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Abstract:
This deliverable is a report of the 2nd Open Call of RAWFIE. It presents the open call launch, as well as the submission and selection process of the open call proposals. It also provides a summary of the accepted proposals with respect to this open call.

Keywords: open call, reviewer, review, testbed, UxV, software

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Part III: Executive Summary

This deliverable describes the several stages of the 2nd RAWFIE Open Call that has been completed. Initially, a general introduction of the call is presented. Then, the reader is provided with several details about the call launching and the processes followed over the three-month period that the call was open including the open call for external experts that were used as evaluators and the reviewers selection process.
As a next step, the proposal submission process is described as well as the procedures followed for the evaluation of submitted proposals. A summary of the Open Call results is also presented in this document.
The annexes provide relevant information concerning the open call for proposals, the open call for reviewers, the templates used by proposers and the templates used by the evaluators.

Part IV: Main Section

1 Introduction

RAWFIE (Road-, Air- and Water- based Future Internet Experimentation) is a project funded by the European Commission (Horizon H2020 programme) under the FIRE initiative aiming to provide research and experimentation facilities through the growing domain of unmanned networked devices. The **FIRE** initiative (**F**uture **I**nternet **R**esearch and **E**xperimentation) creates an **open research environment,** which facilitates strategic research and development of new Future Internet concepts, giving researchers the tools they need **to conduct large-scale experiments** on new paradigms.

The purpose of the RAWFIE project is to create a federation of different testbeds that will work together to make their resources available under a common framework. Specifically, it aims at delivering a unique, mixed experimentation environment across the space and technology dimensions. RAWFIE integrates numerous testbeds for experimenting in vehicular (road), aerial and maritime environments. Vehicular Testbeds (VT) will deal with Unmanned Ground Vehicles (UGVs) while Aerial Testbeds (AT) and Maritime Testbeds (MT) will deal with Unmanned Aerial Vehicles (UAVs) and Unmanned Surface Vehicles (USVs), respectively. The RAWFIE Consortium includes all the possible actors of this highly challenging experimentation domain, from technology creators to integrators and facility owners. The basic idea behind the RAWFIE effort is the automated, remote operation of a large number of robotic devices (UGVs, UAVs, USVs) for the purpose of assessing the performance of different technologies in the networking, sensing and mobile/autonomic application domains. RAWFIE features a significant number of UxV nodes for exposing the experimenter to an extensive test infrastructure. All these items are managed by a central controlling entity, which will be programmed per case and fully overview/drive the operation of the respective mechanisms (e.g., auto-pilots, remote controlled ground vehicles). Internet connectivity will be extended to the mobile units to enable the remote programming (over-the-air), control and data collection. Support software for experiment management, data collection and post-analysis will be virtualized to enable experimentation from anywhere in the world. The vision of Experimentation-as-a-Service (EaaS) is promoted through RAWFIE. The Internet of Things (IoT) paradigm is fully adopted and further refined for supporting highly dynamic node architectures.

The objective of the 2nd RAWFIE Open Call is twofold: first, to enhance certain parts and characteristics of the federated infrastructure in terms of UxV devices (RAWFIE-OC2-EXT-UGV, RAWFIE-OC2-EXT-UAV); second, to support cross-domain or domain-specific real-world applications and experiments (RAWFIE-OC2-EXP-SCI, RAWFIE-OC2-EXP-SME). Each proposal should target **exactly one** of the four types of activities (termed *directions of enhancement*), as stated in the next paragraphs. In case a proposer intends to cover more than one directions of enhancement, this should be addressed through the submission of separate proposals. All the proposals should fully comply with the public deliverables D3.1, D3.2, D4.1, D4.2, D4.4, D4.5, D6.1, D6.2 (can be found in http://rawfie.eu/deliverables) that have been produced so far by the RAWFIE Consortium and provide system requirements as well as

technical description and implementation details for the RAWFIE architecture and specific components.

2 Launch of 2nd Open Call

The 2nd Open Call was lauched on 19 December 2016. The Open Call was published widely adhering to Horizon 2020 standards with respect to transparency, equal treatment, conflict of interest and confidentiality. The announcement of the Open Call was available at the project's website at http://www.rawfie.eu/rawfie-infrastructure-2016-call, at the FIRE community portal athttps://www.ict-fire.eu/projects/ and at the Horizon 2020 Participants Portal at http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/other/competitive.html. The call remained open for 3 months until 19 March 2017. The Open Call can be found in Appendix A1.

In line with the specific requirements of the work programme the call contains the following details:

- A list of the types of activities that qualify for receiving financial support.
- Restrictions on participation in the call.
- The criteria determining the award of the financial support.
- The criteria for determining the exact amount of financial support and the form that the financial support may take.
- The specific arrangements that the UoA may impose on the third parties (e.g. specific reporting and feedback obligations from the third party towards UoA in respect to the implementation of the supported activities; specific arrangements for providing the financial support; specific rights for RAWFIE consortium to access and use the results of the supported activities).
- The information needed to submit a proposal, including
    - the template to be used for the proposals,
    - The coordinates (email address and telephone number) of a help facility for proposers during the call. Inquiries could be sent to rawfie-contact@cnl.di.uoa.gr. Prof. Stathes Hadjiefthymiades (UoA) was the contact person for information on the call.
    - The online system URL used for proposal submission, which was www.easychair.org.
    - The deadline for proposal submission, clearly specifying the local time involved.

The types of activities that qualify for receiving financial support are the following:

- Extensions (hardware)

  - UGVs Extension: Addition & customization of Unmanned Ground Vehicles (RAWFIE-OC2-EXT-UGV) – no feasibility check is needed

- UAVs Extension: Addition & customization of Unmanned Aerial Vehicles (RAWFIE-OC2-EXT-UAV) – no feasibility check is needed

- Experimentation (software)

  - Scientific Excellence (RAWFIE-OC2-EXP-SCI) – **feasibility check is needed**

  - Innovation by SMEs (RAWFIE-OC2-EXP-SME) – **feasibility check is needed**

Each proposal should target exactly one of the four types of activities:

- **Activity / Direction of enhancement 1: Addition & customization of Unmanned Ground Vehicles.**

In the context of the 2nd RAWFIE Open Call, the project invites manufacturers and providers of Unmanned Ground Vehicles to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide and customize a considerable number of devices (>10) that belong to the UGV type of robotic devices. The exact number of devices considered by each proposal should comply with the requested funding and will be part of the evaluation process. Proposals considering higher number of devices will be considered favorably.

The proposers should present clearly within the proposal a number of features and characteristics of the unmanned vehicles that will be considered as future additions to the project. These features include, but are not limited to, the following aspects of the vehicles:

- Processing capabilities (type of processors, number of cores, speed);

- Size and dimensions;

- Weight;

- Payload;

- Battery;

- Number and type or sensors;

- Number and type of integrated network components and supported communication interfaces;

- Minimum and maximum autonomy of the device;

- Auto-return capability (return to the base station automatically);

- Ability of the vehicle to operate as an access point;
- (Remote) Control interface;
- Over-the-air programming capabilities;
- Provision of collision avoidance mechanism;
- Compatibility with Apache Kafka architecture;
- Data storage of the vehicle;
- Support of "safe mode" operation;
- Localization capabilities (e.g., GNSS);
- Ability to operate in indoor/outdoor/mixed environments;
- Compliance with standards;
- Operational conditions (e.g., day/night) and temperature limitations.

All the devices will be modified accordingly in terms of software to fit with the RAWFIE ecosystem (e.g., compliance with the Kafka message bus). Upon the completion of the project, the designed UGV equipment will become property of the RAWFIE Consortium.

- **Activity / Direction of enhancement 2: Addition & customization of Unmanned Aerial Vehicles.**

In the context of the 2n RAWFIE Open Call, the project invites manufacturers and providers of Unmanned Aerial Vehicles to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide and customize a considerable number of devices (>10) that belong to the UAV type of robotic devices. The exact number of devices considered by each proposal should comply with the requested funding and will be part of the evaluation process. Proposals considering higher number of devices will be considered favorably.

The proposers should present clearly within the proposal text a number of features and characteristics of the unmanned vehicles that will be possibly considered as future additions to the project. These features include, but are not limited to, the following aspects of the vehicles:

- Processing capabilities (type of processors, number of cores, speed);
- Size and dimensions;

- Weight;
- Payload;
- Battery;
- Number and type or sensors;
- Number and type of integrated network components and supported communication interfaces;
- Minimum and maximum autonomy of the device;
- Auto-return capability (return to the base station automatically);
- Ability of the vehicle to operate as an access point;
- (Remote) Control interface;
- Over-the-air programming capabilities;
- Provision of collision avoidance mechanism;
- Compatibility with Apache Kafka architecture;
- Data storage of the vehicle;
- Support of “safe mode” operation;
- Localization capabilities (e.g., GNSS);
- Ability to operate in indoor/outdoor/mixed environments;
- Compliance with standards;
- Operational conditions (e.g., day/night) and temperature limitations.

All the devices will be modified accordingly in terms of software to fit with the RAWFIE ecosystem (e.g., compliance with Kafka message bus, read-only storage partition for remote shut-off of the devices, notifications to owners for OTA re-programming, etc.). Upon the completion of the project, the designed UAV equipment will become property of the RAWFIE Consortium.

- **Activity / Direction of enhancement 3: Scientific Excellence.**

RAWFIE comprises software architectures and developments for remote experimentation management, data collection and post-analysis. In this 2nd Open Call, the project solicits for proposals that design and deploy extensive horizontal or domain-specific experimentation (experiment design & implementation, supportive software, data analysis, data visualization, etc.) that will leverage data and resources from RAWFIE testbeds and devices in the context of the mobile IoT paradigm. **The experiments should come with a concrete plan on their scientific added value and the novelties that the experiment will bring in the scientific and research community (i.e., the new technologies and methodologies validated through the experiment, the new datasets it creates, etc.).**

All types of experimental applications should be based on RAWFIE tools and should come with additional features (e.g., post analysis of data, visualization tools) or software needed for further data processing. Horizontal experiments may refer to cross-domain applications and software (e.g., experimentation over a novel network protocol, information dissemination schemes, distributed architectures, data analysis methodologies, trust and reputation algorithms, security features, etc.). Supportive software should be connected with RAWFIE architecture to become available, if needed, for other types of applications and experiments. In all categories, the adoption of open technologies, specifications and standards (including open source software and Semantic Web technologies) that will enable the openness of the RAWFIE platform towards possible future expansion is strongly recommended.

Proposals should describe **experiments and applications** that validate novel technologies connected with the mobile IoT concept and its integration with Cloud and Robotics paradigms that clearly advance the current state-of-the-art and create an added value at technology and research level. Based on the RAWFIE experiment creation tool, experimenter will design, implement and validate a number of proof-of-concept scenarios that could potentially be applied across several or specific application domains.

This software and the experiments should be of a short duration (a maximum of 12 months) starting from October 2017. Per proposal a budget can be requested for **up to a maximum of €100K**. The applicant should be **academia, industry (not SME) or a public body**.

- **Activity / Direction of enhancement 4: Innovation by SMEs.**

RAWFIE comprises software architectures and developments for remote experimentation management, data collection and post-analysis. In this 2nd Open Call, the project solicits for proposals that design and deploy extensive horizontal or domain-specific experimentation (experiment design & implementation, supportive software, data analysis, data visualization, etc.) that will leverage data and resources from RAWFIE testbeds and devices in the context of the mobile IoT paradigm. **The experiments should come with a concrete business model (i.e., how the results of the experiment may be transformed into profits for the company) and what kind of new markets the experiment may open.**

All types of experimental applications should be based on RAWFIE tools and should come with additional features (e.g., post analysis of data, visualization tools) or software needed for further data processing. Horizontal experiments may refer to cross-domain applications and software (e.g., experimentation over a novel network protocol, information dissemination schemes, distributed architectures, data analysis methodologies, trust and reputation algorithms, security features, etc.). Supportive software should be connected with RAWFIE architecture to become available, if needed, for other types of applications and experiments. In all categories, the adoption of open technologies, specifications and standards (including open source software and Semantic Web technologies) that will enable the openness of the RAWFIE platform towards possible future expansion is strongly recommended.

Proposals should describe **experiments and applications** that validate novel technologies connected with the mobile IoT concept and its integration with Cloud and Robotics paradigms that clearly advance the current state-of-the-art and create added value at technology and research level. Based on the RAWFIE application creation tools, the experiments will design, implement and validate a number of proof-of-concept scenarios that could potentially be applied across several or specific application domains.

This software and the experiments should be of a short duration (a maximum of 12 months) starting from October 2017. Per proposal a budget can be requested for **up to a maximum of €75K**. The applicant should be an **SME**.

2.1 Eligibility

Proposals could only be submitted by:

- Proposals will only be accepted from a single party eligible for participation in the EC H2020-projects. Parties eligible for participation in the EC Horizon 2020 Framework Programme, according to the rules for eligibility which can be found at: http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf

- Multiple proposals may be submitted by the same party. In case that multiple proposals coming from the same party pass the funding limits, RAWFIE Consortium has the right to decide which one of them will be accepted for funding.

- Successful applicants of the 1st RAWFIE Open Call are not eligible to participate.

2.2 Feasibility check

A feasibility check was needed for Experimentation (software) proposals and specifically for activities:

- Activity / Direction of enhancement 3: Scientific Excellence (RAWFIE-OC2-EXP-SCI)
- Activity / Direction of enhancement 4: Innovation by SMEs (RAWFIE-OC2-EXP-SME)

The submission phase of the experimentation proposals took place in two stages. In the first stage, the proposing party had to submit a draft, but fully completed, proposal describing the experiment using the online submission system by February 19, 2017 (a deadline which was extended to February 26, 2017. In this stage, all parts of the proposal should be completed and the RAWFIE consortium checked the feasibility of the proposed experiment (i.e., if the experiment can be supported sufficiently by the existing infrastructure, proposed devices and testbeds or further extensions are needed). RAWFIE consortium provided feedback on the feasibility check to the proposers by March 13, 2017 (originally set to March 6, 2017 before feasibility check extension). The feedback of the feasibility check had to be included in the respective part of the proposal template by the proposer during the final submission step. The proposer should perform only minor revisions on the proposal during the final submission stage (i.e., the core parts of the experiment should remain unchanged). During the feasibility check, no evaluation of the experiment was performed. The independent experts that performed the actual evaluation of the proposals were advised to reject proposals with significant differences between the two stages.

No feasibility check was required for proposals targeting at UGV and UAV extensions. These proposals were submitted in one step (final submission deadline).

2.3 Call for reviewers

RAWFIE invited individual experts on a wide range of scientific fields to participate in the evaluation of proposals for the first RAWFIE open call for proposals. RAWFIE Experts could come from academic institutions or from the industry. In any case, a university degree and considerable scientific or professional experience in one or more of the areas of Internet-of-Things (IoT), UxVs, cloud facilities, sensors, experimental testbeds, satellite navigation or future internet technologies were required.

The call for reviewers was made available through the RAWFIE website at http://www.rawfie.eu/new/open-call-reviewers-deadline-extension-14032016. The call for reviewers was also published to the FIRE community and to the Horizon 2020 Participants Portal. In addition, external reviewers were recruited through social media, such as RAWFIE accounts on Twitter, LinkedIn, and Facebook.

The deadline for reviewers' registration was 28 February 2017. Reviewer registration form was available at http://www.rawfie.eu/reviewer-registration (Annex A2).

2.4 Reviewers selection

20 reviewers were registered to participate in the evaluation of the open call proposals, coming from academic institutions and industrial organizations. Reviewers were from various countries, including France, Italy, Croatia, Spain, Greece, Serbia, Belgium, U.K. and Norway.

To ensure transparency and reviews of high quality, candidate reviewers were checked in regards with possible connection with submitted proposals and also to ensure their expertise relevance with the project scope. The pool of reviewers was subsequently used for the assignment of proposals to be reviewed.

3 Submission process of 2nd Open Call

3.1 Proposal submission

The submission of the proposals was only possible through the Easychair system (http://www.easychair.org) which allows the tracking of various information, including the identification of the time of submission. The submission deadline was Monday, March 19, 2017, at 17:00h CET (Brussels time). Over the period that the call was open (i.e., 3 months) UoA provided support to potential proposers through the rawfie-contact@cnl.di.uoa.gr by answering possible questions.

After the call closure, no additions or changes to received proposals were accepted.

3.2 Reviews assignment

The proposals were assigned to reviewers for evaluation through the Easychair system. The assignment was based on the expertise of each reviewer and avoid possible conflicts of interest between reviewers, proposers and the RAWFIE consortium. Each proposal was assigned to 3 reviewers and each reviewer was assigned with 3 proposals at most.

3.3 Reviews submission

Reviews were submitted through the Easychair system by the review panel. The submission deadline for the reviews was May 7, 2017.

4 Selection process of 2nd Open Call

The evaluation and ranking was carried out by an external jury of individual experts.

Each of the 3 criteria specified in the call was evaluated in a scale of 0-5. The threshold for each of the criteria was 3. The threshold for the total evaluation was 10. Ties in ranking were resolved following the approach specified in the call text. Specifically, the considered criteria were prioritized as listed in order of importance, i.e., criterion C1 is ranked higher than criterion C2 in terms of priority, etc. The evaluation criteria are presented in the next section.

4.1 Evaluation Criteria

4.1.1 C1. Relevance to the project architecture and technological excellence

All the contributions of third parties are intended to either enhance the current RAWFIE architecture or bring new value to it through novel experimentation. Therefore, the proposals should adhere to the requirements of the platform, and build on top of the existing framework. This criterion assesses the compliance of each proposal with RAWFIE technologies and adopted approaches. The technological excellence of the proposed solution and the level of integration with RAWFIE tools and platform are also evaluated. The quality of the proposed solutions will also be evaluated (e.g., number of robotic devices for Activities 1 and 2, complexity and innovation of the experiment for Activities 3 and 4, etc.).

4.1.2 C2. Impact

Proposal impact both on RAWFIE and in general is evaluated. The call seeks proposals that provide high added value enabling possible future follow-up experiments and supporting the sustainability of the federated platform. Market potential of proposals and their ability to provide significant value to end users is assessed. Third parties also have to integrate their proposals outcome into current RAWFIE infrastructure and maintain a connection with RAWFIE until project end. Further integration into a future RAWFIE federation is a major target for the project. Thus, the call seeks participants that will stay active beyond the project lifetime. Hence, proposals with high levels of engagement with RAWFIE and FIRE community are promoted. The same holds for proposals that foresee and enable possible synergies with other H2020 or nationally funded projects. RAWFIE seeks innovation and excellence both in terms of horizontal cross-domain experiments and real-world domain-specific applications

4.1.3 C3. Ability to implement

The proposers will be evaluated on their ability to implement the tasks. The experience and the technical capacity of the applicant(s) are of high importance. The proposed implementation plan should be clear and methodically sound, with a clear task statement, a solid design, a good methodology and of high quality. Participants are expected to propose a concrete plan that enables them to achieve the project goals during the given time-frame. The successful beneficiaries will be invited to refine and implement the final plan with the project coordinator and the other collaborators.

5 Results

14 proposals were submitted:

- 1 proposal for Activity / Direction of enhancement 1: Addition & customization of Unmanned Ground Vehicles (RAWFIE-OC2-EXT-UGV)
- 4 proposals for Activity / Direction of enhancement 2: Addition & customization of Unmanned Aerial Vehicles (RAWFIE-OC2-EXT-UAV)
- 4 proposals for Activity / Direction of enhancement 3: Scientific Excellence (RAWFIE-OC2-EXP-SCI)

- 5 proposals for Activity / Direction of enhancement 4: Innovation by SMEs (RAWFIE-OC2-EXP-SME)

Proposals were submitted from various countries, including U.K., Greece, Cyprus, Poland and Italy. The total budget requested for funding by the submitted proposals was €1.522.195,25. The maximum amount of the financial support per proposal is €150000 for RAWFIE-OC2-EXT-UGV and RAWFIE-OC2-EXT-UAV, €100000 for RAWFIE-OC2-EXP-SCI and € 75000 for RAWFIE-OC2-EXP-SME.

The selection of the proposals was based on the score that each proposal received from the reviewers and its ranking within the activity to which it belongs, in conjunction with the budget available for the activity. Two proposals received a score below threshold and therefore were excluded from the selection process.

Ten proposals have been selected for funding:

- 1 proposal for Activity / Direction of enhancement 1: Addition & customization of Unmanned Ground Vehicles (RAWFIE-OC2-EXT-UGV)
- 2 proposals for Activity / Direction of enhancement 2: Addition & customization of Unmanned Aerial Vehicles (RAWFIE-OC2-EXT-UAV)
- 3 proposals for Activity / Direction of enhancement 3: Scientific Excellence (RAWFIE-OC2-EXP-SCI)
- 3 proposals for Activity / Direction of enhancement 4: Innovation by SMEs (RAWFIE-OC2-EXP-SME)

The total budget that will be allocated for funding the ten successfully evaluated proposals is €1.048.635,25. The following table summarizes the submitted proposals that have been accepted to be funded as part of the RAWFIE platform.

Table 1: Accepted Proposals of the 2nd RAWFIE Open Call.

#	Proposal title	Abstract	Activity
1	**ALTU: Provision of All-Terrain UGVs**	ALTU brings the value of ten (10) IoT Unmanned All Terrain Ground Vehicles with the ability to combine a diverse range of payloads and/or sensors. These include: • long range (>10Km) and short range (max 1.5Km) Remote Control systems and First Person View Audio/Video feeds, simultaneously over IP streaming and Analogue RF transmission to the Ground Control Stations • gimbal controlled HD and SD cameras with 0.0001 LUX minimum illumination capability • static and 360o long range Laser rangefinders and mapping scanners/radars for simultaneous	RAWFIE-OC2-EXT-UGV

		localization, mapping and multi-directional collision avoidance • dual sensor (FLIR DUO) compact thermal and visible light imagers with live analogue and digital video output • simultaneous 2.4 GHz and 5 GHz WiFi 3x3 MIMO mesh networking Access Points with Mobile 4G/LTE Internet Connectivity and extended networking capabilities, like Firewall, Routing, VPN, etc. ALTU UGVs' innovative design is ready to incorporate all existing and future RAWFIE's software requirements, comes with a full range of accessories and is coupled with state of the art electronics and network components. ALTU uses a fully configurable auto-pilot controller running open-source software, utilizing all capabilities of the MAVlink and the RAWFIE AVRO schema protocols, enabling a plethora of possible experiments that will enhance the RAWFIE federation of different testbeds and expand the envisioned Experimentation-as-a-Service infrastructure.	
2	**DOGMA: Docile Generic Multi-Purpose Air Vehicle**	DOGMA brings the value of 10 networked UAVs in 3 different configurations: Dual 45o positioned day & night vision cameras, FLIR dual-sensor thermal imagers and Parrot SEQUOIA multispectral sensors. DOGMA UAVs' innovative design comes with a full range of accessories and is coupled with state of the art electronics and network components. Key feature is the unique combination of WiFi networking capabilities with Mobile Internet Connectivity for both cruise control and data transfer in various contexts. DOGMA uses a fully configurable auto-pilot controller running open-source software, utilizing all capabilities of the MAVlink protocol, enabling a plethora of possible experiments that will enhance the RAWFIE federation of different testbeds and expand the envisioned Experimentation-as-a-Service infrastructure.	RAWFIE-OC2-EXT-UAV

		DOGMA's experts, subcontractors of previous FIRE community projects, have great experience in RTD & Commercial ventures and fixed interest in promoting innovation in their field. This assures correct and timely delivery of UAVs and support services, being a knowledgeable partner for RAWFIE and contributing to the advancement of experimentation activities and exploration of their real-world potential.	
3	**IGMAC: Intellingent Geo-MApping Copter**	IGMAC brings the value of twelve (12) networked UAVs in 3 different configurations: four (4) "Predator" UAVs equipped with thermal scanning payload, four (4) "Bat" UAVs equipped with multi-spectral camera payload and four (4) "3D-Mapper" equipped with 360o Long Range LIDAR. The diverse range of IGMAC capabilities include: • Remote Control systems and First Person View Audio/Video feeds via IP streaming to the RAWFIE management systems and Analogue RF transmission to the Ground Control Stations simultaneously. • 360o long range Laser rangefinders and mapping scanners/radars for simultaneous localization, mapping and multi-directional collision avoidance • dual sensor (FLIR DUO) compact thermal and visible light imagers with live analogue and digital video output • multispectral sensor (Parrot SEQUOIA) that captures calibrated wavelength of Green, Red, Red-Edge and Near Infrared. • simultaneous 2.4 GHz 2x2 MIMO WiFi Access Points with Mobile 4G/LTE Internet Connectivity and extended networking capabilities, like Firewal, Routing, VPN, etc. IGMAC UAVs' innovative design comes with a full range of accessories and is coupled with state of the art electronics and network components and it is ready to incorporate all existing and future RAWFIE's software requirements. IGMAC uses a fully configurable auto-pilot controller running open-source software, utilizing all capabilities of the MAVlink and the RAWFIE	RAWFIE-OC2-EXT-UAV

		AVRO schema protocols, enabling a plethora of possible experiments that will enhance the RAWFIE federation of different testbeds and expand the envisioned Experimentation-as-a-Service infrastructure.	
4	**UNSURPASSED: Unmanned Surface Vehicles as Primary Assets for the Coast Guard**	UNSURPASSED will set the RAWFIE USV testbed in the service of the coast guard, showcasing the potential of USVs to perform surveillance and search-and-rescue tasks. The work plan has two threads. The first involves the integration (in RAWFIE) of networking and security mechanisms that are based on distributed paradigms, i.e., ad hoc, delay-tolerant, and information-centric networking and identity-based encryption, which will turn USVs into real assets for the coast guard. The addition of these mechanisms to the testbed will significantly increase its reusability by other experimenters. The second thread consists in using these mechanisms to conduct experiments, of escalating complexity, their scope stretching from the radio channel up to networking functionality and above.	RAWFIE-OC2-EXP-SCI
5	**GNFUV: Glasgow Network Functions for Unmanned Vehicles**	In this proposal, we present GNFUV: an extension of the Glasgow Network Functions (GNF) framework to operate over UxV infrastructures. GNF is a Network Function Virtualization (NFV) suite that exploits Docker containers to turn potentially any device capable of running even a minimal (e.g., embedded) Linux kernel into a NFV hosting platform, hence being particularly well-suited for operating over resourced-constrained and (mobile) IoT environments. GNFUV will leverage the RAWFIE infrastructure as a target platform to host diverse virtualised network functions across numerous physical UxV deployments in a transparent way. The proposed project aims to showcase the capabilities of UxVs as hosting platforms for (virtualised) tasks, ranging from always-on monitoring and network topology self-management, to novel algorithms for edge-computing predictive analytics.	RAWFIE-OC2-EXP-SCI
6	**ATLAS: UxV-bAsed**	Recently, the use of opportunistic networks for providing delay tolerant services to remote areas	RAWFIE-OC2-EXP-SCI

	OpporTunistic Networks FaciLitating Connectivity in Remote AreaS	without Internet connectivity has gained considerable traction. Several solutions have been proposed, but they aim at specific settings and make limiting assumptions, so they are not generally applicable. The progress of UxV-related technology opens the possibility of providing more versatile and generally applicable opportunistic networking solutions. This approach has many merits (capability for rapid and low-cost deployment, high configurability, lack of requirements for preexisting infrastructure or human operators), but comes with another set of challenges: The versatility and generality of the new setting creates the requirement that the message routing protocol employed by the UxV-based opportunistic network be capable of maintaining efficient operation in a wide range of network density and mobility conditions. However, most relevant routing protocols have been designed to accommodate a restricted set of possible network conditions and yield satisfactory performance only when the actual conditions fall within this restricted set. Recently, the MAD routing protocol was introduced to address this limitation. Despite being a 'lightweight' protocol, MAD can self-adapt to diverse settings and perform optimally in a very wide range of network density and mobility conditions. At the same time, it possesses several other features that make it very suitable for use in UxV-based opportunistic networks. In light of all these characteristics, the ATLAS project aims (1) to integrate the appropriate mechanisms for equipping the RAWFIE infrastructure with up to date opportunistic networking capabilities based on the MAD protocol and (2) to engage the enhanced infrastructure in experiments, towards assessing the performance of MAD in a variety of real-world conditions and towards evaluating the potential of ATLAS-enhanced USV-based opportunistic networks in connection with the relevant use-case of providing connectivity to remote maritime areas. The findings of the aforementioned experimental investigations, along with experiences obtained from the integration of the ATLAS mechanisms	

		into RAWFIE and the use of the RAWFIE's facilities and tools, will be provided as feedback to the RAWFIE community, together with suggestions for potential improvements. Moreover, the testbed enhancements and the set of the obtained results will be made available to RAWFIE and the research community in general, allowing further large-scale experimentation in an important and timely topic.	
7	**EXP-A.R.S.: Experimenting Autonomous Remote Sensing**	WPWEB recently had a specific request, coming from one of the largest power supplying company in Northern Italy (end-user), to verify the applicability of drones for monitoring its plants both indoor and outdoor. Under the light of this request, WPWEB has been selected for managing a R&D project by the Piedmont Region (Italy), with the aim to implement the adoption of "remote sensing" techniques through the use of UAVs for autonomous or semi-autonomous inspection of confined spaces, for monitoring infrastructures and tunnels.	RAWFIE-OC2-EXP-SME
8	**QoEST4CM: QoE SupporT for improved Crisis Management**	The proposal is focused on evaluating key enablers that shall guarantee successful integration of the drones with the crisis management software. The main orientation of the proposed experiment is to treat group of drones (e.g. 5-10) as deployable video sensors for crisis event management, training and decision support. Owing to company's track record of crisis related project (see B1.1, B2.1) we see great potential in integrating drones with decision support systems that we currently develop in R&D projects. We are bringing in-house SW solutions from the area of context-based video adaptation in the uplink direction, as well as cellular networks coverage mapping and probing and aim at deploying it on the drones. On the other hand we target complete use-cases which are sought be end-users in the domain of "crisis mapping", "providing remote video reconnaissance" and especially introducing optimizations that will maximize quality of multimedia given particular needs of crisis operators. Particular group of such needs is connected with enhancing our in-house developed	RAWFIE-OC2-EXP-SME

		tools for managing flooding events with video/picture inputs from area of crisis to improve quality of decision making and crisis modelling	
9	**UTMEXP: UAS Traffic Management Experiments**	The experimentation done by the UTMEXP project will test the principles underlying the proposed Unmanned Airborne System (UAS) Traffic Management (UTM) concept. The questions to be answered by the experimentation, directly or indirectly, are highly technological and appropriate to the capabilities of the RAWFIE mobile IoT UAV testbeds. The answers delivered by the experiments will contribute directly to UTM standards. To do the experiments it is necessary to fly a "flock" of Unmanned Airborne Vehicles (UAVs) that are able to communicate with each other and with a management system to exchange command and control (C2) messages, management data, payload and other information. The experiments will also demonstrate the capabilities of the RAWFIE platform for execution of a complex mobile IoT application.	RAWFIE-OC2-EXP-SME
10	**PARROT: Public Safety ExpeRimentation in RAWFIE Mobile IOT platform**	Reliable and rich communications support in the strike of emergency events is considered a critical feature of mobile networks. Latest developments in the IoT and unmanned vehicles domains open up new opportunities for revolutionizing public safety networks deployment. PARROT is a project targeting the integration and demonstration upon the RAWFIE test-bed, of a hardware and software prototype tailored to end-to-end public safety operations support. PARROT proposes the enhancement of UxV nodes with existing and emerging radio components/technologies (4G/4.5G/D2D/WiFi) leveraging the software radio paradigm. The project will be carried out by Feron Technologies and builds upon previous experience and solutions portfolio regarding the integration of radio and IT technologies for building custom systems, and the implementation of telecom technologies in general purpose computing/radio equipment. FERON will bring to RAWFIE a set of diverse skills and competences, demonstrate the testbed potential to support challenging use-cases	RAWFIE-OC2-EXP-SME

		such as public safety, and highlight the value of the RAWFIE as a means for testing novel solutions at a pre-product phase.	

Figure 1 presents the scores of the selected proposals for each criterion. The scores depicted are the cumulative scores of each criterion, calculated as the sum of the scores of the three reviewers for the criterion.

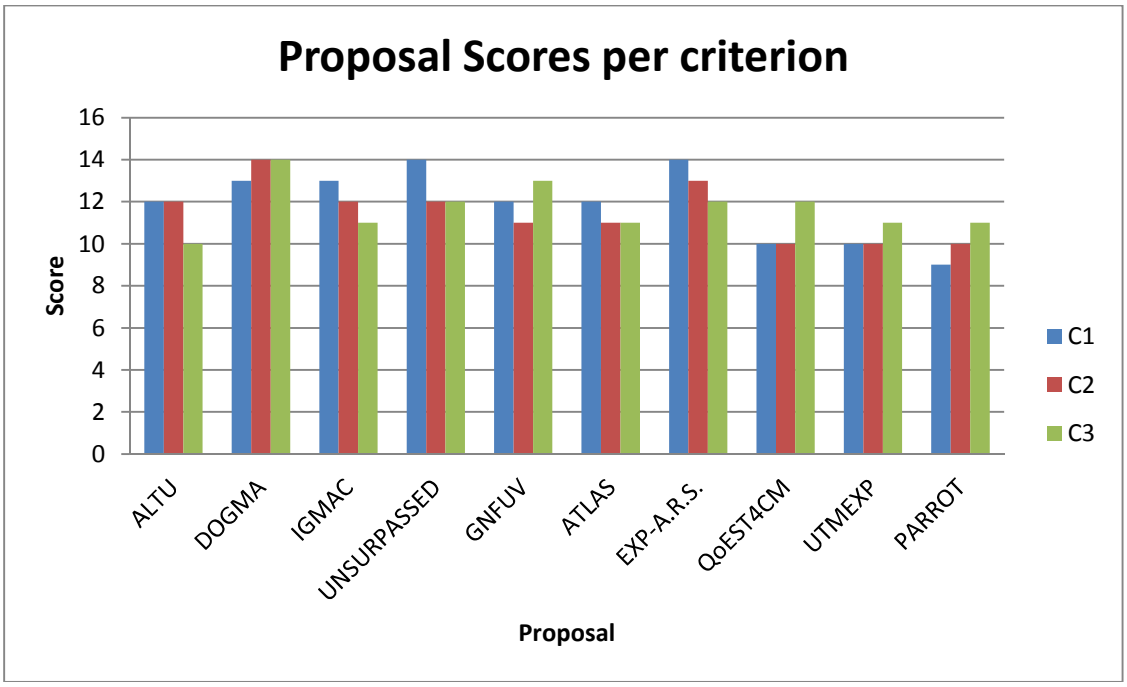


Figure 1: Proposal scores by criterion

Figure 2 shows the total scores of the selected proposals. The scores depicted are the sum of the cumulative scores of the three criteria for each proposal, calculated as the sum of the scores of the three reviewers for each criterion.

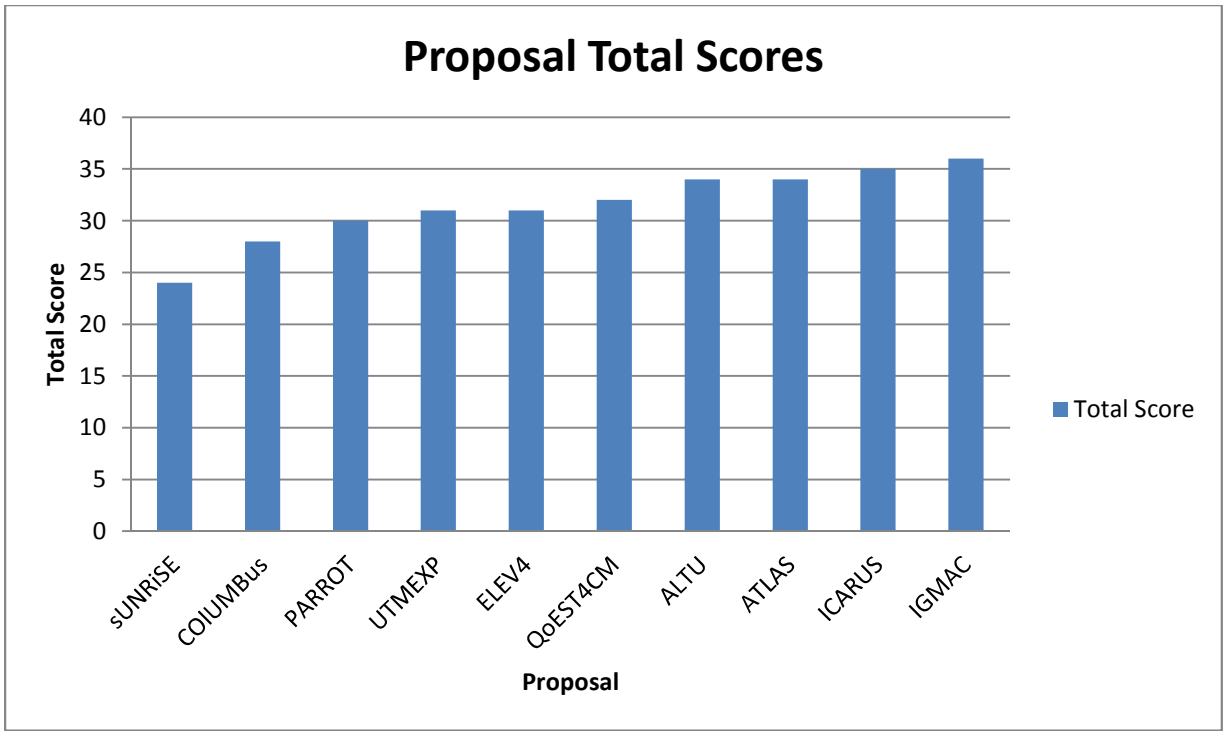


Figure 2: Proposal total scores

As it is depicted in Figure 3, 79% of the proposals were scored above threshold (>30), with 36% of the proposals receiving a total cumulative score greater than 35.

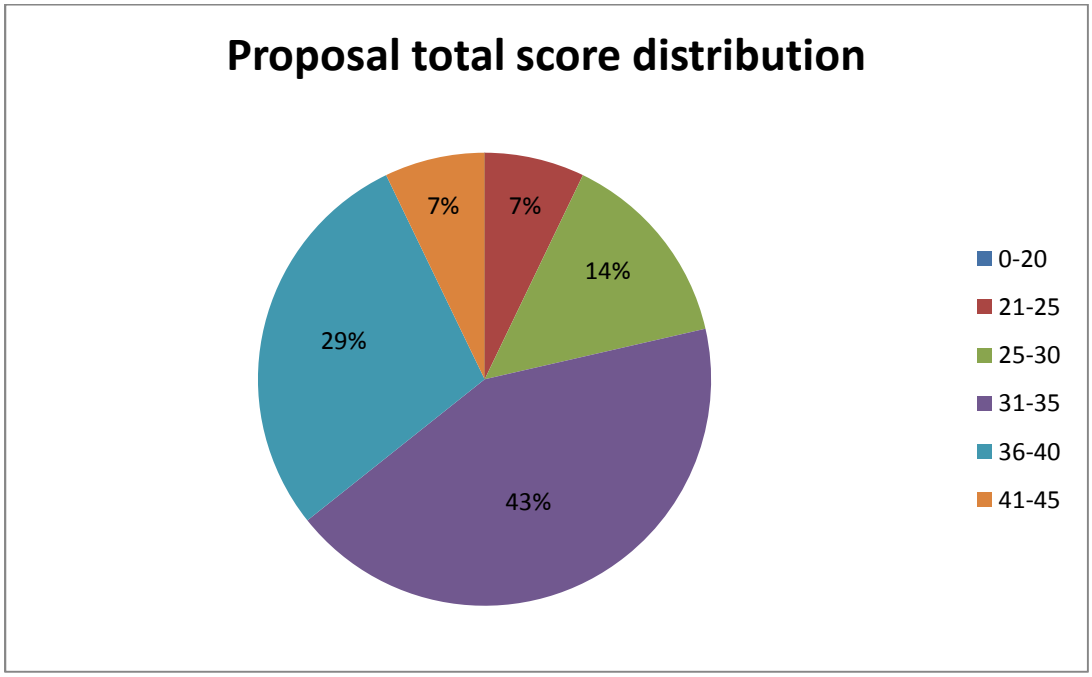


Figure 3: Proposal total score distribution

6 Annex–Tables

A1. RAWFIE Open Call 2 Announcement

Open Call announcement

Announcement of the 2nd RAWFIE Open Call for recipients of financial support

Project acronym: RAWFIE
Project grant agreement number: 645220
Project full name: Road-, Air-, Water-based Future Internet Experimentation

Project RAWFIE (www.rawfie.eu), co-funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No 645220, foresees as an eligible activity the provision of financial support to third parties, as a means to achieve its own objectives.

The types of activities that qualify for receiving financial support are the following:

- Extensions (hardware)
  - UGV Extension: Addition & customization of Unmanned Ground Vehicles (RAWFIE-OC2-EXT-UGV) – no feasibility check is needed
  - UAV Extension: Addition & customization of Unmanned Aerial Vehicles (RAWFIE-OC2-EXT-UAV) – no feasibility check is needed
- Experimentation (software)
  - Scientific Excellence (RAWFIE-OC2-EXP-SCI) – feasibility check is needed
  - Innovation by SMEs (RAWFIE-OC2-EXP-SME) – feasibility check is needed

Feasibility check deadline (only for Experimentation activities RAWFIE-OC2-EXP-SCI, RAWFIE-OC2-EXP-SME): 19 February, at 17:00 CET (Brussels local time)

Final submission deadline (for all four types of activities): 19 March 2017, at 17:00 CET (Brussels local time)
Expected duration of participation: 18 months for RAWFIE-OC2-EXT (starting from July, 2017 to December, 2018) and 12 months for RAWFIE-OC2-EXP (starting from October, 2017 to September, 2018)
Maximum amount of financial support for each proposal: € 150 000 for RAWFIE-OC2-EXT-UGV and RAWFIE-OC2-EXT-UAV, € 100 000 for RAWFIE-OC2-EXP-SCI, € 75 000 for RAWFIE-OC2-EXP-SME
Call identifier: RAWFIE-OC2 call
Language in which proposal should be submitted: English
Web link for further information (full call text/proposal guidelines/call results):
http://www.rawfie.eu/content/open-call-no-2
Email address for further information: rawfie-contact@cnl.di.uoa.gr
[Please use the respective call identifier in the subject of your email (RAWFIE-OC2-EXT-UGV, RAWFIE-OC2-EXT-UAV, RAWFIE-OC2-EXP-SCI, RAWFIE-OC2-EXP-SME)]
Tel: (+30) 2107275148, (+30) 2107275127

Eligibility of proposers and evaluation conditions:

- Proposals will only be accepted from a single party eligible for participation in the EC H2020-projects.
- Evaluation and ranking will be carried out by an external jury of individual experts.
- Multiple proposals may be submitted by the same party. In case that multiple proposals coming from the same party pass the funding limits, RAWFIE Consortium has the right to decide which one of them will be accepted for funding.
- Successful applicants of the 1st RAWFIE Open Call are not eligible to participate.

Other conditions:

- Proposals must follow the provided **template**.
- Proposals must be submitted through the **EasyChair** system.
- Once a proposal is positively evaluated for funding, the respective proposer will be contracted by the project coordinator (UoA) as Third Party.

Call Objectives

RAWFIE (Road-, Air- and Water- based Future Internet Experimentation) is a project funded by the European Commission (Horizon H2020 programme) under the FIRE initiative aiming to provide research and experimentation facilities through the growing domain of unmanned networked devices. The **FIRE** initiative (**F**uture **I**nternet **R**esearch and **E**xperimentation) creates an **open research environment** which facilitates strategic research and development of new Future Internet concepts, giving researchers the tools they need **to conduct large-scale experiments** on new paradigms.
The purpose of the RAWFIE project is to create a federation of different testbeds that will work together to make their resources available under a common framework. Specifically, it aims at

delivering a unique, mixed experimentation environment across the space and technology dimensions. RAWFIE integrates numerous testbeds for experimenting in vehicular (road), aerial and maritime environments. Vehicular Testbeds (VT) will deal with Unmanned Ground Vehicles (UGVs) while Aerial Testbeds (AT) and Maritime Testbeds (MT) will deal with Unmanned Aerial Vehicles (UAVs) and Unmanned Surface Vehicles (USVs), respectively. The RAWFIE Consortium includes all the possible actors of this highly challenging experimentation domain, from technology creators to integrators and facility owners. The basic idea behind the RAWFIE effort is the automated, remote operation of a large number of robotic devices (UGVs, UAVs, USVs) for the purpose of assessing the performance of different technologies in the networking, sensing and mobile/autonomic application domains. RAWFIE features a significant number of UxV nodes for exposing the experimenter to an extensive test infrastructure. All these items are managed by a central controlling entity, which will be programmed per case and fully overview/drive the operation of the respective mechanisms (e.g., auto-pilots, remote controlled ground vehicles). Internet connectivity will be extended to the mobile units to enable the remote programming (over-the-air), control and data collection. Supportive software for experiment management, data collection and post-analysis will be virtualized to enable experimentation from anywhere in the world. The vision of Experimentation-as-a-Service (EaaS) is promoted through RAWFIE. The IoT paradigm is fully adopted and further refined for supporting highly dynamic node architectures.

The objective of the *2nd RAWFIE Open Call* is twofold: first, to enhance certain parts and characteristics of the federated infrastructure in terms of UxV devices (RAWFIE-OC2-EXT-UGV, RAWFIE-OC2-EXT-UAV); second, to support cross-domain or domain-specific real-world applications and experiments (RAWFIE-OC2-EXP-SCI, RAWFIE-OC2-EXP-SME). Each proposal should target at **exactly one** of the four types of activities (we call them *directions of enhancement*) as stated in the next paragraphs. In case a proposer intends to cover more than one of the four activities listed below, this should be addressed by the submission of separate proposals. All the proposals should fully comply with the public Deliverables (can be found here) that have been produced so far by the RAWFIE Consortium and provide system requirements as well as technical description and implementation details for the RAWFIE architecture and specific components.

The submission phase of the experimentation proposals will take place in two stages. In the first stage, the proposing party has to submit a draft, but fully completed, proposal describing the experiment by February 19, 2017 using the online submission system. In this stage, all parts of the proposal should be completed and the RAWFIE consortium will check the feasibility of the proposed experiment (i.e., if the experiment can be supported sufficiently by the existing infrastructure, proposed devices and testbeds or further extensions are needed). RAWFIE consortium will provide feedback on the feasibility check to the proposer before March 6, 2017. The feedback of the feasibility check has to be included in the respective part of the proposal template by the proposer during the final submission step. The proposer should perform only minor revisions on the proposal during the final submission stage (i.e., the core parts of the experiment should remain unchanged). During the feasibility check, no evaluation of the experiment will be performed. The independent experts that will perform the actual evaluation of the proposals will be advised to reject proposals with significant differences between the two stages.

No feasibility check is required for proposals targeting at UGV and UAV extensions. These proposals will be submitted in one step (final submission deadline).

	Identifier	Category	Call Budget	Max budget per proposal	Expected type of applicant	Expected proposal
HARDWARE & CUSTOMISATION	RAWFIE-OC2-EXT-UGV	Unmanned Ground Vehicles	€ 450.000	€ 150.000	UGV manufacturer, hardware assembly company or provider	Provision of a number of UGV devices + customization software
	RAWFIE-OC2-EXT-UAV	Unmanned Aerial Vehicles	€ 300.000	€ 150.000	UAV manufacturer, hardware assembly company or provider	Provision of a number of UAV devices + customization software
EXPERIMENTATION	RAWFIE-OC2-EXP-SCI	Scientific Excellence	€ 700.000	€ 100.000	Academia, research institute, industry (not SME), public body	Extensive cross-domain / horizontal or domain-specific experiments and supportive software
	RAWFIE-OC2-EXP-SCI-SME	Innovation by SMEs	€ 500.000	€ 75.000	Academia, research institute, industry (not SME), public body	Extensive cross-domain / horizontal or domain-specific experiments and supportive software
		Total funding	€ 1.950.000			

- **Activity / Direction of enhancement 1: Addition & customization of Unmanned Ground Vehicles.**

The basic idea behind the RAWFIE effort is the automated, remote operation of a large number of robotic devices for the purpose of assessing the performance of different technologies in the networking, sensing and mobile/autonomic application domains. RAWFIE considers three kinds of vehicles; UGVs, USVs and UAVs. The project aims to feature a significant number of UxV nodes in order to establish an extended test infrastructure for RAWFIE related experimentation purposes. All these items will be managed by a central controlling entity which will be programmed per case and fully overview/drive the operation of the respective mechanisms (e.g., auto-pilots, remote controlled ground vehicles). Internet connectivity will be extended to the mobile units to enable remote programming (over-the-air), control and data collection.

In the context of the 2nd RAWFIE Open Call, the project invites ***manufacturers and providers of Unmanned Ground Vehicles*** *to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide and customize a considerable number of devices (>10) that belong to the UGV type of robotic devices. The exact number of devices considered by each proposal should comply with the requested funding and will be part of the evaluation process. Proposals considering higher number of devices will be considered favorably.*

The proposers should present clearly within the proposal text a number of features and characteristics of the unmanned vehicles that will be possibly considered as future additions to the project. These features include, but are not limited to, the following aspects of the vehicles:

- Processing capabilities (type of processors, number of cores, speed);
- Size and dimensions;
- Weight;
- Payload;
- Battery;
- Number and type or sensors;
- Number and type of integrated network components and supported communication interfaces;
- Minimum and maximum autonomy of the device;
- Auto-return capability (return to the base station automatically);
- Ability of the vehicle to operate as an access point;
- (Remote) Control interface;
- Over-the-air programming capabilities;
- Provision of collision avoidance mechanism;
- Compatibility with Apache Kafka architecture;
- Data storage of the vehicle;
- Support of “safe mode” operation;
- Localization capabilities (e.g., GNSS);
- Ability to operate in indoor/outdoor/mixed environments;
- Compliance with standards;
- Operational conditions (e.g., day/night) and temperature limitations.

All the devices will be modified accordingly in terms of software to fit with the RAWFIE ecosystem (e.g., compliance with Kafka message bus). Upon the completion of the project, the designed UGV equipment will become property of the RAWFIE Consortium.

- **Activity / Direction of enhancement 2: Addition & customization of Unmanned Aerial Vehicles.**

The basic idea behind the RAWFIE effort is the automated, remote operation of a large number of robotic devices for the purpose of assessing the performance of different technologies in the networking, sensing and mobile/autonomic application domains. RAWFIE considers three kinds of vehicles; UGVs, USVs and UAVs. The project aims to feature a significant number of UxV nodes in order to establish an extended test infrastructure for RAWFIE related experimentation purposes. All these items will be managed by a central controlling entity which will be programmed per case and fully overview/drive the operation of the respective mechanisms (e.g., auto-pilots, remote controlled ground vehicles). Internet connectivity will be extended to the mobile units to enable remote programming (over-the-air), control and data collection.

*In the context of the 2nd RAWFIE Open Call, the project invites **manufacturers and providers of Unmanned Aerial Vehicles** to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide and customize a considerable number of devices (>10) that belong to the UAV type of robotic devices. The exact number of devices considered by each proposal should comply with the requested funding and will be part of the evaluation process. Proposals considering higher number of devices will be considered favorably.*

The proposers should present clearly within the proposal text a number of features and characteristics of the unmanned vehicles that will be possibly considered as future additions to the project. These features include, but are not limited to, the following aspects of the vehicles:

- Processing capabilities (type of processors, number of cores, speed);
- Size and dimensions;
- Weight;
- Payload;
- Battery;
- Number and type or sensors;
- Number and type of integrated network components and supported communication interfaces;
- Minimum and maximum autonomy of the device;
- Auto-return capability (return to the base station automatically);
- Ability of the vehicle to operate as an access point;
- (Remote) Control interface;
- Over-the-air programming capabilities;
- Provision of collision avoidance mechanism;
- Compatibility with Apache Kafka architecture;
- Data storage of the vehicle;
- Support of “safe mode” operation;
- Localization capabilities (e.g., GNSS);
- Ability to operate in indoor/outdoor/mixed environments;
- Compliance with standards;
- Operational conditions (e.g., day/night) and temperature limitations.

All the devices will be modified accordingly in terms of software to fit with the RAWFIE ecosystem (e.g., compliance with Kafka message bus, read-only storage partition for remote shut-off of the devices, notifications to owners for OTA re-programming, etc.). Upon the completion of the project, the designed UAV equipment will become property of the RAWFIE Consortium.

- **Activity / Direction of enhancement 3: Scientific Excellence.**

RAWFIE comprises software architectures and developments for experimentation management, data collection and post-analysis. Virtualization is used to enable remote experimentation from everywhere in the world. In this 2nd Open Call, the project solicits for proposals that design and deploy extensive horizontal or domain-specific experimentation (experiment design & implementation, supportive software, data analysis, data visualization, etc.) that will leverage data and resources from RAWFIE testbeds and devices in the context of mobile IoT paradigm. **The experiments should come with a concrete plan on their scientific added value and the novelties that the experiment will bring in the scientific and research community (i.e., the new technologies and methodologies validated through the experiment, the new datasets it creates, etc.).**

All types of experimental applications should be based on RAWFIE tools and should come with additional features (e.g., post analysis of data, visualization tools) or software needed for further data processing. Horizontal experiments may refer to cross-domain applications and software (e.g., experimentation over a novel network protocol, information dissemination schemes, distributed architectures, data analysis methodologies, trust and reputation algorithms, security features, etc.). Supportive software should be connected with RAWFIE architecture to become available, if needed, for other types of applications and experiments. In all categories, the adoption of open technologies, specifications and standards (including open source software and Semantic Web technologies) that will enable the openness of the RAWFIE platform towards possible future expansion is strongly recommended.

Proposals should describe **experiments and applications** that validate novel technologies connected with the mobile IoT concept and its integration with Cloud and Robotics paradigms that clearly advance the current state-of-the-art and create added value at technology and research level. Based on the RAWFIE application creation tools, the experiments will design, implement and validate a number of proof-of-concept scenarios that could potentially be applied across several or specific application domains.

This software and the experiments should be of a short duration (a maximum of 12 months) starting from October 2017. Per proposal a budget can be requested for **up to a maximum of €100K**. The applicant should be **academia, industry (not SME) or a public body**.

- **Activity / Direction of enhancement 4: Innovation by SMEs.**

RAWFIE comprises software architectures and developments for experimentation management, data collection and post-analysis. Virtualization is used to enable remote experimentation from everywhere in the world. In this 2nd Open Call, the project solicits for proposals that design and deploy extensive horizontal or domain-specific experimentation (experiment design & implementation, supportive software, data analysis, data visualization, etc.) that will leverage data and resources from RAWFIE testbeds and devices in the context of mobile IoT paradigm. **The experiments should come with a concrete business model (i.e., how the results of the experiment may be transformed into profits for the company) and what kind of new markets the experiment may open.**

All types of experimental applications should be based on RAWFIE tools and should come with additional features (e.g., post analysis of data, visualization tools) or software needed for further data processing. Horizontal experiments may refer to cross-domain applications and

software (e.g., experimentation over a novel network protocol, information dissemination schemes, distributed architectures, data analysis methodologies, trust and reputation algorithms, security features, etc.). Supportive software should be connected with RAWFIE architecture to become available, if needed, for other types of applications and experiments. In all categories, the adoption of open technologies, specifications and standards (including open source software and Semantic Web technologies) that will enable the openness of the RAWFIE platform towards possible future expansion is strongly recommended.

Proposals should describe **experiments and applications** that validate novel technologies connected with the mobile IoT concept and its integration with Cloud and Robotics paradigms that clearly advance the current state-of-the-art and create added value at technology and research level. Based on the RAWFIE application creation tools, the experiments will design, implement and validate a number of proof-of-concept scenarios that could potentially be applied across several or specific application domains.

This software and the experiments should be of a short duration (a maximum of 12 months) starting from October 2017. Per proposal a budget can be requested for **up to a maximum of €75K**. The applicant should be an **SME**.

Expected Timeplan

The following table provides an indicative timeplan for the four types of activity expected to be targeted by the proposals of the present open call.

Type of Activity	Expected Timeplan	Stage Description
Extension	**Delivery and customization stage:** Months 1 - 6.	The beneficiaries will deliver to the RAWFIE Consortium the robotic devices customized and ready to be used.
	Supporting stage: Months 7 - 18.	The UxV resources will participate in experiments.

Experimentation	**First prototype stage:** Months 1 - 6.	A first prototype of the experiment will be provided to the RAWFIE Consortium and an initial integration with RAWFIE platform will be demonstrated.
	Final delivery stage: Months 7 - 9.	The finalized version of the software completely integrated and tested with RAWFIE infrastructure is delivered.
	Full demonstration stage: Months 10 - 12.	Full demonstration to dissemination events. Minor modifications are expected according to the feedback of the consortium.

The proposals are expected to propose their own plan of documentation and deliverables that will be provided to the RAWFIE Consortium. The implementation plan will be subject to the evaluation criterion C3 ("Ability to implement"). The successful beneficiaries will be invited to refine and implement the final plan with the project coordinator and the other collaborators.

Practical Information

Total budget: up to€ 1,950,000
Expected number of proposals to be funded: up to 19 (in total)
Maximum Commission funding per proposal: € 150 000 for RAWFIE-OC2-EXT, € 50 000 for RAWFIE-OC2-EXP
Expected budget foreseen for UxVs enhancements (in total): € 750,000
Expected budget for experiments (in total):€ 1,200,000
Number of partners per proposal: Proposals should be submitted by single parties only. Consortia consisting of two or more partners will not be accepted.
Type of participants: The profile of participants targeting Activities 1 and 2 includes UxV manufacturers, and providers. The profile of participants targeting Activity 3 could be academics or industries with RTD department (not SMEs), and all kinds of private or public bodies active in the domains of IoT , Robotics, Autonomous Systems, Networking or Cloud Computing. The participants targeting Activity 4 should be SMEs. The rules of participation are the same as those applied to any H2020 project.
Duration of the contract: 18 months for RAWFIE-OC2-EXT (starting from July, 2017 to December, 2018) and 12 months for RAWFIE-OC2-EXP (starting from October, 2017 to September, 2018)
Language of the proposal: English
Proposal page limits and layout: According to the provided template, each proposal should consist of two distinct sections; Part A and Part B. Part A provides administrative information for the proposing party, while Part B provides information about costs, proposed plan and methodology, implementation and impact. Part B of each submitted proposal should not exceed**30 pages length for proposals targeting Extensions (Activities 1 & 2) and 25 pages length for proposals targeting Experimentation(Activities 3 & 4)** including cover page, abstract, table of contents, and sections B0, B1, B2, B3 of the provided template (Annexes are

not part of the page limitation).There is no automatic check in the system. Experts will be instructed to disregard any excess pages in each section in which the maximum number of pages is indicated. The minimum font size allowed is 11 points. The page size is A4, and all margins (top, bottom, left, right) should be at least 15 mm (not including any footers or headers). Ensure that the font type chosen is clearly readable (e.g., Arial or Times New Roman).There is no page limitation for Part A since it consists of administrative forms. **A single document containing both parts A and B should be submitted.**
Feasibility check deadline (only for Experimentation activities RAWFIE-OC2-EXP-SCI, RAWFIE-OC2-EXP-SME): 19 February 2017, at 17:00 CET (Brussels local time)
Final submission deadline (for all four types of activities): 19 March 2017, at 17:00 CET (Brussels local time)
Contact for information on this call: Prof. Stathes Hadjiefthymiades (UoA)
email: rawfie-contact@cnl.di.uoa.gr

Eligibility

Proposals may only be submitted by:

- Parties eligible for participation in the EC Horizon 2020 Framework Programme. Rules for eligibility can be found at: http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf
- Single parties only.

A party may participate and submit multiple proposals. In case that multiple proposals coming from the same party pass the funding limits, RAWFIE Consortium has the right to decide which one of them will be accepted for funding.

Evaluation Criteria

Evaluation and ranking will be carried out by an external jury of individual experts. Proposals for third party funding will be evaluated against the following criteria:

C1. Relevance to the project architecture and technological excellence

All the contributions of third parties are intended either to enhance the current RAWFIE architecture or bring new value to it through novel experimentation. Therefore, the proposals should adhere to the requirements of the platform, and build on top of the existing framework. This criterion assesses the compliance of each proposal with RAWFIE technologies and adopted approaches. The technological excellence of the proposed solution and the level of integration with RAWFIE tools and platform are also evaluated. The quality of the proposed solutions will

also be evaluated (e.g., number of robotic devices for Activities 1 and 2, complexity and innovation of the experiment for Activities 3 and 4, etc.).

C2. Impact

The funded proposals' impact (both on the project and in general) is evaluated. The open call seeks proposals which provide high added value. Proposals should enable possible future follow-up experiments and support the sustainability of the federated architecture. Market potential of the proposals as well as their ability to provide significant value to the end-users will be taken into consideration. The funded third parties will also have to integrate their proposals outcome into the current RAWFIE infrastructure and maintain a connection to the RAWFIE Consortium until the end of the project. Further integration into a future RAWFIE federation is a major target for the project.In this context, this call also searches for participants that will stay active beyond the project lifetime. Hence, proposals with high levels of engagement with RAWFIE and the FIRE community will be promoted. The same stands with proposals that foresee and enable possible synergies with other H2020 projects and/or nationally funded activities. In the context of supported experiments, RAWFIE will promote innovation and excellence both in terms of horizontal cross-domain experiments and real-world domain-specific applications.

C3. Ability to implement

The proposers will be evaluated on their ability to implement the tasks. The experience and the technical capacity of the applicant(s) are of high importance. The proposed implementation plan should be clear and methodically sound, with a clear task statement, a solid design, a good methodology and of high quality. Participants are expected to propose a concrete plan that enables them to achieve the project goals during the given time-frame. The successful beneficiaries will be invited to refine and implement the final plan with the project coordinator and the other collaborators.

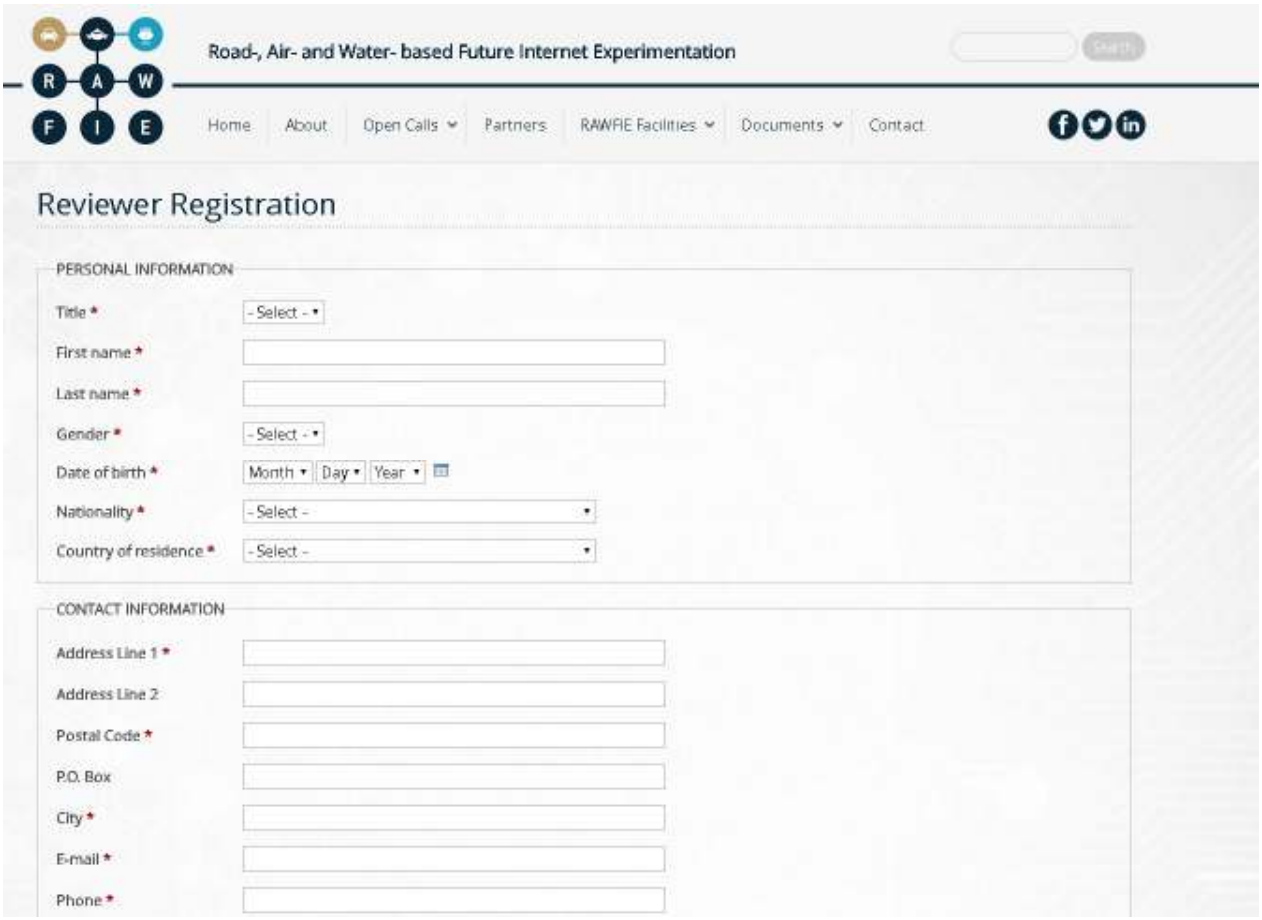
Each of the criteria is evaluated in a scale of 0-5. The threshold for each of the criteria is 3. The threshold for the total evaluation is 10.

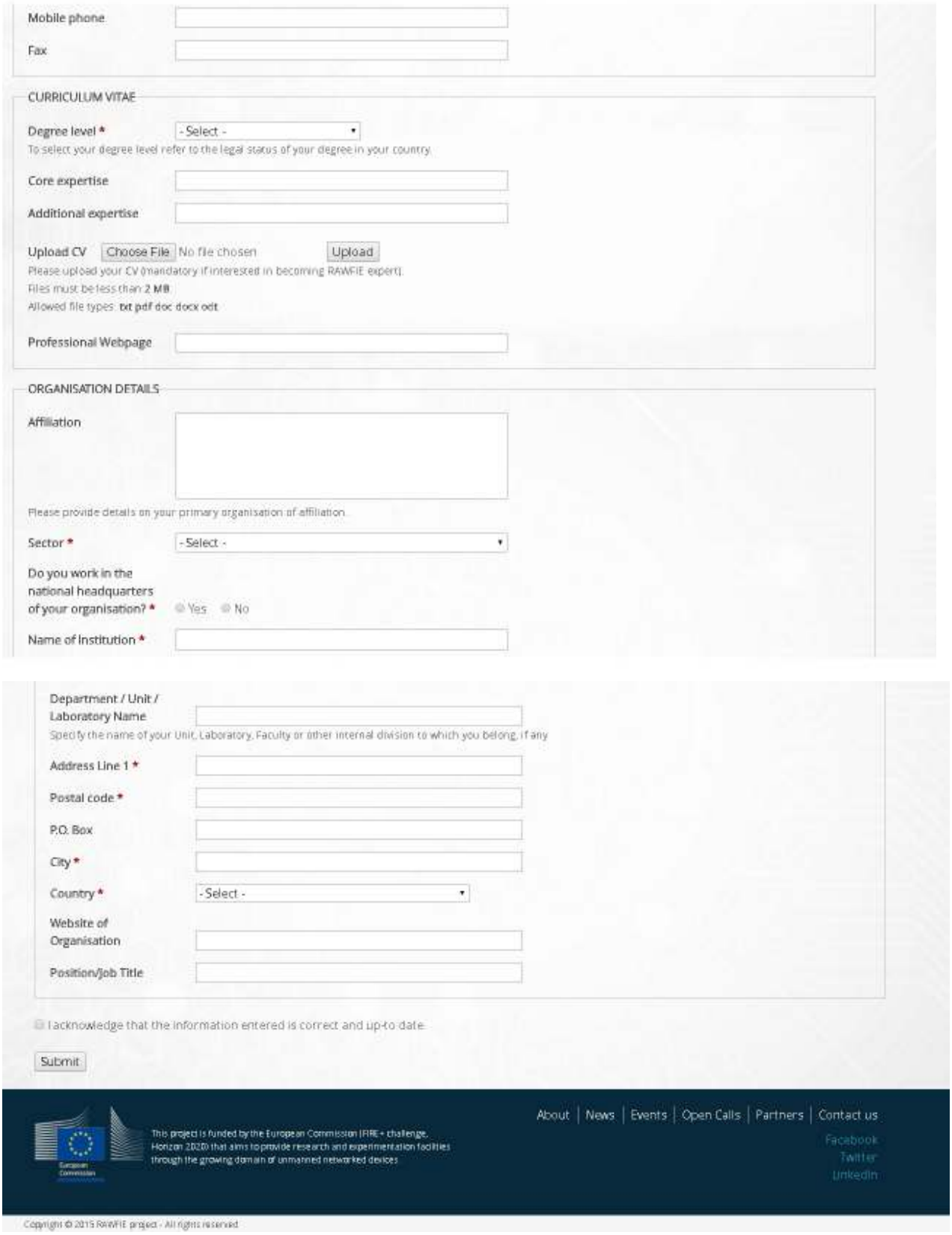
In case of possible ties in ranking, the above criteria will be considered as listed in order of importance, i.e., criterion 1 is ranked higher than criterion 2, etc.

Redress

A third party (or consortium of 2 parties) may submit a redress request to the project coordinator within 7 days of the announcement of the evaluation and funding results. The redress request may involve only the procedural aspects of the evaluation. The request will be evaluated by the project Quality Control Board, a committee of 5 representatives of different project partners, and responded to within 10 days of its reception.

A2. RAWFIE Open Call for Reviewers Registration Form




Mobile phone
Fax
CURRICULUM VITAE
Degree level *
- Select -
To select your degree level refer to the legal status of your degree in your country
Core expertise
Additional expertise
Upload CV
Choose File
No file chosen
Upload
Please upload your CV (mandatory if interested in becoming RAWFIE expert).
Files must be less than 2 MB.
Allowed file types: txt pdf doc docx odt.
Professional Webpage
ORGANISATION DETAILS
Affiliation
Please provide details on your primary organisation of affiliation.
Sector *
- Select -
Do you work in the national headquarters of your organisation? *
Yes
No
Name of Institution *
Department / Unit / Laboratory Name
Specify the name of your Unit, Laboratory, Faculty or other internal division to which you belong, if any
Address Line 1 *
Postal code *
P.O. Box
City *
Country *
- Select -
Website of Organisation
Position/Job Title
I acknowledge that the information entered is correct and up-to date
Submit
This project is funded by the European Commission (FIRE+ challenge, Horizon 2020) that aims to provide research and experimentation facilities through the growing domain of unmanned networked devices
About | News | Events | Open Calls | Partners | Contact us
Facebook
Twitter
LinkedIn
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A3. RAWFIE-INFRASTRUCTURE-2016 Proposal Template

Road-, Air- and Water- based Future Internet Experimentation

PROPOSAL PART A	
Response to the 2nd Open Call of the RAWFIE Project **Call Identifier: RAWFIE-OC2**	
Proposal Title:	
Proposal Acronym:	
Addressed activity (exactly one):	

Name of Responsible person: [person name, organisation] _____
e-mail: [Contact email] _____
Phone number: [Contactphone number] _____

Proposing Party:

Participant no.*	Participant organisation name	Participant short name	Country
1			

Form for Applicants

Form for "Non Exclusion Declaration"

Certification and Declaration on Honour

I certify

- that our organisation is committed to be contracted as a Third Party in the above mentioned project (Road-, Air-, Water-based Future Internet Experimentation, RAWFIE);
- that the information relating to our organisation set out in the A2 forms is accurate and correct;
- that the estimated costs meet the criteria for eligible costs for RAWFIE project and your normal cost accounting principles, and that they reflect the estimated costs expected to be incurred in carrying out the work described in Part B of the proposal (Description of work).

I declare on my honour that our organisation fully satisfies the conditions specified in Article 15 (*Financial support to third parties*) of the H2020 General Model Grant Agreement. I also certify that our organisation will comply to theobligations specified under Art 35 (*Conflict of interest*), 36 (*Confidentiality*), 38 (*Visibility of EU funding*) and 46 (*Liability for damages*) also apply to the third parties receiving financial support.

[Signature]
[Name First name(s)]
[Full Legal Name of organisation]
[Date]

Stamp *of organisation and* ***Signature*** *of the legal representative of the organisation*

RAWFIE: Road-, Air-, and Water-based Future Internet Experimentation

Project funded by the EU under the H2020 Frramework Programme – Future Internet Research and Experimentation (FIRE+)
Grant n. 645220

RAWFIE: Open Call for Infrastructural Enhancements
Call identifier:RAWFIE-OC2

Form for Applicant

Your Proposal	
Proposal Title	
Date of preparation of your proposal	
Your Organisation	
Participant Identity Code (if your Organisation is already registered for H2020)	
Participant Legal name	
Participant short name	
Official Address	
Street name	
Number	
Town	
Postal Code	
Country	
Internet homepage (optional)	
Status of Your Organisation	
Non-profit Organisation (yes/no)	

Public body (yes/no)	
Research Organisation (yes/no)	
Higher or secondary education establishment (yes/no)	

Industry (if applicable)	
Is your number of employees smaller than 250? (full time equivalent (yes/no)	
Is your annual turnover smaller than EUR 50 million? (yes/no)	
Is your annual balance sheet total smaller than EUR 43 million? (yes/no)	
Are you an autonomous legal entity? (yes/no)	
Following this check, do you conform to the Commission's definition of an SME (yes/no)	

Dependencies with (an)other participant(s)	
Are there dependencies between your organisation and (an)other participant(s) in this proposal? (yes/no)	
If yes:	
Organisation short name	
Character of dependence* (SG/CLS/CLB)	

Contact Point (Coordinating person for the Proposal)	
Family Name	
First Name	
Position in Organisation	
Department Name	

Street name	
Number	
Country	
Phone number	
Email	

*** SG: Same group: if your organisation and the other participant are controlled by the same party;**
CLS: Controls: if your organisation controls the other participant;
CLB: Controlled by: if your organisation is controlled by the other participant

Road-, Air- and Water- based Future Internet Experimentation

PROPOSAL PART B	
Response to the 2nd Open Call of the RAWFIE Project **Call Identifier: RAWFIE-OC2**	
Proposal Title:	
Proposal Acronym:	
Addressed activity (exactly one):	

Name of Responsible person: [person name, organisation] _____
e-mail: [Contact email] _____
Phone number: [Contactphone number] _____

Proposing Party:

Participant no.*	Participant organisation name	Participant short name	Country
1			

Proposal Abstract

This section should provide a maximum of 1000 characters summary of Part B, describing in particular:

- *the relevant features of the proposal;*
- *the strengths of the proposal, and its contribution to the objectives of the 2nd Open Call of RAWFIE as well as the overall goals of the RAWFIE project;*
- *the strengths of the applicant.*

TABLE OF CONTENTS

Use this page to present the overall structure of the document.

B0. Cost and funding breakdown

Complete the table below.
Please show figures in euros (not thousands of euros).

Organisation Name: *(enter organisation name)*

	RTD	Other	Management	Total
1. Personnel costs				
2. Other direct costs				
3. Total direct costs (Sum of row 1 and 2)				
4. Indirect costs				
5. Total costs (Sum of row 3 and 4)				
6. Requested EC contribution				

In row 1, insert your personnel costs for the work involved, differentiating between:
***RTD activities**: Activities directly aimed at addressing a topic of the call.Each topic will deal with a set of functionalities to be supported by the RAWFIE Platform. Proposals should address the definition of open and royalty-free specifications, as well as the development of a reference implementation, of new components (robotic devices or experiments) in the RAWFIE Platform that will cover these functionalities.*
***Other activities**: any specific activities not covered by the above mentioned types of activity such as training, coordination, networking and dissemination (including publications). These activities should be specified later in the proposal.*
***Management activities** include the maintenance of the Third Party contractual agreement, if it is obligatory, the overall legal, ethical, financial and administrative management including for each of the participants obtaining the certificates on the financial statements or on the methodology, and, any other management activities foreseen in the proposal except coordination of research and technological development activities.*

In row 2, insert any other direct costs, for example equipment or travel costs.
In row 3, calculate the sum of your personnel and other direct costs.
In row 4, insert your indirect (overhead) costs.
***Indirect costs** are all those eligible costs which cannot be identified by the participant as being directly attributed to the project but which can be identified and justified by its accounting system*

as being incurred in direct relationship with the eligible direct costs attributed to the project. You should use a uniform 25% flat-rate of your eligible direct costs (row 3 of the table).
In row 5, calculate the sum of your direct and indirect costs.
In row 6, insert your requested EC contribution
***RTD activities**: you may request up to 100% of the total cost figure.*
***Other**, **Management**: you may request up to 100% funding*

Note: If you are successful in the evaluation, your final costs and funding estimates will also be subject to legal and financial verification by the Commission services

B1. Proposed Plan

B1.1. Objectives and approach

Make sure that the proposal addresses exactly one of the six directions of enhancement specified by the call.

Describe in detail how you propose to address the objectives of the targeted topic of the RAWFIE Open Call 2. It is suggested that you provide a concrete description of the proposed approach and the exact means that will be used to fulfil the project needs related to the addressed topic.

For each of these objectives, please specify if you plan to rely your work on an existing technology/product.

B1.2. Progress beyond the state of the art

Describe how you proposed approach compares with, and represents a step beyond, the state of the art.

B1.3. Methodology and associated work plan

A detailed work plan should be presented, broken down into work packages (WPs).

Please note that proposals targeting to the Extension of the infrastructure in terms of UGVs [RAWFIE-OC2-EXT-UGV] and UAVs [RAWFIE-OC2-EXT-UAV] will need to break down their workplan into several WPs each one consisting of distinct Tasks. Contrary to this, proposals targeting to Scientific Excellence [RAWFIE-OC2-EXP-SCI] or Innovation by SMEs [RAWFIE-OC2-EXP-SME]will need to use a single WP with Tasks representing the several phases of the experiment.

Please present your plans as follows:

i) Describe the overall strategy of the work plan

ii) Describe how this plan will be executed along the project duration.

iii) Provide a detailed work description broken down into WPs:

- *WP list (please use table 1.2a);*
- *Description of WPs target to dissemination, take up of RAWFIE results and networking (therefore classified as Other). Please use description form provided in Table 1.2b.*
- *Description of RTD WPs if any. Please use description form provided in Table 1.2b.*
- *Description of a Management WP describing how you plan to carry out overall management of activities. Note that technical coordination of RTD activities are not considered as Management.*

iv) Provide a graphical presentation of the Work Packages showing their interdependencies (Pert diagram or similar)

Note: The number of work packages used must be appropriate to the complexity of the work. The planning should be sufficiently detailed to justify the proposed effort and allow progress monitoring by the RAWFIE project coordinator. Experiments have to be described in a single WP.

Very important note:
Proposals targeting to the Extension of the infrastructure [RAWFIE-OC2-EXT] should plan to start beginning of July, 2017 and last for 18 months.
Proposals targeting to Experimentation [RAWFIE-OC2-EXP] should plan to start beginning of October, 2017 and last for 12 months.

Table 1.2a: Template - Work package list

Work package list

Work package No[4]	Work package title	Type of activity[5]	Person-months[6]	Start month[7]	End month[8]
	TOTAL				

4 Workpackage number: WP 1 – WP n.

5 Please indicate one activity per work package:
RTD = Research and technological development; DEM = Demonstration; MGT = Management of the consortium; OTHER = Other specific activities applicable in this call.

6 The total number of person-months allocated to each work package.

7 Measured in months from your action start date (month 1).

8 Measured in months from your action end date.

Table 1.2b: Template –Work package description

Work package number:	WP<x>	**Start date or starting event:**	M<x>	**End:**	M<y>
Work package title:	<WP name>				
Activity type:	<WP type> (RTD / OTHER / MGT)				
Participant Number:	1	2			
Participant Short Name:	<partner-1>	<partner-2>			

Objectives:

Description of Work:

Task <x>.1: <title of task>

Task <x>.2: <title of task>

…

Task <x>.n: <title of task>

Deliverables:

Following there is a list of deliverables and delivery dates for this WP. Deliverables follow numbering D.<i>.<j>.<n> where <i> designates the WP,<j> designates the deliverable within that WP and <n> identifies the release of the deliverable. Documents are tagged as (R) in "Nature" column, software for experimentation is tagged as (P) , hardware (e.g., robotic devices) is tagged as (H), and facilities are marked as (F) in the same column.

Deliverable Number	Deliverable Title / Description	Nature	Dissem. Level[9]	Delivery Months
	<Deliverable title>. <deliverable description>.			x, y
…	…	…	…	…

Detailed allocation of effort (person months) -

Tasks	<partner-1>	<partner-2>	Total
<Task 1>			
<Task 2>			
…			
<Task n>			

[9] Depending on the business model deliverables will have dissemination level 'PU' (publicly available) or 'PP' (private to the consortia and RAWFIE partners). In case of hardware and facilities, the dissemination level should be marked as 'PP'.

B2. Implementation

B2.1. Participants

Per participant, provide:

- *a brief description of the organisation,*
- *the previous experience relevant to the tasks the participant will undertake in theproject.*
- *a short profile of the main individuals of theorganisation who will be undertaking the work.*

B2.2. Resources to be committed

Describe how the totality of the necessary resources will be mobilised, including any resources that will complement the EC contribution. Show how the resources will be integrated in a coherent way, and show how your overall financial plan for the action is adequate.

Please identify any major non-personnel direct costs and explain why they are necessary for the activity you propose.

B3. Impact

B3.1. Expected impact

Describe how your activity will contribute towards a higher impact of the RAWFIE project. Mention the steps that will be needed to bring about these impacts. Mention any assumptions and external factors that may determine whether the impacts will be achieved.

B3.2. Evaluation of project results, and management of intellectual property

Describe the KPIs you propose for evaluating achievement of results.
If appropriate, describe your plans for the management of knowledge (intellectual property) generated in the course of the action (e.g., RTD activities covered).

B4. Feasibility check – feedback

Please include here the feedback received by RAWFIE Consortium as a feasibility check.

B5. Ethical issues

Describe any ethical issues that may arise in the action, filling the following form

	YES	NO	PAGE
Informed Consent			
• Does the proposal involve children?			
• Does the proposal involve patients or persons not able to give consent?			
• Does the proposal involve adult healthy volunteers?			
• Does the proposal involve Human Genetic Material?			
• Does the proposal involve Human biological samples?			
• Does the proposal involve Human data collection?			
Research on Human embryo/foetus			
• Does the proposal involve Human Embryos?			
• Does the proposal involve Human Foetal Tissue / Cells?			

• Does the proposal involve Human Embryonic Stem Cells?			
Privacy			
• Does the proposal involve processing of genetic information or personal data (e.g. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)			
• Does the proposal involve tracking the location or observation of people?			
Research on Animals			
• Does the proposal involve research on animals?			
• Are those animals transgenic small laboratory animals?			
• Are those animals transgenic farm animals?			
• Are those animals cloned farm animals?			
• Are those animals non-human primates?			
Research Involving Developing Countries			
• Use of local resources (genetic, animal, plant etc)			
• Impact on local community			
Dual Use			
• Research having direct military application			
• Research having the potential for terrorist abuse			
ICT Implants			
• Does the proposal involve clinical trials of ICT implants?			
I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL			

Annex 1: Resources to be committed to the 2nd RAWFIE Open Call

The following tables describe the resources, which will be made available to the 2nd Open Call by each testbed. Please fill in the last column of Table 1 and Table 2 below according to the needs of the proposed experiment in terms of testbed and UxV nodes that you would like to use.

Table 1: Testbeds to be made available for the 2nd Open Call

Testbed	Resources Available	UxV/activity type	Does your experiment require the testbed (Y/N)?
HAI	HAI's industrial complex is located in Tanagra around 65 km North of city of Athens. The test-bed facility consists of a runway of around 500m which can be used for takeoff of wing UAVs. The available area will be appropriate for launching up to 10 UAVs (wing or helicopter)	UAV Outdoor	
HMOD	Salamina straits, a narrow passage between Attica and the island of Salamina, in which the naval traffic is heavily regulated. The neighboring Naval Base of Skaramagkas is able to receive, inspect, launch and store USVs. It provides military grade emergency services (i.e. crash, fire or rescue) and has the appropriate radar facilities and systems for tracking and surveillance. In the context of the project, extra telemetry and control facilities will be set in order to accommodate the needs of the experiments.	USV Outdoor	
CATUAV	CATUAV / BCN DRONE CENTER provides testbed facilities consisting in a segregated air space of 25 square km, an airfield, a bioclimatic building and rural terrain of 14 Ha ready to install and deploy a wide diversity of components and infrastructures, with no restrictions or limitations, that can cover a wide diversity of experiments related to UAVs and UGVs.	UAV Outdoor CATUAV /BCN DRONE CENTER includes delivery of 2 UAVs for RAWFIE exclusive use as UAV nodes.	
RT-ART	The testbed is ETOPIA, a center for Art and Technology, (16,000 m2) located in Zaragoza, Spain, and consists of three buildings linked together. There are five testbed options: • S1 - Entrance Hall of ETOPIA building (425.91 m2). • S2 - Experimental gallery (around 800 m2).	UGV Indoor The testbed includes 4 TurtleBot 2	

	• S3 - Residence. Two floors of total area around 375 m2. • S4 - Showroom (390 m2). • S5 - Building terrace (600 m2)		
MarEH 4EU	DFKI RIC Maritime Exploration Hall (MarEH) in Bremen, Germany. This large (23x19x8m) basin is filled with salt water and allows to test surface and underwater vehicles	USV Indoor	
CESA DRONES	CESA provides 4 outdoor aerial testing sites : 1. Camp de Souge and HERM The main and permanent flight test area is located in Souge, near Bordeaux. It's a flexible restricted area with protection from industrial spying: 2800 ha reserved airspace, 2 000 feet above mean sea level and 800m paved runway. 2. HERM An access to this test area is given on demand, located in Herm (near Dax). 3. Vendays-Montalivet The third flight test area is located at VENDAYS Montalivet. It's a restricted military area, located on the Atlantic coast line, typically used for the training of Defense Ministry's General Delegation for Armaments (DGA) : 50 km of elongation and 7 km large allow long flight out of sight, 3 000 feet above mean sea and 600m x 15 m paved runway. 4. Biscarrosse The last testbed area is located at 85km S/W of Bordeaux, on a civil air area, under security of civil aviation, and allows 15 km of elongation, and 5 km large, 600m x 30 m paved runway and 800 m x 30 m grass runway.	UAV Outdoor	
Aeroloop	UAV simulation infrastructure based on a hardware-in-the-loop and software-in-the-loop approach, which will allow users to perform experiments in a flexible way, 24x7, without requiring any human on-site support	UAV (virtual) Virtual	

Table 2: UxV devices to be made available for the 2nd Open Call

UxV Devices	Resources Available	Specification	Number (#) of nodes needed for the experiment
NIRIIS	10 USV	• Boat size (L x W x H): 1,3mm x 40mm x 30mm • Gross Weight: 9kg • Material: epoxy resin fiberglass • Power: High Power Lithium Polymer Battery • Motor: Water-cooled brushless • Operational range: 1000m • Endurance: Up to 2 hours • Speed: Up to 30km/h (8m/s) • Payload capacity: Up to 10kg • Steering: Off-set Rudder • Main Communication Frequencies: Main link:433MHz • Video Downlink: 1.2GHz • EO/Day Camera • IR Thermal Camera	
PlaDyFleet	10 USV	• Processing capabilities and data storage: NUC Intel Core i5, 1.6-2.7 GHz dual core, 3MB cache; SSD 120GB • Size and dimensions: 756x756x280 mm • Weight: 25 kg • Payload: 5 kg + water displacement • Battery: 12 V 600Wh AGM gel battery • Minimum and maximum autonomy: 2 -8 hours • Sensors: - Navigation – GNSS: Real Time Kinematic Global Positioning System (RTK GPS) - Navigation – Inertial: Inertial Measurement Unit (IMU) • Camera: Above water HD camera installed on all USVs	

		• Underwater camera: Installed on one USV • Echo sounder: Single beam echo-sounder installed on one USV • Control software: ROS Indigo running Linux Ubuntu 14.04 • Compatibility with Apache Kafka architecture	
VENAC	12 networked UAVs in 2 different configurations: - 8 ultra-light Hyper Efficient UAVs that can hover for 90 mins and - 4 Heavy Endurance UAVs that can lift up to 4kgs or hover for 120 mins	• Processing capabilities - Model: Raspberry Pi 3 Model B - CPU: ARMv8 Cortex-A53 BCM2837 64bit - Cores: quad-core - Speed: 1.2GHz - RAM: 1GB - Co-Processor: Dual Core VideoCore IV Multimedia 3D • Sensor types - GPS GNSS: U-blox M8N GPS - Dual IMU: 2 x Inertial Measurement Units, MPU9250 9DOF and LSM9DS1 9DOF - Barometer: 1 x MS5611 altitude sensing with 10cm resolution - Variometer: 1x-700~10000m with 0.1m (high precision version) resolution - Temperature sensor: FrSky TEMS-01 for system temperature	
FLEXUS	10 USV	• Processing capabilities (type of processors, number of cores, speed): 1.2GHz quad-core ARMv8 CPU or 2GHz quad-core ARM A15 + 1.5GHz quad-core ARM v7 + single board computer for communications • Size and dimensions: 1m long, 0.5m wide • Weight: 10kg (approx., depending on WiFi solution) • Payload capability: 10kg • Battery: 200 Wh, lithium polymer • Number and type or sensors: GPS	

		receiver, IMU, video camera • Number and type of integrated network components and supported communication interfaces: 2 WiFi interface cards + 2 omni-directional antennas • Minimum and maximum autonomy of the device: 1.2 hours @ 2m/s (typical), 4.5 hours @ 1m/s (typical) • Auto-return capability (return to the base station automatically) • Ability of the vehicle to operate as an access point • (Remote) Control interface: QGroundControl, MAVLINK protocol • Operating Systems Linux / OpenWRT • Over-the-air programming capabilities: Yes, through Wi-Fi • Provision of collision avoidance mechanism: Optional • Compatibility with Apache Kafka architecture • Data storage of the vehicle: Minimum 16GB storage, extendable via USB drive • Support of “safe mode” operation • Localization capabilities (e.g., GNSS): GPS • Ability to operate in indoor/outdoor/mixed • environments • Compliance with standards: MAVLINK, JAUS, ROS • Operational conditions (e.g., day/night) and temperature limitations: Night and day. Recommended maximum external temperature is 40 degrees Celsius	

A4. RAWFIE OC2 Annex

Annex 1: Resources to be committed to the 2nd RAWFIE Open Call

The following tables describe the resources, which will be made available to the 2nd Open Call by each testbed.

Table 1: Testbeds to be made available for the 2nd Open Call

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	and 800 m x 30 m grass runway.		
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VENAC	12 networked UAVs in 2 different configurations: - 8 ultra-light Hyper Efficient UAVs that can hover for 90 mins and - 4 Heavy Endurance UAVs that can lift up to 4kgs or hover for 120 mins	• Processing capabilities - Model: Raspberry Pi 3 Model B - CPU: ARMv8 Cortex-A53 BCM2837 64bit - Cores: quad-core - Speed: 1.2GHz - RAM: 1GB - Co-Processor: Dual Core VideoCore IV Multimedia 3D • Sensor types - GPS GNSS: U-blox M8N GPS - Dual IMU: 2 x Inertial Measurement Units, MPU9250 9DOF and LSM9DS1 9DOF - Barometer: 1 x MS5611 altitude sensing with 10cm resolution - Variometer: 1x-700~10000m with 0.1m (high precision version) resolution - Temperature sensor: FrSky TEMS-01 for system temperature	
FLEXUS	10 USV	• Processing capabilities (type of processors, number of cores, speed): 1.2GHz quad-core ARMv8 CPU or 2GHz quad-core ARM A15 + 1.5GHz quad-core ARM v7 + single board computer for communications • Size and dimensions: 1m long, 0.5m	

		wide • Weight: 10kg (approx., depending on WiFi solution) • Payload capability: 10kg • Battery: 200 Wh, lithium polymer • Number and type or sensors: GPS receiver, IMU, video camera • Number and type of integrated network components and supported communication interfaces: 2 WiFi interface cards + 2 omni-directional antennas • Minimum and maximum autonomy of the device: 1.2 hours @ 2m/s (typical), 4.5 hours @ 1m/s (typical) • Auto-return capability (return to the base station automatically) • Ability of the vehicle to operate as an access point • (Remote) Control interface: QGroundControl, MAVLINK protocol • Operating Systems Linux / OpenWRT • Over-the-air programming capabilities: Yes, through Wi-Fi • Provision of collision avoidance mechanism: Optional • Compatibility with Apache Kafka architecture • Data storage of the vehicle: Minimum 16GB storage, extendable via USB drive • Support of “safe mode” operation • Localization capabilities (e.g., GNSS): GPS • Ability to operate in indoor/outdoor/mixed • environments • Compliance with standards: MAVLINK, JAUS, ROS • Operational conditions (e.g., day/night) and temperature limitations: Night and day. Recommended maximum external	

		temperature is 40 degrees Celsius	

Annex 2: Experiment Work Plan and Timing

The submitted proposals referring to Activity 3 (RAWFIE-OC2-EXP-SCI) and Activity 4 (RAWFIE-OC2-EXP-SCI-SME) should sufficiently describe the experiment procedure, by covering the following sections:

1. Experiment design:
   - Description of the experiment
   - Use of the RAWFIE offered facilities
   - Why the RAWFIE testbed is needed for the experiment
   - Description of test scenarios, measurements and expected results of the experiment.
   - In the case of new testbed extensions, describe who will implement and deploy the extensions? (the RAWFIE partners or the proposer(s)?)
2. Experiment Setup
   - Describe the experiment procedure.
   - Which components will be used
   - Implementation of the software to be used for the experiment
3. Experiment execution
   - Experiment running and evaluation of the results
4. Reporting
   - Reporting on the experiment outcome
   - Recommendations for improvements on the RAWFIE platform
5. Dissemination
   - Dissemination actions (conferences, workshops, FIRE events, etc.)
   - Set up of Demonstrations to be used for further promotion of the RAWFIE facilities

Timing:

- Duration: 12 months
- Major milestones:
  - Experiment design
  - Experiment set-up
  - Experiment execution
  - Experiment feedback

- Dissemination, showcase

More information can be found on the project's website (http://www.rawfie.eu/).

A5. Evaluation Form – Evaluation Summary Report

Road-, Air- and Water- based Future Internet Experimentation

REVIEW REPORT	
Response to the 2nd Open Call of the RAWFIE Project **Call Identifier: RAWFIE OPEN CALL 2**	
Proposal Acronym:	
Addressed activity:	

Total Score [0-15]:	

CR1:Relevance to the project architecture and technological excellence *All the contributions of third parties are intended to enhance the current RAWFIE architecture. Therefore, the proposals should adhere to the requirements of the platform, and build on top of the existing framework. This criterion assesses the compliance of each proposal with RAWFIE technologies and adopted approaches. The technological excellence of the proposed solution and the level of integration with RAWFIE tools and platform are also evaluated. The quality of the proposed solutions will also be evaluated (e.g., number of robotic devices, size and time availability of testbed facilities).*	
Reviewers comments:	
Score [0-5]:	

CR2:Impact *The funded proposals' impact (both on the project and in general) is evaluated. The open call seeks proposals which provide high added value. Proposals should enable possible future follow-up experiments and support the sustainability of the federated architecture. Market potential of the proposals as well as their ability to provide significant value to the end-users will be taken into consideration. The funded third parties will also have to integrate their proposals outcome into the current RAWFIE infrastructure and maintain a connection to the RAWFIE Consortium until the end of the project. Further integration into a future RAWFIE federation is a major target for the project. In this context, this call also searches for participants that will stay active beyond the project lifetime. Hence, proposals with high levels of engagement with RAWFIE and the FIRE community will be promoted. The same stands with proposals that foresee and enable possible synergies with other H2020 projects and/or nationally funded activities.*	
Reviewers comments:	
Score [0-5]:	

CR3:Ability to implement *The proposers will be evaluated on their ability to implement the tasks. The experience and the technical capacity of the applicant(s) are of high importance. The proposed implementation plan should be clear and methodically sound, with a clear task statement, a solid design, a good methodology and of high quality. Participants are expected to propose a concrete plan that enables them to achieve the project goals during the given time-frame. The successful beneficiaries will be invited to refine and implement the final plan with the project coordinator and the other collaborators.*

Reviewers comments:	
Score [0-5]:	