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# WHITE BOOK FOR THE WEB BASED INTERNATIONAL EXPERT PLATFORM

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Draft

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# 1. Introduction

## 1.1. The international GeoPLASMA-CE expert web-platform

The overall goal of the project GeoPLASMA-CE represents fostering the use of shallow geothermal methods for heating and cooling in Central Europe. As some of the countries, participating in this project have well developed markets on shallow geothermal use, and the remaining countries are just starting to develop markets, the international expert web platform intends to disseminate knowledge and to establish a platform for getting connected. We would like to address experts in R&D and on a professional level as well as authorities and policy makers and provide to them state of the art know-how on planning, management and regulating the use of shallow geothermal methods. The international web based expert platform will be the face of GeoPLASMA-CE to Central Europe and will provide an umbrella to the regional web based decision support and expert tools for our 6 pilot areas in Germany, Poland, Czech Republic, Slovakia, Austria and Slovenia.

## 1.2. Scope of the deliverable

This report presents a general concept of the international expert platform, which will be a crucial element of the GeoPLASMA-CE web portal ([www.geoplasma-ce.eu](http://www.geoplasma-ce.eu)). It will describe all relevant features and presents mockup graphics of the planned layouts summarized to a so called White Book. It represents a living document until all featured of the expert platform have been realized. Any changes, which will be applied to the general concept or layouts will be documented in updated versions of this report.

## 1.3. Road to the White Book

This White Book founds on the Catalogue of Requirements (Deliverable D.T1.2.2) representing the next step towards the realization of the international GeoPLASMA-CE web platform. The Catalogue of Requirements, that was based on a user survey and internal discussions with the project partners and gave an overview about all the desired features that the international expert platform should have. The international expert platform was furthermore discussed on an internal project workshop in Freiberg on May 18, 2017. The aim of the workshop was to agree on a general structure and the main features of the platform that will now be described in this White Book. After the workshop, PP10-GiGa created estimates of the resources that are needed to develop the agreed main features. Therefore, this White Book is the result of the Catalogue of Requirements, the internal project workshop in Freiberg and the estimates of the resources.

The White Book of the international expert platform aims to give a detailed impression about this part of the web portal that will be developed in the scope of the GeoPLASMA-CE. It will describe the structure of the international expert platform and how it is embedded in the overall GeoPLASMA-CE web portal. An overview will be given about the main features of the platform and how they will work. Mockups of how different parts of the expert platform could look like will be integrated accordingly.

For each main feature, the associated detailed features will also be described in this White Book. Also, features that were mentioned in the Catalogue of Requirements but that will not be developed for the platform will be mentioned, also giving an explanation why a feature will not be



realized. In the final part of the White Book, there will be an overview about the resources that are needed for each feature. The calculation of resources also contains features that were not explicitly mentioned in the Catalogue of Requirements. These are features like „Register / Login“ or general setup of the development environment. In general, they are features that are necessary to develop the portal but that are not specific to the international expert platform. It is possible that changes to the features or new features will come up during the development phase. In this case, the realization of these features will be discussed on base of the available resources. However, the fundamentals and the main features of the platform should not be changed after this White Book.

Any future adaptations of the aimed international expert platform will be presented in updated versions of this document.

## 1.4. Disclaimer for Mockups

In several parts of this White Book, mockups will be shown of how the web platform and, in specific, the international expert platform might look like when they are accomplished. These mockups were mainly created to visualize the user flow on the platform and to give an idea about the planned layout. It is important to note that the layout and especially the content of the mockups do not necessarily represent the final output. Changes will be made during the process of developing the platform and during the beta phase of the platform. The wording will change and the layout might also change during the development.

# 2. General structure

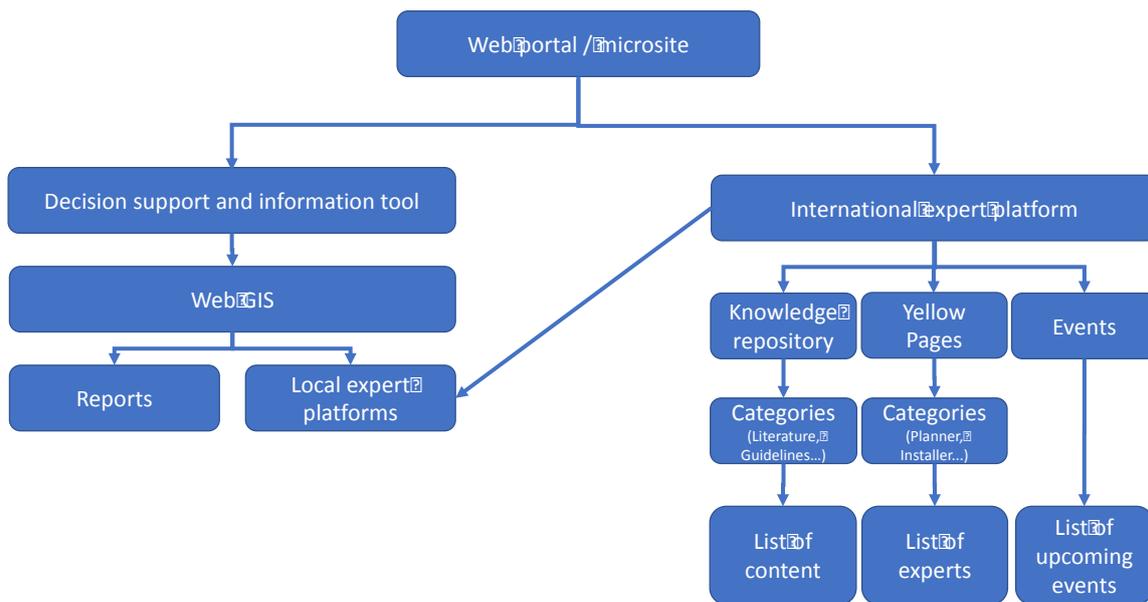
## 2.1. General structure of the web portal

The international expert platform will be part of the overall GeoPLASMA-CE web portal ([www.geoplasma-ce.eu](http://www.geoplasma-ce.eu)), which will be developed in the scope of this project. Besides the international expert platform, the web portal will consist of six regional decision support and information platforms for the chosen pilot areas, which are described in an individual White Book (Deliverable D.T1.3.1). In addition, a landing page will be established, where general information about the project will be given and which will act as an entry point for the decision support tool and the international expert platform. The web portal will be linked to the microsite of GeoPLASMA-CE during the later project implementation and will provide the technical and thematic outputs of the project. As such, the Microsite will contain those results and achievements of the project, which are not directly related to the decision support and information tool or the international expert platform.

The landing page of the GeoPLASMA-CE web portal will provide a prominent placed button to get to the international expert platform as well as a permanent link in the header of the site. Each main part of the GeoPLASMA-CE web portal is reachable at any time through links that are placed in the header that will be present at any site of the web portal. This makes it easy to reach the three main parts of the application, the landing page, the decision support and information tool and the international expert platform from every part of the web portal. A sketch of the general structure of the whole platform can be seen in Figure 1.



The 6 regional decision support and information platforms interact with the international expert platform in the form of local expert platforms. These platforms aim at giving information on a pilot area scale. Local content from the knowledge repository, the yellow pages and the events will be available in the web GIS. Inside the local expert platforms, there will be links to the international expert platform. The local expert platforms are described in detail in the White Book for the decision support and information tool (Deliverable D.T.1.3.1).

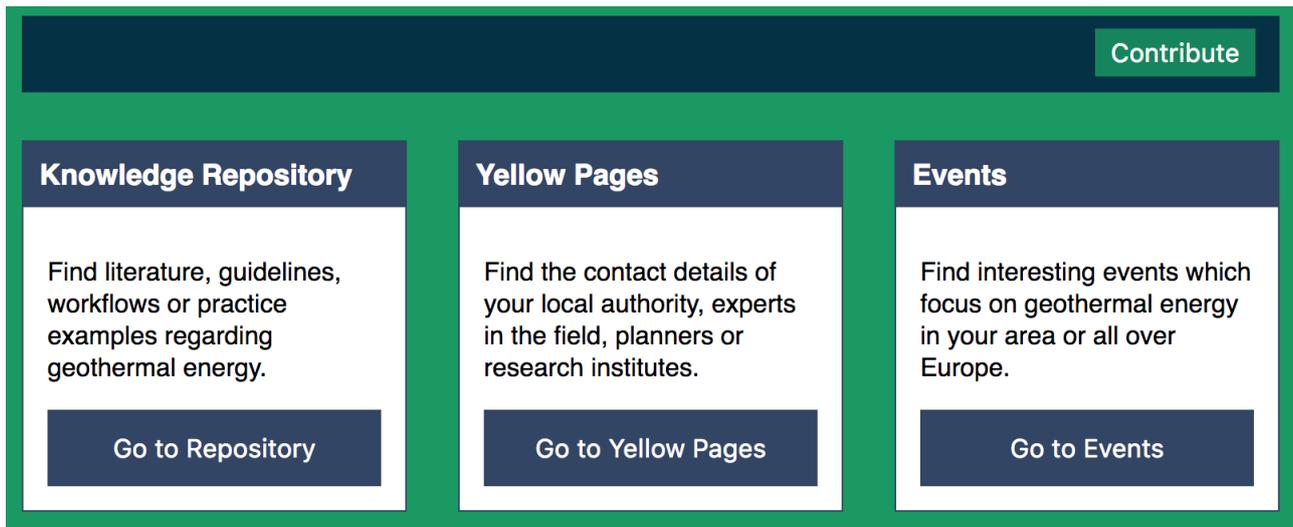


**Figure 1: Proposed structure of the GeoPLASMA-CE web platform**

## 2.2. General structure of the international expert platform

The homepage of the international expert platform aims to guide the users to the content they are looking for. The header of every page on the expert platform will contain links to the main site of the web portal and the decision support and information tool. Additionally, there will be a secondary header that is unique to the international expert platform. This unique header will contain a “Contribute” button. This button will lead the user to either the “Register / Login” page or the “Contribution” page, depending on if the user is already logged in or not. A detailed description of this workflow is described in the Chapter 4.2 of this White Book.

Below the secondary header, the main tools of the international expert platform will be listed: The knowledge repository and the “Yellow Pages” application. A click on one of these two main categories will get the users to the according tool. A Mockup of how the start page could look like can be seen in Figure 2. Besides the two main categories, there will also be another category called “Events”. Clicking on this category will lead to an overview of upcoming events that might be interesting to a user that is interested in the topic of geothermal energy.



**Figure 2: Mockup of the home page of the international expert platform**

The structures of the knowledge repository and the “Yellow Pages” application are described in the according chapters for these tools.

### 2.3. Multilanguage support

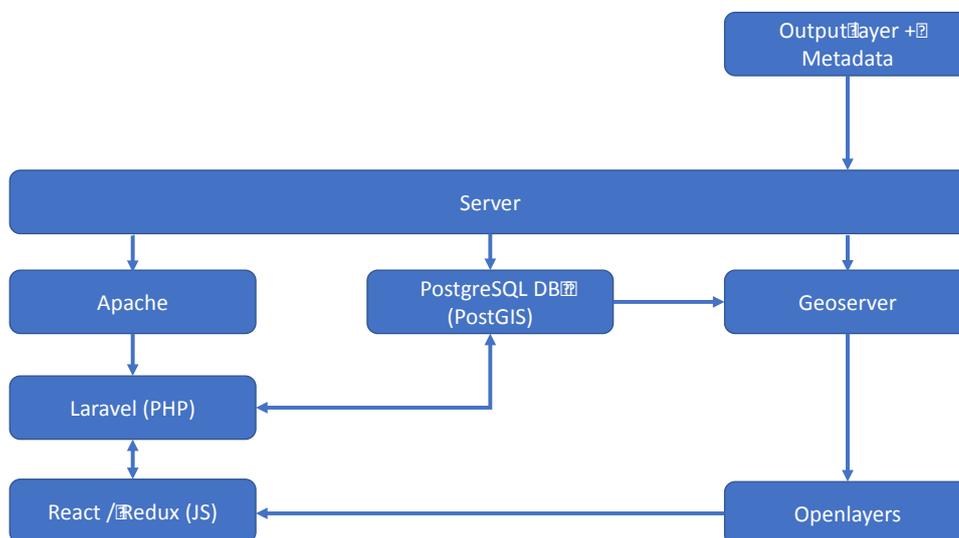
The international expert platform will be available in the following languages: English, Czech, German, Polish, Slovak and Slovenian. When a user gets to the web portal, the server tries to identify the language of the user by using the “User-Agent” of the browser that is used to access the web portal. If one of the languages mentioned before can be identified, the language of the web portal will be set to this language for this user. In case none of the mentioned languages can be identified, the web portal will be set to English language.

Besides this selection based on the “User-Agent” of the browser, the user can change the language of the web portal at any time to one of the available ones. A select field with the available languages will be visible in the header at any page of the web portal. Clicking a language in this select field will reload the current page in the selected language. The website will remember the language selection for the current session on the portal. The multi-language support does not have influence on the displayed content of the international expert platform. Contents of the knowledge repository that is only available in e.g. English will still be displayed by default, even if the web portal language was switched to another language. To filter the contents of the international expert platform by language, specific filters are available in each category. Though, the multi-language support of the web portal only translates the texts boxes that are displayed in the user interface. The translation of the web portal will be a shared task between the project partners. PP10-GiGa will prepare a template with all strings that need to be translated. The project partners will be responsible to translate the given strings into their local languages.

## 3. Technical setup

### 3.1. Backend

The backend of the web portal will be based on the PHP Framework “Laravel” (<https://laravel.com/>) which will run on an Apache server platform. The backend will be responsible for all server-side tasks that are required on the web portal. It will be responsible for most of the communication between the frontend and the database. It will render the HTML for the landing page directly and it will offer APIs for the frontend to access the content of the database. The backend will also be responsible for the user authentication of the international expert platform which is described in chapter 4.2. A detailed sketch that shows the technical concept of the web portal, including the international expert platform and the web based decision support and information tool can be found in Figure 3.



**Figure 3: Technical concept of the web platform**

### 3.2. Database

The database that will be responsible for the international expert platform will be the same PostgreSQL database that controls the regional web based decision support and information tool and the content of the homepage of the web portal. The database will exclusively be accessed through the backend. The according queries will be written inside the “Laravel” framework.

### 3.3. Frontend

The frontend in concerns of JavaScript will be based on “React” (<https://facebook.github.io/react/>) and “Redux” (<http://redux.js.org/>). The user interface of the international expert platform will be a single page application based on client-side rendering of React components. The state



management and flow of the application will be controlled with Redux. Async actions will communicate with the APIs that are provided by the backend to gather content from the database and load it into the Redux state which will provide the data to the React components. The React app will use the react-router to make sure that every page of the international expert platform is reachable via its unique URL and can be crawled easily by search engine bots that aim to index the web portal into their search engine.

The styling of the web portal will be provided with SASS that will be compiled into CSS. The CSS will be loaded directly into the React Components to allow for easy component-focused styling rules.

## 4. Access to the platform

### 4.1. General access policy

The international expert platform will be accessible to every interested user without any restrictions. The content of the platform will be available without the need to register or authenticate in any way. A signup process would decrease the number of potential users as a lot of people do not want to give away their data just to access the content of a web platform without interacting with it.

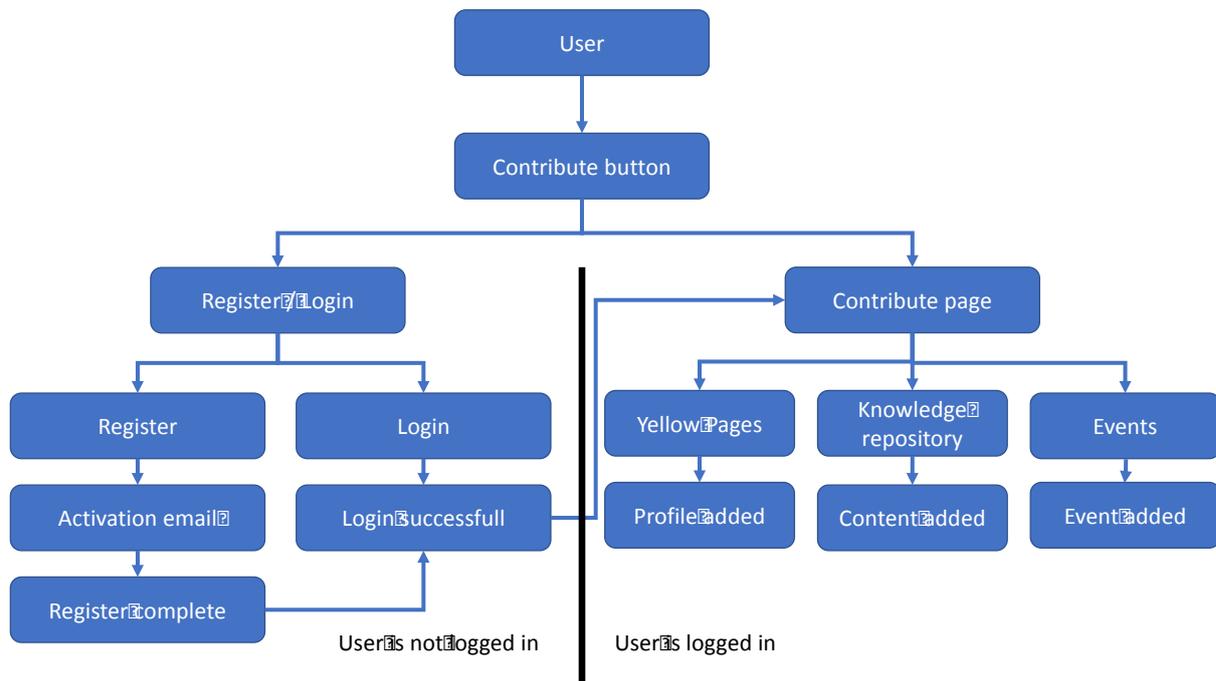
However, if a user wants to add content to the expert platform or wants to create a profile for himself or his company that will appear in the “Yellow pages” application of the platform, registering on the platform will be necessary. Creating this barrier is inevitable to protect the platform from automatic spam that is spread by bots. The details of the signup process will be described in the chapter 4.2.

**Signing up is not limited in any way to experts and companies from the pilot areas.** Experts that are not located in the pilot areas can also enter their contact details for the “Yellow Pages” application and can also contribute content for the knowledge repository that has no direct relation with one of the pilot areas.

Registered accounts will not be monitored before activating them. However, every account can be deactivated or deleted by the administrator of the web portal. There will be a possibility to verify accounts that represent authorities or the project partners of the GeoPLASMA-CE project. These accounts will have more rights than normal accounts that every user can create.

### 4.2. Signup / Signin process

To add content to the knowledge repository or to create a profile for the “Yellow pages” application of the international expert platform, a user must register for the expert platform. Only authenticated users can add content of any kind to the platform. A scheme of the registering and login process can be seen in Figure 4. To register on the platform, a user has to click on the “Contribute” button that is prominently displayed on each page of the expert platform in the secondary header.



**Figure 4: Scheme of the "Contribution" user flow with Registering and Login**

The default case after clicking on this button is that the user lands on the “Register / Login” page with two forms. One form is for logging into the application if a user is already registered, the other form is the one where the user can register him- or herself. A mockup of this page can be seen in Figure 5. The signup form will consist of three fields: Username, E-Mail and Password. All fields must be filled out for signing up. The signup page will also contain information about the privacy policies that will have to be developed during the project. The signup form can only be submitted when all fields are filled and validated by the frontend which checks if a valid email was given. After submitting the signup form, the backend checks if the entered email address is already registered on the web platform. Is this the case, the user will be redirected back to the “Register / Login” page with a message hinting the user that the entered email address already registered on the platform. If the email is not registered at the web platform yet, the entered details will be saved to the database and an email will be sent to the entered email address. The mail contains a link that must be clicked to activate the newly created account. If a user signs up but never activates the account by clicking the link in the email, the account cannot be used to add content or a profile to the expert platform. It is important to note that passwords will never be saved in clear text anywhere on the platform. All passwords will only be saved encrypted into the database.

After activating the account, the user can log into the web platform. This is done with the login form that lies on the same page as the signup form. This means, one can also log in by clicking on the “Contribute” button on any page of the international expert platform. To log into the platform, the registered email together with the associated password is required. After submitting the login form, the frontend sends a request to the backend where the authentication will happen. When a user is successfully authenticated, the backend will send a JWT-token to the frontend which will be used from this moment on to authenticate the requests by the frontend to the API. The token expires after a timespan that will have to be defined. After the token was sent to the frontend, the user will be redirected to a new page where he or she can contribute content to the



platform. If the user is not authenticated successfully, the login form will appear again with an error message. A user will stay logged into the platform as long as the JWT-token is valid. The JWT-Token will be saved in the local storage of the browser. If a user is authenticated, clicking the contribute button anywhere on the international expert platform will lead the user directly to the “Contribute content” page without the need to login again.

Contribute to the international expert platform

Register	Login
<p>If you want to contribute to the expert platform by adding literature or creating a profile for the yellow pages, please register:</p> <p>Your name:</p> <input style="width: 100%;" type="text" value="Please enter your name"/> <p>Your email:</p> <input style="width: 100%;" type="text" value="name@example.com"/> <p>Your password:</p> <input style="width: 100%;" type="text" value="Choose a secure password"/> <p>Confirm your password:</p> <input style="width: 100%;" type="text" value="Please repeat your password"/> <p><input type="checkbox"/> I have read the terms of use and the privacy policies for the web platform of GeoPLASMA-CE and accept both terms.</p> <div style="background-color: #2e3192; color: white; text-align: center; padding: 5px; width: fit-content; margin: 0 auto;">Register</div>	<p>If you already have an account, please login:</p> <p>Your email:</p> <input style="width: 100%;" type="text" value="name@example.com"/> <p>Your password:</p> <input style="width: 100%;" type="text" value="Your password"/> <p><a href="#">Forgot password?</a></p> <div style="background-color: #2e3192; color: white; text-align: center; padding: 5px; width: fit-content; margin: 0 auto;">Login</div>

**Figure 5: Mockup of the Register / Login page**

A “Forgot password” function will be part of the “Register / Login” page. Below the login form, there will be a link “Forgot password?” that leads the user to the according page. On this page, the user needs to enter the email address that is registered on the expert platform. If the email address can be found in the database after submitting the form, an email will be sent to the address with a link to another page where a new password can be set. It is not possible to have the own password been sent to the own email address.



## 5. Content of the international expert platform

### 5.1. Knowledge repository

#### 5.1.1. Aim of the knowledge repository

The knowledge repository aims at distributing relevant literature to experts, of course, by giving respect to publicity and copyright rules. The basis of the knowledge repository will be provided by GeoPLASMA-CE, as all publishable documents in English and the involved national languages will be added to its initial version. Afterwards, registered users at the international expert platform will have the opportunity to share literature in the knowledge repository.

#### 5.1.2. Adding content to the knowledge repository

To add content to the knowledge repository of the international expert platform, the user must be registered and logged into the web platform. After clicking on „Knowledge repository“ in the overview of the „Contribute“ site, the user can decide which kind of content he or she wants to add to the platform. The available categories are: Literature, Guidelines, Workflows, Good practices, Policy strategies. The available categories might change during the process of developing the platform as to further internal discussion within the GeoPLASMA-CE project.

Regardless of the exact category that a user chooses, the next step is to give the details of the content that is supposed to be added. All categories have the following fields in common to add content: Title, Author, Link, Abstract (Description), Full text, Keywords, Region. The title is what identifies the content that is added, as it will be displayed together with the abstract at the overview inside the single categories. A link can be provided in all categories. It could for example lead to further information or to a full text version of the content that is added to the platform. Further, a full text field will be available if the content that is supposed to be added should be completely available on the platform without the need to link to an external website where the full text can be found. For security reasons, the full text field will not accept any HTML tags inside the text. To avoid the risk of SQL injections, all fields will be escaped before saving the content to the database. This is done by “Laravel” when validating the content of the form. Keywords are supposed to help the user looking for information to find what he or she is looking for. Each content that is added can be tagged with multiple keywords. With the keyword filter that is available for the list of content inside each category, the added keywords can be used to reach literature on a specific topic quickly. The region field has the goal to collect texts that are specific to one area inside an own category. At the current phase of planning, the available options are the six pilot areas of the GeoPLASMA-CE project, an „Other“ option for different areas and a „None“ option for content that is not related to a specific area at all. Region specific content could for example be guidelines that apply to a specific area. The Title, Abstract and Region field are required to submit content for the expert platform. Additionally, either the link field or the full text field must be filled. A mockup of the “Add content to the knowledge repository” page can be seen in Figure 6.



[Back to expert platform](#)
[Back to the Contribute overview](#)
Logout

**Content to be added:**

Please provide the details of the content that you want to add to the platform.

**Title:**

**Author:**

**Link (if available):**

**Abstract - Please give a short description of the content:**

**Full text - If you want to add the full text to the platform (and also have the right to do so):**

**Keywords (please separate the keywords with a comma):**

Select region: **None** ▼

I read and understood the terms for adding content to the platform

Add content

**Figure 6: Mockup of the form to add content to the knowledge repository**

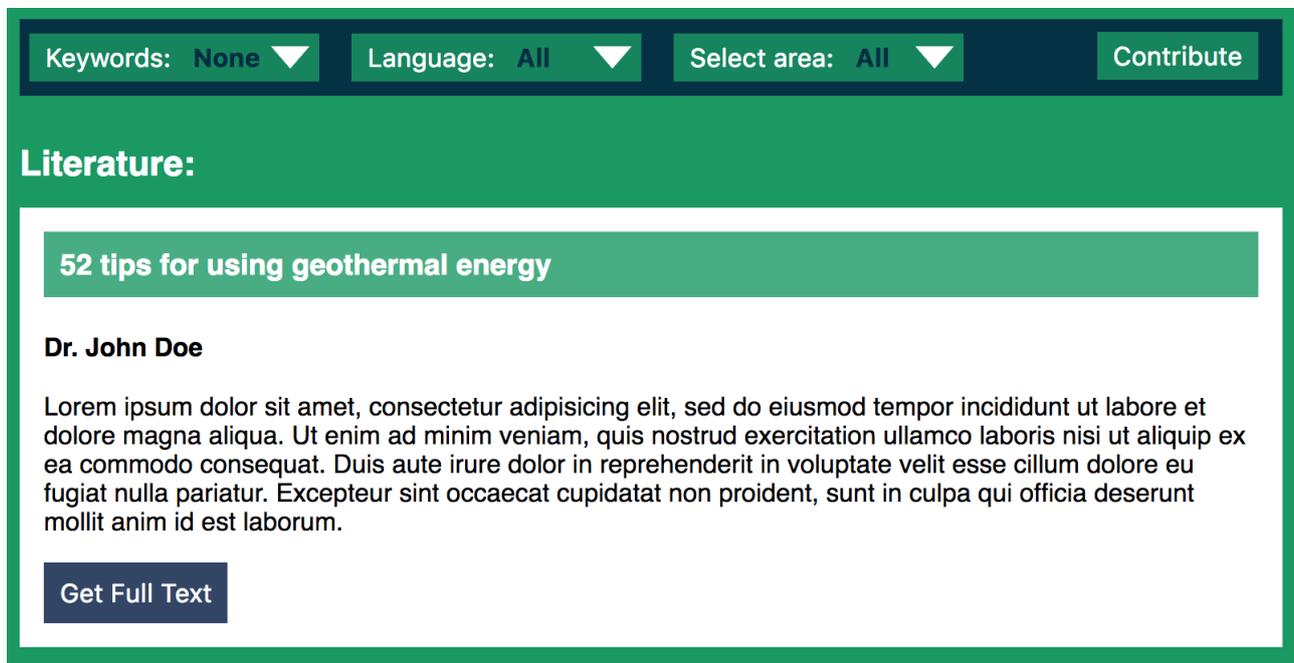
After the user filled all fields, a click on the „Add content“ button will add the content automatically to the international expert platform. If one of the six pilot areas was selected in the „Region“ field, the content will also be shown at the local expert platforms inside the decision support and information tool. The content will not be monitored upon publishing. However, the administrator of the web platform can deactivate or delete any added content at any given time and contact the person that added the content if there are questions about it. Besides the administrator, the user that added the content to the expert platform can also edit, deactivate or delete any content that was added by him- or herself. The „Contribute overview“ page will have a list of all content that was added by the logged in user. To edit, deactivate or delete content, the user only needs to click on an item from the list.



### 5.1.3. Using the knowledge repository

The first page of the knowledge repository, the page where the users land after clicking on “Knowledge repository” at the home page of the international expert platform, will give an overview about the available categories of content on the platform. They can choose any given category and click on it to get the content of this specific category. The categories that will be available are the following: Literature, Guidelines, Policy Strategies, Workflows, Good Practices. The categories will be listed the same way as the “Knowledge Repository”, “Yellow Pages” and “Events” are listed on the home page of the expert platform. As on every page of the expert platform, this page will also include a small secondary header above the listed categories. Inside this header is the “Contribute” button that starts the process that is described in the chapter 5.1. Additionally, inside the header of the knowledge repository, the keyword filter can be found. It will consist of a select field in which the user can select the desired keywords. On the “Select-Category” page of the knowledge repository, setting the keyword filter will render a page where the results for the chosen keywords are listed for all available categories.

If a user clicks on one of the available categories, the category page of the knowledge repository will be loaded with the requested content. This page includes the same header as the “Select-Category” page, except that additionally to the keyword filter, a pilot area and a language filter are also available. Setting the pilot area filter will only display content that is linked to the chosen pilot area. By default, all available content of the platform, from all pilot areas and also from areas outside of the GeoPLASMA-CE project for the chosen category is shown. If the language filter is set, only content in the set language will be shown.



**Figure 7: Mockup of the list view inside a category of the knowledge repository**

In the list where all content of the chosen category is displayed, only the title of the content, the author, the set keywords and a short abstract or summary of the content is shown. To get the full publication, text, guideline etc., the user must click on the “Get Full Text” button. A mockup of the list view inside a category of the knowledge repository can be seen on Figure 7. Only text



blocks that are exclusively available on external sites differ from this view by displaying the link to the website where the full text would be available already in the list view. If a user clicks on the “Get Full Text” button of any list item, the user gets to a new page where the complete text is published. Inside this view, there will be a “Print” button to be able to print the displayed text in an optimized way via the browser.

#### 5.1.4. Detailed Features

##### **Pilot area filter**

The knowledge repository will contain a pilot area filter. This filter gives the opportunity to only show content that is directly related to a pilot area of the GeoPLASMA-CE project. This could be specific guidelines or good practice examples from one of the areas or information about the policy strategies concerning geothermal energy in a pilot area. Setting this filter will generate the same results as they are displayed in the local expert platforms which are integrated into the web based decision support and information tool.

##### **Language filter**

The knowledge repository will have a language filter available for all content that can be found on the platform. Inside all categories, the filter can be applied to the list of content. The available languages for the filter will be: English, Czech, German, Polish, Slovakian and Slovenian. The language filter will be independent of the platform language that can be set in the main header of the web platform and only influences which content is listed in the single categories of the knowledge repository.

##### **Keyword filter**

The knowledge repository will have a keyword filter that aims to support the user in finding the information he or she is looking for as quick and easy as possible. The keyword filter can be found on the “Category overview” page and on every single category page. In both cases, it is positioned in the secondary header that is specific to the international expert platform.

The keyword filter will be a custom dropdown select box. When it is clicked, a list with all available keywords appears. Each keyword has a checkbox in front of it. If a checkbox is checked and the “Filter” button inside the dropdown is clicked, the checked keyword will be set as a filter and only content that is tagged with the keyword will be displayed. Multiple keywords can be selected by checking multiple list items in the dropdown menu. If multiple items are checked, only the content that is tagged with all checked keywords will be shown. Next to the “Filter” button there will also be a “Clear” button to disable all set keywords and again show all results without filtering.

#### 5.1.5. Integration of the local expert platforms

The local expert platforms will be integrated into the decision support and information tool. They aim to be an interlink between the web GIS and the international expert platform. In the web GIS, there will be a button called “Information”. If clicked, a modal dialog appears, displaying the available categories of content from the international expert platform with respect to the currently active pilot area. The user can click on any category and the available content for it will appear in the modal dialog.



Two filters will be available inside the modal dialog to filter the results inside each category: The keyword filter and the language filter. The results are displayed in the same way that they are shown in the list view of the international expert platform. Clicking on “Get Full Text” will open the international expert platform inside a new window or tab with the requested full text displayed.

### 5.1.6. Disclaimer

The knowledge repository will include a prominently placed disclaimer on every single site. The disclaimer will state that GeoPLASMA-CE is not legally responsible for a possible copyright violation through content that is added to the knowledge repository. It will also state that if a copyright violation is noticed or brought to attention by a third party, the according content will be deleted immediately.

## 5.2. Yellow pages

### 5.2.1. Aim of the yellow pages

The yellow pages aim to connect experts and the lay public interested in the use of shallow geothermal methods. It provides a communication platform on a free and voluntary basis. Investors can look for experts, contacts to authorities can be provided or researches may connect each other by using the yellow pages.

### 5.2.2. Adding contacts to the yellow pages

When a user is logged into the web platform, clicking on the “Contribute” button will lead him to a selection of content that can be contributed. Clicking on the “Yellow Pages” on this page will get the user to a new page that includes a form in which the details of the desired entry can be entered. If a user is already inside the “Yellow Pages” application while clicking on the “Contribute” button and being logged in, this will get him directly to the page with the form for the entry details. A mockup of this page can be seen on Figure 8.

Every user can only have one entry in the “Yellow Pages” application. If the user already has an entry, the contribution form will be prefilled with the current entry and it can be updated by submitting the form after editing the content. In the prefilled form, there will also be two buttons that can either deactivate or delete the existing entry. Deactivating an entry will make it invisible on the platform. The entry itself however is still saved and can be reactivated with a click on the same button. Deleting an entry will delete it permanently from the database and the web platform. In case the user has no entry on the application yet, an empty form will be presented where the details of the desired entry can be entered.

If a user wants to add an entry, the following fields are required to be filled: name, address, ZIP code, city, country, pilot area, occupation, email. The pilot area and the occupation field will be dropdown fields. The pilot area field will also have an option called “Other” for experts that are not located in a pilot area of the GeoPLASMA-CE project. Additionally, the following optional fields are available: Phone, Website, Profile (short text with max. 150 words, pure text without HTML or other dynamic content), Contact Form, Social media profiles. The field “Contact Form” will be a simple checkbox. If the field is checked, a user can contact the person or the company behind



the entry directly via a contact form. The filled contact form will be sent to the given email address. If the field for the contact form is unchecked, this option will not be available for the entry on the web platform. Social media profiles may also be linked in a profile. There will be options to enter a Facebook page or a Twitter channel into a profile. Submitting the form will create a new entry based on the inputs or update the already existing entry if the user already had an entry on the platform.

The entries will not be reviewed upon publication on the international expert platform. They will appear immediately for every user on the platform. However, the administrator of the web platform will have the opportunity to deactivate or delete any entry on the platform at any given time.

[Back to expert platform](#)
Logout

**Your profile**

Your profile will be published on the expert platform immediately. You can edit or deactivate/delete your profile at any time by getting to this page again after creating your profile.

Name that will appear in the Yellow Pages:

Your Address (Street + No.):

ZIP Code:  City:

Your contact email:

Your phone number (please include country code):

Your description (max 150 words):

Allow direct contact via contact form

Save profile

**Figure 8: Mockup for the "Create Profile for Yellow Pages" application**

Besides experts, research institutes and companies in the field of shallow geothermal energy, the "Yellow Pages" application will also include contact details of local authorities in the pilot areas of the GeoPLASMA-CE project. Entering these contact details will be done the same way as for

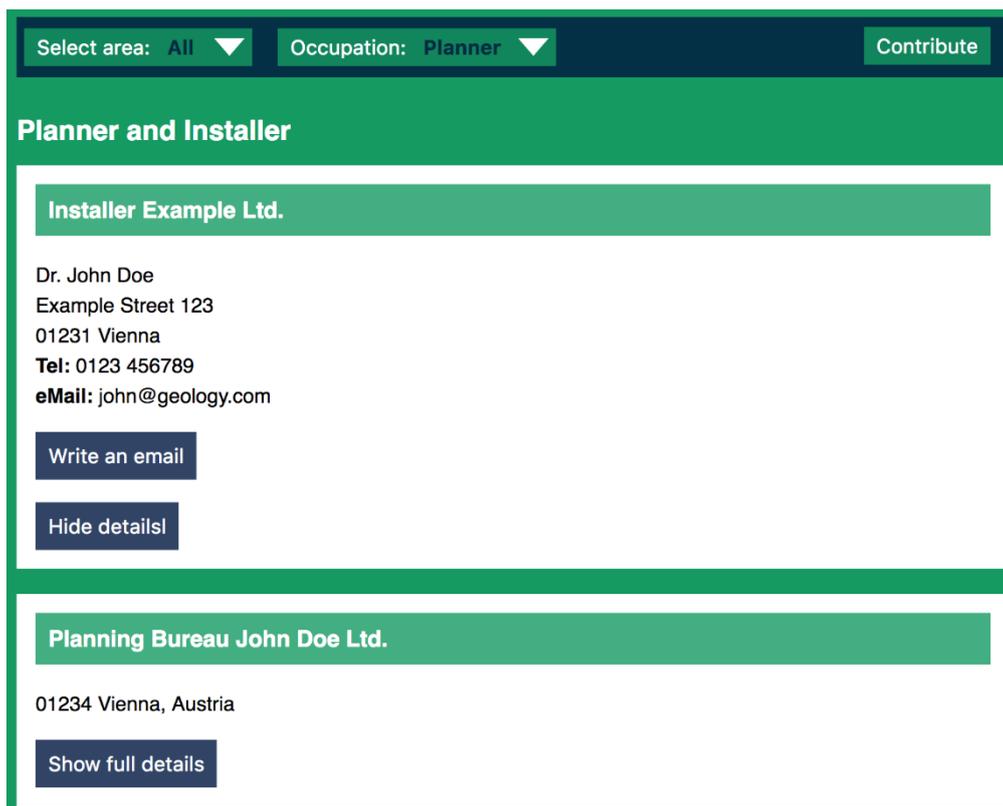


experts and companies. However, the occupation “Authority” is by default not selectable at creating an entry. Only users that are verified as representing authorities can create an entry on the “Yellow Pages” application for the authorities. The verification will be handled internally between the project partners responsible for the pilot areas and PP10-GiGa.

Verified authority accounts also will be the only accounts that are able to create multiple entries for the “Yellow Pages” application as there often are different contact persons for different topics. The option to verify an account might be open to users with a different occupation during the scope of the project.

### 5.2.3. Using the yellow pages

When a user gets to the “Yellow Pages” application via the home page of the international expert platform, a list of the available occupations of experts will appear. The different occupations will be displayed like the main features of the expert platform on the home page of the platform (See Figure 2). By clicking on one of these categories the user will get to the specific site for the chosen category. Each category will have its own site where all experts belonging to the chosen occupation will appear in a list. The list will be ordered alphabetically ascending.



**Figure 9: Mockup of the list view inside a category of the Yellow Pages application**

In the list view of each occupation, only the following fields will appear: Name, ZIP code, City, Country. The complete entry will be visible when a user clicks on the “See full entry” button that will be available at every entry. The full details will appear on the same page as the list view. The displayed entry will be supplemented with the full entry from the database, including all information that was entered when the profile was contributed, also including links to the social media



profiles, if they were entered. The “See full entry” button will change into a “Hide details” button that, when clicked, will bring the current entry back to its normal status in the list view with only the name, ZIP code and the city visible. A mockup of this view can be seen on Figure 9. When the complete entry is shown, there will also appear a “Contact” button if the expert himself decided to enable contacting via a contact form. Clicking the button will open the contact form in a modal dialog. Inside the list view a pilot area filter will be available.

#### 5.2.4. Features

##### Contact form

The full contact details will have a “Contact” button on both, the international expert platform and the local expert platforms that are embedded into the decision support and information tool. This button will only appear when the expert has activated the option in the user profile. The contact form will consist of the following fields: Name, E-Mail, Phone, Subject, Message.

Except the “Phone” field, all other fields are required to send the contact form to the experts. The message that can be sent will be limited to max. 300 words. HTML or any kind of other dynamic element is not allowed in the message. The contact form aims at making it easy to get in contact with experts. Further and more detailed communication however is not a task of the contact form.

##### Pilot area filter

The “Yellow Pages” application will contain a pilot area filter. This filter gives the opportunity to only show the entries that were made for a specific pilot area. The results of this filter will be the same as in the local expert platforms that are integrated into the web based decision support and information tool. There will also be an option called “Other” that displays experts that are not settled in the pilot areas.

##### Occupation filter:

Besides the pilot area filter, inside of each category there will also be a filter for the occupation of the experts. It will be a dropdown menu like the pilot area filter. Changing the occupation filter will change the category of experts that are displayed on the current page.

#### 5.2.5. Interlink to local expert platforms

The local expert platforms for each pilot area will be integrated into the decision support and information tool. They aim to be an interlink between the web GIS and the international expert platform. In the web GIS there will be a button called “Experts”. Clicking this button will open a modal dialog where all experts that signed up on the expert platform and entered a profile will be displayed with respect to the active pilot area. Inside the modal dialog there will also be a filter for the categories of experts to only display the desired kind of expert. The representation of contact details will be the same as in the list view on the international expert platform.

Additionally, the modal dialog will feature a button called “Show on map”. This will load all experts in the currently active pilot area and display them with respect to their location on the web GIS map. To implement this feature, the coordinates of the experts are saved in the database. The coordinates will automatically be created based on the given address. Clicking on a marker that represents an expert in the web GIS will open a modal dialog with the contact details for this



expert and - if the option is enabled from the expert - the option to contact them via a contact form.

### 5.2.6. Disclaimer

The yellow pages of the international expert platform will include a disclaimer on every site. The disclaimer will state that GeoPLASMA-CE is not responsible for any contents or information including company or expert profiles, which might be added from registered users to the international expert platform. It will also state that if a non-compliant contributed by a third party will be deleted immediately by the administrator of the web portal.

## 5.3. Events

Besides the knowledge repository and the “Yellow Pages” application, events will be the third category on the international expert platform.

The form to add an event to the international expert platform will be reachable through the “Contribute” button that is visible at any page of the platform. The form to create an event will have the following fields that need to be filled: Name of the event, organized by, contact person, date, location of the event, website of the event. Additional fields might be added on request of the partners.

The events will be displayed in their own category that is reachable via the home page of the international expert platform. Inside the events category, all events will be listed with all details ordered by upcoming date ascending. There will be a possibility to filter the events by region with a pilot area filter that also has the option “Other” for events outside of any pilot area of the GeoPLASMA-CE project. Each event that is displayed on the international expert platform can be exported as an iCal / ics entry to save it directly into a calendar.

## 6. Features that will not be realized

A **periodic newsletter** will not be integrated in the scope of this project for the international expert platform. While it would be possible technically, the question remains who creates the newsletter and how regular should a new one be published. The GeoPLASMA-CE project already has its own newsletter that informs about the progress of the project on the project microsite. As answers to questions above are not clear, a periodic newsletter will not be part of the international expert platform.

A **semantic search tool** for the knowledge repository will not be implemented for the international expert platform. Developing such a feature would take a lot of resources. The international expert platform will include a keyword filter that will provide a similar functionality.

A **chat or an online forum** will not be implemented for the international expert platform. Both tools would constantly need moderation from a project partner to avoid spam or any other abuse of the tools.



## 7. Resources

To calculate the resources that are necessary to develop the international expert platform, it was broken down into single features that together make up the finalized platform. After an internal discussion within PP10-GiGa, estimates about the necessary hours for each feature were created based on the requirements of the features and experience from other projects. The estimated hours of all features were added to a sum which represents the total hours necessary for developing the entire international expert platform. Resources necessary for writing automatic tests and writing the documentation of the code and the platform are already taken into account. The following table shows the calculated values for the estimated resources in hours.

Feature / Task	Hours
Layout expert platform	90
Signup / Signin process	60
Add content	18
Add events	12
Add contact details	12
Keyword filter	12
Language filter	6
Pilot area filter	6
Contact form	12
Database setup	12
Multilanguage support	22,5
Setup staging / production	30
Documentation	150
Tests	45
Setup dev environment	6
Administrator access	90
<b>Sum hours:</b>	<b>583,5</b>
<b>Sum days:</b>	<b>72,9</b>

**Table 1: Estimated hours for the expert platform**

## 8. Outlook

The international expert platform is, besides the decision support and information tool, the second main tool that will be developed in the scope of the GeoPLASMA-CE project. While the decision support and information tool relies on the output data of other work packages (WPT2, WPT3 and WPT4), which will be available at a later stage of the project, the development of the interna-



tional expert platform is independent from other work packages. Therefore, and due to the following reason, activities in WPT1 will focus on the development of the international expert platform at first.

The project partners emphasized at the workshop in Freiberg that since such a networking and information platform for shallow geothermal energy is new in all participating countries, the user requirements for the international expert platform have to be evaluated thoroughly. The future users of the international expert platform should be included in its development. They should test and provide feedback to preliminary versions. This procedure will ensure an output, which meets the users' requirements and ideas and furthermore promotes the expert platform. Therefore, it was decided to present the idea and concept of the international expert platform on upcoming conferences to the target groups. As these conferences are approaching from September 2017 on, it was decided to focus on the international expert platform at the beginning of the development phase of the GeoPLASMA-CE web portal.

Thus, the aim is to create a first version that represents the idea and user flow of the international expert platform as soon as possible. This version could be shown as an example of how the finished platform could look and work like at different conferences. The conferences would also have the goal to get feedback from the target groups about the need for such a platform and about how people in the business of geothermal energy would use it.

The first status report on the development process of the international expert platform will take place at the GeoPLASMA-CE technical workshop in Ljubljana at the end of August 2017. The idea is to present first clickable prototypes and to discuss the user flow on the platform and the general layout which will be based on the Mockups presented in this White Book.

The development of the international expert platform will be separated in three sprints. The first sprint will start immediately after finishing the White Books for the international expert platform and the decision support and information tool. It will end on October 19, 2017. The goal of this sprint is to create a prototype of the international expert platform. The second sprint will start immediately after the first sprint and it will go until January 11, 2018. After this sprint, the alpha version of the international expert platform should be finished. The last sprint will go until October 4, 2018. The goal of this sprint is to finish the beta version of the international expert platform so that it can be tested by the project partners.