FINAL TECHNICAL REPORT

Fuel Cells and Hydrogen 2 Joint Undertaking
FCH / OP / CONTRACT NO. 249

CONFIDENTIAL

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Abstract

This Final Technical Report summarizes the technical achievements and describes the results from the project development. The report is structured around the main deliverables and activities carried out in the project:

> Section 1 describes the public part of the web portal (www.h2v.eu) in its current version (April 2021), when all the different sections have been developed according to the different specifications collected in the Inception Report and evolved with progressive iterations.

> Section 2 describes the backend of the web portal, which servers to manage the contents behind the platform.

> Section 3 describes the communication activities developed in the project with the purpose of positioning the web portal and giving visibility to the 'hydrogen valley' initiatives.

Project progress

At this moment, the project has produced all the deliverables and reached the milestones as agreed in the Inception Report.

Status report

Final version

Outlook

In order to finalize the contract, the following activities will be carried out:

> From the perspective of the web portal, the Handover of the MI H2V platform will be executed to deliver it to the FCH JU or service provider in charge of maintenance of operation.

> From the perspective of the communication activities, the Final Report will be published in the portal and the relative documentation to continue with these activities will be issued to the FCH JU or service provider.

1. Webpage hosting the platform

This section describes the H2V platform, which is hosted in the www.h2v.eu domain acquired at the beginning of the project. Below, the platform is described in terms of:

> Overview of structure, design and functionalities, describing the contents and features of each section of the platform.

> Analytics of the portal, describing the Matomo tool which allows monitoring users' behaviour when navigating and accessing the website.

> Services Delivery Plan in the context of MI H2V platform, which sets the path to transfer the portal to a third party in charge of continuation of the service.

1.1 Overview of structure, design and functionalities

This section describes the structure, design and functionalities available for users visiting the MI H2V platform:

1.1.1 Home page

https://www.h2v.eu/

The Home page is the default page that appears when entering the portal (www.h2v.eu) and it is structured as follows:

> **Heading**. Firstly, the heading is presented with the logos and the sign-up button (see **Error! Reference source not found.**). In the header, the logos of both, Mission I nnovation and FCH2JU, are located as well as the European Union flag. The noticeable call to action (CTA) button invites the visitor to explore the 'Hydrogen Valleys' menu that is the core of the portal. Finally, there is a dedicated part of the Homepage which contains key performance indicators reached by the project (total number of Hydrogen Valleys represented, countries covered and Total investment volume in Million Euros).

> **Mission and purpose**. Secondly, the 'Mission and purpose' section is included, in which the aim of the H2V platform is presented as well as an idea on which stakeholders are targeted by the platform. Here, the intention is that project developers and their supporters are targeted to promote the emergence of hydrogen projects.

> **Hydrogen Valleys map**. In the bottom part, the map with the location of the Hydrogen Valleys is displayed. This map is directly linked to the Hydrogen Valleys menu and, when clicking on the pins on the map, the user will be redirected to the 'Hydrogen Valleys' menu in addition to seeing the general information of the Hydrogen Valley.

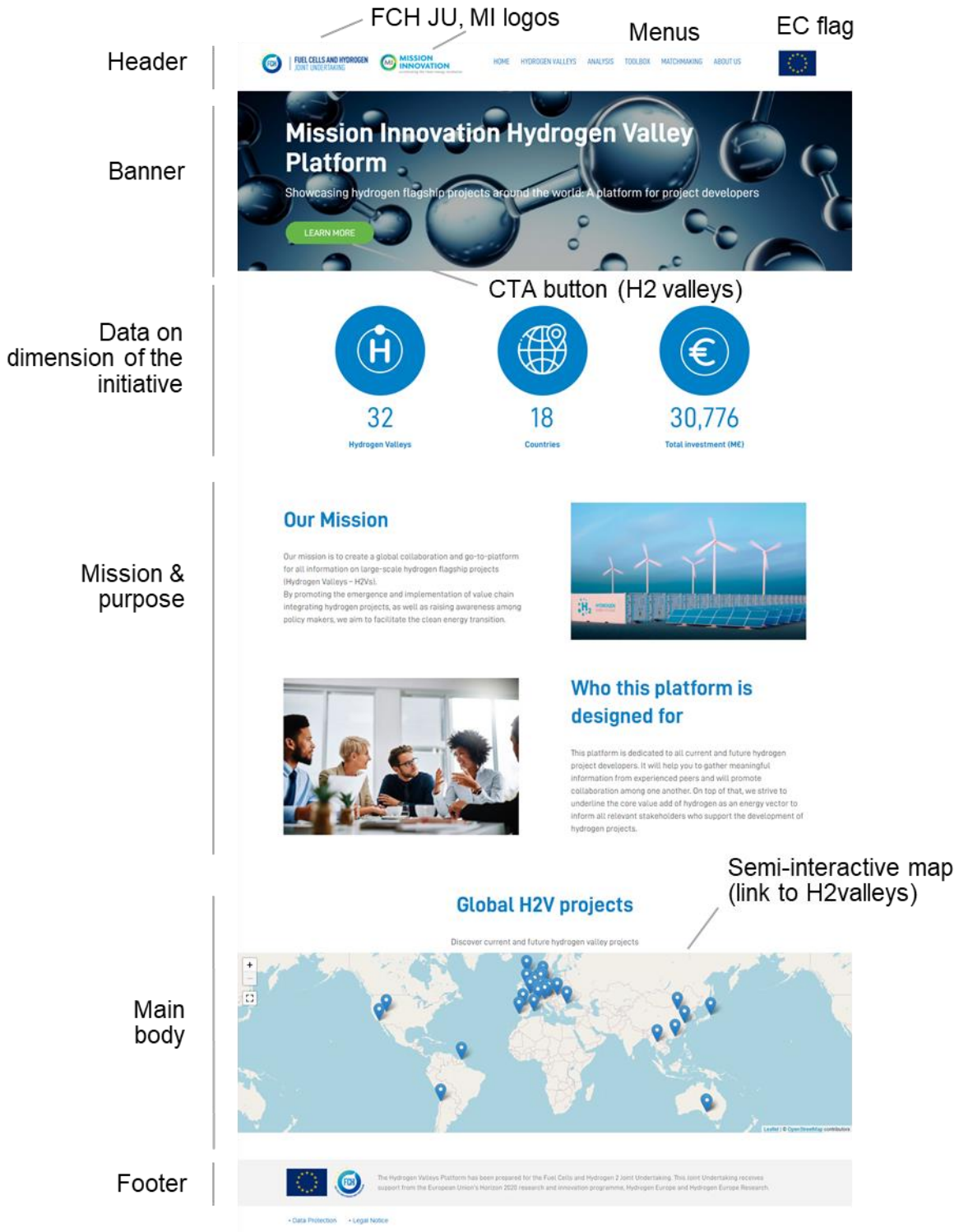

Figure 1. Home page of H2V platform and overview of functionalities.

1.1.2 Hydrogen Valleys menu

https://www.h2v.eu/hydrogen-valleys

This menu shows the Hydrogen Valleys represented in the portal and their specific information.

Firstly, there is an introductory text explaining how to use the menu and links to explore other sections of the portal. Next, the Hydrogen Valleys are shown on the map and, to help users, there is a country selector and a free search bar capability to find initiatives by introducing their name, location, etc. This map is developed in OpenStreetMaps[1], the europa.eu compliant tool for GIS location, with leaflet.js[2] libraries.

When clicking on a Hydrogen Valley pin in the interactive map, general information on it is displayed in a emergent tab (the same as the one shown on the map on the Home page). This general information can also be found in the list of Hydrogen Valley below the map. This is a list containing all the Hydrogen Valleys represented on the portal and their general information. In addition, by clicking on the '+' symbol on the right side of the list, a short description of the selected Hydrogen Valleys can be seen below in Figure 2.

In both options, in the pins and in the list of Hydrogen Valleys, there is a 'View more' option. This button redirects to the specific profile of the selected Hydrogen Valley, which will be explained hereafter.

Lastly, an export option has been included which downloads the list of Hydrogen Valleys and their general information in a .csv format.

[1] www.openstreetmap.org

[2] https://leafletjs.com/

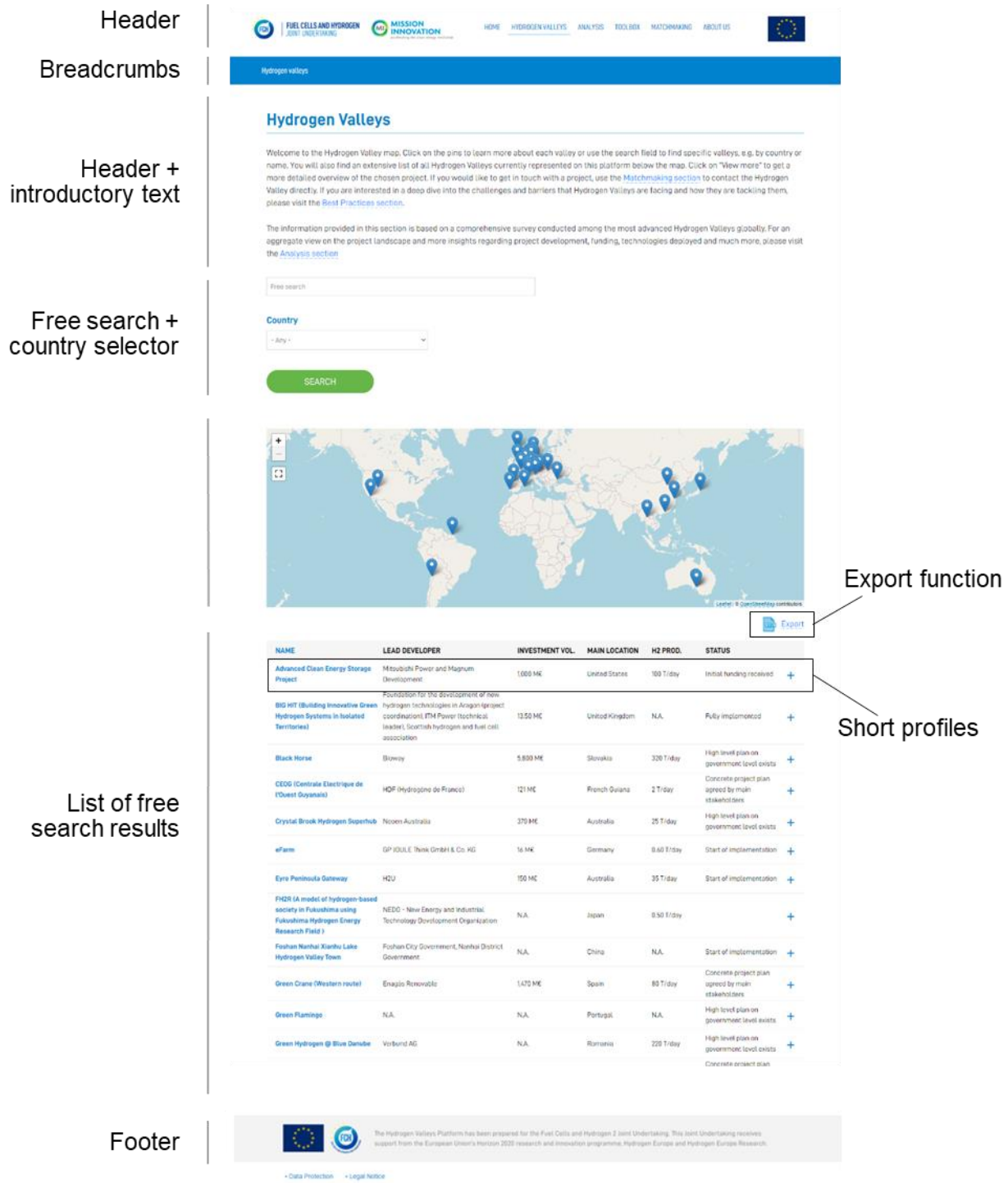

Figure 2. Hydrogen Valleys menu and functionalities.

1.1.3 Hydrogen Valleys profiles

The long Hydrogen Valley profiles appear when clicking on the View more button in the Hydrogen Valleys menu, as mentioned above. Each long profile is structured as follows:

> **Heading**. In this part, the general information on each initiative is shown. This is, information on the lead developer, project partners and main political sponsors, including where it is located and a short description of the valley.

> **Project details**. In this section, the details of the project are shown. The Hydrogen production volume and Investment volume are displayed as well as the value chain coverage and end uses of the Hydrogen Valley. The origin of the funding is also presented.

> **Project timeline**. This timeline shows the year when the project started and the year of finalization of the project. This part also includes the current status of the project.

> **Key success factors.** This section includes the key succes factors in both, project development phase as well as commercial and financing phase.

In the footer of the Hydrogen Valley profiles, there are 2 CTA buttons that redirect to the menu where all the projects are displayed or to the Matchmaking menu.

Lastly, it should be noted that the information shown on the profiles in the portal covers inputs which the Hydrogen Valleys have agreed to disclose in the survey process. If the information is not displayed, then 'N.A.' will appear instead. This can be for two reasons: (a) the Hydrogen Valley chose to not publicly display the data or (b) the Hydrogen Valley did not answer the specific question in the associated survey.

A sample of a Hydrogen Valley profile can be found below in Figure 3:

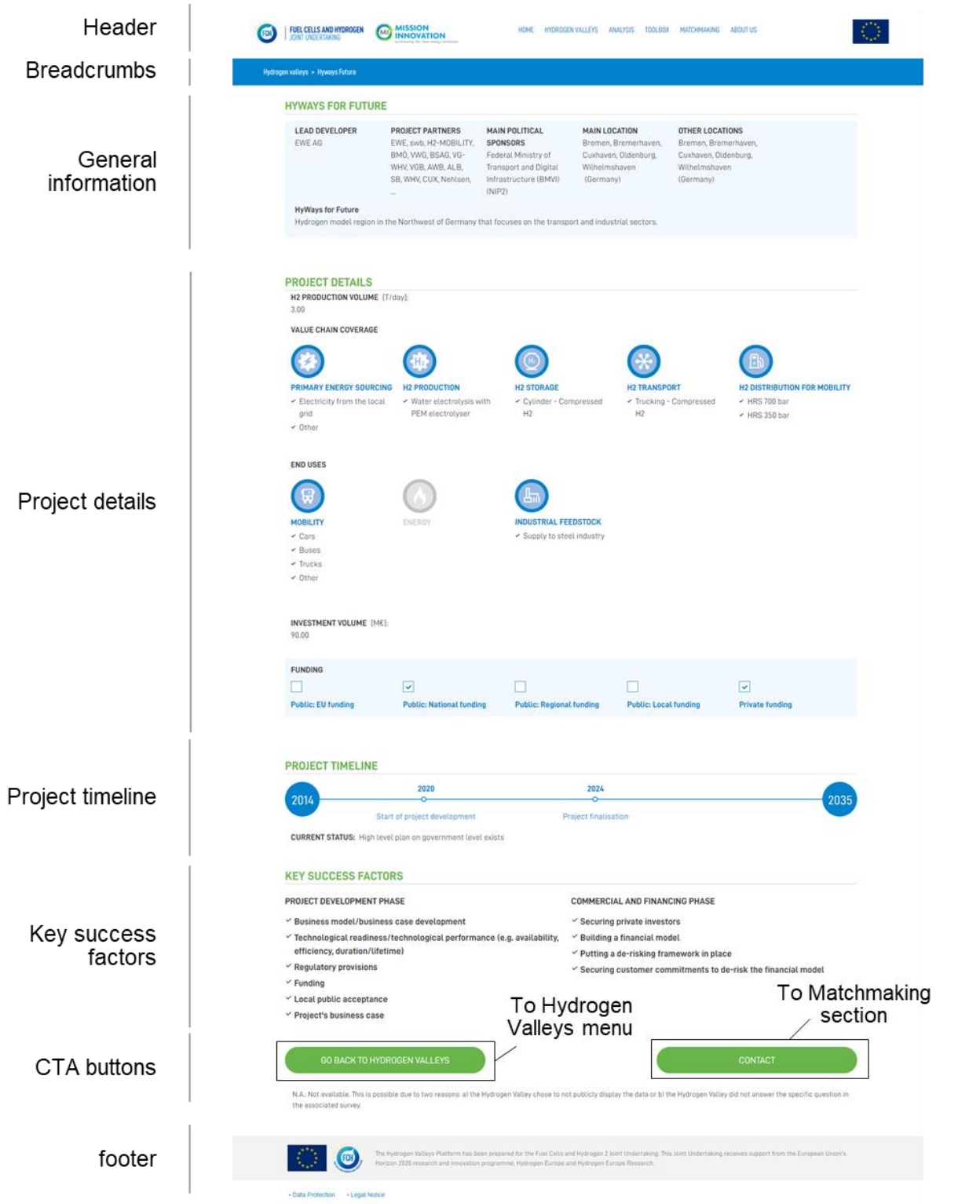

Figure 3. Long profile of a Hydrogen Valley.

1.1.4 Analysis menu

https://www.h2v.eu/analysis

This menu presents the main findings of the survey analysis, interviews and the project reports. The menu is divided in 4 submenus:

> Statistics
> Barriers
> Best practices
> Reports

In order to access to these submenus, this can be done through the menu on the left or the landing page, both shown in the screenshot below.

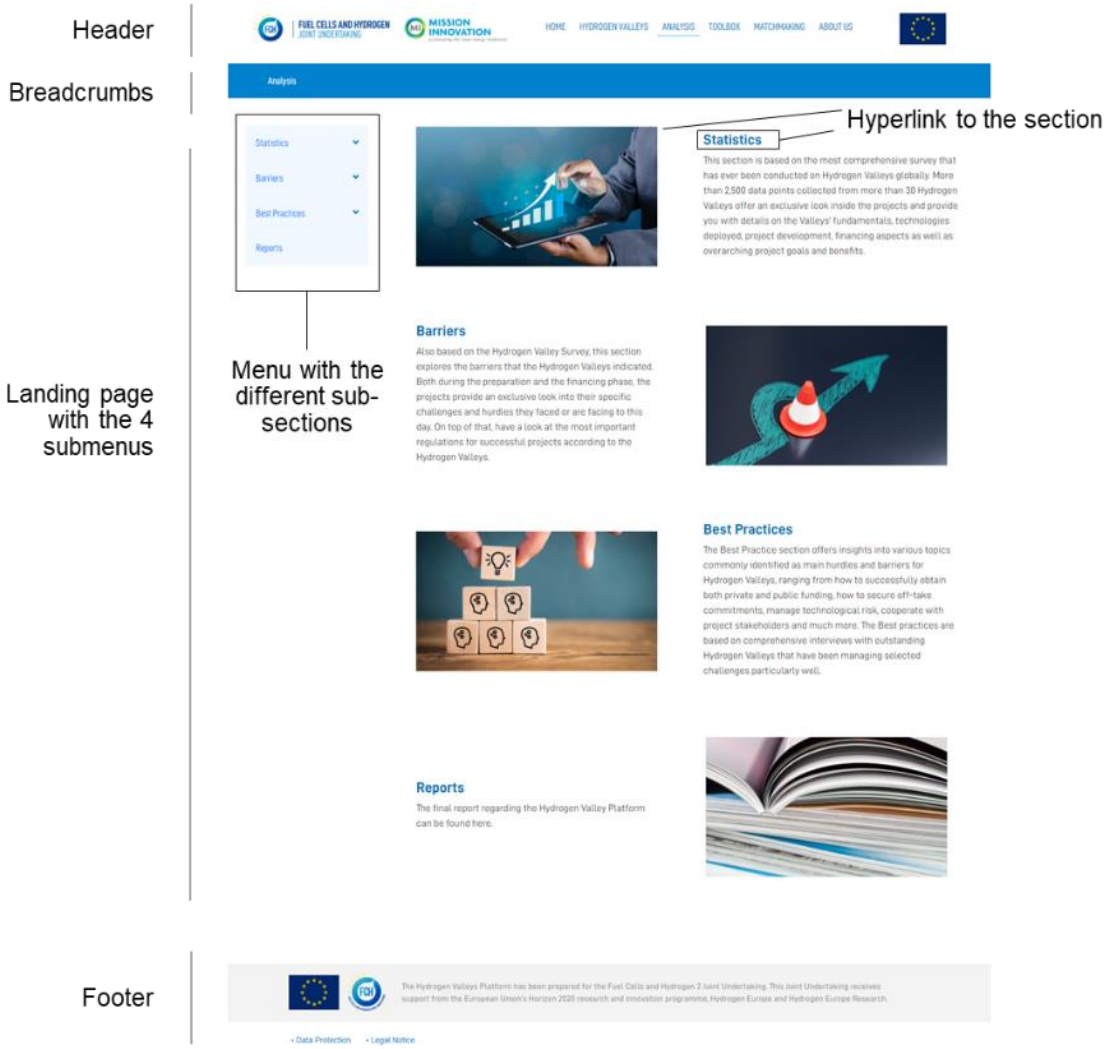

Figure 4. Landing page in the 'Analysis' menu.

1.1.5 Statistics section

https://www.h2v.eu/analysis/statistics

This is the core submenu presenting aggregated data on Hydrogen Valley initiatives gathered in the survey step. The information is structured around the five chapters included in the questionnaire: 'Fundamentals', 'Value Chain', 'Preparation', 'Financing' and 'Impacts'. These sub-sections can be accessed through the lateral menu on the left or through the landing page.It should be noted that all the information in this sub-section is presented in an aggregated form so that it is not possible for users to link specific information with a particular initiative.

Figure 5. Landing page in 'Statistics' section.

Each subsection has different sections where the charts are located. The charts, developed with d3.js[3] (europa servers compliant tool), present the aggregated information and can be of different types depending on the information they display. Furthermore, this data can be filtered (i.e., by continent, scale, technology,etc.) and the charts change dynamically. An example is shown below:

[3] https://d3js.org/

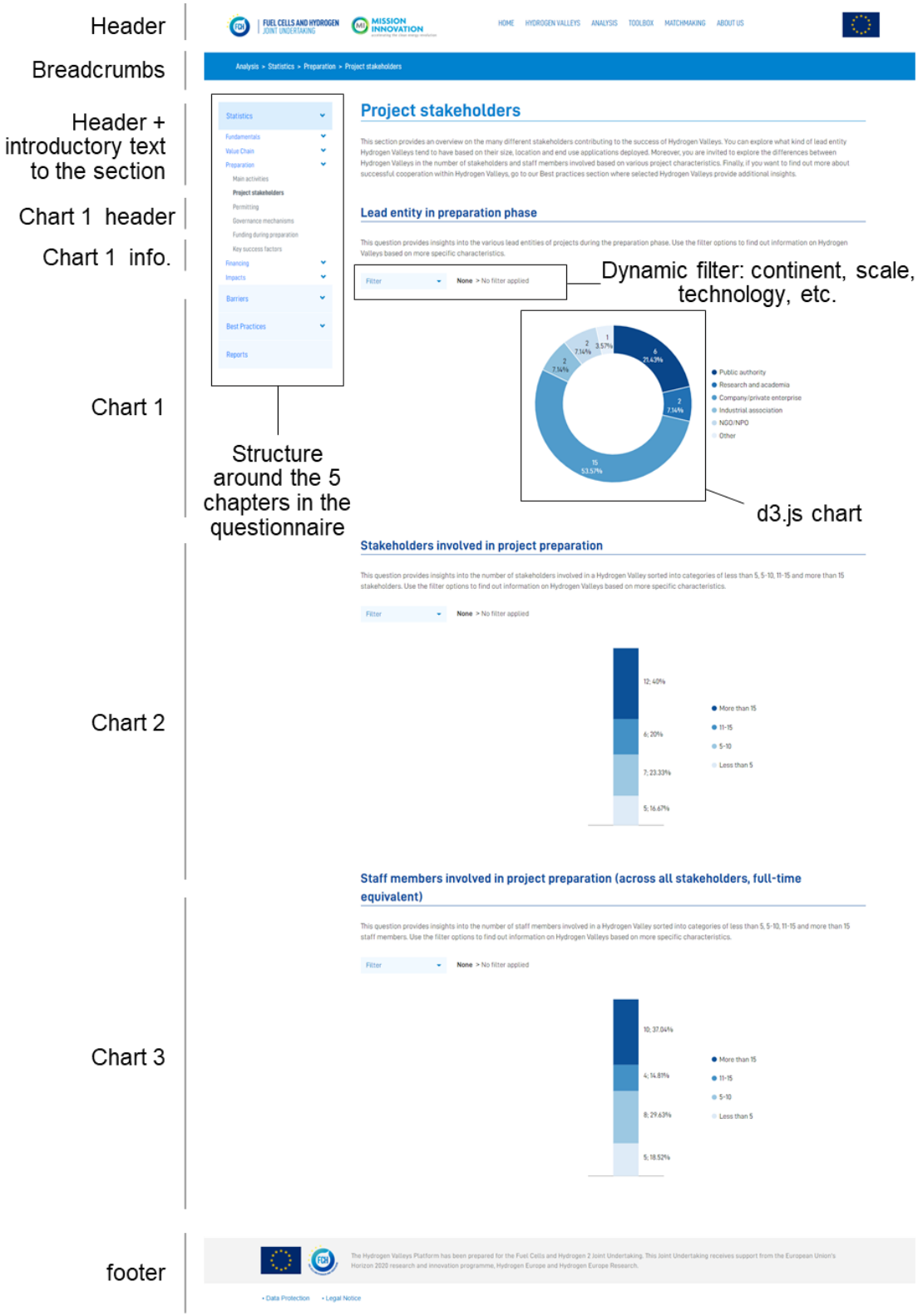

Figure 6. Subsection in 'Statistics' presenting information in the form of charts.

1.1.6 Barriers

https://www.h2v.eu/analysis/barriers/regulation

This section contains the summary of the barriers found by the Hydrogen Valleys initiatives and they are represented as key statistics.

Since barriers are described in a qualitative way by the Hydrogen Valleys, masonry charts have been designed for the case of this section to complement quantative information based diagrams.

The section has classified the existing barriers into three categories:

> Regulatory
> Project development > Financing
> Project development > Preparation

Figure 7. Subsection in 'Barriers' part.

Best practices

https://www.h2v.eu/analysis/best-practices

This section presents the results of a series of interviews conducted with the Hydrogen Valley representatives which have brought additional information to the portal on their lessons learnt.

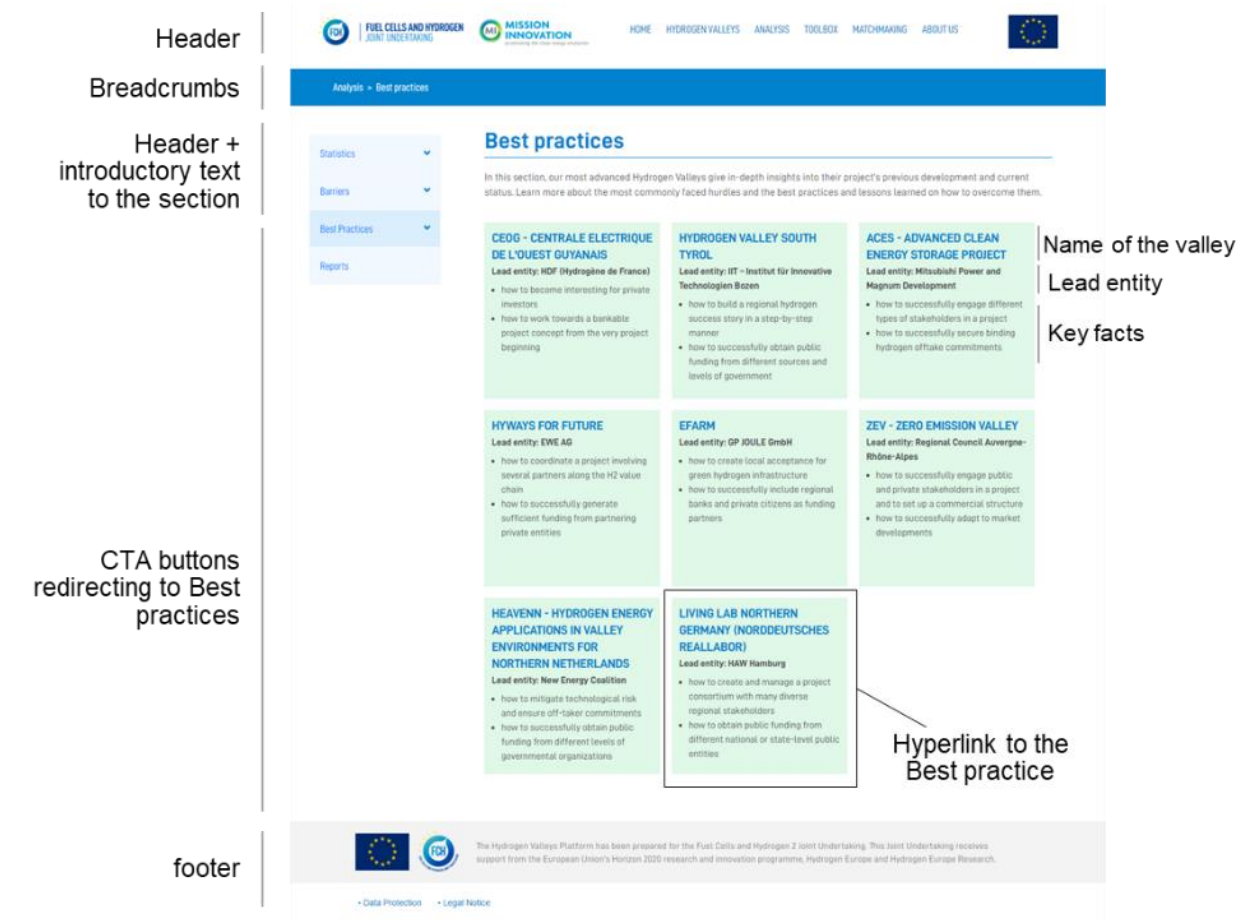

Figure 8. Best practices section.

Each of the boxes in Figure 8 presents best practices in an interview format. By clicking on them, users will be redirected to each Hydrogen Valley initiative's interview, with an homogeneous format covering, at least:

> Challenges of the project
> Measures to overcome those challenges
> Learnings of the project

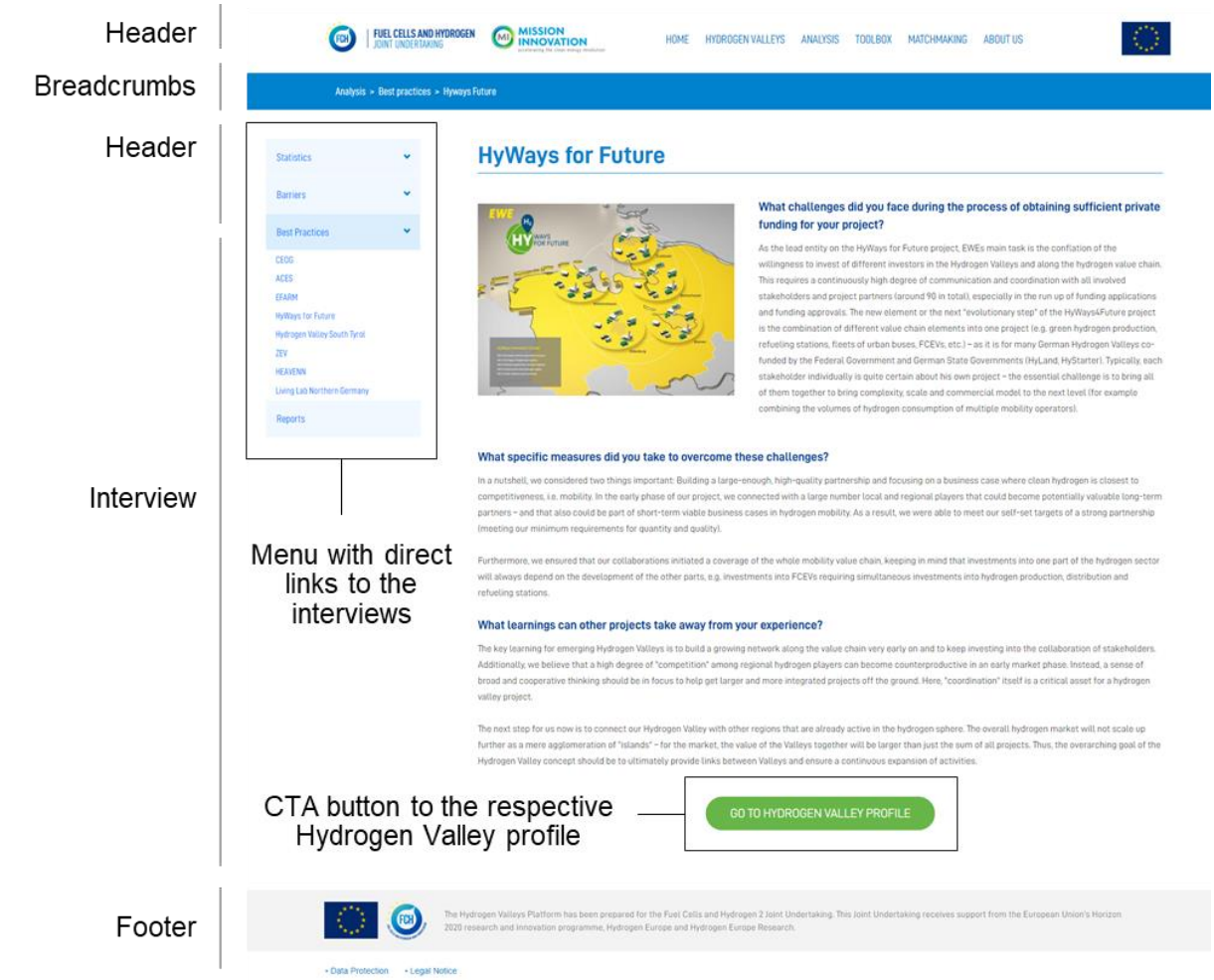

Figure 9. Sample Hydrogen Valley as presented in the 'Best practices' section.

Reports

https://www.h2v.eu/analysis/reports

This section contains the downloadable Executive Summary and Final Report of the project. It is currently presented as 'Coming Soon' to update it with documents in the following months and attract interest to the portal with a dedicated dissemination action to inform on this.

The reports to be added are:

> Public executive summary of the project
> Full report with project findings.

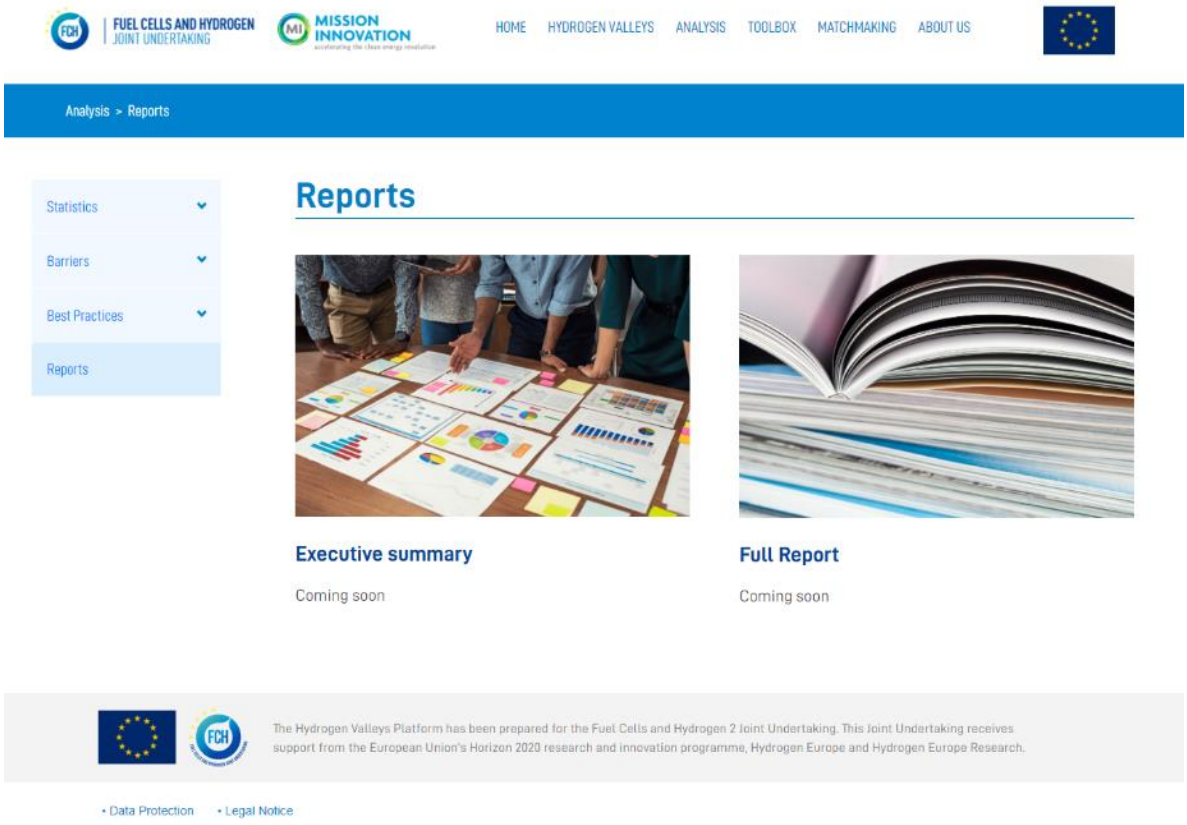

Figure 10. 'Reports' section.

1.1.7 Toolbox

https://www.h2v.eu/toolbox

This menu offers useful links to useful sources of information and tools for other promoters to learn on how to consolidate Hydrogen Valley initiatives. It is divided in three categories:

> Platforms and databases. This includes other platforms and tools complementing the H2V platform.
> Reference studies. This part contains literature related to fuel cells and hydrogen technologies in the context of Hydrogen Valleys.
> Stakeholders. This category considers reference entities supporting Hydrogen Valleys deployment worldwide

In these three categories, there are mosaics with some boxes higlighted in a light blue color. This is because those links are all related to the FCH JU (Fuel Cells and Hydrogen Joint Undertaking).

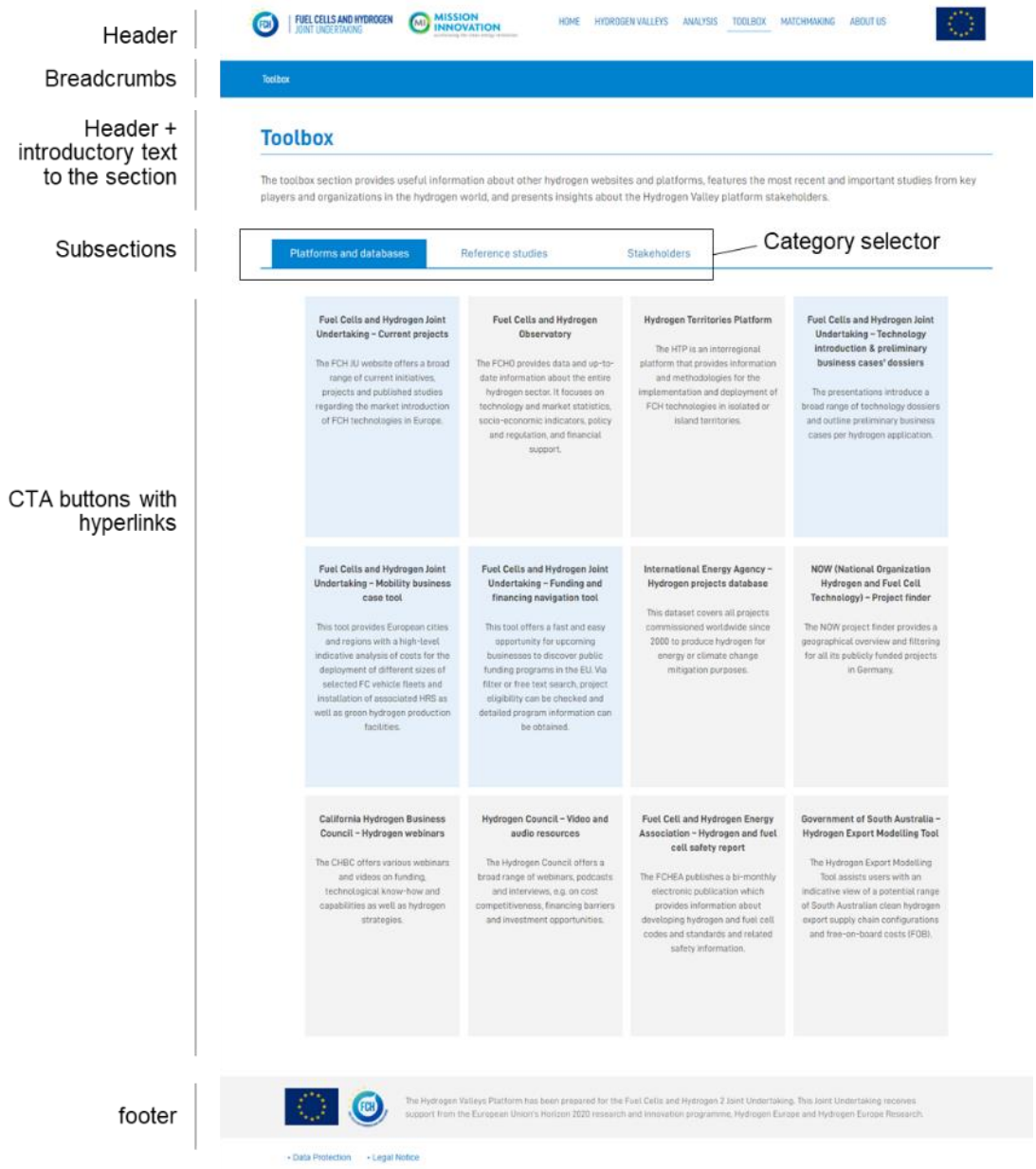

Figure 11. 'Toolbox' section.

1.1.8 Matchmaking

https://www.h2v.eu/matchmaking

This menu offers the user the possibility to contact an appointed representative of each Hydrogen Valley in an anonimized way (protecting the privacy of each initiative) in order to boost cooperation. In this contact form, there are the following information fields:

> Recipient. This field contains a list with the current names of the H2Valleys displayed on the portal.

> Inquiry category. This is a closed list with the type of inquiry (‘General’, ‘Business’ or ‘Press inquiry’).
> Personnel data. This part asks for the name, surname and email of the user.
> Country. This standard selector will allow the users to select their country of origin.
> Hydrogen Valley representative. If the user is a Hydrogen Valley representative, the name of the project is asked as well as the project location and the project maturity.
> Message. This is a free text field for the user to explain its inquiry.

Once the contact form has been completed, by clicking on Submit, an email will be sent to the H2Valley representative chosen in the recipient field. This form includes a ‘Honeypot’ Drupal module to avoid bots submitting fake or abusive emails.

Figure 12. ‘Matchmaking’ section and data fields.

1.1.9 About Us

https://www.h2v.eu/about-us

This menu adds information on the portal dimension, purpose and promoters. It is designed with a top-down approach including:

> Engaging banner with a synthetized sentence to make users go down
> Three engaging KPIs on the dimension of the initiative
> Longer core description of the portal with CTA button to 'H2 valleys
> Description and logo of each entity involved in the project

Figure 13. 'About us' section and layout.

1.1.10 Join

https://www.h2v.eu/join-us

This section contains the steps for a Hydrogen Valley initiative to qualify for a project which can appear in the portal. It is structured in three blocks explaining the criteria used, the proccess to join the platform and the contact details linked to the portal. In the latter, the contact point is included as a hyperlink and, by clicking on the RB email address (hydrogenvalleys@rolandberger.com), an email window opens with this email as recipient and the FCH JU email (fch-region@fch.europa.eu) in CC.

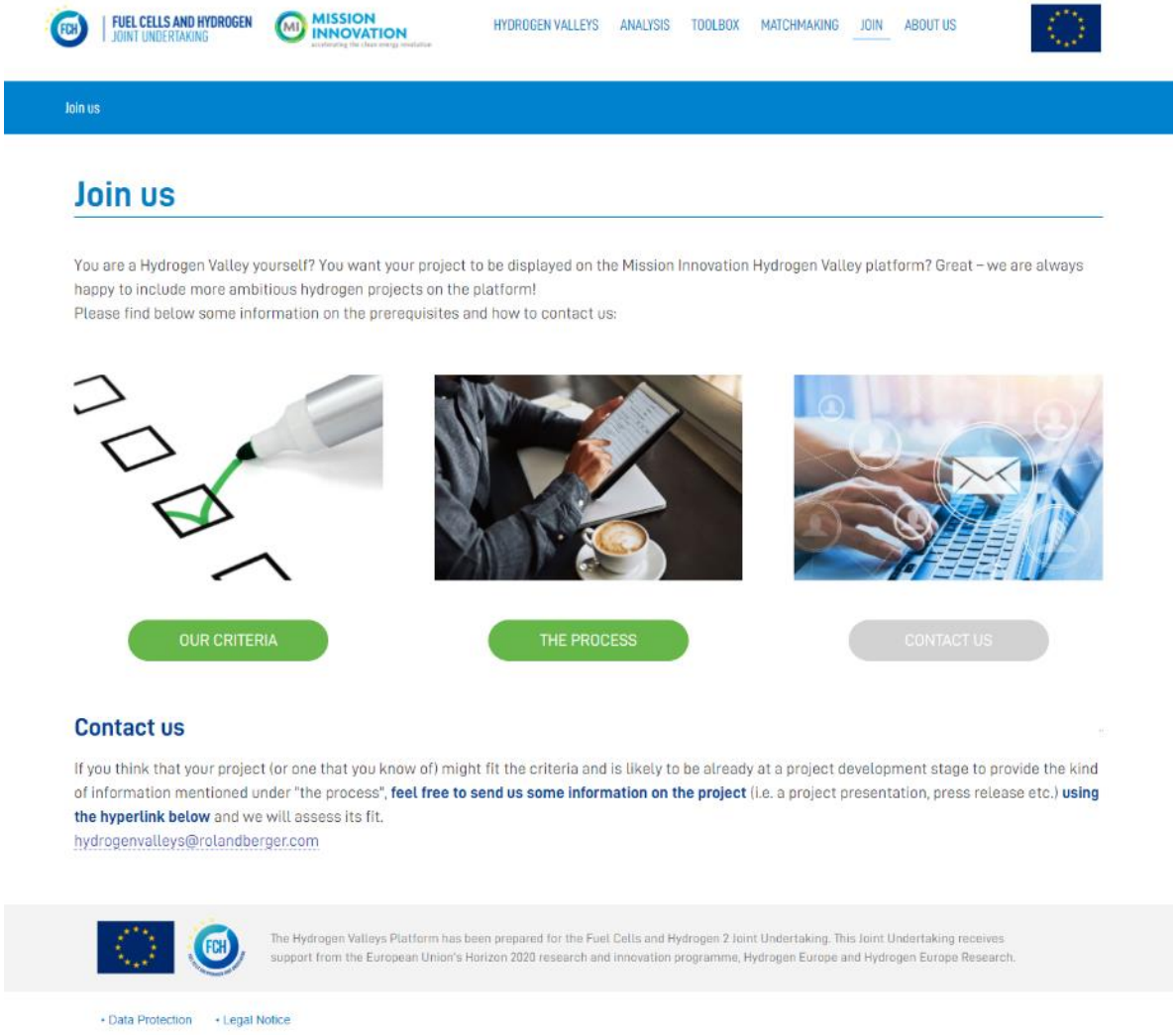

Figure 14. 'Join us' section

1.1.11 Sign up for updates

https://www.h2v.eu/sign_up_for_updates

This section can be accessed from three different CTA buttons: one is located in the Homepage, another one is at the bottom of the list of Valleys in the Hydrogen Valleys menu and the last one in the About us section.

The objective is to create a mass of users aware of project results who will stay tuned to the MI H2V platform, in a similar way as it was done in the landing page launched in March 2020.

This section is structured as a contact form for users to sign up for updates on the portal. In this section, the name, surname and proffesional email address are requested.

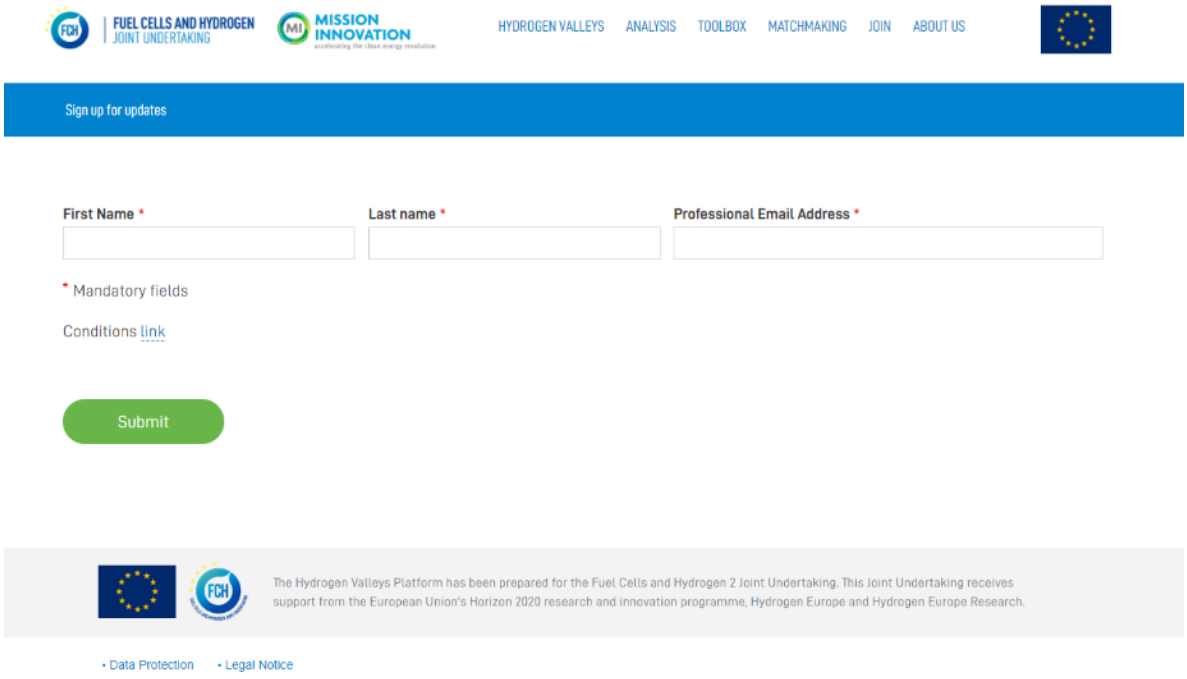

Figure 15. 'Sign up here for updates' submission form.

As personal information is collected, this section contains the following privacy statement (https://www.h2v.eu/sites/default/files/documents/Privacy_statement_h2v.pdf) for this purpose which can be found in the annex of this report. Moreover, the personal data protection information relative to the whole H2V portal can also be found in the Annex I. The text reflects the latest version as approved by FCH JU.

1.2 Analytics on the portal

In order to monitor the H2V portal, behaviour of users, origin of visits, etc., the EC portal compliant tool Matomo has been implemented. This tool can be found in the following URL:

https://inycom.matomo.cloud/

The platform includes many monitoring services and high granularity to supervise the operation of the portal in terms of users behaviour. Below, some capabilities are listed:

> Continent, country and city of precedence of the visitors to the portal.
> Evolution of visits over a certain customizable period of time.
> Time that every user spents in each section of the portal.
> Number of visits in a certain period of time for each section in the portal.
> Number of downloads for PDFs or .csv files.
> Origin of visits, describing on whether those come from social media networks, direct search, etc.

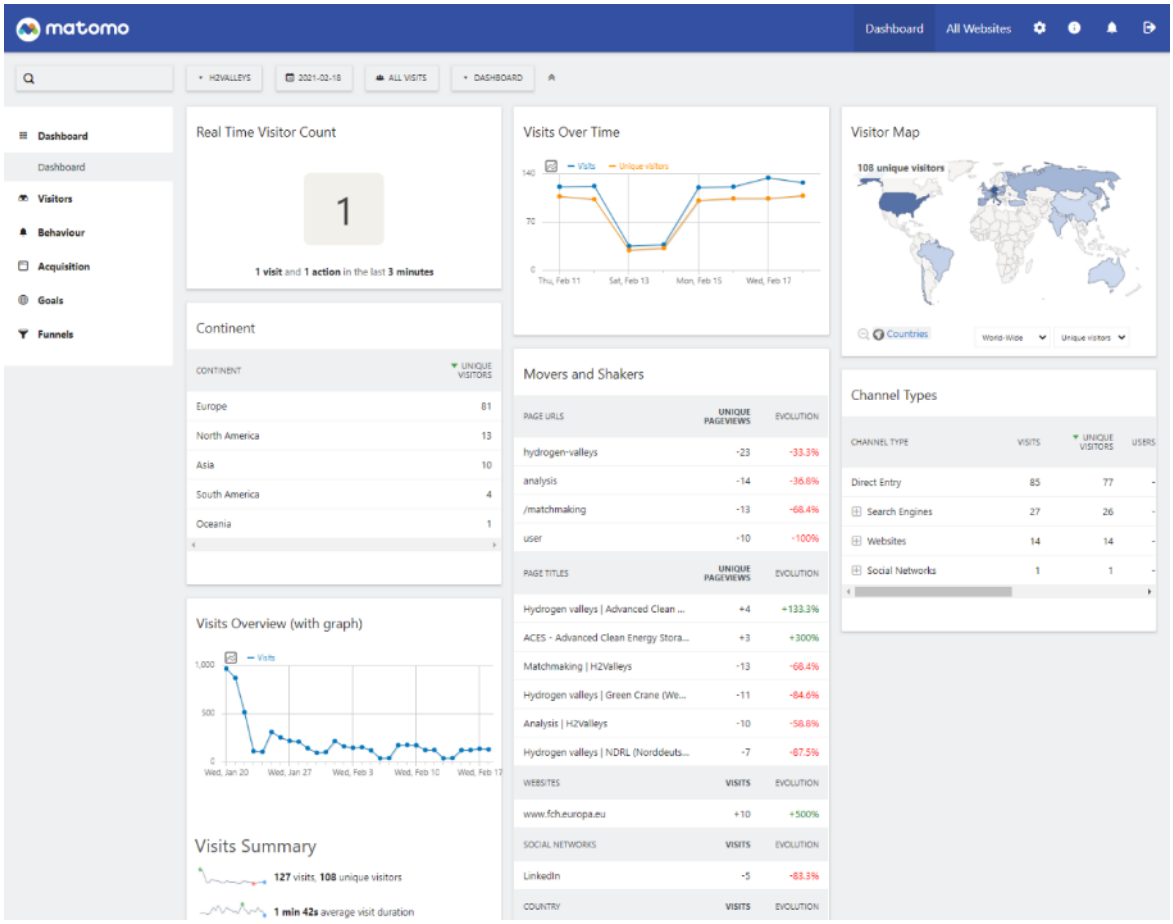

Figure 16. Main Matomo dashboard accessed when entering the platform.

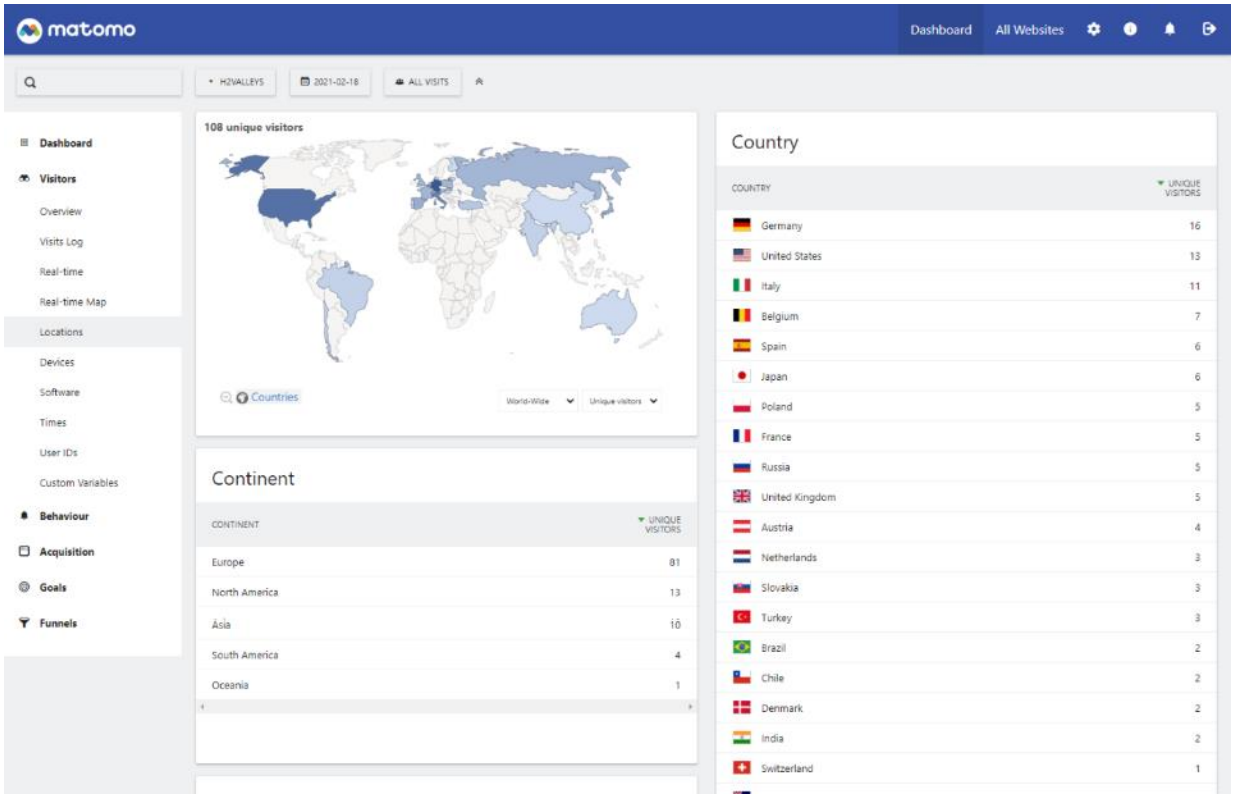

Figure 17. Matomo dashboard including the origin of visitors.

1.3 Services Delivery Plan

To ensure a correct service transfer in relation to the operation and maintenance of the MI H2V Platform (www.h2v.eu) to the FCH JU or a new service provider, a specific **Services Delivery Plan (SDP)** document has been developed by Inycom and Roland Berger.

The SDP document includes the methodology aspects, the plan for activities and deliverables (mainly documentation and manuals) as well as the responsibilities and duties of the different actors involved in each phase or stage. The goal is to reach an adequate transition with the minimal impact on the provision of the services relative to the operation and maintenance of the MI H2V Platform and relative activities.

The following sections in this document show the detailed aspects of the plan.

1.3.1 Methodology

As it was indicated in the Inception Report, the focus of the SDP is on the complete transfer of knowledge to the new contractor or to the FCH JU. This ensures that the provision of the service won't be interrupted after the execution of the proposed plan. Specifically, the objectives of the plan are:

> To ensure the provision of the transferred services guaranteeing their continuity
> To transfer the knowledge and assist the new provider
> To assign the duties and responsibilities linked to the service to the new provider

The delivery methodology developed and used by Inycom and Roland Berger described in the following subsections manages the whole process, scheduling actions and defining the scope and objectives for the transition of the service while leading this operation so that the new provider gains the required knowledge and control to carry out the tasks.

The **Services Delivery Plan** includes:

> Definition of teams and plan for the delivery of the service
> Procedures to contact and interact with the teams involved in the delivery
> Reference to supporting documents and procedures, etc.
> Measures to guarantee the correct operation and the continuity in the provision of the service under the same key performance indicators and quality requirements
> Training programs for the new service provider, with sessions on IT architecture, structure of frontend sections, structure and management of backend sections and communications.
> Definition of duties and responsibilities linked to the transfer to ensure a correct delivery, including the monitoring and assistance to the new provider.

1.3.2 Phases of the delivery of the services

The delivery of the services is broken down into three phases as described below:

- **Phase 1 – Plan and preparation:** In this period, Inycom and Roland Berger have developed this **Services Delivery Plan Document**, which details the activities which will take place in phase 2 (execution) and 3 (approval).
- **Phase 2 – Execution of the delivery process**: In this phase, divided in two stages, the initial knowledge transfer will take place, followed by a progressive handover of the service to the new service provider whilst ensuring the required quality standards.
- **Phase 3 – Approval of the delivery process**. In this phase, the contract for the provision of the service will be considered as complete and the new responsible organisation will start to provide the services.

1.3.2.1 Phase 1 – Plan and preparation

In this phase, the overall Services Delivery Plan has been designed, consolidating the Services Delivery Plan Document. This document includes a detailed schedule for the delivery process indicating the roles and corresponding responsibilities. In addition, the organizational and logistics activities have been considered.

A. Identification of suitable resources for handover in both Services Delivery Team and recipient organization

To ensure a smooth transition, the following resources have been identified from each side:

From Inycom:

- Lead transfer director: Eduardo Morales
- Drupal technical expert: Ruth Ortega
- Project Manager: Laura Márquez
- Project Manager: Anja Benz

From recipient organization:

- FCH 2 JU Communication team: Ioana Pristavu
- FCH JU Knowledge Management team: Kostis Sakerallis and Pierre Michel
- Project Manager: to be appointed by FCH JU
- Services reception leader: to be appointed by FCH JU
- IT specialist in Drupal 8: to be appointed by FCH JU

A kick-off session will be organized as part of the delivery, in which a single point of contact between the two teams will be nominated (ideally, the Project Manager in each entity).

B. Interactions with the recipient organisation team

The Service Delivery Plan will take place over 3 consecutive weeks with the following interactions:

- First week of the delivery: Inycom will start the communication with the teams involved in the delivery. The procedure will be that a kick-off meeting (1-hour session) will be scheduled with all the teams, from both Inycom and the recipient organisation. Inycom suggest having this session the week of the 26th of April 2021. In this meeting, the

transfer schedule will be agreed, including the selection of timeslots for the sessions in the Second week.

- Second week of the delivery: 5 dedicated sessions (half-hour meetings) to explain the IT architecture, operation of all the menus, back-end structure and its management as well as communications aspects.
- Third week of the delivery: Testing phase. This week is meant for the recipient entity to test the environments and make sure that everything works correctly. Inycom will answer and solve any questions that the recipient organisation team may have.

C. Methods to transfer the Knowledge Management System for the service

Procedures

In relation to the MI H2V Platform, the recipient organisation will need total control. For this reason, the transfer of the portal could be done in two different options, which will be agreed with the recipient team in the kick-off session in week 1:

- Option A: The recipient organisation contracts a server. Then, Inycom would provide a backup copy of the portal and the recipient organisation would set it up in their preferred servers. The procedure for assembling the copy will be detailed in session 1 in week 2.

- Option B: The recipient organisation manages a hosting migration directly from Kimsufi (both technically and financially). In this case, Inycom will issue credentials for accessing the Kimsufi servers (pre-production and production environments) and will change the hosting contract to the recipient entity.

In addition to this, the domain (www.h2v.eu) and the email accounts will be transferred in the same way. Inycom recommends choosing the second option for an easier migration.

Finally, in order to explain the portal and how it is structured, in the second week of the delivery the following dedicated sessions (half-hour meetings) will be held:

- **Session 1: IT Architecture**. The session will deal with the architecture of the portal and preventive and corrective maintenance procedure (from the IT aspects).
- **Session 2: Frontend sections**. This part will cover the Home, About Us, Toolbox, Matchmaking and Join menus
- **Session 3: Drupal modules: dynamic charts and interactive maps**. This session will explain the structure of the Analysis menu with d3.js charts and Hydrogen Valleys menu (OpenStreetMaps with leaflet.js library)
- **Session 4: Backend menu (shortcuts and questionnaire)**. This training will illustrate how the backend menu is structured and its features, which includes the H2V Survey chapters and other menus.
- **Session 5: Communications and portal management**. This session will show how communications around the H2V project have been done and how the portal is managed in day-to-day operations

Documentation

The SDT will issue the following documentation at the end of week 2 of the delivery:

Document	Description	Format
H2V Configuration Document	Document which details all the technical aspects relative to the IT architecture and structure of the portal	PDF
H2V Manual	Document which explains the operation of the portal from the user perspective	PDF
Hydrogen Valleys contact list and IC 8 members contact list	> Contact list of Hydrogen Valleys that were selected for the platform, including survey usernames and login data > Including Hydrogen Valleys that did not participate or dropped out at a later point > Contact list of IC8 member state representatives that have been informed about the project on a continuous basis	XLSX
"Sign-up results" contact list and "Landing signup results" contact list	> Available for download in the platform backend – divided into subscriptions before the go-live of the platform and after the go-live of the platform	XLSX, 2x
Onboarding document	> Onboarding document for new Hydrogen Valleys that are about to fill out the survey	PDF
Draft Email for survey access	> Draft to communicate how to access the survey to a new Hydrogen Valley	DOCX

D. Measures to guarantee the correct operation and the continuity in the provision of the service

To support the correct operation and continuity under the same quality standards reached during the execution of the contract, Inycom and Roland Berger have been following a preventive and corrective maintenance procedure that will be explained in the first dedicated session.

In this high level perspective, the preventive maintenance procedure includes:

> Drupal security updates (quarterly)
> Module updates (OpenStreetMaps and d3.js)
> Weekly reviews and check-ups of all the menus

E. Training program for the new service provider

The training sessions will consist in the 4 dedicated sessions listed in the previous section of this document. The details of what will be covered at each meeting are set out below:

- **Training session 1: IT Architecture**
- *Led by:* Inycom
- *Duration:* 30 minutes

  In the first part of this session, the contents and structuration of the 2 environments (pre-production and production) used for the development of the platform will be explained. In addition to this, all the users and passwords will be explained following the H2V configuration document. In the rest of the meeting, Inycom will explain how the team is carrying the preventive and corrective maintenance in relation to the IT aspects (mainly, Drupal 8 security updates and modules updates as well as fixing of bugs).

- **Training session 2: Frontend sections**
- *Led by:* Inycom
- *Duration:* 30 minutes

  In this session, Inycom will explain how the portal is developed for basic menus, which includes Home, About Us, Toolbox, Matchmaking and Join. The visual identity of the portal as well as the basic layouts and templates for the basic sections in the portal will be shared.

- **Training session 3: Drupal modules: dynamic charts and interactive maps**
- *Led by:* Inycom
- *Duration:* 30 minutes

  This meeting will be focused on how the analysis section has been developed with the d3.js tool. The methodology to add new charts to the portal will be explained. In addition to this, the Hydrogen Valleys menu will be explained focusing on the OpenStreetMaps module for the existing maps in the portal, as well as the leaflet.js library for maps.

- **Training session 4: Backend menu (shortcuts and survey)**
- *Led by:* Inycom
- *Duration:* 30 minutes

  In this session, the backend menu will be explained. All the functionalities that this menu implies will be explained, as well as how the questionnaire and the user access were carried out. The different access levels to the portal will be detailed in this session.

- **Training session 5: Communications and portal management**
- *Led by:* Roland Berger
- *Duration:* 30 minutes

  In this session, the communication strategy followed by Roland Berger to raise awareness and reach the target audiences will be explained in first place. The second part of the session will consist of the explanation on how the portal is managed in a day-to-day basis using the backend menu from Roland Berger's perspective.

Although the contents in these sessions are recommended by the SDT for a successful transfer of the portal, the recipient party is entitled to propose other contents in the sessions which may be relevant to assume the transition of the portal.
Besides, in addition to these sessions, the SDT remains at the entire disposal to answer queries or doubts raised by the recipient party via email or, if needed, dedicated sessions considering the availability of IT specialists in both teams.

1.3.2.2 Phase 2 – Execution (weeks 1 and 2)

Once the date for the kick-off session is agreed between the SDT and the recipient entity, the Services Delivery Plan will be executed which includes the sessions explained above in weeks 1 and 2.

1.3.2.3 Phase 3 – Approval (week 3)

To ensure a smooth transition, the SDT has planned an additional week to supervise how the platform is managed by the recipient party. During that week, the recipient party will assume the operation of the platform. The SDT will assist the recipient party solving doubts which may arise in the process, which will be done via regular email or, if needed, with dedicated videoconferences.
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2. Database

2.1 Overview of structure, design and functionalities of the database

2.1.1 Structure

The structure of the database consists of two servers, the pre-production server and the production server. Both servers are hosted in Kimsufi (EU servers compliant with projects developed for the European Commission), with the following addresses:

- 176.31.252.198 (Pre-production server for testing and validation prior to publication in Production).
- 176.31.253.111 (Production server with current portal version live).

On these servers an Apache HTTP server has been set up with a typical Drupal 8 infrastructure as the allowed Contents Management System (CMS) by the europa servers in view of a possible transfer in the future.

In this Drupal 8 infrastructure, the standard recommendations[4] for directory structure and security permissions have been followed. While Drupal modules are sufficient to present the portal design, menus, tables, etc., specific d3.js[5] and OpenStreetMaps[6] modules have been embedded in it to present dynamic charts (see 'Analysis' section) and GIS maps (see 'Hydrogen Valleys' section), respectively.

The pre-production server has the same content as the production server, but in it the new sections to be included in the portal are developed and any changes that may arise are adjusted. Once this has been done and approved, it is migrated to the production server.

In order to validate new changes and sections, this environment has additional security features. That is, only accredited users with access credentials can validate.

The production server is the server that contains the public portal in the www.h2v.eu domain and all the information displayed on it. In addition, it contains the backend interface that allows the self- sustainability of the portal in terms of basic updates.

The structure of the database is as follows:

[4] https://www.drupal.org/

[5] https://d3js.org/

[6] www.openstreetmap.org

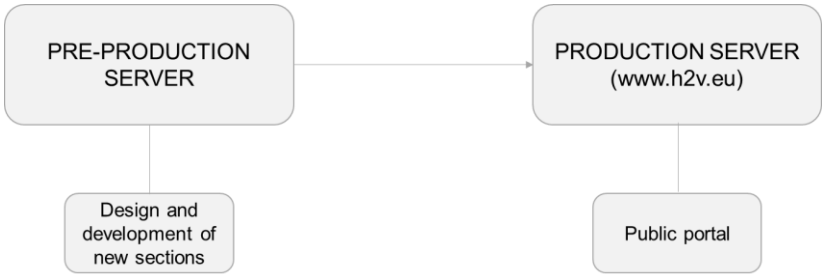


Figure 18. Pre-production and production servers infrastructure.

2.1.2 Database

The database stores and processes all the information which is presented in the web portal via the CMS. A relational SQL database (MySQL[11]) has been used to collect information from the different sources and process it to produce charts, maps, customized reports, etc.

As commented above, Kimsufi[12] servers are used to host the database in Pre-Production and Production. Kimsufi servers are based on the expertise of OVH with over 356,000 physical servers. OVH owes its success to the full control it holds over the hosting chain, including in-house server production, on their OVH production lines.

KS-6[14], with 2 TB of storage capacity, a i5 processor with 2.67 GHz and 16GB of RAM, have been selected for PRE-Production and production servers.

2.2 User manual and functionalities of the back-end menu

A backend interface has been created for the purpose of collecting and exploiting the data:

> registered by the H2V representatives from the survey process,
> added by users to the portal (e.g. matchmaking section), or
> introduced by Roland Berger and Inycom to then appear in the portal.

Besides, the backend allows management functionalities such as:

> enable and disable users and their survey information
> add new best practices
> add links for the toolbox menu
> managing the matchmaking submissions

That is, it allows self-sustainability of the portal in terms of contents updates. To access it, it is necessary to have an enabled user and password. Then, it can be accessed through the following URL: https://www.h2v.eu/user/login.

Once the URL has been accessed, there is a login page where the username and the password is required. For simplicity, this landing page is used by both new H2Valley representatives needing to fill out the questionnaire and technical experts to maintain the proper functioning of the platform (administration users).

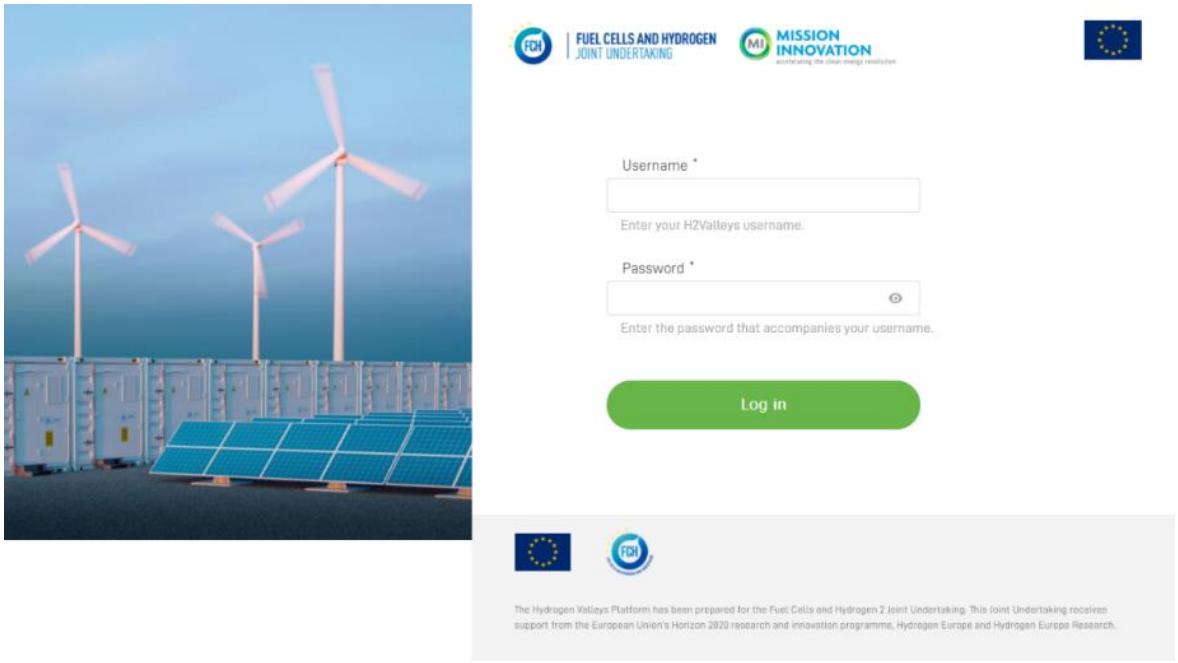


Figure 19: Login page to access the backend of the H2V portal.

Once contributors to the survey access, they will reach the landing page of their specific questionnaire with accesses to each chapter to then provide answers to the questions. This

is, although they use the same access landing page, contributors do not have access to the backend administration menu.

2.2.1 Administration access

When editors of contents of the portal access with their master credentials, the homepage of the portal will appear as in https://www.h2v.eu but with the difference that on the top there is a bar showing the user name and the shortcuts.

Figure 20. Aspect of the backend menu's landing page when reached with edition permits.

The shortcuts contain all the administration menus which serve to modify, add or delete the information displayed on the portal, as displayed in Figure 21:

Figure 21. Shortcuts in the backend menu.

Matchmaking submissions

This menu contains the list with all the messages sent by users to the H2Valleys through the Matchmaking menu of the portal (https://www.h2v.eu/matchmaking).

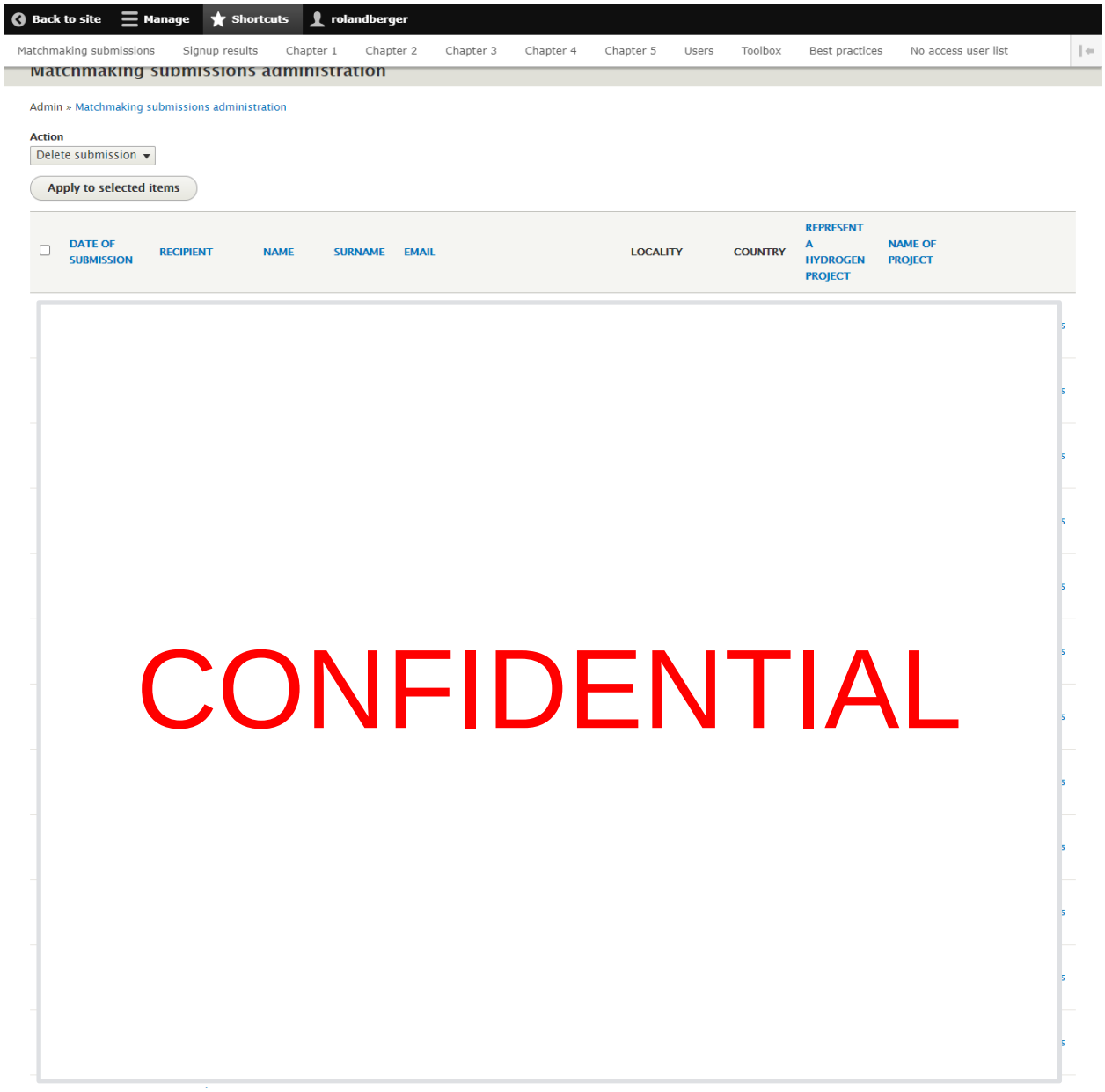


Figure 22: Monitoring panel in the 'Matchmaking' administration menu.

Sign up results

This menu contains the list of stakeholders subscribing to the 'Sign up here for updates' contact form. This contact form can be found in different sections of the portal in the form of CTA buttons.

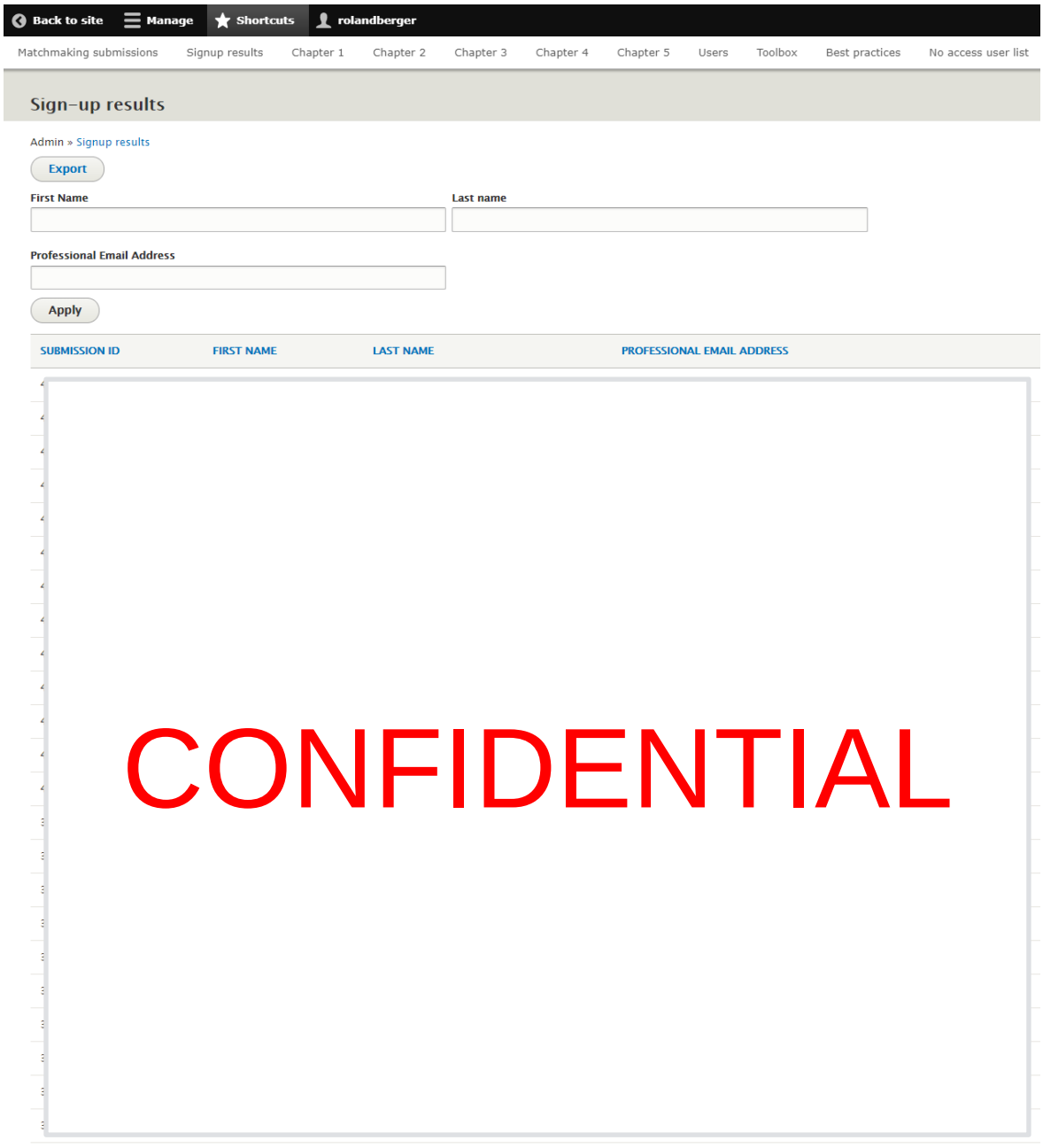


Figure 23: 'Sign up here for updates' monitoring panel.

Chapter N (one menu per chapter)

These are the master menus to monitor status and access all chapters in the H2V survey with the possibility to edit entries (‘edit’ button) at the user level and download the results in .csv format (‘Export’ button) with the answers from all users.

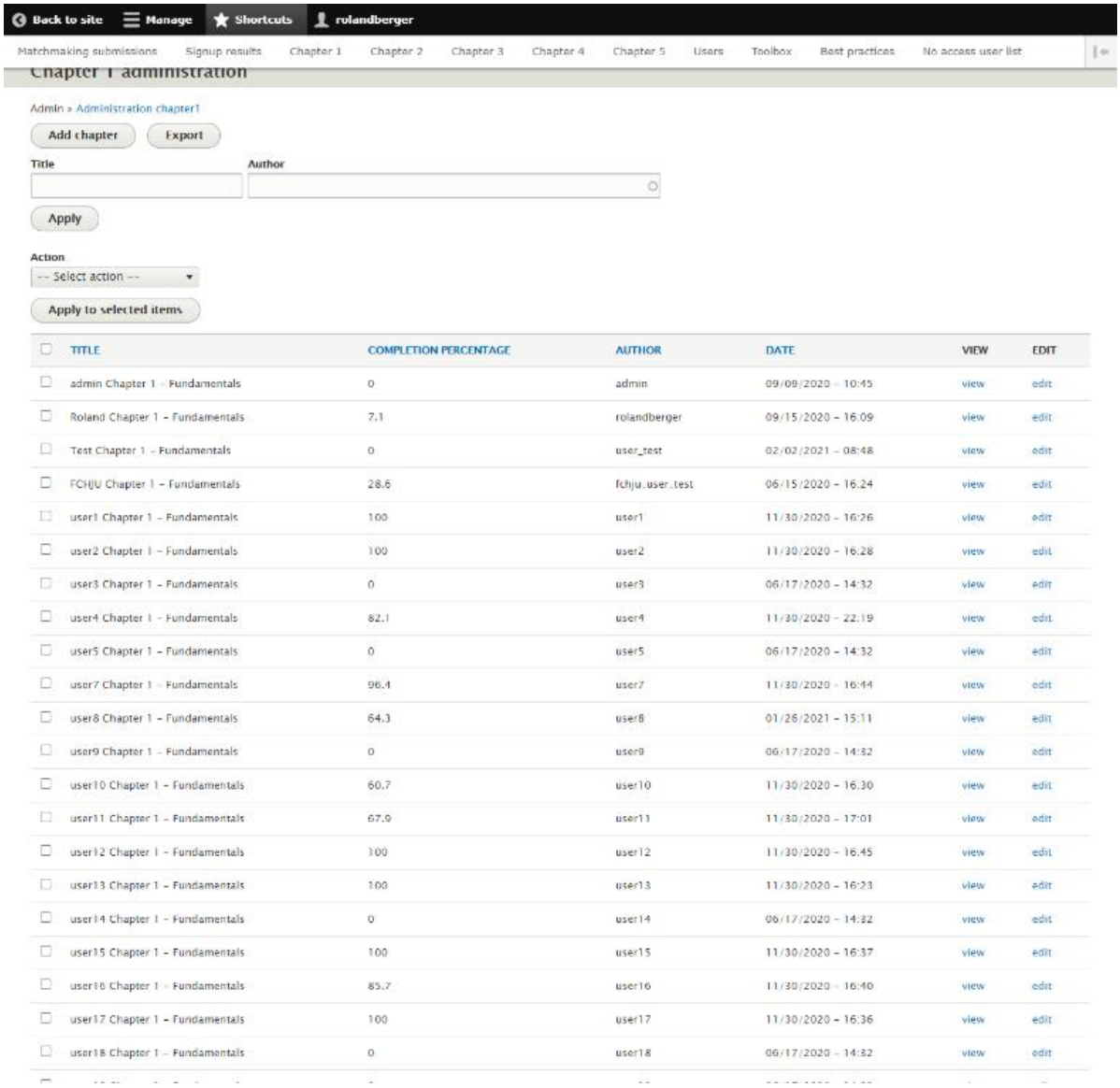


Figure 24: Monitoring and edition panel in Chapter 1 in H2V survey.

Users

This menu consists of the list of H2V Platform users that contributors need to access the portal and fill in the survey. Additionally, administration users are also displayed on top. Administration profiles have the possibility to include and exclude contributors' users in this menu, meaning that their information will be displayed or not in both the 'Hydrogen Valleys' and the 'Analysis' menus (since these ones feed from the survey).

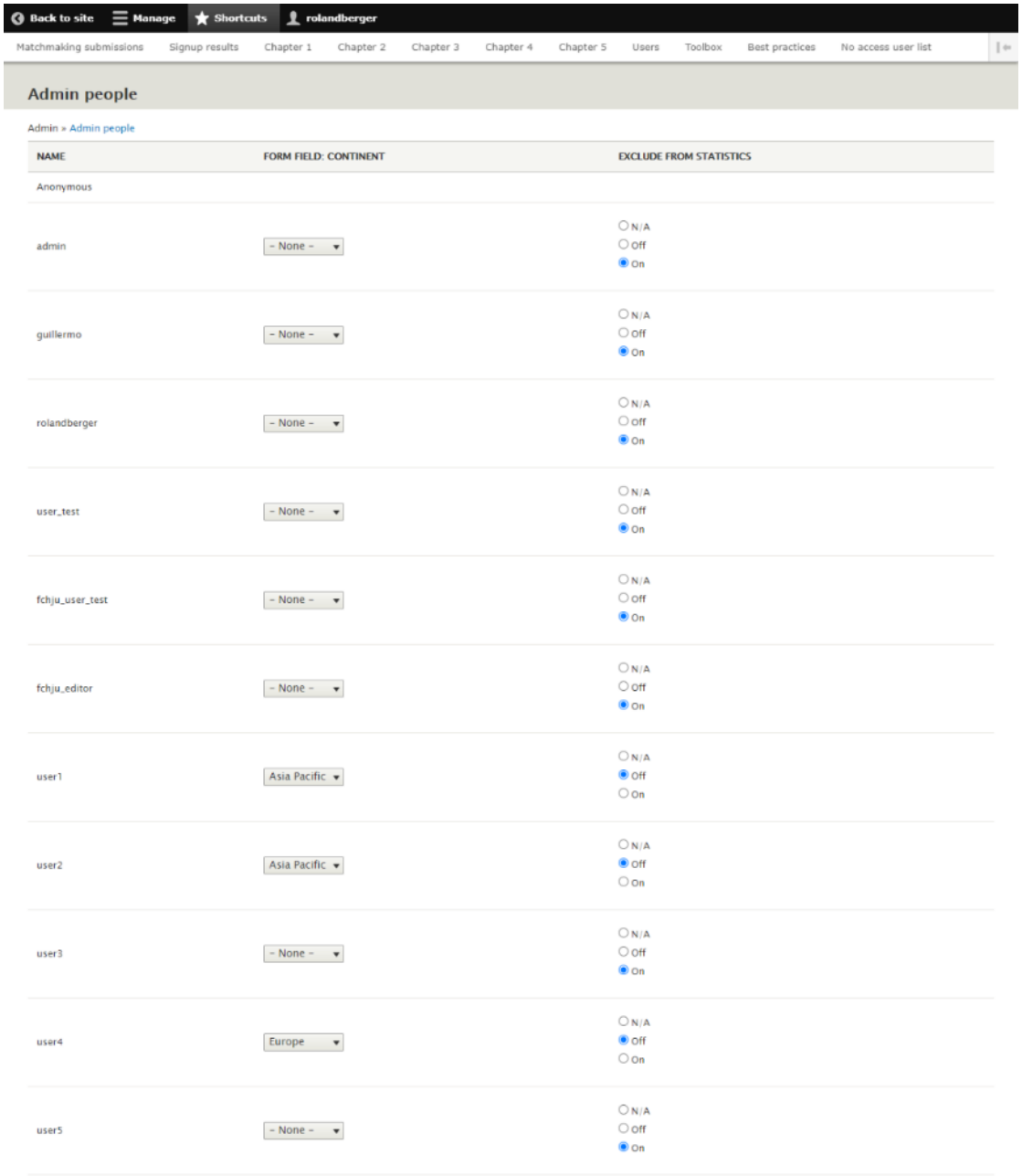


Figure 25: 'Users' menu in the H2V backend.

Toolbox

This menu allows to add a new link to the Toolbox menu and also to indicate its category so that it appears directly on the corresponding tab in the portal.

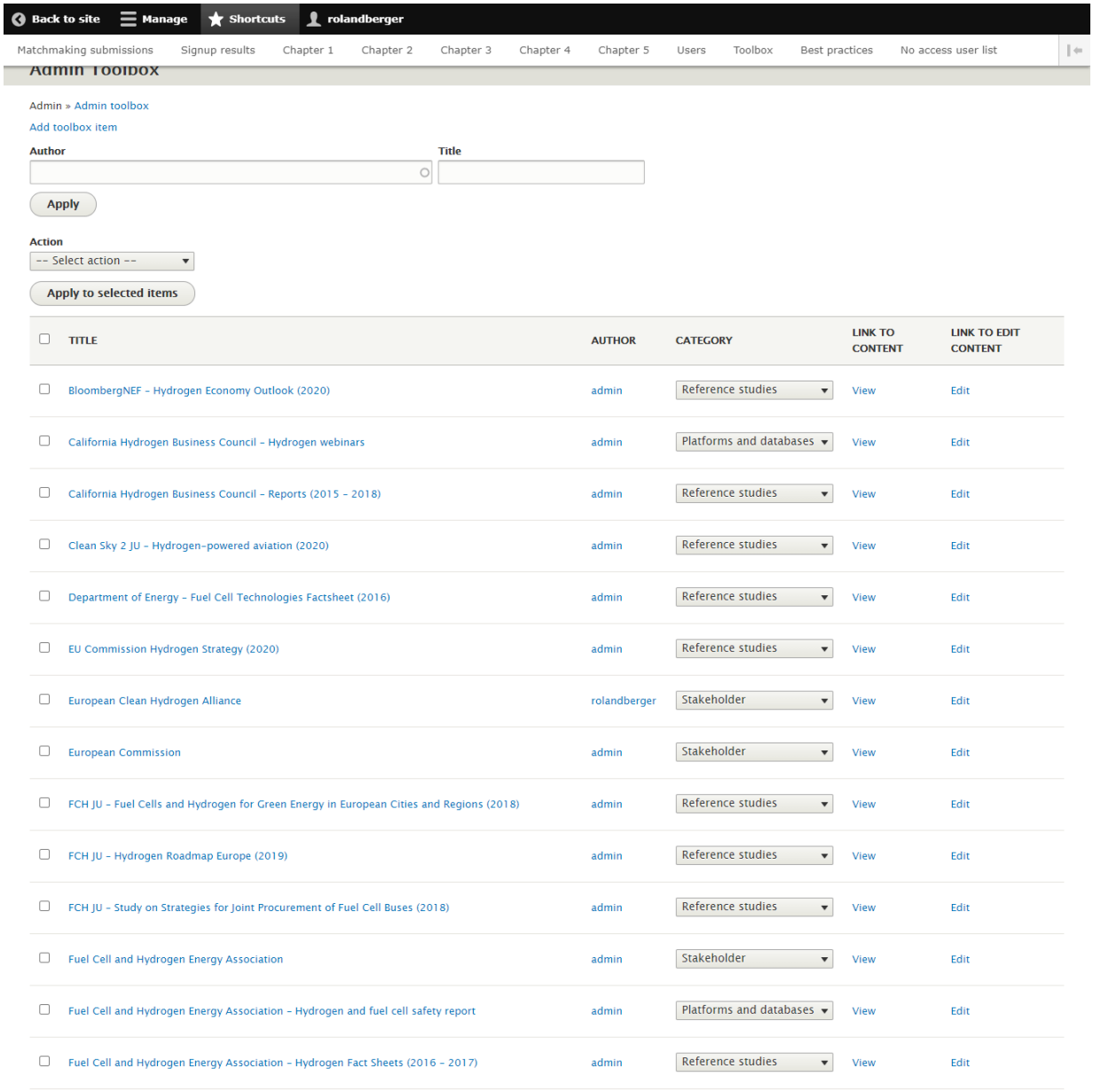


Figure 26: 'Toolbox' administration menu in the H2V backend.

Best practices

This menu allows the user to introduce the results of an interview (images, questions and answers) with a valley to then appear in the 'Best practices' menu as a success story. It also permits to link the interview to the valley profile in the Hydrogen Valleys menu.

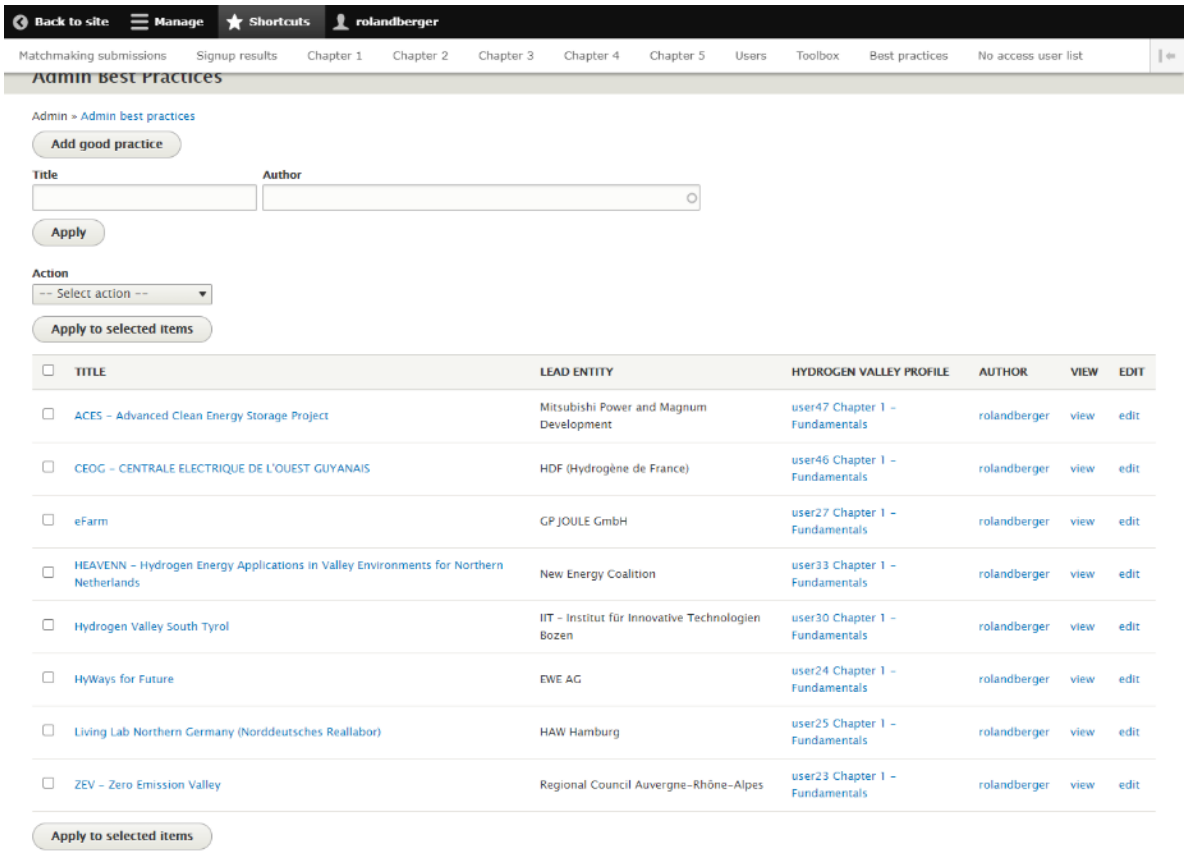


Figure 27: 'Best practices' administration menu in the H2V backend.

2.2.2 Contributors' access

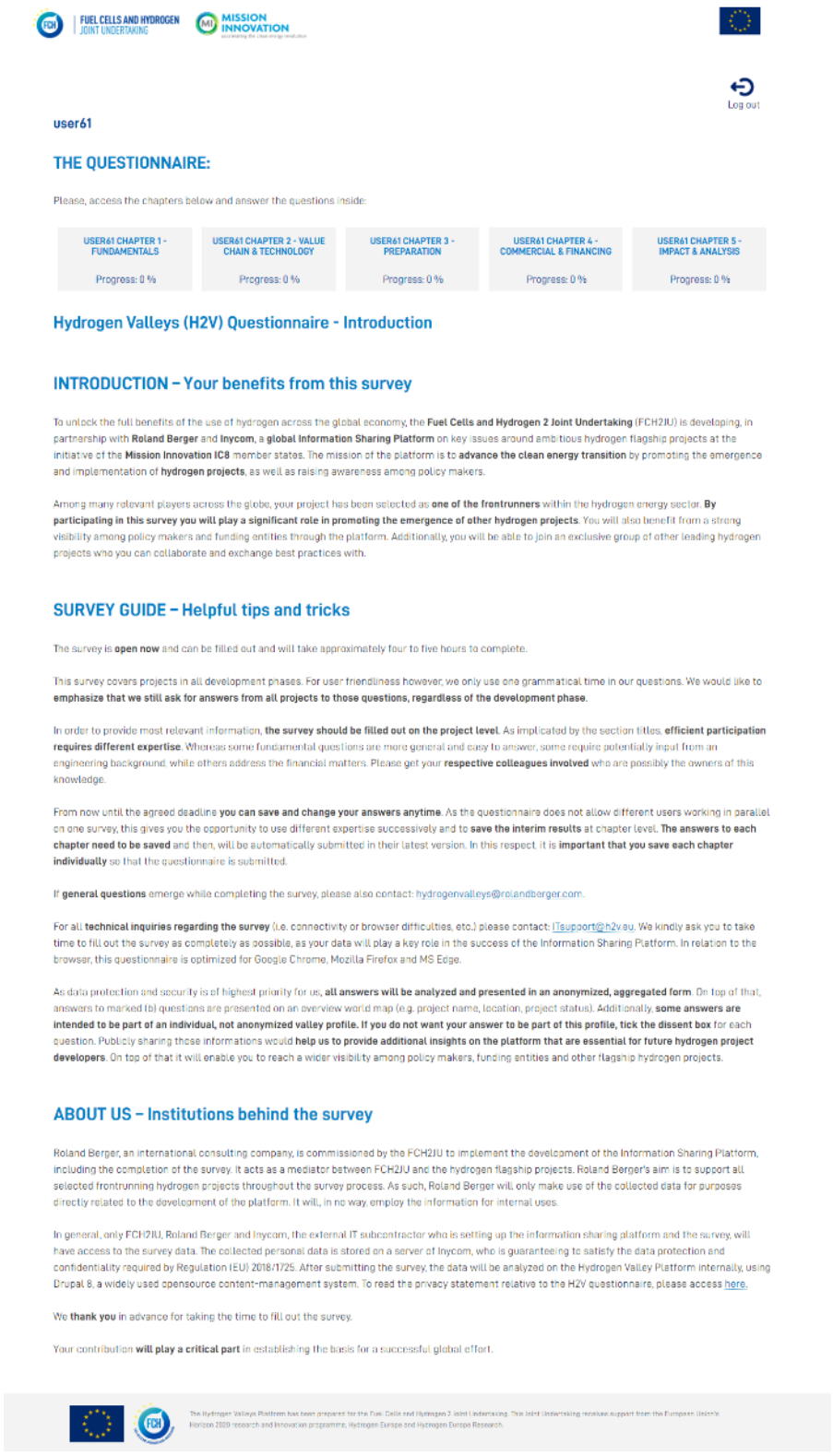
In the case of the Hydrogen Valleys representatives, when logged in, the main menu will appear with the explanatory text about the questionnaire. In this text, the following sections are included:

- 'Introduction', explaining the importance of the H2V platform
- 'Survey guide', providing guidelines and clear instructions on how to complete the survey
- 'About us', including information about the partners in charge of the implementation of the H2V platform as well as the GDPR aspects

The essential part of this main menu is on top of the page which includes the links to each chapter of the questionnaire (Fundamentals, Value chain and technology, Preparation,

Commercials and Financing and Impact and Analysis). When clicking on the boxes, the user is redirected to the corresponding chapter of the survey.

The survey has been created in a way that the answers can be saved even if the entire chapter or questionnaire has not been fully completed. This allows the user to log in as many times as necessary to answer the questionnaire. Also, the structure in chapters allows for a fragmentation of the process as well as access of different profiles from the entity completing the survey. For example, the 'Fundamentals' chapter could be completed by a Project Manager, the 'Value chain and Technology' chapter could be filled in by a Technical Manager and the 'Commercial & Financing' chapter could be completed by a Business Developer. Subsequently, once the user clicks on a chapter, the questions will appear. The full questionnaire is transcribed in the Annex II.



FUEL CELLS AND HYDROGEN JOINT UNDERTAKING

MISSION INNOVATION

Log out

user61

THE QUESTIONNAIRE:

Please, access the chapters below and answer the questions inside:

USER61 CHAPTER 1 - FUNDAMENTALS	USER61 CHAPTER 2 - VALUE CHAIN & TECHNOLOGY	USER61 CHAPTER 3 - PREPARATION	USER61 CHAPTER 4 - COMMERCIAL & FINANCING	USER61 CHAPTER 5 - IMPACT & ANALYSIS
Progress: 0 %	Progress: 0 %	Progress: 0 %	Progress: 0 %	Progress: 0 %

Hydrogen Valleys (H2V) Questionnaire - Introduction

INTRODUCTION – Your benefits from this survey

To unlock the full benefits of the use of hydrogen across the global economy, the **Fuel Cells and Hydrogen 2 Joint Undertaking** (FCH2JU) is developing, in partnership with **Roland Berger** and **Inycom**, a **global Information Sharing Platform** on key issues around ambitious hydrogen flagship projects at the initiative of the **Mission Innovation IC8** member states. The mission of the platform is to **advance the clean energy transition** by promoting the emergence and implementation of **hydrogen projects**, as well as raising awareness among policy makers.

Among many relevant players across the globe, your project has been selected as **one of the frontrunners** within the hydrogen energy sector. **By participating in this survey you will play a significant role in promoting the emergence of other hydrogen projects**. You will also benefit from a strong visibility among policy makers and funding entities through the platform. Additionally, you will be able to join an exclusive group of other leading hydrogen projects who you can collaborate and exchange best practices with.

SURVEY GUIDE – Helpful tips and tricks

The survey is **open now** and can be filled out and will take approximately four to five hours to complete.

This survey covers projects in all development phases. For user friendliness however, we only use one grammatical time in our questions. We would like to **emphasize that we still ask for answers from all projects to those questions, regardless of the development phase.**

In order to provide most relevant information, **the survey should be filled out on the project level**. As implicated by the section titles, **efficient participation requires different expertise**. Whereas some fundamental questions are more general and easy to answer, some require potentially input from an engineering background, while others address the financial matters. Please get your **respective colleagues involved** who are possibly the owners of this knowledge.

From now until the agreed deadline **you can save and change your answers anytime**. As the questionnaire does not allow different users working in parallel on one survey, this gives you the opportunity to use different expertise successively and to **save the interim results** at chapter level. **The answers to each chapter need to be saved** and then, will be automatically submitted in their latest version. In this respect, it is **important that you save each chapter individually** so that the questionnaire is submitted.

If **general questions** emerge while completing the survey, please also contact: hydrogenvalleys@rolandberger.com.

For all **technical inquiries regarding the survey** (i.e. connectivity or browser difficulties, etc.) please contact: ITsupport@h2v.eu. We kindly ask you to take time to fill out the survey as completely as possible, as your data will play a key role in the success of the Information Sharing Platform. In relation to the browser, this questionnaire is optimized for Google Chrome, Mozilla Firefox and MS Edge.

As data protection and security is of highest priority for us, **all answers will be analyzed and presented in an anonymized, aggregated form**. On top of that, answers to marked (b) questions are presented on an overview world map (e.g. project name, location, project status). Additionally, **some answers are intended to be part of an individual, not anonymized valley profile. If you do not want your answer to be part of this profile, tick the dissent box** for each question. Publicly sharing these informations would **help us to provide additional insights on the platform that are essential for future hydrogen project developers**. On top of that it will enable you to reach a wider visibility among policy makers, funding entities and other flagship hydrogen projects.

ABOUT US – Institutions behind the survey

Roland Berger, an international consulting company, is commissioned by the FCH2JU to implement the development of the Information Sharing Platform, including the completion of the survey. It acts as a mediator between FCH2JU and the hydrogen flagship projects. Roland Berger's aim is to support all selected frontrunning hydrogen projects throughout the survey process. As such, Roland Berger will only make use of the collected data for purposes directly related to the development of the platform. It will, in no way, employ the information for internal uses.

In general, only FCH2JU, Roland Berger and Inycom, the external IT subcontractor who is setting up the information sharing platform and the survey, will have access to the survey data. The collected personal data is stored on a server of Inycom, who is guaranteeing to satisfy the data protection and confidentiality required by Regulation (EU) 2018/1725. After submitting the survey, the data will be analyzed on the Hydrogen Valley Platform internally, using Drupal 8, a widely used opensource content-management system. To read the privacy statement relative to the H2V questionnaire, please access here.

We **thank you** in advance for taking the time to fill out the survey.

Your contribution **will play a critical part** in establishing the basis for a successful global effort.

Figure 28: Landing page reached by contributors to then complete each chapter in the survey.

3. Communication activities and materials

3.1 Recap of communication activities, formats and channels

Over the course of the 18-month project, a dedicated communication strategy ensured efficient communication on a continuous basis between all project stakeholders. It enabled the project developers to efficiently set up the platform, contributed to extensive outreach to Hydrogen Valleys and generated substantial interest in the platform before and after its go-live.

The following chapter provides an overview of the main communication activities undertaken during the setup of the Mission Innovation Hydrogen Valley platform, the different channels used and the audience groups that were reached to contribute to the successful setup and delivery of the platform.

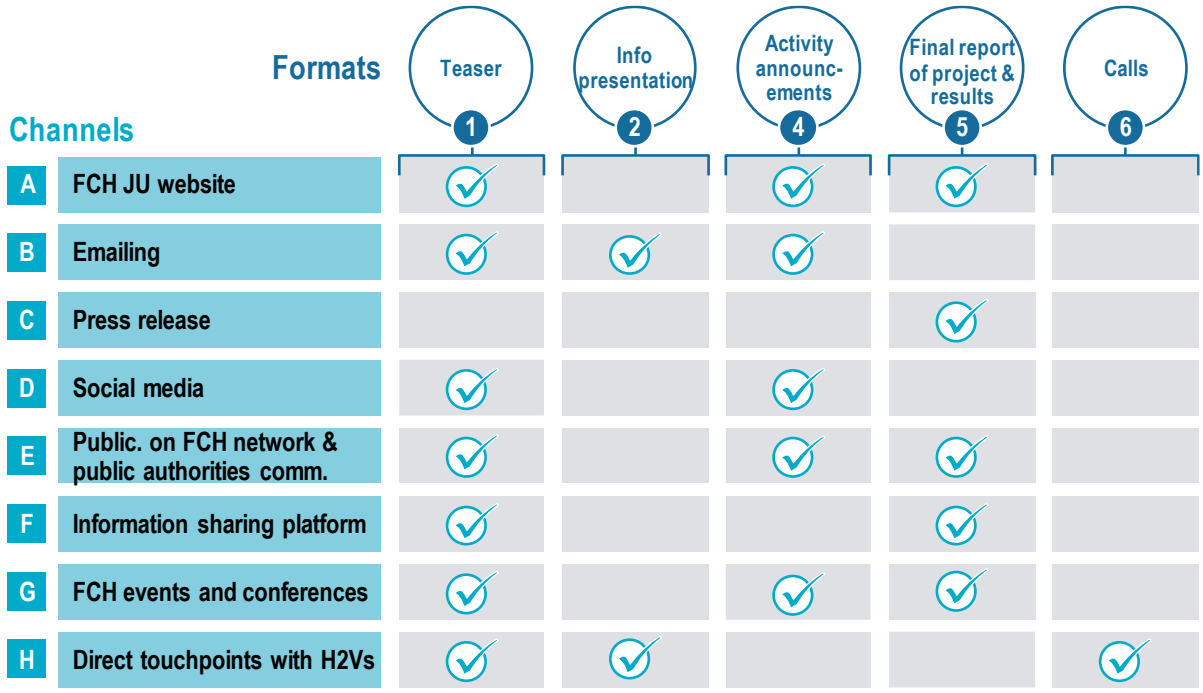


Figure 29. Communication formats and channels

Impact of Covid-19

The start of the project coincided with the outbreak of the Covid-19 pandemic. The main Covid-19 induced change affected the planned in-person meetings. They all got replaced by additional remote interactions, typically in a video-conferencing format. Overall, the use of video-conferencing for weekly status updates etc. (as opposed to telephone-conferencing) was intensified in order to secure an adequate personalized exchange between all project parties. These minimal adaptations did not lead to any compromise in terms of quality or

quantity of the project work delivered as well as of the cooperation between the client organizations and the consultant team. From the beginning, the project setup was deliberately chosen in order to deliver the project remotely in line with the tender requirements. This included the consultants working in their own facilities in Germany (Roland Berger) and Spain (Inycom) respectively.

In addition, the use of video-conferencing tools and webinars for communication activities, especially concerning the launch of the platform, contributed to a substantial global outreach and international participation in the events which would not have been possible if meetings would have taken place in-person in Brussels.

Steering Committee (SteerCo)

The SteerCo consisted of the Mission Innovation 'Innovation Challenge 8' Co-leads Australia, Germany and the European Union, the Fuel Cells and Hydrogen Joint Undertaking and the project team consisting of Roland Berger and Inycom. The SteerCos took place on a 6-8 week basis providing regular updates to its members on the progress of all project activities. The SteerCo ensured timely feedback from its members to the project team regarding the progress of the project, decisions regarding the setup of the platform and involvement of Hydrogen Valleys.

The project team also invited Hydrogen Valley representatives to the meeting on a regular basis in case the feedback of the Hydrogen Valleys themselves was particularly valuable on a certain topic. The Hydrogen Valleys were represented by the HEAVENN (NL) initiative, the Normandy (FR) Hydrogen Valley as well as the H2Rivers/H2 Rhein-Neckar (DE) project.

Hydrogen Valleys

Substantial communication activities surrounded the Hydrogen Valley initiatives themselves. After they had been informed about their selection as a Hydrogen Valley and the subsequent roll-out of the survey in June 2020, continuous support was provided by the project team both on an individual needs basis and for the Hydrogen Valleys as a peer group. During the data collection phase, collective calls for Hydrogen Valleys were offered at convenient times to accommodate for all time zones. The call provided general information on the project and the survey in particular and gave guidance on the way forward of the project. This proved to be particularly important as the Hydrogen Valleys were not yet able to see the outcome of the project and what the platform was going to offer. The calls thus contributed to a better understanding of the project and ensured further commitment and participation from their side.

Moreover, extensive follow-up and individual meetings carried out by the project team took place during the data collection phase. Meeting with projects from many countries, including but not limited to Belgium, China, Spain, the Netherlands, Germany and France took place in order to answer questions and provide guidance on the survey. Similarly, after the data collection was completed and data validation took place, the project team reached out to all Hydrogen Valleys to validate their input for the public profiles on the platform and addressed remaining questions regarding survey answers.

In September, after first data analyses had been conducted, another round of calls with Hydrogen Valleys and the project team took place. The objective of the call was to provide first insights into the aggregated data obtained and a first look on the look and feel of the

platform and what would be provided there. Both rounds of calls were topped off by power point presentations containing all information discussed during the calls which were distributed to all Hydrogen Valleys afterwards.

In addition to activities related to the survey roll-out, in-depth interviews with selected Hydrogen Valleys were conducted as well. The information gathered during these interviews complemented the aggregated data analyses provided on the platform. Based on the survey, Hydrogen Valleys were selected that appeared to have mastered a particular challenge that other projects identified as major hurdle particularly well during their project development. The synopsis of the interviews where the projects provided insights into their lessons learned and recommendations for other Hydrogen Valleys is publicly available on the Hydrogen Valley platform as well.

Besides the meetings and individual calls mentioned above, the Hydrogen Valleys were kept up to date via a Newsletter that also specifically informed and invited them to the platform launch event on 19 January 2021 and the associated activities. Selected Hydrogen Valleys were also invited to participate in a discussion panel at the platform's launch event.

IC8 member state representatives

Besides the co-lead countries of the Innovation Challenge 8 of Mission Innovation which were members of the SteerCo, the other member states of this challenge were also involved in the project. They were instrumental in identifying and contacting Hydrogen Valleys in the IC8 member states. Subsequently, they were informed via a dedicated newsletter on relevant activities of the project, such as the landing page launch, the launch of the survey as well as the platform launch.

Moreover, the member state representatives were also invited to contribute to the Hydrogen Valley selection by proposing initiatives in their own countries and supported by providing direct contacts to the respective project developers. This ensured a fast setup of relationships between the initiatives and the project.

Target audience of the Mission Innovation Hydrogen Valley platform

The Mission Innovation Hydrogen Valley platform is an information provider and collaboration platform not only for Hydrogen Valleys but also for new and existing project developers in the field, industry representatives and policy makers alike, besides the general public. In order to inform and engage the target audience about the upcoming platform, a landing page was set up in Q1 2020 to provide first information on the platform and the associated timeline. The landing page was extensively promoted by Mission Innovation and its members, the FCH JU and the project team and thus could gather substantial interest. It also provided the possibility to sign-up for updates on the platform. Until the final launch of the platform on 19 January 2021, the platform gained more than 1,000 subscribers.

During the setup of the platform, the project was also presented during two major events in the hydrogen sector: The European Hydrogen Week hosted by the FCH JU in November 2020 and the IPHE Regions Forum that took place in December 2020. These two events further contributed to the visibility of the project and the platform overall and sparked additional interest to participate in the launch event.

The platform launch was planned with dedicated communication activities in place. First of all, the event announcement was distributed via a variety of channels and newsletters from

Mission Innovation, the FCH JU as well as the platform subscription newsletter mentioned above. In addition to that, both the IC8 member state representatives and the Hydrogen Valleys were invited separately via email to the event.

The event – still organized as a webinar due to Covid-19 restrictions – took place with more than 1,300 attendees on 19 January 2021 with speakers from the FCH JU, the IC8 co-lead countries, Roland Berger and Inycom as well as selected Hydrogen Valleys that presented their projects and that participated in a panel discussion. The event itself was accompanied by extensive social and online media activities from all stakeholders involved especially on LinkedIn and on the respective websites both before and after the launch.

Figure 30. Social media teaser for platform launch event

Since its launch, the platform has gathered significant attention and has been visited more than 10,000 times. Via the matomo tracking tool, the number of visitors, their location and their behaviour has been continuously tracked since the landing page was set up and later when the platform went live. More than 40,000 pageviews also confirm the interest in the various subsections of the platform. The most visited sections are the Hydrogen Valley profiles as well as the analysis section where the aggregated data analysis is available.

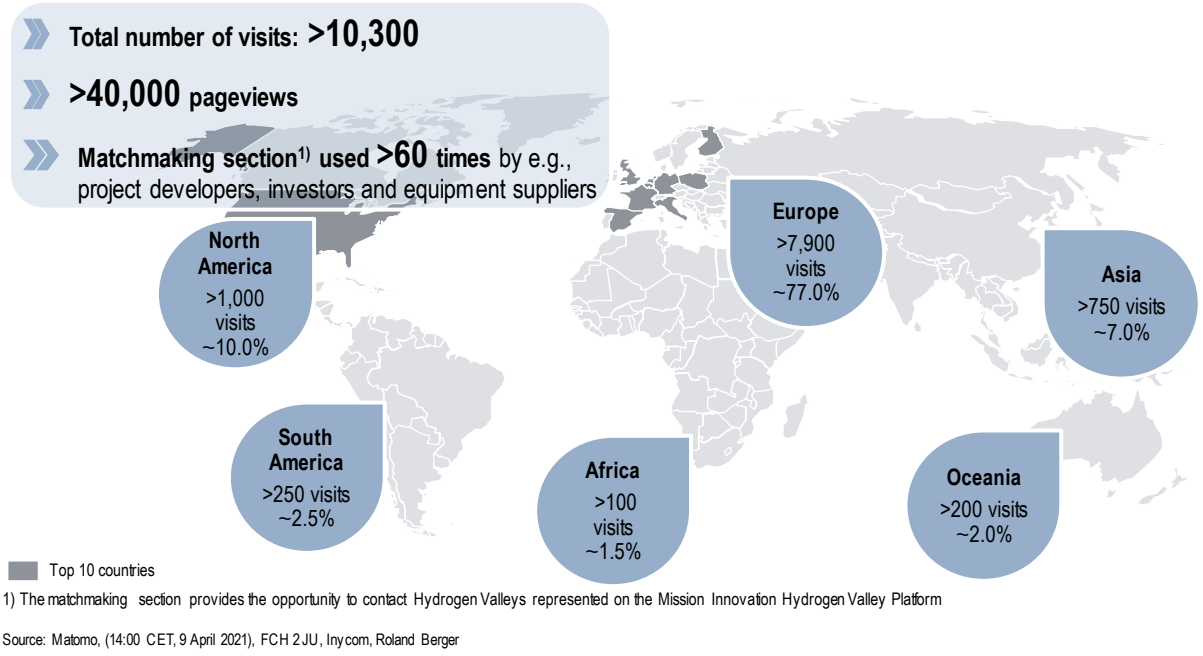


Figure 31. Tracking results of the Mission Innovation Hydrogen Valley platform

3.2 Continuity of service and essentials for handover of communication activities

In order to ensure the continuity of service, this chapter provides a synopsis of the main tasks that need to be conducted in order to ensure a minimum level of service for the platform and for the Hydrogen Valleys on it. The tasks can be divided into a) managing requests from existing Hydrogen Valleys on the platform and b) managing requests from projects that want to join the platform. Please note that the following chapters provide the how-to from a communications standpoint, how to handle the tasks related to the IT are discussed in section 2.2 (user manual).

3.2.1 Requests from existing Hydrogen Valleys

As the survey has been answered by most Hydrogen Valleys more than six months ago, some Hydrogen Valleys have proactively reached out with requests to change some information that has been provided to the platform. These requests can be handled in two ways: The person handling the request changes the information in the backend in case of minor changes, e.g., changing project names, or the survey gets reopened for the Hydrogen Valley in order to review their entire answers. In the latter case, the public profile can be shut down during the review of the data. Once the Hydrogen Valley has finished updating their data, their profile can be put back on the platform. If needed, a preview of the updated public profile can be provided to the Hydrogen Valley for validation. In both cases, communication via email proved to be the most efficient way, also as a way to document the process.

3.2.2 Requests from new projects to join the platform

First stage: Assessment

In a first stage, the projects that request to join the platform need to be assessed based on their fit with the selection criteria: a broad value chain coverage, multiple end uses, a geographically defined project scope as well as size (multi-million, two-digit investment). Moreover, the projects ideally need to be at least at the feasibility stage. For a detailed presentation of the selection criteria, please refer to the inception report.

Based on the criteria, materials can be requested from the project to assess its fit. Depending on the quality of the material provided, an additional meeting (e.g., via Microsoft Teams) might be necessary to get a better understanding on the current status of the project. Afterwards, the decision is communicated to the project.

Second stage: Survey roll-out and answering questions

In case the project gets selected to join the platform, they can be immediately provided with their personalized survey access. Together with a standard description of how to access the survey and the login details, an information document on the survey as well as the platform is sent alongside to answer immediate questions the Hydrogen Valley might have ranging from the information requested from them to how it will be used as well as concerns around data protection. The deck in PDF form as well as the draft email is provided separately alongside the final technical report.

Third stage: Survey data check and follow up

Once the Hydrogen Valley has completed the survey, their access gets closed and their answers are reviewed. This includes a spelling check as well as controlling for overall consistency (i.e., do the quantities match, is the investment volume consistent throughout the survey, do percentages add up etc.). Particularly important are the answers that are publicly shared via the Hydrogen Valley profiles on the platform. For this reason, the "view" function in the backend provides the possibility to review the profile before the go-live. It proved to be beneficial in the daily work to reconfirm the content in the profile with the Hydrogen Valley to get their final approval. In addition to that, it also further encourages projects to share the high-level information required when they see that their profile would otherwise appear empty.

Fourth stage: Go-live on the platform

After the survey data check and public profile approval, the new Hydrogen Valley can go live on the platform. The FCH JU and/or Mission Innovation can decide on whether to regularly communicate via their channels on new joiners of the platform. Possible communication channels directly related to the platform are the Hydrogen Valley email distribution list, the IC8 member state distribution list as well as the public subscription ("sign-up results") email distribution list to which platform visitors can subscribe to.

3.3 Handover documents

In the table below, a list of the documents provided in addition to this report, the platform and the associated database (accessible via the platform's backend, see chapter 2) can be found including a short description and a specification of the respective format.

Document	Description	Format
Hydrogen Valleys contact list and IC 8 members contact list CONFIDENTIAL	> Contact list of Hydrogen Valleys that were selected for the platform, including survey usernames and login data > Including Hydrogen Valleys that did not participate or dropped out at a later point > Contact list of IC8 member state representatives that have been informed about the project on a continuous basis	XLSX
"Sign-up results" contact list and "Landing signup results" contact list CONFIDENTIAL	> Available for download in the platform backend – divided into subscriptions before the go-live of the platform and after the go-live of the platform	XLSX, 2x
Onboarding document	> Onboarding document for new Hydrogen Valleys that are about to fill out the survey	PDF
Draft Email for survey access	> Draft to communicate how to access the survey to a new Hydrogen Valley	DOCX

Annex I: Service Privacy Statement, Data Protection and Legal Notice

A. Specific Service Privacy Statement For data collected via the Matchmaking Contact Form within the Mission Innovation Hydrogen Valley Platform Initiative

This privacy statement explains how the Fuel Cells and Hydrogen 2 Joint Undertaking (here after referred to as FCH 2 JU) uses any information you give to us while registering for the updates relative to the Mission Innovation Hydrogen Valley Platform Initiative (hereafter, 'the Initiative') and the way we protect your privacy.

1. Context and controller

This specific online service consists of an online electronic registration made available on this web page, offering you the possibility to subscribe in order to receive information about the Initiative and its relevant activities. While registering, your personal data will be collected and further processed for the purposes detailed below under point 2.

The relevant processing operation is under the responsibility of the Executive Director of the Fuel Cells and Hydrogen 2 Joint Undertaking, acting as the Controller.

As this online service collects and further processes personal data, 'Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC' applies.

2. What personal information do we collect, for what purpose and through which technical means?

Types of personal data

*The **personal data collected** and further processed by the FCH 2 JU in relation to the online services are data necessary for the organisation and management of communication activities:*

- *First name**
- *Last name**
- *Professional e-mail address**

(Replies to these questions are mandatory since all information requested is necessary for registration. In case of a no reply, the registration to the online service will not be carried out.)*

Purpose and technical means

The purpose of processing personal data for the online service is to send information to you about the initiative and its relevant activities, as well as the creation of a database of subscribers with contact details (e-mail address) for future communications.

3. Legal basis

*The **legal basis** for the organisation of the subscription process, including its management and the related processing, is Council Regulation (EU) No 559/2014 of 6 May 2014 establishing the Fuel Cells and Hydrogen 2 Joint Undertaking, more specifically Articles 1, 7, and 9 of the Statutes of The Fuel Cells and Hydrogen 2 Joint Undertaking, in corroboration with Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020).*

In line with Article 5.1(a) of Regulation (EU)2018/1725the processing operation is necessary for the performance of tasks carried out in the public interest on the basis of the Treaties or other legal instruments adopted on the basis thereof.

The lawfulness of the processing of personal data is also based on Article 13 (1) of the Directive 2002/58/EC whereby the data subject has unambiguously given its consent, which corresponds to the data subject's consent in Article 5.1(d) of Regulation EC 2018/1725.

By clicking on the "submit" button in this online service, the applicant will be considered to have given his or her consent to the processing of their data in the context of the Initiative.

Lawfulness of the processing operation

The data processing is considered lawful because it is necessary:

• For the performance of tasks carried out on the basis of Council Regulation (EU) No 559/2014 of 6 May 2014 establishing the Fuel Cells and Hydrogen 2 Joint Undertaking, more specifically Articles 1, 7, and 9 of the Statutes of the Fuel Cells and Hydrogen 2 Joint Undertaking, in corroboration with Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020)

4. Who has access to your information and to whom is it disclosed?

For the purposes detailed above access to your personal data is given to the following persons:

• *Internally authorized staff of the FCH 2 JU*

• *Internally authorized staff of FCH 2 JU contractors in charge of executing activities described above in the 'Purpose and technical means section'.*

5. How do we protect and safeguard your information?

The personal data and all information collected is stored on the servers of the FCH 2 JU's Contractor[7] implementing the Mission Innovation Hydrogen Valley Platform Initiative[8]. The Contractor adhered to a code of conduct on Information Security and has implemented management systems that are certified by AENOR under the ISO Standards ISO27001 - Information Security System and ISO20000-1 – IT Service Management System, and under the corresponding National Security Framework. The Contractor has established the necessary guarantees to implement appropriate technical and organizational measures in such a manner that data processing needed for the completion of the Mission Innovation Hydrogen Valley Platform Initiative contract will meet the existing regulatory requirements.

Access to all collected personal data is only permitted to those referred to above (see point 3) using a User ID / Password.

6. What are your rights regarding your personal data?

You have the right of access to your personal data and to relevant information concerning how we use it. You have the right to rectify your personal data. Under certain conditions, you have the right to ask that we delete your personal data or restrict its use. You have the right to object to our processing of your personal data, on grounds relating to your particular situation, at any time. We will consider your request, take a decision and communicate it to you.

You can send your request to the FCH 2 JU by post in a sealed envelope or use our "contact us"

button.

How to withdraw your consent and the consequences of doing this

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[7] the Contractor is a consortium formed of Roland Berger GmbH and Instrumentación y Componentes S.A.

[8] as a result of a public procurement procedure

Subscribers can send an email to data-protection@fch.europa.eu expressing their withdrawal of consent. Appropriate action will be taken within a week of receiving the request

7. How long do we keep your data?

All personal data will be kept for a general retention period of five years.

If you do not agree with this, please contact the Controller by using the contact information below and by explicitly specifying your request.

8. Contact information

If you have any questions relating to this online service, or on your rights, please contact the support team operating under the responsibility of the Controller, using the following e-mail: fch-projects@fch.europa.eu.

9. Recourse

You have right of recourse at any time to the Data Protection Officer of the FCH 2 JU (data-protection@fch.europa.eu).

You have the right to submit a complaint at any time directly to the European Data Protection Supervisor:

Address: Rue Wiertz 60 – MO 63

B-1047 Bruxelles, Belgium

Tel: +32 2 283 19 00

Fax: +32 2 283 19 50

Email: edps@edps.europa.eu

B. Data Protection

https://www.h2v.eu/data-protection

1. Personal data protection

The FCH 2 JU, like other bodies, agencies and offices that are part of the EU institutions, may process your personal data (also known as personal information) for a number of reasons, from dealing with public requests for information to staff matters, procurement contracts, grant agreements etc.
The FCH 2 JU is committed to user privacy. The policy on protection of individuals with regard to the processing of personal data by the Union institutions and bodies is based on Regulation (EU) 2018/1725.
Although you can browse through most of the pages of our website without giving any information about yourself, in some cases, personal information is required in order to provide the e-services you request, such as for example registration for participation to annual or ad-hoc events organised by the FCH 2 JU within the Mission Innovation Hydrogen Valley Platform Initiative. The pages that require such information treat it according to the policy described in the regulation above and will always contain, in a dedicated privacy statement, the information about how we make use of your data. In this respect:

- *for each e-service, the purposes and means of the processing of personal data are specified in their corresponding privacy statement*
- *within the FCH 2 JU, the Data Protection Officer ensures that the provisions of the regulation are applied and advises controllers on fulfilling their obligations*
- *as for all the institutions, the European Data Protection Supervisor will act as an independent supervisory authority*

The FCH 2 JU's websites may provide links to third-party sites. Since we do not control them, we encourage you to review their privacy policies.

2. E-services

An e-service on this website is a service or resource made available on the internet in order to provide you with easy and effective access to information and to manage the organisation of events within the Mission Innovation Hydrogen Valley Platform Initiative (hereinafter 'the Platform').

3. Information contained in a specific privacy statement

A specific privacy policy statement will contain the following information:

- *The identity and contact details of the controller*
- *The contact details of the data protection officer*
- *What information is collected, for what purpose, the technical means by which the FCH 2 JU collects personal information in order to fulfil a specific purpose, as well as the legal basis*

- *To whom your information is disclosed, if applicablen>*
- *How you can access your information, verify its accuracy and, if necessary, correct it, delete it, restrict the processing or where applicable, object to processing or to data portability*
- *In specific cases, you will also have the right to withdraw your consent*
- *How long your data is stored*
- *What security measures are taken to safeguard your information against possible misuse or unauthorised access*
- *Whom to contact if you have queries or complaints*

4. Contacting us

Our "Contact" tag includes one contact e-mail address, which activate your email software and open a new email to be addressed to a specific mailbox. When you send such a message, your personal data is collected only in order to reply.
If the team responsible for the mailbox is unable to answer your question, it will forward your email to another service. You will be informed, via email, about which service your question has been forwarded to.
If you have any questions about the processing of your email and related personal data, do not hesitate to include them in your message.

5. Safeguarding information

Collected personal data is stored on a computer of the external subcontractor acting as processor, who has to guarantee the data protection and confidentiality required by Regulation (EU) 2018/1725

6. Your rights

If you want to request access to and rectify or erase your personal data stored by the FCH 2 JU for this website, or restrict the processing of your personal data, or where applicable, object to the processing or to data portability, you can email the data controller at the following address: data.protection@fch.europa.eu In your email, clearly state your request and include the URL of the webpages your request refers to.

7. Specific Privacy Statements

Download here the Specific Service Privacy Statement for data collected via online subscriptions for updates about the Platform.

C. Legal Notice

https://www.h2v.eu/legal-notice

This section contains the legal notice relative to the whole H2V portal. This text is included below in its latest version as approved by FCH JU:

The information on this site is subject to a disclaimer (external link), a copyright notice (external link) and rules related to personal data protection (external link).

1. *Disclaimer*

The FCH 2 JU maintains this website to enhance public access to information about its Mission Innovation Hydrogen Valley Platform Initiative. Our goal is to keep this information timely and accurate. If errors are brought to our attention, we will try to correct them. However the FCH 2 JU accepts no responsibility or liability whatsoever with regard to the information on this site.
This information is:

- *of a general nature only and is not intended to address the specific circumstances of any particular individual or entity;*
- *not necessarily comprehensive, complete, accurate or up to date;*
- *sometimes linked to external sites over which the FCH 2 JU have no control and for which it assumes no responsibility;*
- *not professional or legal advice (if you need specific advice, you should always consult a suitably qualified professional).*

Please note that it cannot be guaranteed that a document available online exactly reproduces an officially adopted text. Only the European Union legislation published in paper editions of the Official Journal of the European Union is deemed authentic.
It is our goal to minimize disruption caused by technical errors. However, some data or information on our site may have been created or structured in files or formats that are not error-free and we cannot guarantee that our service will not be interrupted or otherwise affected by such problems. The FCH 2 JU accepts no responsibility with regard to such problems incurred as a result of using this site or any linked external sites.
This disclaimer is not intended to limit the liability of the FCH 2 JU in contravention of any requirements laid down in applicable national law nor to exclude its liability for matters which may not be excluded under that law.

2. *Copyright notice*

©FCH 2 JU, 2020. Reproduction is authorised, provided the source is acknowledged, save where otherwise stated.

3. *The FCH 2 JU logo*

The FCH 2 JU logo is protected under copyright laws and therefore, any unauthorised registration and use of signs or trademarks containing imitations of the FCH 2 JU's logo is prohibited.

4. ***The Mission Innovation (MI) logo***

The Mission Innovation (hereinafter MI) logo requires concordance with the Mission Innovation Branding Guidelines.

5. ***Rules of use of FCH 2 JU logo by third parties***

Rules of use by third parties of the FCH logo are available here (external link).

6. ***Rules of use of MI logo by third parties***

The MI logo cannot be used by third parties without the prior explicit authorisation of the MI Secretariat.
Requests for authorization can be submitted by email to secretariat@mission-innovation.net.
The conditions of use are the following:

- *there is no likelihood of the user of MI's logo being confused with the JU itself*
- *the logo is not used to imply or suggest unintended endorsement or promotion of the objectives and activities of the user by MI*
- *the logo is not used in connection with objectives or activities which are incompatible with the aims and principles of the Platform*

Each request to use the logo needs to be examined individually to ascertain whether it satisfies the criteria established here above.

7. ***Personal Data Protection***

The FCH 2 JU is committed to user privacy. The policy on protection of individuals with regard to the processing of personal data by the Union institutions and bodies is based on Regulation (EU) 2018/1725.
Further information is available at our data protection page.

Annex II. Survey content

CHAPTER 1. FUNDAMENTALS

1.1 First name

1.2 Last name

1.3 Name of your organization

1.4 Website

1.5 Professional email address

1.6 Professional phone number (including country code)

Country Code

(+1)

United States (+1)

Phone number

1.7 Name of the hydrogen valley project (b)

1.8 Website / URL

1.9 Short description

1.10 In which **country** is your main project located?(b)

1.11 In which **city** is your main project located?

1.12 What are the coordinates (latitude and longitude) of your primary project location?(b)

On your computer, please open Google Maps and insert the name or address of your

primary project location. You will see that a red pin has appeared in the map indicating the exact location. You can obtain the coordinates by clicking in a point nearby in the map; the coordinates will appear in a taskbar at the bottom of the page. You will find two different numbers (e.g. 50.835052, 4.354251), please place both numbers in the pertinent boxes, being the latitude the first one.

Latitude

Longitude

1.13 Do you have other locations for your project? (c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.14 Who is the lead developer entity of your project? (a)(b)

1.15 Who are the **project partners**?(c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.16 Who are your main **political sponsors**?(a)(c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.17 Are there other projects with **interdependencies** to your project?(a)

Direct connections in the form of i.e. dedicated H2 suppliers.

1.18 How much **H2 is produced** within the project per day?(c) tonnes/day

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.19 How much **H2 is consumed** by the project within one day?(c) tonnes/day

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.20 What is the **investment volume** over the project lifetime?(a)(c) Capital expenditures (million EUR)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.21 How many **staff members** are working on the project development (full-time equivalent personnel)?

1.22 What are the main drivers of the project?(c)

☐ Political (industrial / ecological)

☐ Economic

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.23 What is the start date of the project preparation? (indicative date if not known yet)*(c)*

The project preparation phase indicates the identification of all project work and the definition of rough goals and objectives. Additionally, a decision making process for managing further planning and development of the project is being established.

Date

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.24 What is the date for the financing closure? (indicative date if not known yet)

The financing closure indicates the securing of all project-related financial resources.

Date

1.25 What is the start date of the project implementation? (indicative date if not known yet)

The project implementation phase indicates the realization of the project vision and plans.

Date

1.26 What is the date of the project finalization? (indicative date if not known yet)*(c)*

The project finalization phase indicates the completion of all activities related to the project implementation.

Date

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.27 What is the **current** **status** of the project?(b)

1.28 What is your key underlying business model across the value chain (energyflow)?(a)(c)

☐ Power-to-power

☐ Power-to-gas

☐ Power-to-liquids

☐ Power-to-heat

☐ Power-to-industry

☐ Power-to-mobility

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.29 What are your key products and services?(a)

☐ Products

☐ Services

1.30 Who are the key **offtakers** of the project?(a)(c)

1.30.1 What industry do your key customers belong to?

1.30.2 Where does the geographical scope of the customers lie?

- ☐ Local
- ☐ Regional
- ☐ National
- ☐ International

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

1.31 Do you have any plans to **expand your project activities** beyond the currently envisioned scope? - None -

1.31.1 What is the timeframe for a potential expansion?

1.31.2 What is the size expected for the expansion (increase by a factor of 10x, 100x, 1000x...)?

(a) More detailed questions will follow on this topic.

(b) Your answer to this question will be used for a short profile of your project on the platform and will therefore not be anonymized.

(c) Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box at the end of this question.

Vertical Tabs

Save

CHAPTER 2. VALUE CHAIN AND TECHNOLGY

2.1 Does your project include investment in primary energy production?

2.2 What and how much technology do you use/intend to use along the value chain?(c)

☐ 2.2.1 Primary energy sourcing

☐ 2.2.2 H2 production

☐ 2.2.3 H2 storage / conversion

☐ 2.2.4 H2 transport / distribution

☐ 2.2.5. H2 Distribution

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

2.3 Which application does your production have and how much will be applied?(c)

☐ 2.3.1 User mobility (hydrogen fuel cell electric or hydrogen combustion or hydrogen hybrid vehicles)

☐ 2.3.2 Energy (power, heat)

☐ 2.3.3 Industrial use as feedstock

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

(a) More detailed questions will follow on this topic.

(b) Your answer to this question will be used for a short profile of your project on the platform and will therefore not be anonymized.

(c) Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box at the end of this question.

CHAPTER 3. PREPARATION

Title Test Chapter 3 - Preparation

3.1 How much time did you **plan to prepare** the project?

3.2 How much time did you actually **need to prepare** the project?

3.3 How much time did you **plan to obtain your major construction and deployment permits**?

3.4 Have you already **obtained any major construction or deployment permit**?

3.5 How many **stakeholders** are involved in preparing the project, i.e. how many parties/entities played a major role in shaping the project concept and getting it off the ground (technically, financially, legally, in terms of project management, etc.), incl. companies, public authorities, research & academia, NGOs/NPOs, etc.?(c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.6 How many **staff members** across all stakeholders are involved in preparing the project (full-time equivalent personnel)?

3.7 What share of the overall **budget** are you spending for the preparation phase?

3.8 What is the main **funding source** for the preparation phase?(c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.9 What is the name of the **lead entity** in the preperation phase?

What kind of stakeholder is it?

3.10 Do you have major commercial **risk sharing mechanisms** between the project stakeholders in place?(c)

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.11 Do you have a more or less formal and dedicated **governance mechanism** in place?

3.12 What are key regulatory provisions along the value chain supporting your project (e.g. exemptions from taxes/levies/duties, FIT for H2 injection to gas grid, quotas for sustainable fuels)?(c)

☐ Political

☐ Economic

☐ Social

☐ Technological

☐ Environmental

☐ Legal

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.13 What are the main regulatory hurdles that you have to overcome?(c)

☐ Missing or inadequate permitting procedures

☐ Lack of H2 experience of permitting authorities

☐ Missing / too strict safety regulation in the context of H2 deployment

☐ Taxes/levies/duties on electricity from RES

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.14 Do you have **clarity** on all required **permitting procedures**?

3.15 Do you have all **permitting procedures** for your project in **place**?

3.16 What are the main activities in the preparation phase?

- [ ] Business model / business case development
- [ ] Partnering (with technology providers etc.)
- [ ] Technical feasibility
- [ ] Permitting processes
- [ ] Financing preparation
- [ ] Other

3.17 What are the main hurdles and barriers in the preparation phase?(c)

- [ ] Technological readiness / technological performance (e.g. availability, efficiency, duration/lifetime)
- [ ] Regulatory provisions
- [ ] Permitting and authorization procedures
- [ ] Political backing and buy-in
- [ ] Funding
- [ ] Experienced staff
- [ ] Local public acceptance
- [ ] Project's business case
- [ ] Stakeholder cooperation
- [ ] Risk sharing mechanisms between project partners
- [ ] Project governance model
- [ ] Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

3.18 What are the key success factors for the preparation phase?(c)

☐ Business model / business case development

☐ Partnering (with technology providers etc.)

☐ Technological readiness / technological performance (e.g. availability, efficiency, duration/lifetime)

☐ Regulatory provisions

☐ Permitting and authorization procedures

☐ Political backing and buy-in

☐ Funding

☐ Experienced staff

☐ Local public acceptance

☐ Project's business case

☐ Stakeholder cooperation

☐ Risk sharing mechanisms between project partners

☐ Project governance model

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

(a) More detailed questions will follow on this topic.

(b) Your answer to this question will be used for a short profile of your project on the platform and will therefore not be anonymized.

(c) Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box at the end of this question.

CHAPTER 4. COMMERCIAL AND FINANCING

Title Test Chapter 4 - Commercial & Financing

4.1 What was the total **budget planned**? (CAPEX over total project life) million EUR

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

4.2 What is the total **budget spent** to date? million EUR

4.3 What is the **overhead share** of your project? (% of total CAPEX investment) The overhead share of a budget refers to ongoing business expenses not directly attributed to creating a product or service, such as utilities, taxes or accounting fees. %

4.4 What are the main public and private sources for your budget?(c)

☐ Public budget

☐ Private budget

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

4.5 What funding instruments are you using?(c)

☐ Grants / subsidies

☐ Equity

☐ Debt

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

4.6 What is your (anticipated) average **cost of electricity**?

4.7 What is your (anticipated) average **cost of natural gas**? > 60 EUR / MWh

4.8 What is your (anticipated) average **cost of green H2**?

4.9 Do you make use of blue H2?

4.10 Do you make use of grey H2?

4.11 What is your sales price of H2 internally? (For instance for internal accounting between production entity and application usage)

4.12 What is your sales price of H2 externally?

4.13 How competitive are your (anticipated) products or services compared to offerings based on conventional technology?

4.14 What are the main activities in the commercials and financing phase?

- ☐ Searching for eligible public subsidy / grant schemes
- ☐ Applying for public subsidy / grant schemes
- ☐ Negotiating with private investors
- ☐ Building a financial model
- ☐ Preparing documentation for a due diligence process
- ☐ Putting a de-risking framework in place
- ☐ Other

4.15 What are the main hurdles and barriers for the commercials and financing phase?(c)

- ☐ Securing public financial support (subsidy / grant)
- ☐ Securing private investors
- ☐ Building a financial model
- ☐ Securing customer commitments to de-risk the financial model

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

4.16 What are the key success factors for the commercials and financing phase?(c)

☐ Applying for public subsidy / grant schemes

☐ Securing private investors

☐ Securing public financial support (subsidy / grant)

☐ Building a financial model

☐ Preparing documentation for a due diligence process

☐ Putting a de-risking framework in place

☐ Securing customer commitments to de-risk the financial model

☐ Other

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

(a) More detailed questions will follow on this topic.

(b) Your answer to this question will be used for a short profile of your project on the platform and will therefore not be anonymized.

(c) Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box at the end of this question.

CHAPTER 5. IMPACT & ANALYSIS

Title Test Chapter 5 - Impact & Analysis

5.1 How much **CO2 is being produced** by your project (direct emissions)? (c) tonnes/year

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.2 How much **CO2 has been reduced** by your project? (c) tonnes/year

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.3 How much **NOx was reduced** by your project to date? (c) kg/year

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.4 What level of **noise reduction** has been accomplished by your project to date? (c) dB/year

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.5 What is the **economic value added** of the project? Value-added equates to the sum of compensation of labour, return on capital (i.e annualised capital expenditures (CAPEX)) and a margin (i.e. gross profits)(c) million EUR/year

☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

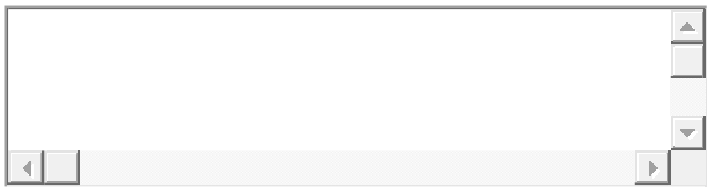
5.6 What are the employment benefits of this project? How many jobs are created over the project lifetime?

☐ During project preparation

☐ During project operation

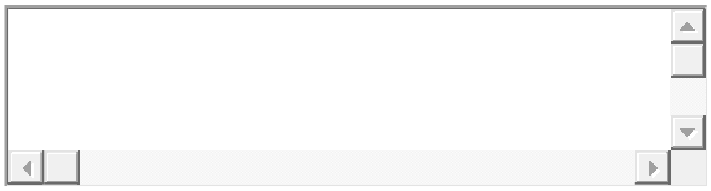
☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.7 What overarching **industrial policy goals** are part of your H2 Valley (e.g. scale-up of electrolyzer technology)? (c)



☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

5.8 What are additional **project benefits** communicated to project stakeholders? (c)



☐ Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box.

(a) More detailed questions will follow on this topic.

(b) Your answer to this question will be used for a short profile of your project on the platform and will therefore not be anonymized.

(c) Your answer to this question will be used for a detailed profile of your project on the platform and will therefore not be anonymized. If you do not want this information to be public, please tick the box at the end of this question.

Save


Roland
Berger