Bridging the Interoperability Gap of the Internet of Things

Open Call I

Guide for Applicants

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Project website	http://big-iot.eu
Start Date of the Project	1 January 2016
Duration	36 Months
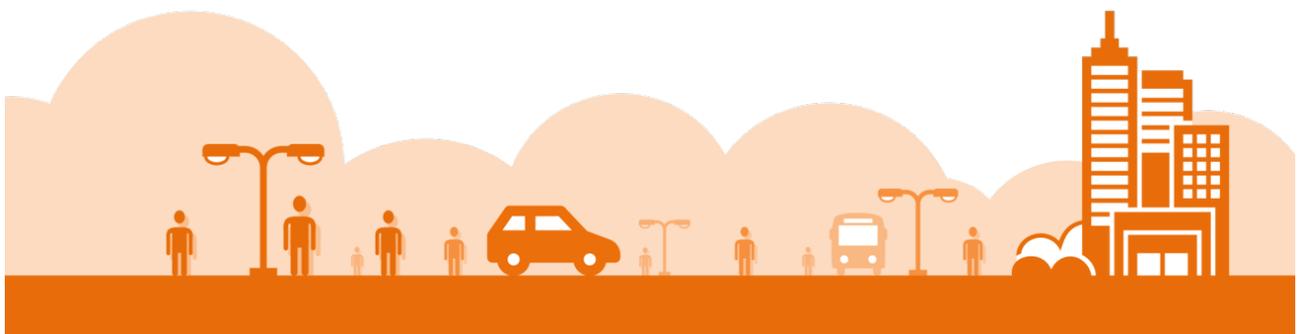
Dear Applicant,

Bridging the Interoperability Gap of the IoT (BIG IoT) project is a H2020 P project that aims at enabling the emergence of cross-platform, cross-standard, and cross-domain IoT services and applications towards building interoperable IoT ecosystems.

We already have 12 partners on board: Siemens AG (DE), Bosch Software Innovations GmbH (DE), Atos IT Solutions & Services GmbH (AT), Seat (ES), Aalborg University (DK), Clausthal University of Technology (DE), CSI Piemonte (IT), Econais AE (GR), National University of Ireland Galway (IE), Polytechnic University of Catalonia (ES), Wolfsburg AG (DE) and VMZ Berlin BmbH (DE).

And we are looking for more!

Through **two Open Calls** planned for April-June 2017 and January-March 2018 we aim at involving other partners to use the BIG IoT enablers and build their own IoT solutions. In the first Open Call with the budget of 300k € IoT projects will get technical support and funding up to 60k €. The second Open Call will have the total amount of 450k €.

In the following pages, you'll find out more about the BIG IoT project, our pilots and how to apply for the first Open Call.

Happy reading!

Your BIG IoT

About BIG IoT

The Internet of Things (IoT) is comprised of vertically oriented platforms for 'things'. Service and application providers who want to use them need to negotiate access individually and need to adapt to the platform-specific API and information models. Having to do these efforts for each platform often outweighs the possible gains for service and application providers to adapt their applications to multiple platforms. This fragmentation of the IoT and the missing interoperability result in high market entry barriers for service and application providers and currently prevent the emergence of broadly accepted IoT ecosystems.
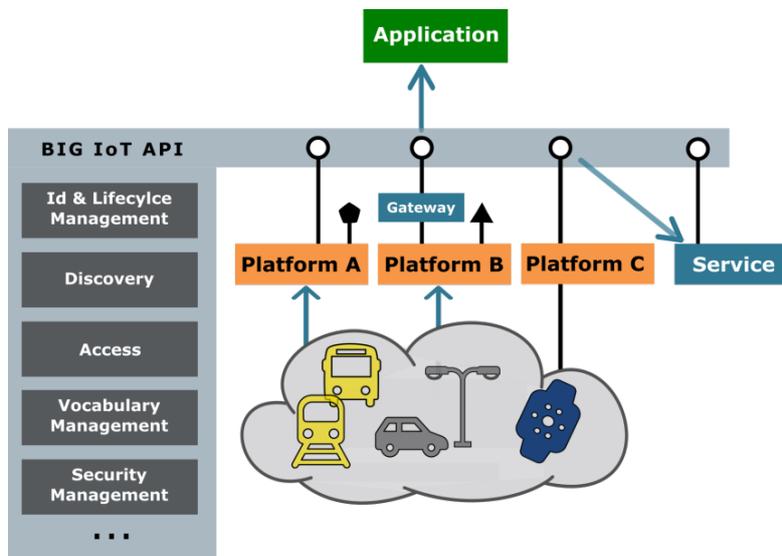
The main goal of the BIG IoT project is to provide **enablers** for the IoT platform and service providers in order to facilitate interoperability between heterogeneous IoT solutions. The main BIG IoT enablers are:

- **BIG IoT API** - a unified Web API with semantic models for describing IoT data and resources coming from different platforms and services
- **BIG IoT Marketplace** – a B2B marketplace for connecting providers and consumers of IoT data and for trading IoT resources

For more details on the BIG IoT enablers please visit our Developers Guide on https://big-iot.github.io/ .

BIG IoT Pilots

The BIG IoT enablers are currently being rolled out and tested in 3 European pilot sites and applied in IoT scenarios for Smart Cities: **Barcelona**, **Berlin/Wolfsburg**, and the region of **Piedmont**. Several Use Cases in the domain of **mobility** and **environmental monitoring** are being developed based on the data coming from **8 IoT platforms** that implement BIG IoT API and provide their resources in the BIG IoT marketplace.

Having these regional pilots allows us to demonstrate true interoperability by exchanging applications and services between pilots on top of different platforms. Through the open calls we want to grow this ecosystem further.

Barcelona

In Barcelona pilot we connect infrastructure based traffic detectors to measure speed, car count and related parameters. These detectors as well as parking spot sensors are provided by WorldSensing. Seat provides air quality sensing devices on connected cars.

Additionally, several IoT platforms provide access to connected buses, connected cars, over 500 street parking sensors, several road-side magnetometers control-stations, and 37 Bluetooth/Wi-Fi antennas in the city. Access to Open Data and Barcelona City platforms (such as SENTILO) is also planned, giving access to noise detectors, bike sharing data and e-charging stations.
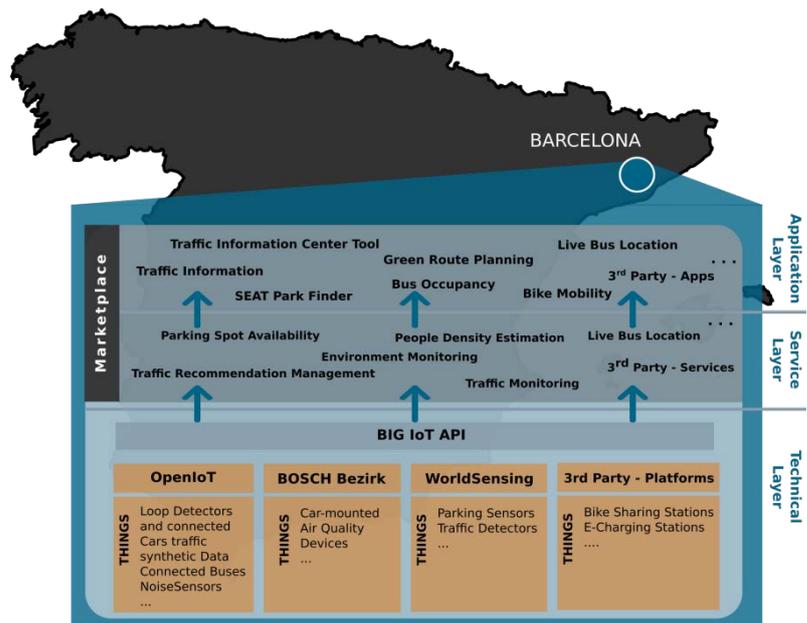
The available IoT resources enable to implement new mobility services and applications, such as a traffic information center tool, a smart parking app and green route planning.

Northern Germany

In Northern Germany Pilot the BIG IoT technology is tested in the cities of Berlin and Wolfsburg and the trans-regional corridor connecting the two cities.

The Northern Germany pilot puts focus on key topics of future-oriented mobility targeting on an optimized usage of Public Transport, E-mobility, Smart Parking solutions and multimodal routing information for the cities and the corridor.

In Wolfsburg we are incorporating a city-wide WLAN network, live tracking of public buses, as well as public e-charging stations. Further, we are doing real time crowd management by using existing security cameras and crowd-sourced detection of human crowds through mobile apps.

Berlin city-wide real time information on traffic volumes and traffic speed, real time parking data, data on available charging stations and bike sharing data are integrated. Also, Siemens' novel, streetlight-mounted and radar-based smart parking detectors are integrated. In addition, incident news for public and private transport and traffic news provided via on-street information panels are integrated.

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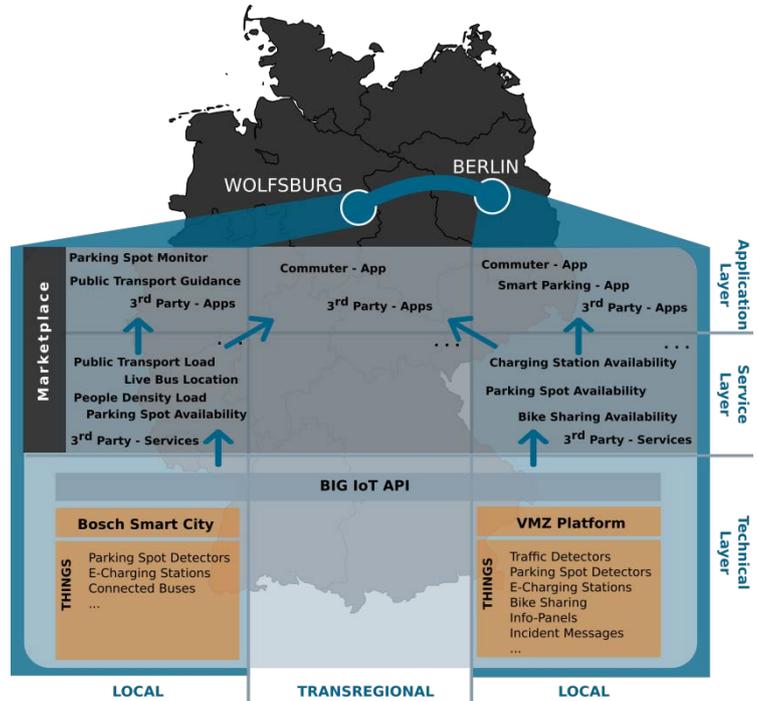
Piedmont

In Piedmont the BIG IoT solution is tested in conjunction with the deployment of new sensors for vehicular traffic, microarea air quality measurements and on-street parking availability. The cities of Biella and Vercelli have agreed to host Pilot installations in their streets to test BIG IoT concepts in Traffic Monitoring, Smart Parking, Air Quality, Healthy Bike Navigation and Smart Bike Sharing.
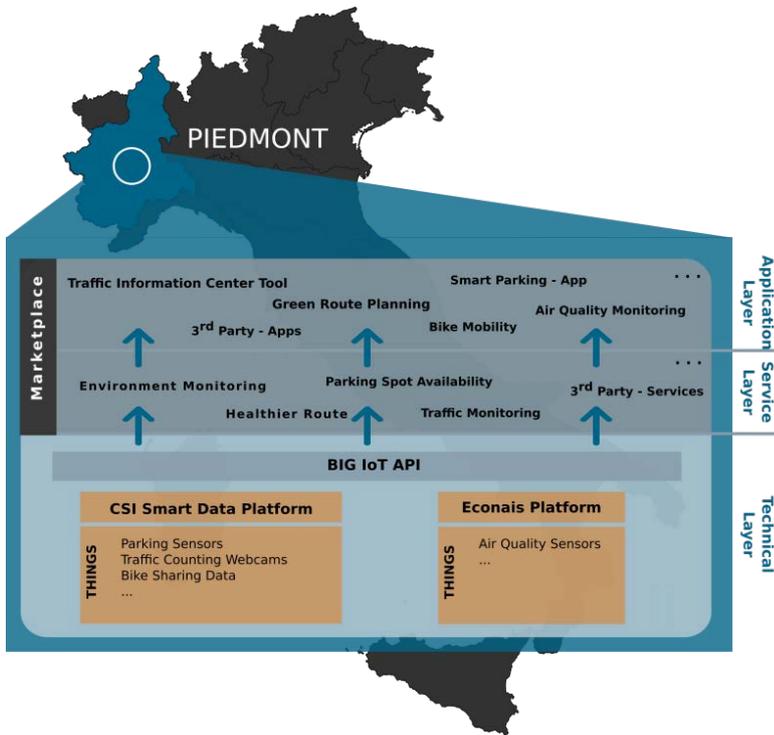
Open Call

Who?

The call is open to individual **European[1] SMEs, startups, universities and research institutes that own or operate an IoT platform or services** and to use BIG IoT enabling technologies to provide new data offerings. Selected entities will receive funding according to the conditions of the H2020 Framework Programm for Research and Innovation[1] as third parties of Siemens AG. Only **one entity per proposal** will be admitted, so activities in co-operation will not be considered eligible. It is not necessary that the applicants are located in any of the three demonstration sites (i.e. Barcelona, Biella and Vercelli, Berlin). Proposals can provide data or services concerning areas that are not BIG IoT pilot ones; nonetheless we expect to have at least one proposal concerning each pilot area, so proposals related to **pilot area** will be preferable.

Successful applicants who have been awarded funding are expected to provide proof of their registration in one of the countries mentioned using the PIC number. In addition, successful applicants will be required to sign a collaboration agreement with Siemens AG, BIG IoT Project Coordinator, on behalf of the BIG IoT Consortium in order to be able to receive the funds and become third party of the project. The draft collaboration agreement with the rights and obligations assumed by the third party is included in the application package.

What?

The main objective of the open call is to **test and verify the BIG IoT enablers and methodology** by adding new IoT platforms and data sources to the BIG IoT ecosystem. The proposals will help to validate BIG IoT results and components in the scenarios deployed in the same application

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1   Legally registered in a member state of the European Union or in an H2020 associated country. Eligibility criteria re the same as H2020 rules of participation (http://ec.europa.eu/research/participants/data/ref/h2020/legal_basis/rules_participation/h2020-rules-participation_en.pdf).

Legal entities established in the following countries are eligible to receive funding through this Open Call:
- The Member States (MS) of the European Union (EU),including their overseas departments(based on the general H2020 rules);
- The EU Associated Countries participate in Horizon 2020 under the same conditions as EU Member States.

domains in which the project is focused – **smart mobility and environmental monitoring**. The new projects should contribute with new data sources and new platforms to widen the range of mobility and environmental data and services and thus, extend the BIG IoT offerings in the BIG IoT Marketplace.

In the following sections some requirements coming out from the local pilots are listed. These requirements are intended as suggestion for proposals concerning interventions in the pilot areas, though also proposals focused on other areas will be evaluated.

Northern Germany

The demonstration site Northern Germany is interested among others for:

- Data of public and private mobility providers to include further mobility options in multimodal information services for Berlin, Wolfsburg and the corridor
- Parking data concerning parking facilities on public and semi-public ground
- Data on charging infrastructure
- Data on additional mobility options such as bike sharing, car sharing, ride sharing, e-scooters, conventionally driven and electric, taxi
- Predictions on parking spot availability
- Real time and scheduled data on Public Transport offers (regional and long-distance)
- Incident Messages for Public and Private Transport
- Integration of mobility related data provided by open data platform such as
    - Open Data Platform of Deutsche Bahn or
    - mCloud of BMVI
    - Open Data Platform Berlin
- …

Piedmont

The demonstration site Piedmont is interested as well to enhance the offerings of mobility data, not exclusively in Biella and Vercelli territories but to one or more Piedmont areas (municipality, province, whole region). In the first Open Call we are interested among others for:

- Public and private mobility providers such as (extra-) urban transport lines and trains.
- Shared mobility services (car sharing, bike sharing, parking)
- Environmental monitoring

Thus, we are looking to extend pilot services and applications with e.g.:

- Data of public and private mobility providers in Piedmont such as scheduled timetables and real-time transit
- Passengers count on public transport from public and private mobility providers
- Additional data sources on road traffic: real-time, aggregated, statistical, historical
- Parking data occupancy of on-street stalls as well as access-controlled parking facilities
- Data on car-sharing from public and private providers, from petrol-based cars to electric vehicles and motorbikes
- On-street electric vehicle charging infrastructure
- Additional data on bike sharing to cover the whole Piedmont Region
- Additional outdoor environmental data (such as air pollutants and composition, ionizing radiation, solar irradiance)
- Indoor environmental data
- …

Barcelona

The demonstration site Barcelona is interested in mobility data and services to extend the BIG IoT offerings for the Barcelona region (including cities in Metropolitan Area or closed to Barcelona).

In the first Open Call we target, in general, additional data related with mobility e.g.:

- Data of public and private mobility providers to include further mobility options. These data should support already defined BIG IoT use cases but also new ones enabling Mobility as a Service, or with strong impact on citizens.
- Additional off-street and on-street parking data in the Barcelona Region.
- Additional data on charging infrastructure.
- People counting sensors or People flow data to extend public transport optimization use case.
- Environmental sensors or environmental elaborated data to improve Environmental Monitoring Service.
- Additional traffic data sources
- …
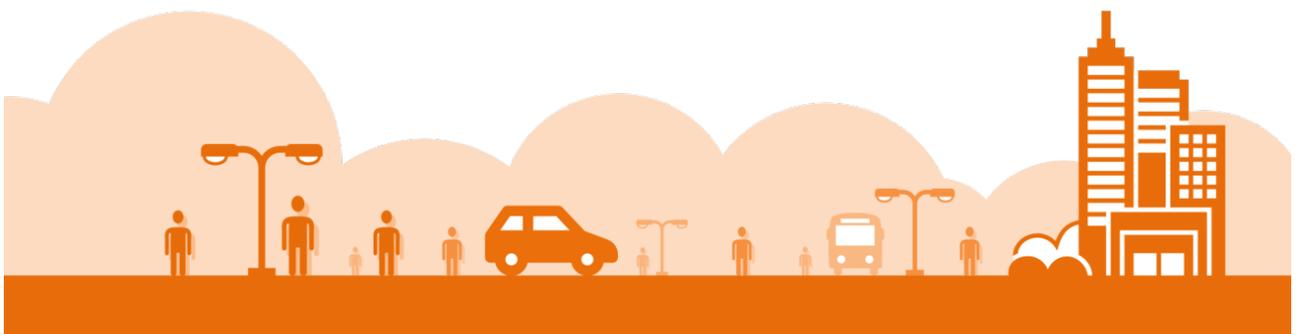
Thus, integration of mobility data of additional mobility options are appreciated such as e.g.:

- Real time data on additional mobility options such as bike sharing, car sharing, ride sharing, shared e-scooters, conventionally driven and electric, taxi
- Additional off-street / on-street parking. It may include public, private, shared parking lots real-time availability data
- Updated predictions on parking spot availability
- Parking delivery zone monitoring
- People flow data on public transport and public vehicles tracking, to extend public transport optimization use case to additional vehicles, sensors or kind of transport (i.e. tram...) in the Barcelona region
- People counting sensors or Pedestrian flow in public areas to gather information equivalent to the North Germany pilot in the Barcelona region, supporting public transport optimization use case or new services and applications
- Additional environmental data (air quality, noise, etc.) to extend area of coverage in Barcelona region, including new innovative measurement sensors or data generated from advanced prediction models
- Additional Charging Point Availability Data in public, semi-public and private areas. Also Charging Point Reservation Services
- Additional traffic data sources providing real-time data or updated elaborated data to improve Traffic Monitoring Service and extend the area of coverage. These data could also be provided by connected cars (vehicle to infrastructure /V2V data)
- …

How?

Proposals are submitted in a **one-stage process** (except for pre-feasibility check) that means that applicants submit a full proposal before the deadline. The proposal language is **English**. Proposals submitted in any other language will not be eligible. The proposals are submitted by filling out the application form on the F6S portal[2]. Information requested in the proposal:

1. Title of the contribution, and identification of organization and contact person.
2. The description of the contribution and the objectives, relating to the BIG IoT approach, and how the proposed collaboration may fit into BIG IoT vision and help to add value to the project by widening the available project offering and improving interoperability. A list of activities and their time plan, aligned with the experimentation period – activity will be held from September 2017 to January 2018. Please explicitly list what are considered to be the key milestones and deliverables within this plan, considering also the alignment with the internal evaluation periods.
3. The organization profile and key member's CV, organization, skills and resources applicants have.
4. The budget for cost related to the funding proposal, the template will include a section for these aspects.

Please check the Guide to Completing the Online Application Form in Important Documents.[3]

Application steps:

1. Step: Visit and review the instructions at big-iot.eu/first-open-call.
2. Step: Prepare your application. Go to F6S portal, sign up for an account and complete the application form. Using the template available and considering the restrictions, prepare and submit your proposal.
3. Step 3: Once the submission is closed, the procedure is finished. You'll hear back from us by email by the end of July 2017.

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[2] https://www.f6s.com/opencall1big-iot/

[3] http://big-iot.eu/first-open-call/

If you discover an error in your proposal, you may modify your application, provided the call deadline has not passed. Only the final version received before the call deadline will be considered for the evaluation. Proposals which are incomplete will not be evaluated.

When?

Call open for applications: **17:00 CET 26th of April, 2017**
Deadline for the proposals: **17:00 CET 16th of June, 2017**
Notification of selected projects: **End of July, 2017**
Project Start: **1st of September, 2017**
Project End: **31st of January, 2018**

Why?

The Open Call will allow the evolution of the BIG IoT enabling technologies (i.e. BIG IoT API and marketplace) as a whole, to match the needs of proposers, but at the same time evolve proposers' products in order to add new interoperability features and pave the way for the second Open Call.

The development of BIG IoT may allow more stakeholders, developers and service providers to interact with different IoT platforms in a domain agnostic ecosystem. Platform owners/service providers can investigate how to become open, check the value of their offering and join a research community that facilitates partnerships, shares problems and exchanges ideas. In a following Open Call, the project will also address the needs of use cases and scenarios in which different IoT platforms are involved, and mainly in those in which more than one application domain is addressed. BIG IoT is funded by the European Commission and is subject to the regulations established in the Horizon 2020 Programme [4].

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[4]   More information can be found reading the rules for the participation and dissemination in Horizon 2020. This Guide for Applicants does not supersede the rules and conditions laid out, in particular, in Council and Parliament Decisions relevant to the Horizon 2020 Research and Innovation Programme of the European Commission

Funding conditions

The financial support to be provided to the third parties corresponds to a total of 300.000€. The third parties involved in the Open Call will be funded for a maximum of 60.000 per project. Participating projects will be focused on the provision of new IoT Platforms to be integrated in the two application domains and the BIG IoT use cases pilots, following the project methodology and associated tools. **Primarily, funding will regard projects that provide platform/services related to the pilot areas (at least one for each pilot area); once fulfilled this requirement, also project focused on other areas will be evaluated.**

Projects that are eligible for receiving BIG IoT funding shall provide the following activities and expected achievements:

- Integrate BIG IoT API in existing services or platforms (max 5 month of development)
- Update the BIG IoT API integration based on later 3rd release
- Provide data to projects of the second open call
- Keep alive of systems/data streams data for four years after the end of BIG IoT Project (accordingly to art. 28 of the GA) [5]

- Provision of scalable and future proof technologies/solutions, e.g. to integrate open data
- Keep Alive of gateway systems to open data streams four years after the end of BIG IoT Project (accordingly to art. 28 of the GA)

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[5]"**GA n.** 688038— **ARTICLE 28 of EXPLOITATION OF RESULTS**

28.1 Obligation to exploit the results
Each beneficiary must — up to **four years** after the period set out in Article 3 — take measures aiming to **ensure 'exploitation' of its results** (**either directly or indirectly,** in particular through transfer or licensing; rfr Article 30) by:
(a) **using them in further research activities (outside the action);**
(b) developing, creating **or marketing a product or process;**
(c) creating and **providing a service**, or
(d) using them in standardization activities.
This does not change the security obligations in Article 37, which still apply. "

Though this article regards only beneficiaries and not third parties, the results of the Open call are results of the project and they have to be exploited.

Regarding the eligible costs, participation as a third party in an H2020 project will cover all the incurred costs. However for further information on this specific issue please refer to the "Rules for Participation Legal & Financial Issues", Article 6, page 38[6].

In addition, to be eligible the costs must meet the following criteria:

(i)   they must be incurred in the period set out in Article 9.2, with the exception of costs relating to the submission of the technical report and financial statement;

(ii)   they must be identifiable and verifiable, in particular recorded in the Third Party's accounts in accordance with the accounting standards applicable in the country where the Third Party is established and with the Third Party's usual cost accounting practices;

(iii)   they must comply with the applicable national law on taxes, labour and social security, and

(iv)   they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency.

'Ineligible costs' are costs that do not comply with the conditions set out above (see chapter 8) and costs reimbursed under another EU or Euratom grant (including grants awarded by a Member State and financed by the EU or Euratom budget and grants awarded by bodies other than the European Commission for the purpose of implementing the EU and Euratom budget).

The form of financial support to be used will be a pre-defined lump sum. Funds will be provided to the third parties in this way: 40% of the overall financial support as advance payment after the signature of the Agreement with the Coordinator, 30% of the overall financial support as interim payment based on the evaluation by the BIG IoT consortium, 30% of the overall financial support as final payment based on the final report.

The planned funding conditions include in case of not fulfillment of contractual obligations certain control measures and the possibility of reducing the financial support as described in the Collaboration Agreement to concluded with the selected third parties.

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[6] http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

Evaluation process

Every proposal will be evaluated by three experts. The experts will be individuals with experience in the fields of innovation linked to this Open Call and also with the highest level of knowledge. The selected experts will sign a declaration of confidentiality concerning the evaluation process and the content of the proposals they evaluate. They will also declare their absence of any conflict of interest for the assigned tasks. Each evaluator will record his/her individual opinion on each proposal using an evaluation form. Experts will then agree on a common evaluation of the proposal. The result of that agreement (comments and scores) will be reflected on the Evaluation Summary Report (ESR), which will be signed by both.

The proposals will be evaluated under six criteria:

(i)   **Relevance to BIG IoT:** relevance is evaluated according to two main criteria.

    a. **Usefulness**: the degree of expected future use of the extension. The score should reflect the potential of the new platform to be used by future application/service providers by accessing to BIG IoT marketplace.This criteria takes into account the number and variety of the IoT platform resources, their nature, the platform availability and the accessibility;

    b. **Complementarity**: the degree to which the extension will provide new datasets and data streams. The score should reflect the potential of the extension to: enlarge the critical mass of the existing resources offered by the BIG IoT platforms, as well as to probe the interoperability solutions developed within the project, by providing additional datasets and data streams on the domains of interest of the existing ones, with a high potential impact in terms of the real world innovation enabled through the offered infrastructure and its associated datasets and data streams.

(ii)   **Impact and sustainabilit**y: In which way the proposal contributes to further maturity and integration of IoT interoperability, and which are beneficiaries of the proposed solution. the guarantee of availability of the resources offered by the platform in absence of this open call funding;

(iii)   **Technical excellence:** Soundness of concept, quality of objectives and innovative elements pesent in the proposal

(iv)   **Quality of implementation:** feasibility of the workplan, quality and effectiveness of the technical methodology, including the workplan, contribution to collaboration with BIG IoT

to achieve objectives of the project, appropriateness of the allocation and justification of the resources to be committed (staff, equipment…)

(v) **Quality of the team:** Quality and relevant experience of the individual participants, quality of the team as a whole (including complementarity, balance)

(vi) **Economic fairness**: the requested budget should be adequate with the proposed workplan.

After the applications are evaluated, they will be ranked by the BIEC. BIEC is a committee consisting of external experts and the BIG IoT Project Coordinator and the Technical Manager. Each application will be assessed by external experts that will be monitoring the whole process in order to ensure tracking of every action. A ranking list will be assembled with all proposals that will be evaluated under the above cited criteria.

The weights to be applied to the different criteria are 0,30/0,30/0,10/0,10/0,10/0,10 for each criteria. The BIEC will meet and make a final funding decision based on the ranking list. In case of applications receiving an equal score the criteria will be marks in criteria 1, criteria 2. Notifications on funding or rejections will together with any feedback be sent out by the end of July 2017.

Once the Open Call evaluation is finalized, representatives of the selected proposals will be invited to sign a Collaboration Agreement (final version included in the application package) with Siemens and become a third party. During the Collaboration Agreement signing process, the selected applicants will have to provide all relevant documentation concerning their legal and financial status, as well as any amendments in their technical proposals according to the comments received by the evaluators during the evaluation process, if applicable.

Support options

There will be different events in which the open call will be presented and support will be provided in preparing the applications. Please follow the web site and also the twitter of the project to get information about the open call.

The BIG IoT consortium will maintain a frequently asked questions (FAQ) section available at BIG IoT website[7]. It will be updated continuously. For specifically technical details check first the available documentation in the website.

The answers that you can't find in the FAQ section can be submitted over the online contact form[8].

Furthermore, during the preparation of the proposal, a feasibility check will be possible (only one for each proposal). The check is possible by filling out the online form[9].

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[7] http://big-iot.eu/first-open-call/frequently-asked-questions/

[8] http://big-iot.eu/opencalls/open-calls-information-contact-form/

[9] http://big-iot.eu/feasibility-check/

Stay in contact

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🐦 @BIG_IoT

🐙 big-iot.github.io

in BIG-IoT project group

Our ecosystem:

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Internet of Things. Think WiSmart™

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OÉ Gaillimh
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