Bolzano, 9th December 2020
Market survey

This document concerns a market survey for the identification of a partner that can support NOI in the maintenance, update and improvement of the infrastructure of the Open Data Hub project. Moreover the partner has to test innovative solutions and support the Open Data Hub team in the design of the architecture.
The suppliers can be both companies and freelancers.

Nature of Innovation.

Index

Nature of Innovation.

1. The Open Data Hub Project

The Open Data Hub project envisions the development and set up of a portal whose primary purpose is to offer a single access point to all machine readable (Open) Data from the region of South Tyrol, Italy, that are relevant for the economy sector and its actors. This will also allow everybody to utilise these data in all digital communication channels and build applications on top of the data offered, be them either a PoC to explore new means or new field in which to use Open Data Hub data, or novel and innovative services or software products built on top of the data.
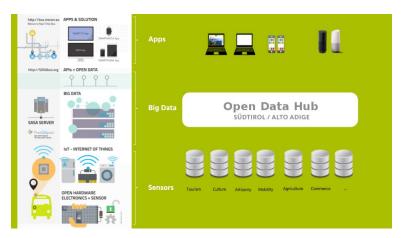

Figure 1: the Open Data Hub concept.

All the data within the Open Data Hub will be easily accessible, preferring open interfaces and APIs which are built on existing (open) standards like The Open Travel Alliance (OTA), The General Transit Feed Specification (GTFS), AlpineBits. The Open Data Hub team also strives to keep all data regularly updated, and use standard exchange formats for them like Json and the Data Catalog Vocabulary (DCAT).
Depending on the development of the project and the interest of users, more standards and data formats might be supported in the future.

1.1 Useful links

In this paragraph it summarizes the links to useful documentation and tools that the developers can use in order to be an Open Data Hub contributor.

- **website:** opendatahub.bz.it/
- **documentation:** opendatahub.readthedocs.io/en/latest/index.html
- **git repositories:** github.com/noi-techpark/
- **dev guideline:** opendatahub.readthedocs.io/en/latest/guidelines/introduction.html
- **dataset list:** opendatahub.readthedocs.io/en/latest/datasets.html

Nature of Innovation.

2. Goal of the market survey

The goal of this market research is the identification of one or more partners (company and/or freelance) that can support NOI Techpark in the maintenance, update and improvement of the infrastructure of the Open Data Hub project. Moreover the partner has to test innovative solutions and support the Open Data Hub team in the design of the architecture.
As guideline we mention some activities that will be included in this market research:

- setup and maintenance of the Jenkins servers and agents (installation, setup, updates, security audience);
- setup and maintenance of different servers both Linux (Ubuntu and Centos) and Windows (installation, setup, updates);
- setup and maintenance of the central monitoring and logging infrastructure (Grafana, Cloud Watch, Elasticsearch, visual dashboards, automatic alerts);
- setting up deployments and integrations of different frontend and backend services (lots of projects from and with external contributors);
- setting up deployments and integrations of different Android and iOS apps (lots of projects form and with external contributors):
- automating lots of different things (infrastructure setup, server installation, server setup, server maintenance, monitoring setup);
- consulting the team regarding general architectural decisions;
- teaching the team different skills and new technologies (Docker, Vue.js, Ansible, Terraform, Active MQ, etc.);
- setup and maintenance of OAuth server (KeyCloak):
  - setup of new authentication processes;
  - creation of dedicated themes;
  - user management;
- etc.

3. Constraints

In this section are listed and described the constraints that the service provider has to follow in order to work with NOI on this project.

3.1 Economic exploitation

Where the creation of material subject to proprietary rights, including copyrights, sui generis data rights, and related rights, including solely of photographs, industrial design, all rights of economic exploitation arising from achieved results are reserved to NOI S.p.A., excepting those expressly excluded when the order is placed. Further, if the material includes a software development project, all source code from libraries or other modules used in the realisation of an assignment and belonging to a third party must be released under an Open Source license (opensource.org/ licenses) in a manner compatible with the scope of the "outbound" software license, without requirement for adaptation, addition, cancellation or requests for permission from third parties on the part of NOI S.p.A. In the absence of any expressly indicated license, the terms of the GNU GPL v3 license shall apply. The use of material belonging to third parties must be expressly declared at the time of the offer, or be easily and immediately understandable from

Nature of Innovation.

the description of the project. In the event that code is developed during the realisation of this assignment, NOI S.p.A. will initiate a Git repository on which the supplier must develop and publish the source code.

If the material consists of data, creative works (drawings, literary works, cinematographic works, figurative art, photographs), industrial design or other material which are subject in whole or in part to the proprietary rights of a third party, the use of such material is permitted provided it is licensed under conditions compatible with the license under which said material will be published, if indicated. If no license is indicated, the material will be subject to conditions compatible with the Creative Commons Zero (CC0) license.

3.2 Repository Git

The source code has to be uploaded to the Git repositories provided by NOI Techpark. During the upload we kindly ask to keep particular attention to the following aspects:

- to not commit usernames or passwords since NOI Techpark uses Jenkins technology to build the code which implements password ingestion based on special keywords in the source code;
- to well document the code describing at least:
  - the general architecture of the system;
  - the list of the licences of all the libraries used;
  - the installation process;
  - all other useful information for people who want to fork or install and use the project.

3.3 Work methodology

The development of the activities covered by this market survey will follow the agile method (scrum). Two weeks sprint sessions are scheduled, unless otherwise agreed during the kick-off meeting with the core team of the Beacon Südtirol - Alto Adige project.
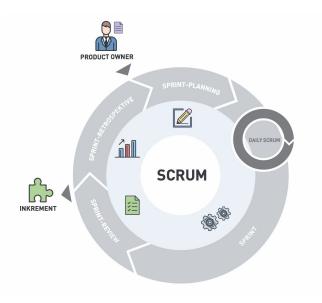
Nature of Innovation.

Figure 2: the SCRUM methodology.

The software development will take place in three phases/environments:

- **development environment**: this environment is on supplier's infrastructure and is used during the development of the software components;
- **testing environment**: on infrastructure made available from NOI Techpark. This environment is used in order to test the new working versions of the software components. For the publication of the new versions a Continuous Integration (Jenkins) pipeline will be developed by the NOI team. For this reason the new versions of the code will have to be "committed" to a dedicated Git Repository according to the instructions provided by the team of the NOI Techpark;
- **production environment**: on infrastructure made available from NOI Techpark. After the testing phase, as soon as the software produced is considered sufficiently stable, the software will be integrated in the production environment. Also this process is managed automatically with Continuous Integration pipelines.

In order to allow a better integration with the systems already in use by NOI techpak it is required to implement all software components, where possible, using the technologies that are already in use by the Open Data Hub project. This technologies are described in technical documentation, available at the following link:

docs.opendatahub.bz.it.

3.4 Competences and references
Considering the activities included in this market research, the service provided who wants to send an offer has to guarantee the following requirements.

Nature of Innovation.

- An English knowledge that allows the team to work also with international communities.
- An Italian and German knowledge that allows the team to work and get in contact with the local stakeholders.
- The project team must have experience in development of applications that use the technologies used in the Open Dta Hub project (e.g. Java, Postgres, Apache Tomcat, etc.).
- The project team has to have experience in contributing to Open Source projects;
- The project team has to have experience in development projects managed with agile methods.
- The project team has knowledge of systems for automating the build, testing and distribution of applications (e.g. Docker).
- The project team is used to work with continuous integration systems (e.g. Jenkins).
- The project team has at least 3 years of experience in:
  - server administration (both Linux and Windows)
  - continuous integration;
  - continuous delivery;
  - continuous deployment;
  - the design and implementation of software architecture;
  - Infrastructure as a Code;
  - the automation of the entire pipeline of software testing and publication;
  - the central monitoring and logging of application and software architectures;
  - the realization of monitoring dashboards;
  - the design and the realization of big data analytics dashboards;
  - agile project management.
- The project team has experience in programming with at least one of the following tools or technologies:
  - Jenkins;
  - Docker;
  - Ansible;
  - PostgreSQL;
  - KeyCloak;
- The project team has experience in programming with at least one of the following programming languages:
  - Java,
  - PHP,
  - Python,
  - Javascript,
  - Objective-C,
  - Swift
  - C#
  - .NetCore.

Nature of Innovation.

3.5 Contact Type

Based on the received offers NOI S.p.A. will choose one or more suppliers and activate an open contract with them. The billing will be based on consumption and for the activation of new activities NOI S.p.A will follow this process:

1. NOI S.p.A. will send a briefing that describes the activities and the deliverables that has to be provided and ask to one or more suppliers an effort estimation;
2. NOI S.p.A. will evaluate the received effort estimation and choose one supplier;
3. NOI S.p.A. will assign the activity to the chosen supplier;
4. The chosen supplier implements the activities;
5. NOI S.p.A. will organize a "collaudo" of the produced outputs;
6. After the positive "collaudo" the chosen supplier will be allowed to bill the activities. The chosen supplier will make an invoice according to the estimation.

3.6 Invoicing

The invoicing of the activities concluded by the supplier will be sent to NOI S.p.A via electronic invoice only after the outputs produced have been successfully tested by NOI S.p.A. Before to proceed with the testing of the outputs, the supplier must provide to NOI S.p.A.:

- the produced documentation;
- if code development is planned, the code must be uploaded to the Git repository provided by NOI S.p.A;
- in the case of multimedia contents (e.g. photos, videos, illustrations, documents), the service provider has to upload it on specific platforms (e.g. Vimeo, Flickr, etc.) and provide the source files or open versions through appropriate file hosting services indicated by NOI S.p.A.

3.7 Working place and hour

3.7.1 Working Hours

The execution of the works that involve collaboration with the staff of NOI Techpark or other entities involved in the project, must be carried out within a timeframe ranging from 9.00 at 12.00 and from 15.00 to 17.00. Depending on the needs, different times may be agreed via email between the service provider and the entities involved.

3.7.2 Working Place

The meetings that will be agreed during the project will take place in the NOI Techpark offices:
- Via Alessandro Volta, 13, Bolzano.

Any expenses that the supplier will have to incur to reach these locations won't imply an additional cost for NOI Techpark.
In any case, any travel costs that the supplier will have to incur to ensure the natural performance of the project activities (e.g. extraordinary coordination meetings, interventions that require presence on site, development activities to be carried out

Nature of Innovation.

in agreement with the one or more entities / suppliers involved in the project, etc.) can't be billed to NOI Techpark.

3.8 Project length
The activities included for this market research will last **three years** and, in case of need, can be extended for another two years.

4. Other useful information

In this section are listed and described all other useful information that the service provider has to consider in order to provide an offering for this project.

4.1 Documentation
In order to participate to this market research, we kindly ask to provide the following documentation:
- the company description that includes also the list of references in similar projects;
- the description of the team that will be assigned to the project;
- the hourly or daily rate of each team member included in the project team.

5. Contact

In case of question please contact:
Stefano Seppi
Email: s.seppi@noi.bz.it
Tel.: 0471-066674

Nature of Innovation.