



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

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## D8.1: Open Calls, Report on Selection

**Abstract:**

**This deliverable is a report of the 1<sup>st</sup> 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 1<sup>st</sup> 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 main objective of the *1<sup>st</sup> RAWFIE Open Call* is to enhance certain parts and characteristics of the federated infrastructure. Specifically, the project searches for improvements in terms of hardware, software and new facilities (testbeds) that could host experiments. Each proposal should target **exactly one** of the three 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, D4.1, D4.2 (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 1<sup>st</sup> Open Call

The 1<sup>st</sup> Open Call was launched on 14 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 at <https://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 14 March 2016. 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](mailto: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](http://www.easychair.org).
  - The deadline for proposal submission, clearly specifying the local time involved.

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

- **Activity / Direction of enhancement 1: Testbed additions.**

RAWFIE integrates numerous testbeds for experimenting in vehicular (road), aerial and maritime environments. The actual RAWFIE platform considers three kinds of areas within which the considered unmanned vehicles could operate in order to accomplish a task or execute a drill. Specifically, the project searches for facilities belonging to (at least) one of the following categories:

1. ***Indoor and/or Outdoor Vehicular Testbeds (VT)*** that will deal with Unmanned Ground Vehicles (UGVs);



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2. **Indoor and/or Outdoor Aerial Testbeds (AT)** that will deal with Unmanned Aerial Vehicles (UAVs);
3. **Indoor and/or Outdoor Maritime Testbeds (MT)** that will deal with Unmanned Surface Vehicles (USVs).

In the context of the 1<sup>st</sup> RAWFIE Open Call, the project invites Testbed operators (i.e., owners and managers of testbed facilities) to participate and expand the existing RAWFIE infrastructure. The proposers should provide either indoor or outdoor facilities capable of hosting at least one of the three considered kinds of vehicles (UGVs, USVs, UAVs).

Such facilities should be closely monitored and controlled environments. In the general case, facilities should be able to receive, inspect, assemble/fix and store UxVs, provide emergency services (i.e., crash, fire or rescue) and have the appropriate equipment, both ground-based and mobile, to monitor and control the vehicles including but not limited to:

- Radar facilities or other kinds of equipment (e.g., cameras) for tracking and surveillance;
- Telemetry facilities such as antennas, receivers, display instrumentation systems;
- Command uplink and optical tracking facilities;
- Premier digital photographic and video services including operation of still cameras, high speed and video systems for Range Safety support, surveillance, and post-launch analysis (e.g., failure analysis).

The use of the new testbeds can be three-fold:

(a) *Testing of technologies* that directly pertain to the IoT paradigm (its mobile and variety of environment facets in particular) under controlled and replicable conditions. This is the horizontal nature of the testbed, i.e., the assessment of technologies that relate to smart sensors and 4/5G networking. This particular aspect of RAWFIE is used to show the feasibility of a certain technical solution and its performance under different conditions (fully dynamic nature of the testbed).

(b) *Testing of applications* that rely heavily on the above technologies and associated characteristics (e.g., advanced/smart sensing, machine-to-machine communications, context and situation awareness). This is the vertical nature of the testbed. This aspect of the RAWFIE ecosystem shows the applicability of the above mentioned technologies/systems in real life applications (e.g., environmental control, safety).

(c) *Testing of integrated solutions*, i.e., testing of new mobile devices that carry advanced equipment implementing the IoT paradigm and, in addition, facilitate advanced applications in all possible domains.

- **Activity / Direction of enhancement 2: UxV additions and customization.**



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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 1<sup>st</sup> RAWFIE Open Call, the project invites *manufacturers and providers of robotic devices* to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide a considerable number of devices (between 5 and 10) that belong to exactly one of the considered types of vehicles (UGVs, USVs and UAVs). 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.

- **Activity / Direction of enhancement 3: Software enhancements.**

Apart from the testbed facilities and the robotic devices, RAWFIE also 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 Open Call, the project does not target to attract new experiments and applications that could be supported by the infrastructure. Such application will be subject of the 2<sup>nd</sup> Open Call for Proposals (that will follow later within the project lifetime). At the current stage, RAWFIE foresees the enhancement of the existing RAWFIE developments by bringing into the infrastructure software that could belong to the following categories:

1. **Horizontal applications.** The project is looking for cross-layer applications and software that could provide added value to the infrastructure by bringing into RAWFIE novel features in different types of experimentation. Indicative examples of expected software include network administration software and resource management tools.
2. **Supporting software at testbed-tier.** This category refers to the addition and/or the extension of existing software architectures and products that could be included in the RAWFIE architecture and become part of the RAWFIE software stack in order to improve existing functionality.

In both 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 through the integration with other testbed infrastructures will be preferred.



### 2.1 Eligibility

Proposals could only be submitted by:

- 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](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf)

- Single parties or consortia of up to two (2) parties in exceptional cases.

A party could participate in and submit multiple proposals. However, only the best ranked proposal would be selected among them (following the evaluation process).

### 2.2 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 initially 12 February 2016 and it was extended to 14 March 2016. Reviewer registration form was available at <http://www.rawfie.eu/reviewer-registration> (Annex A2).

### 2.3 Reviewers selection

38 reviewers were registered to participate in the evaluation of the open call proposals, with 15 reviewers coming from academic institutions. Reviewers were from various countries, including France, Italy, Croatia, Spain, Greece, Serbia, Belgium, U.K., Austria and India.

To ensure transparency and reviews of high quality, 3 reviewers were excluded because of possible connection with a proposal submission and another one was excluded because his expertise was considered out of the project scope. Thus, a pool of 34 reviewers was created to be subsequently used for the assignment of proposals to be reviewed.



### 3 Submission process of 1<sup>st</sup> 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 14, 2016, 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](mailto:rawfie-contact@cnl.di.uoa.gr) by answering possible questions. Late submissions were not accepted. Specifically, one proposal that has been submitted after the deadline was not accepted. Late submitters were notified by email that the call was closed.

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

#### 3.2 Reviews assignment

The proposals were assigned to reviewers through the Easychair system for evaluation. The assignment was based on the expertise of each reviewer and on a basis to 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 Friday, April 29, 2016.

### 4 Selection process of 1<sup>st</sup> 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 were expected 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 is also evaluated. The quality of the proposed solutions is also evaluated (e.g., number of robotic devices, size and time availability of testbed facilities).

### 4.1.2 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 were 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 were promoted. The same stands with proposals that foresee and enable possible synergies with other H2020 projects and/or nationally funded activities.

### 4.1.3 C3. Ability to implement

The proposers were 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

20 proposals were submitted:

- 8 proposals for Activity 1 - Testbed additions,
- 8 proposals for Activity 2 - UxV additions and customization
- 4 proposals for Activity 3 - Software enhancements

The total budget requested for funding by the submitted proposals was €2.943.562,25. Hence, the average financial support for proposals is €147.178,113.

Proposals were submitted from various countries, including France, U.K., Spain, Greece, Croatia, Poland, Germany, Portugal and Italy. 8 proposals were submitted from academic institutions and the rest were submitted from industry organisations.

The selection of the proposals was split among the 3 activities, and for the first 2 activities between the individual sub-activities. The maximum amount of the financial support for each proposal is €150000.



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Ten proposals have been selected for funding; four proposals for Activity 1 (Testbed additions), four proposals for Activity 2 (UxV additions and customization), and two proposals for Activity 3 (Software enhancements). With respect to Activity 2, the total number of devices that will be integrated into RAWFIE are 42. The total budget that will be allocated for funding the ten successfully evaluated proposals is €1.449.006,25. As a result, the average financial support for proposals is €144.900,63, ranging from €149.687,50 to €150.000, while one proposal had a budget of €100.000.

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 1<sup>st</sup> RAWFIE Open Call.**

#	Proposal title	Abstract	Activity
1	<b>RT-ART: Robotic Testbed in an ART and Technology center</b>	The overall goal of RT-ART is to provide a realistic environment for ground robot experimentation. It aligns to the Activity/Direction of enhancement 1, Testbed additions of the Call, in particular with the indoor and outdoor Vehicular Testbeds as an extension of RAWFIE infrastructures. Our proposal includes the necessary steps for sharing a unique Art and Technology center, ETOPIA, which is available for ground robotic platforms experimentation. This will be achieved by our contributed means integrated within the RAWFIE project sharing infrastructure. Five different scenarios will be available within the ETOPIA: the large museum entrance, an exhibition hall, a large gallery and connected corridors, a residential area and an outdoor terrace, in which four UGV will be available. We will provide monitoring tools, prior maps and assistance with the experimentation. The team supporting the proposal has valuable expertise on experimentation in real scenarios using real platforms for a broad variety of challenging robotic topics and projects.	1 – Testbed additions
2	<b>CESA-DRONES</b>	The overall objective of CESA is to be compliant with RAWFIE platform, to extend security and quality of the facilities, to complete services with high performance tool, enhance the existing services, to improve the site management by the possibility to have people 100% dedicate to the testbed operations and to consider the contribution of CESA to RAWFIE development by providing	1 – Testbed additions



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		<p>REX and support for the business model definition. CESA experiences will benefit to the RAWFIE project, by bringing strong knowledge of the UAV French industry and recognition from professionals and aeronautic institutions. CESA will review the RAWFIE inputs in order to specify and define the approach to have current CESA organisation fully compliant with RAWFIE architecture. CESA is an existing Outdoor Aerial Testbeds that deals with UAVs and offers to its experimenters the required services. CESA provides 4 testing sites including infrastructure, facilities, instruments and air spaces to practice flight tests in optimal security conditions. The management of CESA is already operational and its organisation is based on the best practices of flight-testing in certified aeronautics.</p>	
3	<p><b>MarEH4EU - Maritime Exploration Hall for Europe</b></p>	<p>The German Research Center for Artificial Intelligence DFKI is one of the leading institutes worldwide in applied artificial intelligence. The DFKI Robotics Innovation Center (RIC) in Bremen, Germany, is specialized in the conceptualization and development of cognitive mobile robotic systems, among others for applications at sea and under water. Among the maritime technologies in the focus of DFKI RIC are remotely-controlled and autonomous surface- and under-water vehicles, which are developed and tested in Bremen. To be able to test and validate the systems developed at DFKI RIC, significant investments in the research infrastructure at DFKI in Bremen were made in the last years. One major investment was the DFKI RIC Maritime Exploration Hall (MarEH) (<a href="http://robotik.dfki-bremen.de/en/research/research-facilities/maritime-exploration-hall.html">http://robotik.dfki-bremen.de/en/research/research-facilities/maritime-exploration-hall.html</a>). This large (23x19x8m) basin is filled with salt water and allows to test surface and underwater vehicles under controlled, but very realistic conditions. With its dimensions and current technical infrastructure (sensors, monitoring equipment, cranes, IT infrastructure), the Maritime Exploration Hall is already unique in Europe. However, caused by the high cost of physical on-site tests (costs for transport of equipment, travel, sustenance of experimenters) the</p>	<p>1 – Testbed additions</p>





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		<p>facility is currently used mainly by regional institutes and companies. As part of the RAWFIE federation of robot testbeds, the MarEH will be made available to the robotics community (both academic and industrial) throughout Europe. The main objective of the MarEH4EU project is to open the unique DFKI Maritime Exploration Hall in Bremen, Germany, to all interested researchers and firms in Europe and beyond.</p>	
4	<p><b>BCN Drone Center for RAWFIE On UAVs/UGVs &amp; Testbed Enhancement</b></p>	<p>CATUAV / BCN DRONE CENTER proposal provides to RAWFIE consortium with 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. CATUAV /BCN DRONE CENTER proposal includes delivery of 2 UAVs for RAWFIE exclusive use as UAV nodes.</p>	<p>1 – Testbed additions</p>
5	<p><b>PlaDyFleet - A fleet of unmanned surface marine vehicles</b></p>	<p>PlaDyFleet project relates to the topic "Direction of enhancement 2: UxV additions and customization" or more specifically, USV additions and customization. The project proposes: · delivery of fleet of 10 USVs (PlaDyPos), capable to perform automated or remote operation in order to extend RAWFIE testing infrastructure; · maintenance and support to the RAWFIE consortium to ensure smooth operation and further development of the USV fleet throughout the project lifetime.</p>	<p>2 – UxV additions and customization</p>
6	<p><b>AutoNomous Future Internet Experimentation Surface VehIcleS (NIRIIS)</b></p>	<p>NIRIIS AutoNomous Future Internet Experimentation Surface VehIcleS proposal aims to address one of the main objectives of the 1st RAWFIE Open Call and more specifically the Activity / Direction of enhancement 2: UxV additions and customization. Based on RAWFIE requirements the current proposal concerns the provision of 10 USV (Unmanned Surface Vehicles) integrated platforms in order to be used in RAWFIE testbeds and experiments. The proposed solution is in line and fully comply with all the specifications and requirements of the RAFIEW public deliverables D3.1, D4.1, D4.2 taking into</p>	<p>2 – UxV additions and customization</p>



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		<p>consideration all the technical and integration details and the RAWFIE testbeds architecture and needs. Since the main objective of RAWFIE project is to experiment with automation, remote operation and evaluation of different technologies in networking, sending and autonomous devices and applications, NIRIIS was designed and will be integrated so as to offer a flexible, open and reconfigurable solution that will incorporate current leading edge technologies and features. The system will be scalable and well aligned with typical ground control requirements yet able to provide enough capacity for further expansion if necessary so as to serve RAWFIE experimental requirements. NIRIIS will be developed and integrated within the project lifecycle and will consist of a fully integrated surface and ground control segment offering a scalable, secure and compliant with all standards platform that will be able to accommodate all the RAWFIE experiments.</p>	
7	<p><b>VENAC</b>  <b>Versatile</b>  <b>Efficient</b>  <b>Network</b>  <b>Copters</b></p> <p style="text-align: center;">- <b>Air</b></p>	<p>VENAC brings the value of 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. VENAC 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 mesh networking capabilities with Mobile Internet Connectivity for both flight control and data transfer in various contexts. VENAC 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.</p>	<p>2 – UxV additions and customization</p>
8	<p><b>FLEXUS</b>  <b>Flexible</b>  <b>Unmanned</b>  <b>Surface Vehicles</b>  <b>for the Internet</b>  <b>of Moving Things</b></p> <p style="text-align: center;">-</p>	<p>This proposal aims to extend RAWFIE experimental infrastructure by providing a set of innovative high maneuverable, small-sized, one-man-portable Unmanned Surface Vehicles (USVs), which will support coordinated networked operations and novel above water communications</p>	<p>2 – UxV additions and customization</p>

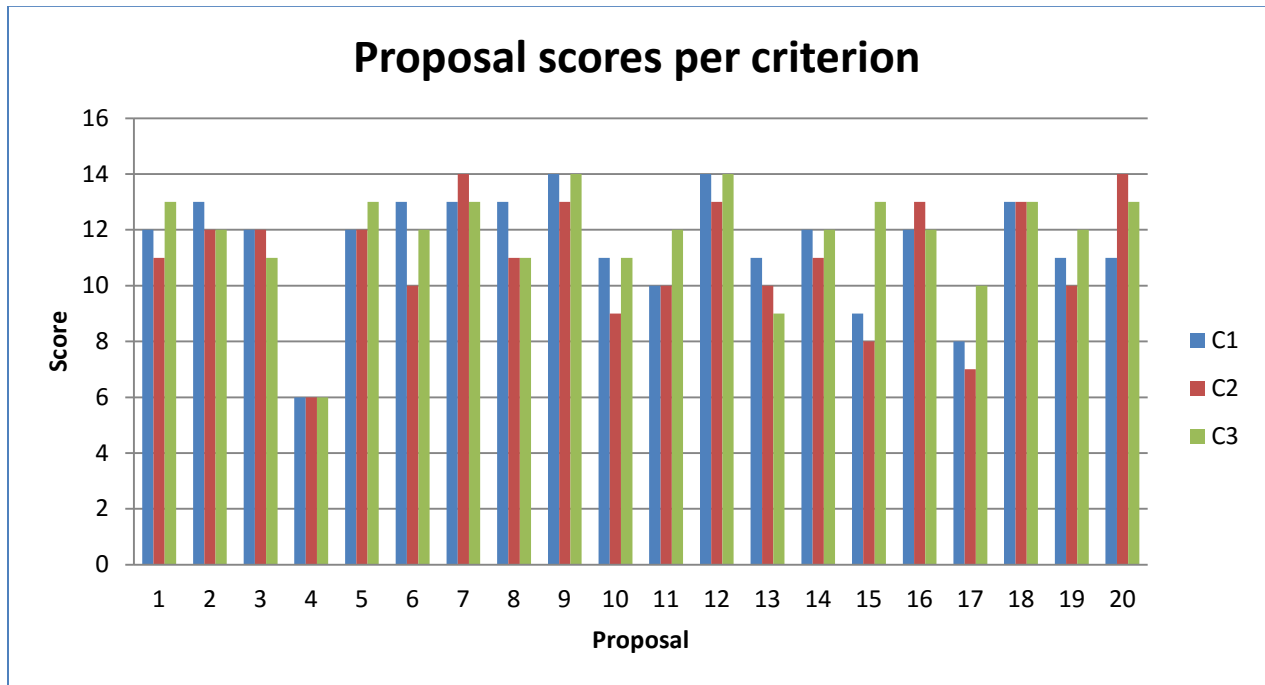


## D8.1: Open Calls, Report on Selection

		technologies. This USVs swarm will extend and enrich the type of test scenarios for water-based IoT platforms, where M2M (Machine-to-Machine) and Internet of Moving Things applications may use long-range single-hop communications and multi-hop radio networks.	
9	<b>Semantic Aware Management of federated Testbeds</b>	In the SAMANT project we aim to adopt generic/common, thus universal solutions, for tackling issues related to semantic aware management of federated infrastructures. To this end, SAMANT will equip RAWFIE with open-source tools that will allow experimenters to discover and select available RAWFIE testbeds and their resources in order to build experiments. The RAWFIE software stack will be enhanced with functionalities related to discovery, booking, provisioning/release of resources, while addressing authentication and authorization issues at the federated environment. Semantic web technologies will be used to describe the federated infrastructures and support the lifecycle of unmanned vehicles. The proposed software enhancements are (i) testbed-tier specific, using software for the aforementioned management operations, and (ii) cross-layer, spanning the RAWFIE middle, data and front end tiers, supporting such operations at the federation level. To pursue SAMANT objectives complementary technological expertise from various fields and in depth knowledge of the proposed software implementations is required, not easily found within a single group or partner, which however is well covered among SAMANT partners. Both research groups (LIP6/UPMC and NETMODE/ICCS) have been actively involved in several activities related to FIRE initiative while have already closely collaborated in several previous related projects.	3 – Software enhancements
10	<b>Flexible experimentation with virtual UAVs through a software-in-the-loop and</b>	AeroLoop proposes a 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. AeroLoop will implement virtual UAVs, based on	3 – Software enhancements

<p><b>hardware-in-the-loop simulation infrastructure (AeroLoop)</b></p>	<p>a UAV software stack that will run on both real and emulated hardware, coupled with a state-of-the-art flight dynamics model. Communication with the virtual UAVs will be supported via a simulated WiFi network. Virtual UAVs will also feature a virtual camera sensor, which will return aerial photos / images, based on their current position. AeroLoop will be integrated to the RAFWIE platform at the Testbed Tier, via the corresponding interfaces/protocols of the architecture.</p>	
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Figure 1 presents the scores of the 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 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.

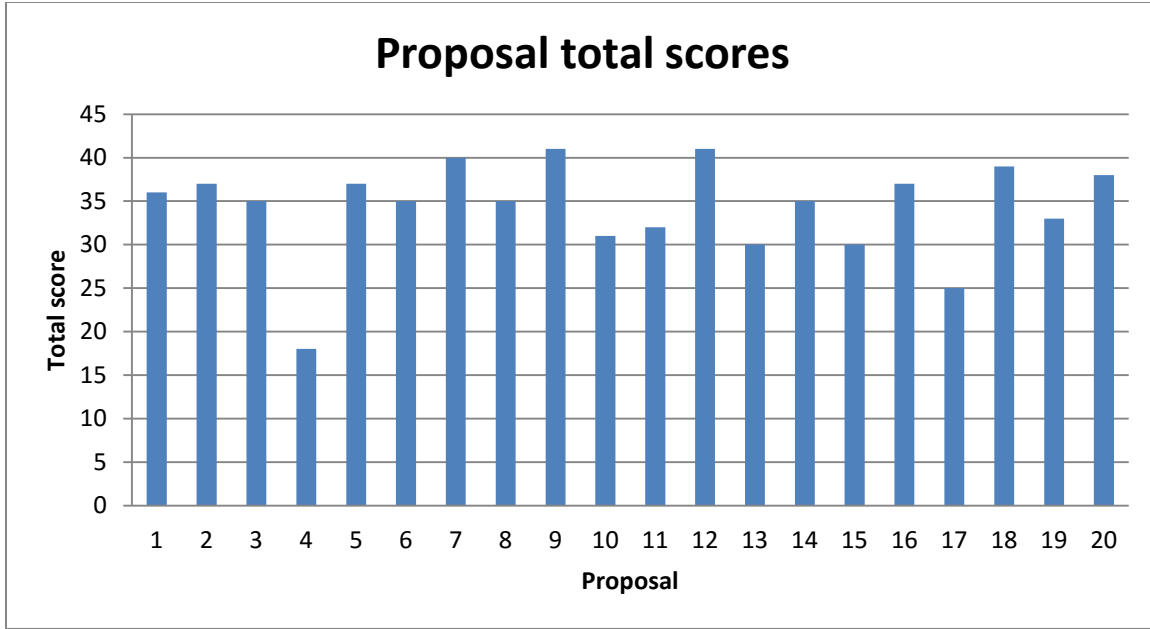


Figure 2: Proposal total scores

As it is depicted in Figure 3, 90% of the proposals were scored above threshold, with 70% of the proposals receiving a total cumulative score greater than 35.

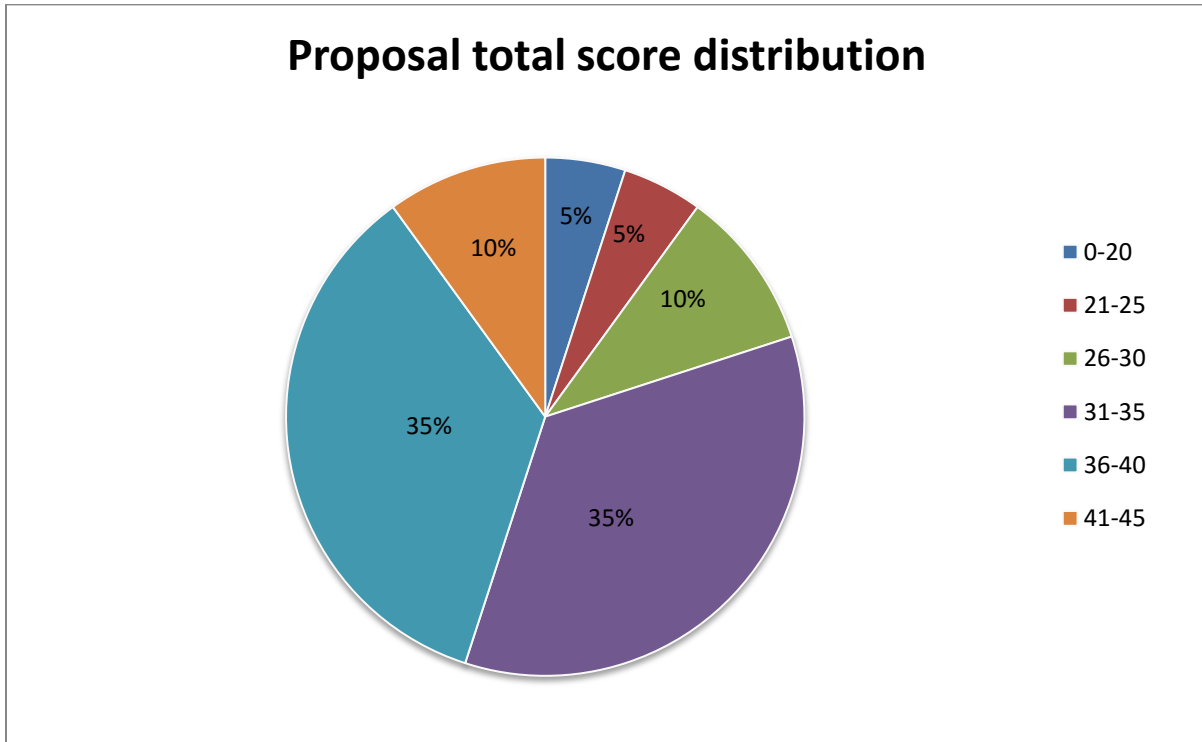


Figure 3: Proposal total score distribution



## **6 References**

## **7 Annex – Tables**



## A1. RAWFIE-INFRASTRUCTURE-2016 Open Call Announcement

### Open Call announcement

#### Announcement of the 1<sup>st</sup> 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](http://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:

- Testbed additions;
- UxV additions and customization;
- Software enhancements.

**Deadline:** 14 March 2016 (Monday), at 17:00 CET (Brussels local time)

**Expected duration of participation:** 30 months (starting from July, 2016 to December, 2018)

**Maximum amount of financial support for each proposal:** € 150 000

**Call identifier:** RAWFIE-INFRASTRUCTURE-2016 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-1>

**Email address for further information:** [rawfie-contact@cnl.di.uoa.gr](mailto:rawfie-contact@cnl.di.uoa.gr)



[\[Please use the call identifier “RAWFIE-INFRASTRUCTURE-2016 “ in the subject of your email\]](#)

[Tel: \(+30\) 2107275148, \(+30\) 2107275127](#)

### The proposer:

- Proposals will only be accepted from a single party or a consortium of up to two parties 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.

### 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(s) will be contracted by the project coordinator (UoA) as Third Parties.

## 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](#) (Future Internet Research and Experimentation) 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





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RAWFIE. The IoT paradigm is fully adopted and further refined for supporting highly dynamic node architectures.

The main objective of the 1<sup>st</sup> RAWFIE Open Call is to enhance certain parts and characteristics of the federated infrastructure. Specifically, the project searches for improvements in terms of hardware, software and new facilities that could host experiments. Each proposal should target **exactly one** of the three 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, D4.1, D4.2 (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.

- **Activity / Direction of enhancement 1: Testbed additions.**

RAWFIE integrates numerous testbeds for experimenting in vehicular (road), aerial and maritime environments. The actual RAWFIE platform considers three kinds of areas within which the considered unmanned vehicles could operate in order to accomplish a task or execute a drill.

*Specifically, the project searches for facilities belonging to (at least) one of the following categories:*

- A. Indoor and/or Outdoor Vehicular Testbeds (VT)** that will deal with Unmanned Ground Vehicles (UGVs);
- B. Indoor and/or Outdoor Aerial Testbeds (AT)** that will deal with Unmanned Aerial Vehicles (UAVs);
- C. Indoor and/or Outdoor Maritime Testbeds (MT)** that will deal with Unmanned Surface Vehicles (USVs).

*In the context of the 1<sup>st</sup> RAWFIE Open Call, the project invites **Testbed operators (i.e., owners and managers of testbed facilities)** to participate and expand the existing RAWFIE infrastructure. The proposers should provide either indoor or outdoor facilities capable of hosting at least one of the three considered kinds of vehicles (UGVs, USVs, UAVs).*

Such facilities should be closely monitored and controlled environments. In the general case, facilities should be able to receive, inspect, assemble/fix and store UxVs, provide emergency services (i.e., crash, fire or rescue) and have the appropriate equipment, both ground-based and mobile, to monitor and control the vehicles including but not limited to:

- Radar facilities or other kinds of equipment (e.g., cameras) for tracking and surveillance;
- Telemetry facilities such as antennas, receivers, display instrumentation systems;
- Command uplink and optical tracking facilities;
- Premier digital photographic and video services including operation of still cameras, high speed and video systems for Range Safety support, surveillance, and post-launch analysis (e.g., failure analysis).

The use of the new testbeds can be three-fold:

- a) *Testing of technologies* that directly pertain to the IoT paradigm (its mobile and variety of environment facets in particular) under controlled and replicable conditions. This is the horizontal nature of the testbed, i.e., the assessment of technologies that relate to smart sensors and 4/5G networking. This particular aspect of RAWFIE is used to show the feasibility of



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a certain technical solution and its performance under different conditions (fully dynamic nature of the testbed).

- b) *Testing of applications* that rely heavily on the above technologies and associated characteristics (e.g., advanced/smart sensing, machine-to-machine communications, context and situation awareness). This is the vertical nature of the testbed. This aspect of the RAWFIE ecosystem shows the applicability of the above mentioned technologies/systems in real life applications (e.g., environmental control, safety).
- c) *Testing of integrated solutions*, i.e., testing of new mobile devices that carry advanced equipment implementing the IoT paradigm and, in addition, facilitate advanced applications in all possible domains.

The proposals should present clearly the features and characteristics of the proposed testbed facilities that may be considered as future extensions of the project infrastructure. These features include, but are not limited to, the following aspects of the facilities:

- On-site personnel for the physical management of the devices (e.g., technical support, battery charging, maintenance and upgrades);
- RAWFIE-dedicated computational resources (e.g., committed PCs and/or VMs) able to host the RAWFIE software required to establish communication with the back-end RAWFIE platform infrastructure using standard based communication means;
- Time availability of the respective indoor/outdoor area that is proposed to host experiments (on a monthly basis). For the convenience of the proposers, a time shift can be determined by themselves, i.e., the exact days within a month that the facility will be available to the experimenters;
- Space availability, e.g., the size of the respective indoor/outdoor area that is proposed to host experiments (in terms of km<sup>2</sup>);
- Available communication means within the experimentation area;
- Existing means to monitor vehicles (e.g., location, current conditions and status);
- Existing equipment of the facility (e.g., sensors and weather stations that monitor weather conditions that could affect the seamless operation of the robotic devices);
- Support of privacy and security mechanisms;
- Compliance with local legal (mostly safety-related) restrictions.

- **Activity / Direction of enhancement 2: UxV additions and customization.**

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 1<sup>st</sup> RAWFIE Open Call, the project invites **manufacturers and providers of robotic devices** to participate and expand the existing RAWFIE equipment. The project expects proposals that will provide a considerable number of devices (between 5 and 10) that belong to exactly one of the considered types of vehicles (UGVs, USVs and UAVs). The exact number of*



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*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 of 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.

Upon the completion of the project, the designed UxV equipment will become property of the RAWFIE Consortium.

- **Activity / Direction of enhancement 3: Software enhancements.**

Apart from the testbed facilities and the robotic devices, RAWFIE also 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 Open Call, the project does not target to attract new experiments and applications that could be supported by the infrastructure. Such application will be subject of the 2<sup>nd</sup> Open Call for Proposals (that will follow later within the project lifetime). At the current stage, RAWFIE foresees the enhancement of the existing RAWFIE developments by bringing into the infrastructure software that could belong to the following categories:

- A. Horizontal applications.** *The project is looking for cross-layer applications and software that could provide added value to the infrastructure by bringing into RAWFIE novel features in different types of experimentation. Indicative examples of expected software include network administration software and resource management tools.*
- B. Supporting software at testbed-tier.** *This category refers to the addition and/or the extension of existing software architectures and products that could be included in the RAWFIE architecture and become part of the RAWFIE software stack in order to improve existing functionality.*



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In both 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 through the integration with other testbed infrastructures will be preferred.

### Expected Timeplan

For all three types of activities, the expected duration of the proposals is 30 months, starting from July, 2016 and ending at the time the project completes (i.e., December, 2018). The following table provides an indicative timeplan for the three types of activity expected to be targeted by the proposals of the present open call.

Type of Activity	Expected Timeplan	Stage Description
Testbed Additions	<p><b>Preparation stage:</b> Months 1 - 3.</p> <p><b>Running stage:</b> Months 4 – 30.</p>	<p>The facility will be prepared to adopt RAWFIE equipment and software.</p> <p>The facility will be ready to host experiments according to the project needs.</p>
UxV Additions and Customization	<p><b>Delivery and customization stage:</b> Months 1 - 8.</p> <p><b>Supporting stage:</b> Months 9 - 30.</p>	<p>The beneficiaries will deliver to the RAWFIE Consortium the robotic devices customized and ready to be used.</p> <p>The UxV resources will participate in experiments.</p>
Software Enhancements	<p><b>First prototype stage:</b> Months 1 - 8.</p> <p><b>Final delivery stage:</b> Months 9 - 12.</p> <p><b>Supporting stage:</b> Months 13 - 30.</p>	<p>A first prototype of the software will be provided to the RAWFIE Consortium and an initial integration with RAWFIE platform will be demonstrated.</p> <p>The finalized version of the software completely integrated with RAWFIE infrastructure is delivered.</p> <p>Minor modifications are expected according to the feedback received by the experimenters and the end-</p>



		users.
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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:** € 1,500,000 - € 2,000,000

**Expected number of proposals to be funded:** up to 15

**Maximum Commission funding per proposal:** € 150,000

**Budget foreseen for testbed enhancements:** € 800,000

**Budget foreseen for UxVs enhancements:** € 800,000

**Budget foreseen for software enhancements:** € 200,000

**Number of partners per proposal:** Projects should normally have one participant per proposal. In exceptional cases only, proposals with up to two participants may participate on the condition that the combined expertise of the participants justifies the expected outcome of the proposal. This should be also clearly stated and presented in the proposal.

**Type of participants:** Testbed operators and facility holders, UxVs’ manufacturers, organizations with software engineering capabilities that will participate as contractual Third Parties. The profile of participants could be academics, industries or SMEs, and all kinds of private or public bodies active in the domains of IoT , Robotics, Autonomous Systems, Networking or Cloud Computing that need to provide hardware (UxVs), develop software or host experiments in their premises to further test, evaluate and optimize the project solutions. The rules of participation are the same as those applied to any H2020 project.

**Duration of the contract:** The duration of each proposal will be 30 Months

**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 (or parties in case of two-party consortia), 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 in total** (including cover page, abstract, table of contents, and sections B0, B1, B2, B3 of the provided template). 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.**

**Call deadline:** Monday, March 14, 2016 at 17:00h CET (Brussels time)

**Contact for information on this call:** Prof. Stathes Hadjiefthymiades (UoA)

**email:** [rawfie-contact@cni.di.uoa.gr](mailto:rawfie-contact@cni.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](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-a-countries-rules_en.pdf)
- Single parties or consortia of up to two (2) parties in exceptional cases.

A party may participate and submit multiple proposals. However, only the best ranked proposal may be selected among them (following the evaluation process).

## 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 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).

### **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.



### 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.


The funding of the proposals will be split among the 3 activities, and for the first 2 activities between the individual sub-activities. For example, in the testbed enhancement activity, if the best ranked proposals offers an outdoor ground vehicle testbed, another outdoor ground vehicle testbed will only be selected if the other types of testbed enhancements are successfully covered or there is available budget and no other proposal of a different type with an evaluation above the threshold.

## 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



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

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### Reviewer Registration

---

**PERSONAL INFORMATION**

Title \*

First name \*

Last name \*

Gender \*

Date of birth \*

Nationality \*

Country of residence \*

**CONTACT INFORMATION**

Address Line 1 \*

Address Line 2

Postal Code \*

P.O. Box

City \*

E-mail \*

Phone \*





## D8.1: Open Calls, Report on Selection

Mobile phone

Fax

**CURRICULUM VITAE**

Degree level \*   
To select your degree level refer to the legal status of your degree in your country.

Core expertise

Additional expertise

Upload CV  No file chosen   
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 \*

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 \*

Website of Organisation

Position/Job Title

I acknowledge that the information entered is correct and up-to date



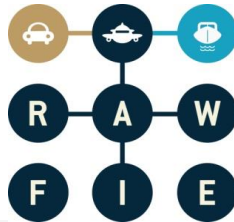
This project is funded by the European Commission (FIRE+ challenge, Horizon 2020) that aims to provide research and experimentation facilities through the growing domain of unmanned networked devices.

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### A3. RAWFIE-INFRASTRUCTURE-2016 Proposal Template



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

PROPOSAL PART A	
<b>Response to the 1<sup>st</sup> Open Call of the RAWFIE Project</b> <b>Call Identifier: RAWFIE-INFRASTRUCTURE-2016</b>	
<b>Proposal Title:</b>	
<b>Proposal Acronym:</b>	
<b>Addressed activity (exactly one):</b>	

Name of Responsible person: [person name, organisation] \_\_\_\_\_

e-mail: [Contact email] \_\_\_\_\_

Phone number: [Contact phone number] \_\_\_\_\_

List of participants (in case of a two-partner consortium fill in two rows):

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

Form for Applicants (one per applicant in case of Consortia)



**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 the obligations 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 Framework Programme – Future Internet Research and Experimentation (FIRE+)  
Grant n. 645220

### RAWFIE: Open Call for Infrastructural Enhancements Call identifier: RAWFIE-INFRASTRUCTURE-2016

Form for Applicants (one per applicant in case of Consortia)

<b>Your Proposal</b>	
Proposal Title	<input type="text"/>
Date of preparation of your proposal	<input type="text"/>
<b>Your Organisation</b>	
Participant Identity Code (if your Organisation is already registered for H2020)	<input type="text"/>
Participant Legal name	<input type="text"/>
Participant short name	<input type="text"/>
<b>Official Address</b>	
Street name	<input type="text"/>
Number	<input type="text"/>
Town	<input type="text"/>
Postal Code	<input type="text"/>
Country	<input type="text"/>
Internet homepage (optional)	<input type="text"/>
<b>Status of Your Organisation</b>	
Non-profit Organisation (yes/no)	<input type="text"/>
Public body (yes/no)	<input type="text"/>
Research Organisation (yes/no)	<input type="text"/>
Higher or secondary education establishment (yes/no)	<input type="text"/>



## D8.1: Open Calls, Report on Selection

### 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

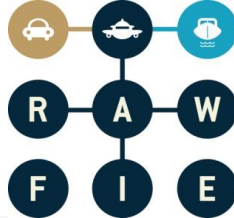
Phone number

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



## D8.1: Open Calls, Report on Selection



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

**PROPOSAL PART B**

**Response to the 1<sup>st</sup> Open Call of the RAWFIE Project  
Call Identifier: RAWFIE-INFRASTRUCTURE-2016**

<b>Proposal Title:</b>	
<b>Proposal Acronym:</b>	
<b>Addressed activity (exactly one):</b>	

Name of Responsible person: [person name, organisation] \_\_\_\_\_

e-mail: [Contact email] \_\_\_\_\_

Phone number: [Contact phone number] \_\_\_\_\_

List of participants (in case of a two-partner consortium fill in two rows):

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

**Proposal Abstract**

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

- *the relevant features of the proposal;*



## D8.1: Open Calls, Report on Selection

- *the strengths of the proposal, and its contribution to the objectives of the 1<sup>st</sup> Open Call of RAWFIE as well as the overall goals of the RAWFIE project;*
- *the strengths of the applicant(s).*





## D8.1: Open Calls, Report on Selection

### TABLE OF CONTENTS

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



## B0. Cost and funding breakdown

Complete the table below (one table for each organisation involved in the proposal).  
Please show figures in euros (not thousands of euros).

**Organisation Name:** (enter organisation name)

	<b>RTD</b>	<b>Other</b>	<b>Management</b>	<b>Total</b>
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 (testbeds, robotic devices or software) 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.



## D8.1: Open Calls, Report on Selection

**Other, Management:** you may request up to 100% funding

In case of more than 1 organization in your proposal, please fill in the following table with total costs for the whole consortium.

**Costs for the whole consortium:**

	<b>RTD</b>	<b>Other</b>	<b>Management</b>	<b>Total</b>
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				

**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 three topics of the call [Testbed/UxV/Software enhancements].*

*Describe in detail how you propose to address the objectives of the targeted topic of the RAWFIE Open Call. 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 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.*

***Very important note: Your project should plan to start beginning of July, 2016 and last for 30 months.***



## D8.1: Open Calls, Report on Selection





Table 1.2b: Template –Work package description

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



## D8.1: Open Calls, Report on Selection

Deliverable Number	Deliverable Title / Description	Nature	Dissem. Level <sup>8</sup>	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>			

<sup>8</sup> 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(s),*
- *the previous experience relevant to the tasks the participant will undertake in the project.*
- *a short profile of the main individuals per organisation 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. Ethical issues

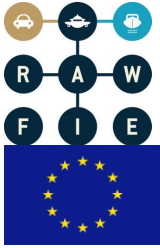
*Describe any ethical issues that may arise in the action, filling the following form*

	YES	NO	PAGE
<b>Informed Consent</b>			
• 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?			
<b>Research on Human embryo/foetus</b>			
• Does the proposal involve Human Embryos?			
• Does the proposal involve Human Foetal Tissue / Cells?			
• Does the proposal involve Human Embryonic Stem Cells?			
<b>Privacy</b>			
• 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?			

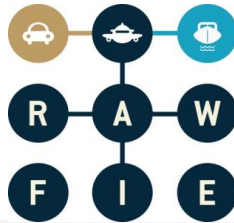


## D8.1: Open Calls, Report on Selection

<b>Research on Animals</b>			
• 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?			
<b>Research Involving Developing Countries</b>			
• Use of local resources (genetic, animal, plant etc)			
• Impact on local community			
<b>Dual Use</b>			
• Research having direct military application			
• Research having the potential for terrorist abuse			
<b>ICT Implants</b>			
• Does the proposal involve clinical trials of ICT implants?			
<b>I CONFIRM THAT NONE OF THE ABOVE ISSUES APPLY TO MY PROPOSAL</b>			



## A4. Evaluation Form – Evaluation Summary Report



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

<b>REVIEW REPORT</b>	
<b>Response to the 1<sup>st</sup> Open Call of the RAWFIE Project</b> Call Identifier: RAWFIE-INFRASTRUCTURE-2016	
<b>Proposal Acronym:</b>	
<b>Addressed activity (exactly one):</b>	



Total Score [XX/45]:

**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 [0-15]:**

**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.*

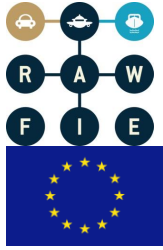
**Reviewers comments:**

**Score [0-15]:**

**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:**



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[Review report]

Score [0-15]:	
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