

Responsive Open Learning Environments

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Service Syndication Platform - Specification

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Executive Summary

This deliverable is the documentation of the major research work and outcomes of tasks 4.1 and 4.2. It describes the design and the implementation plan for the components of the service syndication platform, which is based on a systematic requirements analysis and functional specification of the different components.

The “service syndication platform” consists of four components, as described already in the deliverables D3.3 and D4.1:

- The ROLE Widget Store,
- the ROLE Widget Repository,
- the ROLE Widget Preferences Server, and
- the ROLE Space,

These four components together enable a highly user-oriented customizability of the learning environment according to personal or collaborative needs. It is the core technology of a responsive environment according to the project’s definition. All the components of the syndication platform use open standards for interoperability.

This document puts the focus on the ROLE Widget Store. The ROLE Space and links to the Preferences Server will be specified in the deliverables 4.3 “PLE implementations for testbeds” and 4.5 “Generic PLE implementation”, as the ROLE space is one option for end users to create their responsive environment based on recommendations and personal preferences.

This document provides a requirements analysis and an implementation plan for the ROLE Widget Store and related components. To reach this goal, a common vocabulary is created extending the work done in deliverable 3.3 and 4.1 and the dependency between the different components is illustrated.

The deliverable provides also use cases for the service syndication platform. These use cases include the definition and selection of services (widgets) and the aggregation into sets (widget bundles). Reposting, rating, searching and recommendation are key features in the use cases. Further a quality management for widgets is introduced. As an analysis of existing widget stores revealed, none of these platforms match the ROLE use cases.

The use cases are the basis for detailing the requirements and discussion of possible technical solutions. This includes different levels. Possible widget specifications are listed and a first specification is selected. Authentication and basic store features are discussed and a first approach for quality assurance is suggested. For recommendation different approaches which will be included in the store are described. A mechanism for shared widgets is discussed in the widget preferences section. The Interoperability is taken into account by defining interfaces of the ROLE Widget Store and introducing a framework for controlled access to widget services. Also first Mock-ups of the widget store are provided and a last section describes possible additional features which still need to be discussed with the developer community.

An agile implementation approach is used to implement the ROLE Widget Store which allows reacting on possible changes of the requirements. This will also allow extending the widget store with new features like the recommendation engine and the preferences server.

According to the project definition, one main expectation of this approach is: “The ROLE framework will create a market for small software components, augmenting software from big vendors. That will provide, in particular, new opportunities for SMEs”. For that reason the ROLE Widget Store is designed for multi vendor support to provide possibilities for developer to sell

their widgets. As part of the evaluation of the whole system prepared in WP 6 and done by WP 5 the acceptance of the payment system by users will be tested.

The implementation process is planned in several iterations, as described above. Therefore, this is the first version of this deliverable. After each iteration the requirements in this document will be updated and the progress of the implementation will be documented.

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1 The Service Syndication Platform

The idea of the **Service Syndication Platform** is to create a platform for end users where they can

- choose personal learning services according to their learning needs and personal profile out of a repository,
- administrate the selected services in order to use them according to their personal preferences, and
- aggregate or syndicate single services with others in order to create a “larger” service bundle (syndication technology, selection of bundles).

1.1 Scope

This document addresses the following topics:

- Specifying the functionality of the ROLE Syndication platform
- Specifying the requirements on interface of the ROLE Syndication platform

1.2 *Requirements on the Service Syndication Platform from the Description of Work*

From the DoW the following requirement where extracted from task 4.3 for the service syndication platform:

- “Users can describe individual services (PLS) as well define and administrate sets of services that should be syndicated together”
- “A user that defines a set of syndicated Services must also specify other properties such as which kind of participation is allowed, for example open invitation or restricted membership”
- “... the platform will provide support for search, compatibility assessment, state educational value (rate) and mashing-up of the services by using an intelligent mediation and recommendation engine ...”
- “... enable the reposting and tracking of adapted, contextualized or repurposed PLS”
- “develop a client side library that simplifies the client side integration of sets of syndicated services”

and from the DoW also stated as general requirement:

- “... The ROLE framework will create a market for small software components, augmenting software from big vendors. That will provide, in particular, new opportunities for SMEs.”

2 Requirements

2.1 Content

The platform will host the content types described in the following chapters.

2.1.1 Tools

- Tools are the core content of the platform
- Different kind of tools will be hosted
- Tools have a common metadata set which is equal for all kinds of tools. These metadata set is specified in **Appendix A**. Specific tools can have additional metadata.
- Users can add the following user generated content to tools (see Figure 1):
 - Screenshots
 - Screencasts
 - User Experience Reports
 - Use Cases
 - Usage Guides
 - Comments
 - Rating
 - Tags

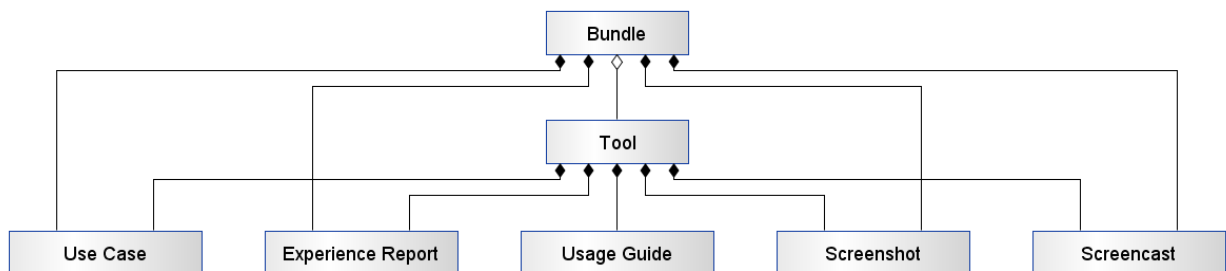


Figure 1: User generated content

- Tools can be owned by one user or be public
- The submission and storage of the tools depend on the type of the tool. Possible submissions are:
 - Upload and storage of the file (hosting within the platform)
 - Reference to a file
 - Reference to page, where the file is available
- Tool will have functionalities (specified in the external file **tool_categories.xls**)
- Tools are organized using categories
- Users can add tools to a private list
- Tools can be promoted to the frontpage by editors
- Tools which are hosted at the platform will be marked as validated

- New Tools need to be approved by a reviewer, a moderator, an editor or an administrator (see Figure 2)

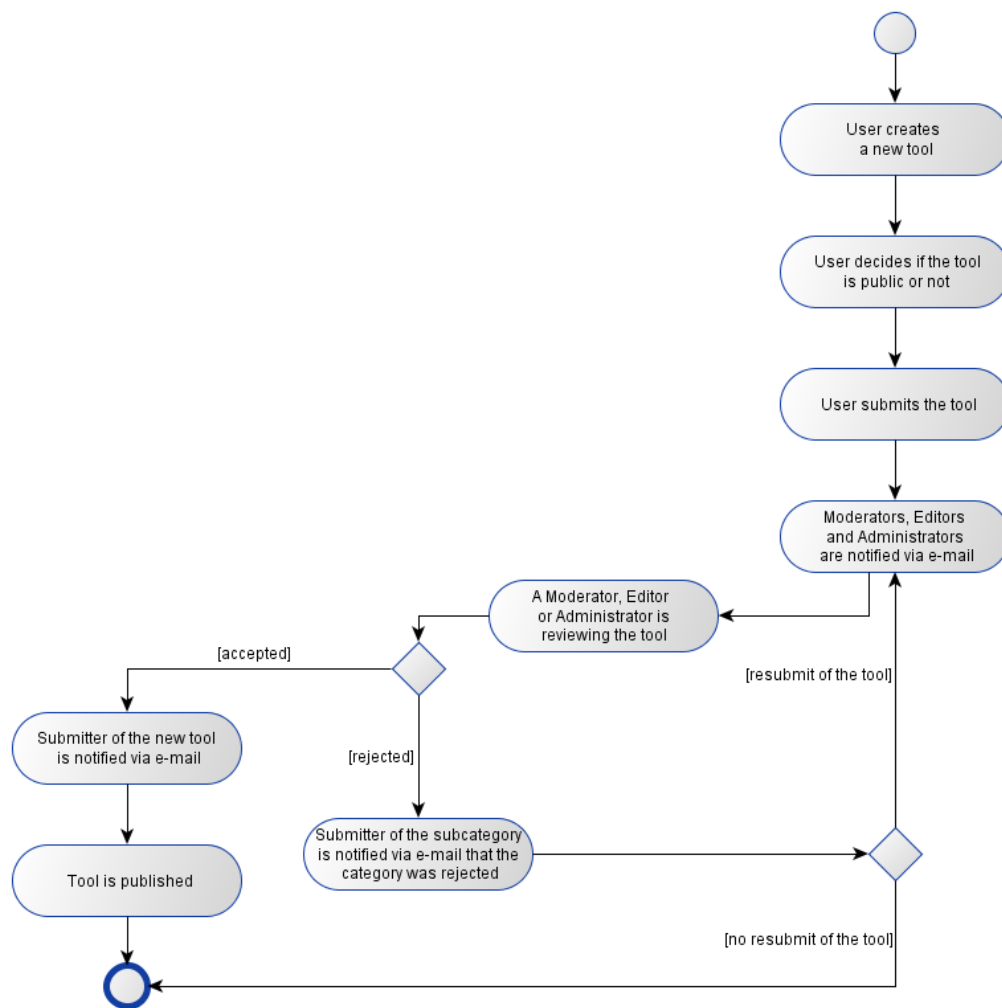


Figure 2: Workflow - Submission of a new tool

- Editorial drafts of tools need to be approved by a user with the necessary permissions (**Appendix R**). See Figure 3 for the workflow. An editorial draft should include a note to the reviewer of the draft.

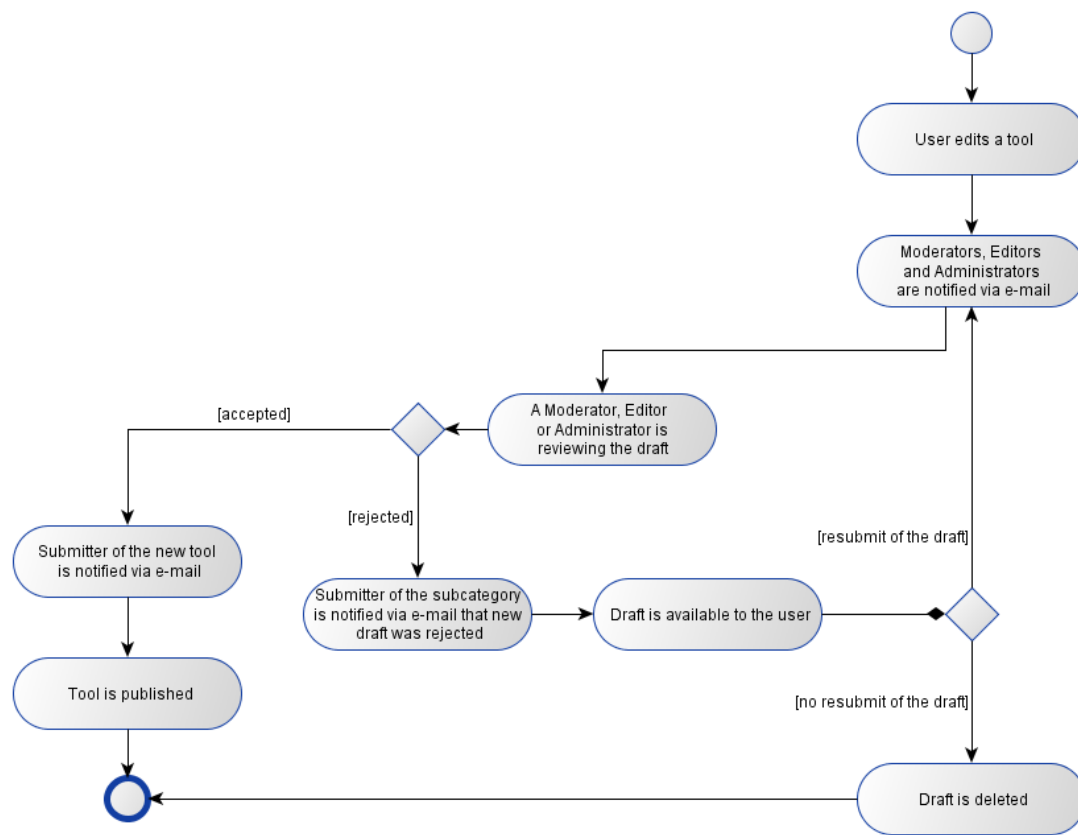


Figure 3: Workflow - Editing tools

- Tools are divided in different types (see Figure 4)

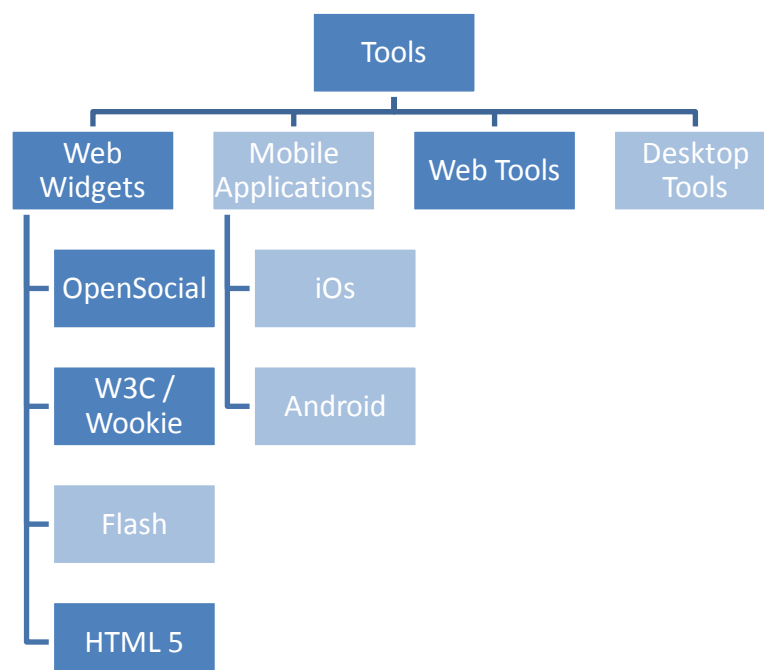


Figure 4: Overview about the different tools in the platform

- Users can add bundles to their defined learning environments (see section 2.1.3)

- Tools can be free or paid content

2.1.1.1 Web Widgets

- Web widgets are small application which can be embedded in web pages.
- Web widgets either depend on a widget specification (e.g. OpenSocial) or based on a web technology without a specific specification for widgets (e.g. HTML5 or Flash)

2.1.1.1.1 OpenSocial Gadgets

- OpenSocial Gadgets are specified by <http://www.opensocial.org/specs>
- OpenSocial Gadgets can be rendered in each OpenSocial compliant platform
- OpenSocial Gadgets are fully described by their manifest (XML file)
- Used technologies are HTML, CSS and JavaScript

2.1.1.1.1.1 Additional Metadata

- The additional data for OpenSocial Gadgets are (specified in **Appendix B**):
 - The location of the XML manifest
 - The OpenSocial version
 - The embed code

2.1.1.1.1.2 Submission

- OpenSocial Gadgets can be submitted in two ways:
 - Uploading the gadget as a zip file (xml file needs be in the root of the file)
 - Referencing to the XML Manifest
- OpenSocial Gadgets which were uploaded will be marked as validated content

2.1.1.1.1.3 Special Requirements

- For rendering an OpenSocial Gadget a rendering server (<http://shindig.apache.org/>) is required
- The embed code will be generated by using the rendering server of the platform
- For providing the embedded code of an OpenSocial Gadget a rendering server (<http://shindig.apache.org/>) is required
- The platform will extract as much as possible metadata from the XML Manifest of the OpenSocial Gadget

2.1.1.1.2 W3C / Wookie Widgets

- W3C Widgets are specified by <http://www.w3.org/TR/widgets/>
- Wookie Widgets are described by <http://incubator.apache.org/wookie/docs/widgets.html>
- W3C / Wookie Widgets can be rendered in each W3C / Wookie compliant platform
- W3C / Wookie Widgets are fully described by their configuration file (XML file)
- Used technologies are HTML, CSS and JavaScript

2.1.1.1.2.1 Additional Metadata

- The additional data for OpenSocial Gadgets are (specified in Appendix C):
 - The location of the ZIP file
 - The embed code

2.1.1.1.2.2 Submission

- W3C / Wookie Widgets are submitted as ZIP file as specified in <http://www.w3.org/TR/widgets/#widget-packages>

- W3C / Wookie Widgets will be marked as validated content

2.1.1.1.2.3 *Special Requirements*

- For rendering an W3C / Wookie Widgets a rendering server (<http://incubator.apache.org/wookie/>) is required
- The embed code will be generated by using the rendering server of the platform
- For providing the embedded code of an W3C / Wookie Widget rendering server (<http://incubator.apache.org/wookie/>) is required
- The platform will extract as much as possible metadata from the configuration file of the W3C / Wookie Widget

2.1.1.1.3 *Flash Widgets*

Not yet defined/supported.

2.1.1.1.4 *HTML 5 Widgets*

- HTML 5 Widgets are special HTML pages which fulfil the definition of web widgets
- They have no specification
- Used technologies are HTML, CSS and JavaScript

2.1.1.1.4.1 *Additional Metadata*

- The additional data for HTML 5 Widgets are (specified in **Appendix C**):
 - Link to the Widget URL
 - The embed code

2.1.1.1.4.2 *Submission*

- HTML 5 Widgets can be submitted in two ways
 - Uploading the widgets as a zip file (index file needs to be in root of the zip file)
 - Referencing to the Widget URL
- HTML 5 Widgets which were uploaded will be marked as validated content

2.1.1.1.5 *Special Requirements*

- The embedded code will be an iFrame which points to the HTML 5 Widget URL
- There exists a converter for the OpenSocial specification (see section 2.12)

2.1.1.2 *Mobile Applications*

2.1.1.2.1 *Android*

Not yet defined/supported.

2.1.1.2.2 *iOS*

Not yet defined/supported.

2.1.1.3 *Web Tools*

- Web tools are tools which run as website into a browser and fulfil not the definition of a web widget

2.1.1.3.1.1 *Additional Metadata*

- The additional data for web tools are (specified in **Appendix E**):
 - Link to the tool

2.1.1.3.1.2 *Submission*

- Web tools will be submitted by providing a reference

2.1.1.3.2 *Special Requirements*

- Web tools have no special requirements

2.1.1.4 **Desktop Tools**

Not yet defined/supported.

2.1.2 **Bundles**

- Bundles are a set of tools and resources
- Bundles can have pedagogical prerequisites
- Bundles can have pedagogical learning objectives
- Learning activities can be defined in bundles
- Bundles will be created by users by using the bundle editor (see section 2.10)
- The metadata set of bundles is specified in **Appendix H**
- Users can add the following user generated content to bundles
 - Screenshots
 - Screencasts
 - User Experience Reports
 - Use Cases
 - Comments
 - Rating
 - Tags
- The platform supports the bundles defined in the next section
- Bundles can be promoted to the frontpage by editors
- Users can add bundles to a private list
- Users can add bundles to their defined learning environments (see section 2.1.3)
- Users can add artefacts to bundles

2.1.2.1 **OpenSocial Compliant Bundles**

- OpenSocial compliant bundles contain as tools *only* web widgets which have an OpenSocial representation (either the web widget are OpenSocial Gadgets or there exists a converter (see section 2.12) for the widget)
- OpenSocial compliant bundles can be added to OpenSocial compliant environments which support OpenSocial Spaces
- OpenSocial compliant bundles can contain artefacts

2.1.2.2 **Mixed Bundles**

Not yet defined.

2.1.3 Learning Environments

Learning environments are system which supports tools and bundles. As content in the store these environments will be described and support of the different content types will be outlined.

- Users can add the following user generated content to learning environments
 - Screenshots
 - Screencasts
 - User Experience Reports
 - Use Cases
 - Comments
 - Rating
 - Tags
- Learning environments will be always public
- Information will be provided which tools are supported by the environment
- Information will be provided if bundles are supported by the environment
- Information will be provided how tools and bundles can be added to the environment
 - Via push (call a URL at the environment)
 - Via pull (environment uses the web service of the store)
- Environments can be promoted to the front page by editors
- The metadata set of learning environments is specified in **Appendix I**
- User can add learning environments to their own lists
 - Here they can define which learning environment will be shown at widget and bundle pages to add the widget or bundle to it

2.1.4 Further Content

2.1.4.1 Static Content Pages

- The platform will contain several pages that contain static HTML and text

2.1.4.2 FAQ

- The FAQ provides users with all necessary information to use the platform
- The FAQ is structured by categories:
 - Tools
 - Bundles
 - Learning Environments
 - Miscellaneous

2.1.4.3 User Experience Reports

- User experience reports allow users to contribute their experience to the platform
- User experience reports can be created for tools and bundles
- A template should be provided for assuring a consistent layout

- The dataset of user experience reports is specified in **Appendix J**

2.1.4.4 Use Cases

- Use Cases allow users to describe how a fictive user would use the tool or bundle
- Use Cases can be created for tools and bundles
- A template should be provided for assuring a consistent layout
- The dataset of use cases is specified in **Appendix J**

2.1.4.5 Usage Guides

- Usage guides contains a manual how to use the respective tool or bundle
- It is also possible to link to another page where a usage guide is provided
- A template should be provided for assuring a consistent layout
- The dataset of usage guides is specified in **Appendix J**

2.1.4.6 News

News are short articles which appear on the front page. They will have less the character of real news but more of blog entries.

- See **Appendix R** for the users who have the permission to write and publish news

2.1.4.7 Artefacts

Artefacts are special treated content. Artefacts can be added to bundles, but will not be hosted at the platform.

- User can add artefacts to a bundle
- User can manage their artefacts in their personal area
- User can search for artefacts while creating a bundle
- Artefacts will be stored by reference or can be uploaded to the store

2.2 User Roles

The platform will support the roles outlined in Figure 5. A specification of the permissions is specified in **Appendix R**.

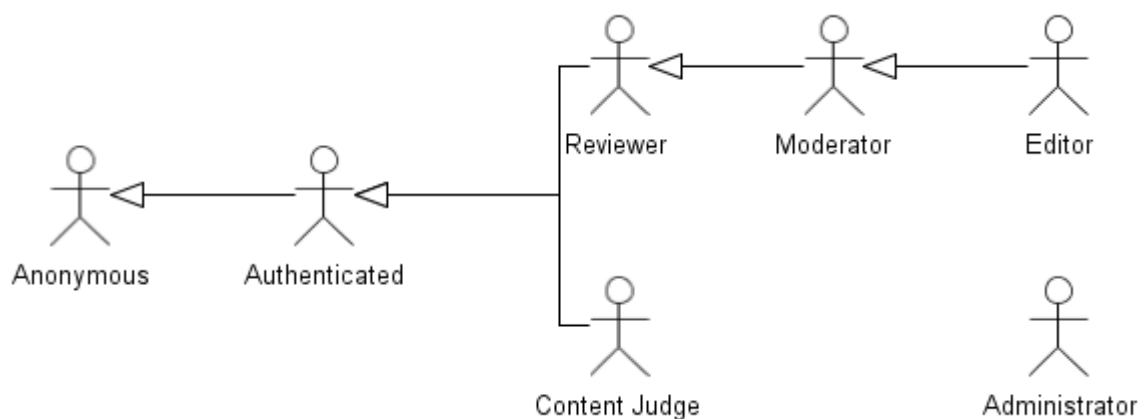


Figure 5: Roles in the ROLE Widget Store

2.2.1 Anonymous User

Anonymous role is assigned to the user who is browsing the platform without signing-in to it.

2.2.2 Authenticated User

Authenticated role is assigned to the user who joins the platform and creates a user profile

- Authenticated role inherits all the rights assigned to *Anonymous* role

2.2.3 Reviewer

The reviewer role is assigned to people from an editor or administrator to check the quality of submitted tools. Reviewer can publish or reject submitted tools.

- Reviewer role inherits all the rights assigned to *Authenticated* role

2.2.4 Contest Judge

The contest judge role is assigned to people from an editor or administrator to review tools submitted to the current contest.

- Contest Judge role inherits all the rights assigned to *Authenticated* role

2.2.5 Moderator

The moderator role is assigned to people from an editor or administrator to moderate content submitted by users.

- Moderator role inherits all the rights assigned to *Reviewer* role

2.2.6 Editor

The moderator role is assigned to people from an administrator. The Editor can add and submit all kind of content and assign roles to users.

- Editor role inherits all the rights assigned to *Moderator* role

2.2.7 Administrator

The administrator can configure the platform and assign the editor role to users.

- Administrator role has all permissions

2.3 Directories

- The core content of the platform is structured in directories.
 - A directory for tools
 - A directory for bundles

2.3.1 Tool Directory

- Tools are structured in static categories which are defined in **Appendix M**.
 - Static categories can have subcategories
 - These subcategories are suggested form users
- Tools are structured in dynamic categories:
 - Top rated

- Top used
- New
- Contest Tools
- Tools in a category can be filtered by the filters described in section 2.5.
- The directory can be sort by
 - Best rated
 - Number of uses

2.3.2 Bundle Directory

- Bundles are structured in dynamic categories:
 - Top rated
 - Top used
 - New
- Bundles in a category can be filtered by the filters described in section 2.5.
- The directory can be sort by
 - Best rated
 - Number of uses

2.3.3 Learning Environments

- Learning environments are not structured in categories
- Learning environments can be filtered by the filters described in section 2.5.

2.4 Search

- The platform provides for each core content type an own search:
 - Tool Search
 - Bundle Search
 - Learning Environment Search
- Search will be supported by auto completion like shown in Figure 6

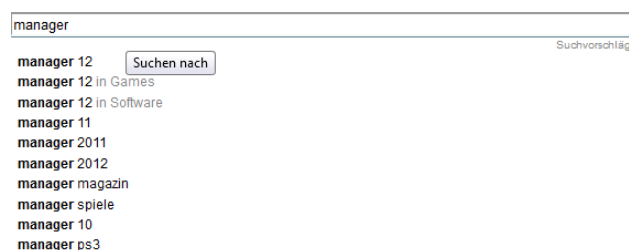


Figure 6: Auto Completion (Example from Amazon.de)

- The result list of the different content can be filtered by the respective filters defined in section 2.5.

2.5 Filter

The platform provides filters if a list of content will be shown to the user in the directory or as result list.

- Besides special filter for the different content types there exists common filter which will be shown for each content type.
- Filters can be added and removed

2.5.1 Common Filters

- A rating filter allows users to show only content with a specific rating
- A tag filter allows users to show only content with a specific tag
 - Only tags should be available as filter which are used in the list which can be filtered

2.5.2 Tools

- A functionality filter allows users to show only content with a specific functionality
 - Only functionalities should be available as filter which are used in the list that can be filtered
- A learning domain filter allows users to show only content within a specific learning domain
 - Only learning domains should be available as filter which are used in the list that can be filtered
- A license filter allows users to show only tools with a specific license
- A validated filter allows users to show only tools which are validated
- A tool type filter allows users to show only tools of a specific type

2.5.3 Bundles

- A tool type filter allows users to show only bundles which contain a specific tool type

2.5.4 Learning Environments

- A tool type filter allows users to show only environments which support a specific tool type

2.6 Personal Area

The personal area allows users to manage their own profile and content.

2.6.1 My tools

The platform will provide lists where a user can manage her own and obtained tools. The platform will provide the following lists:

- A lists of all obtained tools
- A list of all created tools
 - Here she also sees the status of the tools (pending, published)
- List which are defined by the user herself

Here, a user will also be able to create, edit and delete her lists.

2.6.2 My bundles

The platform will provide lists where a user can manage her own and interesting bundles. The platform will provide the following lists:

- A lists of all subscribed bundles
- A list of all created bundles
- List which is defined by the user herself

Here a user will also be able to create, edit and delete her lists.

2.6.3 My Profile

The platform will provide a public user profile.

- The user profile data is defined in **Appendix R**.
- The user can change the values of her user profile
- The user can change if a property is public (if other users are allowed to see the value of the property) or not

2.6.4 My Submissions

The platform will provide a list of all submitted content and the status of the submission.

2.7 Community

The platform will provide different community features.

2.7.1 Commenting

- Users can comment the core content of the platform:
 - Tools
 - Bundles
 - Learning environments
- Depending on the user's role the comment will be published or queued for approval (see section 2.2)
- By providing a comment the user has to submit a rating (see section 2.7.2)
- Users will be able to flag comments as spam

2.7.2 Rating

- Users can rate the core content of the platform:
 - Tools
 - Bundles
 - Learning environments
- The scale of the rating is 1-5
- Users cannot rate their own submitted content
- Users can submit one rating

- Users can change their rating
- By providing a comment the user has to submit a rating (see section 2.7.1).

2.7.3 Sharing on the platform

User can share own created content with the users of the platform.

2.7.3.1 Bundles

- Users can share created bundles to the public catalogue
- Users can unshared created bundles

2.7.4 Sharing on Social Networks

- User can recommend/share content of the platform to their social networks. The platform will support:
 - Facebook
 - Twitter
 - Google+
 - LinkedIn
- Users can recommends/share the following content:
 - Tools
 - Bundles
 - Learning Environments

2.7.5 User Profile

Users can see the user profile of others users, depending on the public level of these users.

- The data which is included in the profile is defined in **Appendix R**
- Content submitted from a user links to that user's profile
- A user profile links to the submitted content of that user

2.7.6 Messaging System

Users can use the internal messaging system to contact other users

2.7.7 Social Requirement Engineering

User should be able to post ideas for different tools and also the platform.

2.7.7.1 Social Requirement Engineering for the Platform

The posting of ideas for the platform will be integrated in the feedback form described in 2.8.

2.7.7.2 Social Requirement Engineering for Tools

- Users will have an overview page of all posted ideas
 - Ideas for existing tools
 - Ideas for new tools
- The ideas for tools will also shown in the comment section of each tool

- See the file **ROLE_Widget_Store_Requirements.pdf** for a mockup of the overview page and the comment section of tools.

2.7.8 “Public” Tools

Some tools are submitted by a user where the user is not the owner. A user can submit such a tool as public tools. Public tools do not have an owner.

- Users can submit an edited version of this tool

2.7.9 Contextualise and Repurpose Bundles

The platform will support the contextualisation and repurposing of bundles

- Users can copy a bundle in the public catalogue to their own list
- Users can subscribe to a bundle in public catalogue which will be shown in a special bundle list
- The platform will store which bundles are copied from which bundle
 - Each bundle has a parent and a child list

2.7.10 Widget Competition

The platform will support realisation of tool competition.

- A user can submit a tool to a running tool competition
- Contest Judges are notified about new contest participant
- Contest Judges can rate the submitted tools and write reviews about the tools. Both, the rating and the review, are not published until the competition is over
- The platform provide a special page which provides information about the current contest and the widgets which are submitted to the contest

2.8 Feedback

User should be able to give feedback to the platform provider.¹

- A user should access the feedback form from every page.
- A registered user will be able to give feedback by using a forum. A model of how this is done has been realised on iplotz.com (see Appendix X). Topics can be added under the following categories: Question, Idea, Problem, Testimonial, Bugs and Announcements

2.9 Recommendation

The platform will provide different kind of recommender functionality. These recommenders range from simple tag base recommendation to complex pedagogical recommenders based on ontologies.

2.9.1 Tag based

Based on tags the platform can suggest for a content similar and connected content.

This kind of recommendation will be used at:

- Content detail pages

¹ <http://iplotz.com/forum/>

- The bundle editor

2.9.2 User Behaviour

Based on the user behaviour the platform can suggest for a content similar and connected content. User behaviour can be:

- Having a content type in a list and adding another one

This kind of recommendation will be used at:

- Content detail pages
- The bundle editor

2.9.3 Functionality Based

Based on functionalities of tools the platform can suggest for a tool similar and connected tool. A tool will be recommended for a tool if it has the similar functionalities.

This kind of recommendation will be used at the tool detail page.

2.9.4 Bundle based

Based on the bundles the platform can suggest for a tool similar and connected tools. If two tools are used in bundle they will be connected.

This kind of recommendation will be used at:

- Content detail pages
- The bundle editor

2.9.5 Pedagogical Recommender using learning activities

The pedagogical recommender which is using an ontology of learning activities based on the mapping described in Figure 7.



Figure 7: Connection between tools and learning activities

- User can choose a learning activity from the catalogue and get recommendations of connected tools.
- If possible the platform will store the choice of the user and tries to improve the recommendation.

2.10 Tool Syndication

The tool syndication is supported by the platform by the bundle editor. The bundle editor provides the functionality to assemble tools to a bundle. Further a bundle contains pedagogical information. The metadata which can be provided for a bundle is specified in **Appendix H**.

2.10.1 Pedagogical Information

- Users can add pedagogical prerequisites to the bundle. Each prerequisite will be stored separately.

- Users can add pedagogical learning outcomes to the bundle. Each learning outcome will be stored separately.
- Users can add learning activities to a bundle. Each learning activity will be stored separately. Learning activities can associated with tools.

2.10.2 Assembling

The user can browse through different sources of tools and different views to these sources.

- Users can browse and filter the public catalogue
- Users can browse and filter their own lists
- Users can get recommendations of tools which would work well with the bundle
- Users can get recommendations of tools by adding a learning activity
 - These learning activities can be chosen from a catalogue
 - Tools which are added through this procedure will be associated with the chosen learning activity² (ontology is defined in ***RoleOntology.rdf***)
- Users will see an indicator which categories are included in a bundle
- The user can preconfigure tools if this is possible by the type of tool
- Users can add artefacts to a bundle

2.11 Statistics

The platform will store statistics for the core content (tool, bundle)

- For each content the number of views is stored
- For each content the number of user is stored which added the content in their own lists
- For each content (if possible) the number of installations in a learning environment is stored

2.12 Converter

Converter will allow user to insert tools and bundles in environments which does not support the specification of the tool.

2.12.1 OpenSocial Gadgets

2.12.1.1 Converter for HTML 5 Widgets

- The platform provides a converter which takes HTML 5 widgets and provides an OpenSocial XML Manifest which includes the HTML 5 Widget.

2.12.1.2 Converter for bundles

- The platform provides a converter which takes a bundle and provides an OpenSocial XML Manifest which includes the whole bundle.
- See “Contextual Spaces with Functional Skins as OpenSocial Extension”
www.thinkmind.org/download.php?articleid=achi_2011_7_30_20168

2.12.1.3 Desktop Widgets

Not yet defined.

² This recommender is highly experimental

2.12.1.4 Wookie Widgets

Not yet defined.

2.12.1.5 Facebook Applications

Not yet defined.

2.13 Interface

2.13.1 Connection to learning environments

2.13.2 Web Services

The platform will provide different web services. These web services will allow external applications to browse in the different catalogues and search for tools and bundles.

2.13.2.1 Tool Services

2.13.2.1.1 Search

The platform will provide a web service interface to search tools. This service will be REST based. It will return either JSON or XML. See **Appendix N**.

2.13.2.1.2 Browse

The platform will provide a web service interface to browse tools. This service will be REST based. It will return either JSON or XML. See **Appendix N**.

2.13.2.1.3 SPARQL

The platform will provide a web service interface run SPARQL queries for tools. It will return XML. See **Appendix N**.

2.13.2.1.4 Browse in my own tools

Not yet defined.

2.13.2.2 Bundle Service

2.13.2.2.1 Search

The platform will provide a web service interface to search bundles. This service will be REST based. It will return either JSON or XML. See **Appendix O**.

2.13.2.2.2 SPARQL

The platform will provide a web service interface run SPARQL queries for bundles. It will return XML. See **Appendix O**.

2.13.2.2.3 Browse in my own bundles

Not yet defined.

2.13.2.2.4 Add a new bundles

Not yet defined.

2.13.3 Store Widget

Not yet defined.

2.14 Authentication

Besides creating a new account at the platform the user can use OpenID provider or similar approach for registration.

2.14.1 Any OpenID Provider

The user will be able to use any OpenID provider to register at the webpage. The following data will be transferred:

- Photo
- First name
- Last name
- Email

2.14.2 Facebook

The user will be able to use Facebook Connect to register at the webpage. Here a user will be provided by a special button. The following data will be transferred:

- Photo
- First name
- Last name
- Email

See <http://developers.facebook.com/docs/guides/web/#login>.

2.14.3 Google

The user will be able to use Google to register at the webpage. Here a user will be provided by a special button. The following data will be transferred:

- Photo
- First name
- Last name
- Email

See <http://code.google.com/intl/de/apis/accounts/docs/OpenID.html>.

2.14.4 ROLE

Not yet defined.

2.15 Automatic Correspondence

2.15.1 New tool

If a new tool was submitted an email should be sent to the reviewers, moderators and editors.

2.15.2 New subcategory

If a new subcategory was submitted an email should be sent to the moderators and editors.

2.15.3 New user

If a new user *registers* at the store an email should be sent to the editors.

2.15.4 New comment

If a new comment was *committed* from an anonymous user an email should be sent to the moderators and editors.

If a new comment was *published* an email should be sent to the owner.

2.15.5 New Use Case

If a new use case was *committed for a tool or bundle* an email should be sent to the owner.

If new use case was *committed for a public tool* an email should be sent to the reviewers, moderators and editors.

2.15.6 New Usage Guide

If a new usage guide was *committed for a tool or bundle* an email should be sent to the owner.

If new usage guide was *committed for a public tool* an email should be sent to the reviewers, moderators and editors.

2.15.7 New User Experience Report

If a new user experience report was *committed for a tool or bundle* an email should be sent to the owner.

If new user experience report was *committed for a public tool* an email should be sent to the reviewers, moderators and editors.

2.15.8 New tool for contest

If a new tool for the contest was *published* an email should be sent to the contest judges.

2.15.9 New Feedback

If new feedback was submitted an email should be sent out to moderators and editors.

2.15.10 New Private Message

If new private message was sent an email should be sent out to moderators and editors.

2.15.11 Administrators Control Panel

The automatic correspondence will result in a quite flood of emails, when the store flourishes. Thus moderators, editors and reviewers will be given a small backend. Instead of emailing every action to the administrators, they will only receive a daily (or weekly) report to their mailbox, which will contain a small overview over the last actions and/or open business. The control panel will bundle all open tasks and give the ability to manage them.

2.16 Paid Content

Not yet defined.

2.17 Internationalization

The store will support internationalization on different levels. At least all project languages will be supported:

- English
- German

- Swedish
- French
- Chinese
- Dutch

Optional the following languages can be supported:

- Spanish
- Italian

2.17.1 Internationalization of the User Interface

The store interface will support internationalization on the user interface level.

2.17.2 Internationalization of the Content

Users are able to add content of the described languages above. Content can be multilingual.

2.17.3 Internationalization of the Content Metadata

Content need to be described at least in one language.

2.18 User Interface Requirements

The following chapter will describe the provided user interface. Figure 8 shows an overview of the store.

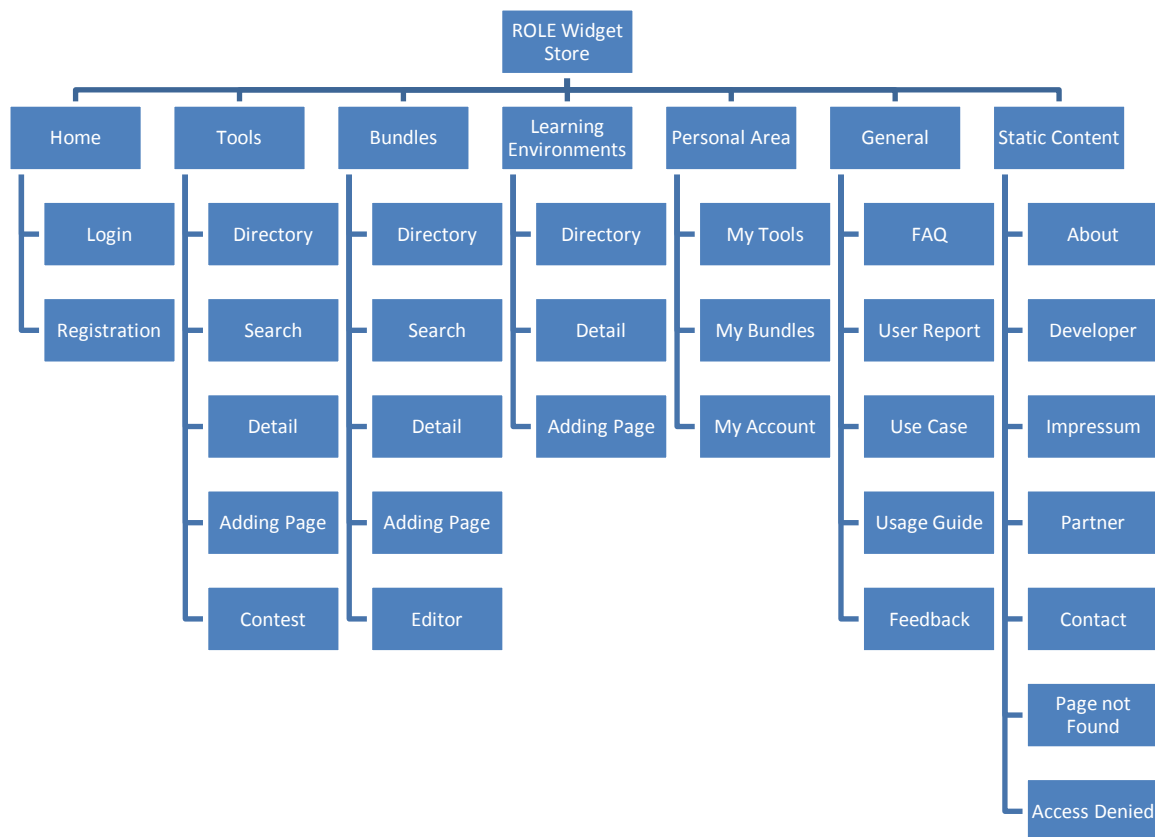


Figure 8: Overview of the ROLE Widget Store

2.18.1 Home

The home site will be the entry point to the platform. It should give the user an overview about the content of the page, inform about new and promoted content, and as well have a section for news. It will contain following information:

- Recommended Tools
- Recommended Bundles
- News
- Short explanation of the site

The corresponding screenshot of the old site is available in the **Appendix V: Figure 1**.

2.18.1.1 Registration

On this site a user can create a new account at the store. Here he can provide the fields of the user profile which are defined in **Appendix R**. Further for OpenID, Google and Facebook Connect a special login possibility is required (See section 2.14).

2.18.2 Tools

For tools, different pages will be provided to create, search, browse and view tools.

2.18.2.1 Tool Adding Preparation Page

This page allows the user to choose which type of widget the user wants to add. After

2.18.2.2 Tool Adding Page

This page will allow a user to add a new tool to the directory. She has to provide all the information described in **Appendix A**.

- The whole workflow of the user interface is defined in **ROLE_Widget_Store_Tool_Add.pdf**

The corresponding screenshot of the old site is available in the **Appendix V Figure 6**.

2.18.2.3 Tool Search Result Page

This page will contain all tools which results in the search. The user will see the number of tools of this search.

- The results will be displayed on different pages if the number of results is too large
- A user can filter the results as defined section 2.5

2.18.2.4 Tool Category Overview

This page will contain all tool categories. Users will see the number of tools in the different categories. The user will be able to submit a new subcategory

The corresponding screenshot of the old site is available in the **Appendix V Figure 2**

2.18.2.5 Tool Category View

This page will contain all tools of the respective category.

- A user will see the number of tool in this category
- The results will be displayed on different pages if the number of results is too large
- A user can filter the results as defined in section 2.5. The user can choose possible filters and the result list will adapted to this filters. The user can also remove filters
- It will be clear for the user which tool type a tool is

- The user will be able to submit a new subcategory

The corresponding screenshot of the old site is available in the **Appendix V Figure 3**.

2.18.2.6 Tool Details Page

This page will contain the detailed information about a tool. All metadata as defined in **Appendix A** will be displayed.

- A user will be able to see and submit screenshots, videos and User Experience Reports
- A user can rate and comment tools
- A user can add tools to her personal lists
- Beside the defined metadata, recommendations as defined in section ☐ will be shown
- The possibility to add the tool to a user's personal learning environment will be provided
- Users can recommend/share a tool on the specified social networks in section 2.7.4

The corresponding screenshot of the old site is available in the **Appendix V Figure 5**.

2.18.3 Bundles

2.18.3.1 Bundle Editor

This page allows the user to create a new bundle. She will be able to add bundles from the catalogue or from her tool lists.

- The user can see a preview of the bundle
- The user can preconfigure tools if possible
- The user can save the created/edited bundle
- The user can provide the specified metadata (**Appendix H**) for the bundle
- The user sees an indicator how many tool categories are used in the bundle. Not used categories should be grey.

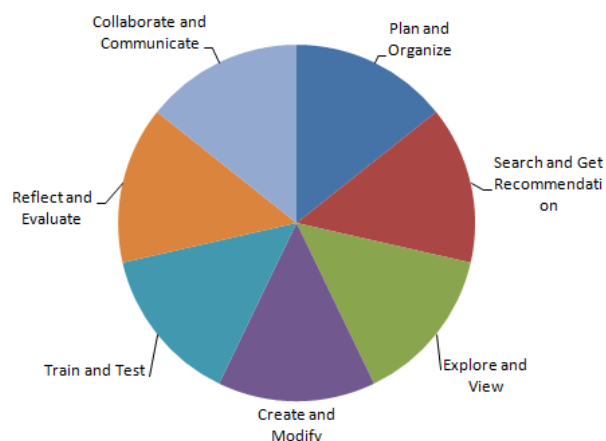


Figure 9: Mock up of the category indicator

- The user can change to a list of tools which would work well with the bundle (**Appendix W: Figure 16**) as defined in section 2.9
- The user can add a learning activity she wants to do, either from free text or from a catalogue (**Appendix W: Figure 17** and **Figure 18**).
- The user can add artefacts to a bundle

The corresponding mock ups are available in the **Appendix W**.

2.18.3.2 Bundle Adding Page

This page is a possibility for an administrator to add bundles. An administrator will be able to add tools and the defined metadata for a bundle (**Appendix H**).

2.18.3.3 Bundle Search Result Page

This page will contain all bundles which results in the search. The user will see the number of bundles of this search.

- The results will be displayed on different pages if the number of results is too large.
- A user can filter the results as defined in section 2.5. The user can choose possible filters and the result list will adapted to this filters. The user can also remove filters.

2.18.3.4 Bundle Details Page

This page will contain the detailed information about a bundle. All metadata as defined in **Appendix H** will be displayed.

- A user will be able to see and submit screenshots, videos and User Experience Reports
- A user can rate and comment bundles
- A user can add the bundle to her personal lists
- Beside the defined metadata, recommendations as defined in section 2.9 will be shown
- User can recommend/share a bundle on the specified social networks in section 2.7.4

A user sees the possibilities to add the bundle to her personal learning environment will be provided.

2.18.4 Learning Environments

This section of the store will show the user which tools will work in which environment.

2.18.4.1 Learning Environments Overview Page

Here a user can browse through the added learning environments.

- A user will see the number of environments
- The results will be displayed on different pages if the number of results is too large.
- A user can filter the results as defined in section 2.5. The user can choose possible filters and the result list will adapted to this filters. The user can also remove filters.

2.18.4.2 Learning Environments Detail Page

This page will contain the detailed information about a learning environment as specified in **Appendix I**. The user will also see alternative environments.

- A user will be able to see and submit screenshots, videos and User Experience Reports
- A user can rate and comment environments
- A user can add the environment to her personal lists
- Beside the defined metadata, recommendations as defined in section 2.9 will be shown
- A user can recommend/share an environment on the specified social networks in section 2.7.4

2.18.4.3 Learning Environments Adding Page

On this page the user will be able to describe and submit a learning environment. To submit all metadata defined in **Appendix I** must be added.

2.18.5 Personal Area

The personal area provides the functionality to manage the user profile and the lists for tools and bundles

2.18.5.1 My Account

2.18.5.1.1 User Profile Editing Form

This site provides the functionality to edit the own user profile. The fields of the user profile are defined in **Appendix R**. The user is also being able to define which fields will be public.

2.18.5.1.2 User Profile

This site shows the public profile of the user. The fields of the user profile are defined in **Appendix R**. The user profile will also show which tools and bundles were created by the user.

2.18.5.2 My Tools

This site allows a user to manage her tools as described in section 2.6.1.

The corresponding screenshot of the old site is available in the **Appendix V Figure 7**.

2.18.5.3 My Bundles

This site allows a user to manage her bundles as described in section 2.6.2.

2.18.5.4 My Submissions

This site allows the users to see the status of their submissions.

2.18.6 Tool Contest Pages

The platform will provide the functionality for tool contests. Besides submitting tools to these contests user will be able to see submitted tools. Contest judges will be provided a special page where they can rate and submit reviews for tools.

2.18.6.1 Public Contest Page

This page provides information about the current contest. It also shows all submitted widgets for the current Contest. Also links to old contests will be provided.

2.18.6.2 Judge Overview Page

This page shows all submitted widgets for the current contest.

- Contest Judges see the available rating and reviews
- Contest Judges can rate and submit reviews for the widgets

2.18.7 General

2.18.7.1 FAQ

The frequently asked question page will provide additional information for users.

The corresponding screenshot of the old site is available in the **Appendix V Figure 9**.

2.18.7.2 User Experience Report

In a user experience report users can write a report about their experience with the tool or bundle. An example from the ROLE Showcase platform is provided at <http://role-showcase.eu/content/usage-electronic-reference-book-28>.

2.18.7.2.1 User Experience Report Detail Page

The page will contain the detailed information of the user experience report as specified in **Appendix J**.

2.18.7.2.2 User Experience Report Adding Page

Here the user is able to submit a user experience report by adding the information specified in **Appendix J**.

2.18.7.3 Use Case

A use case describes how a fictive user would use the tool or bundle. An example from the ROLE Showcase platform is provided at <http://role-showcase.eu/widget-bundle/learn-foreign-language-reading-text>.

2.18.7.3.1 Use Case Detail Page

The page will contain the detailed information of the use case as specified in **Appendix J**.

2.18.7.3.2 Use Case Adding Page

Here the user is able to submit a use case by adding the information specified in **Appendix J**.

2.18.7.4 Usage Guide

A usage guide is a manual

2.18.7.4.1 Usage Guide Detail Page

The page will contain the detailed information of the use case as specified in **Appendix L**.

2.18.7.4.2 Usage Guide Adding Page

Here the user is able to submit a usage guide by adding the information specified in **Appendix L**.

2.18.7.5 Feedback

Feedback will be provided in a kind of forum. It is described in section 2.8.

2.18.8 Static Content Pages

All static content should have a consistent layout.

The corresponding screenshot of the old home site is available in the **Appendix V: Figure 10**.

2.18.8.1 Page not found

This page will be shown if a user requested page is not available in the system

The corresponding screenshot of the old home site is available in the **Appendix V Figure 11**.

2.18.8.2 Access Denied

This page will be shown if the user has not the permission to enter a requested page.

The corresponding screenshot of the old home site is available in the **Appendix V Figure 12**.

3 Nonfunctional Requirements

3.1 *Installation*

A Drupal installation profile will be provided which creates a full functional store instance with demo data.

3.2 *Validation*

CSS and HTML code must pass W3C validation tests at <http://validator.w3.org/>.

3.3 *SPAM Protection*

Different mechanisms should be included at the store:

- The store should not display plain email addresses of developer
- The store should ask for a CAPTCHA when feedback or anonymous comments are submitted.

3.4 *Mobile use*

The platform should be usable on mobile devices

4 Concluding Remarks

The document will be continuously updated with the current state of development as already stated above. Also changes which will be made at the requirements will be inserted in the deliverable. After each successful iteration the new prototype will be published.

Appendix

Appendix A Tools Metadata

Section	Property Name	Type	Required	interface note	Value(s)	Note
Technical	Tool uploader	Internal reference	Yes			Reference to the user who added the tool to the store
	Created	Date	Yes			
	Modified	Date	Yes			
	ID	Internal identifier	Yes			
Community	Rating	Numeric	No		1 – 5	Average rating: sum of all individual ratings divided by the number of votes
	Number of votes	Numeric	No			
	Tags	List of Terms in a Folksonomy	No			
	Number of Comments		No			
	User Experience Report	List of internal references	No	Template		
	Number of views	Numeric	Yes			
	Number of installations	Numeric	Yes			
	Number of adds to lists	Numeric	Yes			
General	Title	Text	Yes			
	Short Description	Text	Yes	Plain Text		
	Description	Text	Yes	WYSIWYG		
	Tool URL	Link	No			URL to webpage for this tool
	Version	Numeric	Yes			
	Type	Text	Yes		OpenSocial Gadget, tbd	
	Thumbnail	Image	No			
	Screenshots	List of Images	No			One marked as default

	Screencasts	List of Videos	No			
	User documentation	URL or internal reference	No	Template		
	Functionalities	List of Terms in a Taxonomy	Yes			
	Categories	List of Terms in a Taxonomy	Yes			
	Author	Text	No			
	Author Email	Email	No			
	Type of License	List of given terms	No		GPL, Commercial, tbd	
	Details of License	Text	No			
	Public	Boolean	Yes			A flag to determine if this is a public tool
	References	List of Links	No			
	Language	List of given terms	Yes			

Appendix B Additional OpenSocial Tool Metadata

Section	Property Name	Type	interface note	Value(s)	Note
Technical	XML File URL	Link			Location of the XML file of the gadget
	Embedded HTML Code	Text			Snipped of the embed code
	OpenSocial Specification	Predefined Values		0.81, 0.9, 1.1, 2.0	
	Height	Number			Required
	Width	Number			

Appendix C Additional W3C / Wookie Metadata

Section	Property Name	Type	interface note	Value(s)	Note
Technical	ZIP File URL	Link			Location of the ZIP file of the widget
	Embedded HTML Code	Text			Snipped of the embed code
	Height	Number			Required
	Width	Number			

Appendix D Additional HTML 5 Widget Metadata

Section	Property Name	Type	interface note	Value(s)	Note
Technical	Link to the Widget URL	Link			
	Embedded HTML Code	Text			Snipped of the embed code
	Height	Number			Required
	Width	Number			

Appendix E Additional Web Tool Metadata

Section	Property Name	Type	interface note	Value(s)	Note
Technical	Link to the tool	Link			Location of the XML file of the gadget

Appendix F Tool Categories

Category Name	Description	Explanation
Collaborate & Communicate	These tools provide the possibility to collaborate and communicate with other participants of your learning process.	<p>Collaboration and Communication Tools are used in all the three learning phases, namely "plan", "learn" and "reflect". Examples are the XMP Multiuser Chat, Twitter Gadget, Etherpad, Google Docs etc.</p> <p>Tools of the category "Collaboration & Communication" support cognitive processes.</p>
Train & Test	These tools provide support for knowledge acquisition as well as training and testing of skills.	<p>Training & Testing Tools are used in the Learning Phase only. Examples are the Vocabulary Trainer or the Record-Yourself - Tool.</p> <p>Tools of the category "Train & Test" support cognitive processes.</p>
Search & get Recommendation	These tools enhance the searching process for your learning resources and/ or give recommendation for suitable tools, widgets or bundles.	<p>Search Tools are mainly used in the planning phase to detect learning resources. An example is the Media Search Widget.</p> <p>Tools of the category "Search & get Recommendation" support cognitive processes.</p>
Reflect & Evaluate	These tools facilitate the reflection of your learning process, -progress, -result and -environment.	<p>Reflection and Evaluating Tools are mostly used in the third learning process phase, the reflection phase. But reflection is also recommended during the learning phase for the learner to become aware of the learning process; whereas evaluation (of content or tools) would be most useful after one completed learning process. By now there are no tools especially for reflection or evaluation activities in the ROLE Widget Store.</p> <p>Tools of the category "Reflect & Evaluate" support metacognitive processes.</p>
Plan & Organise	These tools facilitate the planning and organisation of your learning activities, process and resources as well as the setting of your learning goals.	<p>Planning & Organisation Tools are mostly used in the planning phase to plan future learning activities or to organise your learning resources. Examples for these tools are all kinds of calendars or the Media List Widget.</p> <p>Tools of the category "Plan & Organise" support metacognitive processes.</p>
Explore & View	These tools provide access to domain specific learning content. Content may be static (e.g. PDF-Reader) or interactive (e.g. an applet to demonstrate mathematic formulas).	<p>They are mostly used in the learning phase to acquire knowledge by viewing and exploring content. Examples for these tools are the Wikipedia Gadget or dictionaries.</p> <p>Tools of the category "Explore & View" support cognitive processes.</p>
Create & Manipulate	These tools facilitate the creation and manipulation of content in your learning environment.	<p>Creation & Manipulation Tools are mainly used in the learning phase but can also be applied when planning and reflecting the learning process. Examples for these Tools are Google Docs, Etherpad or Mindmapping tools.</p> <p>Tools of the category "Create & Manipulate" support cognitive processes.</p>

Appendix G Tool Category Metadata

Section	Property Name	Type	Required	interface note	Value(s)	Note
General	Title	Text	Yes			
	Short Description	Text	Yes	Plain Text		Max 150 Characters
	Thumbnail	Image	Yes			

Appendix H Bundle Metadata³

Section	Property Name	Type	Required	interface note	Value(s)	Note
Technical	Bundle creator	Internal reference	Yes			Reference to the user who added the tool to the store v1.0
	Created	Date				v1.0
	Modified	Date				v1.0
	Parent	Internal reference				A bundle if the bundle was created from another bundle
	Childs	List of Internal references				A list of bundles if bundles are created from this bundle
	Tools	List of included Tools	Yes			v1.0
Community	Rating	Numeric	No		1 – 5	Average rating: sum of all individual ratings divided by the number of votes
	Number of votes	Numeric	No			
	Tags	List of Terms in a Folksonomy	No			
	Number of Comments		No			v1.0
	User Experience Report	List of internal references	No	Template		
	Number of views	Numeric				
	Number of installations	Numeric				
	Number of adds to lists	Numeric				
General	Title	Text	Yes			v1.0
	Short Description	Text	Yes	Plain Text		v1.0
	Description	Text	Yes	WYSIWYG		v1.0

³ Properties defined in LOM are used: http://ltsc.ieee.org/wg12/files/LOM_1484_12_1_v1_Final_Draft.pdf

	Thumbnail	Image	No			v1.0
	Screenshots	List of Images	No			One marked as default
	Screencasts	List of Videos	No			
Pedagogic	Prerequisites	List of Text Fields	No			Free Text
	Learning-Objective	List of Text Fields	No			Free Text
	Typical Age Range	Text	No			
	Context	Predefined Text Fields	No		school higher education training other	
	Difficulty	Predefined Text Fields	No		Predefined Text Fields	
	Typical Learning Time	Time	No			

Appendix I Learning Environment Metadata

	Property Name	Type	Required	interface note	Value(s)	Note
General	Name		Yes			
	Description	Text	Yes		WYSIWYG	
	URL	URL	Yes			
	Logo	Image	Yes			
	Screenshots	List of images	No			
	Uploader	Internal Reference	Yes			
	Supported Tool Types		Yes		OpenSocial, tbd.	
	Screenshots	List of Images	No			One marked as default
	Screencasts	List of Videos	No			
Community	Rating	Numeric	No		1 – 5	Average rating: sum of all individual ratings divided by the number of votes
	Number of votes	Numeric	No			
	Tags	List of Terms in a Folksonomy	No			
	Number of Comments		No			
	User Experience Report	List of internal references	No	Template		
	Number of views	Numeric				
	Number of installations	Numeric				
	Number of adds to lists	Numeric				

Appendix J Use Case Metadata

Property Name	Type	Required	interface note	Value(s)	Note
Title	Text	Yes			
What	Internal Reference	Yes			Tool or Bundle
Description	Text	Yes		WYSIWYG	
Creation Date	Date	Yes			
Creator	Internal Reference	Yes			User

Appendix K User Experience Report Metadata

Property Name	Type	Required	interface note	Value(s)	Note
Title	Text	Yes			
Where	Text	Yes			
Who	Text	Yes			
What	Internal Reference	Yes			Tool or Bundle
Description	Text	Yes		WYSIWYG	
References	List of Links	No			
Creator	Internal Reference	Yes			User
Creation Date	Date	Yes			

Appendix L Usage Guide Metadata

Property Name	Type	Required	interface note	Value(s)	Note
Title	Text	Yes			
What	Internal Reference	Yes			Tool or Bundle
Description	Text	(Yes)		WYSIWYG	At least a description or an external link is required
References to an external usage guide	List of Links	(Yes)			
Creation Date	Date	Yes			
Creator	Internal Reference	Yes			User

Appendix M News Metadata

Property Name	Type	Required	interface note	Value(s)	Note
Title	Text	Yes			
Description	Text	(Yes)		WYSIWYG	
Creation Date	Date	Yes			
Author	Internal Reference	Yes			User

Appendix N Tool Web Service

	Request Parameter	Service Response Output	Required
Browse (REST)	Category (text)	JSON or XML as specified in Appendix A	If no category is given the categories are displayed
	Page (numeric)		
	Number of results (numeric)		
	Tool detail level (low, high)		
	Format (json, xml)		
Search (REST)	Search term (text)	JSON or XML as specified in Appendix R	Yes
	Search type (full text, author, tag)		Yes
	Categories (text) [Search scope]		
	Functionalities (text)		
	Page (numeric)		
	Number of results (numeric)		
	Tool detail level (low, high)		
	Format (json, xml)		
SPARQL	A SPARQL query as specified in http://www.w3.org/TR/rdf-sparql-query/	A SPARQL query result as specified in http://www.w3.org/TR/rdf-sparql-XMLres/	The query should be submitted via HTTP GET as specified in http://www.w3.org/TR/rdf-sparql-protocol/

Appendix O Web Service Specification of a Tool

Property	Prio	Possible values	Rationale	Required	Detail Level
rdf:type	H	role:Tool or the subclass role:OpenSocialGadget	Type. role:Tool is a subclass of dcmitype:Software and foaf:Agent.	Yes	Low
dcterms:source	H	URL to the source code, for example the xml file if the tool is a opensocial gadget.	pointer to XML file	Yes	Low
dcterms:title	H	literal (language encoded)	Title of the tool	Yes	Low
dcterms:description	H	literal (language encoded)	Description of the tool	No	Low
foaf:maker	H	foaf:Agent resource with a foaf:name and a foaf:mbox.	Author of the tool, email of the author of the tool	No	Low
foaf:img	H	URL to picture	Default screenshot of the tool	No	High
foaf:depicts	H	URL to picture	Thumbnail of the tool	No	Low
role:category	H	ROLE categories defined using SKOS	Category of the tool. (role:category rdfs:subclassOf dcterms:subject)	Yes	Low
role:functionality	H		Koblenz input	Yes	High

*This specification is **NOT final**.
Properties could be added,
changed or removed.*

Appendix P Example XML for a tool

```
<?xml version="1.0" encoding="UTF-8" ?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:role="http://www.role-project.eu/semantics/iwmkold#">
  <rdf:Description rdf:about="URL to the tool page">
    <rdf:type role:OpenSocialGadget/>
    <dcterms:source>xml of the gadget</dcterms:source>
    <dcterms:title xml:lang="en-US">gadget Title</dcterms:title>
    <dcterms:description xml:lang="en-US">
      gadget description
    </dcterms:description>
    <foaf:maker>
      <foaf:person>
        <foaf:name>author of the gadget</foaf:name>
        <foaf:mbox>email of the author</foaf:mbox>
      </foaf:person>
    </foaf:maker>
    <foaf:img>default screenshot of the Tool</foaf:img>
    <foaf:depicts>thumbnail of the Tool</foaf:depicts>
    <role:category>tool category 1</role:category>
    <role:category>tool category 2</role:category>
    <role:toolFunctionality>functionality 1</role:toolFunctionality>
    <role:toolFunctionality>functionality 2</role:toolFunctionality>
  </rdf:Description>
</rdf:RDF>
```

*This example is **NOT** final.
Properties could be added,
changed or removed.*

Appendix Q Bundle Web Service

	Request Parameter	Service Response Output	Required
Search (REST)	Search term (text)	JSON or XML as specified in Appendix R	Yes
	Search type (full text, author, tag)		Yes
	Categories (text) [Search scope]		
	Functionalities (text)		
	Page (numeric)		
	Number of results (numeric)		
	Tool detail level (low, high)		
	Format (json, xml)		
SPARQL	A SPARQL query as specified in http://www.w3.org/TR/rdf-sparql-query/	A SPARQL query result as specified in http://www.w3.org/TR/rdf-sparql-XMLres/	The query should be submitted via HTTP GET as specified in http://www.w3.org/TR/rdf-sparql-protocol/

Appendix R Web Service Specification of a Bundle

Properties	Prio	Possible values	Rationale	Required	Detail Level
dcterms:title	H	literal (language encoded)	title	Yes	Low
dcterms:description	H	literal (language encoded)	description	No	Low
foaf:maker	H	foaf:Agent	author information		Low
dcterms:created	H	xsd:Date (datatyped literal)	creation time W3C Date and Time Format.	Yes	Low
dcterms:modified	H	xsd:Date (datatyped literal)	latest modification time W3C Date and Time Format.	Yes	Low
role:configuredTool	H	URI of a configuredTool instance, see below.		Yes	High
role:prerequisite	H	literal (language encoded)	Prerequisite for the bundle as text	No	High
role:learning-objective	H	literal (language encoded)	Learning-objective for the bundle as text	No	High

*This specification is **NOT final**.
Properties could be added,
changed or removed.*

Appendix S Example XML for a bundle

```
<?xml version="1.0" encoding="UTF-8" ?>
<rdf:RDF
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:foaf="http://xmlns.com/foaf/0.1/"
  xmlns:dcterms="http://purl.org/dc/terms/"
  xmlns:role="http://www.role-project.eu/semantics/iwmkold#">
  <rdf:Description rdf:about="URL to the bundle page">
    <rdf:type role:bundle/>
    <dcterms:title xml:lang="en-US">bundle title</dcterms:title>
    <dcterms:description xml:lang="en-US">bundle
description</dcterms:description>
    <foaf:maker>
      <foaf:person>
        <foaf:name>author of the bundle</foaf:name>
        <foaf:mbox>email of the bundle</foaf:mbox>
      </foaf:person>
    </foaf:maker>
    <dcterms:created>1994-11-05T08:15:30-05:00</dcterms:created>
    <dcterms:modified>1994-11-05T08:15:30-05:00</dcterms:modified>
    <foaf:img>default screenshot of the bundle</foaf:img>
    <foaf:depicts>thumbnail of the bundle</foaf:depicts>
    <role:prerequisite></role:prerequisite>
    <role:learning-objective></role:learning-objective>
    <role:configuredTool>
      <rdf:type role:OpenSocialGadget/>
      <dcterms:Description>Description how the tool is used in the
bundle</dcterms:Description>
      <rdf:Description rdf:about="URL to the tool page">
        <rdf:type role:OpenSocialGadget/>
        <dcterms:source>xml of the gadget</dcterms:source>
        <dcterms:title xml:lang="en-US">gadget title</dcterms:title>
        <dcterms:description xml:lang="en-US">gadget
description</dcterms:description>
        <foaf:maker>
          <foaf:person>
            <foaf:name>author of the gadget</foaf:name>
            <foaf:mbox>email of the author</foaf:mbox>
          </foaf:person>
        </foaf:maker>
        <foaf:img>default screenshot of the Tool</foaf:img>
        <foaf:depicts>thumbnail of the Tool</foaf:depicts>
        <role:category>tool category 1</role:category>
        <role:category>tool category 2</role:category>
        <role:toolFunctionality>functionality 1</role:toolFunctionality>
        <role:toolFunctionality>functionality 2</role:toolFunctionality>
      </rdf:Description>
      <role:userPreferences>valid user preferences</role:userPreferences>
    </role:configuredTool>
  </rdf:Description>
</rdf:RDF>
```

*This example is **NOT** final.
Properties could be added,
changed or removed. Please note
that this example is also not
consistent with the definition*

Appendix T User Profile Metadata

Property Name	Type	Required	interface note	Value(s)	Note
Username		Yes			
Password		Yes			
Email	Email	Yes			
First Name		Yes			
Last Name		Yes			
Picture / Logo	Image	No			
Gender		No		Male / Female	
Website	URL	No			
Description	Text	No	WYSIWYG		
Organisation Name		No			
Job Role		No			
Business Sector		No			
Country		Yes			

Appendix U User Permissions

Activity	Anonymous	Authorized	Reviewer	Contest Judge	Moderator	Editor	Administrator
Platform							
Join Platform	x	x	x	x	x	x	x
Browse Directory	x	x	x	x	x	x	x
Search Directory	x	x	x	x	x	x	x
Submit a new subcategory		x	x	x	x	x	x
Write and publish news						x	X
Community							
Share tools and bundles on social networks	x	x	x	x	x	x	x
Submit feedback	x	x	x	x	x	x	x
Create Forum Topic		x	x	x	x	x	x
Submit comment for a tool or bundle	x	x	x	x	x	x	x
Submit comment for a tool or bundle without approval		x	x	x	x	x	x
Rate tools and bundles		x	x	x	x	x	x
Tag tools and bundles		x	x	x	x	x	x
Send a message to another user using the platform's messaging system		x	x	x	x	x	x
View user profiles		x	x	x	x	x	x
Edit own profile		x	x	x	x	x	x
Tools							
Submit new own and public tool (with approval)		x	x	x	x	x	x

Edit own and public tools (with approval)		x	x	x	x	x	x
Delete own and public tools (with approval)		x	x	x	x	x	x
Delete comments on own tools and bundles		x	x	x	x	x	x
Submit a new tool to the current widget contest		x	x	x	x	x	x
Bundles							
Create, edit and delete an own bundle		x	x	x	x	x	x
Publish an own bundle to the catalogue		x	x	x	x	x	x
Use the bundle editor without saving	x						
Bundles							
Create, edit and delete an own bundle		x	x	x	x	x	x
Publish an own bundle to the catalogue		x	x	x	x	x	x
Use the bundle editor without saving	x						
Use the bundle editor		x	x	x	x	x	x
Use the bundle editor		x	x	x	x	x	x
Additional Content							
Add and remove Screencasts to/from an own tool or bundle		x	x	x	x	x	x
Add and remove Screenshots to/from an own tool or bundle		x	x	x	x	x	x

Add and remove User Experience Reports to/from an own tool or bundle		x	x	x	x	x	x
Add and remove Use Cases to/from an own tool or bundle		x	x	x	x	x	x
Add and remove User Guides to/from an own tool or bundle		x	x	x	x	x	x
Moderation							
Publish or reject submitted tools			x	x	x	x	x
Publish or reject submitted comments					x	x	x
Delete comments					x	x	x
Publish or reject subcategories					x	x	x
View submitted Feedbacks					x	x	x
Mark submitted Feedback as answered					x	x	x
Editing							
Create, edit and delete all kind of content						x	x
Contest							
Write a review for a tool submitted to the contest				x			x
Rate a tool submitted to the contest				x			
See all ratings and reviews of other judges				x			x
Administration							

Configuration of the platform							x
-------------------------------	--	--	--	--	--	--	---

Appendix V Screenshots of the Online Instance (25.07.2011)

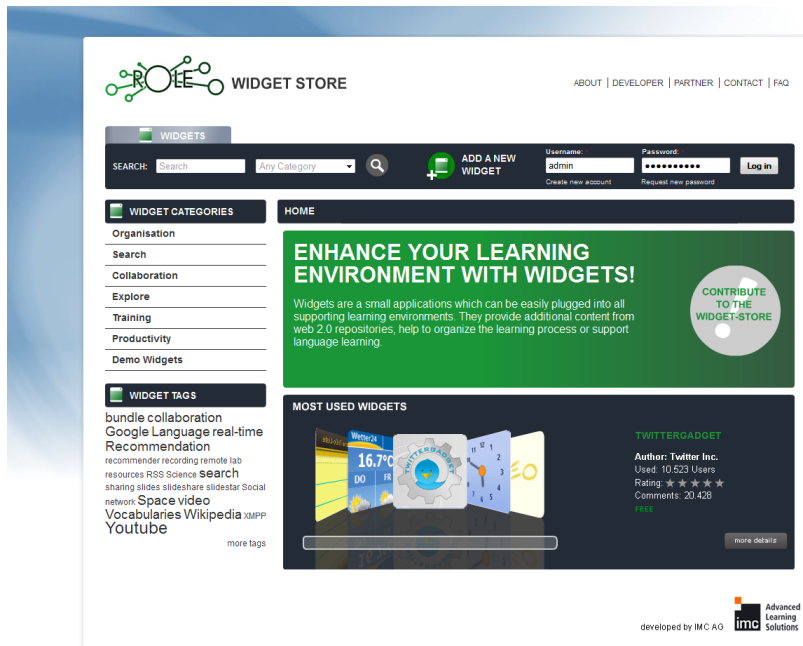


Figure 1: ROLE Widget Store - Home



Figure 2: ROLE Widget Store - Widget Categories

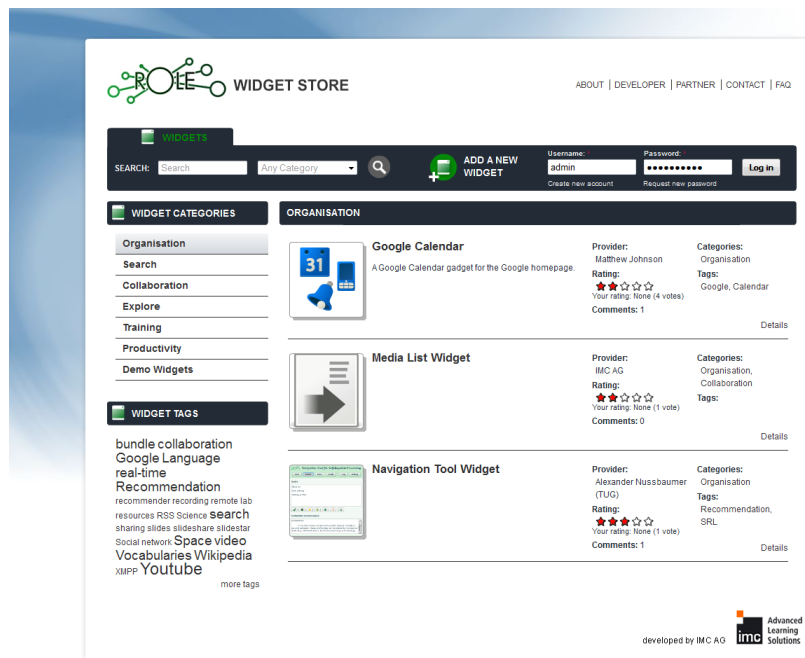


Figure 3: ROLE Widget Store - Widget Category

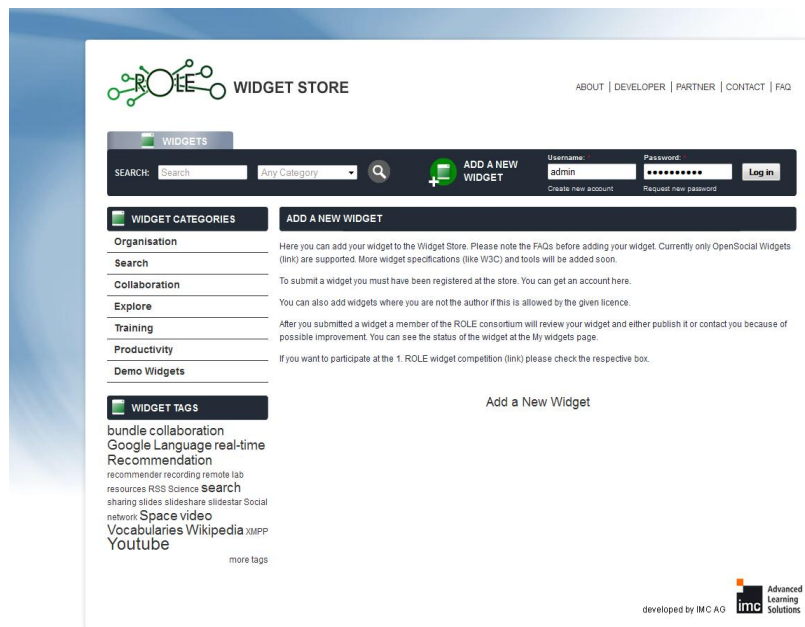



Figure 4: ROLE Widget Store - Add a new widget


WIDGET STORE

[ABOUT](#) | [DEVELOPER](#) | [PARTNER](#) | [CONTACT](#) | [FAQ](#)

WIDGETS

SEARCH:

Any Category

ADD A NEW WIDGET

Username: admin

Password:

Log In

WIDGET CATEGORIES

Organisation

Search

Collaboration

Explore

Training

Productivity

Demo Widgets

WIDGET TAGS

bundle collaboration

Google Language real-time

Recommendation

recommender recording remote lab

resources RSS Science search

sharing slides slideshare slidesstar Social


network Space video

Vocabularies Wikipedia xMPP

Youtube

more tags

WIDGET DETAILS



Google Calendar
 A Google Calendar gadget for the Google homepage.

DETAILS

Author: Matthew Johnson

Comments: 1

Rating:

TAGS

All tags: Calendar Google

My tags:

Add to "MY WIDGETS"

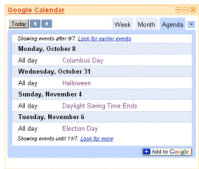
XML URL:

http://hosting.gmodules.com/gadgets

Embed code:

<iframe frameborder="no" scrolling="no">

Screenshot



Comments

Nice idea

Submitted by Anonymous on Fri, 12/03/2010 - 10:17.

Nice idea, but having graphical representation is even nicer. I'm preferring having the google calendar open over using igooogle

reply

Post new comment

Subject:


Comment *

- Web page addresses and e-mail addresses turn into links automatically.
- Allowed HTML tags: <a> <code> <pre>
- Lines and paragraphs break automatically.

More information about formatting options

Preview

developed by IMC AG




Advanced Learning Solutions

Figure 5: ROLE Widget Store - Widget Details

Page 58 of 67

Content management
Site building
Site configuration
Store administration
User management
Reports
Help
0 / 1
Log out admin


WIDGET STORE

[ABOUT](#) | [DEVELOPER](#) | [PARTNER](#) | [CONTACT](#) | [FAQ](#)

admin
LOGOUT

WIDGETS

SEARCH: Any Category

[CONTEST WIDGETS](#) | [MY WIDGETS](#) | [MY ACCOUNT](#)

WIDGET CATEGORIES

Organisation
Search
Collaboration
Explore
Training
Productivity
Demo Widgets

WIDGET TAGS

bundle collaboration
Google Language real-time
Recommendation
recommender recording remote lab
resources RSS Science search
sharing slides slideshare slidestart Social
network Space video
Vocabularies Wikipedia XMPP
Youtube
more tags

CREATE WIDGET

Widget name: *

Widget description:
 ☒ Show summary in full view
Enter the widget description used for teasers and pages.

Contest Participation:
☐ I want to participate at the ROLE Widget Contest
If you want to participate at the current ROLE widget contest please check this box.

Vocabularies
widget: *

Organisation
Search
Collaboration
Explore
Training
Productivity
Reflection
Demo Widgets

widget_community_tags:

Enter a comma separated list of words

Widget information

Widget Specification:
OpenSocial
Select a widget specification

Widget XML URL: *

Enter the URL of the widget XML

By using the update from XML feature you will overwrite existing and delete non saved data

Directory Title:

The directory where the widget is stored

Widget author:

The widget author

Widget authors email address:

The email address of the widget author

Height of the widget:
 0
The height of the widget

Menu settings

Widget thumbnail

Widget thumbnail:

Widget screenshot

Widget screenshot:

Revision information

Comment settings

URL path settings

Authoring information

Publishing options

Development

• Devel settings
• Empty cache
• Execute PHP Code
• Function reference
• Hook elements()
• Node access summary
• PdfInfo()
• Rebuild menus
• Reinstall modules
• Run cron
• Session viewer
• Theme registry
• Variable editor


developed by IMC AG  Advanced Learning Solutions

Figure 6: ROLE Widget Store - Add a new widget form

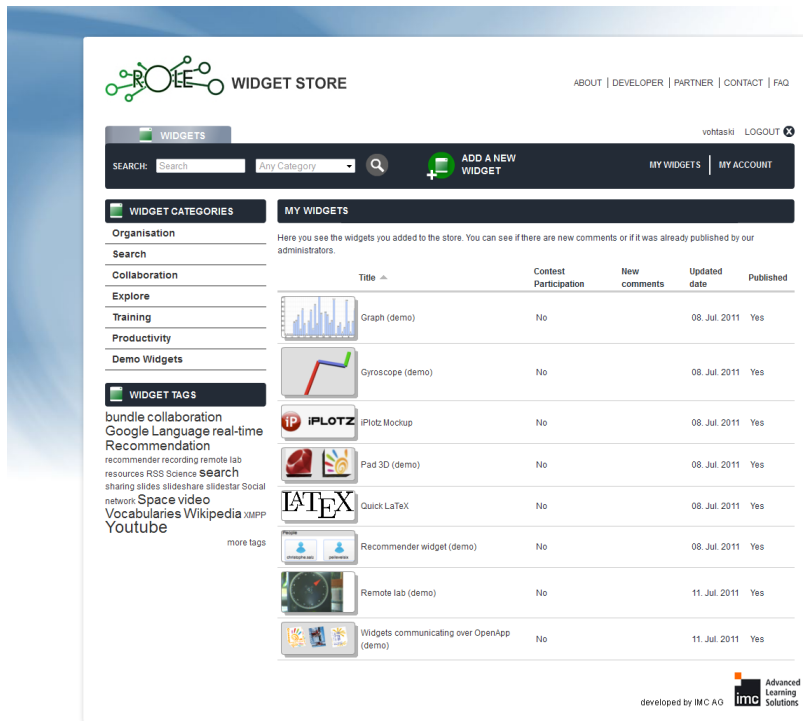


Figure 7: ROLE Widget Store - My Widgets

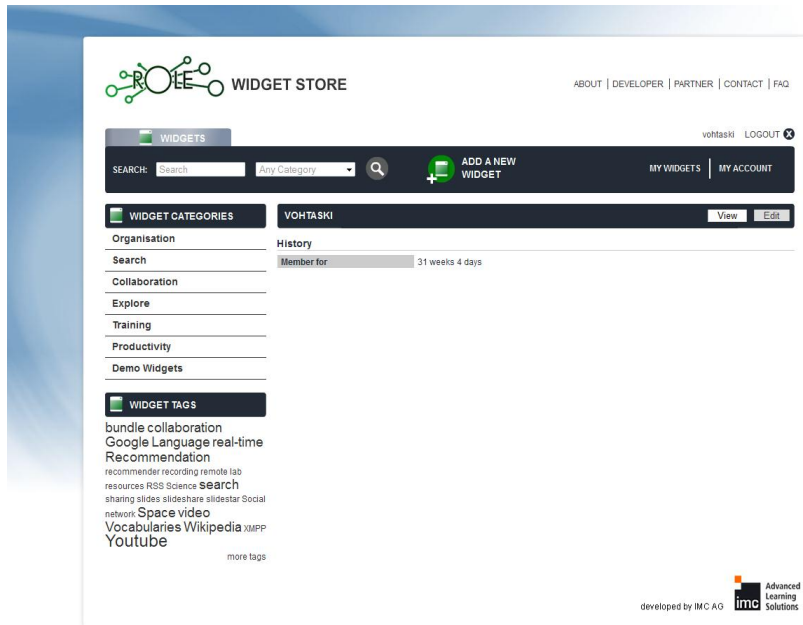



Figure 8: ROLE Widget Store - User Profile


WIDGET STORE

[ABOUT](#) | [DEVELOPER](#) | [PARTNER](#) | [CONTACT](#) | [FAQ](#)

WIDGETS

vohtaski

LOGOUT

SEARCH

Any Category

+

ADD A NEW WIDGET

MY WIDGETS

MY ACCOUNT

WIDGET CATEGORIES

Organisation

Search

Collaboration

Explore

Training

Productivity

Demo Widgets

WIDGET TAGS

bundle collaboration

Google Language real-time Recommendation

recommender recording remote tab resources RSS Sueno

search

sharing slides alideshare slidestar Social network

Space video

Vocabularies Wikipedia

Youtube

more tags

FREQUENTLY ASKED QUESTIONS


How can I add an OpenSocial widget to the store?

How can I add an OpenSocial widget to my widget container?

What kind of widgets could be added?

How can I add an OpenSocial widget to the store?


1. Click on the Add a new widget button in the Widget Store.




2. To create widget, you can:

a. Follow steps described below

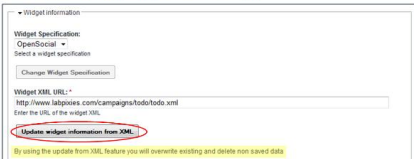
i. On the page opened provide widget name and text description. Assign widget to one of the widget categories: Collaboration, Content, Language, Organization, or Science.



ii. Provide widget URL and further information, such as Title, Author, Authors email-address, and Tags. You can also upload widget thumbnail and screenshot.




b. Use an XML-Code-Template: <http://www.lalpoies.com/campaigns/todotodo.xml>. Please change the template accordingly and paste your URL in the Widget XML URL entry field. Other entry fields will be filled in automatically by clicking on Update widget information from XML button. Please note, that by using the update from XML feature you will overwrite existing and delete non saved data.



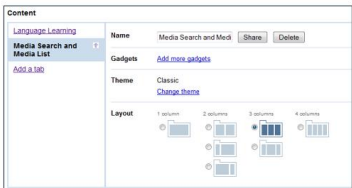
3. Click on Preview button to view the result or on Save button to save the widget.

How can I add an OpenSocial widget to my widget container?

1. Login in your iGoogle account or create a new one.



2. Click on Options and then on iGoogle Settings at the right top of the page. The iGoogle settings page is now displayed. Select or create a tab, in which you would like to add the widget.



3. Click on the Add to iGoogle button on the widget page in Widget Store. In the iGoogle window opened, click once more on the Add to iGoogle button.

Figure 9: ROLE Widget Store – FAQ



Figure 10: ROLE Widget Store - Static Content Example

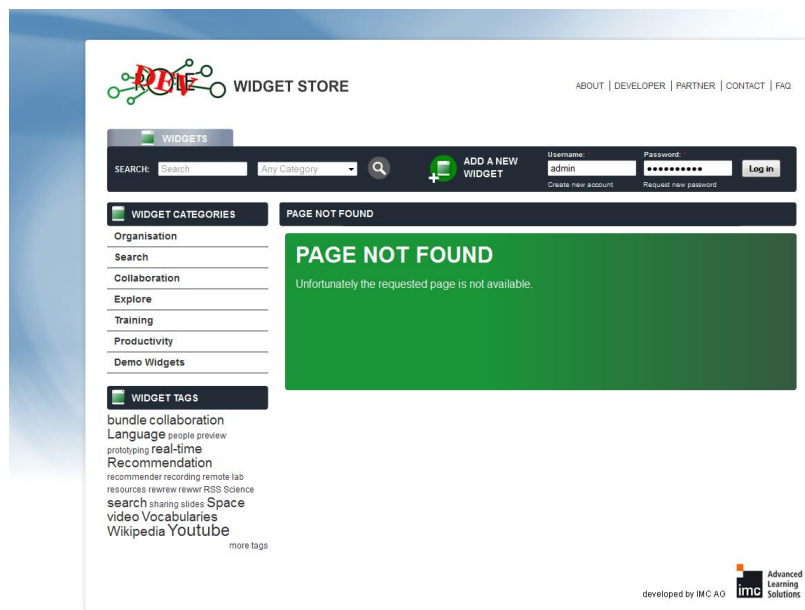


Figure 11: ROLE Widget Store – Page not found

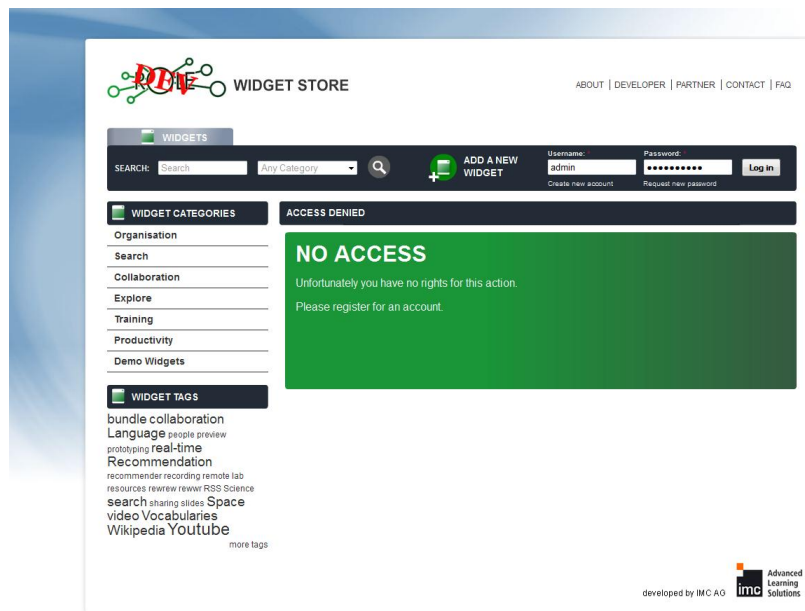


Figure 12: ROLE Widget Store – Access denied

Appendix W Forum of iplotz.com

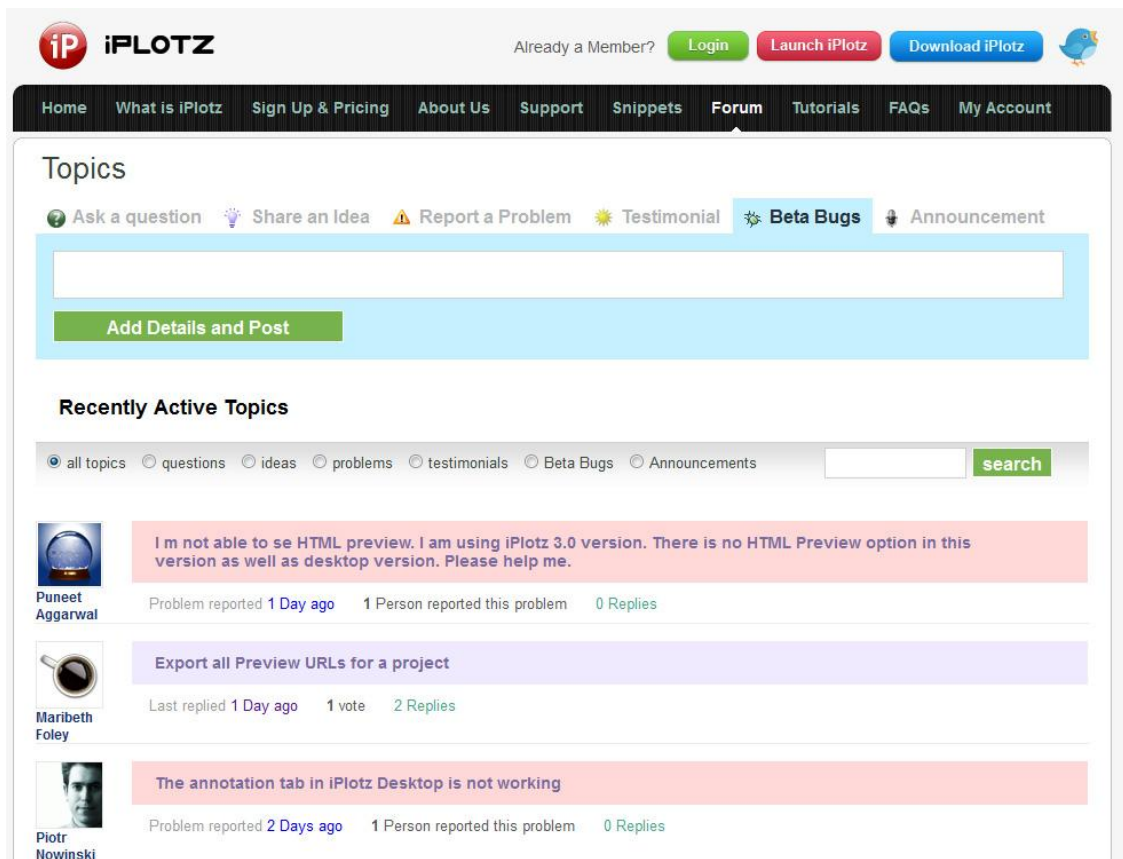



Figure 13: Shows a forum-realisation by iPlotz (<http://iplotz.com/forum/>)

Appendix X Mock ups of the Bundle Editor

 WIDGET STORE

ABOUT | TOUR | DEVELOPER | PARTNER | CONTACT | HELP

EN

Bundle Information

Tools

User Name LOGOUT

Title

Lorem ipsum dolor

Description

Lorem ipsum dolor

Tags

Lorem ipsum dolor

Prerequisites

Lorem ipsum dolor

Target competencies

Lorem ipsum dolor

Save

Test

Figure 14: Mock up of the Widget Bundle Editor - Metadata

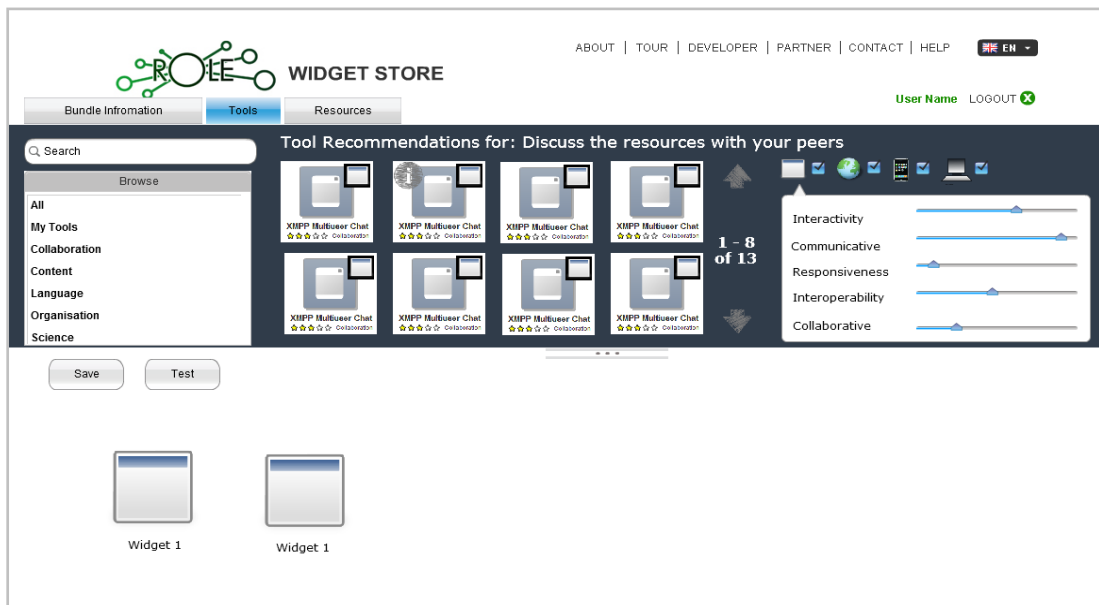


Figure 15: Mock up of the Widget Bundle Editor - Tools

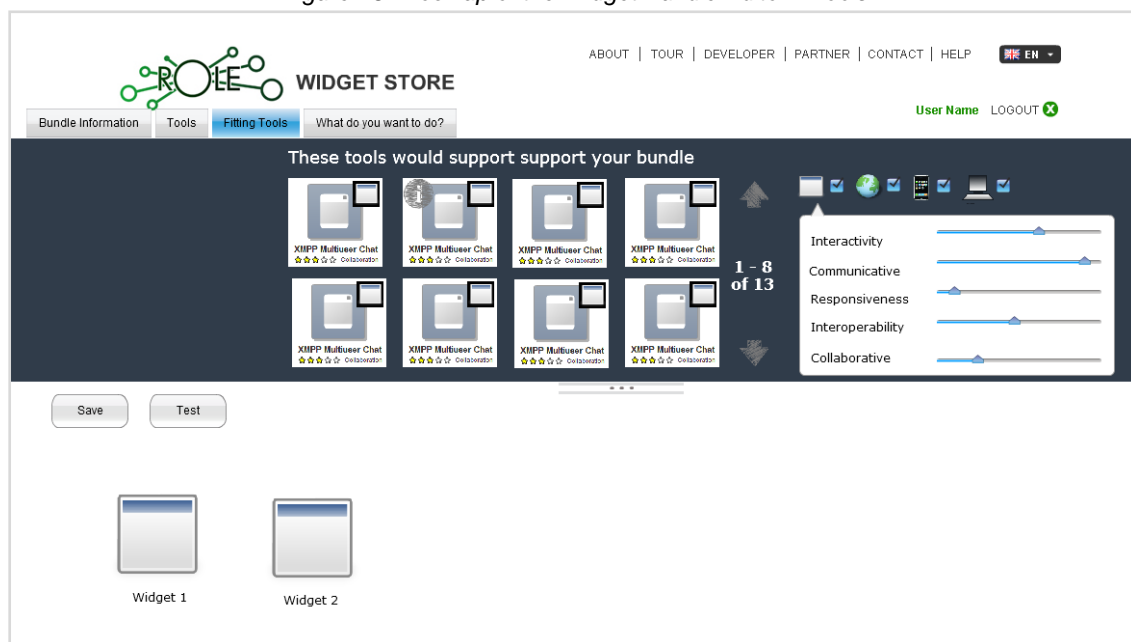


Figure 16: Mock up of the Widget Bundle Editor - Fitting Tools

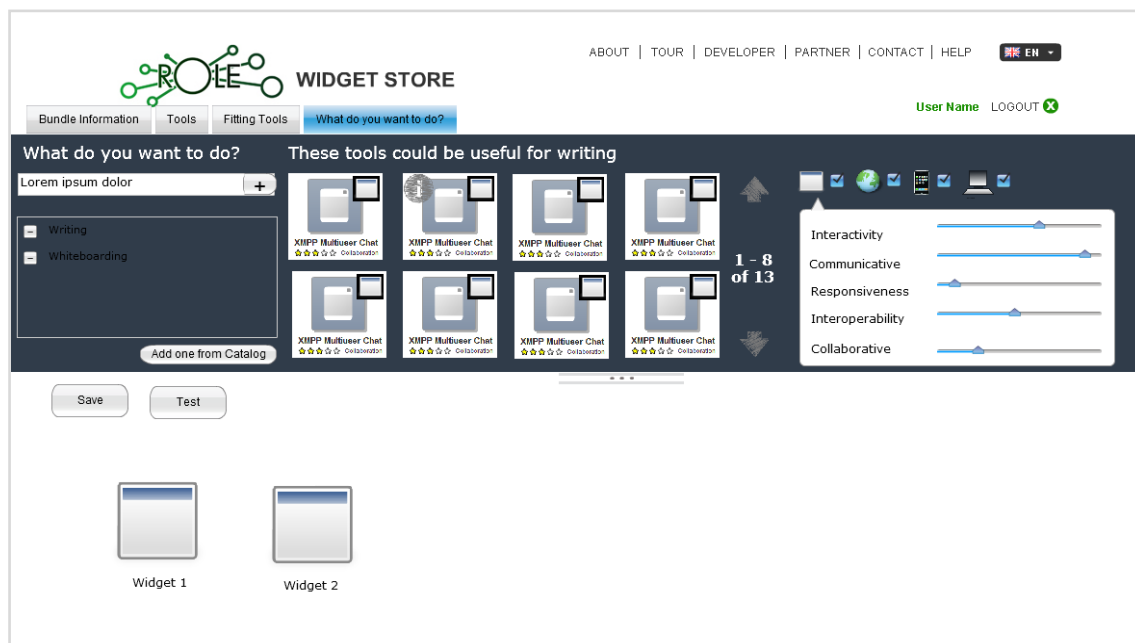


Figure 17: Mock up of the Widget Bundle Editor - What do you want to do

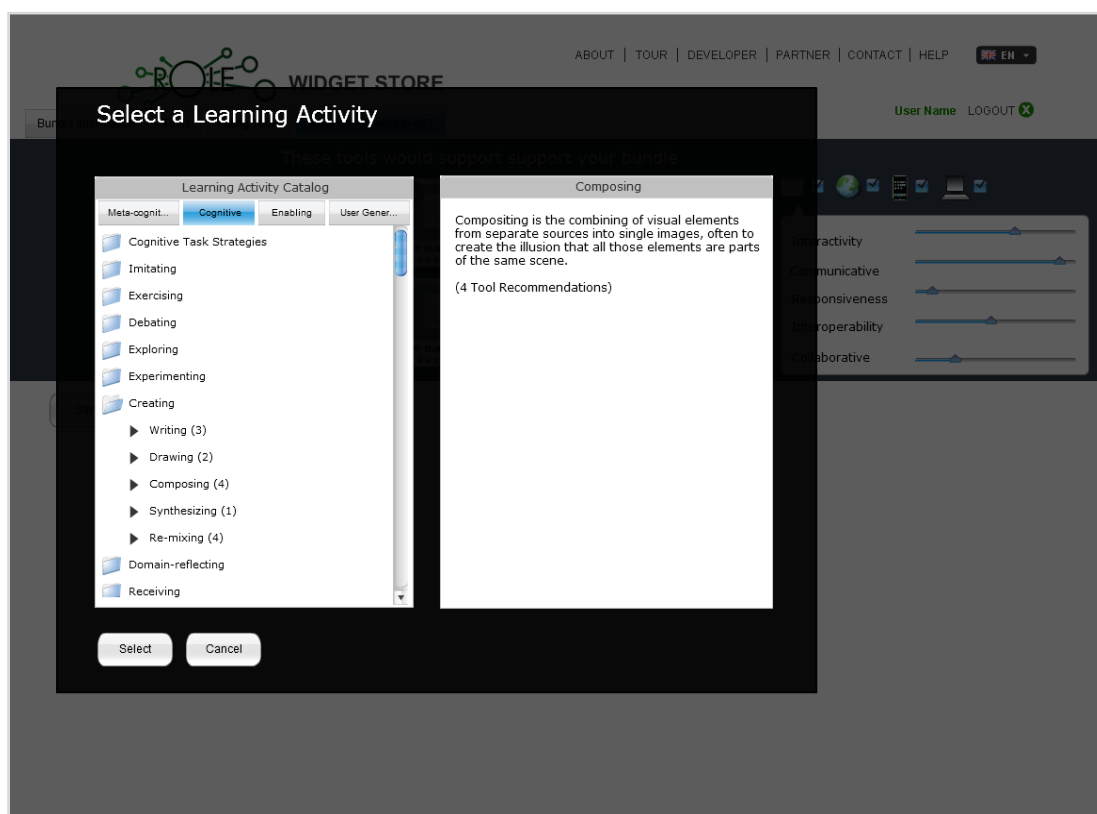


Figure 18: Mock up of the Widget Bundle Editor - What do you want to do (Selection)