Bolzano, 9th October 2020
Market survey

This document concerns a market survey for the identification of a partner that can support NOI in the improvement of Open Data Hub - Web Component Store. The requirements, the constraints, the use case and the technical specification of the software to be developed are described in the next sections of this document and in the Annex 1 "*Technical Specification*".
The documentation and software produced will be published with open licenses so that they can also be used by third parties as an example for their own needs.
The suppliers can be both companies and freelancers.

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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

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1.2 The Web Component Store

The Open Data Hub Web Components Store is a platform to display and browse web components based on data from the Open Data Hub. Those components are either developed and maintained by the Open Data Hub team or by developers interested in publishing and presenting their own web components. It is the entry point for one of the main service pillars of the Open Data Hub, which is to give all information about and around the Demo App development. Target groups are end users which like to preview and look at the data from the Open Data Hub, website editors wanting to include such a web component into a website they manage and developers interested in either developing a web component or another product in conjunction with the Open Data Hub.

Through the catalogue of the Web Component Store it is possible to access the details of each available web component, allowing simple configuration and preview. Each web component displays the HTML code snippet for an easy integration of the according web component into a website.

At the following link you can access to the actual version of the Open Data Hub - Web Component Store

<div align="center">

webcomponents.opendatahub.bz.it .

</div>

the goal of this application are:

- collect and show a list of web components that everyone can consume and use in his website;
- show the detail information (e.g. description, authors, license, etc.) of each web component;
- allow the users to configure (e.g. choose the data to be shown, select a the formatting, etc.) the web components according to their needs;
- show a preview of the web component according to the configuration selected by the user;
- show the HTML code that has to be used in order to integrate the web component in a web site;
- allow to copy and paste the HTML code for the integration of the web component in a website.

The source code of the actual version of the Web Component Store is available at the following link:

<div align="center">

github.com/noi-techpark/odh-web-components-store

</div>

2. Goal of the market survey

As already mentioned in the introduction, the goal of this market survey is the identification of a partner that can support NOI in the improvement of the Open Data Hub - Web Component Store (webcomponents.opendatahub.bz.it). The requirements, the constraints, the use case and the technical specification of the

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software to be developed are described in the next sections of this document and in the Annex 1 "Technical Specification".
The offer includes the the following outputs:

- the source code of the application must be published on a repository Git provided by NOI S.p.A.;
- the documentation that allows to easily replicate or extend the project;
- 100 hours of support to be billed according to the consumption for the implementation of small changes emerging during the use of the application. These hours won't be used in any case for fixing bugs that NOI S.p.A. will identify in the 12 months following the date of the final test.

The flight rules to be followed for the code and documentation development are available at the following link:

opendatahub.readthedocs.io/en/latest/guidelines/introduction.html

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 L.t.d., 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 L.t.d. 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 the description of the project. In the event that code is developed during the realisation of this assignment, NOI L.t.d. 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.

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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 wants 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.
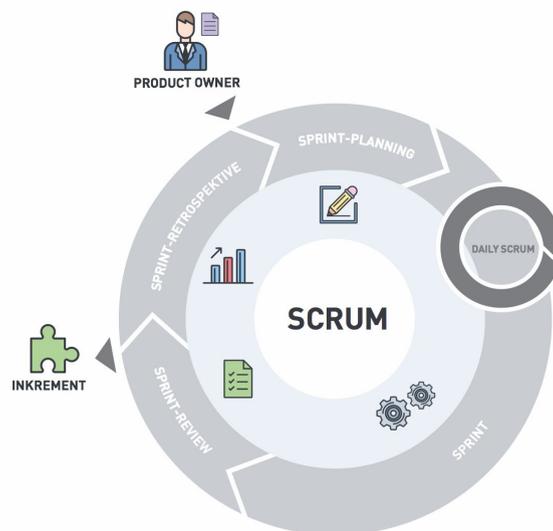
Figure 2: the SCRUM methodology.

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

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"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:

opendatahub.readthedocs.io/en/latest/index.html.

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.

- 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 contribution to Open Source projects;
- The project team has to have experience in development project 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).

3.5 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 ha 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.

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3.6 Working place and hour

3.6.1 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.

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

3.7 Deadlines
The service providers who are interested in participating in this market research will have to present their offer within the **16th of November 2020**.
All activities included in this market research has to be concluded within the **30th April 2021**. In case that the service provider isn't able to conclude the work within the project deadline, we kindly ask to make a new proposal for a feasible deadline. The new deadline will be considered in the evaluation process but the priority will be given to the service provider that guarantees to conclude the work within the project deadline.

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;
- the cost estimation of each feature described in the 2nd chatper of this document "Goal of the market survey" and in the Annex 1 "Technical Specification - Web Component Store"

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- the total cost estimation for the development of the new features of the Web Component Store.

5. Annexes

In this section are listed all annexes of the main document of the market research

- Annex 1: Technical Specification - Open Data Hub Data Browser 1.0.

6. Contact

In case of question please contact:

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Bolzano, 9th October 2020
Annex 1: Web Components Store 2.0 - Requirements specification

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1. The Open Data Hub Project

The Open Data Hub Web Components Store[1] is a platform to display and browse web components based on data from the Open Data Hub[2]. Those components are either developed and maintained by the Open Data Hub team or by developers interested in publishing and presenting their own web components. It is the entry point for one of the main service pillars of the Open Data Hub, which is to give all information about and around the Demo App development. Target groups are end users which like to preview and look at the data from the Open Data Hub, website editors wanting to include such a web component into a website they manage and developers interested in either developing a web component or another product in conjunction with the Open Data Hub.

Through the catalogue of the Web Component Store it is possible to access the details of each available web component, allowing simple configuration and preview. Each web component displays the HTML code snippet for an easy integration of the according web component into a website.

2. Goals of developing the Web Component Store 2.0

The aim of the market research is to find suppliers which are able to support NOI Techpark to update and improve the current Web Components Store.
The general objectives of this upgrade are:

- to improve UX/UI of the Web Components Store
- to add visible call to actions
- to make visible that anyone can contribute
- to help and let people know how they can contribute
- to connect it to Open Data Hub customer care (help@opendatahub.bz.it) to receive feedbacks
- to make the data more visible, in order to help increasing quality of data
- to keep it simple.

Therefore the main goal is to improve acceptance by the target groups such as end users, website editors and developers.
The product should contain as many features as the current store has. In several places there shall be enhancements both on the visualization side and on the functionalities side.

3. Targets and specific requirements

The Web Component Store 2.0 has to address three target groups. They are namely:

3.1 End users

This group is mainly interested in seeing data from the Open Data Hub and having the possibility to try out its web components. The user experience should therefore not be limited because of non-working responsiveness or other graphical issues such as browser or display errors. The UX in the current version of the Web

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[1] Web Components Store https://webcomponents.opendatahub.bz.it
[2] Open Data Hub https://opendatahub.bz.it

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Components Store is a good starting base for the use case of this user group. A clear introduction to the store and what the web components are about has to be added.

3.2 Website editors
This group needs to get an overview on how to use a specific web component into a proper website. Information and tools therefore are:

- a detailed description;
- a possibility to in-line style the component,
- details on legal notes;
- information, tools or links to evaluate weight and speed of a component;
- visible links to the web components Git repositories;
- a list of all html tag attributes and allowed inner-html contents.

3.3 Developers
This group needs to get in touch on a coding level and therefore all necessary information and links must be clearly and well-arranged accessible. Such tools are:

- a "Contribute" button to all information on how to get involved;
- a "Fork me on Git" button to link the public repository;
- a direct link to the "Howto" in the documentation;
- a place for a "Tutorial" video and further guidelines either specific for a web component or on a general level;
- some kind of integration into a preview environment on the fly (e.g. stackblitz.com, codecanyon.net);
- an intuitive concept of in-line editing features.

Additionally, there are a few functions necessary independently of the targets, such as

- a general "Get in touch" button which sends a mail to help@opendatahub.bz.it; Ideally this is realized through a webform.
- a clear navigation structure, as well in the preview mode.

4. Requested features

4.1 Work package 1: Graphical composition
The elaboration process of this work package should have a couple of iterations with feedback rounds, where the customer is involved to see proposals, give feedback and choose from variations.
- Realization of each graphical element of the whole Web Component Store, including requirements from the target groups above
- A leitmotif for each of the target groups to easily identify according informations in each view
- Responsiveness
- The result of this work package is the base for work package 2 and has therefore to be complete and delivered as a whole
- The following static content has to be foreseen on the store:
    - Legal explanations about using web components (AGPL for instance).
    - Developer information when someone wants to start a new development (boilerplate code, examples, etc.)

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- ○ Website editor information on how to integrate a web component step-by-step in a personal webpage.
- ○ A place for other documentation regarding the web components itself, with a link to http://docs.opendatahub.bz.it.

4.2 Work package 2: Technological implementation

The current solution consists of a static and standalone web application, an API Java backend and a CDN. Additionally there is a scheduled Java crawler to collect new web components. This work package must be based on the existing codebase and architecture. New proposals can be discussed. In order to integrate the Web Component Store 2.0 into the Open Data Hub microservice landscape, there are a few requirements to be met.
It is therefore necessary that:

- The new solution has to be built upon the existing codebase. While starting from scratch is not recommended, a refactoring is welcome.
- The result should be a static web application which can be put for example on a bucket on S3.
- Source code is published on a dedicated Github repo.
- Implementation language is Java in combination with the web framework VueJS.
- An API allowing (a) read existing web components from the catalogue to be published and visualized on the frontend and (b) register/modify/delete web components on and from the catalogue.
- Authentication is done through the internal Keycloak Authentication Server (OAuth 2.0) service allowing access to a restricted view.
- The solution is able to log each action/event to STDOUT in JSON format to be forwarded into an external ElasticSearch endpoint. With this data the monitoring and statistical analysis on the web component usage is done based on ElasticSearch + Kibana/Grafana.
- Architecture details
  - ○ Setup of the local development environment should be done with docker-compose scripts.
  - ○ All services shall run inside docker containers, except for the static web page.
  - ○ All configuration shall be made through environmental variables (in example, .env-files).
  - ○ Data must be stored in a Postgres Database, where schema changes must be served as update scripts for each version.
  - ○ Development, testing and deployment must be described in detail in a markdown document.
- On the frontend there is throughout responsiveness for mobile devices on all modern browsers.
- All functionalities designed by the graphical proposal are implemented.
- Integrations with 3rd party services, such as "stackblitz.com" are well tested in various scenarios.
- The different services must contain unit- and integration tests.

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