evaluated by the TERMINET OCP. Based on this evaluation, a final payment amounting to maximum 15% of the approved funding, will be carried out by UOWM.

Open Call – Financial Information	
Call Identifier	TERMINET-OC2022
Call Budget	€ 400,000.00
Max budget per project	€ 100,000.00
Total number of projects to be funded	4

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Next Generation SMART Interconnected IoT

TERMINET 2 months ago
@Terminet_H2020

Happy easter to everyone!

#HappyEaster #EasterWeekend <https://t.co/3uZ0Wb8G>

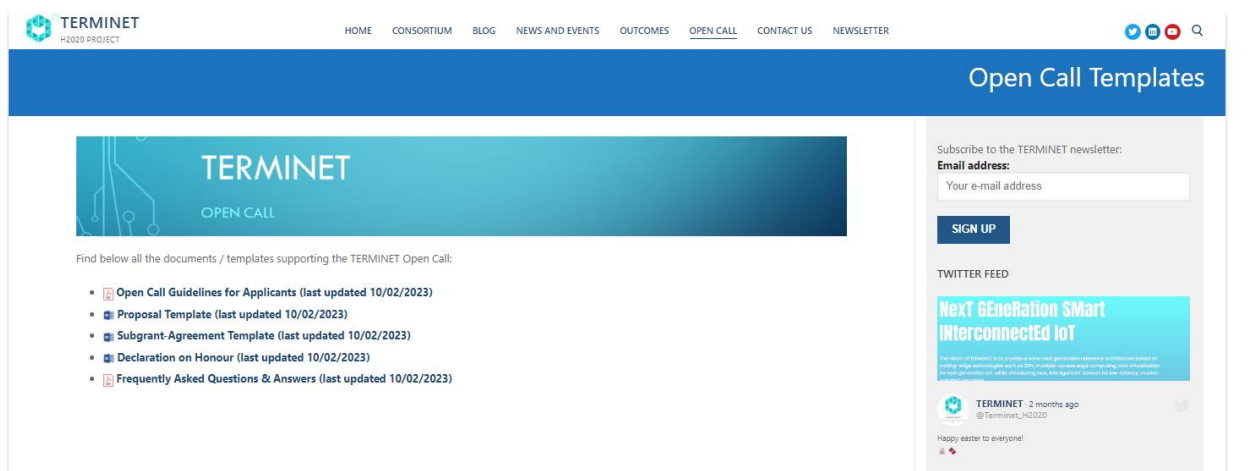
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Today is the last day of @Terminet_H2020 open call.

Submit your proposal
<https://t.co/4VPMR6LL>

#R&D #Funding #IoT #Project #Proposal <https://t.co/3uZ0Wb8G>

Figure 2: TERMINET Open Call funding scheme



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Open Call Templates

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Find below all the documents / templates supporting the TERMINET Open Call:

- Open Call Guidelines for Applicants (last updated 10/02/2023)
- Proposal Template (last updated 10/02/2023)
- Subgrant-Agreement Template (last updated 10/02/2023)
- Declaration on Honour (last updated 10/02/2023)
- Frequently Asked Questions & Answers (last updated 10/02/2023)

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Happy easter to everyone!

#HappyEaster #EasterWeekend <https://t.co/3uZ0Wb8G>

Figure 3: TERMINET Open Call templates

The timeline of the TERMINET Open Call procedures is displayed in Table 1, where the opening and closing dates of each phase were modified due to external factors heavily impacting the project's schedule. The TERMINET Open Call was initially published in M24 (October 2022). Despite having been published on the project website the TERMINET Open Call funding announcement was not published on the EC platform due to technical issues, occurring unfortunately twice in October 2022 as well as in December 2022. Consequently, the TERMINET Open Call announcement had to be relaunched twice and the overall TERMINET Open Call process was delayed for 6 months, from October 2022 to March 2023 (From M24 to M29).

Open Call Key details & Timeframe	
Project full name:	TERMINET - NexT gEneRation sMart INterconnectEd IoT
Project GA number:	957406
Call identifier:	TERMINET- OC2022
Call title:	TERMINET Open Call
Call announcement in the project website:	First day of M20 (01.06.2022)
Call extension announcement in the project website:	24th of Nov. 2022 10 th Feb. 2023
Call opening:	First day of M22 (01.08.2022)
Call extension opening:	24th of Nov. 2022 10 th Feb. 2023
Deadline for proposals submission (extended):	Last day of M24 (31.10.2022) Last day of M27 (31.01.2023) Last day of M29 (31.03.2023)
Notification of selected applicants (extended):	Middle of M25 (15.11.2022) Middle of M28 (15.02.2023) Middle of M30 (15.04.2023)
Projects start (extended):	No later than the first day of M27 (01.01.2023) No later than the first day of M29 (01.03.2023) No later than the first day of M31 (01.05.2023)
Duration of 3rd party projects:	4 – 6 months
End of the projects (extended):	Minimum: M30 (30.04.2023) Maximum: M32 (30.06.2023) Minimum: M32 (30.06.2023) Maximum: M34 (31.08.2023) Minimum: M34 (30.08.2023) Maximum: M36 (31.10.2023)

Table 1: TERMINET Open Call timeline

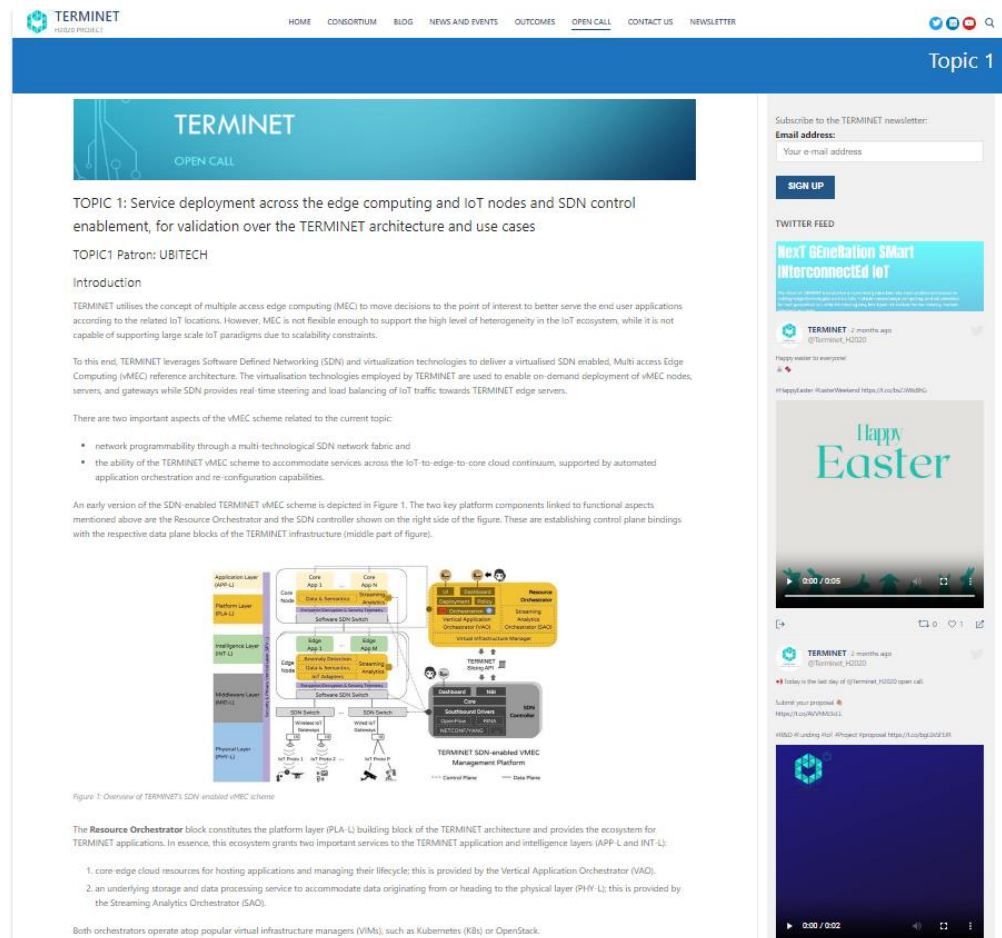
The TERMINET project announced its Open Call for four projects. This Open Call focuses on 4 different topics:

- **TOPIC 1** - Service deployment across the edge computing and Internet of Things (IoT) nodes and Software Defined Networking (SDN) control enablement, for validation over the TERMINET architecture and use cases.

- **TOPIC 2** - Security by design models, e.g., lightweight crypto schemes and authentication frameworks designed for mobile IoT devices and edge nodes.
- **TOPIC 3** - Security and Privacy via blockchain technologies and new generation of Ricardian Smart Contracts.
- **TOPIC 4** - Federated models and machine learning algorithms coming from different domains than those involved in TERMINET for testing, validating, and demonstrating their performance in the TERMINET use case.

Each topic has a dedicated Patron, member organisation of the TERMINET consortium. Figures 4, 5, 6 and 7 demonstrate the TERMINET website dedicated webpages on the four TERMINET Open Call topics that were considered for funding.

- **Patron for TOPIC 1:** UBITECH
- **Patron for TOPIC 2:** TEI
- **Patron for TOPIC 3:** CETH
- **Patron for TOPIC 4:** UOWM



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Topic 1

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TOPIC 1: Service deployment across the edge computing and IoT nodes and SDN control enablement, for validation over the TERMINET architecture and use cases

TOPIC1 Patron: UBITECH

Introduction

TERMINET utilises the concept of multiple access edge computing (MEC) to move decisions to the point of interest to better serve the end user applications according to the related IoT locations. However, MEC is not flexible enough to support the high level of heterogeneity in the IoT ecosystem, while it is not capable of supporting large scale IoT paradigms due to scalability constraints.

To this end, TERMINET leverages Software Defined Networking (SDN) and virtualisation technologies to deliver a virtualised SDN enabled, Multi access Edge Computing (vMEC) reference architecture. The virtualisation technologies employed by TERMINET are used to enable on-demand deployment of vMEC nodes, servers, and gateways while SDN provides real-time steering and load balancing of IoT traffic towards TERMINET edge servers.

There are two important aspects of the vMEC scheme related to the current topic:

- network programmability through a multi-technological SDN network fabric and
- the ability of the TERMINET vMEC scheme to accommodate services across the IoT-to-edge-to-core cloud continuum, supported by automated application orchestration and re-configuration capabilities.

An early version of the SDN-enabled TERMINET vMEC scheme is depicted in Figure 1. The two key platform components linked to functional aspects mentioned above are the Resource Orchestrator and the SDN controller shown on the right side of the figure. These are establishing control plane bindings with the respective data plane blocks of the TERMINET infrastructure (middle part of figure).

Figure 1: Overview of TERMINET's SDN-enabled vMEC scheme

The **Resource Orchestrator** block constitutes the platform layer (PLA-L) building block of the TERMINET architecture and provides the ecosystem for TERMINET applications. In essence, this ecosystem grants two important services to the TERMINET application and intelligence layers (APP-L and INT-L):

1. core-edge cloud resources for hosting applications and managing their lifecycle; this is provided by the Vertical Application Orchestrator (VAO).
2. an underlying storage and data processing service to accommodate data originating from or heading to the physical layer (PHY-L); this is provided by the Streaming Analytics Orchestrator (SAO).

Both orchestrators operate atop popular virtual infrastructure managers (VIMs), such as Kubernetes (K8s) or OpenStack.

TERMINET SDN-enabled vMEC Management Platform

Application Layer (APP-L)
Core Node
Platform Layer (PLA-L)
Intelligence Layer (INT-L)
Middleware Layer (MID-L)
Physical Layer (PHY-L)

Core App 1
Core App 2
Core App 3
Core App 4
Core App 5
Core App 6
Core App 7
Core App 8
Core App 9
Core App 10
Core App 11
Core App 12
Core App 13
Core App 14
Core App 15
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Core App 100

SDN Controller
Resource Orchestrator
Vertical Application Orchestrator (VAO)
Streaming Analytics Orchestrator (SAO)
Virtual Infrastructure Manager (VIM)
Kubernetes (K8s)
OpenStack
SDN-enabled vMEC Management Platform

Control Plane
Data Plane

Happy Easter

TERMINET 2 months ago @terminet_H2020

Happy Easter to everyone!

#HappyEaster #EasterBlessed https://t.co/bzWf8BdG


TERMINET 2 months ago @terminet_H2020

Today is the last day of @terminet_H2020 open call!





Submit your proposal! https://t.co/9Wf8BdG

WIS2 #Landing_Hall #Project_Horizon https://t.co/9Wf8BdG


Figure 4: TERMINET Open Call – Topic 1


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Topic 2


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TOPIC 2: Security by design models, e.g., lightweight crypto schemes and authentication frameworks designed for mobile IoT devices & edge nodes

TOPIC2 Patron: TEI

Introduction

TERMINET is a system that is being designed to be foundationally secure, in order to ensure the necessary security of data and privacy. The term Security and Privacy by Design is used to describe the design creation approach, where security and privacy are incorporated into every part of the system, starting from the design and including the specifications, management and operation of the system, and the business plan. As IoT is a relatively new field that keeps growing exponentially, having security principles laid at the very foundation of a system is of the utmost importance.

Most IoT devices can be connected to the internet and have a UIO, thus making them accessible online, summing up to a lot of different attack vectors that are also interconnected.

Thus a gateway to different kinds of sensitive data will be formed and the case of breaching must be avoided at all costs. Some common tactics regarding the security by design principle are a) minimising attack surface, b) having just enough privileges, depending on the user and c) defence in depth.

TERMINET will opt to leverage technologies such as:

- attestation modelling to assess potential security risks and attack vectors of the entire architecture and attempt to minimise them,
- distributed and decentralised blockchain to incorporate a trusted environment for business transactions as well as enterprise level privacy
- ensuring the appropriate privileges to users, system administrators etc.
- having all components incorporating security mechanisms in order to make it harder to breach and to have a higher overall level of defence in each layer.

Functional Requirements

The digitalisation of Industries has created a multitude of security requirements for the IoT and in such a diversified context, TERMINET project is providing an end-to-end approach to the security management aiming at enforcing security and privacy in the IoT, while simultaneously building strong identities and maintaining trust.

Privacy and security present important qualities for each system handling data and they should be maintained for the entirety of the data life cycle (e.g. collection, usage, storage, dissemination or destruction) to comply with the relevant legislation.

In TERMINET, data handling processes will be implemented by taking into consideration each of this privacy protection stages in a dynamic and proactive manner.

There are requirements to be followed as action for each stage of the data life cycle.

In more specific terms, the data beneficiary should be informed when his/her data is processed (transparency). So, appropriate information has to be provided to individuals about the data collection and its purpose, whereas individuals have to provide their consent after they are given the full information transparently.

The data beneficiary should be provided agency over the processing of their personal data (rights to data beneficiary), by making available a mechanism to capture consent and managing privacy preferences on the usable personal data. Personal data should be kept to a minimal amount as much as possible (personal data minimization), where the required data must be defined before their collection to reduce the collection of not useful information.

Personal data and their interrelations should not be accessible by unauthorised personnel and privacy should be protected by hiding techniques, e.g. encryption, identity masking techniques, secure file sharing techniques, either while stored or transferred. Access control mechanisms (e.g. authentication) must be used to access and process the data. Privacy-preserving computations and searchable encryption should be used whenever possible.

Given the option, personal data should be processed in separate compartments in a distributed fashion, supported by decentralised storage and analytics. Local anonymization should be used whenever possible.


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Figure 5: TERMINET Open Call – Topic 2



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TERMINET

OPEN CALL

Topic 3: Security and Privacy via blockchain technologies and new generation of Ricardian Smart Contracts

TOPIC3 Patron: CERTH

Introduction

TERMINET is a system that aims at being secure and private, both concepts being critical in the field of IoT, as they are issues that should be inevitably addressed with the continuous expansion of usage of smart devices. One of the most promising ways of combating the aforementioned problems is the usage of blockchain technology, which is a form of Distributed Ledger [1].

TERMINET aims to utilize blockchain technology, along with blockchain-oriented techniques to increase the system's security and reliability, as stealing identities for the purpose of malicious acting will be nearly impossible, and multiple nodes will provide protection against single-points of failure. Also, agreements will be enforced via Ricardian Smart Contracts and automation will be brought to the system by ensuring that certain actions will be done once an agreement is reached and that everyone will be able to understand what happens once an action is completed.

By utilizing a permissioned blockchain, an IoT-heavy system such as TERMINET can certainly benefit, as security, privacy and trust will be further enhanced, giving less risks of compromise, reliability, and options of access control. The fact that a network is permissioned means that one entity needs to be properly enrolled in the blockchain network, thus needs to be known to the rest of the network, bringing further trust to the system, as participants know each other, and no unknown entities enter without permission. Furthermore, blockchain technology has a plethora of different applications that can also utilize a significant number of IoT devices, such as healthcare, agriculture, supply chain management and many more, which is also one of the key goals of the TERMINET project, to be able to support as many different use cases as possible.

An important aspect in every IoT network is data sharing, access and authorization which can be curated with the use of blockchain technologies and respective smart contracts. Since data exchanged through IoT devices can contain several sensitive information, from patient data to business-classified information, it is of paramount importance to restrict access to certain identities, as well as allow and revoke access to data if deemed necessary [2].

The aim of this topic is to **design and develop a secure framework for smart device authentication and next generation Ricardian smart contracts** to provide TERMINET a novel way of ensuring that security and privacy are granted within the system and that all transactions are being carried out autonomously.

Functional Requirements

The TERMINET project will employ blockchain technologies to provide identity management tools, data sharing services, authentication of devices and logging/auditing capabilities, while bringing automated agreement settlement to the network. While permissioned blockchain technology has certain security and trust guarantees, there are some requirements to be met.

- Permissioned blockchain networks may have issues with performance when they expand, therefore one should find balance between the number of nodes and the desired performance/security.
- Regarding data, one must not have access to all the contents of the ledger, since important business data may exist there, but can access certain data that they are actually allowed to. Furthermore, an entity should be able to request access to data and if granted, they should be able to access them. Also, a mechanism for revoking access, whenever that is a meaningful process should exist. Lastly, to use a smart contract, one must be an authorised user, otherwise, they must not be able to use them, as that can lead to security breaches and privacy-related issues. [3]
- The logging smart contract will be keeping a log of important events happening to the system, which obviously differ on a use case basis.
- Auditing is another important aspect for the project's goals, since tracing actions all the way to the point where they happened is a challenge in IoT systems that have a significant data flow. It also contributes to trust and transparency of a system.
- All Ricardian Smart Contract actions should be clearly explained to all interacting parties in both machine and human-readable form, so that everyone is able to understand what exactly will happen based on a pair of actions.


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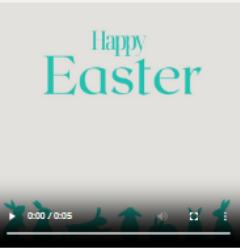
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0:00 / 0:05

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Submit your proposal

https://t.co/AFVnM3dLL

#H2020 #Landing_HoI #Project #proposal https://t.co/8qjD0018R

Figure 6: TERMINET Open Call – Topic 3

16

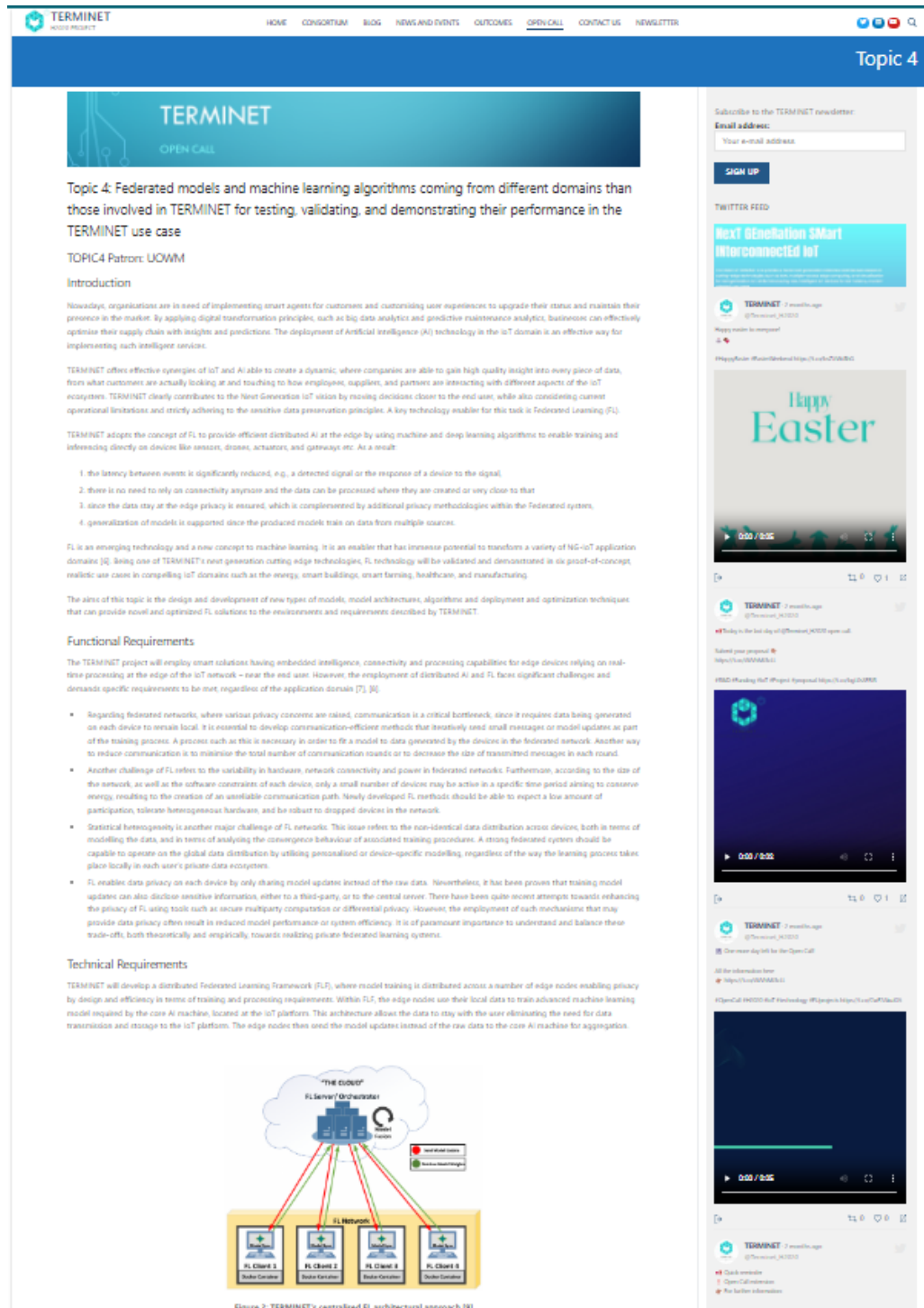


Figure 7: TERMINET Open Call – Topic 4

In M28 (February 2023) the TERMINET Open Call was finally published in the EC portal and in M29 (March 2023) the call was closed. During this period much effort was invested in communication and promotion of the call via different channels: Horizon 2020 Participants Portal, project website, twitter, events, mailing lists and via stakeholder networks, etc.



Figure 8: TERMINET Open Call webinar promotion banner

On October 12, 2022, TERMINET, in collaboration with EU-IoT, organized and promoted a webinar to showcase their funding opportunity. The webinar was designed to attract potential applicants by providing comprehensive information about the Open Call challenges, eligibility criteria, and submission process. To maximize visibility and attract a broader audience, TERMINET took advantage of the EU-IoT CSA (Coordination and Support Action) and the NGIoT (Next Generation Internet of Things) network.

- Link to the webinar page: <https://www.ngiot.eu/event/terminet-open-call-webinar/>
- Link to the recorded webinar event: https://www.youtube.com/watch?v=CikulYer8OA&ab_channel=NGIoTNextGenerationInternet

Through these networks, TERMINET effectively promoted the Open Call across various platforms and events. This strategic approach was aimed to increase awareness and participation in the TERMINET Open Call.

NGIoT aimed to inspire and motivate other participants to apply in the ICT-56 projects Open Calls, including TERMINET. The collaboration with NGIoT served as a valuable platform to create awareness and draw attention to the TERMINET Open Call.

News about the Open Call were also publicised via the TERMINET newsletter and on the website's news section, as well as being echoed on social media channels and social media channels of the individual partners. Some indicative post is presented below:

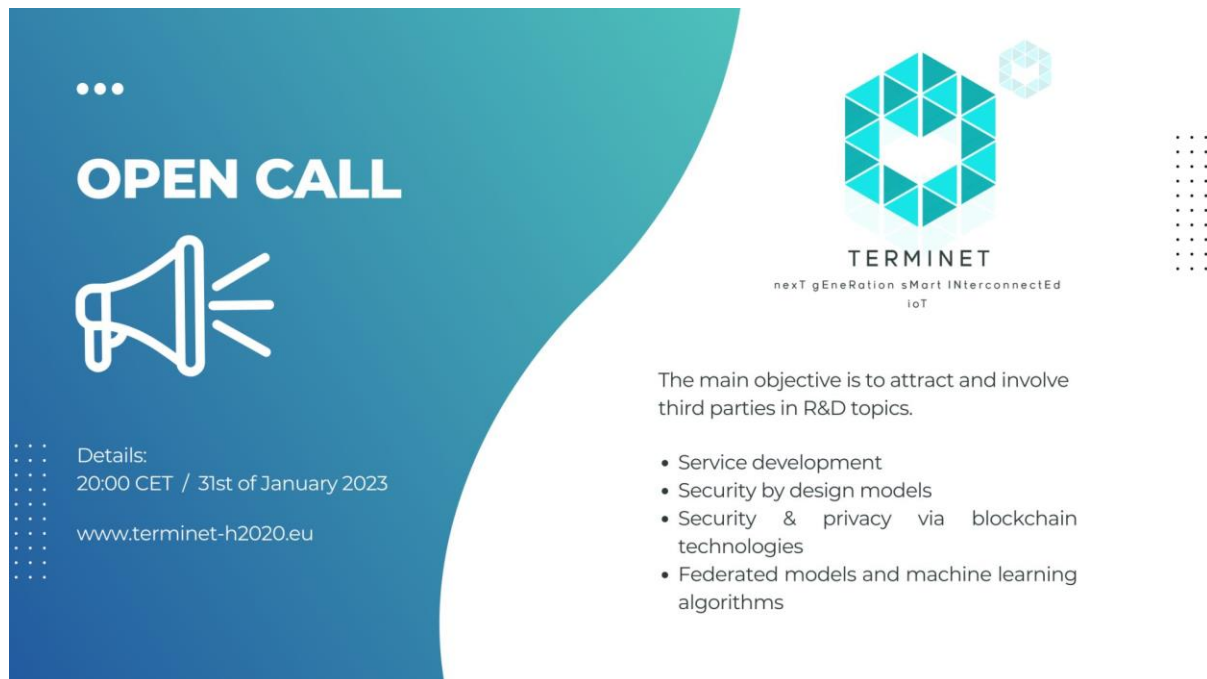


Figure 9: TERMINET Open Call promotion – Twitter posts

2.2 The Open Call Process

The full process of the Open Call consisted of several individual steps running over the period from the open call announcement (First day of M20 - 01.06.2022) up to the selection of the winners (May 2023):

The submission of proposals was conducted in two stages:

STAGE 1 (not obligatory): The applicants were advised to fill in an online form (presented in Figure 10) with key information about the applicant, the proposal, and the requested budget. After submitting the online form an email was automatically send to the sender of the form, displaying the information presented in Figure 11.

Open Call Registration

Fields marked with an * are required

First Name * Last Name *

Organisation Name * Organisation Type *

Organisation PIC Number *

Email *

Call Identifier *

Full Title of the Proposal *

Acronym of the Proposal *

Number of Participants * Duration of the Proposal *

Budget Request *

SUBMIT

Figure 10: TERMINET Open Call Registration Form

Thank you for your registration!

Please send a) your proposal in PDF format and b) the Declaration on Honour as attachments via email to open-call@terminet-h2020.eu.

Please make sure all submission documents are in PDF format without restrictions for printing.

You may find the proposal templates here: <https://terminet-h2020.eu/open-call-templates/>

A confirmation email of receipt will be sent to the sender within 24 hours after submission.

In case of missing parts:

- The proposal in PDF format is missing; the submission is considered incomplete and therefore it is discarded.
- The Declaration on Honour is missing; an email will be sent to the applicant requesting ONLY the specific document.
- The email is empty; the submission is considered incomplete and therefore it is discarded.

In case of multiple submissions ONLY the latest (based on the submission email timestamp) will be considered for evaluation.

Please note that the application reception will close on 31st of Mar. 2023 at 20:00 CET (Brussels time). The deadline is now firm, while the reception time will be validated by the submission email timestamp.

Figure 11: TERMINET Open Call Registration Email

STAGE 2: After Step 1, the applicants had to submit their proposals prior to the given deadline – 31.03.2023, 20:00 CET (Brussels time) via email (open-call@terminet-h2020.eu) to the TERMINET Open Call Project Committee (OCPC).

For a proposal submission to be considered complete, the applicants had to fill-in and submit the following documents:

- The Proposal using the dedicated template [3]
- The Declaration of Honour (DOH) [4]

Receipt was acknowledged by email over a period of maximum 24 hours.

After that the submission process, the evaluation process took place, including the following steps:

STAGE 1: On April 4th, 2023 the two external TERMINET Open Call evaluators were appointed by conducting an OCPC meeting. The selection of the two evaluators was based on an open call process that run from the 1st day of M22 (01.08.2022) until the last day of M29 (31.03.2023), 20:00 CET (Brussels time). Once selected, the evaluators were invited to review the received applications.

For the collection of the evaluation reports and scoring, an online shared folder was used to share the proposals with the appointed evaluators.

STAGE 2: Once the two evaluators have finalised their scoring, an OCPC meeting was scheduled to present and discuss the evaluation results. During the meeting four proposals were selected as the winners (one for each topic) and four proposals were kept in the reserved list.

STAGE 3: On May 5th, 2023, the applicants were informed about the results of their applications. Each applicant received an anonymous evaluation report, containing the final scoring of their proposal as well as comments from the two external evaluators.

STAGE 4: From May 8th to May 10th, 2023, the informed applicants were entitled to request a “redress” of their proposals. During the appointed time, two redress requests were received and handled.

STAGE 5: By end of May 2023 the “redress” process was finalised. Relevant applicants were informed of the redress results via email communication.

In the frame of the TERMINET Open Call, the redress process did not impact the four winning proposals.

3. The TERMINET Open Call Independent Evaluators

3.1 Independent Evaluators Selection Process

To evaluate the proposals that were submitted in the TERMINET Open Calls, an open evaluator's application process was established from the 1st day of M22 (01.08.2022) until the last day of M29 (31.03.2023), 20:00 CET (Brussels time). The applicants were invited to submit their application together with a CV online through a form: <https://terminet-h2020.eu/open-call-for-evaluators/>.

The OCPC appointed the two evaluators based on the following criteria:

- Relevance based on expertise and experience.
- Non-conflict of interest with the proposers.

A total of 65 evaluators from 19 different countries applied to the TERMINET Open call evaluator's process, as presented in Table 2.

Table 2: Complete list of Evaluators' companies that applied to the TERMINET Open Call

ID	Company	Country
1	Compellio	LU
2	BauConzept Engineering Ltd	RO
3	Energy@Work SCARL	IT
4	NON COMMUNICATED	ES
5	NON COMMUNICATED	BE
6	Norwegian University of Science and Technology	NO
7	EU CyberNet	BE
8	University of Deusto	ES
9	POLIS University	GB
10	University of Nis, Faculty of Electronic Engineering	RS
11	European Commission	BG
12	Virtual Angle BV	NL
13	University of Seville	ES
14	<u>PROTON.ME</u>	DE
15	i2cat Foundation	ES
16	Aerospace Palace International	NI
17	PFA-Iprochim SA	RO
18	CTAG	ES
19	Izmir Katip Celebi University	TR
20	ITTI	BG
21	Digital healthcare ethics laboratory (Digit-HeaL), Catholic University of Croatia	HR
22	Independent evaluator, co-owner of Leanerica and Esperonus	LI
23	Consiglio nazionale delle ricerche	IT

24	Università Telematica Internazionale Uninettuno	IT
25	Ennovent	UG
26	University of Novi Sad, Faculty of Civil Engineering Subotica	RS
27	oesia networks	ES
28	Mirai Consult Ltd.	BG
29	sumathi reddy institute of technology for women	IN
30	University of Warwick	GB
31	Faculté des Sciences, Université Badji Mokhtar, Annaba	DZ
32	CSMT Gestione Scarl	IT
33	Unicredit	DE
34	Mardiv	IT
35	Nottingham Trent University	GB
36	Freelance	AL
37	Varna Economic Development Agency	BG
38	MITA	MT
39	OMICA s.r.l.	IT
40	University of Insubria	IT
41	University Politehnica of Bucharest	RO
42	Open University of Cyprus	CY
43	Greek Ministry of Digital Infrastructures, Head of Digital Innovations Division	EL
44	Media Advisors Ltd.	BG
45	HELLENIC FOUNDATION FOR RESEARCH AND INNOVATION	EL
46	BEIA	RO
47	Consultant	GB
48	Plan Be Eco	PL
49	INLECOM	EL
50	Exquisite.mk, Skopje	MK
51	CENTIC	ES
52	Eskisehir Osmangazi University	TR
53	Cristina Isabel Pavisic (freelance)	IT
54	Politehnica University of Bucharest	RO
55	AGH - Krakow Institute of Technology	PL
56	University of Pavia	IT
57	Centre for Innovation and Development in Education and Technology (CIDET)	PT
58	Extra Rewd	IT
59	Bavarian Consultants	DE
60	VIP Profconsult Ltd.	RO
61	PLEGMA LABS	EL
62	TELNET REDES INTELIGENTES, SA	ES
63	University of Minho	PT

64	Independent Research Center	CD
65	National School of Computer Science-University of Manouba	TN

In Figures 12, 13 and 14, the numbers and statistics of evaluators' applications per country are displayed.



Figure 12: TERMINET evaluators applicants origins – countries' location

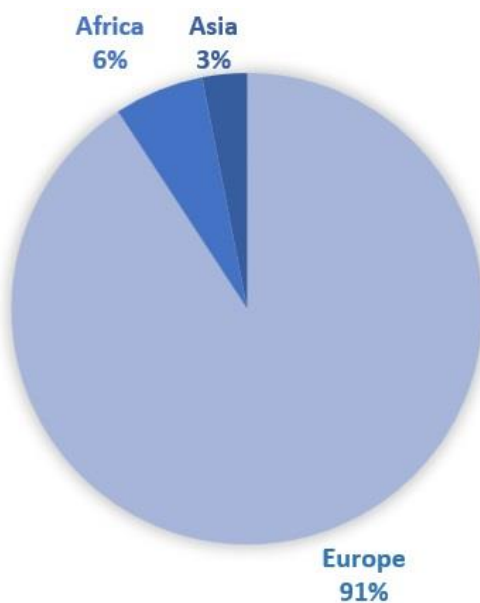


Figure 13 : TERMINET evaluators applicants origins – percentage between continents

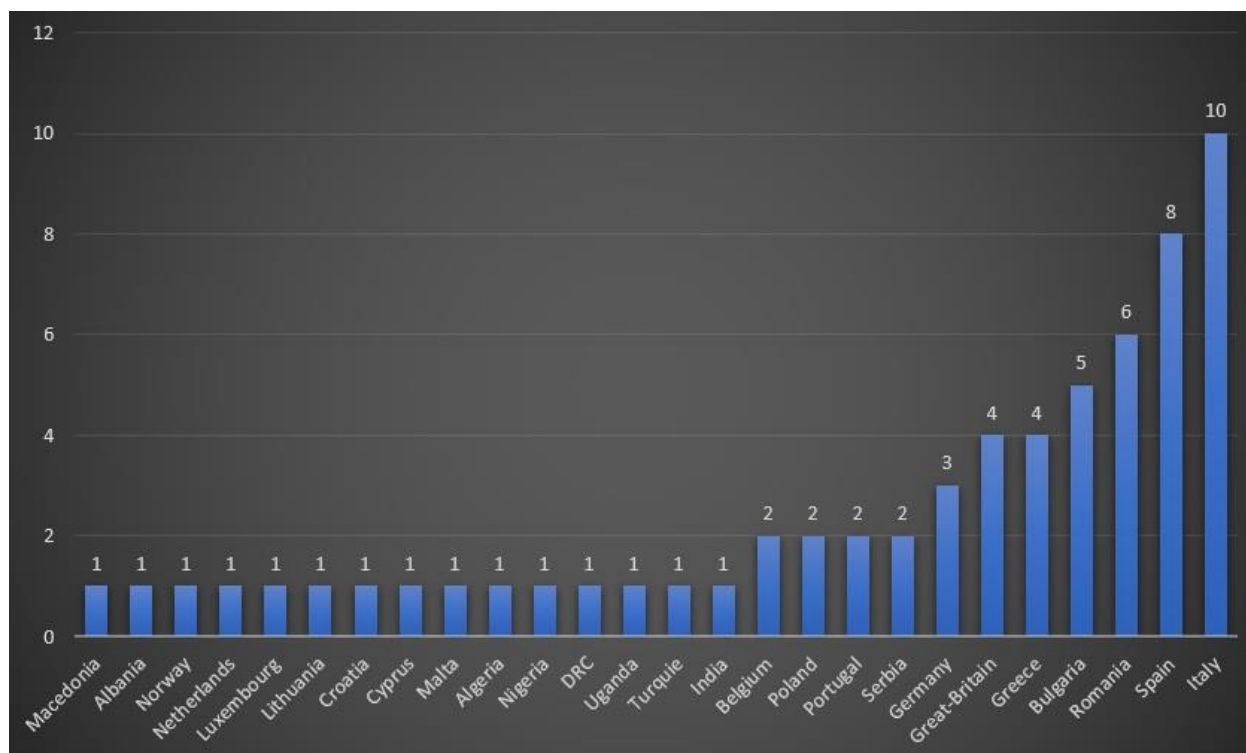


Figure 14 : TERMINET evaluators applicants origins – number per country

All profiles were reviewed on the 04.04.2023 by the OCPC and each member of the OCPC had to declare their vote towards selecting two applicants as evaluators for the TERMINET Open Call.

The two TERMINET Open Call Evaluators were selected unanimously by the TERMINET OCPC members.

3.2 Appointed Evaluator 1: Skills & Experience

In this section, some basic information is provided regarding the qualifications of Evaluator 1.

- **Country:** Italy
- **Currently:**
 - Lawyer expert in Blockchain and Smart Contracts technologies, Metaverse and AI.
- **Experience:**
 - More than 35 years in Project and Corporate Management in Europe, Asia and Africa with direct professional experience in managing International Donors' funded programs in more than 35 countries.
 - 15 years of experience in evaluating donor funded programs; familiarity with different model of the partnership governance structure and business models and more than 450 Projects evaluations.
 - Senior expert and Evaluator in many projects.
 - External expert for "The digital age: opportunities and challenges for work and employment".
 - Responsible for Advanced technology projects related applications (Horizon 2020, Horizon EuropeDigifed, etc. focusing on robotics, industry 4.0, Additive Manufacturing and advanced manufacturing, digital economy and applications) and more than 15 years of professional experience in Research and Innovation and Internationalization funding opportunities for international donors as the EU, Asian Development Bank and World Bank.

3.3 Appointed Evaluator 2: Skills & Experience

In this section, some basic information is provided regarding the qualifications of Evaluator 2.

- **Country:** Cyprus
- **Currently:**
 - Member of the Section of Informatics at Academia Europaea
 - Professor Emeritus of Department Informatics at Aristotle University
 - Professor of Pure and Applied Sciences at Open University of Cyprus
 - Dean of the Faculty of Pure and Applied Sciences at Open University of Cyprus
- **Experience:**
 - Data Management - Data Bases, Data Mining and Machine Learning, Data Warehouses, Information Systems, Big Data, Graph Databases, Sensor/Social Networks
 - Web Information Retrieval and Mining, Blog Preservation and Informetrics, interface area between Data Bases and Operating Systems- Senior expert and Evaluator in many projects

- External Evaluator/Ethics advisor for EU-H2020 - MIND4MACHINES, AI4Media, HIT2GAP
 - Project leader for FP7 (Blogforever)
 - External reviewer for about 50 international conferences and journals
 - Best Paper Awards: 5

4. The TERMINET Open Call evaluation process

After the deadline for the final submission of proposals (31.3.2023), Martel checked all submitted Proposal forms for formal completeness and eligibility and forwarded them to the project coordinator through an online restricted folder. The folder was further shared with the appointed evaluators.

4.1 Principle of evaluation

The proposals' evaluation was finalised by the two independent evaluators by the end of April 2023. Three criteria were identified to consider all aspects of the proposals. The identified evaluation criteria ensured that the submitted proposals were relevant for the project and matched the TERMINET open call objectives.

According to the TERMINET Open Call Guide for Applicants [2], all proposals were evaluated on the following criteria:

„

- **Excellence:**

- *Ambition. The proposers must present and justify to what extent that proposed Experiment is beyond the State of the Art and point out in detail the innovative approach behind it (e.g., ground - breaking objectives, novel concepts and approaches, new products, services or business and organisational models).*

- *Innovation. Proposers should describe the level of innovation within their market and about the degree of differentiation that this experiment will bring.*

- *Soundness of the approach. Proposers should demonstrate concrete and verifiable arguments, and/or evidence, regarding the premises of the proposed ideas.*

- *Cross-border and cross-value chain approach. The applicants should explain to what extent the proposed experiments will rely upon, or will contribute to, the collaboration and integration of different innovation actors from different countries and, including also large enterprises, SMEs, System Integrators, Technology Providers and/or research organisations, across IoT value chain.*

- *Build on use cases of TERMINET. Applicants should address at least one of the key enabling technologies of the project;*

- **Impact:**

➤ *Market opportunity. The proposers must clearly present their goals, as well as the market potentiality of the new/improved product/process, e.g., because it solves a problem for a specific target customer.*

➤ *Competition. The proposers must point out in detail the degree of competition for their particular product/ process. They should also highlight whether the idea is disruptive and breaks the market. I.e., the products/ process to be brought to market can be clearly differentiated from the competition.*

➤ *Commercial Strategy. The applicants must outline the strategy they will follow to get the reusability of the new/improved product/process beyond just solving a specific problem of a reduced number of end users. The applicants should provide concrete evidence on their capabilities to reach out a critical mass of end users that might adopt the resulting solutions.*

➤ *Contribution to standardisation. The applicants should describe how the proposed solutions might contribute to create new standards within the IoT area. And in general, it must contribute to accelerate a broad uptake in the integration of IoT technologies and supporting the digitalisation of the use case domain through IoT.*

- **Implementation:**

➤ *Team. High management and leadership skills should be demonstrated by the promoters. They should also be able to take a concept from ideas to market, carry through their ideas and understand the dynamics of the market they are trying to tap into. The team should be balanced, a cross-functional team, fully dedicated to the project and with a strong background and skill base.*

➤ *Resources. Aiming to achieve the objectives/deliverables proposed by the applicants, they should properly point out the quality and effectiveness of the resources assigned. One important aspect is that proposers should clearly define what they aim to develop using the TERMINET partners' technical and business solutions. It also is important to mention in what extent the expected nonfinancial support provided by TERMINET partners will be critical for the execution of the experiments.*

”

For each of the criteria, guidelines were given to the applicants as well as for the evaluators, the threshold, and the weight.

4.2 Ranking and selection

Proposals were evaluated confidentially and individually by the two evaluators. Each evaluator ranked the proposals by assigning a score from 0.00 to 5.00 for each criterion. The minimum score for each individual criterion was 3.00 out of 5.00. The final score was calculated as the sum of the individual assessments provided by the two evaluators. More information regarding the scoring calculation can be found in the TERMINET Open Call Guide for Applicants [2].

The template of the evaluation forms that were provided to the Evaluators is presented in ANNEX II – 8.1.

Based on the TERMINET Open Call Guide for Applicants [2], “ 4 proposals are to be selected, one for each of the TERMINET Open Call Topic. Four additional proposals will remain in a reserve list. In case one or more selected proposals fail during Subgrant-Agreement preparation, the list of accepted proposals will be filled with proposals in the reserved list.”

4.3 Notification of applicants

For the notification of the applicants about the results of the evaluation, standard templates were utilised for both the communication and the evaluation forms that were shared, providing detailed information about (a) the comments received from the two evaluators and (b) the final scores per criterion and in total. The template of the proposal evaluation forms can be found in ANNEX II – 8.2.

4.4 Documentation

All the documentation concerning the Open Call is kept in the on-line repository of the TERMINET WP9. The documentation includes:

- a listing of received proposals, identifying the proposing organizations involved.
- all received proposals: proposal and DOH.
- the names and affiliations of the experts involved in the evaluation.
- for each proposal a copy of individual report in the evaluation.
- the ranking table with the detailed scores for each one of the proposals.

All this material is available in the project WP9 Google Drive repository.

4.5 Redress process

As, stated in Section 2.2 of this deliverable, after the 1st round of evaluation and the distribution of results to the applicants, there was a period of three working days for redress requests. From May 8th to May 10th, 2023, the informed applicants were entitled to request a “redress” of their proposals. During the appointed time, two redress requests were received and handled. After the reception and examination of these requests via the occurrence of an OCPC meeting, re-evaluation of the two proposals took place. After the re-evaluation process was finalised, the two applicants that have requested the redress requests, received their updated re-evaluation forms over email with respective updated scoring and comments from the two evaluators. The redress process did not impact the initial selection of the 4 proposals under each topic.

5. The results of independent evaluators

After a strong promotional campaign of the TERMINET Open Call as described in a previous section of this deliverable, the project received 18 final and eligible proposals that went through the evaluation process. The full lists of the proposals are presented in the following sections. The 18 proposals were submitted from 9 countries.

5.1 List of Proposals Received

Table 3: List of Final Proposals with Country and Topic.

ID	Acronym	Country	Topic
1	DHCP	Ukraine	1
2	SMART for DDoS	Ukraine	1
3	Crypto BlockIoT	Italy	2
4	INTINE	Spain	4
5	MST	Greece	1
6	SUSANNA	Greece	3
7	ELLIoT	Spain	4
8	Next Gen PLEDGE	Greece	4
9	EATSMART	Romania	1
10	BlueTiger	Italy	4
11	DevAuth	UK	2
12	Zero Touch HACCP	Ireland	4
13	AETHER	Italy	1
14	NEUTRAL	Portugal	4
15	TALENT	Greece	1
16	DP-API	Sweden	2
17	FLAMENCO	Romania	1
18	f-EMS	Spain	4

In Table 4, the numbers and statistics of proposals submitted to the TERMINET Open Call are displayed in line with each open call topic.

Table 4: Final Proposals – Number per Topic

Number of proposals submitted per Topic	
TOPIC 1	7
TOPIC 2	3
TOPIC 3	1
TOPIC 4	7

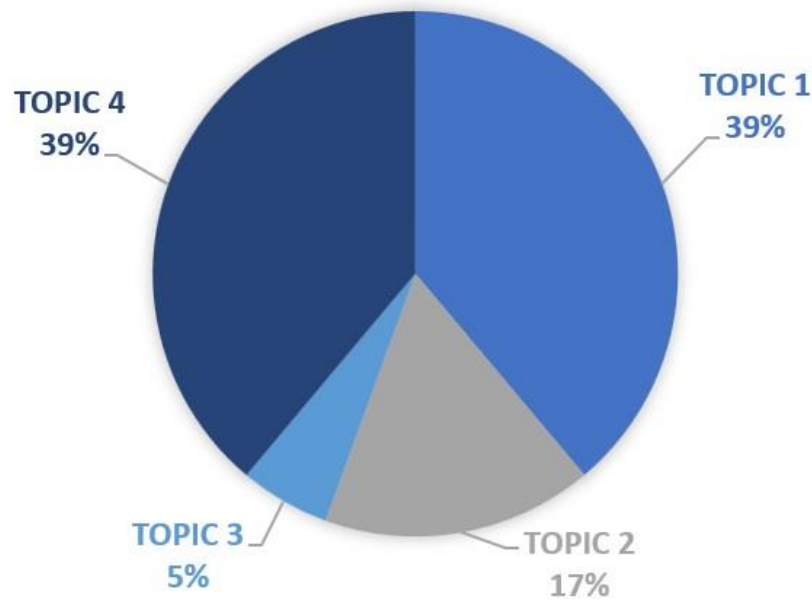


Figure 15 : TERMINET Open call applications – percentage per topic

In Figures 15, 16 and 17, the numbers and statistics of proposals are displayed in line with each application country.



Figure 16 : TERMINET proposals' applicants origins – Countries' location

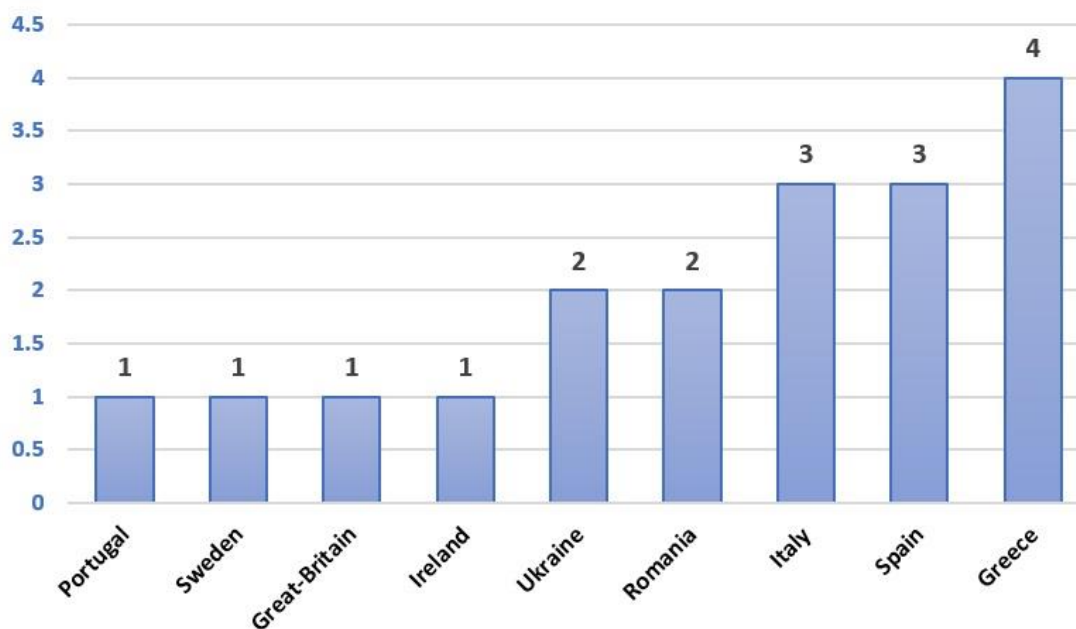


Figure 17 : TERMINET proposals applicants origins – number per country

5.2 Final Ranking and Selection

5.2.1 Proposals Final Ranking

5.2.1.1 Final Scoring from Evaluator 1

Table 5 summarises the scoring of all 18 proposals from the 1st round of evaluation from the 1st Evaluator, while Table 6 summarises the final scoring after the occurrence of the redress process. Even though the scoring provided by the 1st Evaluator was not altered after the redress process, both tables are stated here for terms of efficiency.

Table 5: Proposals' scoring from the 1st Evaluator - 1st round of evaluation

No. of Application PDF file	Application ID	C1. EXCELLENCE	C2. IMPACT	C3. IMPLEMENTATION	TOTAL SCORE	Passed?
1	TOPIC 1_1	3,00	3,00	4,00	10,00	Y
2	TOPIC 1_2	3,00	2,00	2,00	7,00	N
5	TOPIC 1_5	5,00	4,00	4,00	13,00	Y
9	TOPIC 1_9	4,00	4,00	4,00	12,00	Y
13	TOPIC 1_13	4,00	2,00	3,00	9,00	Y
15	TOPIC 1_15	4,00	2,00	3,00	9,00	Y
17	TOPIC 1_17	5,00	4,00	4,00	13,00	Y
3	TOPIC 2_3	1,00	2,00	3,00	6,00	N
11	TOPIC 2_11	4,00	3,00	3,00	10,00	Y
16	TOPIC 2_16	4,00	3,00	5,00	12,00	Y
6	TOPIC 3_6	5,00	4,00	5,00	14,00	Y
4	TOPIC 4_4	5,00	5,00	4,00	14,00	Y
7	TOPIC 4_7	4,00	4,00	3,00	11,00	Y
8	TOPIC 4_8	5,00	4,00	4,00	13,00	Y
10	TOPIC 4_10	4,00	4,00	4,00	12,00	Y
12	TOPIC 4_12	4,00	5,00	4,00	13,00	Y
14	TOPIC 4_14	3,00	3,00	4,00	10,00	Y
18	TOPIC 4_18	5,00	4,00	5,00	14,00	Y

Table 6: Proposals' scoring from the 1st Evaluator– after redress process

No. of Application PDF file	Application ID	C1. EXCELLENCE	C2. IMPACT	C3. IMPLEMENTATION	TOTAL SCORE	Passed?
1	TOPIC 1_1	3.00	3.00	4.00	10.00	Y
2	TOPIC 1_2	3.00	2.00	2.00	7.00	N
5	TOPIC 1_5	5.00	4.00	4.00	13.00	Y
9	TOPIC 1_9	4.00	4.00	4.00	12.00	Y
13	TOPIC 1_13	4.00	2.00	3.00	9.00	Y
15	TOPIC 1_15	4.00	2.00	3.00	9.00	Y
17	TOPIC 1_17	5.00	4.00	4.00	13.00	Y
3	TOPIC 2_3	1.00	2.00	3.00	6.00	N
11	TOPIC 2_11	4.00	3.00	3.00	10.00	Y
16	TOPIC 2_16	4.00	3.00	5.00	12.00	Y
6	TOPIC 3_6	5.00	4.00	5.00	14.00	Y
4	TOPIC 4_4	5.00	5.00	4.00	14.00	Y
7	TOPIC 4_7	4.00	4.00	3.00	11.00	Y
8	TOPIC 4_8	5.00	4.00	4.00	13.00	Y
10	TOPIC 4_10	4.00	4.00	4.00	12.00	Y
12	TOPIC 4_12	4.00	5.00	4.00	13.00	Y
14	TOPIC 4_14	3.00	3.00	4.00	10.00	Y
18	TOPIC 4_18	5.00	4.00	5.00	14.00	Y

5.2.1.2 Final Scoring from Evaluator 2

Table 7 summarises the scoring of all 18 proposals from the 2nd Evaluator from the 1st round of evaluation, while Table 8 summarises the final scoring after the occurrence of the redress process.

Table 7: Proposals' scoring from the 2nd Evaluator – 1st round of evaluation

No. of Application PDF file	Application ID	C1. EXCELLENCE	C2. IMPACT	C3. IMPLEMENTATION	TOTAL SCORE	Passed?
1	TOPIC 1_1	3,00	3,00	4,00	10,00	Y
2	TOPIC 1_2	2,00	2,00	4,00	8,00	N
5	TOPIC 1_5	4,00	4,00	4,00	12,00	Y
9	TOPIC 1_9	3,00	4,00	4,00	11,00	Y
13	TOPIC 1_13	4,00	2,00	3,00	9,00	Y
15	TOPIC 1_15	3,00	3,00	3,00	9,00	Y
17	TOPIC 1_17	5,00	5,00	4,00	14,00	Y
3	TOPIC 2_3	2,00	3,00	2,00	7,00	N
11	TOPIC 2_11	4,00	4,00	4,00	12,00	Y
16	TOPIC 2_16	4,00	4,00	5,00	13,00	Y
6	TOPIC 3_6	5,00	5,00	4,00	14,00	Y
4	TOPIC 4_4	5,00	4,00	4,00	13,00	Y
7	TOPIC 4_7	2,00	2,00	3,00	7,00	N
8	TOPIC 4_8	5,00	5,00	5,00	15,00	Y
10	TOPIC 4_10	3,00	4,00	4,00	11,00	Y
12	TOPIC 4_12	2,00	3,00	3,00	8,00	N
14	TOPIC 4_14	4,00	4,00	4,00	12,00	Y
18	TOPIC 4_18	5,00	4,00	4,00	13,00	Y

Table 8: Proposals' scoring from the 2nd Evaluator– after the redress process

No. of Application PDF file	Application ID	C1. EXCELLENCE	C2. IMPACT	C3. IMPLEMENTATION	TOTAL SCORE	Passed?
1	TOPIC 1_1	3.00	3.00	4.00	10.00	Y
2	TOPIC 1_2	2.00	2.00	4.00	8.00	N
5	TOPIC 1_5	4.00	4.00	4.00	12.00	Y
9	TOPIC 1_9	3.00	4.00	4.00	11.00	Y
13	TOPIC 1_13	4.00	2.00	3.00	9.00	Y
15	TOPIC 1_15	3.00	3.00	3.00	9.00	Y
17	TOPIC 1_17	5.00	5.00	4.00	14.00	Y
3	TOPIC 2_3	2.00	3.00	2.00	7.00	N
11	TOPIC 2_11	4.00	4.00	4.00	12.00	Y
16	TOPIC 2_16	4.00	4.00	5.00	13.00	Y
6	TOPIC 3_6	5.00	5.00	4.00	14.00	Y
4	TOPIC 4_4	5.00	4.00	4.00	13.00	Y
7	TOPIC 4_7	2.00	2.00	3.00	7.00	N
8	TOPIC 4_8	5.00	5.00	5.00	15.00	Y
10	TOPIC 4_10	3.00	4.00	4.00	11.00	Y
12	TOPIC 4_12	3.00	4.00	4.00	11.00	Y
14	TOPIC 4_14	4.00	4.00	4.00	12.00	Y
18	TOPIC 4_18	5.00	4.00	5.00	14.00	Y

5.2.1.3 Final Scoring of the Proposals

Table 9 summarises the final scoring of all 18 proposals based on the merging of both evaluators' grading from the 1st round of evaluation, while Table 10 demonstrates the final scoring after the occurrence of the redress process.

Table 9: Final proposals' scoring – 1st round of evaluation

No. of Application PDF file	Application ID	FINAL TOTAL SCORE	Passed?	Difference in scores between evaluators
1	TOPIC 1_1	20,00	Y	0,00
2	TOPIC 1_2	15,00	N	1,00
5	TOPIC 1_5	25,00	Y	1,00
9	TOPIC 1_9	23,00	Y	1,00
13	TOPIC 1_13	18,00	Y	0,00
15	TOPIC 1_15	18,00	Y	0,00
17	TOPIC 1_17	27,00	Y	1,00
3	TOPIC 2_3	13,00	N	1,00
11	TOPIC 2_11	22,00	Y	2,00
16	TOPIC 2_16	25,00	Y	1,00
6	TOPIC 3_6	28,00	Y	0,00
4	TOPIC 4_4	27,00	Y	1,00
7	TOPIC 4_7	18,00	Y	4,00
8	TOPIC 4_8	28,00	Y	2,00
10	TOPIC 4_10	23,00	Y	1,00
12	TOPIC 4_12	21,00	Y	5,00
14	TOPIC 4_14	22,00	Y	2,00
18	TOPIC 4_18	27,00	Y	1,00

Table 10: Final proposals' scoring – after redress process

No. of Application PDF file	Application ID	FINAL TOTAL SCORE	Passed?	Difference in scores between evaluators
1	TOPIC 1_1	20.00	Y	0.00
2	TOPIC 1_2	15.00	N	1.00
5	TOPIC 1_5	25.00	Y	1.00
9	TOPIC 1_9	23.00	Y	1.00
13	TOPIC 1_13	18.00	Y	0.00
15	TOPIC 1_15	18.00	Y	0.00
17	TOPIC 1_17	27.00	Y	1.00
3	TOPIC 2_3	13.00	N	1.00
11	TOPIC 2_11	22.00	Y	2.00
16	TOPIC 2_16	25.00	Y	1.00
6	TOPIC 3_6	28.00	Y	0.00
4	TOPIC 4_4	27.00	Y	1.00
7	TOPIC 4_7	18.00	Y	4.00
8	TOPIC 4_8	28.00	Y	2.00
10	TOPIC 4_10	23.00	Y	1.00
12	TOPIC 4_12	24.00	Y	2.00
14	TOPIC 4_14	22.00	Y	2.00
18	TOPIC 4_18	28.00	Y	0.00

5.2.2 TOPIC 1

Below are all the results of each application under TOPIC 1, starting with the winner of TOPIC 1: Topic 1_17. Proposals under TOPIC 1 were not affected by the redress process.

Table 11: TERMINET Open Call winner for TOPIC 1 – Topic 1_17

The successful proposal under TOPIC 1 - FLAMENCO	
Title	Privacy-Preserving Federated Learning Application for diagnosis of coMmunication disordErS iN Child development
Acronym	FLAMENCO
Country	ROMANIA
Abstract	<p>The OPSIS and Democritus University of Thrace team is submitting a project entitled FLAMENCO to the TERMINET cascading open call. The project aims to design and develop novel federated learning models, model architectures, algorithms, deployment strategies, and optimization techniques that can provide advanced and optimized FL solutions tailored to the environments and requirements described by TERMINET.</p> <p>The FLAMENCO project will apply Federated Learning to an existing software application suite, which is used to diagnose communication skills development in children, detecting potential deficiencies timely and accurately. The software suite collects data from a child's responses to an animation game, along with heart rate readings obtained from a smartwatch.</p> <p>The data is then sent and stored into a cloud data hub and analyzed using AI-based classification techniques. The outcome is a risk indicator that suggests the likelihood of a child developing any learning and communication disorders.</p> <p>As the data collected is sensitive and personal, and the predictive model requires continuous and incremental training, more sophisticated techniques are required. The FLAMENCO project will employ several algorithms to ensure users' privacy and prediction accuracy. First, the project will use Fully Homomorphic Encryption during the model aggregation step to protect user data from potential breaches. Second, client selection techniques will be utilized to remove users with corrupted or missing data to improve the model's predictive accuracy. Third, state-of-the-art aggregators will manage data imbalance, ensuring that the Federated Learning model can converge effectively.</p> <p>The project outcome will simulate a Federated Learning process using real-world data from IoT edge devices and incorporating the proposed extensions.</p>

	The findings will demonstrate the potential of this approach to pave the way towards personalised healthcare solutions while respecting patient privacy.
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In Table 14, one of the four proposals that were kept in the reserved list is displayed.

Table 12: TERMINET Open Call – Topic 1_5

Title	Magos Surgical Training (Reserved List)
Acronym	MST
Country	GREECE

Below are the other proposals under TOPIC 1 which were not selected for funding.

Table 13: TERMINET Open Call – Topic 1_1

Title	Distributed IoT-based Full Health Check Platform
Acronym	DHCP
Country	UKRAINE

Table 14: TERMINET Open Call – Topic 1_2

Title	System for Monitoring and dAta pRocessing meThods for early DDoS detection
Acronym	SMART for DDoS
Country	UKRAINE

Table 15: TERMINET Open Call – Topic 1_9

Title		EATSMART CHAIN
Acronym		EATSMART CHAIN
Country		ROMANIA

Table 16; TERMINET Open Call – Topic 1_13

Title		Autonomous Edge SDN/NFV Technologies for Heterogeneous Edge Routers
Acronym		AETHER
Country		ITALY

Table 17: TERMINET Open Call – Topic 1_15

Title		AuTomAted VehicLEs usiNg TERMINET
Acronym		TALENT
Country		GREECE

5.2.3 TOPIC 2

Below are the results of each application under TOPIC 2, starting with the winner of TOPIC 2: Topic 2_16. Proposals under TOPIC 2 were not affected by the redress process.

Table 18: TERMINET Open Call winner for TOPIC 2 – Topic 2_16

The successful proposal under TOPIC 2 – DP-API	
Title	An Open API for Differential Privacy Systems
Acronym	DP-API
Country	SWEDEN
Abstract	<p>The rise of the Internet of Things (IoT) has led to an explosion of data, offering unprecedented opportunities for businesses and institutions to gain insights and make better-informed decisions. However, the collection, sharing, and analysis of data from IoT devices must be done in a way that respects privacy and protects the rights of individuals. In particular, the General Data Protection Regulation (GDPR) sets strict requirements for the collection and processing of personal data. As a result, businesses and institutions face a significant challenge in leveraging IoT data while ensuring compliance with privacy regulations. DPella's proposed solution offers a way to tackle this challenge by providing an open API that interacts with tools based on Differential Privacy, a privacy-enhanced technology with strong mathematical guarantees developed through years of academic research. Currently, there is no standard API for interacting with Differential Privacy tools, which makes this technology difficult to access for many IoT data-driven companies. The proposed API will help make Differential Privacy technology more accessible and user-friendly, enabling businesses to leverage the power of IoT data while preserving the privacy of individuals involved in the datasets.</p> <p>This project will also connect the open API with an open-source Differential Privacy tool to deliver a working prototype. This will help demonstrate the value of the proposed solution, as well as provide a practical and user-friendly interface for data sharing and discovery. This project aligns with the privacy and security goals and objectives of TERMINET, and it has the potential to make a significant impact in the field of IoT data analytics by providing a secure and privacy-preserving solution for data sharing and discovery.</p>

In Table 19, one of the four proposals that were kept in the reserved list is displayed, while Table 20, the last of the TOPIC 2 proposals is presented that was not selected for funding.

Table 19: TERMINET Open Call – Topic 2_11

Title	Device Behavioural Authentication for Highly Secure Attestation. (Reserved List)
Acronym	DevAuth
Country	UNITED-KINGDOM

Table 20: TERMINET Open Call – Topic 2_3

Title	Gaining trust and confidence with Crypto and Blockchain for the IoT world.
Acronym	Crypto BlockIoT
Country	SPAIN

5.2.4 TOPIC 3

Below are all the results of the one application under TOPIC 3, which was also the winner of TOPIC 3. This proposal under TOPIC 3 was not affected by the redress process.

Table 21: TERMINET Open Call winner for TOPIC 3 – Topic 3_6

The successful proposal under TOPIC 3 - SUSANNA	
Title	ecure immUtable System based on blockchAiN for water management smart coNtrActs
Acronym	SUSANNA
Country	GREECE
Abstract	The team formed between DOTSOFT SA and ATHENA RC are submitting the project entitled “Secure immUtable System based on blockchAiN for water management smart coNtrActs” (acronym SUSANNA). The project is submitted in the scope of the TERMINET cascading open call, and specifically the Topic 3 “Security and Privacy via blockchain technologies and new generation of Ricardian Smart Contracts” which aims to design and develop a secure framework for smart device authentication and next generation Ricardian

	<p>smart contracts, under to intention to ensure security and privacy and autonomy in all transactions carried out.</p> <p>The project will create a permissioned blockchain architectural network, a Hyperledger Fabric, supporting smart contracts for the case of water utilisation management systems. Specifically, we will exploit current heavy IoT infrastructure and sensors in several Water Management Authorities in smart cities in Greece, and “transform” the current, traditional, way of collecting data from sensor readers and transmitting these to a central data hub, towards sharing, storing, accessing and analysing these data in a more secure and reliable way implemented through a blockchain architecture. In this way, any malicious acting or identity stealing actions will be prohibited, allowing a trustworthy, secure and reliable way of measuring water utilization as well as possible leaks in the water distribution network.</p> <p>Smart data and trigger contracts will be supported to enable water meter information, utilization readings, as well as leaks, missing water meter or even exceeding limits types of data to be stored within a permissioned blockchain. Each node will be authorised to write specific information, whereas all anonymised information will be available to the nodes included in the blockchain network.</p> <p>The project outcome can be a state-of-the art demo case for smart cities and smart home systems created upon a blockchain network architecture that promotes data privacy, reliability, integrity and accuracy.</p>
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5.2.5 TOPIC 4

Below are all the results of each application under TOPIC 4, starting with the winner of TOPIC 4: Topic 4_8. Two proposals under TOPIC 4, Topic 4_12 and Topic 4_18, were affected by the redress process. However, the winning proposal of TOPIC 4 was not altered after the occurrence of the redress process.

Table 22: TERMINET Open Call winner for TOPIC 4 – Topic 4_8

The successful proposal under TOPIC 4 – Next Gen PLEDGE	
Title	Next Generation Personalized EDGE-AI HealthCare
Acronym	Next Gen PLEDGE
Country	GREECE
Abstract	During the last decade the digital revolution has accelerated the development of applications that enable a more efficient management of patients with

	<p>chronic conditions, congestive heart failure, stroke or chronic obstructive pulmonary disease. More recently, the cross fertilization of ICT has allowed the development of advanced remote monitoring systems capable of providing continuous insight into the physiological condition and wellbeing of individuals. Such systems reduce hospitalizations, empower individuals and support their wellbeing, reduce negative impact of modern lifestyles, while significantly enhancing their arsenal combating societal changes with profound consequences on European citizens and healthcare systems. In this landscape Next-Gen-LEDGE innovative approach aims to develop and provide advanced remote monitoring systems, improving the capabilities of early detection of disease symptoms or pathology and respond to them in a timely manner, offering a solution that encompasses TERMINET’s framework for testing, validating, and demonstrating federated models and machine learning algorithms in a personalized healthcare scenario. Our concept encompasses a personalized system consisting of a patch and wrist wearable that, in conjunction with a mobile device, is able to exploit the potential of Next Generation IoT through federated learning, by moving decisions closer to the end user.</p> <p>Next Gen LEDGE is able to utilize raw data such as pulse waveforms, temperature data and electrocardiography (ECG) waveforms captured by the wearable sensors, build a personalized AI-model through on-device learning and convert them into measurements of actual precise health data such as, Respiratory Rate, Blood Oxygen Saturation, Body Temperature, Heart Rate and Heart Rate Variability, while taking personal physiological and behavioural user characteristics into account. Our unique proposition increases the relevance to the specific challenges of TERMINET and its innovation capacity, as well as the impact and importance of the use cases that this call is targeting.</p>
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In Tables 23 and 24, two of the four proposals that were kept in the reserved list are displayed. The proposal with Topic 4_18 was one of the two re-evaluated proposals due to the reception of a redress request. In Table 25, details can be found on the evaluators’ comments and scoring before and after the redress process.

Table 23: TERMINET Open Call – Topic 4_18

Title		Federated energy management system (Reserved List)	
Acronym		f-EMS	
Country		SPAIN	

Table 24: TERMINET Open Call – Topic 4_4

Title		INtelligent TiNy Edge (Reserved List)
Acronym		INTINE
Country		SPAIN

Below are the final evaluations of the other proposals under TOPIC 4 not selected for funding.

The proposal with Topic 4_12 was one of the two re-evaluated proposals due to the reception of a redress request. In Table 29, details can be found on the evaluators' comments and scoring before and after the redress process.

Table 25: TERMINET Open Call – Topic 4_12

Title		Federated Learning across multiple Edge Nodes for HACCP Food Safety
Acronym		Zero Touch HACCP
Country		IRELAND

Table 26:TERMINET Open Call – Topic 4_10

Title		Federated Reinforcement Learning for TERMINET IoT Systems
Acronym		BlueTiger
Country		ITALY

Table 27: TERMINET Open Call – Topic 4_14

Title		improviNg Efficient bUildings Through a fedeRated leArning soLution
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Acronym	NEUTRAL
Country	SPAIN

Table 28: TERMINET Open Call – Topic 4_7

Title	distributEd incremental Learning for next generation smart interconnected IoT
Acronym	ELLIOT
Country	SPAIN

6. CONCLUSION

In this document we have described all the processes for the management of the TERMINET Open Call from the launch to the evaluation and from the selection of the experts to the outcomes.

We have described how the TERMINET Open Call meets the processes, the templates and the procedures described in the Guide for applicants and further outlined in deliverable D9.1.

Task 9.3. has overseen the preparation of the application and communication material, the planning of the activities related to the Open Call, application and evaluation processes as well as the communication of the final results. These activities are presented in limited detail in this document for public at large.

Despite delays induced by the European Commission the TERMINET Open Call has been a success, with four projects selected out of 18 eligible proposals and with at least one project under each open call topic. The four winners are 4 SMEs in 3 different EU countries. The selected proposals are currently going through and administrative and financial check in the premise of the Sub-Agreement signing phase.

All documentation for the Open Call including proposals, evaluation reports, score tables and consensus reports have been saved in a secure, online repository.

7. References

[1] D9.1 Open call documents toolkit, TERMINET Consortium.

[2] Open Call Guide for Applicants, TERMINET Consortium, [Online]: Accessed on 31/05/2023: https://terminet-h2020.eu/wp-content/uploads/2023/02/TERMINET-Open-Call-Guide-for-Applicants_Final_Revised_Extended2_final2.pdf

[3] TERMINET Open Call Proposal Template, TERMINET Consortium, [Online]: Accessed on 31/05/2023: https://terminet-h2020.eu/wp-content/uploads/2023/02/TERMINET_OC2022_Proposal_template_Final.docx


[4] TERMINET Open Declaration on Honour, TERMINET Consortium, [Online]: Accessed on 31/05/2023: https://terminet-h2020.eu/wp-content/uploads/2023/02/TERMINET_OC2022_DoH_Final.docx

8. ANNEX II – Templates of the TERMINET Open Call

8.1 TERMINET Open Call - Evaluation Scoring Sheet

TERMINET - Open Call Evaluation																	
		REVIEWER 1 - Giorgio Magagnoli				REVIEWER 2 - Yannis Maniopoulos											
No. of Application P2-File	Application ID	C1 EXCELLENC E	C2 IMPACT	C3 IMPLEMENTATIO N	TOTAL SCORE	Pasced ?	C1 EXCELLENC E	C2 IMPACT	C3 IMPLEMENTATIO N	TOTAL SCORE	Pasced ?	FINAL TOTAL SCORE	Pasced d?	Difference in scores between evaluators	Total budget requested	Is the budget allocated to the requested categories and between partners?	Applications ranked based on their overall score (the highest score is the best one, the lowest score is the worst one)
1	TOPIC_1_1	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
2	TOPIC_1_2	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
5	TOPIC_1_5	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
8	TOPIC_1_8	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
13	TOPIC_1_13	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
15	TOPIC_1_15	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
17	TOPIC_1_17	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
3	TOPIC_1_3	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
11	TOPIC_1_11	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
16	TOPIC_1_16	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
6	TOPIC_1_6	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
4	TOPIC_1_4	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
7	TOPIC_1_7	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
8	TOPIC_1_8	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
10	TOPIC_1_10	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
12	TOPIC_1_12	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
14	TOPIC_1_14	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
18	TOPIC_1_18	Select score	Select score	Select score	0,00	N	Select score	Select score	Select score	0,00	N	0,00	N	0,00	0	Y / N	
In case one or more proposals have the same overall score, priority is given to the proposal having the highest score in Excellence. Further, in case one or more proposals have also the same score in Excellence, priority is given to the proposal having the highest score in Impact. If still there is an equality, priority is given to the proposal having the lowest funding request. If one of more proposals are still in the same position, priority is given to the proposal having the highest number of female researchers. Finally, if one or more proposals are still in the same position, the evaluators will select the one that is relevant to the TERMINET use cases.																	

8.2 TERMINET Open Call – Proposal Evaluation Form

Proposal Evaluation Form	
 TERMINET nexT gEneration sMART InterconnectEd IoT	
Open Call TERMINET Cascade Funding	
Proposal Title	
Call ¹ - Identifier	TERMINET-OC2022
TERMINET TOP ²	
Version number (optional):	
Your organisation name:	
Type of organization: [Public, Private, research, etc.]	
Participant Identification Code (PIC):	
Country:	
Name of the contact person:	
Contact person telephone number:	
Contact person email: [This is the email address to which the Acknowledgment of receipt will be sent]	

¹ This call: TERMINET-OC2022

² TOP as "Topic" followed by the number of the topic applying for: TOP1 - Service deployment across the edge computing and IoT nodes and SDN control enablement for validation over the TERMINET architecture and use cases; TOP2 - Security by design models, e.g., lightweight crypto schemes and authentication frameworks designed for mobile IoT devices and edge nodes; TOP3 - Security and Privacy via blockchain technologies and new generation of Ricardian Smart Contracts; TOP4 - Federated models and machine learning algorithms coming from different domains than those involved in TERMINET for testing, validating, and demonstrating their performance in the TERMINET use case.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957406



Project Summary

Evaluation Summary Report

Evaluation Result	
Total score: xx.00 (Threshold: 18.00)	
Evaluator No. 1	
Total Score: xx.00 (Threshold: 9.00/15.00)	
Criterion 1 - Excellence	
Score: x.00 (Threshold: 3.00/5.00)	
Scope of Excellence	
<ul style="list-style-type: none"> • Ambition: The proposers must present and justify to what extent that proposed Experiment is beyond the State of the Art and point out in detail the innovative approach behind it (e.g., ground - breaking objectives, novel concepts and approaches, new products, services or business and organisational models). • Innovation: Proposers should describe the level of innovation within their market and about the degree of differentiation that this experiment will bring. • Soundness of the approach: Proposers should demonstrate concrete and verifiable arguments, and/or evidence, regarding the premises of the proposed ideas. • Cross-border and cross-value chain approach: The applicants should explain to what extent the proposed experiments will rely upon, or will contribute to, the collaboration and integration of different innovation actors from different countries and, including also large enterprises, SMEs, System Integrators, Technology Providers and/or research organisations, across IoT value chain. • Build on use cases of TERMINET: Applicants should address at least one of the key enabling technologies of the project 	
Evaluator No. 1 for Excellence	
.....	
Criterion 2 - Impact	
Score: x.00 (Threshold: 3.00/5.00)	
Scope of Impact	
<ul style="list-style-type: none"> • Market opportunity: The proposers must clearly present their goals, as well as the market potentiality of the new/improved product/process, e.g., because it solves a problem for a specific target customer. • Competition: The proposers must point out in detail the degree of competition for their particular product/ process. They should also highlight if the idea is 	

<p>disruptive and breaks the market. I.e., the products/ process to be brought to market can be clearly differentiated from the competition.</p> <ul style="list-style-type: none"> • Commercial Strategy: The applicants must outline the strategy they will follow to get the reusability of the new/improved product/process beyond just solving a specific problem of a reduced number of end users. The applicants should provide concrete evidence on their capabilities to reach out a critical mass of end users that might adopt the resulting solutions. • Contribution to standardisation: The applicants should describe how the proposed solutions might contribute to create new standards within the IoT area. And in general, it has to contribute to accelerate a broad uptake in the integration of IoT technologies and supporting the digitalisation of the use case domain through IoT.
Evaluator No. 1 for Impact
.....
Criterion 3 - Implementation
Score: x.00 (Threshold: 3.00/5.00)
Scope of Implementation
<ul style="list-style-type: none"> • Team: High management and leadership skills should be demonstrated by the promoters. They should also be able to take a concept from ideas to market, carry through their ideas and understand the dynamics of the market they are trying to tap into. The team should be balanced, a cross-functional team, fully dedicated to the project and with a strong background and skill base. • Resources. Aiming to achieve the objectives/deliverables proposed by the applicants, they should properly point out the quality and effectiveness of the resources assigned. One important aspect is that proposers should clearly define what they aim to develop using the TERMINET partners' technical and business solutions. It also is important to mention in what extent the expected non-financial support provided by TERMINET partners will be critical for the execution of the experiments.
Evaluator No. 1 for Implementation
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Evaluator No. 2
Total Score: xx.00 (Threshold: 9.00/15.00)
Criterion 1 - Excellence
Score: x.00 (Threshold: 3.00/5.00)

Scope of Excellence
<ul style="list-style-type: none"> • Ambition: The proposers must present and justify to what extent that proposed Experiment is beyond the State of the Art and point out in detail the innovative approach behind it (e.g., ground - breaking objectives, novel concepts and approaches, new products, services or business and organisational models). • Innovation: Proposers should describe the level of innovation within their market and about the degree of differentiation that this experiment will bring. • Soundness of the approach: Proposers should demonstrate concrete and verifiable arguments, and/or evidence, regarding the premises of the proposed ideas. • Cross-border and cross-value chain approach: The applicants should explain to what extent the proposed experiments will rely upon, or will contribute to, the collaboration and integration of different innovation actors from different countries and, including also large enterprises, SMEs, System Integrators, Technology Providers and/or research organisations, across IoT value chain. • Build on use cases of TERMINET: Applicants should address at least one of the key enabling technologies of the project
Evaluator No. 2 for Excellence
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Criterion 2 - Impact
Score: x.00 (Threshold: 3.00/5.00)
Scope of Impact
<ul style="list-style-type: none"> • Market opportunity: The proposers must clearly present their goals, as well as the market potentiality of the new/improved product/process, e.g., because it solves a problem for a specific target customer. • Competition: The proposers must point out in detail the degree of competition for their particular product/ process. They should also highlight if the idea is disruptive and breaks the market. I.e., the products/ process to be brought to market can be clearly differentiated from the competition. • Commercial Strategy: The applicants must outline the strategy they will follow to get the reusability of the new/improved product/process beyond just solving a specific problem of a reduced number of end users. The applicants should provide concrete evidence on their capabilities to reach out a critical mass of end users that might adopt the resulting solutions. • Contribution to standardisation: The applicants should describe how the proposed solutions might contribute to create new standards within the IoT area. And in general, it has to contribute to accelerate a broad uptake in the integration of IoT technologies and supporting the digitalisation of the use case domain through IoT.
Evaluator No. 2 for Impact
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Criterion 3 - Implementation
Score: x.00 (Threshold: 3.00/5.00)

Scope of Implementation

- **Team:** High management and leadership skills should be demonstrated by the promoters. They should also be able to take a concept from ideas to market, carry through their ideas and understand the dynamics of the market they are trying to tap into. The team should be balanced, a cross-functional team, fully dedicated to the project and with a strong background and skill base.
- **Resources.** Aiming to achieve the objectives/deliverables proposed by the applicants, they should properly point out the quality and effectiveness of the resources assigned. One important aspect is that proposers should clearly define what they aim to develop using the TERMINET partners' technical and business solutions. It also is important to mention in what extent the expected non-financial support provided by TERMINET partners will be critical for the execution of the experiments.

Evaluator No. 2 for Implementation
