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Integrated OpenScienceLink Platform

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Executive Summary

This report informs the reader about the integration process and results of the OpenScienceLink Platform, as it has been developed during the second iteration of the project. It also includes information regarding the current deployment of the underlying platforms and the OpenScienceLink Platform components in the testing environment that has been set up for this purpose. Section 2 gives the overview of the initial integrated system setup. Section 3 presents per Pilot the functionalities offered in the second integrated OpenScienceLink Platform and provides a detailed usage scenario including Platform screenshots. Finally, Section 4 summarises and concludes.

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1 Introduction

This Deliverable is the accompanying document for the second iteration of the OpenScienceLink Platform, which comprises the outcome of the work held in WP5, and more specifically in Tasks 5.1-5.3. The document provides information regarding the deployment of the underlying platforms as well as the various services and components enabling the OpenScienceLink platform functionality and integration with the existing platforms. It further presents a scenario-driven walkthrough including screenshots of the implemented functionalities per Pilot, providing in depth explanation of the Platform capabilities.

2 OpenScienceLink Platform set up

2.1 The Integrated Platforms

The OpenScienceLink Platform uses and integrates functionalities from a number of underlying existing platforms. The project partners NTUA, TUD and TI host and expose the different existing Platforms or parts thereof, and services as follows.

NTUA hosts the SocIoS and +Spaces platforms, services and applications, as well as a part of the PONTE services and applications. Another part of the PONTE services is hosted by TUD and TI, who also host the GoPubMed services and applications.

The NTUA **PONTE** services and applications are hosted in a Microsoft Windows server machine and PONTE deployed in an Apache Tomcat server version 7.0.27, running Java 1.6, while a D2R server along with MySQL and Neo4j database servers also used. In specific, the following PONTE services and applications are hosted and provided by NTUA.

Name	Location
PONTE Web Application	http://147.102.33.126:8080/Pat/
PONTE Predefined Queries as a Service	http://ponte.grid.ece.ntua.gr:8080/PonteDecisionSupport/predqueries?wsdl
PONTE Semantic Mapper Service	http://ponte.grid.ece.ntua.gr:8080/PonteDecisionSupport/semanticMapper?wsdl

The NTUA **SocioS** services are hosted in an Ubuntu Linux machine and deployed in Glassfish server version 3.1, running Java 1.6, while a MySQL database server is also used.

Name	Location
Socios API Service	http://147.102.19.246:9090/sociosApi/SociosApiImpl?wsdl

The NTUA **+Spaces** server is an Ubuntu Linux Virtual Machine (VM) hosted in the ~Okeanos Greek Academic Community IaaS Cloud provider. The +Spaces services are deployed in Glassfish server version 3.1, running Java 1.6, while a MySQL database server is also used.

Name	Location
+Spaces Web Application	http://snf-79794.vm.okeanos.grnet.gr/pspaces/index.aspx

TUD and TI host the GoPubMed services and applications, as well as a part of the PONTE services and applications.

Name	Location
GoPubMed Applications	http://gopubmed.org/web/gopubmed/

D5.1.1 Integrated OpenScienceLink Platform

2.2 Platform Set up

The OpenScienceLink Platform implements the basic models and functionalities regarding User Management, Dataset Management (Upload/Storage), Review Management, Author Management, Groups Management. To persist the OpenScienceLink specific data a MySQL Database is used, as well as a distributed, failover enabled filesystem to ensure the scalability with regard to the number and size of the dataset and article data. The functionalities are accessible through a Web Interface. These services and components are hosted by TUD and TI.

Name	Location
OpenScienceLink Platform Web Application	https://www.gopubmed.org/web/oslplatform/ (After the official release, the platform will be hosted at: http://opensciencelink.org)

The OpenScienceLink Platform also makes use of a number of external services and adaptors to enable its integration with the existing platforms mentioned in Section 2.1 above.

Publication search, PubMed author search, PubMed author profile retrieval, and publication quantities retrieval are implemented through service interfaces with GoPubMed. These services are hosted by TUD and TI.

Name	Location
GoPubMed search adaptors and JSON interface	http://www.gopubmed.org/web/gopubmed/json/search
GoPubMed hot topics interface	http://www.gopubmed.org/web/gopubmed/hottopics

The URL leads to a session based URL with which HTTP POST requests can be performed (e.g. <http://www.gopubmed.org/web/gopubmed/20?WEB01qmq70mi1x2exI111I00>). The request uses the parameter JSON to get the input data. The input data is a JSON object containing the method name as key and the parameter list as value. The API methods and their parameters are available by calling the session based URL without the parameter:

```
{ "api": {
  //main functionalities
  "search": ["String0", "int1"],
  "tree": ["List0", "int1"],

  //query manipulation
  "notRequireTerm": ["String0"],
  "requireTerm": ["String0"],
  "resetTerm": ["String0"],
  "setSelectedTerm": ["String0"],
  "getQueryString": [],

  "getDocumentsOnPage": ["int0"],
  "getAllResultDocumentIds": [],
  "getResultDocumentIds": [],
  "getSearchInfo": [],
  "getSnippetDocumentsOnPage": ["int0"],
  "getTerms": ["List0"],
```

D5.1.1 Integrated OpenScienceLink Platform

```
"intersectWithIds":["List0"],
"statistics":[],
"annotatedDocuments":["String0"]}}
```

The requests are able to perform semantic searches with the MeSH taxonomy, retrieve result document counts and hierarchy information on the annotated MeSH terms, Journals, Publication Dates, Affiliations, as well as receive PubMed citation contents.

To enable a fast number-of-publication-based analysis of MeSH terms, there is a further service with which tabular PubMed citation count information can be displayed. This service has two parameters, q and namespace:

q: the query for which the tabular data will be received. Any query can be used that is valid for GoPubMed.

namespace: one of the value "geo", "journal", "author", "mesh" to receive the GoPubMed based counts for the corresponding group of entities.

For the purposes of linking OpenScienceLink user profiles to social platform user profiles and retrieving other data from social networking platforms, as required for the OpenScienceLink purposes, the services of the SocloS platform are used by means of the appropriate adaptors. These services and applications are developed and hosted by NTUA for the purposes of OpenScienceLink Platform integration.

The **Social Network Adaptor (SNA)** service is hosted in a Microsoft Windows server machine, and deployed in an Apache Tomcat server, running Java 1.6. The services are also deployed on a Windows Virtual Machine hosted by the ~Okeanos Greek Academic Community IaaS Cloud provider, which is however not constantly available due to infrastructure problems that the provider is facing.

Name	Location
Social Network Adaptor service	http:// 147.102.19.246:8080/OSL/SocNetAdaptor?wsdl http://83.212.103.227:8282/OSL/SocNetAdaptor?wsdl
Social Network Adaptor demo Web application	http:// 147.102.19.246:8080/SocNetAdaptorApp/

3 OpenScienceLink Platform step by step

The following paragraphs present the functionalities offered by the first iteration of the OpenScienceLink Platform, in a per Pilot basis. For some Pilots more functionalities have already been implemented but not been integrated with the Platform yet.

In this first version of the document, the integrated functionalities are first listed briefly, and then presented in a scenario-driven manner, according to which a female user of the Platform, named Margaret, who possesses the rights to access different functionalities of the Platform regardless of the user role they are intended for, interacts with the Platform in a logical sequence, in order to perform specific tasks.

3.1 All Pilots: Common Functionalities used throughout the Pilots

This section presents the functionalities which are common across more than one Pilot of the OpenScienceLink Platform.

3.1.1 Functionalities

Table 1 below presents the common functionalities, among the ones identified in deliverable D3.1, that were implemented at the first iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1.

F-ID	Functionality	Relevant Pilot requirements IDs
F0.1	User registration and profile	F_PR1.1, F_PR2.2, F_PR2.3, F_PR2.24, F_PR3.3, F_PR4.3, F_PR4.6, F_PR4.7, F_PR4.8, F_PR4.10, F_PR4.12, F_PR4.13, F_PR4.14, F_PR4.15, F_PR4.16, F_PR5.9, F_PR5.10
F0.2	User log-in	F_PR2.1
F0.3	Research work semantic linking	F_PR1.6, F_PR1.24, F_PR1.22, F_PR2.9, F_PR2.17, F_PR4.3, F_PR4.6, F_PR4.16, F_PR4.17, F_PR4.19, F_PR4.22, F_PR4.23
F0.4	Semantic search with filtering and ranking	F_PR1.6, F_PR1.7, F_PR1.21, F_PR1.22, F_PR1.24, F_PR2.3, F_PR2.12, F_PR2.17, F_PR2.18, F_PR2.19, F_PR3.3

Table 1: Common functionalities implemented

3.1.2 Scenario of use

In order to access the OpenScienceLink Platform, Margaret navigates to the OpenScienceLink Web interface by typing the Platform URL into the address bar of her Web browser. She is directed to the starting page of the Platform, i.e. the Login page (Figure 1).

Figure 1: Login page

D5.1.1 Integrated OpenScienceLink Platform

Please provide some information about your scientific interests. The information you provide is used only for the OpenScienceLinkPlatform services and will not be shared with third parties.

Please provide also your e-mail address, because it is necessary to confirm your registration. **The e-mail address will also be your login name.** After you entered your registration, we will send you an e-mail containing a confirmation link. Follow this link to finish your registration. You will be asked to enter your password

Personal information

First name: *

Surname: *

E-mail address: *

Password: * (minimum 8 Characters)

Confirm Password: *

* I have read and accept the [OpenScienceLink Terms and Conditions](#).

* I have read and agree to the [OpenScienceLink Privacy Notice](#).

* fields are required

Professional information

Institution: *

Type of Institution: ▼

Job: ▼

Country: ▼

* fields are required

Favorite research topics

Select your favorite research topics from the background-knowledge

- | | | |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|
| <input type="checkbox"/> <input type="checkbox"/> Allergy and Immunology | <input type="checkbox"/> <input type="checkbox"/> Genomics | <input type="checkbox"/> <input type="checkbox"/> Sequence Analysis |
| <input type="checkbox"/> <input type="checkbox"/> Biological Markers | <input type="checkbox"/> <input type="checkbox"/> Health Care | <input type="checkbox"/> <input type="checkbox"/> Systems Biology |
| <input type="checkbox"/> <input type="checkbox"/> Cardiovascular Diseases | <input type="checkbox"/> <input type="checkbox"/> Metabolic Networks and Pathways | <input type="checkbox"/> <input type="checkbox"/> Toxicology |
| <input type="checkbox"/> <input type="checkbox"/> Clinical Trials as Topic | <input type="checkbox"/> <input type="checkbox"/> Microbiology | <input type="checkbox"/> <input type="checkbox"/> Virology |
| <input type="checkbox"/> <input type="checkbox"/> Computational Biology | <input type="checkbox"/> <input type="checkbox"/> Molecular Biology | |
| <input type="checkbox"/> <input type="checkbox"/> Developmental Biology | <input type="checkbox"/> <input type="checkbox"/> Neoplasms | |
| <input type="checkbox"/> <input type="checkbox"/> Epigenesis, Genetic | <input type="checkbox"/> <input type="checkbox"/> Neurobiology | |
| <input type="checkbox"/> <input type="checkbox"/> Gene Regulatory Networks | <input type="checkbox"/> <input type="checkbox"/> Peptides | |
| <input type="checkbox"/> <input type="checkbox"/> Genetics | <input type="checkbox"/> <input type="checkbox"/> Proteomics | |

step 1 of 3 ...

[sign up](#)

[Back to the OpenScienceLink Platform](#)

Figure 2: User registration – Step 1

D5.1.1 Integrated OpenScienceLink Platform



Users are always redirected to the Login page whenever they try to access a feature of the Platform without having priory logged in, or after an extended period of inactivity.

On top of the Login page (as is the case with all Web pages of the Platform) the OpenScienceLink logos are displayed. Underneath that, resides the login form, where users can input their OpenScienceLink credentials (Login name and Password) in order to access the Platform.

Margaret has never before used the OpenScienceLink Platform, thus she first has to register at the Platform in order to be able to access its offered functionality. Below the login form, there is a troubleshooting area, where she sees the message “Not registered yet?”. She subsequently clicks on the link “Click here to register” and the Platform guides her through a simple registration process consisting of three basic steps.

In the first step of registration (Figure 2), Margaret is prompted to provide some personal, professional and research information in a purpose-built form. She first fills in the personal information area, by giving her first and last name, as well as her email address, which will be used in a next step in order to confirm her registration. The email address will also be her login name at the Platform. She further inputs her wished password, to be used for accessing the Platform. Margaret further selects two checkboxes, certifying her acceptance of the OpenScienceLink terms and conditions, and privacy notice respectively.

In the professional information area, she provides the details of the Institution she is affiliated with along with its type and country, as well as her job position. She can choose among several predefined institution types (Academia, Biotech industry, Clinic research organisation, Government, Hospital, Pharmaceutical industry, Science/health consultant, Other), and job positions (Business development, Clinical trials manager, healthcare professional, IT professional, Librarian, Management, Medical Doctor, Post graduate student, Principal investigator, Product manager, Professor, Research group leader, Research technician, Undergraduate student, Other).

In the favorite research topics area she can select her research topics of interest from the background knowledge, stemming from the ontology (Mesh). The selected topics are automatically linked to her profile and can be retrieved by the Platform whenever there is the need for provision of automated user-specific functionality.

Please Confirm your Registration!

Thank you for your registration, within a few moments you will receive a confirmation link via email. Please follow the given instructions and click the confirmation link to finish your registration.

In case you did not receive the confirmation in short order, please click the following link: [Request a new Confirmation](#)

step 2 of 3 ...

[Back to OpenScienceLink](#)

Figure 3: User registration – Step 2

By clicking the sign up button, Margaret’s details are stored and the registration proceeds to the second step (Figure 3). At this step, the Platform sends an email to the previously provided address, which contains a confirmation link. In case Margaret accidentally deletes the confirmation email sent by the Platform she can request for a new one by clicking on the link “Click here to request a new confirmation” in the Troubleshooting area of the Login page (Figure 1). By doing so, she is redirected to the Request a new Confirmation page (Figure 4), where she enters the email address used for her registration and clicks the “submit” button. Provided that

she input her email address correctly and her account has not been already confirmed, the Platform immediately sends her a new confirmation email.

Request a new Confirmation

Please enter your login email to request a new confirmation.

Login: *

submit

[Back to OpenScienceLink](#)

Figure 4: Request a new Confirmation

Margaret checks shortly her mailbox, and sees a new email from the OpenScienceLink Platform (Figure 5). She opens it and clicks on the confirmation link.

OpenScienceLink: Confirm registration

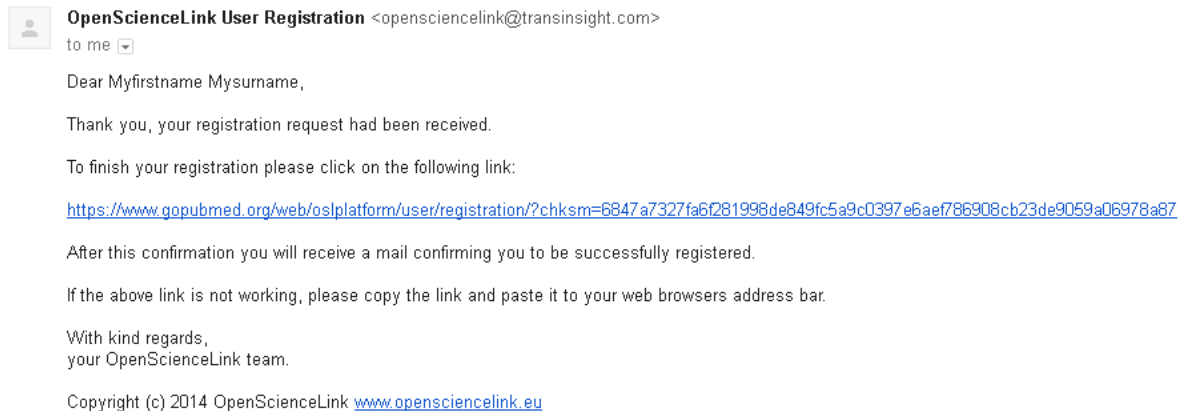


Figure 5: Confirmation e-mail

A new page opens in her Web browser, informing her that her OpenScienceLink registration has been completed (Figure 6).



OPENSOURCELINK



Your registration is complete!

You will receive a confirmation message, and can now login with your email and the chosen password!

[Back to OpenScienceLink](#)

Figure 6: User registration – Step 3

D5.1.1 Integrated OpenScienceLink Platform



Margaret notices that at the same time she received another message in her mailbox (Figure 7), informing her about the successful registration in the OpenScienceLink Platform, and providing her with some basic directions for logging in the Platform.

OpenScienceLink: Successfully registered

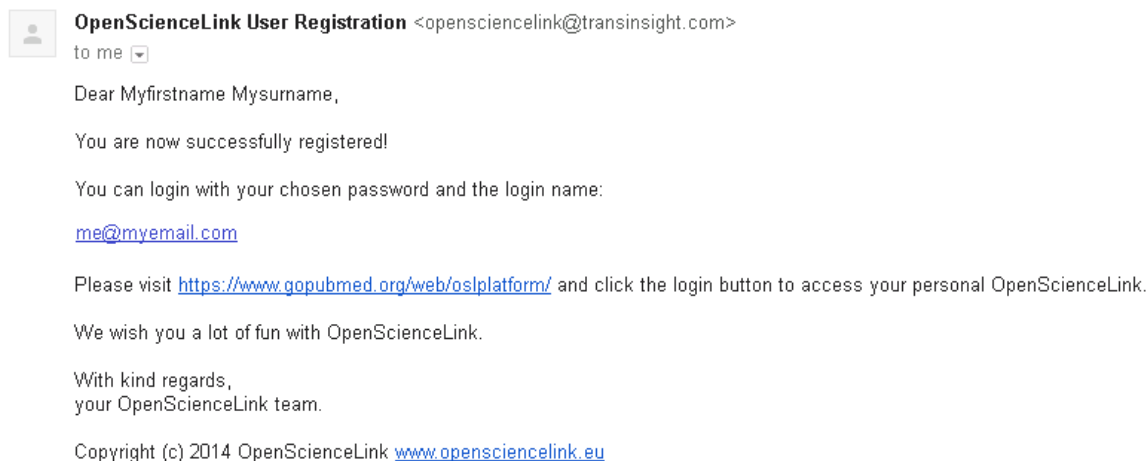


Figure 7: Successful registration email

Login

Your login was not correct!

Login:

Password:

Troubleshooting

- Not registered yet? [Click here to register](#)
- Forgotten your Password? [Click here to request a new password](#)
- Need a new confirmation? [Click here to request a new confirmation](#)

Figure 8: Failed login

By clicking on the login link provided in the latest email, Margaret now navigates to the Login page (Figure 1) and inputs her Login name and Password in the form. She clicks on the “login” button, but receives an error message from the Platform (Figure 8). She tries a couple more times and immediately realises that she has already forgotten her password.

Directly below, on the troubleshooting section, she sees the message “Forgotten your Password?” and finds the answer to her problem. She clicks on the link “Click here to request a new password”, fills in her login information in the relevant form and the Platform sends her a new randomly generated password by email (Figure 9). She further notices that there is also another link provided in the login page, for requesting a new confirmation in case the initial confirmation email (Figure 5) had not reached her mailbox.

OpenScienceLink: Your access

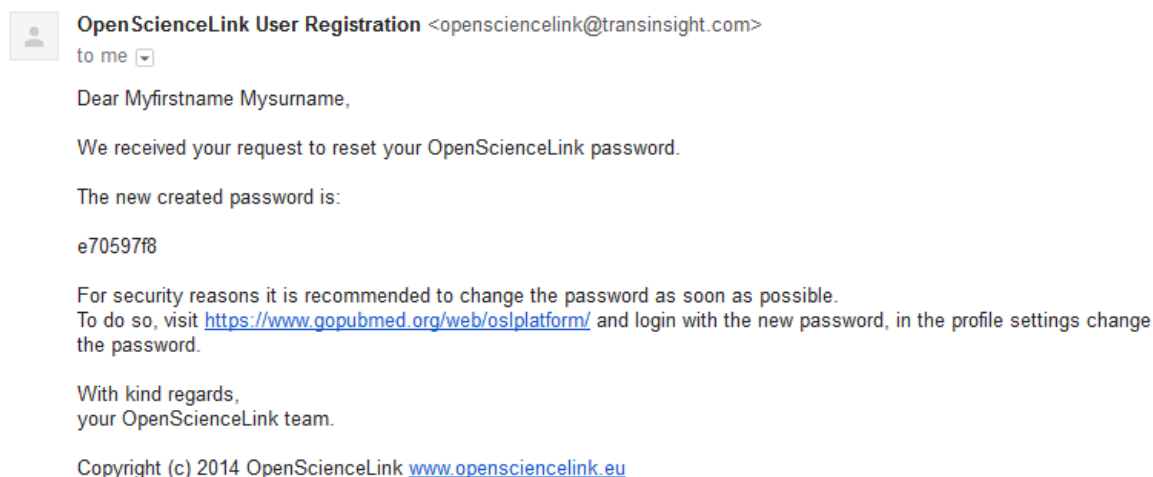


Figure 9: Reset password email

Now that her password has been reset, Margaret once more inputs her login details in the form and clicks the login button. She is authenticated successfully and can access the OpenScienceLink Platform functionality.

Entering the OpenScienceLink Platform, Margaret observes that all of the main functionality is arranged on a horizontal menu (Figure 10) right below the OpenScienceLink logos, and organised in a scenario-driven (per-Pilot) and role-driven (per-user-role) manner. The available menu items (tabs) are “Logout”, “My Profile”, “Author Activities”, “Reviewers Activities”, “Editor Activities”, “Trends”, “Collaborations”, “Evaluation”, and “Search”. Margaret can access all these Platform functionalities given that she possesses the appropriate access rights.



Figure 10: Main menu

By selecting My Profile from the menu, the My Profile tab (Figure 11) is loaded, where she can edit all the personal and professional information she initially gave during registration, as well as change her research topics of interest. Now it is a good time to also change her reset password into something that she can remember more easily (hopefully). She inputs her new password twice and clicks on the “Submit” button. The changes are saved.

In order to search the available literature as well as datasets and articles submitted to the OpenScienceLink Platform Margaret selects the Search tab from the main menu (Figure 10) and the Search page is loaded (Figure 12). The left part of the page is called “knowledge base” and consists of a number of favorite concepts, which are ontology terms automatically suggested by the Platform based on the user’s interests, followed by a list of highly related concepts (again, ontology terms) and the full tree of the ontology used (Mesh) containing all of the available terms. On the top right part of the page, Margaret sees the search field, next to which resides the search button. Margaret wants to search for documents related to “Triiodothyronine”, hence she starts typing the word in the search box. Right after she has typed the first letters of the word, the Platform automatically suggests a list of available ontology terms that match the typed text. Margaret selects “Triiodothyronine” from the list and clicks the “find” button.

Personal information

E-mail Address: me@myemail.com

First Name: *

Surname: *

Password: * (minimum 8 Characters)

Confirm Password: *

You accepted the [OpenScienceLink Terms and Conditions](#).

You agreed to the [OpenScienceLink Privacy Notice](#).

* fields are required

Professional information

Institution: *

Type of Institution: ▼

Country: ▼

Job: ▼

* fields are required

Research topics

Select your research topics from the background-knowledge

- | | | |
|-------------------------------------------------------------|---------------------------------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Allergy and Immunology | <input type="checkbox"/> Genomics | <input type="checkbox"/> Sequence Analysis |
| <input type="checkbox"/> Biological Markers | <input type="checkbox"/> Health Care | <input type="checkbox"/> Systems Biology |
| <input checked="" type="checkbox"/> Cardiovascular Diseases | <input checked="" type="checkbox"/> Metabolic Networks and Pathways | <input type="checkbox"/> Toxicology |
| <input type="checkbox"/> Clinical Trials as Topic | <input type="checkbox"/> Microbiology | <input type="checkbox"/> Virology |
| <input type="checkbox"/> Computational Biology | <input type="checkbox"/> Molecular Biology | |
| <input type="checkbox"/> Developmental Biology | <input type="checkbox"/> Neoplasms | |
| <input type="checkbox"/> Epigenesis, Genetic | <input type="checkbox"/> Neurobiology | |
| <input type="checkbox"/> Gene Regulatory Networks | <input type="checkbox"/> Peptides | |
| <input type="checkbox"/> Genetics | <input type="checkbox"/> Proteomics | |

Figure 11: My profile

The search results are immediately retrieved and presented in the right part of the page (Figure 13). At the same time, the left part of the page changes to “refine search”. Margaret notices that there are 14,415 relevant documents found, which are presented in several pages. She also notices that the first document found is “My first dataset”, which was previously uploaded by her to the Platform (Section 3.2.2). She further notices that the highly related concepts presented in the “refine search” area have been updated to match the “Triiodothyronine” term.

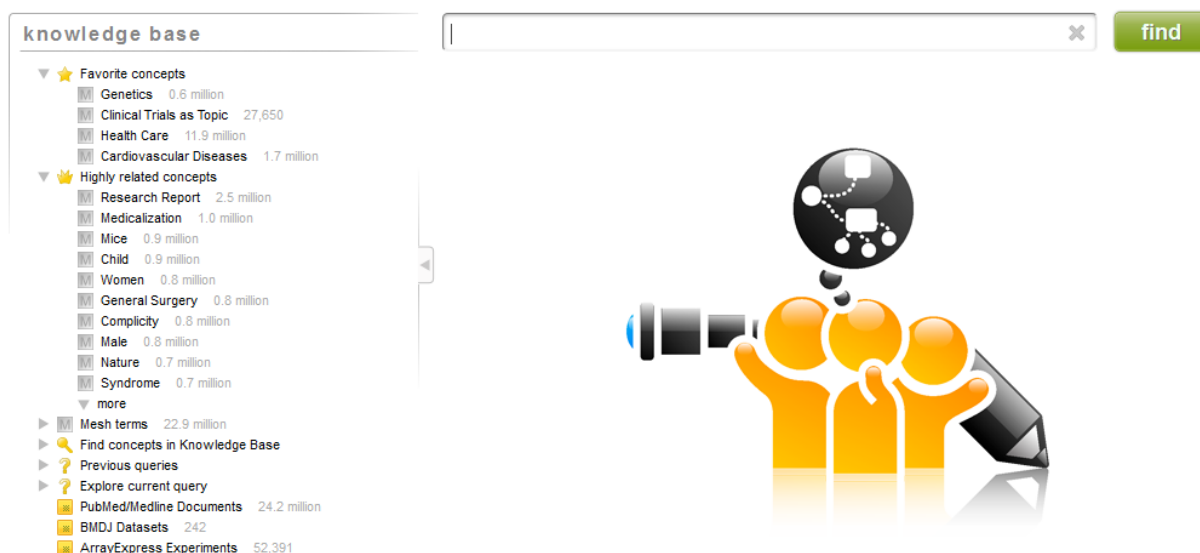


Figure 12: Search page

The search results are immediately retrieved and presented in the right part of the page (Figure 13). At the same time, the left part of the page changes to “refine search”. Margaret notices that there are 14,415 relevant documents found, which are presented in several pages. She also notices that the first document found is “My first dataset”, which was previously uploaded by her to the Platform (Section 3.2.2). She further notices that the highly related concepts presented in the “refine search” area have been updated to match the “Triiodothyronine” term.

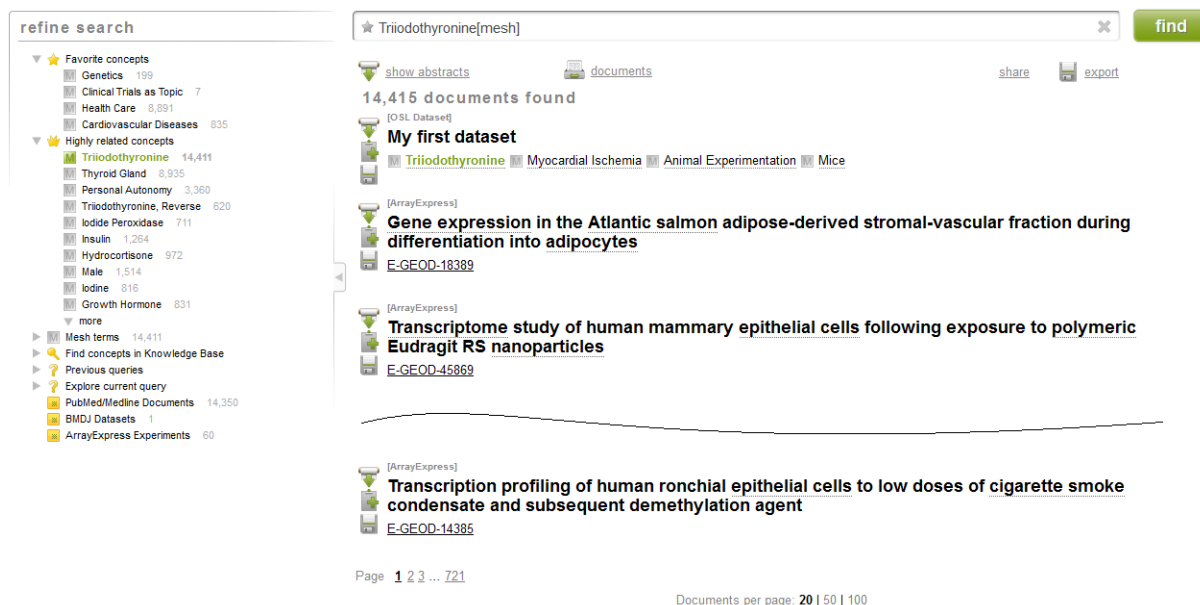


Figure 13: Search results

Margaret wishes to further filter the retrieved documents by also including the term “Insulin” in her search. She notices that “Insulin” is already in the list of highly related concepts presented by the Platform in the refine search area. She clicks on the term in the list and a pop-up screen appears, which has four tabs. In the Actions tab (Figure 14), she can include or exclude the term in her search, or add it in her favorite topics list. The Description tab (Figure 15) presents her with the definition of the term, the Synonyms tab (Figure 16) displays the term’s known synonyms, while the Tree tab (Figure 17) shows the term’s path in the ontology hierarchy. Margaret clicks “with ‘Insulin’” in the Actions tab and the term is added in her search. The

change is immediately reflected in the search results area, which now presents 1,265 documents containing both “Triiodothyronine” and “Insuline” are now presented.

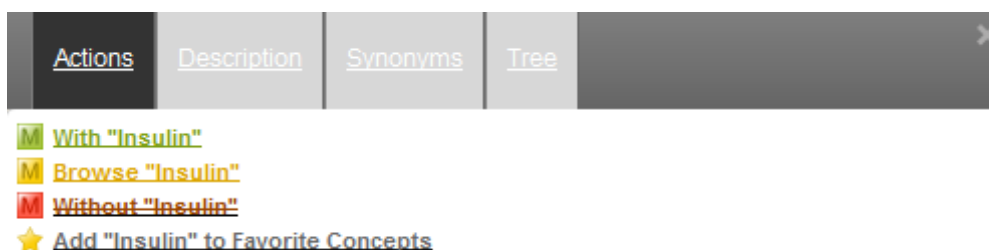


Figure 14: Search Term pop-up – Actions

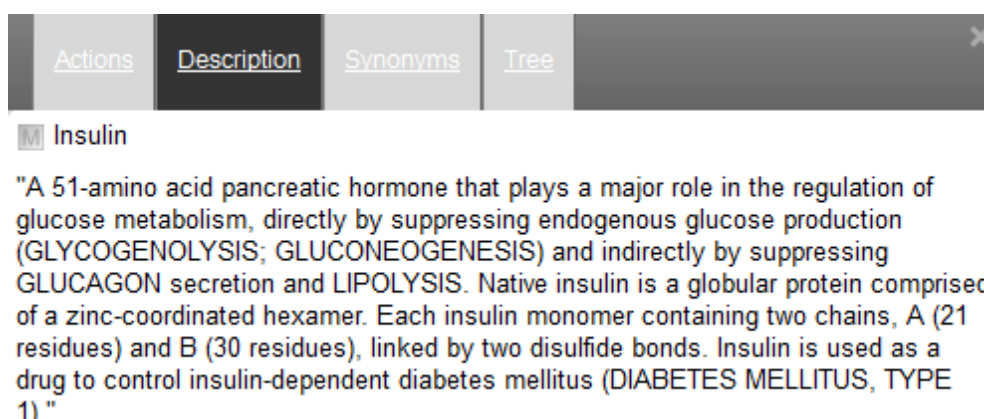


Figure 15: Search Term pop-up – Description

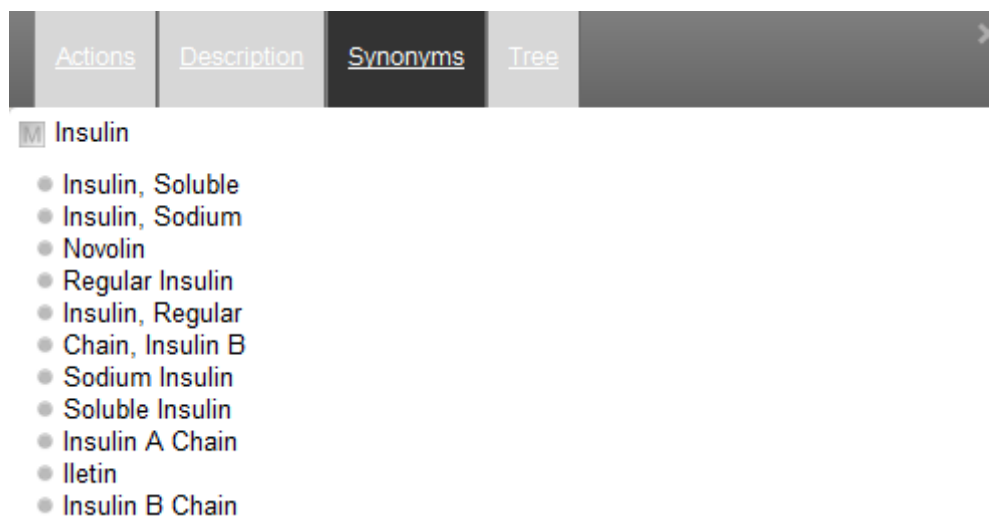


Figure 16: Search Term pop-up – Synonyms

In the search results area Margaret clicks the show abstract icon which appears next to a document of her interest and the document’s details along with its abstract are immediately presented in the same page (Figure 18). She further notices that the abstract text is annotated with terms from the ontology (underlined words), hence she can easily click on any underlined term and the pop-up functionality described above can be immediately used. Additionally, by clicking on the export icon Margaret can perform a series of operations on the document (Figure 19), which include exporting the abstract to RDF format, exporting the document’s bibliographic information to various formats (Plain Text, BibTex, EndNote/Citavi) and retrieving the document’s Pubmed IDs and its full text.

Actions Description Synonyms **Tree**

Insulin

Path in hierarchy:

- Knowledge Base
 - MeSH
 - Chemicals and Drugs
 - Hormones, Hormone Substitutes, and Hormone Antagonists
 - Hormones
 - Peptide Hormones
 - Pancreatic Hormones
 - Insulins
 - Proinsulin
 - Insulin**
 - Insulin, Regular, Human
 - Insulin, Regular, Pork

- Chemical Actions and Uses
- Amino Acids, Peptides, and Proteins

Figure 17: Search Term pop-up – Path in Hierarchy

Identical gene regulation patterns of triiodothyronine (T3) and selective thyroid hormone receptor modulator GC-1 [Affymetrix]

E-GEOD-32443

Comment [Derived ArrayExpress FTP file]: <ftp://ftp.ebi.ac.uk/pub/databases/microarray/data/experiment/GEOD/E-GEOD-32443/E-GEOD-32443.processed.1.zip>

Material Type: total RNA

Person First Name: Paul D P

Public Release Date: 2011-10-31

Comment[GEOLastUpdateDate]: 2011-11-01

Normalization Name: GSM802764_sample_table.txt norm GSM802768_sample_table.txt norm GSM802765_sample_table.txt norm GSM802771_sample_table.txt norm GSM802772_sample_table.txt norm GSM802770_sample_table.txt norm GSM802767_sample_table.txt norm GSM802769_sample_table.txt norm GSM802766_sample_table.txt norm

Comment[ArrayExpressAccession]: E-GEOD-32443

Experiment Description: Synthetic selective thyroid hormone (TH) receptor (TR) modulators (STRMs) exhibit beneficial effects on dyslipidemias in animals and humans and reduce obesity, fatty liver and insulin resistance in preclinical animal models. STRMs differ from native THs in preferential binding to the TR β subtype versus TR α , increased uptake into liver and reduced uptake into other tissues. However, selective modulators of other nuclear receptors (NRs) exhibit important gene-selective actions which have been attributed to differential effects on receptor conformation and dynamics and these effects can have profound influences in animals and humans. While there are suggestions that STRMs could exhibit such gene-specific actions, the extent to which these effects are actually observed in vivo has not been explored. Here, we show that saturating concentrations of the main active form of TH, triiodothyronine (T3), and the prototype STRM GC-1 induce identical gene-sets in livers of euthyroid and hypothyroid mice and a human cultured hepatoma cell line that only expresses TR β , HepG2. We find one case in which GC-1 exhibits a modest gene-specific reduction in potency versus T3, at angiotensin-like factor 4 (ANGPTL4) in HepG2. Investigation of the latter effect confirms that GC-1 acts through TR β to directly induce this gene. However, this gene-selective GC-1 activity is not related to unusual T3 response element (TRE) sequence, unlike previously documented promoter-selective STRM actions. Together, our data suggest that T3 and GC-1 exhibit almost identical gene regulation properties and that gene-selective actions of GC-1 and similar STRMs will be subtle and rare. We treated HepG2 with vehicle or 10nM ligand (T3 or GC1; n=3 / treatment), analyzing mRNA 24h post treatment [Affymetrix]. We also treated 9-week old euthyroid male C57/Bl6 mice with vehicle or ligand (T3 or GC-1) by a single oral gavage (n=5 per treatment) and also performed a similar study in which mice were first made hypothyroid by two week feeding on iodine deficient diet (n=3-4 per treatment), analyzing mRNA 24h post treatment [Illumina].

Figure 18: Search Results – Show Document Abstract

Export ...

- Abstract to RDF
- Document to Plain Text
- BibTeX
- EndNote/Citavi
- Refworks
- PubMed IDs
- Go to Full Text

Figure 19: Search Results – Export options

3.2 Pilot 1: Research Dynamics-aware Open Access Data Journals Development

3.2.1 Functionalities

Table 2 below presents the Pilot 1 functionalities, among the ones identified in deliverable D3.1 Version 2.0, that were implemented at the second iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1 Version 2.0.

| F-ID | Functionality | Relevant Pilot requirements IDs |
|------------------|--------------------------------------------------|----------------------------------------------|
| F3.1 | Trend detection | F_PR1.10 |
| F3.2 | Trend analysis and presentation | F_PR1.10, F_PR1.11 |
| F1.5 | Dataset call specification | F_PR1.12, F_PR1.21 |
| F1.2 | Dataset with metadata submission | F_PR1.3 |
| F1.7 | Legal and IPR management | F_PR1.3, F_PR1.21, F_PR1.23 |
| F2.2, F2.4, F2.5 | Relevant reviewers identification and invitation | F_PR1.8, F_PR1.13 |
| F2.6, F2.7 | Dataset reviewing | F_PR1.4, F_PR1.6, F_PR1.7, F_PR1.9, F_PR1.14 |
| F1.9 | Journal issue semantic linking | F_PR1.22, F_PR1.24 |

Table 2: Pilot 1 functionalities implemented

3.2.2 Scenario of use

Vicky, who is an editor of the Biomedical Data Journal (BMDJ), wants to take a look at the available data journal issues and manage them through the Platform. She selects the Editor Activities tab from the menu (Figure 10), which leads to the Editor Activities – Available Issues page, where she is presented with a list of her available data journal issues along with the important issue’s deadlines. No issues have been created yet hence the list is blank (Figure 20).

Editor Activities - Available Issues

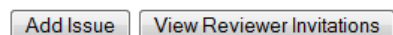


Figure 20: Editor Activities – Available Issues

Vicky wants to create a new journal issue on a hot topic. She clicks the Trends tab from the main menu (Figure 10) and is redirected to the Trend search page (Figure 56), where she tries (see Section 3.4.2) a number of scientific topics relevant to the journal’s thematology in the biomedical domain, in order to evaluate their trendiness. This helps her decide which topic the new issue will be about.

She then navigates back to the Editor Activities – Available Issues page (Figure 20), clicks on the “Add Issue” button and is redirected to the Editor Activities – Add Issue page, in order to add a new issue in the Platform (Figure 21). There, she can specify all the issue’s details. She chooses the volume that the issue belongs to (“BMDJ”) from a list of available volumes, specifies its title and adds a description. In the Keywords/Tags field, she can specify a list of relevant keywords. This can be done either a) manually: She starts typing a keyword and the Platform helps her by auto-completing the text with terms stemming from the ontology (Mesh) and clicks the “Add

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Keyword” button in order to add the keyword in the list, or b) automatically: She just clicks the “Suggest Keywords” button and the Platform automatically processes the provided abstract and suggests Mesh terms associated with it, which are added in the keywords list. Vicky can remove keywords which she thinks are not relevant with the issue by clicking on the red “X” that appears before each keyword. Finally, Vicky specifies the Submission Deadline, the Review Deadline and the Publication Date for the issue and clicks on “Save Changes” in order to save the new issue in the Platform. Accordingly she is prompted with a message, that the issue has been added successfully (Figure 22). Authors using the Platform are now also able to submit datasets for this issue.

Add Issue

Volume:

Title:

Description:

Keywords/Tags

- Allostasis
- Apoptosis
- Calcium
- Dangerous Behavior
- Fibrosis
- Heart Failure
- Hemodynamics
- Homeostasis
- Immune System
- Immunity
- Immunization
- Myocardial Contraction
- Physics

Submission Deadline:

Review Deadline:

Publication Date:

Figure 21: Editor Activities – Add Issue

Add Issue

The form has been submitted successfully.

Figure 22: Editor Activities – Issue added successfully

She clicks the “Go to List” button and is directed back to the Editor Activities - Available Issues page, where she can now see the newly created issue and manage it by clicking on the four icons on the right of the issue entry, in order to perform the following actions, as appropriate (Figure

23): 1) The file cabinet icon presents the Datasets Submitted by Platform users for the specific issue (Figure 34), 2) the clipboard icon presents the issue details, 3) the pencil-on-paper icon enables editing the issue's details, and 4) the red X icon deletes the issue. Vicky can only perform the first two actions for issues that were not created by her, but by other editors.

Editor Activities - Available Issues





| Title | Submission Deadline | Review Deadline | Publication Date | Operations |
|--------------------------|---------------------|-----------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standing Call 2014-12-30 | | 2015-01-27 | 2015-02-28 |     |

Figure 23: Editor Activities - Available Issues populated

Margaret, who is an author, logs in the Platform and selects the Author Activities tab from the menu (Figure 10), which loads the Author Activities - My Datasets page (Figure 24). So far, she has not uploaded any datasets to the Platform, thus this page is empty, with the exception of the upload dataset button. She clicks on that button and the Upload Dataset page loads (Figure 25).

Author Activities - My Datasets



Figure 24: Author Activities - My datasets

In the top of this page, she firstly prompted to read the submission guidance by clicking on the provided link. Below, she can input all the dataset related information in a form. This information includes the user's name (prefilled) and affiliation, as well as the dataset's name and description, and the call/issue name which it is intended for. The issue name list is populated automatically with the open calls currently available in the Platform. Margaret decides to name her dataset "My first dataset" and to submit it for the Standing Call.

She further is able to provide a number of keywords for describing the dataset's main and minor research topics. She starts typing a keyword in the "Main Topics" field and the Platform automatically provides auto-complete text suggestions stemming from the ontology (Mesh) (Figure 26). Margaret selects a Mesh term that accurately describes one of the dataset's main topics and clicks the "add keyword" button. The term is added as a keyword for this particular topic. She then adds another keyword in the same manner. By following the same procedure she also fills in the "Minor Topics" field. She can delete any of the given keywords by clicking the red "X" next to the term she wishes to remove (Figure 27).

Margaret can also specify a list of papers in which the dataset has already been used, by typing the PubMed IDs of the relevant articles, separated by commas. She further chooses a category for the dataset, which can vary between "Research data" or "Clinical trial".

Then, she is given the choice to check or not a checkbox "I accept the Terms and Conditions and I have read the submission guidance", which is self-explanative. By clicking on the "Terms and Conditions" part of the text the OpenScienceLink Platform legal terms and conditions regarding datasets are brought up, while clicking on the "Submission Guidance" text the submission guidance is brought up.

Margaret checks the checkbox in order to verify that she has taken knowledge of and agrees with the submission guidelines and the terms and conditions of the OpenScienceLink Platform before uploading the dataset. In case this checkbox is not checked, the Platform does not accept the uploaded dataset.

Upload Dataset

Before submission, please read our [Submission Guidance](#).

User: **Myfirstname Mysurname**

Affiliation:

Dataset Name:

Description:

Call/Issue Name:

Main Topics:

Minor Topics:

Please list the PubMed IDs of the articles that the submitted dataset has been used in. Multiple IDs should be separated by commas, e.g.: 22345678, 2345786, 2223339

Papers that used the dataset:

Category:

I accept the [Terms and Conditions](#) and have read the [Submission Guidance](#).

Please consult the [instructions to authors](#) on how your article should be structured and what type of information is required to describe your dataset. Your zip file can contain files of any type, e.g., .pdf, .txt, .xls, .xlsx, .doc, .docx,...

Article path: No file selected.

Dataset path (zip): No file selected.

or provide a URL:

Figure 25: Upload dataset

Main Topics:

- Thyroid Hormone Receptor (Receptors, Thyroid Hormone)
- Thyroid Hormone Receptor beta (Thyroid Hormone Receptors beta)
- Thyroid Hormone Resistance (Thyroid Hormone Resistance Syn)
- Thyroid Hormone, T4 (Thyroxine)
- Thyroid Hormone, T3 (Triiodothyronine)
- Thyroid Hormone Receptors alpha
- Reverse T3 Thyroid hormone (Triiodothyronine, Reverse)

Figure 26: Auto-complete

Main Topics: Triiodothyronine
 Myocardial Ischemia

Minor Topics: Animal Experimentation
 Mice

Figure 27: Add and remove keywords

Then she clicks the “browse” button in order to choose the file of the dataset (compressed zip file format) and optionally the accompanying article (PDF file format) on her personal computer and upload them to the Platform (Figure 28). Optionally she can provide the URL of a file residing in the World Wide Web.

Article path: MyArticle.pdf
 Dataset path (zip): MyDataset.zip
 or provide a URL:

Figure 28: Upload files

Finally, she clicks “Save Changes” and her dataset is saved in the OpenScienceLink Platform. A relevant message notifies her of the successful completion of this task (Figure 29).

Upload Dataset

Before submission, please read our [Submission Guidance](#).

The form has been submitted successfully.

Figure 29: Successful dataset submission

By clicking the “Go to List” button, Margaret is redirected to her My Datasets page. After uploading a couple of more datasets, which she names “My new dataset” and “My other dataset”, her My Datasets page looks like on Figure 30.

Author Activities - My Datasets

| Dataset Name | Article | Dataset | Dataset URL | Status | Issue | DCI | Last Update | Operations |
|------------------|--------------------------|--------------------------|-------------|-----------|---------------|-----|-------------|------------|
| My other dataset | download | download | | Submitted | Standing Call | | 2014-12-02 | |
| My new dataset | download | download | | Submitted | Standing Call | | 2014-12-02 | |
| My first dataset | download | download | | Submitted | Standing Call | | 2014-12-02 | |

Figure 30: Author Activities – My datasets populated

Margaret notices that she is able to view each of the datasets she has uploaded so far and their metadata, edit them or delete them, by clicking the relevant icons. She is further able to download the submitted articles and datasets to her computer.

Margaret chooses to view the metadata of “My first dataset”. She clicks on the clipboard icon and is redirected to the View Dataset Metadata page (Figure 31). She clicks on “Go Back” to get back to the My Datasets page (Figure 30) and decides to change some of the “My first dataset” metadata. She clicks on the edit icon and is redirected to the Edit Dataset Information page (Figure 32). After she performs her wished alterations she clicks on “Save Changes” and the dataset and metadata are updated in the Platform. Subsequently, Margaret is redirected back to the My Datasets page (Figure 30). Finally, Margaret decides that she wishes to delete “My other dataset”. She clicks on the delete icon and is redirected to the Delete Dataset and Metadata page (Figure 33). She verifies her intention by clicking on “Delete” at the bottom of the page and “My other dataset” along with its metadata is permanently removed from the Platform.

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View Dataset Metadata

Owner: Myfirstname Mysurname
 Affiliation: MyAffiliation
 Dataset Name: My first dataset
 Description: Heart disease experiment thyroid hormone on mice
 Call/Issue Name: Standing Call
 Main Topics: [Triiodothyronine[mesh], "Myocardial Ischemia"[mesh]]
 Minor Topics: ["Animal Experimentation"[mesh], Mice[mesh]]
 Papers where the dataset has been used:
 Category: Research data
 Article path: [download](#)
 Dataset path: [download](#)
 or provide a URL:

[Go Back](#)

Figure 31: View dataset metadata

Edit Dataset Information

User: **Myfirstname Mysurname**
 Affiliation:
 Dataset Name:
 Description:
 Call/Issue Name:
 Main Topics: Triiodothyronine
 Myocardial Ischemia
 Minor Topics: Animal Experimentation
 Mice
 Please list the PubMed IDs of the articles that the submitted dataset has been used in. Multiple IDs should be separated by commas, e.g.: 22345678, 2345786, 2223339
 Papers that used the dataset:
 Category:
 Please consult the [instructions to authors](#) on how your article should be structured and what type of information is required to describe your dataset. Your zip file can contain files of any type, e.g., .pdf, .txt, .xls, .xlsx, .doc, .docx,...
 Article path: No file selected. [download](#)
 Dataset path (zip): No file selected. [download](#)
 or provide a URL:

Figure 32: Edit dataset information

Delete Dataset And Metadata

Owner: Myfirstname Mysurname
 Affiliation: MyAffiliation
 Dataset Name: My other dataset
 Description: Biomedical dataset no.5
 Call/Issue Name: Standing Call
 Main Topics: ["Biomedical Research"[mesh], Deltaretrovirus[mesh]]
 Minor Topics: ["Clinical Trials, Phase I as Topic"[mesh]]
 Papers where the dataset has been used:
 Category: Clinical trial
 Article path: [download](#)
 Dataset path: [download](#)
 or provide a URL:

WARNING: This operation cannot be undone. Are you sure you want to proceed?

Figure 33: Delete dataset and metadata

Vicky, the editor responsible for /associated with the call that Margaret submitted her datasets to, navigates again to the Editor Activities – Available issues page. The first thing she notices is that she cannot delete the issue call any longer, since some datasets have been submitted by authors (Margaret) for this call and stored in the Platform. She clicks on the file cabinet icon in order to see the submitted datasets and is redirected to the Datasets Submitted to Issue page (Figure 34), where she sees a list of the submitted datasets and is provided with the opportunity to manage them by clicking on the relevant links. The download links allow her to download the article and dataset files, the clipboard icon to see the dataset (Figure 35) and its metadata, and the green-paragraph-symbol icon to invite reviewers for the evaluation of the dataset (Section 3.3.2).

Datasets Submitted to Issue: Standing Call

Standing Call





| Dataset Name | Article | Dataset | Dataset URL | Status | Issue | DCI | Last Update | Operations |
|------------------|--------------------------|--------------------------|-------------|-----------|---------------|-----|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| My first dataset | download | download | | Submitted | Standing Call | | 2014-12-02 |   |
| My new dataset | download | download | | Submitted | Standing Call | | 2014-12-02 |   |

Figure 34: Datasets Submitted to Issue populated

View Dataset Metadata

Owner: Myfirstname Mysurname
 Affiliation: MyAffiliation
 Dataset Name: My first dataset
 Description: Heart disease experiment thyroid hormone on mice
 Call/Issue Name: Standing Call
 Main Topics: [Triiodothyronine[mesh], "Myocardial Ischemia"[mesh]]
 Minor Topics: ["Animal Experimentation"[mesh], Mice[mesh]]
 Papers where the dataset has been used:
 Category: Research data
 Article path: [download](#)
 Dataset path: [download](#)
 or provide a URL:

[Go Back](#)

Figure 35: View Dataset Metadata

3.3 Pilot 2: Novel open, semantically-assisted peer review process

3.3.1 Functionalities

Table 3 below presents the Pilot 2 functionalities, among the ones identified in deliverable D3.1 Version 2.0, that were implemented at the second iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1 Version 2.0.

| F-ID | Functionality | Relevant Pilot requirements IDs |
|-------|------------------------------------------------------|-----------------------------------------------|
| F2.12 | Review call specification | F_PR2.10 |
| F2.2 | Relevant reviewers identification through literature | F_PR2.10 |
| F2.4 | Reviewer pool suggestion | F_PR2.10 |
| F2.5 | Reviewer selection and invitation | F_PR2.4, F_PR2.5 |
| F2.8 | Review form submission | F_PR2.6, F_PR2.7, F_PR2.8, F_PR2.15, F_PR2.21 |

Table 3: Pilot 2 functionalities implemented

3.3.2 Scenario of use

Vicky, the issue editor, wishes to assign reviewers for the datasets submitted to her latest issue call. She selects the Editor Activities tab from the menu (Figure 10), which loads the Editor Activities – Available Issues page (Figure 23). She then clicks on the file cabinet icon in order to view the datasets submitted to the “Standing Call” issue, and is presented with the Datasets Submitted to Issue page (Figure 34). In order to assign reviewers for the “My first dataset” dataset, previously uploaded by the author Margaret (Section 3.2.2), she clicks on the green-paragraph-symbol icon and is redirected to the Create Review Call page (Figure 36).

Create Review Call

Call/Issue: Standing Call
 Review Deadline: 31/12/2014
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname
 Keywords/Tags: Triiodothyronine
 Myocardial Ischemia

Figure 36: Create Review Call

In the Create review call page, Vicky can see a summary of the details of the issue call as well as the dataset or article to be reviewed, its author and metadata. She clicks on the “Create Invitation” button and the review call is created. She then is redirected automatically to the Datasets Submitted to Issue page where she can see that the status of “My first dataset” has changed from “Submitted” to “Under review” (Figure 37). She repeats the previous steps in order to also create a review call for “My new dataset”.

Datasets Submitted to Issue: Standing Call

Standing Call

| Dataset Name | Article | Dataset | Dataset URL | Status | Issue | DCI | Last Update | Operations |
|------------------|--------------------------|--------------------------|-------------|--------------|---------------|-----|-------------|------------|
| My first dataset | download | download | | Under review | Standing Call | | 2014-12-03 | |
| My new dataset | download | download | | Submitted | Standing Call | | 2014-12-03 | |

Figure 37: Dataset Submitted to Issue – Dataset status change

Vicky navigates back to the Editor Activities – Available Issues page (Figure 23) and clicks on the “View Reviewer Invitations” button, in the top of the page. She is redirected to the Review Invitations page (Figure 38), where she is presented with a list of review calls. By clicking on the icons next to each review call, she is able to perform certain actions: 1) The clipboard icon allows her to view the details of a review call (Figure 39), 2) the pencil-on-paper icon to edit a call and invite reviewers, and 3) the red X icon to delete a review call.

Review Invitations

| Venue | Deadline | Title | Operations |
|--------------------------|------------|------------------|------------|
| Standing Call 2014-12-31 | 2014-12-31 | My first dataset | |
| Standing Call 2014-12-31 | 2014-12-31 | My new dataset | |

Figure 38: Review Invitations

View Reviewer Invitation

Call/Issue: Standing Call
 Review Deadline: Wed Dec 31 02:01:09 CET 2014
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname
 Keywords/Tags Triiodothyronine
 Myocardial Ischemia

[Go Back](#)

Figure 39: View Reviewer Invitation – No reviewers invited

Vicky wishes to invite reviewers for the “My first dataset” dataset, hence she clicks the pencil-on-paper icon and is redirected to the Editor Activities – Invite Reviewers page (Figure 40). On this page she is presented with a summary of the review call. She clicks the “Select Reviewers” button and the Editor Activities – Find Potential Reviewers page (Figure 41) appears. This page contains a list of suggested reviewers who are proposed by the Platform depending on their relevance with the main topic(s) of the dataset/article to be reviewed. Vicky can add more keywords in order to refine the list of suggested reviewers by typing a new keyword in the respective field and clicking on the “Add Keyword” button. The Platform auto completes the text input by her with terms stemming from the ontology (Mesh). When having specified all the keywords as desired, she presses the “Find Authors” button and the reviewers list is updated accordingly. The list displays the Reviewer Names and Affiliation, as well as their Homepage and OpenScienceLink profile, in case they are registered in the Platform. It further notifies Vicky whether valid email addresses of the reviewers were found or not, which shall be used for notifying them in case they are selected and invited. Vicky selects two candidate reviewers from the list by using the checkbox provided next to their name, and clicking the “Invite Reviewers” button on the bottom of the list. The Platform then guides her through a process for sending out personalised invitation emails to each of the selected reviewers (Figure 42). She edits the default invitation message for the first reviewer and clicks the “Invite this Reviewer” button. The Platform submits the first invitation and prompts her to invite the second reviewer.

Editor Activities - Invite Reviewers

Call/Issue: Standing Call
 Review Deadline:
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname
 Keywords/Tags Triiodothyronine
 Myocardial Ischemia

[Select Reviewers](#) [Write Final Review](#)

Figure 40: Editor Activities – Invite Reviewers

After inviting both reviewers Vicky is redirected back to the Editor Activities – Invite Reviewers page, where she is now presented with the list of selected reviewers (Figure 43). In this page she can now manage the review invitations and the submitted reviews, by clicking the provided icons as follows: 1) the clipboard icon allows her to view the dataset or article evaluation (review), once it has been submitted by the reviewer, 2) the envelope icon allows her to resend a reminder of the invitation to the candidate reviewer (Figure 44), and the red X icon to delete the review invitation.

Editor Activities - Invite Reviewers

Venue
 Review Deadline Wed Dec 31 02:01:09 CET 2014
 Title **My first dataset**
 Abstract Heart disease experiment thyroid hormone on mice
 Authors Myfirstname Mysurname
 Keywords Triiodothyronine
 Myocardial Ischemia

Find Potential Reviewers

Triiodothyronine
 Myocardial Ischemia

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| | Reviewer Name | Email | Affiliation | Homepage | OSL Profile | Keywords |
|-------------------------------------|----------------------|-------|------------------------------------------------------------------------------------------------------------------------|----------|-------------|----------|
| <input type="checkbox"/> | Patané S | no | Cardiologia Nuovo Presidio Ospedaliero Cutroni Zodda-Barcellona P.d.G(Me) AUSL5 Messina, Italy. | | | |
| <input type="checkbox"/> | Cokkinos D | yes | Department of Cardiology, St. Luke's Episcopal Hospital, Houston, Texas 77225, USA. | | | |
| <input checked="" type="checkbox"/> | Pantos C | yes | Onassis Cardiac Surgery Center, Athens, Greece. | | | |
| <input type="checkbox"/> | Ceremuzyński L | yes | Department of Cardiology, Postgraduate Medical School, Grochowski Hospital, Warsaw, Poland. | | | |
| <input type="checkbox"/> | Wechsler A | no | | | | |
| <input type="checkbox"/> | Ding M | no | Department of Surgery, Medical College of Virginia, Virginia Commonwealth University, Richmond 23298. | | | |
| <input checked="" type="checkbox"/> | Iervasi G | yes | CNR Institute of Clinical Physiology, Pisa, Italy. | | | |
| <input type="checkbox"/> | Mourouzis I | no | Department of Pharmacology, University of Athens, Greece. | | | |
| <input type="checkbox"/> | Titlbach O | no | Clinic of Radiology, Karl-Marx-University, Leipzig, G.D.R. | | | |
| <input type="checkbox"/> | Abdel-Fattah A | no | Department of Surgery, Duke University Medical Center, Durham, NC 27710. | | | |
| <input type="checkbox"/> | Dyke C | yes | Department of Surgery, Medical College of Virginia, Virginia Commonwealth University, Richmond 23298. | | | |
| <input type="checkbox"/> | Fukumura Y | no | Department of Laboratory Medicine, Gunma University School of Medicine, Maebashi, Japan. | | | |
| <input type="checkbox"/> | Kanda T | no | Department of Otorhinolaryngology, School of Medicine, Chiba University, Japan. | | | |
| <input type="checkbox"/> | Kotajima N | no | Department of Laboratory Medicine, Gunma University School of Medicine, Maebashi, Japan. | | | |
| <input type="checkbox"/> | Kobayashi I | no | Department of Medicine, School of Medicine, Gunma University, Maebashi, Japan. | | | |
| <input type="checkbox"/> | Herbaczyńska-Cedro K | no | Medical Research Centre, Polish Academy of Sciences, Warsaw. | | | |
| <input type="checkbox"/> | Feyer P | yes | Clinic of Radiology, Karl-Marx-University, Leipzig, G.D.R. | | | |
| <input type="checkbox"/> | Marek H | no | Abteilung Endokrinologie/Stoffwechselerkrankungen, Bereiches Medizin der Karl-Marx-Universität Leipzig. | | | |
| <input type="checkbox"/> | Salter D | no | Department of Surgery, Duke University Medical Center, Durham, NC 27710. | | | |
| <input type="checkbox"/> | Ojamaa K | yes | Department of Medicine, North Shore University Hospital/Cornell University Medical College, Manhasset, New York 11030. | | | |

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Figure 41: Editor Activities – Find Potential Reviewers

D5.1.1 Integrated OpenScienceLink Platform

Editor Activities - Invite Reviewers

Venue
 Review Deadline Wed Dec 31 02:01:09 CET 2014
 Title My first dataset
 Abstract Heart disease experiment thyroid hormone on mice
 Authors Myfirstname Mysurname
 Keywords Triiodothyronine Myocardial Ischemia
 Article Print [Download](#)

Invite Reviewers

Already invited:

No reviewer invited.

Invite Next Reviewer

Reviewer's Name:

Reviewer's E-mail Address:

Invitation Message:

Dear Sir or Madam,

I would like to cordially invite you to review the following article:

My first dataset

To accept or decline this invitation, please use the OpenScienceLink system, and log in with the e-mail address I used to contact you. If you do not have an account, you can create one at: <https://www.gpubmed.org/web/oslplatform/> and go to 'Reviewer Activities'.

Should you have further questions, please do not hesitate to contact me.

Thank you very much in advance.

Regards,

Figure 42: Editor Activities – Invite Next Reviewer

Editor Activities - Invite Reviewers

Call/Issue: Standing Call
 Review Deadline:
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname
 Keywords/Tags Triiodothyronine Myocardial Ischemia

| Reviewer | Venue Title | Due Date | Article Title | Status | Recomm. | Link | Operations |
|----------------------------------------------|---------------|------------|------------------|---------|---------|------|------------|
| Pantos C.
<reviewer@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Invited | | | |
| Iervasi G.
<reviewer1@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Invited | | | |

Figure 43: Editor Activities – Invite Reviewers populated

Editor Activities - Invite Reviewers

Call/Issue: Standing Call
 Review Deadline:
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname
 Keywords/Tags Triiodothyronine
 Myocardial Ischemia

The following reminder will be sent:

From: me@myemail.com
 To: reviewer@opensciencelink.eu
 Subject:

Dear Reviewer,

This is a friendly reminder to decide whether you agree to review the following submission:

My first dataset

Thank you in advance for your collaboration.


Regards,
 Myfirstname Mylastname

Figure 44: Editor Activities – Invite Reviewers – Reminder

Costas, who is a researcher cardiologist, checks his mailbox and sees an email message from the OpenSciencelink Platform inviting him to review “My first dataset” (Figure 45). He clicks on the link provided in the email and is directed to the Platform Login page (Figure 1), where he creates a new profile using his email address and becomes a registered user (Section 3.2.2). Subsequently he logs in the Platform and, as per the email instructions he received, clicks the Reviewers Activities tab in the main menu (Figure 10) and the Reviewers Activities - My Review Invitations page loads (Figure 46). On the page he is presented with a list of all his review invitations (currently only the invitation for “My first dataset” exists), including information regarding the title of the call and the article, the review deadline, the review status and reviewer’s recommendation. For each invitation he can perform three operations by clicking on the respective icons: 1) The clipboard-with-green-plus-sign icon allows him to accept the review invitation, 2) the clipboard icon to view the review information, and 3) the clipboard-with-red-X icon to reject the invitation.

Costas would like to review the “My first dataset” dataset and accompanying article, hence clicks on the first icon to accept the invitation. He is immediately redirected to a confirmation page (Figure 47), where he verifies his choice by clicking the “Agree” button. He is then redirected back to the Reviewer Activities – My Review Invitations page (Figure 48), where he is now presented with a new available operation: 4) The pencil-on-paper icon, which allows him to edit the review. At the same time he notices that the status of the invitation has been changed to “Agreed”.

Invitation to write a review

 **info@opensciencelink.eu**
to me ▾

Dear Sir or Madam,

I would like to cordially invite you to review the following article:

My first dataset

To accept or decline this invitation, please use the OpenScienceLink system, and log in with the e-mail address I used to contact you. If you do not have an account, you can create one at: <https://www.gopubmed.org/web/oslplatform/> and go to 'Reviewer Activities'.

Should you have further questions, please do not hesitate to contact me.

Thank you very much in advance.

Regards,
Myfirstname Mylastname

Figure 45: Invitation to write a review email

Reviewer Activities - My Review Invitations

| Reviewer | Venue Title | Due Date | Article Title | Status | Recomm. | Link | Operations |
|--------------------------------------------|---------------|------------|------------------|---------|---------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pantos C.
<reviewer@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Invited | | |    |

Figure 46: Reviewer Activities – My Review Invitations

Reviewer Activities - My Review Invitations

Please, confirm that you agree to review this submission.

Figure 47: Review invitation acceptance confirmation

Reviewer Activities - My Review Invitations

| Reviewer | Venue Title | Due Date | Article Title | Status | Recomm. | Link | Operations |
|--------------------------------------------|---------------|------------|------------------|--------|---------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pantos C.
<reviewer@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Agreed | | |   |

Figure 48: Reviewer Activities – My Review Invitations – Invitation accepted

View Review Information

User: **Myfirstname Mysurname**
Name: My first dataset
Description: Heart disease experiment thyroid hormone on mice
Article path: [download](#)
Dataset path: [download](#)
URL:
Comments To Author:
Comments To Editor:
Recommendation: Undefined

[Go Back](#)

Figure 49: View Review Information

Costas clicks the appropriate icon to view the review details and is redirected to the View Review Information page (Figure 49), where he downloads the dataset and article for review.

After carefully studying the documents, he is ready to write a review. He clicks the relevant icon and navigates to the Submit Review page (Figure 50). This page consists of a form, which allows the reviewers to rate the dataset and/or articles under review in a consistent manner. Costas is first asked to specify his overall recommendation for “My first dataset”, by choosing among four available answers (“Accept”, “Accept with minor revision”, “Accept with major revision”, “Reject”). Since he thinks that the work is really good, but only requires some improvements in terms of language used, he decides to accept it with minor revision. He then answers the rest of questions displayed in the page, in order to provide his more detailed evaluation regarding the various parameters of the scientific work. In the case of a dataset, these questions refer to the methodology, authors’ previous publications, missing data, number of subjects, number of variables, insights on dataset usage, language, references, ethical issues, etc. After having provided their evaluation regarding these parameters, the reviewers can optionally provide in free text their opinion about the strengths of the work and their main concerns, and finally leave some feedback to the editor. Costas also fills in these areas with short texts and then clicks “Save Changes”. He is redirected to the Submit Review – Confirm page (Figure 51), where he is presented with a summary of his review. He clicks “Confirm Review” and the Review Submitted page (Figure 52) appears. He clicks “Go to List” and is redirected back to the Reviewer Activities – My Review Invitations page (Figure 53), where he notices that the status of the invitation has changed to “Finished”, and the Recommendation has been updated to “Accept with minor revision”. By clicking the clipboard icon he is presented with the summary of the review (Figure 54).

Submit Review

User: **Myfirstname Mysurname**
Name: My first dataset
Description: Heart disease experiment thyroid hormone on mice
Article path: [download](#)
Dataset path: [download](#)
URL:

Recommendation

Accept with n

Is the description of the methodology used detailed enough?

Yes

Have the authors previous publications based on the same methodologies described in the submitted work?

Several

Are there missing data in the submitted dataset?

No missing da

The number of subjects in the submitted dataset is

enough in rela

The number of variables measured per subject in the submitted dataset is considered

enough to des

Do the authors provide insights on how these datasets could be potentially used for computational modeling?

Yes

Language

Correction red

List of references

Appropriate n

Are there ethical issues concerning the submitted work?

Yes

Strengths (Optional)

Very important data regarding myocardial infarction, which could be exploited in a broad range of applications.

Concerns (Optional)

I have no concerns regarding this dataset.

Comments To Editor (Optional)

I think that this is very important work and should be published as a lead article in the next issue of the data journal.

Cancel Changes

Save Changes

Figure 50: Submit Review

Submit Review

User: **Myfirstname Mysurname**
 Name: My first dataset
 Description: Heart disease experiment thyroid hormone on mice
 Article path: [download](#)
 Dataset path: [download](#)
 URL:

The description of the methodology used is detailed enough.
 The authors have several previous publications based on the same methodologies described in the submitted work.
 There are no missing data.
 The number of subjects in the submitted dataset is enough in relation to the described population.
 The number of variables measured per subject in the submitted dataset is considered enough to describe this population.

Comments To Author: The authors provide insights on how these datasets could be potentially used for computational modeling.
 The language requires some corrections.
 The list of references has a correct format and an appropriate number of references.
 There are ethical issues concerning the submitted work.
 Strengths:
 Very important data regarding myocardial infarction, which could be exploited in a broad range of applications.
 Concerns:
 I have no concerns regarding this dataset.

Comments To Editor: I think that this is very important work and should be published as a lead article in the next issue of the data journal.
 Recommendation: Accept with minor revision

Please, confirm your review.

Figure 51: Submit Review – Confirm

Submit Review

Review Submitted

The form has been submitted successfully.

Figure 52: Review Submitted

Reviewer Activities - My Review Invitations

| Reviewer | Venue Title | Due Date | Article Title | Status | Recomm. | Link | Operations |
|--------------------------------------------|---------------|------------|------------------|----------|----------------------------|------|---------------------------------------------------------------------------------------|
| Pantos C.
<reviewer@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Finished | Accept with minor revision | |  |

Figure 53: Reviewer Activities – My Review Invitations – Review finished

View Review Information

User: **Myfirstname Mysurname**
 Name: My first dataset
 Description: Heart disease experiment thyroid hormone on mice
 Article path: [download](#)
 Dataset path: [download](#)
 URL:

The description of the methodology used is detailed enough.
 The authors have several previous publications based on the same methodologies described in the submitted work.
 There are no missing data.
 The number of subjects in the submitted dataset is enough in relation to the described population.
 The number of variables measured per subject in the submitted dataset is considered enough to describe this population.

Comments To Author: The authors provide insights on how these datasets could be potentially used for computational modeling.
 The language requires some corrections.
 The list of references has a correct format and an appropriate number of references.
 There are ethical issues concerning the submitted work.

Strengths:
 Very important data regarding myocardial infarction, which could be exploited in a broad range of applications.

Concerns:
 I have no concerns regarding this dataset.

Comments To Editor: I think that this is very important work and should be published as a lead article in the next issue of the data journal.
 Recommendation: Accept with minor revision



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Figure 54: View Review Information populated

Vicky, the issue editor, logs in the Platform in order to see the progress of the review process, as well as an overview of the recommendations by each reviewer. In the main menu (Figure 10) she clicks the Editor Activities tab, then on the Editor Activities – Available Issues page (Figure 23) she clicks “View Reviewer Invitations”. In the Review Invitations page (Figure 38) she clicks on the clipboard icon for “My first dataset” and is redirected to the View Reviewer Invitation page for the dataset, which is now populated with the details of all review invitations for the dataset (Figure 55). Vicky can see that Costas has reviewed My first dataset and accepted it with minor revision. She clicks the clipboard icon and is further presented with the detailed review of the reviewer, which looks exactly similar to Figure 54.

View Reviewer Invitation

Call/Issue: Standing Call
 Review Deadline: Wed Dec 31 02:01:09 CET 2014
 Title: My first dataset
 Abstract: Heart disease experiment thyroid hormone on mice
 Authors: Myfirstname Mysurname

Keywords/Tags  Triiodothyronine
 Myocardial Ischemia

| Reviewer | Venue Title | Due Date | Article Title | Status | Recomm. | Link | Operations |
|----------------------------------------------|---------------|------------|------------------|----------|----------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pantos C.
<reviewer@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Finished | Accept with minor revision | |  |
| Iervasi G.
<reviewer1@opensciencelink.eu> | Standing Call | 2014-12-31 | My first dataset | Invited | | |    |

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Figure 55: View Reviewer Invitation – Dataset reviewed

3.4 Pilot 3: Data mining for Biomedical and Clinical Research Trends Detection and Analysis

3.4.1 Functionalities

Table 4 below presents the Pilot 3 functionalities, among the ones identified in deliverable D3.1 Version 2.0, that were implemented at the second iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1 Version 2.0.

| F-ID | Functionality | Relevant Pilot requirements IDs |
|------|---------------------------------|-----------------------------------------------------------------------------------------------|
| F3.1 | Trend detection | F_PR3.1, F_PR3.4, F_PR3.6, F_PR3.7, F_PR3.8 |
| F3.2 | Trend analysis and presentation | F_PR3.2, F_PR3.4, F_PR3.6, F_PR3.7, F_PR3.9, F_PR3.10, F_PR3.11, F_PR3.12, F_PR3.13, F_PR3.14 |

Table 4: Pilot 3 functionalities implemented

3.4.2 Scenario of use

Vicky wishes to assess trend information regarding a specific research topic that she is interested in. She selects the Trends tab from the menu (Figure 10), which loads the Trends page. In the provided search field, Vicky specifies the term that she is interested in, namely “Endosome”. She starts typing a word and the Platform proposes auto-completion options for her text, based on relevant terms stemming from the ontology (Mesh). She can also specify any combination of keywords (Mesh or not) to search the trends for.

She then clicks on the “Show trend graph” button and the Platform starts processing the provided keyword(s) (Figure 56).

Show Trend Graph



Figure 56: Trend search

The Platform analyses the underlying data sources and a few seconds thereafter the trend search results are retrieved and displayed on the same page, in a user-friendly graphical manner (Figure 57).

The graph presents the number of published articles dealing with the specific scientific topics per year, arranged in chronological order, which also includes an estimated number for the current year. It also shows the relative research interest per year. These values are used in order to create a sweep, which is then smoothed. From the form of the sweep, Vicky can make some presumptions regarding the trendiness of the specific research topic.

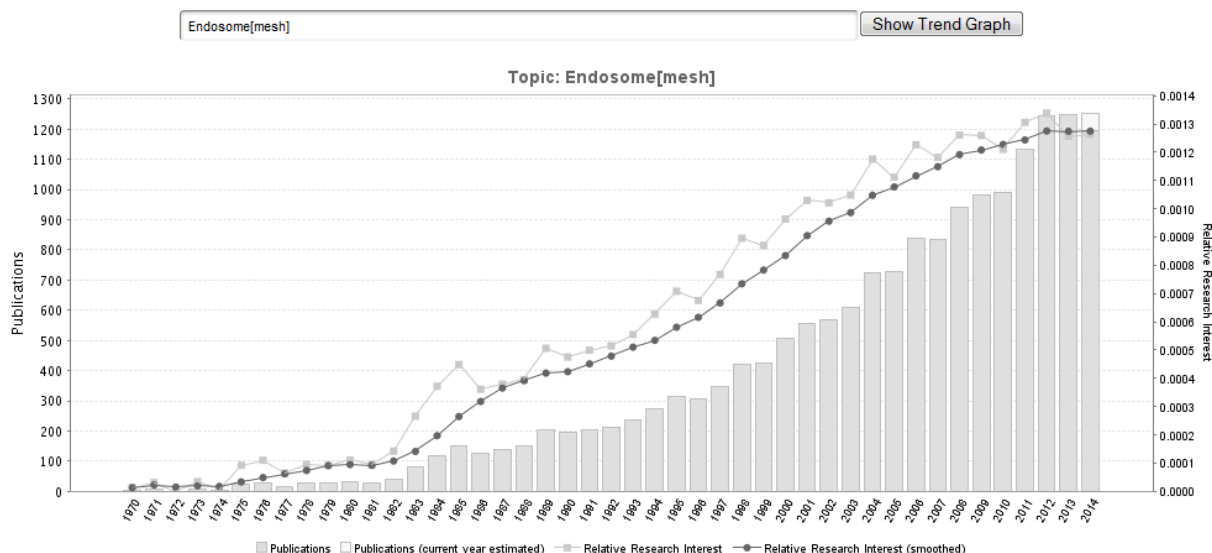


Figure 57: Trend search results

3.5 Pilot 4: Data mining for proactive formulation of scientific collaborations

3.5.1 Functionalities

Table 5 below presents the Pilot 4 functionalities, among the ones identified in deliverable D3.1 Version 2.0, that were implemented at the second iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1 Version 2.0.

| F-ID | Functionality | Relevant Pilot requirements IDs |
|------|-----------------------------------------------------------|---------------------------------|
| F4.2 | Researchers connections identification through literature | F_PR4.1, F_PR4.3 |

Table 5: Pilot 4 functionalities implemented

3.5.2 Scenario of use

Margaret selects the Collaborations tab from the menu (Figure 10), which loads the Collaborations page (Figure 58). In the provided search field, Margaret specifies again a research term that she is interested in, namely “Endosome”. She starts typing a word and the Platform proposes auto-completion options for her text, based on relevant terms stemming from the ontology (Mesh). She can also specify any combination of keywords (Mesh or not) to search collaborations for.

She then clicks the “Show Collaborations” button and the Platform starts processing the available publications. After a few seconds, Margaret is presented with the resulting collaborations graph for the scientific field described by the keywords specified. Each ellipse (or node) of the graph represents an author, while the lines (or edges) that connect different nodes represent collaborations. The level of collaboration (i.e. how many times two authors have collaborated with one another) is represented by the type and thickness of the connecting line, as explained in the provided legend, which is to be seen directly below the collaborations graph.

Based on the information provided by the Platform, Margaret can find new potential collaborators in her specific scientific field of interest, who have already collaborated with other authors she is acquainted with. Thus it would be easier for her to seek collaboration with them through their common connection.

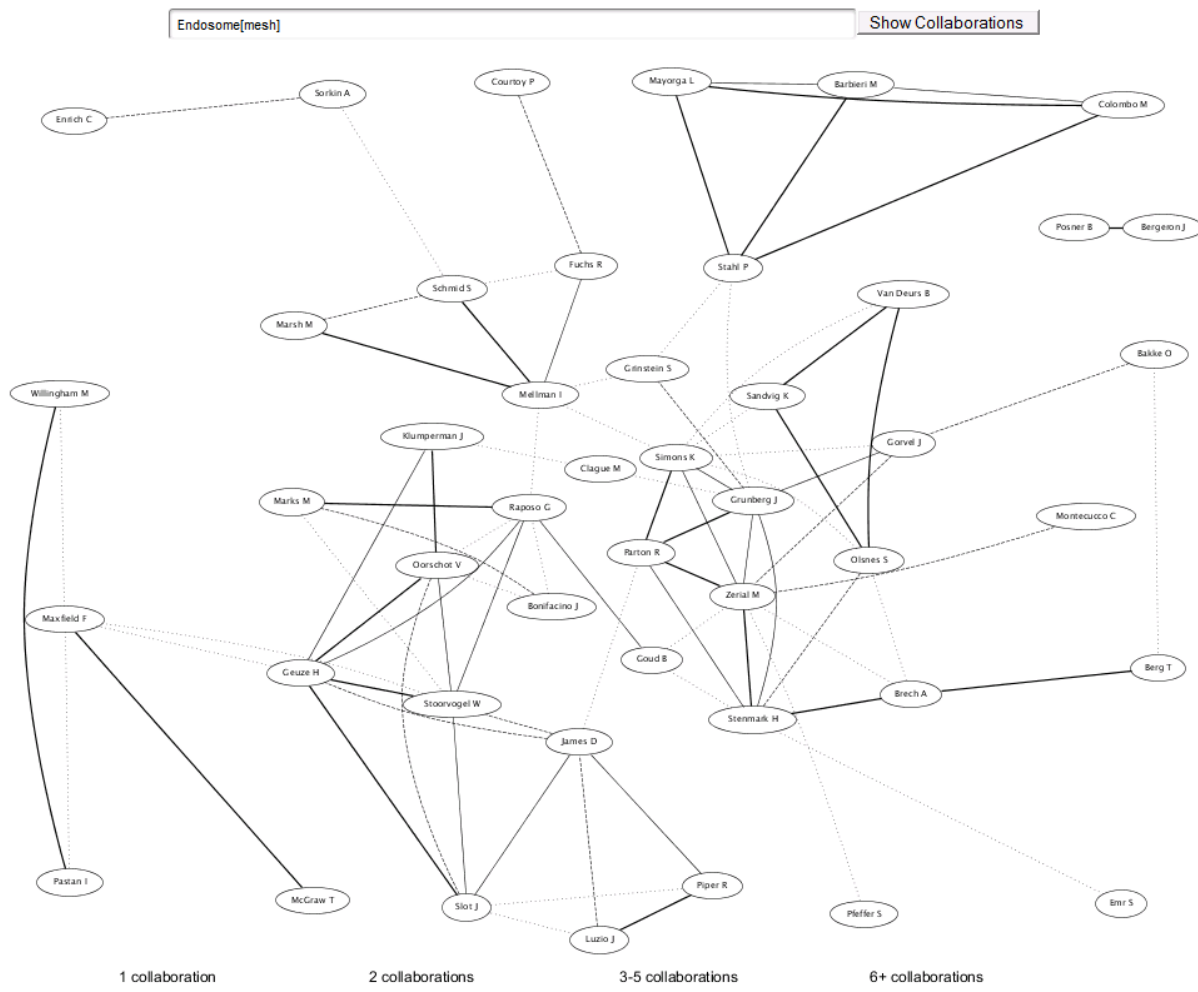


Figure 58: Collaborations search

3.6 Pilot 5: Scientific Field-aware, Productivity and Impact-oriented Enhanced Research Evaluation Services

3.6.1 Functionalities

Table 6 below presents the Pilot 4 functionalities, among the ones identified in deliverable D3.1 Version 2.0, that were implemented at the second iteration of the OpenScienceLink Platform, along with the relevant Pilot requirements as elicited in deliverable D2.1 Version 2.0.

| F-ID | Functionality | Relevant Pilot requirements IDs |
|-------|-------------------------------|--------------------------------------------------------------------------------------|
| F5.7 | Researcher evaluation | F_PR5.1u, F_PR5.5, F_PR5.6, F_PR5.7, F_PR5.8, F_PR5.9, F_PR5.11, F_PR5.13, F_PR5.20 |
| F5.10 | Journal evaluation | F_PR5.1u, F_PR5.5, F_PR5.6, F_PR5.7, F_PR5.8, F_PR5.10, F_PR5.11, F_PR5.13, F_PR5.20 |
| F5.13 | Country evaluation per domain | F_PR5.4, F_PR5.5, F_PR5.6, F_PR5.13 |

Table 6: Pilot 5 functionalities implemented

3.6.2 Scenario of use

Margaret selects the Evaluation tab from the menu (Figure 10), which loads the Evaluation page (Figure 59). In the provided search field, Margaret specifies again a research term that she is interested in, namely “Endosome”.

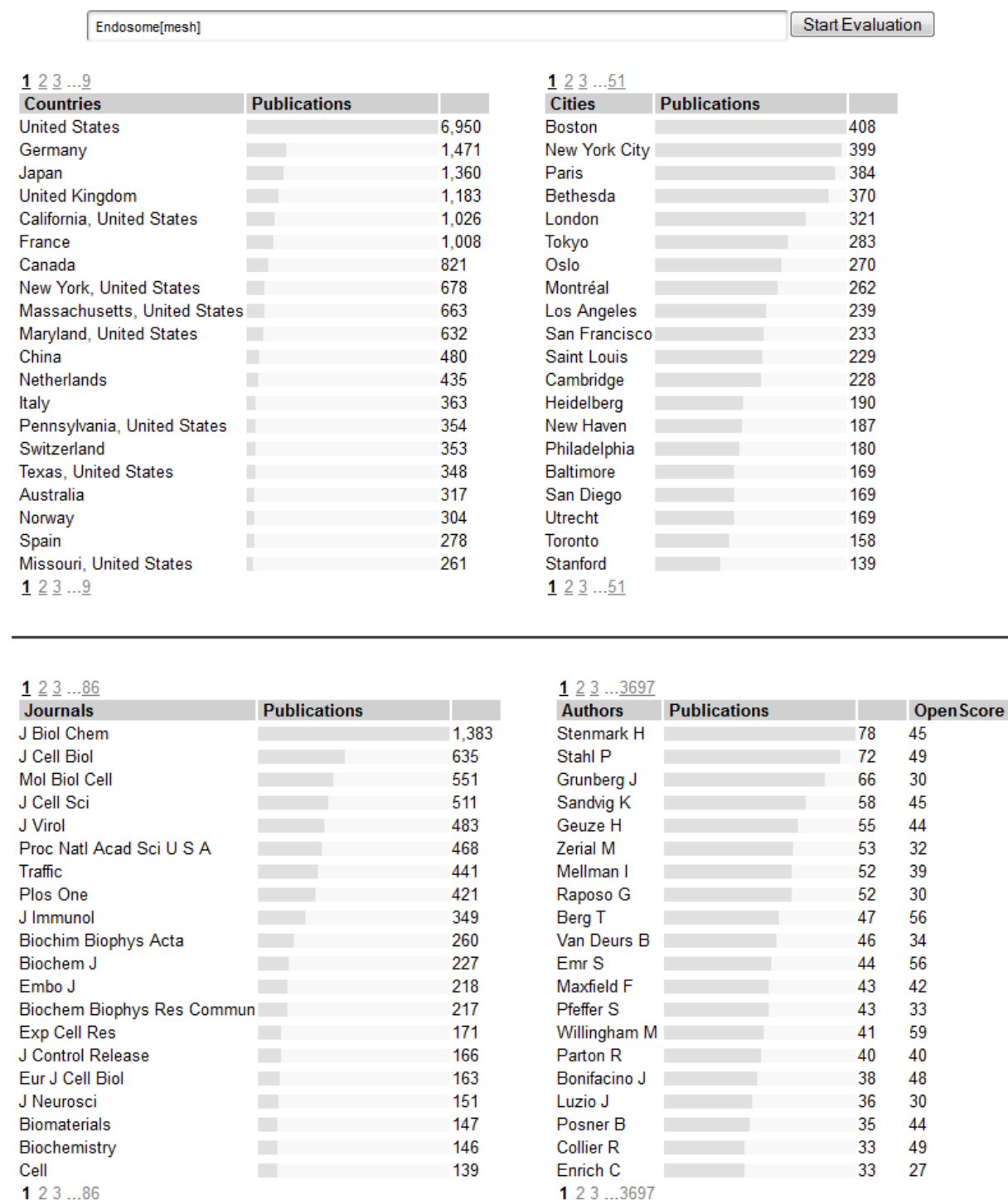


Figure 59: Evaluation search

She starts typing a word and the Platform proposes auto-completion options for her text, based on relevant terms stemming from the ontology (Mesh). She can specify any combination of keywords (Mesh or not).

She then clicks the “Start Evaluation” button and the Platform starts processing the available publications. After a few seconds, Margaret is presented with the top Countries, Cities, Journals and Authors for the given scientific term(s). The results are presented in a graphical manner as bar charts, and are displayed in descending order. Next to each bar the corresponding numerical value is presented. Margaret can immediately assess the information regarding the most active countries and cities for the specific scientific topic(s), as well as the most relevant journals, and most active authors.

Next to the entry for each author she can further see a number representing the OpenScore for that author. This is an evaluation rating for the author as calculated by the Platform, based on a score produced by a supervised machine learning model that uses a set of 12 publicly available features. The model was trained on a development set of selected authors (10,000 authors). The selection was made using stratified sampling to include authors which cover a large spectrum of h-indexes. The h-indexes were computed for these authors for the purposes of training the model, from the ISI Web of Science citation services. Therefore, the model is trained to predict the impact of the research works of the authors, trained on h-indexes. The features that were used per author are: (1) number of papers, (2) number of distinct journals the author published at, (3) number of distinct MeSH terms annotating the author's work, (4) number of cumulative MeSH terms annotating the author's work, (5) number of MeSH trees covering the areas of the author's published work, (6) number of years since first paper was published, (7) number of years since last paper was published, (8) number of years the author had at least one paper published (active years), (9) distinct number of co-authors, (10) cumulative number of co-authors, (11) number of author's affiliations since the beginning of his/her career, and, (12) the author's PageRank score, computed on the co-authorship graph that is created from all PubMed indexed articles.

The origin of the analysed publications is additionally visualised as red dots on a picture of the World map (Figure 60).

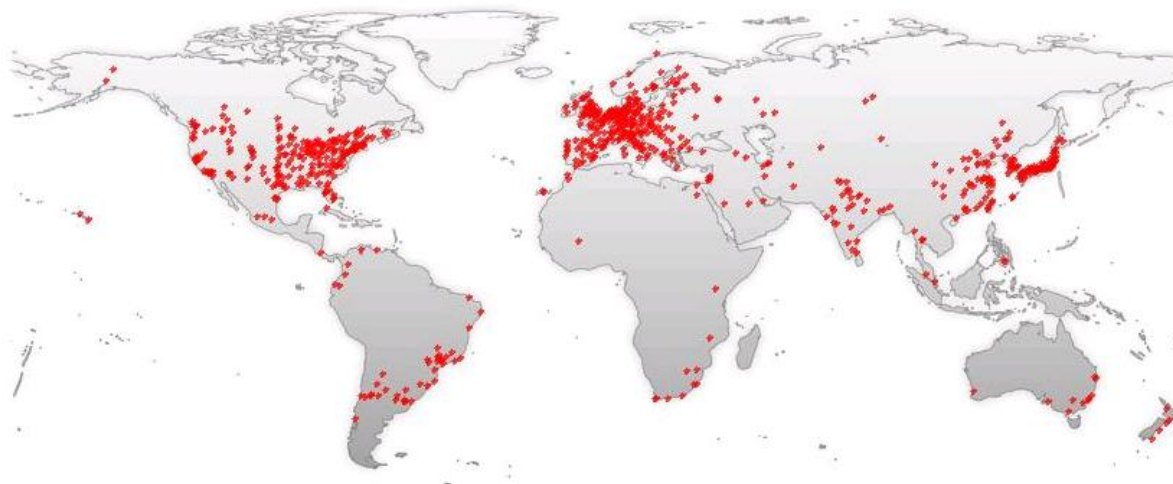


Figure 60: Evaluation map

4 Summary and Conclusions

In this Deliverable the main functionalities of the second iteration of the OpenScienceLink Platform were presented in detail in a per pilot basis. Within the framework of WP5, apart from the presented functionality, a lot of background preparatory work was carried out in terms of the underlying platforms and services, some of which has not been incorporated in the OpenScienceLink Platform yet. The next steps are to integrate this work into the next iteration of the OpenScienceLink Platform, as well as continue working on the Platform and associated services in order to enable the functionality identified in the second iteration of deliverable D3.1 and cover the pilot requirements elicited in the second iteration of deliverable D2.1. Moreover, the evaluation feedback from the end users, which shall be reflected in the third revision of D2.1 and D3.1, will be utilised accordingly in order to provide improvements of the implemented functionality in the next iteration of the Platform.

5 References

5.1 OpenScienceLink Documents

D2.1 (Version 2.0) – Report on Stakeholders, Main Use Cases, KPIs and Data Sources Assessment

D3.1 (Version 2.0) – Detailed Specification of OpenScienceLink Pilot Scenarios and Services

D5.1.1 Integrated OpenScienceLink Platform

