NOI A.G. / S.p.A.
Roberto Cavaliere
r.cavaliere@noi.bz.it
T +39 0471 066 676

Bolzano, 21.02.2024

Preliminary market consultation and contextual request for quote

Dear supplier,

NOI SpA intends to initiate a preliminary market consultation pursuant to art. 20 of LP no. 16/2015 and art. 40 of Directive 2014/24/EC for the implementation of new Data Collectors for the Open Data Hub, related to the automatic retrieval of statistical data provided by some "sustainability APPS". More information and specifications are described in more detail in the Annex.

NOI SpA invites all interested economic operators to participate by filling in an expression of interest, **also in the form of a quote**, in relation to the products and requirements described in the Annex.

This preliminary market consultation is organized in the scope of the following EU project:

Project name: IMPACT – Impacting Innovation Through Specialization
Project code: EFRE1048
Project CUP: J57H23000640009

DEADLINE FOR THE DELIVERY OF THE QUOTE (08.03.2024):
The quote is to be sent exclusively by e-mail to r.cavaliere@noi.bz.it

Best regards
Roberto Cavaliere

<u>ANNEX</u>: Details of the preliminary market consultation
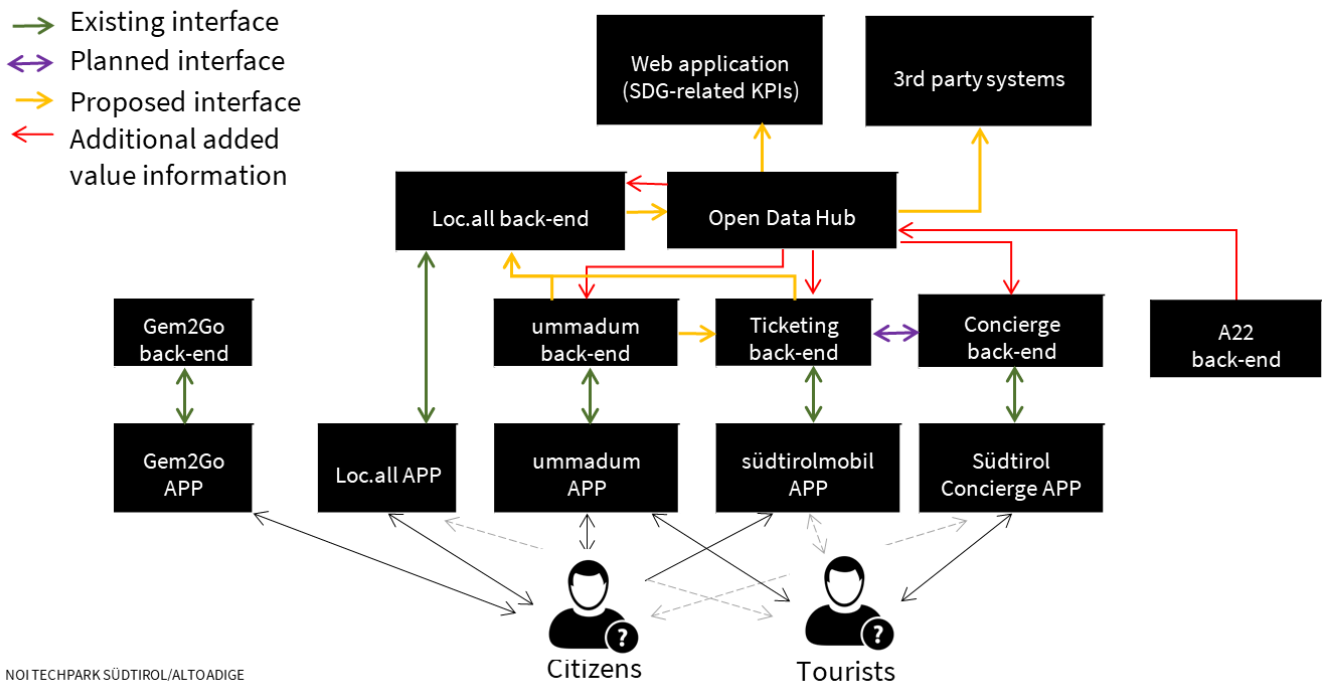
1. Open Data Hub

The Open Data Hub is an open-source platform developed by NOI in cooperation with a large number of local public and private stakeholders, which aims to open up and made available machine-readable data related to different sectors. The goal is to promote research and development activities based on the usage of such data, so that the full potential beyond its usage can be exploited and innovative products and services can be created and put on the market. For a comprehensive and up-to-date overview of the Open Data Hub, its community and the datasets available so far please refer to the official project web site: https://opendatahub.com/

2. Integration of various "Sustainability APPs"

In 2022 NOI carried out a feasibility study regarding the possibility to digitally "align" the increasing number of applications available in our region and that try to foster sustainable behaviour by the end-users, e.g. by means of gamification approaches. The vision is to provide the end-user with a digital instrument that can show the overall score obtained with the different applications and, if "sustainability" points are foreseen, can shift from one application to another such points / benefits obtained. The Open Data Hub should also centrally collect the sustainability scores obtained through the different applications and let them be freely available so to give more visibility to these sustainability achievements. An overview of

the overall system architecture, which also highlights the different organizations and related applications involved in this preliminary evaluation phase, is given in the following picture.

PROPOSAL OF SYSTEM ARCHITECTURE

NOI TECHPARK SÜDTIROL/ALTO ADIGE

3. Specification of the requested set of activities

The present market consultation aims to explore the market in order to find a suitable partner for the **development of new Data Collectors** for the Open Data Hub that can automatically retrieve the statistical data provided by the different applications. In particular, the new Data Collectors to be implemented are:

- **Data Collector Sustainability APP Loc.all** (https://www.loc-all.com/it/home)
- **Data Collector Sustainability APP Ummadum** (https://www.ummadum.com/en/)
- **Data Collector Sustainability APP Alto Adige Pedala / Südtirol radelt** (https://www.altoadigepedala.bz.it/)

Exact specifications on how the data provided by these external systems has to be matched with the Open Data Hub data model will be deepened with the supplier at the beginning of the implementation activities.

Examples of other existing Open Data Hub Data Collectors can be analyzed on the repository https://github.com/noi-techpark/bdp-commons/tree/main/data-collectors

3.1 DATA COLLECTOR SUSTINABILITY APP ALTO ADIGE PEDALA / SÜDTIROL RADELT

The Department Green Mobility of STA launches since many years the "Südtirol Radelt" competition for the promotion of cycling in South Tyrol. In order to do that, they have introduced an APP in which users can manually registers their trips done with a bicycle. The APP is provided by a supplier, Seimal Digital, together with a back-end for the collection of statistical information, that are then published on the web-site https://www.suedtirolradelt.bz.it/

A new API has been implemented so to allow the sharing of these statistical information with 3rd parties, in particular with the Open Data Hub. Following API calls are made available:

- **Aktionen**: list of competitions available with general statistics
- **Organisationen**: list of organizations with reference to specific competitions and detailed statistics associated to organizations + actions

The web-service "**Aktionen**" can be called with different input parameters, namely:

- **active**: boolean indicating if we want to integrate competitions that are closed or open
- **limit**: number of maximum challenges to be returned
- **offset**: to be used in case of retrieval of information through a paging concept (from which point I would like to get the competitions information, to be used in combination with limit)
- **type**: type of challenge. Possible values: DISTANCE, POI, JOURNEY

The web-service "**Organisationen**" can be called with different input parameters, namely:

- **type**: type of organization. Possible values: ASSOCIATION, MUNICIPALITY, WORKPLACE, SCHOOL, UNIVERSITY
- **query**: default values 'STA'
- **challenge_id**: competition ID, to be used to get only the companies participating to a specific competition
- **limit**: number of maximum organizations to be returned
- **offset**: to be used in case of retrieval of information through a paging concept (from which point I would like to get the organizations information, to be used in combination with limit)

3.2 DATA COLLECTOR SUSTINABILITY APP UMMADUM

Ummadum is a private company born in Austria that has launched a digital mobility solution to promote sustainable mobility habits by means of a gamification approach. Such solution is mainly destined to community of users linked together, in particular the corporate sector, in which there is an internal responsible (e.g. the mobility manager) who decides how to configure the incentives mechanisms. The end-user receives an APP, with which he has to register his / her sustainable mobility habits. Supported modes are public transport, cycling, walking, car pooling. The APP automatically certifies that these entries are valid, through proper automatic controls. Through the APP he / she can then earn points associated to his / her sustainable mobility behaviour and receive the correspondent award.

All statistical data about the usage of the system, separated on a community level, are collected in a common back-end system. A new REST API has been implemented so to allow the sharing of these statistical information with 3rd parties, in particular with the Open Data Hub. The access to the API is protected, each API endpoint is authenticated and secured by a community-specific API-Key. This means that in order to get data from different communities different API calls have to be carried out by using different API keys.

Following API calls are made available:

- **statistics/members**: provides information about the number of active users
- **statistics/activities**-supported: information about the overall KPI generated, with detail per transport mode.
- **statistics/challenge**: information about the KPI associated to specific challenges organized within the community.

3.3 DATA COLLECTOR SUSTAINABILITY APP LOC.ALL

Loc.all is an initiative launched by mrs. Rosa Maria Trojer that has the aim to engage locale citizens to carry out sustainable activities in their municipalities. This engagement takes the form of a gamification system, in which citizens are rewarded with sustainability points if they complete a certain sustainability action. Citizens have to register their activities on an APP, and receive accordingly the associated points. All this information is collected in a back-end system, and from there it can be exchanged with 3rd parties via API.

In this case the source provides two API calls that can be used to request the following information:

- the list of municipalities that are part of the Loc.all initiatives
- the list of KPIs associated to each single municipality

4. Deadlines

The activities requested have to be carried out according to the following time plan:

- **Data Collector Sustainability APP Alto Adige Pedala / Südtirol radelt** by mid of March 2024
- **Data Collector Sustainability APP Ummadum** by end of March 2024
- **Data Collector Sustainability APP Loc.all** by mid of April 2024

5. Technical constraints

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

5.1 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 NOI S.p.A.
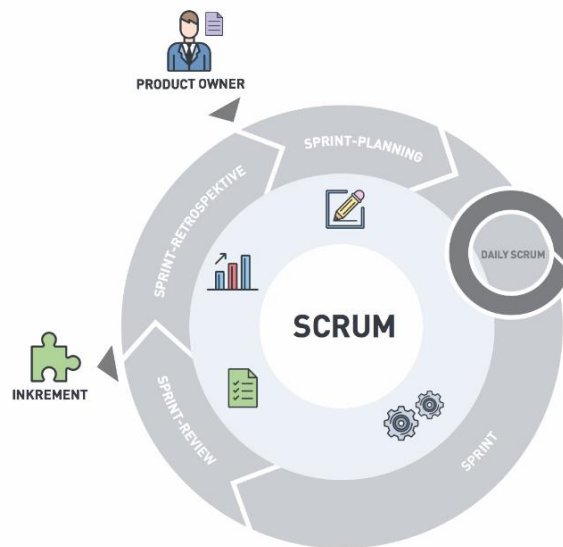
The software development will take place in three phases/environments:

- **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 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 into the production environment. Also, this process is managed automatically with Continuous Integration pipelines.

To coordinate the project NOI S.p.A. will use a Kanban Board in Github. Each functionality or issue will be described by NOI S.p.A. in Github and put on the Kanban Board. The Kanban Board will have the following columns:

- **Backlog:** contains all issues that are on hold and have to be discussed during the next sprint meeting with the supplier;
- **ToDo:** contains all issues that have to be concluded in the actual sprint;
- **In Progress:** contains all issues where the is working on;
- **To Review:** contains all issues where NOI Techpark has to make some reviews and that has to be reviewed during the sprint meeting.

All issues in the Kanban, but the one in Backlog, have to be assigned to the user that has to make the next step (e.g. the issues in ToDo will be assigned to the developer who has to develop the functionality, the issue in ToReview will be assigned to the tester, etc.). The supplier will have access to the project Kanban board and will have to check it regularly.

In order to allow the NOI S.p.A. team to properly review and test the code, for each issue in the ToDo lane the service provider has to send a pull request to the development Branch of the repository at least 5 working days before the sprint meeting.

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 the technical documentation, available at the following link:

https://docs.opendatahub.com

5.2 REPOSITORY GIT

The source code has to be uploaded to the Git repositories provided by NOI Techpark. During the upload the service provider has to take particular attention to the following aspects:

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

As Open Data Hub we created some boilerplate repositories for the most common project type (es. Java project, Web Component, .Net Core project, etc.). In case you are starting a new project from scratch, before starting your project please look for the boilerplate that best fits your project and use it to initialize your repository. The repository of the Open Data Hub on github is:

https://github.com/noi-techpark

5.2.1 Documentation

While you are documenting your code, please consider that the official language of the Open Data Hub is English. So, the entire documentation, including the comments in the code, has to be in English. Moreover, you must observe the following guidelines:

- use the right boilerplate of the README.md if exists;
- use only markdown or text (no binaries, no PDF, etc.);
- should be so detailed that a third person, without any connection to the developers can setup the project, run it and develop it further;
- Java Doc and similar tools for other languages should be as complete as possible;
- add the author tags incl. emails;
- README.md should be a good description of the project and should also have a usage instruction (boilerplate does not consider that). Mainly because tools like **npm** use it as homepage for each project

In general, the documentation of the project (e.g., readme file, license file, etc.) should be done in order to allow third parties developers, who don't know anything about the project, to understand the whole project and replicate, install or modify it without the need to get in contact with NOI S.p.A. Therefore, the documentation (README.md) should include also:

- a short description that allows the user to understand the overall goal and functionalities of the project;
- longer and detailed description that includes also:
    - o description of the different parts of the repository/application;

- description of different parts of the project (also other repositories, if existing, and a link to them) and how this application is part of the overall project;
- external services/code/framework/software that are used including their licence and copyright information;
- detailed development setup instructions (including testing);
- detailed deployment setup instructions.

5.2.2 Licensing and Reuse compliance

In respect to the licensing and copyright information, the service provider must follow the guidelines defined by the Reuse project:

https://reuse.software

The service provider must provide code where the Reuse linter passes without errors and the licenses must be all compatible with each other.

5.2.3 Pull request (PR)

As mentioned in the previous paragraphs the service provider, before each sprint meeting, will deliver the source code by making a Pull Request to the Development Branch of the repository Git provided by NOI S.p.A. at the beginning of the project. In general the service provider has to observe the following guidelines to make the pull requests:

- at the beginning of each sprint the service provider will open a Pull Request (PR) with a prefix [WIP];
- during the sprint the service provider has to regularly push the commits to that PR in order to allow NOI S.p.A. to monitor the status of the project (additional information are available under: https://opendatahub.readthedocs.io/en/latest/contributors.html);
- at the end of the sprint (at least 5 days before the sprint meeting) the service provider will close and send the Pull Request.

NOI S.p.A. will analyze the Pull Request before the meeting and eventually send feedback to the service provider. The minimal requirements for a Pull Request to get accepted are:

- the documentation must exist and be as complete as possible in respect to the status of the project;
- commits must not contain credentials or any other sensible data;
- contributions (e.g. documentation, comments, etc.) must be in English;
- merge conflicts must be resolved by the contributor;
- all Continuous Integration verifications must pass;
- Pull Request branches should possibly have a linear history, that is, they should not contain merge commits

During the development cycles the pull request comments and in general the issues and the dedicated Kanban board on Github (original repository) must be tracked by the service provider. The discussion about issues, pull requests, and other specific comments on the code development will be managed on GitHub in the project repository and NOT through email. That also involves moving user stories to the corresponding column in the Kanban and assigning them to the right user.

5.2.4 Commits

These paragraphs contain some guidelines that the service provider should follow while implementing the project:

- commits should contain a single thing/feature, not be too big and specially they should not be a combination of unrelated features or bug-fixes;
- each commit must be described: present tense and active (e.g. "Add logging to commons" not "commons will get logging now" and not "Added logging").

5.2.5 Deployment

For the deployment of the project NOI S.p.A. will use its CI/CD infrastructure, for this reason it is important that the service provider includes in the documentation of the project the information about how the application should be deployed or updated by a CD pipeline. Therefore, the documentation should point out the following things:

- What parameters must be configured? Which ones are secrets and which are not?
- What services must be used? (e.g.. PostgreSQL database, S3, ..)
- What steps must be made to package the application/project so that it can be copied to the server?
- What steps must be made on the server after deploying? (ex. Database migrations executing with special command)
- What must be adjusted on the server only once? (ex. cron job, shared folder).

5.2.6 Testing

All projects should include unit tests and the minimal requirements for the service provider are:

- setup a test infrastructure;
- write unit tests to cover the most important features;
- the minimal test coverage should be 20%;
- tests should mainly cover own business logic (even if minimal) and not third-party API's / libraries.

Finally, a test-driven development is appreciated.

5.2.7 API development

In case that within the project it is foreseen also the development or the change of APIs, the service provider should observe the following guidelines:

- all API calls must be documented in the README.md;
- Swagger UI should be used;
- in case of errors the API should return to the consumer valid and descriptive error messages;
- the API should be RESTful, if possible, but, in case of need, other formats will be considered. In case of non RESTful APIs the service provider should present to NOI S.p.A. enough documentation to allow NOI S.p.A. to decide whether to go on with the new technology or stick to RESTful;
- the API must include also:
  - o Response codes,
  - o HTTP methods,
  - o validity errors,
  - o logging: JSON format for production and plain-text for local development written to stdout.

5.2.8 Access Control List (ACL) management

In case that the project foresees Access Control List management, the service provider should observe the following guidelines:

- every login to a webapp needs ACL;

- the passwords must be complex enough to be secure;
- Oauth 2.0 standard is required Session management for webapps should be present, logout after an inactivity time (the length of the inactivity time depends on the single projects and has to be agreed with NOI S.p.A.)

As an Access Management tool NOI S.p.A. uses Keycloak (https://www.keycloak.org/) instance. More details are available at the following links:

https://docs.opendatahub.bz.it/en/latest/guidelines/authentication.html

5.2.9 Dockerization

NOI S.p.A. is using Docker (https://www.docker.com/) to automate the deployment of the application and we strongly recommend to:

- use docker for local development;
- keep local docker setup, staging and production as similar as possible (these will be provided and updated by the NOI S.p.A. team);
- use environmental variables to configure different stages (i.e., .env files).

6. Organizational constraints

6.1 WORKING PLACE AND HOUR

6.1.1 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 to 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.

6.1.2 Working Place

The meetings that will be agreed during the project will take place, according to the needs of the project team, online or in the NOI Techpark offices:

- Via Alessandro Volta, 13, Bolzano.

Any expenses that the supplier will have to incur to reach these locations will not 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 in agreement with the one or more entities / suppliers involved in the project, etc.) can't be billed to NOI Techpark.

7. Contents and evaluation of proposals / quotes

The quotes will be evaluated according to the criteria summarized in the table below.

CRITERIA	Points
1. Technical evaluation	**70**
1.1 Technical proposal related to the implementation work requested	35
1.2 References and overall experience in the requested software developments	35
2. Economical quote	**30**

As far as **criterion 1.1** is concerned, it is expected to receive a concept which describes how and in with which amount of time the Data Collectors are intended to be implemented, according to the specification given. Higher score will be given to proposals that demonstrate to have better understood the implementations requested, that are appropriate and compliant with the given specifications, and the require less time to be completed.

As far as **criterion 1.3** is concerned, it is expected to receive a CV of the personnel staff to be involved in this activity and up to 3 project references about similar development activities in which this staff (or alternatively the company) was involved. Such project references should have taken place from 1.1.2021 onwards.

As far as the **economical quote** is concerned, it is expected to receive a cost indication for each single activity requested (paragraphs 3.1 – 3.4). The points are going to be assigned according to the following formulas:

$$C_i = \frac{O_{min}}{O_i}$$

$$PE_i = C_i * P_{max}$$

where:

- O_i is the economical quote of the *i*-th proposal.
- O_{min} is the economical quote of the best quote (i.e. with the lowest price)
- C_i is the coefficient associated to the *i*-th proposal
- P_{max} is the maximum number of points related to the economical quote (i.e. 30 points)
- PE_i is the number of points associated to the *i*-th proposal.

The technical evaluation and economical quote shall be provided in a document that should not exceed 10 pages of documentation. Any collaboration with other companies and the presence of any subcontracts must be explicitly indicated.

NOI S.p.A reserves the right to activate a cooperation with several economic operators if it considers it functional and efficient from a technical and economic point of view. Therefore, it is possible to present a quote also for just a subset of the activities described in this document (e.g. only design or implementation activities). In this case, the comparison of the quotes will be limited to the applicable activities.

8. Invoicing procedures

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 entire 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.

All invoices must include that the transaction is subject to the Split Payment discipline as mentioned in the art.17-ter del DPR 633/197 and must be issued exclusively in electronic format (Unique Office code: T04ZHR3).

The invoices should include the following references:

Project name: IMPACT – Impacting Innovation Through Specialization
Project code: EFRE1048
Project CUP: J57H23000640009

9. Transfer of rights

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 GPL v3 or AGPL v3 (depending on the project type) license shall apply. The use of material belonging to third parties must be expressly declared at the time of the quote, or be easily and immediately understandable from 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.