

# Galileo Exploitation 2017 Grant Plan

## 1.1 Fundamental Elements Grants

### 1.1.1 Timing receiver for critical infrastructure

#### LEGAL BASIS

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the Galileo Programme signed on 2 October 2014.

Call for proposals

#### BUDGET LINE:

GEX.0031

#### BACKGROUND:

- GNSS Timing and Synchronisation is used as a cost-effective solution for interconnected systems providing a direct and accurate access to Coordinate Universal Time (UTC).
- Synchronisation between receivers at different locations can be established and maintained using GNSS reference time. In addition, a master clock synchronises itself using the time provided by GNSS and redistribute this time to slave clocks disseminated within systems.
- Precise Timing & Synchronisation is crucial to a range of strategic activities such as Critical Infrastructure (CI), a system or asset essential for maintaining such vital societal functions as health, safety, economic and social well-being of people. This infrastructure often relies on GNSS precise time in order to synchronise their networks and monitor sites, depending strongly on the time accuracy requirements.
- Applications of GNSS timing include but are not limited to aviation, telecommunications and computer networks, energy generation and distribution, finance or other government functionality. For example, finance transactions need a low accuracy requirement (order of microseconds), medium accuracy is needed for energy and most of Telecom applications (order of microseconds), whereas Satcom services need high accuracy (nanoseconds).
- In this context, the Fundamental Elements projects has the objective to develop a low cost Galileo receiver able to determine the timing with high accuracy in bias and drifts.

#### Objectives pursued and foreseen results:

Objectives of the projects:

- Development and testing of a Galileo-based time receiver;
- The essential requirements for such a receiver are: Robust anti-jamming receiver solutions and low overall costs of the receiver;
- Such receiver shall use the Galileo System Time as time reference and shall be configurable to use a single frequency or a multiple frequency solution;

- The interfaces to be implemented are: PTP, NTP, SyncE, PPS, 10 MHz, and IRIG-B. Additional interfaces can be proposed by the applicants.

#### **Description of the activities to be funded under the call for proposals:**

The call for proposals is intended to fund up to two (2) projects with the following activities:

- Development, testing and demonstration of a Galileo-enable timing receiver.
- Demonstration phase of at least 6 (six) months in a real application scenario.

#### **Essential eligibility, selection and award criteria:**

##### **1. Eligibility**

- The proposal may be submitted by entities fulfilling all the criteria below:
  - Legal persons established<sup>1</sup> in and/or natural person(s) who is national of one of the following countries, are eligible:
    - EU Member States
    - Switzerland, Norway,
  - Applicants must correspond to the definition of the following target organisations: active in the development, integration and/or manufacturing of GNSS components, receivers, antennas and/or expert in the field of GNSS Research and development (R&D)

##### **2. Non-exclusion criteria**

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

##### **3. The applicants must fulfil the following selection criteria:**

- The financial capacity of the applicant to perform the proposed activities
- The technical capacity of the applicant to perform the proposed activities

##### **4. Main award criteria:**

- Relevance of the proposal to achieve the objectives of the call, credibility of the proposed approach, and innovation of the solutions proposed;
- Impact in terms of economic and public benefits derived from the proposal including but not limited to a coherent business plan for the exploitation of the results of the grant;
- Credible and effective dissemination plan for the results in the best interest of the European Union;
- Quality of the implementation: coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources.

#### **Indicative timetable and indicative amount of the call for proposals:**

- Allocated budget for the Call for Proposal: € 3,500,000 (up to 2 (two) projects to be granted, depending on the quality of the proposals received)

---

<sup>1</sup> Established should be understood as having a registered office, central administration or principal place of business in one of these countries.

	<b>Stages</b>	<b>Planning (possible subject to updates)</b>
a)	Publication of the call	Q2 2017
b)	Deadline for submitting applications	Q3 2017
c)	Evaluation period	Q4 2017
d)	Information to applicants on the outcome of the evaluation	Q1 2018
e)	Signature of the Grant Agreements	Q2 2018

**Maximum possible rate of co-financing of the eligible total costs:**

Up to 70% funding of the eligible total costs.

## 1.1.2 Development of enhanced consumer grade GNSS devices

### LEGAL BASIS

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the Galileo Programme signed on 2 October 2014.

Call for proposals

### BUDGET LINE:

GEX.0230

### BACKGROUND:

- The GNSS mass market is fastly progressing and it demands seamless indoor/outdoor positioning accuracy, internet-of-things capabilities, autonomous navigation.
- Consequently the GNSS technology faces challenges to increase positioning accuracy, making use of the upcoming GNSS multi-frequency and multi-constellation environment, achieving tighter hybridisation with a wide spectrum of other sensors, etc., while maintaining a competitive pricing scheme.
- Dual-frequency receivers for mass-market devices (such as smartphones, IoT devices, wearable equipments, etc.) are currently being developed thus enabling high accurate positioning and navigation for low-end users.
- Applications include personal devices (smartphones, tablets, wearable equipment, etc.), IoT devices, healthcare equipment for personalised home-care, crowd-sourcing, self-learning enabled equipment, etc.
- Cost efficient double-frequency receivers for mass market applications are currently being developed thus enabling higher precision positioning and navigation for users' goods.
- In this context it is necessary to invest further in cost-efficient Galileo-ready innovative technologies to further enable mass market applications.

### Objectives pursued and foreseen results:

The call for proposals is intended to fund up to five (5) projects.

Each project shall reach these objectives:

- Development, integration, testing and demonstration of hardware (HW) component(s) and/or algorithm(s) filling technology gaps for mass-market GNSS chipsets and devices (e.g. double- or multi-frequency low-cost GNSS antenna, power optimisation algorithms, carrier phase measurements for mass-market receivers etc.).
- The HW component(s) and/or algorithms shall leverage Galileo differentiators.
- The HW component(s) and/or algorithms shall be cost efficient, commercial grade, compliant with specific mass-market constraints and ready to be integrated into a mass-market device.

## Description of the activities to be funded under the call for proposals:

The activities to be funded under this call for proposals shall encompass:

- Development, testing and demonstration of at least one HW component and/or algorithm filling a technology gap for mass-market GNSS chipsets and devices.

## Essential eligibility, selection and award criteria:

### 1. Eligibility

The proposal may be submitted by entities fulfilling all the criteria below:

- Legal persons established<sup>2</sup> in and/or natural person(s) who is national of one of the following countries, are eligible:
  - EU member states
  - Switzerland, Norway.
- Applicants must correspond to the definition of the following target organisations:  
active in the development, integration and/or manufacturing of GNSS hardware, software and/or firmware components, chipset/receivers, antennas and/or expert in the field of GNSS Research and development (R&D), chipset manufacturers, phone manufacturers, antenna manufacturer, system integrators, etc.

### 2. Non-exclusion criteria

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

### 3. The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities
- The technical capacity of the applicant to perform the proposed activities

### 4. Main award criteria:

- Relevance of the proposal to the objectives of the call, credibility of the proposed approach, and innovation of the solutions proposed;
- Impact in terms of economic and public benefits derived from the proposal including but not limited to a coherent business plan for the exploitation of the results of the grant;
- Credible and effective dissemination plan for the results in the best interest of the European Union;
- Quality of the implementation: coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources.

---

<sup>2</sup> Established should be understood as having a registered office, central administration or principal place of business in one of these countries.

**Indicative timetable and indicative amount of the call for proposals:**

Allocated budget: € 3,000,000 for a Call for Proposal (up to 3 projects to be granted, depending on the quality of the proposals received)

	<b>Stages</b>	<b>Planning (possible subject to updates)</b>
a)	Publication of the call	Q2 2017
b)	Deadline for submitting applications	Q3 2017
c)	Evaluation period	Q4 2017
d)	Information to applicants on the outcome of the evaluation	Q1 2018
e)	Signature of the Grant Agreements	Q2 2018

**Maximum possible rate of co-financing of the eligible total costs:**

Up to 70% funding of the eligible total costs.

### 1.1.3 Development of mass-market receiver for internet of things applications

#### LEGAL BASIS

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the Galileo Programme signed on 2 October 2014.

Call for proposals

#### BUDGET LINE:

GEX.0221

#### BACKGROUND:

- The internet of things (IoT) market is fastly progressing and it demands requires high positioning accuracy, minituarisation, autonomous navigation.
- Consequently the GNSS technology faces challenges to increase positioning accuracy, achieve tighter hybridisation and miniaturisation with a wide spectrum of other sensors, etc., while maintaining a competitive pricing scheme.
- Applications include household devices and healthcare equipment for personalised home-care, smart-city devices, crowd-sourcing, self-learning enabled equipment, etc.
- In this context it is necessary to invest further in cost-efficient Galileo-GPS minituarised receiver for mass internet of things (IoT) applications

#### Objectives pursued and foreseen results:

The call for proposals is intended to fund up to three (3) projects.

Each project shall reach these objectives:

- Development and test IoT graded single-constellation or double-constellation Galileo-enabled GNSS-based device for mass-market.
- The GNSS device shall leverage Galileo differentiators featuring single- (Galileo) or double-constellation (Galileo/GPS), being tightly integrated with other sensors.
- The GNSS device shall be cost efficient, close-to-market, compliant with specific mass-market IoT constraints and ready to be commercialised.

#### Description of the activities to be funded under the call for proposals:

The activities to be funded under this call for proposal shall encompass:

- Development, integration, testing and demonstration of a minituarised GNSS device for Internet of Things (IoT) applications.

## Essential eligibility, selection and award criteria:

### 1. Eligibility

The proposal may be submitted by entities fulfilling all the criteria below:

- Legal persons established<sup>3</sup> in and/or natural person(s) who is national of one of the following countries, are eligible:
  - o EU member states
  - o Switzerland, Norway.
- Applicants must correspond to the definition of the following target organisations:  
active in the development, integration and/or manufacturing of GNSS components, receivers, antennas and/or expert in the field of GNSS Research and development (R&D), chipset manufacturers, IoT and telecommunication devices, system integrators, etc.

### 2. Non-exclusion criteria

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

### 3. The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities
- The technical capacity of the applicant to perform the proposed activities

### 4. Main award criteria:

- Relevance of the proposal to the objectives of the call, credibility of the proposed approach, and innovation of the solutions proposed;
- Impact in terms of economic and public benefits derived from the proposal including but not limited to a coherent business plan for the exploitation of the results of the grant;
- Credible and effective dissemination plan for the results in the best interest of the European Union;
- Quality of the implementation: coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources.

## Indicative timetable and indicative amount of the call for proposals:

Allocated budget: € 3,000,000 for a Call for Proposal (- up to 3 project(s) to be granted, depending on the quality of the proposals received)

---

<sup>3</sup> Established should be understood as having a registered office, central administration or principal place of business in one of these countries.



	<b>Stages</b>	<b>Planning (possible subject to updates)</b>
a)	Publication of the call	Q2 2017
b)	Deadline for submitting applications	Q3 2017
c)	Evaluation period	Q4 2017
d)	Information to applicants on the outcome of the evaluation	Q1 2018
e)	Signature of the Grant Agreements	Q2 2018

**Maximum possible rate of co-financing of the eligible total costs:**

Up to 70% funding of the eligible total costs.
--

## 1.1.4 Advanced interference detection and robustness capabilities

### LEGAL BASIS

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the Galileo Programme signed on 2 October 2014.

Call for proposals

### BUDGET LINE:

GEX.0075

### BACKGROUND:

- Crowd sourcing networks are becoming widely used for real time monitoring of large areas through the use of several distributed devices. This concept can be applied for advanced interference detection techniques capable to collect data to be provided both to the service centres of GNSS providers and the frequency authority able support in removing both intentional and unintentional sources of interference.
- In this context, it is necessary to invest in technology to leverage new mechanisms of interference detection at the receiver level including sharing in a crowd sourced way.

### Objectives pursued and foreseen results:

The call for proposals is intended to fund up to two (2) projects.

Each project shall reach these objectives:

- Leverage innovative mechanisms to detect interference at receiver level and sharing this information in a crowd sourcing based network for mass market and/or professional receivers (registered/non registered users);
- Robustness improvements at receiver level, in addition to detection;
- The resulting GNSS device shall be cost efficient, close-to-market and ready to be commercialised.

### Description of the activities to be funded under the call for proposals:

The activities to be funded under this call for proposal shall encompass:

- Development, integration, testing and demonstration of a miniturised GNSS solution based on Galileo for an innovative interference detection approach leveraging crowd sourcing mechanisms.

## Essential eligibility, selection and award criteria:

### 5. Eligibility

The proposal may be submitted by entities fulfilling all the criteria below:

- Legal persons established<sup>4</sup> in and/or natural person(s) who is national of one of the following countries, are eligible:
  - o EU member states
  - o Switzerland, Norway.
- Applicants must correspond to the definition of the following target organisations:  
active in the development, integration and/or manufacturing of GNSS components, receivers, antennas and/or expert in the field of GNSS Research and development (R&D), chipset manufacturers, IoT and telecommunication devices, system integrators, etc.

### 6. Non-exclusion criteria

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

### 7. The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities
- The technical capacity of the applicant to perform the proposed activities

### 8. Main award criteria:

- Relevance of the proposal to the objectives of the call, credibility of the proposed approach, and innovation of the solutions proposed;
- Impact in terms of economic and public benefits derived from the proposal including but not limited to a coherent business plan for the exploitation of the results of the grant;
- Credible and effective dissemination plan for the results in the best interest of the European Union;
- Quality of the implementation: coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources.

## Indicative timetable and indicative amount of the call for proposals:

Allocated budget: € 3,200,000 for a Call for Proposal (up to 2 project(s) to be granted, depending on the quality of the proposals received)

---

<sup>4</sup> Established should be understood as having a registered office, central administration or principal place of business in one of these countries.

	<b>Stages</b>	<b>Planning (possible subject to updates)</b>
a)	Publication of the call	Q4 2017
b)	Deadline for submitting applications	Q1 2018
c)	Evaluation period	Q2 2018
d)	Information to applicants on the outcome of the evaluation	Q3 2018
e)	Signature of the Grant Agreements	Q4 2018

**Maximum possible rate of co-financing of the eligible total costs:**

Up to 70% funding of the eligible total costs.
--

## 1.2 Member States support

### 1.2.1 Support for PRS Navigation Monitoring by EU Member States

#### LEGAL BASIS:

Regulation (EU) No 1285/2013 of the European Parliament and of the Council of 11 December 2013 on the implementation and exploitation of European satellite navigation systems and repealing Council Regulation (EC) No 876/2002 and Regulation (EC) No 683/2008 of the European Parliament and of the Council and Delegation Agreement between the European Union, represented by the European Commission and the European GNSS Agency on the Exploitation Phase of the Galileo Programme signed on 2 October 2014.

Decision No 1104/2011/EU of the European Parliament and the Council of 25 October 2011 on the rules for access to the public regulated service applies and will constrain the participation to these activities.

Call for proposals
--------------------

#### BUDGET LINE:

GEX.0162
----------

#### BACKGROUND:

- GSA will operate the Galileo Reference Centre (GRC) in Noordwijk, the Netherlands, for the purpose of independent performance monitoring of the Galileo services.
- The GRC undertakes the following missions (from Mission Requirement Document 7.2):
  - Perform independent monitoring and assessment of Open Service (OS) service provision;
  - Perform independent monitoring and assessment of Commercial Service (CS) data dissemination;
  - Contribute to the independent monitoring and assessment of Public Regulated Service (PRS) service provision, in particular for navigation performance<sup>5</sup>;
- Although the GRC Core Facility will have stand-alone capability to fulfil its main mission with a minimum required level of performance, achieving full performance and capabilities relies on the integration of the European Union Member States (MS) contributions. These contributions may support everyday operations and specific campaigns.

---

<sup>5</sup> The role of GRC will be established by the programme, based on an analysis to be performed taking also into account functionalities planned in the GSMC

- While the precise role of the GRC for PRS navigation performance monitoring is under definition, in any case the GSA is expecting to be granted access to performance assessments conducted by the Member States.

#### **Priorities of the call, objectives pursued and expected results:**

##### **Priorities of the call:**

- to obtain MS support in relation to PRS navigation monitoring (see also activities section below);
- Benefit from existing capacities at MS level, built on past public investments;

##### **Objectives pursued**

Through this call for proposals the GSA intends to establish long-term cooperation with the selected beneficiaries in the form of Framework Partnership Agreements (hereafter “FPA”) in support of the implementation of MS contributions to the PRS navigation performance monitoring. The activities of the FPA(s) shall be implemented through Specific Grants (hereafter “SG”).

In particular, the purpose of the FPA and the subsequent SGs are to provide access to data and expertise available at MS level for PRS navigation performance monitoring, taking into account that:

- (1) Support from MS must be independent from the Galileo system;
- (2) GSA should benefit from but also contribute to maintaining the long term competence and expertise at the level of MS;
- (3) MS contributions should comply with the defined Interfaces (i.e. data formats, electronic interfaces);

#### **Description of the activities to be funded under the call for proposals:**

The anticipated support activities are:

- (1) PRS navigation data provision: PRS navigation data (observables and/or navigation messages collected with static receivers situated inside MS or its territories should be regularly provided;
- (2) Provision of navigation related products: Products such as navigation KPIs (including PVT (Position Velocity Time) and reference orbits and clocks (which could be based on a combination of OS and PRS data) generated by the MS, according to agreements on a case-by-case basis;
- (3) PRS navigation performance mobile campaign: Campaign-based PRS navigation performance investigations using mobile equipment;
- (4) Supporting Activities: Activities for the definition and analysis of the PRS navigation products: Workshops and studies for the definition of PRS navigation related products and different products comparison.

#### **Essential eligibility, selection and award criteria for the Framework Partnership Agreement:**

- Eligibility

The proposal may be submitted by entities fulfilling all the criteria below:

- Public bodies and/or legal persons established in one of the EU Member States which has a designated Competent PRS Authority (CPA) in accordance with Article 5(1) of Decision No 1104/2011/EU, are eligible;
- The applicant shall be formally authorised by the designated CPA of the MS to carry out the activities proposed in its answer to the Call for Proposals. The authorisation shall include:
  - Confirmation of the CPA that the applicant is established in its territory and CPA is fully aware of all the activities that will be performed (the authorisation shall include a list of the activities);
  - Confirmation that all the activities will be conducted in accordance with the PRS Common Minimum Standards;
- compliance with the requirements set out with Decision No 1104/2011/EU and CMS.

- Non-exclusion criteria

According to Article 131(4) of the Financial Regulation the exclusion criteria (paragraphs 1 to 4, 6 and 7, except point (b) of the first subparagraph and the second subparagraph of that paragraph, paragraphs 8, 9, 11 and 13 to 17 of Article 106) shall be applied also for grants.

- The applicants must fulfil the following selection criteria:

- The financial capacity of the applicant to perform the proposed activities
- The technical capacity of the applicant to perform the proposed activities

- Main award criteria:

- Relevance and credibility of the proposed contributions towards achieving the objectives of the Call;
- Coherence and effectiveness of the Strategic Action Plan, including appropriateness of the allocation of tasks and resources;
- Cost-effectiveness and impact in terms of programme benefits.

**Indicative timetable of the call for proposals:**

- Up to four (4) FPAs with a total indicative budget ceiling to be allocated to individual FPAs: up to € 2,500,000 (but leaving open the possibility for GSA to award several FPAs, each for a lower amount)

	<b>Stages</b>	<b>Planning</b>
a)	Publication of the call for proposals	Q1 2017
b)	Deadline for submitting applications	Q2 2017

c)	Evaluation period	April 2017
d)	Information to applicants on the outcome	May 2017
e)	FPA Signature	May-June 2017

- Specific Grants under the FPA, with an allocation to be confirmed at a later stage

	<b>Stages</b>	<b>Planning</b>
a)	Send 1 <sup>st</sup> SGA Invitation to submit Proposals to the beneficiary/partner	June 2017
b)	Proposal submission and Evaluation	July 2017
c)	Signature of 1 <sup>st</sup> Specific Grant	September 2017

<b>Maximum EU co-financing rate</b> of eligible total costs incurred under Specific Grants: <b>60 %</b>
---

End of the document