

Development of knowledge-based web services to promote and
advance Industrial Symbiosis in Europe (**eSymbiosis**)

LIFE09/ENV/GR/000300



ACTION 4: Capacity Building
D4.1 Set of comments for improvement



June 2014

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Disclaimer

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1. INTRODUCTION

During Action 4, user feedback was gathered, between February 2014 and May 2014, and was used to correct behaviour, in the case of a bug, or error in the process, improve performance, in the case of slow response or no-response (in some occasions) or to improve the look and feel of the User centred components of the User Interface (UI).

This document captures, analyses and presents the user feedback, as gathered in trainings, or during internal demonstrations to the team of experts (PIC, NTUA and ENVIRECO).

The process of gathering feedback has resulted as foreseen to the improvements of the eSymbiosis platform and portal.

As an overview, there were two major releases of the eSymbiosis platform. The second release was driven by feedback referring to user experience and navigation suggestions.

However, these changes were accompanied by a second major release of the semantic component which also required redesigning and reestablishing integration between the two software systems.

The User Manual was prepared by CLMS, integrating the parts where the User Interaction is driven by the components developed by AVCO. The manual was approved by the business users, and was updated to reflect the latest User Interface aspects and the look and feel of the Platform tools and services. So, in the following, we present the user Feedback per release, and the User Manual appended in Appendix A.

2. INITIAL RELEASE FEEDBACK

DETAILED FEEDBACK

The following table summarizes feedback regarding the first major release of the eSymbiosis portal. The evaluation touches upon the following areas:

- Home Page
- Portal
- Navigation
- Registration
- Login
- Organization and Site Registration
- Member Sites and Statistics
- Editing, Searching and Matching Resources

Module	Issue	Category
Home Page	The site does not provide the user a hint of what he can do with it.	Usability - Content
Home Page	There should be more text and in a better structured way to inform the user.	UI - Content
Home page	Perhaps there should be different content on the homepage for registered users such that guests are invited to browse and register, but once registered we don't need to show the same level of advertising?	UI - Content
Home Page	The content in the first page has to be revisited, for the efficient use of links when necessary, and the content / context. The content is very superficial.	Usability - Content
Home Page	IS definition is probably not helpful in this page	UI - Content
Home Page	Add funding-related link to Life to the footer	UI - Content
Home Page	Why is the Research section needed?	UI - Content
Home Page	We could include a small banner that rotates through helpful text along the lines of what the benefits are and how easy it is to use, but it should be small enough to have other content beside it, perhaps 200x200?	UI - Design
Home Page	We're going to need a help area of some kind to cover both general and specific topics such as how to register and start using the site through to what each field in the registration pages means and what to fill in.	Feature
Home Page	There is a problem of accessibility, the entry to the members area is not very clear.	UI - Usability
Home Page	For text there can be (like in EETT) a button / option to increase / decrease text size.	UI - Usability
Home Page	We propose that you google “symbiosis” and bring text from available sites	Functional
Home Page	Who are the members and what they can achieve.	Usability - Content
Home Page	Include links to Kalundborg and the so many other links available	UI - Content
Portal	The behavior between browsers is not consistent (the issue of supporting /. switching between languages)	Interoperability
Portal	The green-on-black menu is low contrast and so does not draw user attention - it's not inconceivable that being an EU project we should at least consider accessibility, which does not favour low-contrast colour schemes or mouse-only operation	UI - Design
Navigation	The menus are a bit confusing.	Usability
Navigation	The interface is ontology based, however, quite complicated, it is still in prototype status in any case (i.e. pointers and cryptic codes are machine and not user oriented).	Usability
Navigation	The structure of the menus and information has to be improved.	Usability

	<p>There could be different tabs for user types, involving different material.</p> <p>For example if the user type is "Information Seeker" could be led to a special page that would be uncluttered. Have a look to the EETT (Greek Telecoms and Post Authority) where in the left top there are three different entries for Public, Industry, Journalists</p>	UI - Functional
Navigation	<p>Once registered there's no easy way to get at each of the types of information added, such as organization, site, contact and resource. Perhaps sub-menus might be effective, or a summary page that lists each of the types in a single easy-to-follow page?</p>	UI - Usability
Navigation - Registration	<p>The member menu needs to reflect the current stage of the registration to allow the user to leave and return at a later time, as well as provide a clue as to what we want them to do next. Currently this only occurs for the organization and not beyond, meaning that if the user leaves the registration wizard for any reason there's no way to get back to it.</p>	UI - Functional
Registration	<p>The registration process is very long.</p>	Usability
Registration	<p>The user does not have any indication of how or where to register, or even that they should need to.</p>	Usability
Registration	<p>The site registration page is very long and contains fields that have no meaning to the user, like RegionId -1, and as previously mentioned latitude and longitude should be hidden and instead derived from the entered address (e.g. http://where.yahooapis.com/geocode?q=Mavromation+39,+Athens,+GR)</p>	Usability
Registration	<p>Perhaps during site registration the practitioner section could be hidden and shown to them after registration as part of a welcome page?</p>	Usability - UI
Registration	<p>Clicking continue at various points during the registration page brings up error messages that are unclear, and some need the spelling to be corrected</p>	Bug
Registration	<p>All mandatory fields should be highlighted when any is missing otherwise the user will fill one in only to be told another needs to be supplied, which I found mildly frustrating.</p>	Functional - UI
Registration	<p>After registering the first site it is unclear that it has been successful as it re-opens onto a blank form, presumably to add another site or site contact - perhaps we could have a confirmation that clarifies what's going on and what's next?</p>	Functional - UI
Registration	<p>Skipping that blank form causes an error page to be displayed, quite possibly because the site ID in the query string is -1</p>	Bug

Registration - Login	The visual cues could be improved, such as how you register and/or login - the user first notices the animated banner on the homepage and their eyes will then range to high-contrast items in view. At a standard resolution of 1024x768 there is very little else in view and the user is forced to scroll down to see anything, thus obscuring the top links.	Usability
Login	After Logging in the user should see more clearly the available choices instead of a menu added to the previous view.	UI - Usability
Organization	Should the organization be associated to a single region (and thus a single practitioner) rather than having it per-site?	Functional
Member- sites map	When I choose a SIC (e.g. ‘χρωστικές’), the run-down menu should be adjusted accordingly (e.g. according to the regions that are available for this SIC)	Map-Functional
Member- sites map	Allow presentation of different industrial sectors with different colors	Map - UI
Member- sites map	SIC code – use another name; users are not supposed to know what it is	Map - UI
Member- sites map	Users are not aware of what SIC codes stand for? There should be indication to the sector.	Map - UI
Member- sites map	The town does not work properly. I played around with different towns; still I get ‘Sximatari’ all the time	Map - Functional
Member- sites map	Then I tried different Counties for the same town. No complaints, still the same result	Map-Functional
Member- sites map	When I choose a SIC (e.g. ‘χρωστικές’), the run-down menu should be adjusted accordingly (e.g. according to the regions that are available for this SIC)	Map-Functional
Member Site	1. Do we trust the user to enter the correct region? 2. More specifically will the practitioner have the ability to re-assign to a different region?	Functional
Member Site	Why does a region have a latitude and longitude shown during registration but not afterwards?	Functional
Member Site	In “My Sites” page the user can see related sites. Maybe it could be clearly defined what that means.	UI - Content
Edit Member Site	Going through the menu to edit the same site as previously failed also throws an error when trying to add a site contact.	Bug
Member Sites – Statistics Page	In the “Member Sites” and “Statistics” pages the SIC code should be replaced by the NACE v.2. (ΣΤΑΚΟΔ 2008) code used in the Viotia database, by the EU and has been added to the ontology.	UI - Content
Statistics map	Statistics map should be dynamic and related to the member	Map-Functional

Resource Matching	The lifecycle of a resource still needs to be defined, but I anticipate that we'll need some way for a user to approve their submission which will trigger the automated matching. Any matches resulting from that will then be communicated to both the registering user and also the user owning the matched resource.	Functional
Edit resource	Editing an existing resource needs to invalidate any previous matches that involve it and also prevent it from taking part in subsequent matches until it is approved by the user.	Functional
Search Resources	Resources - 'All' should be allowed	Functional
Search Resources	No units in the quantities	Functional
Search Resources	Resources - Whichever I tried I had no result	Functional
Search	Search functionality still needs to be discussed, both by way of how the user communicates what they're looking for and also how we then perform the searches and display the results.	Functional - UI

3. FINAL RELEASE FEEDBACK

OVERVIEW

Based on the feedback that was provided regarding the initial release, CLMS proceeded with a new design that was more modern and intuitive, and thus it would provide a better experience for the end user. A new look and feel was used, and procedures were made simpler, and more transparent to the end user.

Aside from the change of the appearance of the portal, changes were made with respect to the integration of the portal with the semantic component, allowing for the semantic component to be the single place for storing resources, while the portal would only be responsible for submitting requests for managing these.

Finally, in terms of technologies, the new version featured a lot of improvements, as several technical components were replaced with more technologically advanced ones providing a more extensible technological platform for incorporating additional functionality in the future. Moreover, though these changes, the new version of the portal was more robust and resilient to unexpected input and user actions, and more informative messages were displayed to users upon failure. With respect to the content, a major change was the switch to NACE classification in the ontology. NACE is the European equivalent of SIC and it offers both Greek and English labels.

DETAILED FEEDBACK

The following table summarizes feedback regarding the second major release of the eSymbiosis portal. The evaluation touches upon the following areas:

- Portal
- Navigation
- Registration
- Editing, Searching and Matching Resources
- Synergies
- Success Stories

Module	Issue	Category
Portal	Browser support – is this still only fully compatible with Chrome? Please confirm browser compatibility. These comments are based on me using Chrome on a Mac. I also tested briefly with Safari and although there were a few odd things happening it was still possible to use the site. I've not tested using IE – I presume this will be the browser used by the majority of the members though so should be considered to be a 'must have' in terms of compatibility	UI - Usability
Portal	Page width – I thought the page was going to be fixed width so it didn't 'wrap' the links at the top if the browser page was less than 1280 wide?	UI - Usability

Portal	Overall look and feel – still rather too much 'white space' and a need to scroll down. And the font under the main images on the home page is still wrong (I was told previously that this was something to do with me having a Mac, but this shouldn't still be an issue at this late stage). I thought these issues were going to be sorted in this version.	UI - Usability
Portal	Look and feel generally - the page size is a bit big and there's a lot of space. It might look and feel better if it can be made smaller. The graphics are generally ok - we can come back and polish as necessary in advance of the demo. I have to say I was surprised that you haven't used hotspots on the graphic as links to the registration process. It also means that the flow in the graphic will follow the flow in the system more accurately.	UI - Usability
Portal	The rollover 'tooltips' are good. I did notice that the one for editing an incomplete resource was missing but I think that's the only one.	UI - Usability
Portal	Greek language version – while the rest of the page is in Greek, system generated notification messages are in English. Is this correct? It seems a bit odd.	Localization
Portal	Regarding the overall look and feel we felt that the main graphics and overall page are a little too large.	UI
Portal	We need to review which fields are mandatory throughout the whole system. Could you produce a complete list of fields and highlight the mandatory ones please? There needs to be more description of what's happening on each page, and probably something that says where the system takes you next. Otherwise each form feels a bit isolated.	Usability - Content
Navigation	I'm a bit concerned that the navigation at the top of the screen isn't quite right. The things that people will want to get to easily relating to the process itself are entering/editing company or site details; entering or editing resources; searching for potential matches; tracking potential synergies. I think that resources and searching should have their own clearly identified links.	Usability
Registration	My Sites page – the map still defaults to San Francisco when the page loads first time and before any search criteria are added. Surely it's possible to have the default Google map set to center on Athens when it first comes up?	Usability
Registration	The process for entering personal details is ok, but it's not obvious what I get at that stage as a result. Does it give access to additional resources or features? Does it register me for an e-newsletter? The privacy and data security policy needs to be emphasized at the start of the process - maybe by including some sort of "by proceeding you	Usability - Content

	accept” message box with a “yes/no” option to click?	
Registration	Company details - why is the VAT number required? (I don't think it's needed). I think that turnover would be better dealt with as a dropdown that gives ranges rather than asking for a specific number (it can be a sensitive issue). Perhaps one of the Greek partners could guide us on appropriate ranges to include for the Viotia region? Many of the fields in this section are unavailable for input so I was only able to put a very limited amount of information in.	Domain
Registration	Sites - the way this page works is ok, but it took me longer than it should to understand what to do. Again, some description of what to do and what happens next would be helpful. One of the location references that the system produced (latitude) had an error in it so it crashed the page. The mapping wasn't working properly as far as I could see, but that may be because of a lack of data for it to work with.	Usability - Functionality
Matching	Seems to be working better in terms of the results and the way they present on the page is very good, but surely it shouldn't be possible to create a match with your own site? I suggest that the system should be excluding match results from the member's own site. This is a fundamental issue and needs to be dealt with before the system can be released to a wider group of users.	Usability - Functionality
Synergies	The basic process seems to work ok, but it looks like there's no functionality available to block a synergy in this version and this is <u>vital</u> . You recall that this was a significant point I was making to the delegates at the last event – being able to understand why synergies don't work. There are some errors in the system messages when a synergy is advanced (may be an EN/GR translation issue?) When a synergy is agreed as complete it's not obvious what happens next – it might be helpful to add a message about completing the metrics and case study. In the metrics, what is 'review request'? Again, not obvious.	Functionality
Search	The 'guest resource search' needs more work – it's not clear how to use it or what it's showing. The way the figures present themselves should be more engaging than just a couple of boxes. The idea is that this 'sells' the benefit of joining the network to guests, which it doesn't achieve at the moment.	Usability - Functionality
Search	Member level resource search – needs further work. It's not intuitive enough and members won't understand how to use it. Shows none of the details for each resource (e.g. quantity, availability) that it should do.	Usability - Functionality
Search	Member level site search – initially the system	Functionality

	<p>wasn't seeing most of the sites. This was because it hadn't translated the co-ordinates that I'd provided in my spreadsheet into real addresses. I did this manually for each site today, so each now has a physical address registered. The industrial activity and contact number columns on the site search results are empty, which is a pity.</p>	
Search	<p>The search facility is not very intuitive. You first need to add a keyword and then choose from the drop down list before clicking on search. The first thing I did was give a keyword and click search. The result was to get all registrations for each keyword. In general, the results were good, identifying concepts with the keywords.</p>	Usability - Functionality
Search	<p>A general comment is that when you are looking at the results you cannot differentiate between haves and wants. Of course I understand that someone who registered a resource should know what it is. However, it might be a good idea to note the available and requested resources.</p>	Usability
Search	<p>It needs more work in several respects. This is a key feature so needs to be really slick and intuitive. Members need to be able to search for companies by industrial activity, but they also need to search for the availability of particular resources as well. I can't see that anywhere at the moment. Is there a way of getting the map to show multiple results e.g. say three or four industrial activities, several different resource types etc.? Remember that much of the added value of Industrial Symbiosis is in enabling innovative matches from different industries. I've not been able to get any further than displaying sites with a particular activity on a map. What you do and where you go next is unclear.</p>	Usability - Functionality
Success Stories	<p>Case studies – this isn't a systems issue exactly, we need to give more thought to the way case studies present themselves on the 'success stories' page, for example providing a standard template in the metrics form that generates a single page in a standard format. This is something that I'd suggest can be done before the conference in June rather than being needed for the next (Capacity Building) event or the training sessions.</p>	Functionality
Resources	<p>Resource entry – 'unit' should be next to 'quantity' in the list (I've asked for this before...). Would be helpful if a 'save and return' identified what mandatory information was missing rather than just creating an incomplete resource. The 'edit' tooltip was missing as noted above. Seems ok at the basic level of creating a resource by type. I'm not sure about the way the 'composition material' entry</p>	Functionality

	works though, as it seems to be asking for the same characteristic and availability information again for just a single component material – have I misunderstood what this is doing? I thought that if I created something like ‘Track Ballast’ as a resource, I’d be able to say something about its composition like 70% was limestone, 20% was granite and 10% was sand, and this would be key information for the ontologies when looking for potential matches. It looks like I can only enter one composition material against each resource – is this correct?	
Resources	Technologies – this seems to work ok and I like the way it comes up as a potential match. My only question is whether it might be possible (and appropriate) to allow technologies to remain available to match even after they’ve been included in a synergy? I suggest this needs to be discussed by the whole group.	Functionality
Resources	For user 4, two resources with different quantities have different scores. Both quantities cover the request. Same for user8 and user9 and methane gas. This is probably caused by the scaling of the values. I was just thinking that since both cover the request we should consider whether it is a priority to use as much as we can from a large amount of available resource or use the lower first (that still covers the request) and keep the larger one for better matches?	Functionality
Resources	Resources - would it be possible to have a calendar popup embedded in the date cells? If not, there needs to be an indication of the required date format. There a couple of bits of fine tuning to the order of data entry I’d like to look at (e.g. prompting for the unit before the quantity).	Usability

4. SUMMARY AND CONCLUSIONS

During the capacity building process, interacting with the business participants of the eSymbiosis, and with the users, their feedback was captured in both major releases of the eSymbiosis portal, has driven the changes and resulted improvements to the platform.

The final release of the platform within the project, as other improvements are expected in the process of its use, offers an intuitive interface for members of the Industrial Symbiosis community to be able to register their resources, search for matches and create synergies with other organizations.

5. ΠΕΡΙΛΗΨΗ ΚΑΙ ΣΥΜΠΕΡΑΣΜΑΤΑ

Σε αυτό το κείμενο, παρουσιάσαμε τα σχόλια χρηστών που λάβαμε σχετικά με τις δύο εκδόσεις του συστήματος που παρουσιάστηκαν, και πως αυτά τα σχόλια οδήγησαν σε αλλαγές και βελτιώσεις της πλατφόρμας eSymbiosis.

Η πλατφόρμα που παράχθηκε προσφέρει ένα εύχρηστο περιβάλλον για τα μέλη της κοινότητας της Βιομηχανικής Συμβίωσης, μέσω του οποίου μπορούν να εγγραφούν, να περιγράψουν τους πόρους τους, να αναζητήσουν άλλους πόρους που να ταιριάζουν με αυτούς που διαθέτουν ή αιτούνται, και τέλος να δημιουργήσουν συνέργειες με άλλους οργανισμούς.

6. APPENDIX A: USER MANUAL

THE eSYMBIOSIS PLATFORM

One of the main objectives of the eSymbiosis project was the development of a Web Based Platform for Industrial Symbiosis communities, offering automation, supporting SMEs and enabling public administrators (municipalities, regional offices) to implement their environmental policy.

Industrial Symbiosis is an association between two or more industrial facilities or companies in which the wastes or byproducts of one become the raw materials for another. Within a digital industrial symbiosis ecosystem, companies improve Resource efficiency, trade material, energy or water and share assets, logistics services and expertise.

The eSymbiosis Platform:

- Is a bilingual web-based platform (supporting both English and Greek), which enables users to participate in industrial symbiosis activities.
- Supports ontology-based semantic matching of shared and requested Resources in order to identify possible synergies; collaboration tools enables stakeholders' communication within the same environment.
- Is powered by the model driven development environment [zAppDev®](#).

USER REGISTRATION

A user that visits the website for the first time, needs to register by selecting “Register Today!” in order to use the platform.

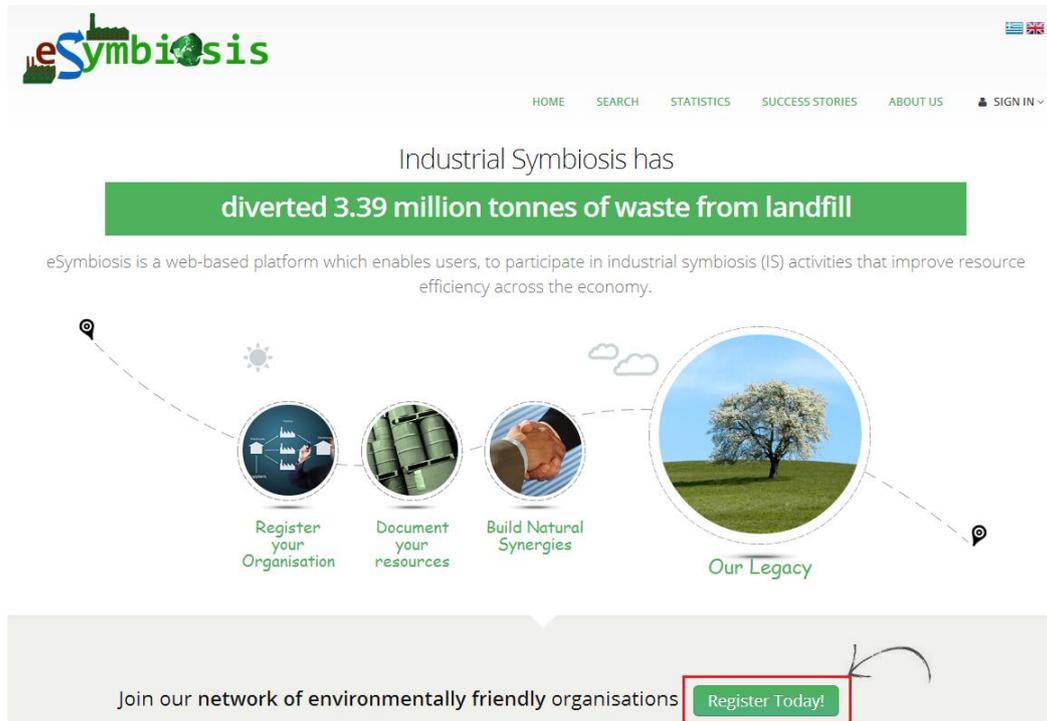


Image 1: Home Page

In the screen that follows, the user that represents the Organisation, adds his/her user account details, by providing basic information such as title, name, and e-mail.

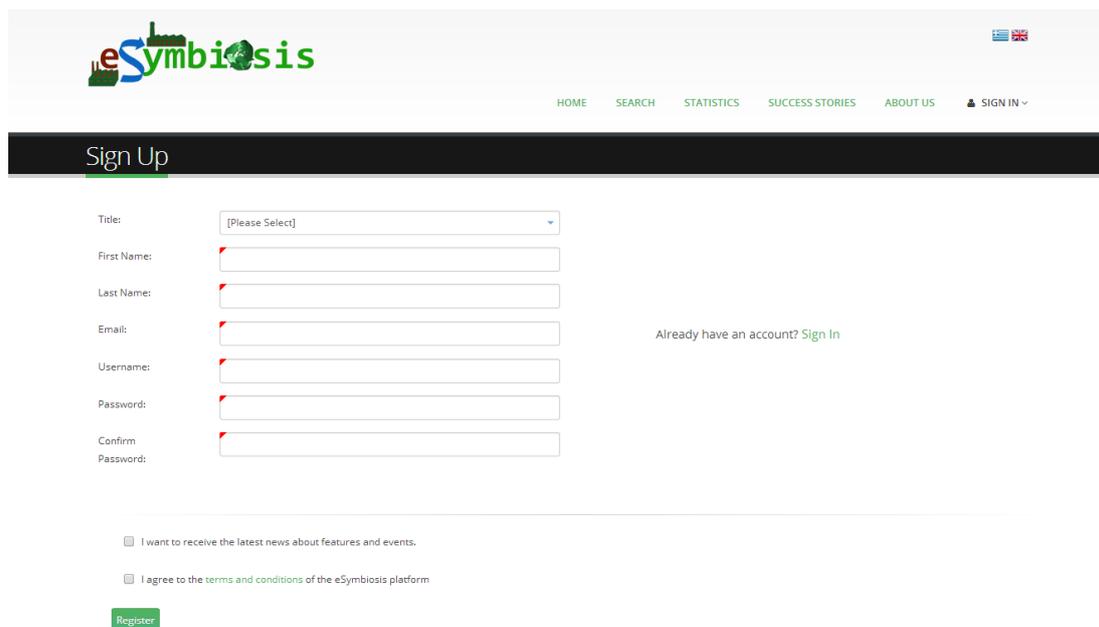


Image 2: Adding Registration Details

Next, the user receives the following email message with a link to verify the specified email address.

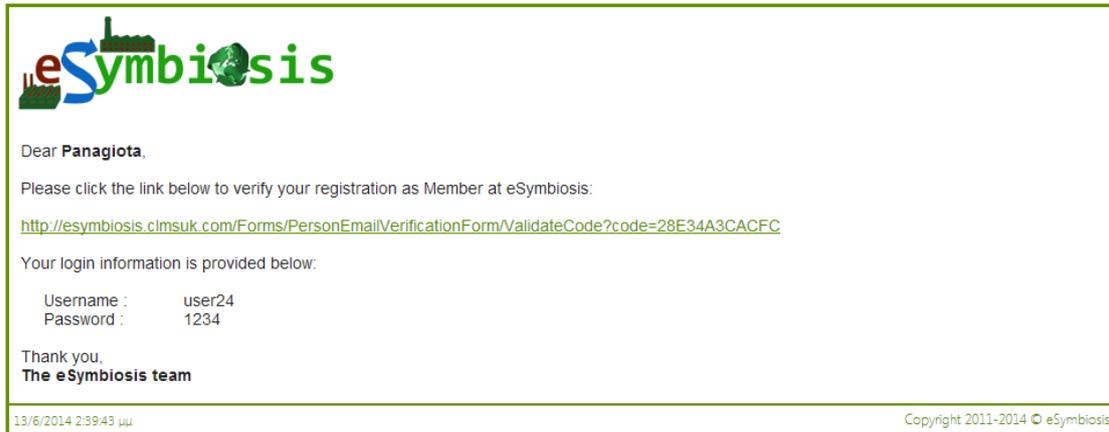


Image 3: Verification E-mail

By clicking on the provided link, user is redirected to the website and his/her email address is registered as verified.

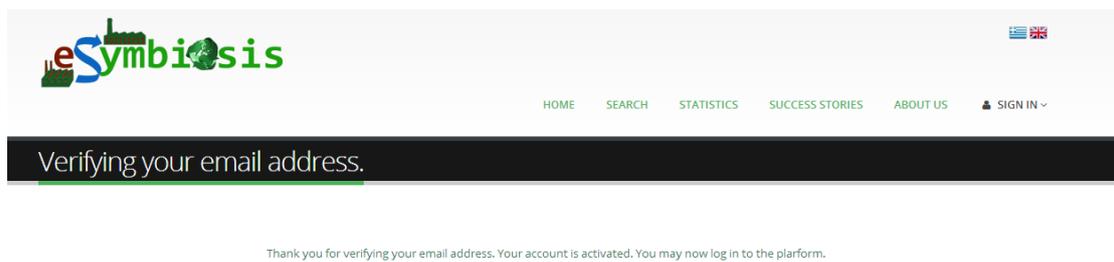


Image 4: Registration Verification Message

A second email message is received informing the user regarding the successful email address verification and the registration completion.

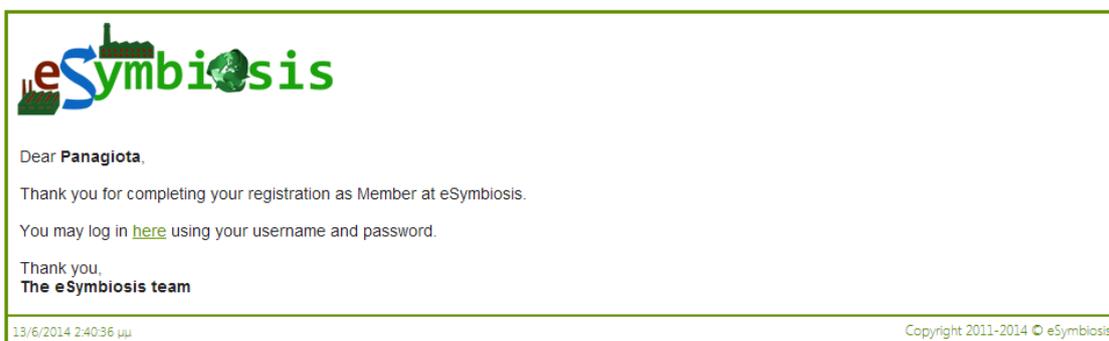


Image 5: Registration Completion Message

The User may now login with his/her credentials, in order to start using the platform functionality.

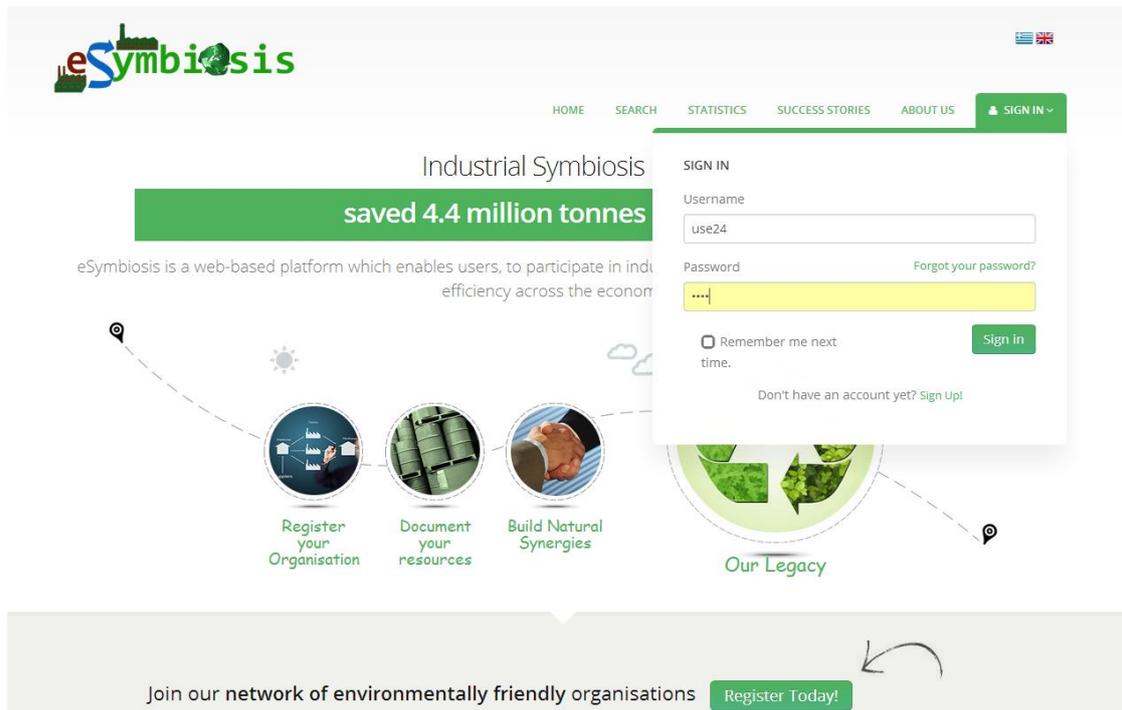


Image 6: User Sign In

The User is guided to complete his/her profile by messages that appear below the top menu.

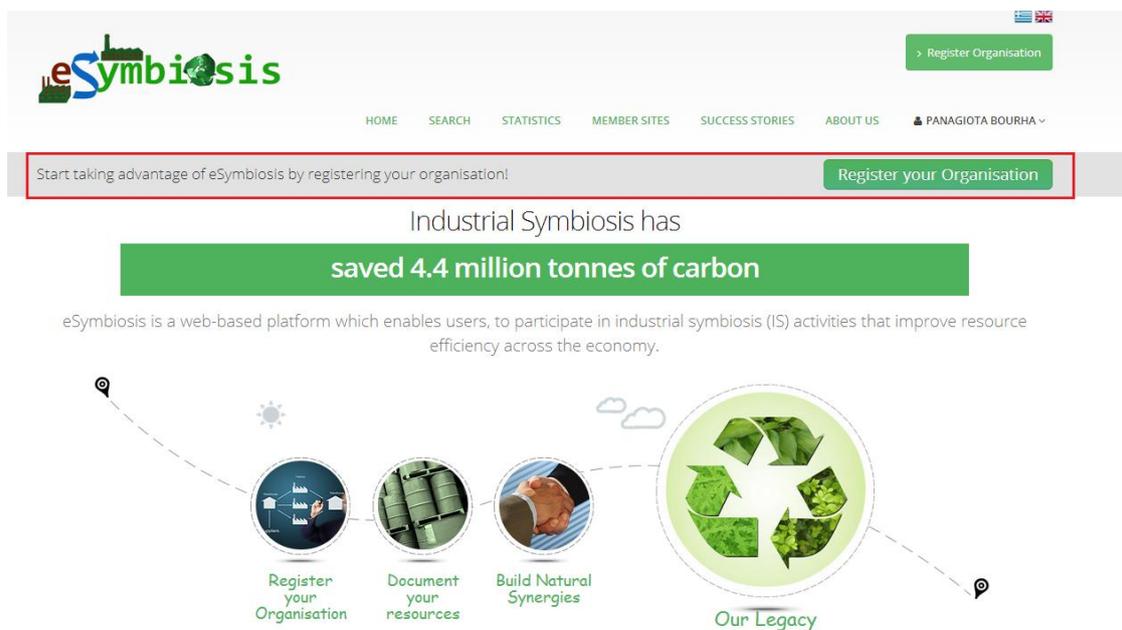


Image 7: User Guidance Message

SUBMISSION OF ORGANISATION DETAILS

The User of an Organisation can fill in the Organisation details, following a multi-step process, as presented in the following screenshots:

Step 1: Registering an Organisation

In the following screen, the user has to provide the basic Organisation information, such as

- the Organisation name,
- the web address,
- the size of the organisation,
- contact details.

The screenshot shows the 'Register Organisation' page. At the top, there is a navigation bar with the eSymbiosis logo and a 'Register Organisation' button. Below the navigation bar, the page title 'Register Organisation' is displayed. The main form contains the following fields:

- Name: [Text Input]
- Number of employees: [Dropdown Menu]
- Website Url: [Text Input]
- Turnover: [Dropdown Menu]

Below these fields is a 'Contact Person' section with a toggle switch for 'Use my details as the Contact Person of this Organisation'. The form includes the following fields for contact information:

- Title: [Dropdown Menu]
- First Name: [Text Input]
- Last Name: [Text Input]
- Telephone: [Text Input]
- Fax: [Text Input]
- Mobile: [Text Input]
- Email: [Text Input]
- Address: [Text Input]
- Postal Code: [Text Input]
- Number: [Text Input]
- County: [Text Input]
- Town: [Text Input]
- Country: [Dropdown Menu]

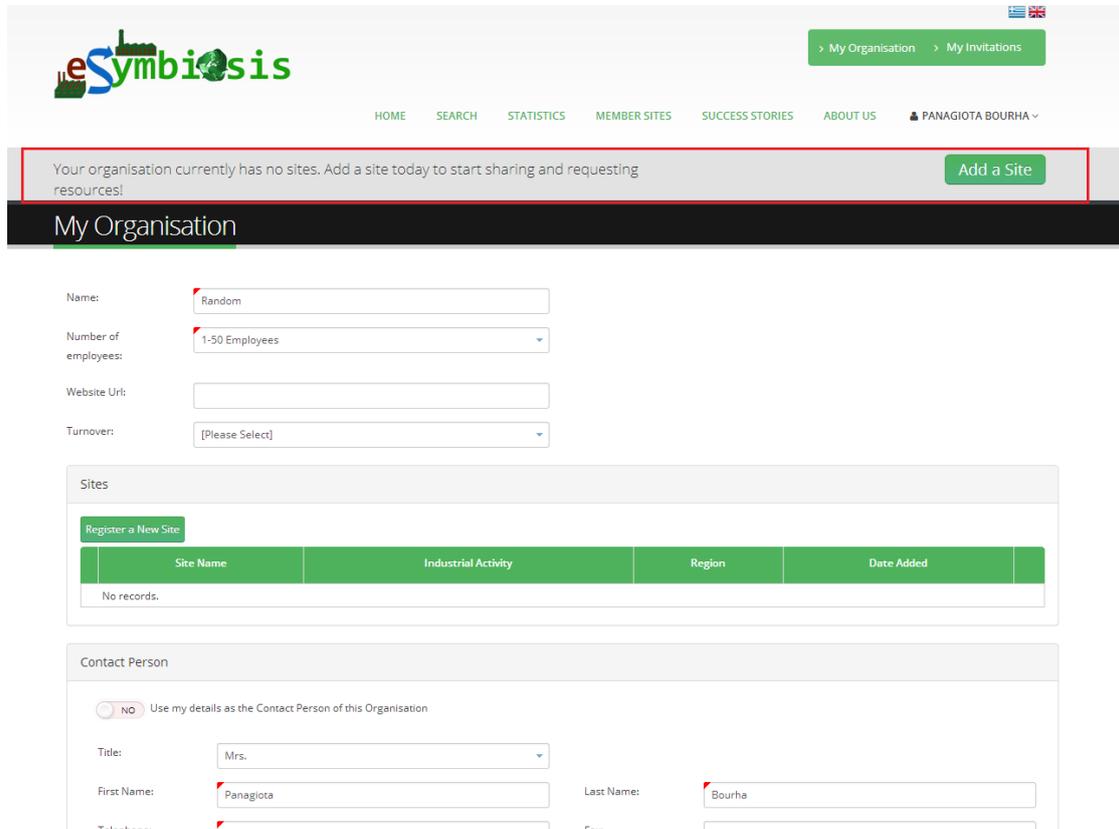
A 'Register My Organisation' button is located at the bottom of the form, highlighted with a red box.

Image 8: Organisation Profile Details

The user may update this information at any later point, by entering the new details and choosing Update Organisation Details.

Step 2: Adding Organisation Sites

After registering an organisation, the User can add the organisation Sites. A Site can be a production unit, a warehouse, or a branch of an organisation.



The screenshot displays the 'My Organisation' profile page. At the top, there is a navigation bar with the eSymbiosis logo and the user's name 'PANAGIOTA BOURHA'. Below the navigation bar, a message states: 'Your organisation currently has no sites. Add a site today to start sharing and requesting resources!' with an 'Add a Site' button. The main content area is titled 'My Organisation' and contains several form fields: 'Name' (Random), 'Number of employees' (1-50 Employees), 'Website Url', and 'Turnover' ([Please Select]). Below these fields is a 'Sites' section with a 'Register a New Site' button and a table with columns for 'Site Name', 'Industrial Activity', 'Region', and 'Date Added'. The table currently shows 'No records.' Below the 'Sites' section is a 'Contact Person' section with a radio button for 'Use my details as the Contact Person of this Organisation' (selected), and fields for 'Title' (Mrs.), 'First Name' (Panagiota), and 'Last Name' (Bourha).

Image 9: Registered Organisation Profile

Apart from the Site details, such as name and activity sector, the user provides the geographical information of the Site. By entering the address details, the corresponding location is shown in the provided map.

New Site

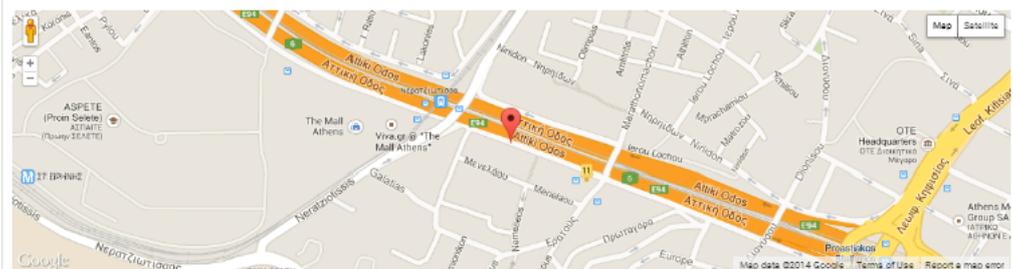
Site Info

Site Name:

Industrial Activity: [Select Industrial Activity](#)

Address

Search:



Address: Postal Code:

Town: Area:

County: Country:

Latitude: Longitude:

Telephone: Fax:

Website Url:

[Save](#) [Cancel](#)

Image 10: Adding Site Details

The user may access the Sites' details at any later point by clicking the corresponding menu item My Sites at the upper right of the screen.

In the "My Sites" page, the user may modify each Site's details and also view how Sites are placed geographically, on a map.

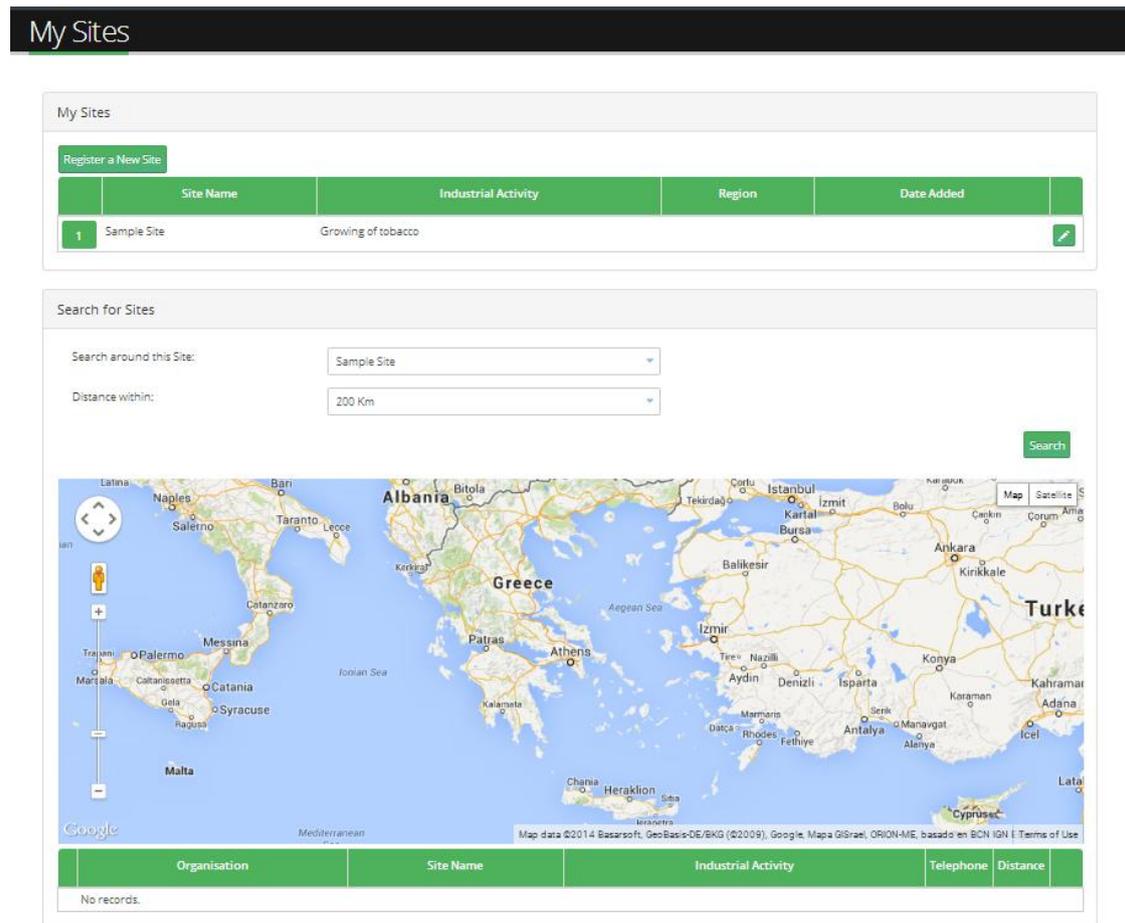


Image 11: My Sites Overview

Users may also search registered Sites from other organisations by choosing Search. The search engine displays all registered Sites on the map and a table list each Site's details including:

- Organisation
- Site Name
- Industrial Activity
- Telephone
- Distance from current user's Site.

Distance within: 200 Km

Search

	Organisation	Site Name	Industrial Activity	Telephone	Distance	
1	Steel Products SA	Livadia	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	+30-210-3707001	1,50	📍
2	Steel Products SA	Karpenissi	Manufacture of tubes, pipes, hollow profiles and related fittings, of steel	+30-210-3707002	1,49	📍
3	Steel Recycling SA	Lamia	Manufacture of basic iron and steel and of ferro-alloys	+30-210-3707003	1,50	📍
4	Metal Structures SA	Livadia	Manufacture of metal structures and parts of structures	+30-210-3707004	1,50	📍
5	Aluminium Recycling SA	Amfikleia	Aluminium production	+30-210-3707005	1,50	📍

Image 12: Searching Sites

Upon saving the Site information, the user can then start registering requested Resources or Resources available to share. This action initiates the Resource Registration process for the selected Site, as explained in the following section (Step 3). And upon saving the changes, the Resources are shown in the “My Resources” page.

Continue by adding or requesting resources for your sites!

Share or Request Resources

Image 13: Sharing/Requesting Resources

Step 3: Adding Resources

Once the user has registered a Site, a Resource can be added using the *Share or Request Resources* button, as mentioned previously (Image 13). Alternatively the user can add Resources by choosing Resources from the Top menu (Image 14). Both choices, take the user to the Resource registration page which allows them to follow a sequence of prompts that are designed to first classify and then add details to the Resource they would like to register, either it is shared or requested.

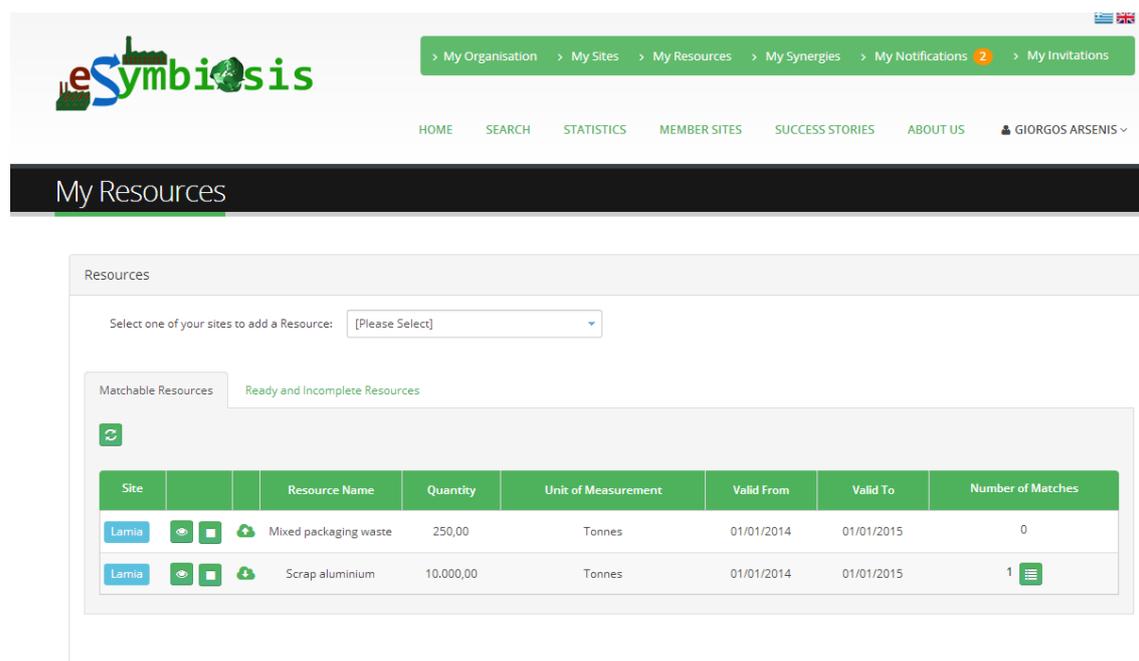


Image 14: Resources Page

During the Resource registration process, the Organisation user can specify if the Organisation's Site is:

1. Offering a Resource
2. Having a Technology, or
3. Wanting a Resource

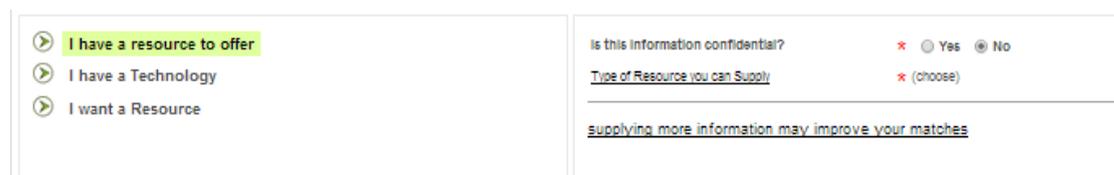


Image 15: Resource Registration

Selecting each option will change the right-hand pane, which allows the user to continue the registration process and add details about the Resource Type the Site can supply or requests.

By selecting the *Back* button on the top, the user will return to the previous view.

For example, in the case of registering a Resource to supply, clicking on the “Type of Resource you can Supply” takes the user to a new page where he/she can choose from the different types of Resources, using the collapsible list on the left.

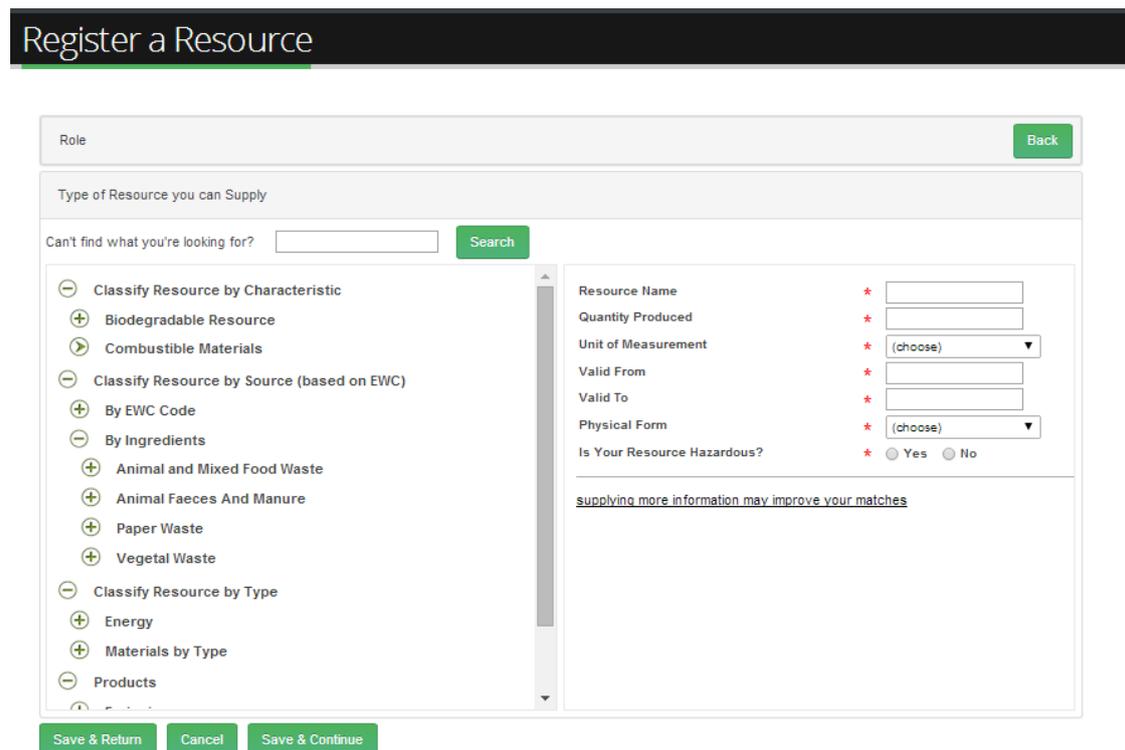


Image 16: Resource Classification Details

The user has the option of searching this list using the search box above – in this example the word “Iron” shows 10 entries and the highlighted numbers show where these can be located.

Role: I have a resource to offer Back

Type of Resource you can Supply

Can't find what you're looking for? results: 14 [clear](#) [Search](#)

- Classify Resource by Characteristic
- Classify Resource by Source (based on EWC) 3
- Classify Resource by Type 10
 - Energy
 - Materials by Type 10
 - Ceramics
 - Chemicals 2
 - Composites
 - Metal Material 8
 - Ferrous Metal Alloys 3
 - Nonferrous Metals and Alloys
 - Minerals
 - Organic Materials & Biomass
 - Plastics
 - Stones

Resource Name *

Quantity Produced *

Unit of Measurement * (choose) ▼

Valid From *

Valid To *

Physical Form * (choose) ▼

Is Your Resource Hazardous? * Yes No

[supplying more information may improve your matches](#)

[Save & Return](#) [Cancel](#) [Save & Continue](#)

Image 17: Searching Resource Type

After selecting the Resource type, the user adds the properties of the Resource to the right of the classification list (Image 17) such as quantity and physical form (solid, liquid, etc.); red asterisks represent those fields that are required to be filled in before the registration can be approved.

Finally the user can choose to save his/her entries and continue adding more Resources using the “Save & Continue” button, discard unsaved responses using the “Cancel” button, or both save and return to the Site overview page using the “Save & Return” button.

SEARCHING FOR RESOURCE MATCHES

The Resources page presents a list of all the Organisation’s Resources per Site, classified in categories:

1. Matchable Resources (Those Resources for which a potential match has been found).
2. Ready and Incomplete Resources (Resources with incomplete Information or Resources for which a search match hasn’t been performed).
3. Resources in Synergies (Resources that have already resulted in synergy).
- 4.

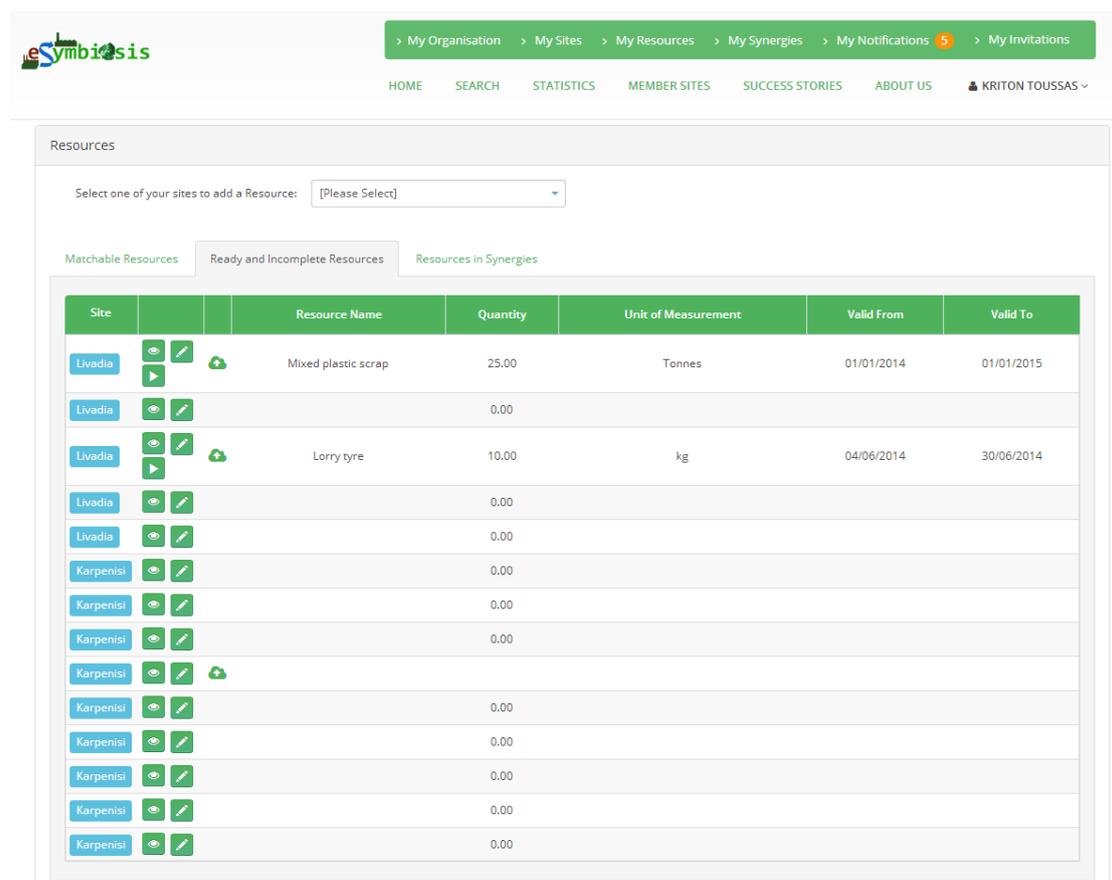


Image 18: Resources Page – Resource Categories

The User can view or edit the details of a registered Resource or withdraw it, if it is no longer available, using the buttons next to the Resource name.

I have a resource to offer : 15 01 06 mixed packaging

Site: Lamia

Details:

Name	Mixed packaging waste
Quantity	250,00
Unit of measure	Tonnes
Valid From	01/01/2014
Valid to	01/01/2015
Is this information confidential?	<input type="radio"/> NO
Physical Form	Solid
Is Your Resource Hazardous?	<input type="radio"/> NO

Image 19: Viewing Resource Details

In order to initiate a search for potential synergy matches with other available Resources, the user has to click on the Search button, in the Resource details, as shown below.

My Resources

The screenshot shows the 'My Resources' interface. At the top, there is a dropdown menu to 'Select one of your sites to add a' with '[Please Select]' chosen. Below this is a 'Resource:' section with a tab for 'Ready and Incomplete Resources'. A table displays resource details with columns: Site, Resource Name, Quantity, Unit of Measurement, Valid From, and Valid To. The first row shows 'Sample Site' with a quantity of '0,00'. The second row, highlighted in yellow, shows 'Sample Site' with a quantity of '1,00', 'Tabacco' as the resource name, 'Tonnes' as the unit, and validity dates from '16/06/2014' to '01/08/2014'. A 'Search for matches' button is overlaid on the table.

Site	Resource Name	Quantity	Unit of Measurement	Valid From	Valid To
Sample Site		0,00			
Sample Site	Tabacco	1,00	Tonnes	16/06/2014	01/08/2014

Image 20: Searching for Resource Matches

When this action is selected, the mechanism retrieves matching Resources for potential Synergies.

RESOURCE MATCHES

For a selected Site, the user can see the retrieved matches for each of the Site's available Resources, by clicking the View List of Matches button from each row of the Resources table.

For example, the following screen shows that for each of the Site Resources, there are multiple (four) potential Resource matches.

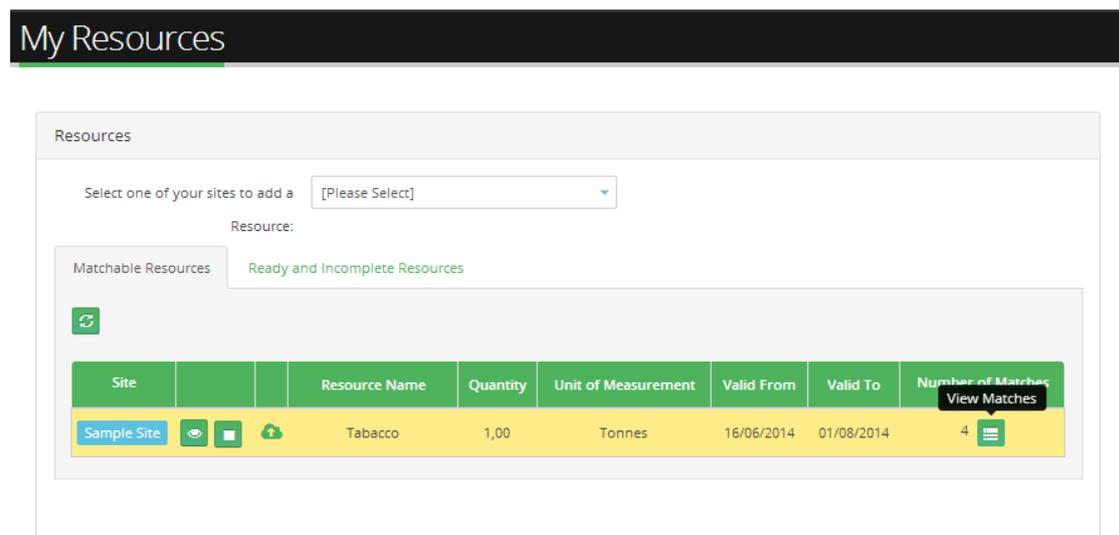


Image 21: Matchable Resources

By clicking *View*, the user can view the details for the retrieved matches of the selected Site Resource. If a Resource match seems compatible, the Organisation user can select the *Create Synergy action* with the specific Resource match.

The screenshot displays the eSymbiosis web interface. At the top, there is a navigation bar with the eSymbiosis logo and a breadcrumb trail: > My Organisation > My Sites > My Resources > My Synergies > My Notifications > My Invitations. Below this is a secondary menu with links for HOME, SEARCH, STATISTICS, MEMBER SITES, SUCCESS STORIES, and ABOUT US, along with a user profile for PANAGIOTA BOURHA.

The main content area is titled "Resource Matches". It is divided into two sections:

Resource Details: A table showing the following information:

Type	02 01 03 - Plant-tissue waste
Name	Tabacco
Quantity	1,00
Unit of measure	Tonnes
Valid From	16/06/2014
Valid to	01/08/2014

Resource Matches: A table listing potential synergies with the following columns: Organisation, Resource, Relevance, Name, Quantity, Unit of measure, Valid From, and Valid to. Each row includes a "Create Synergy" button and a relevance slider.

Organisation	Resource	Relevance	Name	Quantity	Unit of measure	Valid From	Valid to
Oil Refining SA	Olive Husk	40%	Olive pulp	1.000,00	Tonnes	01/01/2014	01/01/2015
New Heat and Power SA	Potato	40%	starchy biomass	20.000,00	Tonnes	01/05/2014	30/11/2014
Green Paint SA	Starch	36%	Starch	500,00	Tonnes	01/01/2014	01/01/2015
Oil Refining SA	Mixed Food Waste	33%	Used food oil	25.000,00	Tonnes	01/01/2014	01/01/2015

Image 22: Resource Matches Details

This action creates a new Synergy and the corresponding Synergy form is shown to the user, as explained in more detail in the following section.

SYNERGY LIFECYCLE

In the Synergy form, the two participating Organisations can:

- View details about the other participant
- View details about the Resource match, the properties of the Resources, etc.
- Submit their agreement to proceed to the next step of the Synergy lifecycle.
- Block the Synergy process for a specified reason, so that the IS Practitioner will have to be involved to resolve the issue and unblock the Synergy.
- Submit comments for the other participating Organisation.

The screenshot displays the eSymbiosis web application interface for starting a new synergy. At the top, the eSymbiosis logo is on the left, and a navigation menu includes: > My Organisation > My Sites > My Resources > My Synergies > My Notifications > My Invitations. Below this is a secondary menu with: HOME, SEARCH, STATISTICS, MEMBER SITES, SUCCESS STORIES, ABOUT US, and PANAGIOTA BOURHA. A dark banner reads "Start a new Synergy".

The main content area features a progress bar with five steps: Step 1: Idea, Step 2: Discussion (highlighted in green), Step 3: Negotiation, Step 4: Implementation, and Step 5: Complete. Below the progress bar is a light blue box with the instruction: "Suggest to the participant organisation to move this synergy forward.".

Below this is a form section with a "Proposed stage" dropdown menu set to "Discussion" and a green "Submit Request" button. Underneath is a "Cancel this Synergy" section with a dropdown arrow.

The bottom half of the form is divided into two columns:

- My Resource:** "I have a resource to offer: 02 01 03 - Plant-tissue waste". Site: Sample Site. Details table:

Name	Tabacco
Quantity	1,00
Unit of measure	Tonnes
Valid From	16/06/2014
Valid to	01/08/2014
- Matched Resource:** "I want a Resource : Olive Husk". Relevance: 30,50%. Site: Amfikleia. Details table:

Name	Olive pulp
Quantity	1.000,00
Unit of measure	Tonnes
Valid From	01/01/2014
Valid to	01/01/2015

Image 23: Starting a New Synergy (1)

Participant Organisation: Oil Refining SA



Address: Postal Code:

Town: Area:

County: Country:

Telephone: Fax:

Website Url:

Discussion

Submit a new comment:

1	16/06/2014 06:47	Random	Mrs. Panagiota Bourha (p.bourha@dmsuk.com)	Random has initiated this synergy.
---	------------------	--------	--	------------------------------------

Image 24: Staring a New Synergy (2)

The Synergy lifecycle has the following steps, as indicated in the corresponding screen:

1. Discussion
2. Negotiation
3. Implementation
4. Completion

To progress from one step to the next, both Organisations have to agree that they are ready to proceed, by selecting the corresponding drop-down list (i.e. *Implementation*) and clicking *Submit Request*.

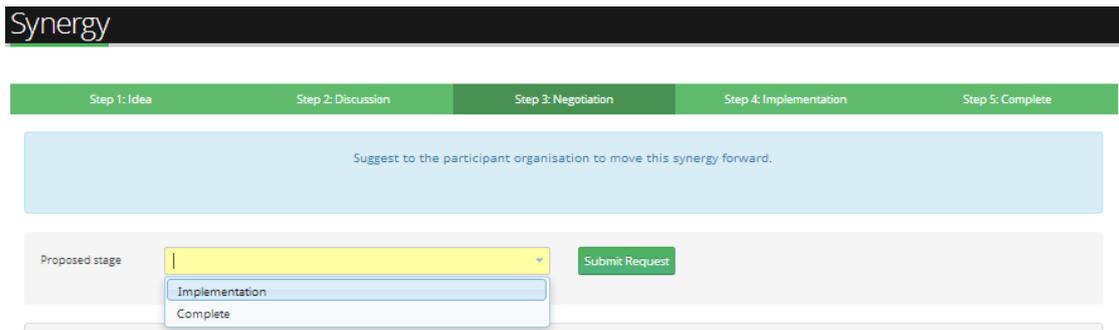


Image 25: Moving Synergy Forward

Then a notification is sent to the other Organisation user, in order to review the Synergy and maybe agree to the continuation of the process. When this agreement is mutual, the Synergy progresses to the next step and a notification is sent to both parties. A notification is also sent to participants when the Synergy has been updated or blocked.

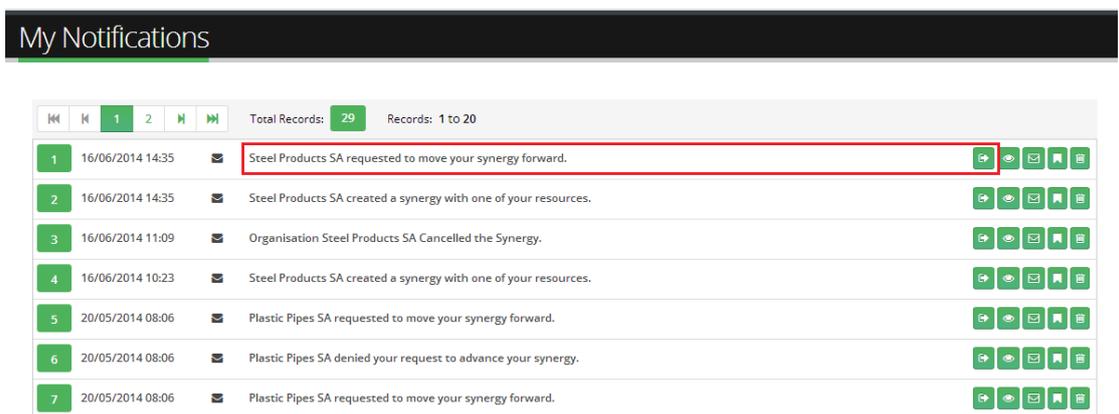


Image 26: Notifications

An example of the notification is shown below when choosing “View Message”:

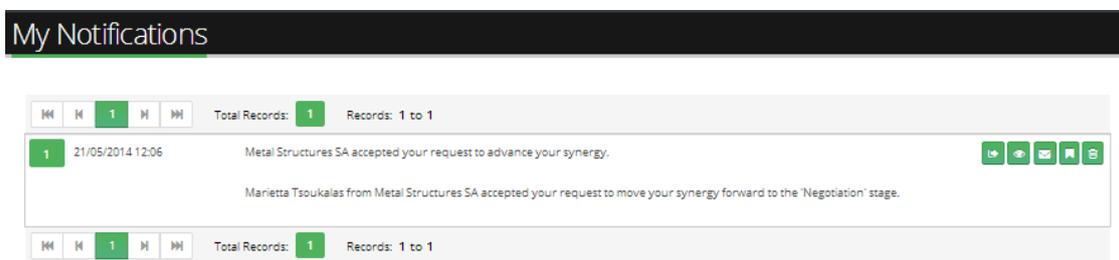


Image 27: Notification Message

When clicking on the “View the Related Synergy” button the user is transferred to the synergy page where he/she can “Accept” or “Deny” the request.

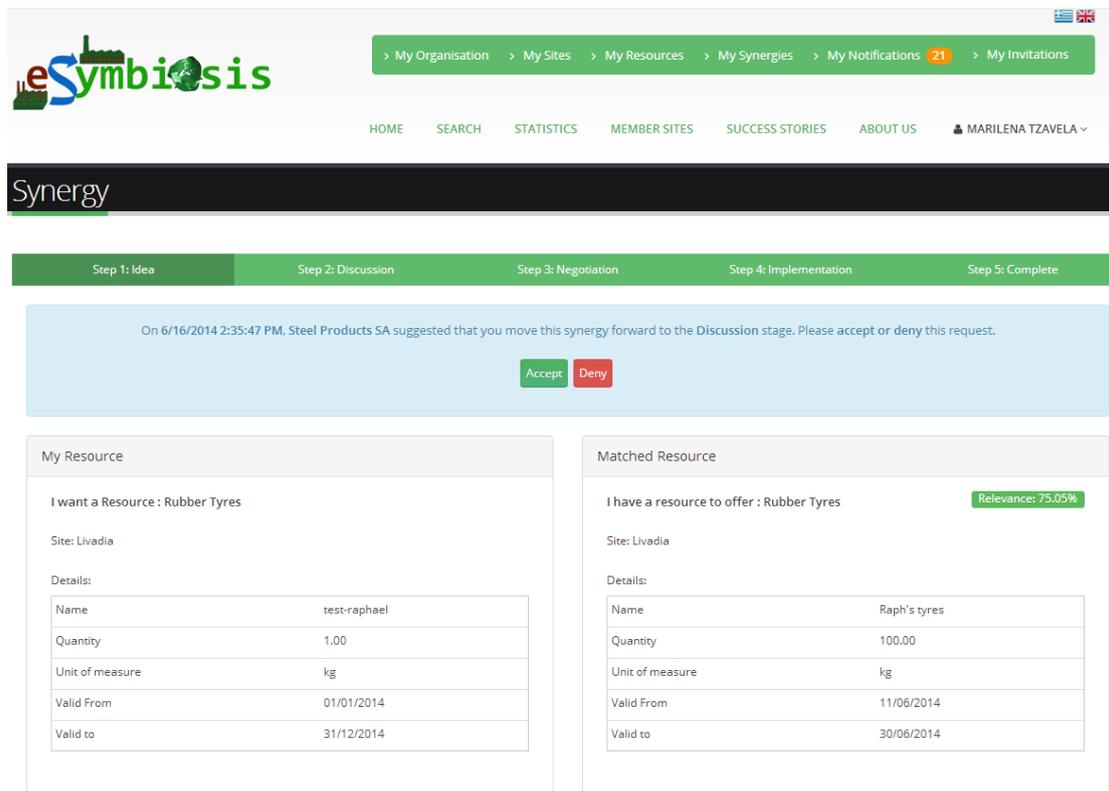


Image 28: Approving/Denying moving Synergy to the next step

The participating organisations can access all their Synergies from the corresponding option of the upper right menu:

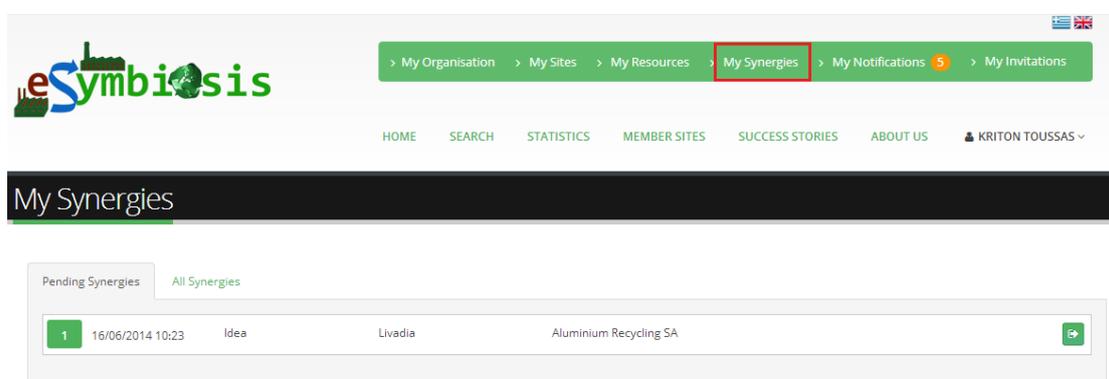


Image 29: My Synergies

Synergies are presented in categories:

1. All Synergies
2. Pending Synergies
3. Cancelled Synergies

Clicking on the View Synergy button takes the user to the Synergy details page.

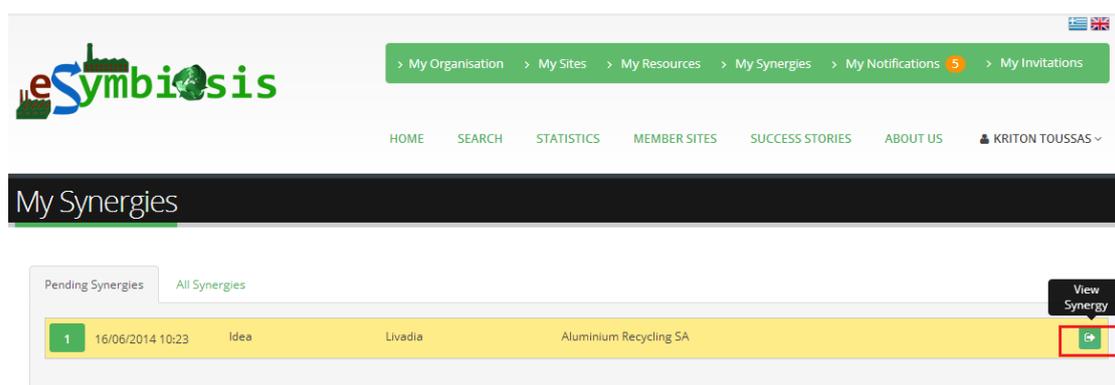


Image 30: View Synergy Button

Also, the Notifications can be viewed at any point, from the upper right menu as well:

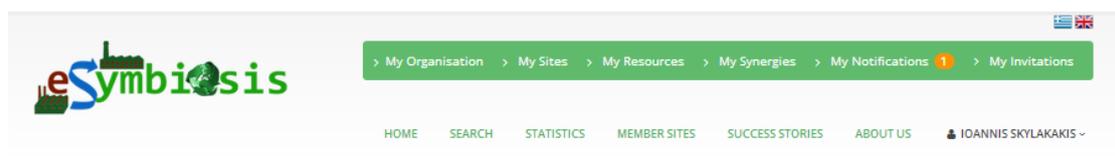


Image 31: My Notifications (Top Menu)

A user can proceed to different actions directly from the notification message, using the buttons on the right:

1. View the Related Synergy (if the message is about a synergy)
2. View Message
3. Mark as Read
4. Bookmark Message
5. Delete Message

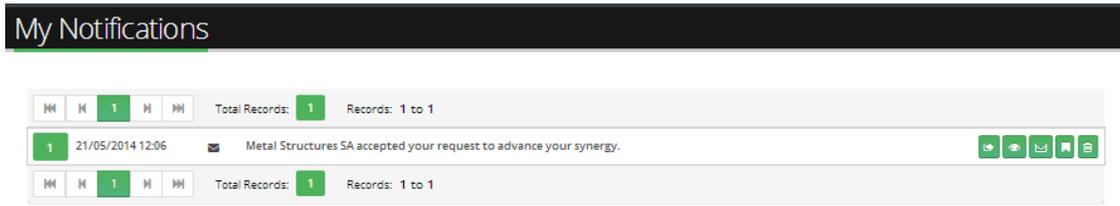


Image 32: Notification Message (Buttons)

BLOCKING/UNBLOCKING SYNERGY

As mentioned previously, the participating Organisations can block the Synergy progress from the corresponding option.

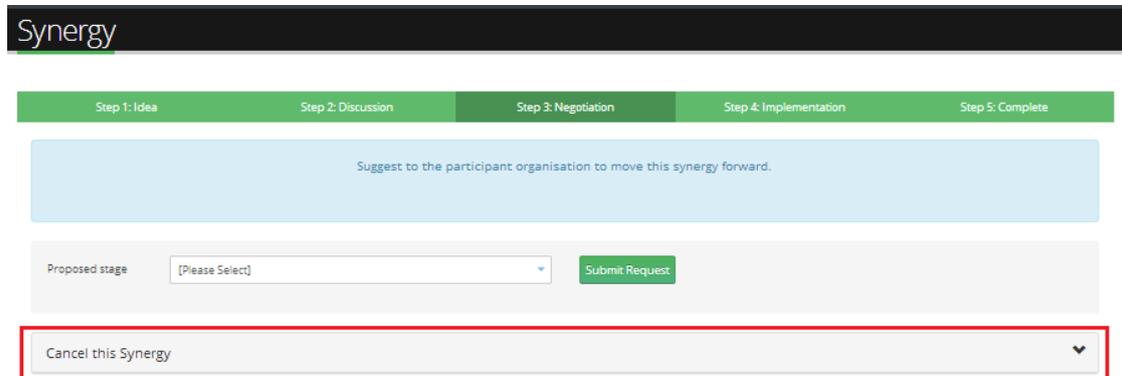


Image 33: Cancelling Synergy (1)

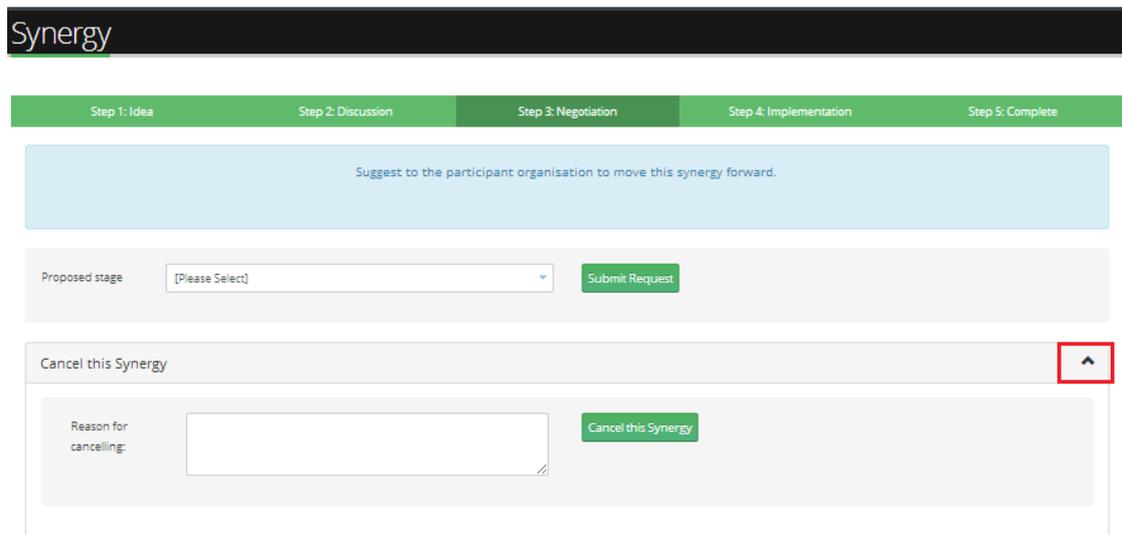


Image 34: Cancelling Synergy (2)

In case one of the two participants selects to block the Synergy progress, the IS Practitioner is notified about the issue. [Note that the IS Practitioner users are created from the Administrator].

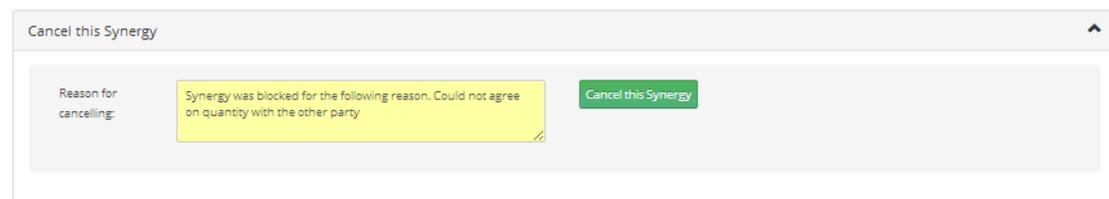


Image 35: Justifying reason for Synergy Cancellation

The IS Practitioner is responsible for resolving the issue and can then unblock the Synergy from the corresponding button in the Synergy screen. After the Synergy is unblocked, its lifecycle can continue as normal.

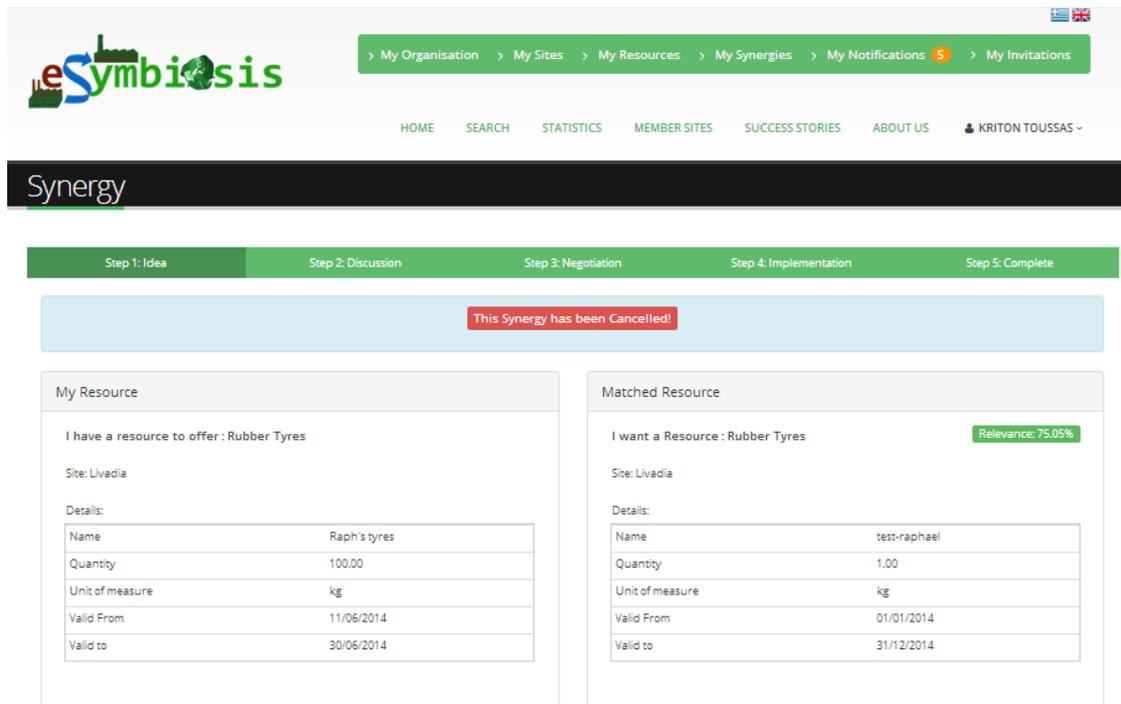


Image 36: Cancelled Synergy Details

The IS Practitioner can access his/her list of Blocked Synergies through the Synergies page accessible through the upper right menu option, as shown below, and then in the last tab of that page.

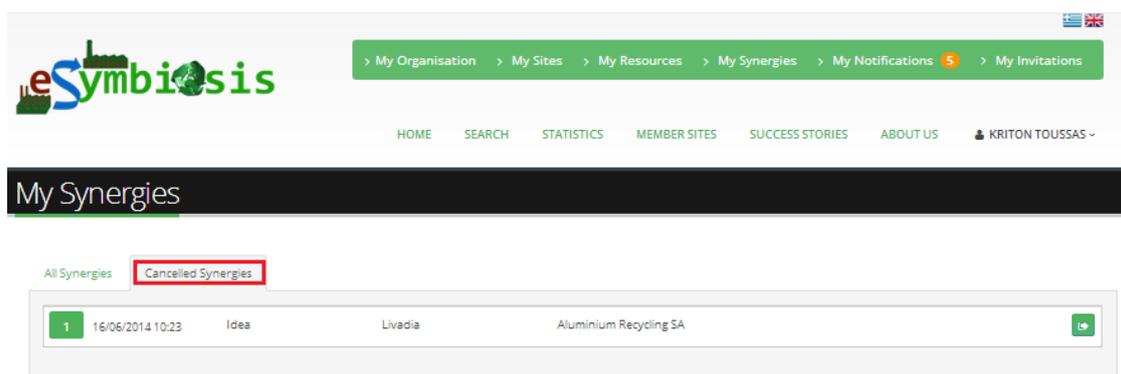


Image 37: Cancelled Synergies List

ADDING METRICS

From Organisation user's perspective: The Organisation user has to submit a number of metrics, in relation to the Synergy. These metrics can be submitted after the Synergy is completed by clicking the "Report Metrics".

The screenshot displays the eSymbiosis web interface. At the top, there is a navigation bar with the eSymbiosis logo and a menu with items: My Organisation, My Sites, My Resources, My Synergies, My Notifications (24), and My Invitations. Below this is a secondary navigation bar with links for HOME, SEARCH, STATISTICS, MEMBER SITES, SUCCESS STORIES, ABOUT US, and a user profile for MARILENA TZAVELA. A dark banner below the navigation contains the word 'Synergy'. Underneath, a progress bar shows five steps: Step 1: Idea, Step 2: Discussion, Step 3: Negotiation, Step 4: Implementation, and Step 5: Complete. A light blue box in the center contains the text 'This synergy has been completed!' and a green 'Report Metrics' button. Below this are two side-by-side panels. The left panel, titled 'My Resource', shows 'I want a Resource : Rubber Tyres' at 'Site: Livadia'. Its details table is as follows:

Details:	
Name	test-raphael
Quantity	1.00
Unit of measure	kg
Valid From	01/01/2014
Valid to	31/12/2014

The right panel, titled 'Matched Resource', shows 'I have a resource to offer : Rubber Tyres' with a green 'Relevance: 75.05%' badge and 'Site: Livadia'. Its details table is as follows:

Details:	
Name	Raph's tyres
Quantity	100.00
Unit of measure	kg
Valid From	11/06/2014
Valid to	30/06/2014

Image 38: Completed Synergy

The Organisation user can "Save a Draft" of the metrics related to a specific Synergy, and after having finished updating the filled in information, he/she can "Finalize" the report (in the metrics form, the user clicks "Finalize"); then the metrics report is sent to the IS Practitioner for review.

The metrics report include the metrics of both Organisations in synergy.

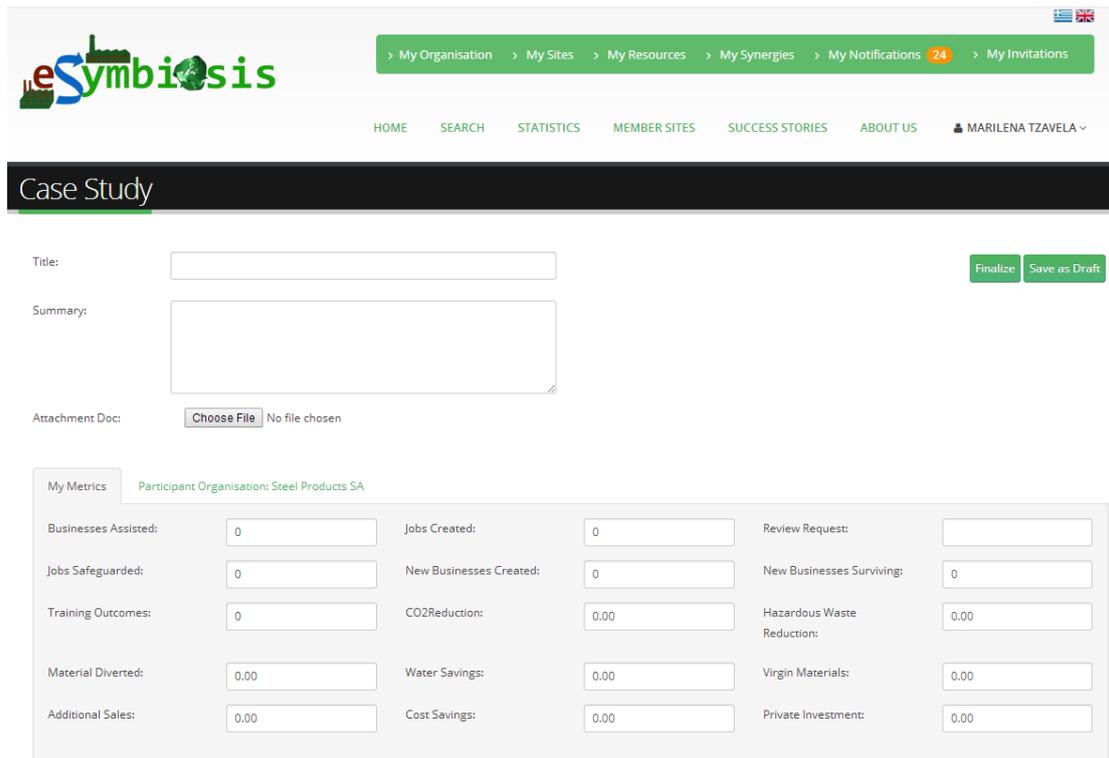


Image 39: Synergy Metrics

The IS Practitioner can view the metrics of each Synergy by going to My Synergies and choosing the Metrics icon.

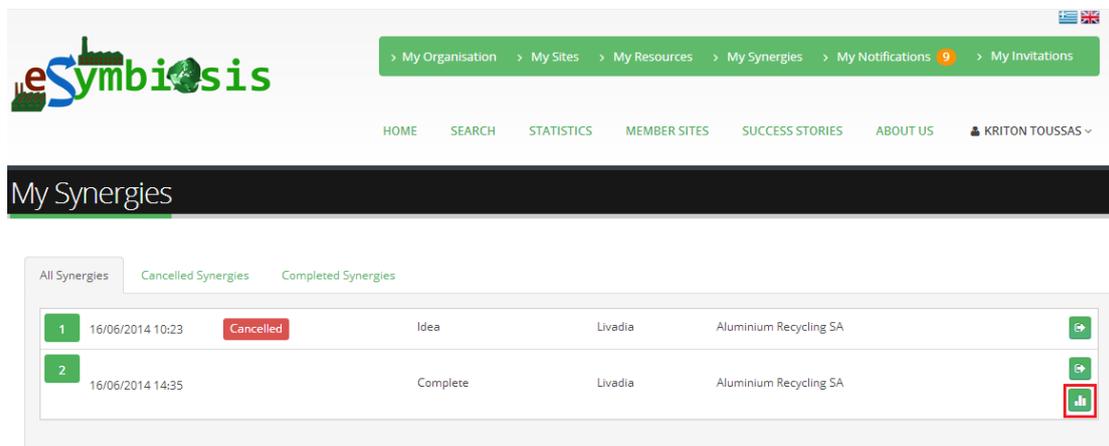


Image 40: View Metrics Button

When both participants of the Synergy have completed and finalized the metrics report, the report can be published as a “Success Story”.

PUBLISHING SUCCESS STORIES

After the Synergy has been completed and the metrics of the two participating organisations have been published, the organisations can publish a new Success Story based on the Synergy and its relevant metrics. The success story can be accessed through the “Success Stories” (top menu).

In the success story form, the Practitioner can view the metrics of the Synergy (Image 41) and can add descriptive details.

The screenshot shows the eSymbiosis website interface. At the top, there is a navigation menu with links: My Organisation, My Sites, My Resources, My Synergies, My Notifications (5), and My Invitations. Below this is a secondary menu with links: HOME, SEARCH, STATISTICS, MEMBER SITES, SUCCESS STORIES, ABOUT US, and KRITON TOUSSAS. A banner below the menu says "Continue by adding or requesting resources for your sites!" with a "Share or Request Resources" button. The main content area is titled "Case Study" and features a card for "One Successful synergy" dated 20/05/2014. The card displays two tabs: "Big Bakery SA" and "Oil Refining SA". Below the tabs is a table of metrics:

Businesses Assisted:	0	New Businesses Created:	0
New Businesses Surviving:	0		
Jobs Safeguarded:	0	Jobs Created:	0
CO2Reduction:	0.00	Material Diverted:	0.00
Hazardous Waste Reduction:	0.00	Virgin Materials:	0.00
Water Savings:	0.00		
Additional Sales:	0.00	Cost Savings:	0.00
Private Investment:	0.00		
Training Outcomes:	0		

Image 41: Published Success Story

VIEWING SYNERGY STATISTICS

The Organisation user can view Statistics in relation to the Synergies created, the matches, the Sites per county, and the Sites per code. To access this screen, the Organisation user chooses Statistics (top menu).



Image 42: Statistics (Menu)

A view of the statistics is provided below:

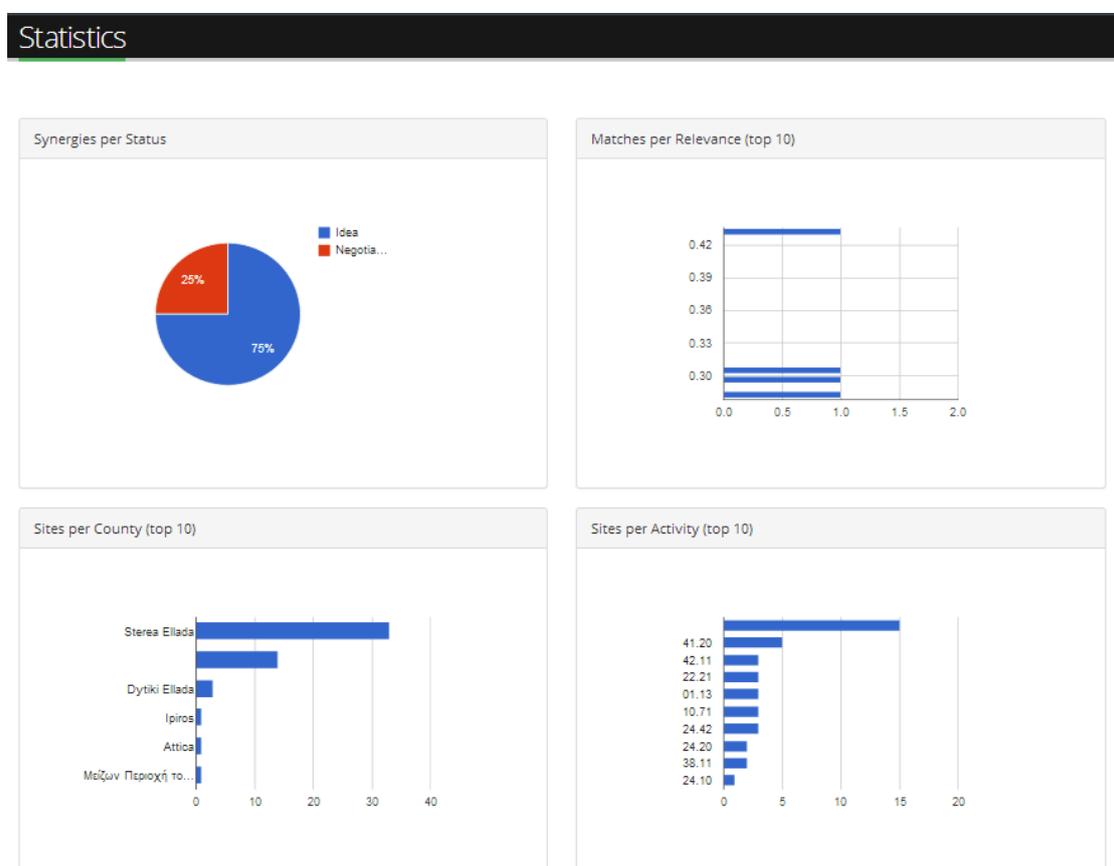
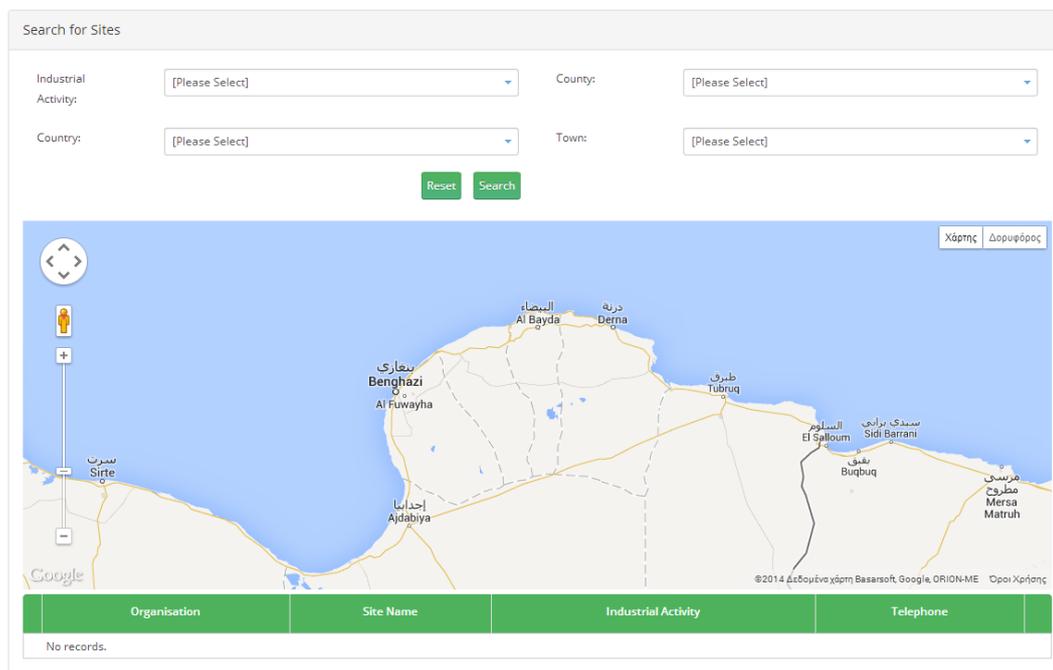


Image 43: Statistics (View)

SEARCHING MEMBER SITES

Moreover, the user can go to Member Sites (top menu), to see the Sites located on a map and search for Sites with specific criteria.



Organisation	Site Name	Industrial Activity	Telephone
No records.			

Image 44: Searching Member Sites

As shown in Image 44, the criteria that can be specified by the user are Industrial Activity, Site Town, Site County, Site Country. The user can also select one specific Organization from the list of Organizations that appear at the bottom of the page.



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