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## D3.10 Final report on the software

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## Revision Control

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## Executive summary

The present document is a deliverable of the CATALYST project funded by the European Commission's Directorate General for Communications Networks, Content & Technology (DG CONNECT), under its 7th EU Framework Programme for Research and Technological Development (FP7).

This deliverable is the outcome of all Development Tasks engaged in WP3. The focus of this deliverable is therefore to offer a panoramic view of the evolution of all technical components of the CATALYST ecosystem. It covers 10 different deliverables from D3.1 to D3.9, including D3.7.1 and D3.7.2.

All 10 deliverables are structured similarly:

Status of the last deliverable and developments anticipated at this date

Tests conducted

Evolution of the tool (planned and further to the tests)

Development tasks to be completed before the end of Catalyst (Oct. 1st, 2105)

Most of the users tests have been conducted as of June 30th, 2015. Nevertheless, there are still a few tests in progress and a last round of tests will be conducted in July 2015. That is why some of the feedbacks with an impact on the software will be known by the end of August 2015, before the final round of technical development. Aside from a few exceptions, an overwhelming majority of technological developments that were initially anticipated have been or will have been developed by the end of CATALYST. As importantly, a very large proportion of developments that were not initially anticipated in the Description of Work for CATALYST have been effectively carried out as they appeared to be instrumental in ensuring the success of the CATALYST ecosystem when used by real-world communities.

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## 1. Architecture and Cross-Platform Interoperability

### Task Leader: I4P

Previous relevant deliverable: [D3.1](#) (6)

Next relevant deliverable: No remaining deliverable on Architecture and Cross-Platform Interoperability.

### 1.1 Status of the last deliverable and developments anticipated at this date

The last deliverable described the interoperability specification, especially the interchange format, which has now been broadly implemented in by all technical partners, using widely different technologies. Some partners (mostly I4P, and Wikitalia) have used semantic Web technologies to represent or interpret the CIF data, while others have written writers and parsers based on the underlying json. The specification has undergone minimal changes to adapt to actual development requirements. This shows that the technical choices made were appropriate for an ecosystem development.

However, we have had some performance issues, especially whenever we tried to use semantic inference; some aspects of the specification need further clarification; and some aspects of the specification have not been used much, especially around the widget interoperability layer. It is unlikely that the latter part will be developed, as partners have not identified this as a high-priority need, and resources were reallocated to analytics display.

### 1.2 Tests conducted

The cross-platform interoperability has not been tested separately, but has been tested the most extensively, insofar as it has made a lot of the other testing possible. The integration of visualization, dashboard and analytics in all platforms depend on that layer. In particular, it has been used to successfully import conversations from some of the open call partners, such as Loomio and Edgeryders.

### 1.3 Evolution of the tool

#### 1.3.1 Evolution already planned:

Development of the writers (OU, I4P) and parsers (OU, UZ, Wikitalia) for the core CIF format; development of reusable Widgets (I4P); development of harvesting importers for mailing lists and facebook posts (I4P). Implementation of a secure user de-anonymization protocol for visualizations.

#### 1.3.2 Evolution further to the tests:

Development of harvesting importers for Atom feeds (I4P) and Drupal (I4P and Wikitalia).

### 1.4 Development tasks to be completed before end of Catalyst

#### 1.4.1 Evolution already planned:

- o I4P still has to implement a CIF parser in Assembl, and handle node and link types appropriately.

## 2. Social network interconnection layer

### Task Leader: I4P

Previous relevant deliverable: [D3.2](#) (8)

Next relevant deliverable: No remaining deliverable on Social Network Interconnection layer.

## 2.1 Status of the last deliverable and developments anticipated at this date

We planned to support actual mirroring between social networks, notably for Facebook:

We want to allow a single synthesis, visualisation or message to be shared on Facebook, and then import back into Assembl the responses to that post on Facebook

This process would require notifications for users if other participants react to the post. In the immediate future, this task will focus on additional work on message transformation, to improve ergonomics in the web interface and make the outputs of the other tasks (visualisations, syntheses) available in mail notifications.

We have also implemented the importation of Atom feeds into Assembl, which allows the feeds to be exposed as CIF and is able to bring it into the Catalyst ecosystem of tools. Similarly, data can be imported from Drupal via Edgesense and be exposed as CIF through Assembl. The Atom feed importation was tested with the Loomio platform, whilst the Edgesense importation was tested with the Edgeryders platform.

## 2.2 Tests conducted

Tests on the connection between Assembl and Loomio as well as Edgesense were conducted in April and May 2015. In both cases, the importation capabilities worked as expected. Loomio and Edgesense did not have the technical requirements for Assembl to push posts into their respective platforms.

### Importing Loomio discussions into Assembl:

For the Loomio test which was part of the Open Call for Collaboration, we used the availability of public Loomio threads in Atom format. We developed an Atom importer, and an Atom -> CIF converter. The resulting messages have been imported into Assembl. The Loomio test consisted of debating on the Loomio platform, and using the Assembl version of the debate to browse it differently. We programmed the Atom importer to run regularly in order to receive the newly posted messages and keep the Assembl version of the debate up-to-date. Everything went OK except that our Atom importer was sometimes blocked, so we had to trigger importation by hand, which resulted once in a delay of a few days (the time it took for us to notice it). A participant noticed the desynchronization and posted about it, which notified us. Also, very small differences in the messages have been found, like the fact that the Atom posts were not converting Markdown format (for users who were posting on Loomio using Markdown, which gets interpreted by the Loomio platform).

## 2.3 Evolution of the tool

### 2.3.1 Evolution already planned:

#### o Facebook

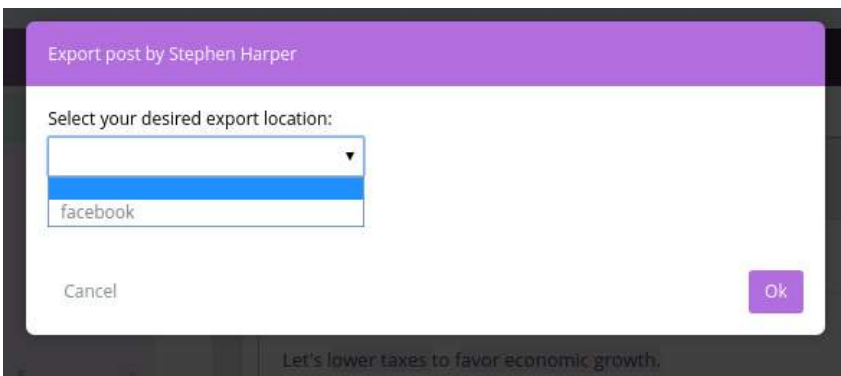
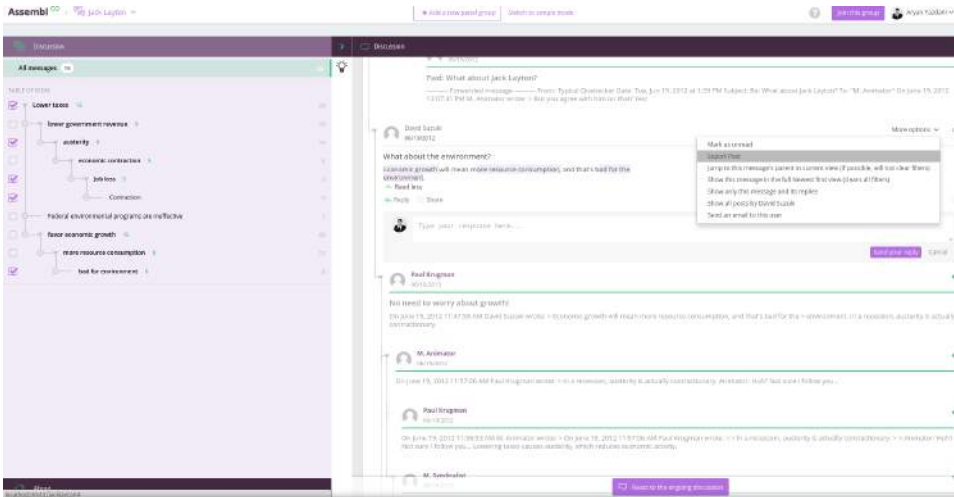
- Give elevated users (harvesters, sysadmins, moderators, etc) the capability to export any post or synthesis from Assembl into the Facebook ecosystem.
- Assembl utilizes Facebook's API to import posts and comments from the Facebook ecosystem in the form of Assembl posts.
- The platform has the capability to combine the exporting of Assembl posts, and importing of Facebook posts into a streamlined system to generate discussion on the same subject within both platforms.
- Note, however, that Assembl will not export responses to a post from within Assembl into Facebook. Aside from transmitting one post to Facebook, Assembl will routinely read and import Facebook comments, in the form of Assembl posts, in response to the originally exported post.

#### o EdgeRyders & Loomio



- Give elevated users (sysadmin, moderators, etc) the capability to import specific discussions from Loomio and Edgeryders
- Discussion activity can be bolstered with the seamless integration of external discussions from Loomio and Edgeryders into Assembl.

Here are all the evolutions of the Facebook API:




Export post by Stephen Harper

Select your desired export location:  
facebook

Pick where to post to:  
Everyone

Suggested preview:  
Let's lower taxes to favor economic growth.



Name

Caption

Description


Cancel Ok

Export post by Stephen Harper

Select your desired export location:  
facebook

Pick where to post to:  
Your Wall  
Your Pages  
Your Groups

Suggested preview:  
Let's lower taxes to favor economic growth.



Name

Caption

Description

Cancel Ok

### 2.3.2 Evolution further to the tests:

Not applicable due to test starting in July 2015

## 2.4 Development tasks to be completed before end of Catalyst

The remaining development tasks are:

- Autocomplete list for pages, groups, friends
- Prettify the form's appearance. Current development efforts have been on the functionality of the feature

- Auto-generate a more attractive photo that is relevant to the message being pushed

### 3. Semantic Tagging, Annotation and Mapping environment

**Task Leader: OU**

Previous relevant deliverable: [D3.3](#) (8)

Next relevant deliverable: D4.3 Project Testbed: Harvesting, Mapping & Analysing Arguments (23)

#### 3.1 Status of the last deliverable and developments anticipated at this date

In the last report we presented the first LiteMap prototype and its three main functionalities: Web Annotation, Grouping mechanisms, and Mapping functions. Also the LiteMap testing website was set up at: <http://maptesting.kmi.open.ac.uk/>

At that stage we anticipated that we'd set up a live and freely available website and we'd pursue the following development directions:

- Developing a sidebar or some equivalent mechanism of Web harvesting and mapping in the same "visual" space. The idea was initially to implement a coupled visualisation of the map and the annotated Webpage so that users could map the harvested idea directly from the browser. A better solution has been found by adding an "inbox sidebar" to the mapping area through which harvested content can be easily explored and added to the map.
- Adding moderation mechanisms for group joining. We also planned to implement privacy at the map level and not at group level, so if a map is in a group and it is made private this is visible only to the members of that group.
- "Opening up" the data model or extending it to allow better interoperability and bigger mapping power.
- Developing alternative Visualisations to the graph network, which was identified as the main focus of future work.

The entire above coding goals have been achieved and the free LiteMap tool has been made available at the following address: [litemap.net](http://litemap.net)

#### 3.2 Tests conducted (user feedbacks)

Since the starting of the projects LiteMap was tested by CSCP (Catalyst partner), OuisShare (Open Call recruited community) and Engage project (an ongoing eu project which asked to use the tool at no costs).

As a consequence of the testing the tool has been widely improved. The main users feedback are listed below:

- Need of mechanisms to add harvested content more easily to the map and not through pop-ups.
- Need of correcting mistakes, such as editing and changing nodes type directly into the map.
- Ability to add more than one level of ideas to map debates at different granularity.
- Adding a "quicker" entry mechanism for harvested content.
- Being able to embed editable maps into partners' websites.
- Being able to vote on ideas directly in from the map
- General UX improvements such as colors, iconography, exploration and mapping mechanisms etc.

#### 3.3 Evolution of the tool

##### 3.3.1 Evolution already planned:

As mentioned above all the improvement already planned have been implemented successfully. Between those we list the most prominent changes:

- New Mapping features and actions
  - Node Toolbars
  - Voting on nodes
  - New draggable div-based node explore view.
  - Right-click drag and drop node linking
  - Right-click node creation menu as well as node creation toolbar.
  - Map specific search.
  - Linear view.
- Editable embeddable maps
- New browser extensions
- New button to get CIF for Maps and Groups
- Help movies
- Added four alternative visualisations to the graph view for argument maps (four alternative visualisations have been implemented):
  - Sunburst
  - Conversation Nesting
  - Treemap - Leaves
  - Treemap - Top Down.

### 3.3.2 Evolution further to the tests:

As a direct result of the testing feedback we have:

1. Expanded the data Model to allow more mapping freedom (see image below to see the difference between base and expanded data model)

## Expanded Datamodel

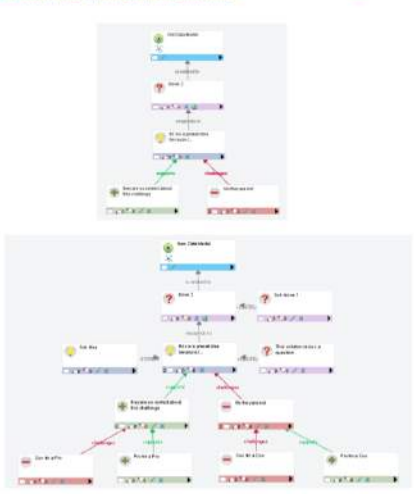
Base Datamodel:

Issue	-> is related to	-> Challenge
Idea	-> responds to	-> Issue
Pro	-> supports	-> Idea
Con	-> challenges	-> Idea

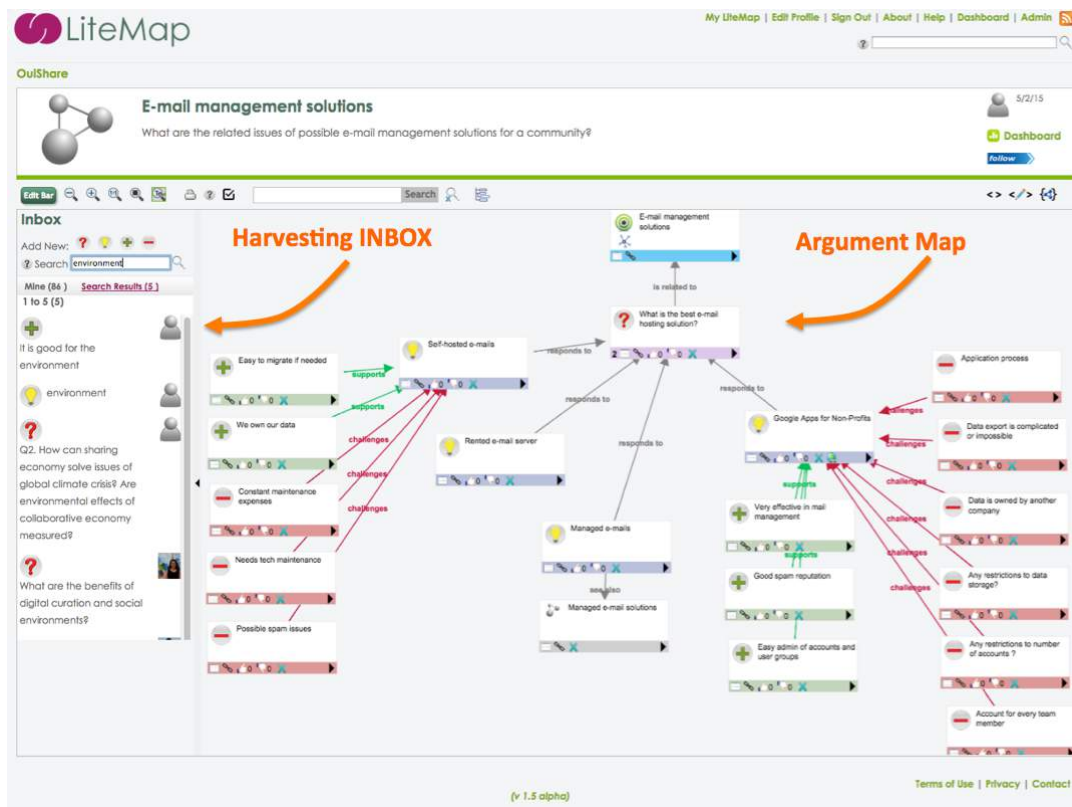
New Expansion to Datamodel:

Pro	-> supports	-> Pro/Con
Con	-> opposes	-> Pro/Con
Idea	-> is part of	-> Idea
Issue	-> raised by	-> Issue
Issue	-> raised by	-> Idea



The image shows two hierarchical diagrams. The top diagram, labeled 'Base Datamodel', shows a simple flow from 'Issue' to 'Challenge' and 'Idea'. The bottom diagram, labeled 'Expanded Datamodel', shows a more complex structure with 'Pro' and 'Con' nodes branching from 'Issue', and 'Idea' nodes branching from 'Pro' and 'Con'. It also includes 'New Expansion' nodes like 'is part of' and 'raised by'.

2. Added background images on maps as a first step toward effective support of geo-deliberation processes (debates that have a spatial and geographical component to it)
3. Added an “inbox sidebar” to the mapping area through which harvested content can be easily explored and added to the map.



4. Added a drag and drop mechanism from the inbox sidebar to make maps nodes adding faster.
5. We added an embeddable version of the tool so that community members could map in the context of other Websites and without the need to leave the Webpage.

### 3.4 Development tasks to be completed before end of Catalyst

At this stage we anticipate that the final developments of LiteMap will mainly consists of: refining the existent coding features, adding mechanisms for easier importing/exporting data, and answering to emerging community needs that are being gathered during the ongoing community testing.

We also plan to exchange data between partners, in particular between LiteMap and Assembl. To this end, both OU and I4P will implement the protocol for round-trip data transfer mentioned in section 1.3. This will allow, for example, to create visual maps (in LiteMap) of ideas harvested in Assembl.

## 4. Social network analytics

**Task Leader: Wikitalia**

Previous relevant deliverable: [D3.4](#) (8)

Next relevant deliverable: D4.1 Project Testbed - Social Network Analytics 23

### 4.1 Status of the last deliverable and developments anticipated at this date

We planned to have a working integration with the other CATALYST tools via parsing of the CIF file format to enable the social network analytics dashboard to be more useful with the collective intelligence tools developed and make it integratable with the CATALYST dashboard.

We also planned to have a better integration with drupal and the ability to handle more different source data.

## 4.2 Tests conducted (user feedbacks)

Usage within Wikitalia and associated communities clearly shows that different community dynamics are captured by the visualization, and initial usage of the tool supports the hypothesis that these visualizations can help interpret those dynamics.

These are the main results from the user testing with real communities of different sizes:

- The visual complexity of the network is a challenge in the beginning but Edgesense provides an easy way for users to have more of a network thinking about their communities.
- It provides an overall understanding of the network, how big it is, how modular, and how information flows throughout the network.
- For older and big communities, it is hard to know which are the old members and which are new, and how many of the old members are still active in discussions.
- It provides a quick tool in knowing more the central members of the community and the load of communication done by moderators.
- It shows how the community develops, which could be used in various ways.
- It shows how sustainable the sub-communities are with or without the moderators. ( sustainability here is about keeping the discussions going ).
- Overall, the tutorial helps a lot new users.

## 4.3 Live instances

There have been a number of installations done during the testing phase that have given us a good feedback on the system implemented. The technology developed is flexible enough so as to easily adapt the processing code and the visualization to extract and get insights from a very different context. Here are some of them, organized by type of community (from a technical standpoint):

### Drupal-hosted communities:

- <http://edgesense.innovatoripa.it/>
- <http://wikitalia.spazidigitali.com/edgeryders>
- <http://wikitalia.spazidigitali.com/matera2019>

### Twitter conversations:

- <http://wikitalia.spazidigitali.com/mt2019/>

### Mailing lists:

- [http://wikitalia.spazidigitali.com/animation\\_fr](http://wikitalia.spazidigitali.com/animation_fr)
- <http://wikitalia.spazidigitali.com/cyou1>
- <http://wikitalia.spazidigitali.com/correspondants>
- <http://wikitalia.spazidigitali.com/espace-sante>
- <http://wikitalia.spazidigitali.com/fablab-fr>
- <http://wikitalia.spazidigitali.com/python>

### Catalyst CIF embed:

- [http://discussions.bluenove.com/edgesense/catalyst\\_embed.html?url=https%3A%2F%2Fliitemap.net%2Fapi%2Fconversations%2F1371081761300912288001398442436%2F%3Fid%3D137108145250626041001433233067](http://discussions.bluenove.com/edgesense/catalyst_embed.html?url=https%3A%2F%2Fliitemap.net%2Fapi%2Fconversations%2F1371081761300912288001398442436%2F%3Fid%3D137108145250626041001433233067)

## 4.4 Evolution of the tool:

### 4.4.1 *Evolution already planned:*

This is a summary of the elements developed for the project.

A set of Python scripts that compose the heart of Edgesense. Python has enabled us to choose from a very rich library of social network analysis algorithms to calculate the metrics: networkx. We have used the networkx library and integrated it with our code to create a processing pipeline that takes the data from various sources (Drupal community sites, twitter conversations, mailing lists data) and builds the network of interactions among the users. All the code on github: <https://github.com/Wikitalia/edgesense/tree/master/python> is original work developed for this project. The python scripts also implement a server to parse the Catalyst interchange format (CIF) and compute the network and its metrics. The script is available in the same repository

A dashboard has been built to visualize the network metrics and the network graph. The technology architecture used for the dashboard is HTML5 & Javascript and we have chosen state-of-the-art components as the base of our code: jquery, underscore.js, bootstrap, d3.js, rickshaw, sigma.js. All the html files in <https://github.com/Wikitalia/edgesense/tree/master/static> and all the javascript files in <https://github.com/Wikitalia/edgesense/tree/master/static/js/edgesense> have been developed specifically for this project.

All of the PHP code in <https://github.com/Wikitalia/edgesense/tree/master/php> has been developed for the project, this includes:

An uploader application that can work with the static dashboard to collect results from the built in tutorial and survey. A drupal module (see also: <https://www.drupal.org/sandbox/lucamearelli/2413547>) that implements a configurator for the processing pipeline and the dashboard. This allows a drupal community to embed the SNA components in a simple way.

### 4.4.2 *Evolution further to the tests:*

We are planning to improve the installation process for the drupal module by streamlining the setup of the module making the process to obtain the first dashboard easier. We will also start the process to get the module approved as an official Drupal module. This will also improve the user experience of installing the module.

For the dashboard we are planning to improve the usability of the network visualization for the cases where the current network graph would be too dense to understand completely.

## 4.5 Development tasks to be completed before end of Catalyst

Before the end of Catalyst we foresee being able to significantly improve the usability of both the network visualization in the dashboard and the install process for the drupal module.

## 5. Deliberation Analytics

### Task Leader: UZH

Previous relevant deliverable: [D3.5](#) (8)

Next relevant deliverable: D4.2 Project Testbed - Argument Mapping & Social Network Analytics (23)

### 5.1 Status of the last deliverable and developments anticipated at this date

In the last report, we described our progress in developing a server application that calculates analytics for the argument maps built by the harvesting tools (i.e. Assembl, LiteMap and DebateHub). The following further developments were anticipated at that time:

- developing additional analytics, including metrics (numeric measures of the status of a harvesting engagement) and alerts (user-personalized recommendations about which map posts or users a system user should attend to)
- co-designing, with OU, visualizations that display selected alerts and metrics in ways that give users powerful insights into the state of the harvesting engagement and are easy-to-understand

All of these developments have been implemented, validated, and documented.

### 5.2 Tests conducted (user feedbacks)

The analytics server is a back-end service whose direct users are the harvesting tools i.e. DebateHub, LiteMap, and Assembl. We accordingly conducted several hundred tests of the interoperability between the harvesting tools and analytics server, wherein a harvester tool sent argument maps, represented using CIF (Catalyst Interchange Format), to the analytics server, and the server returned analytics for those maps.. In the course of this we identified many small interoperability issues - e.g. regarding different interpretations of aspects of the CIF specification - in addition to issues that affected server response time.

### 5.3 Evolution of the tool

#### 5.3.1 Evolution already planned:

The planned development tasks (which, as noted above, were all completed) included implementation, documentation and validation of 26 analytics that build upon such techniques as statistical and topological measures, time series analysis, network analysis, eigenvector analysis, and Bayesian propagation. These analytics fall into several main categories, assessing:

- the distribution of *individual* user activity and support in the map (e.g. to identify user interests and biases)
- the distribution of *community* activity and support in the map (e.g. to identify groupthink or polarized “cliques” in the community, as well as for enabling a recommendation capability)
- patterns in *map topology and growth* (e.g. to identify mature and/or underdeveloped map branches)

UZH also developed, validated and documented an “alerts” capability, which has been fully integrated into the LiteMap and DebateHub harvesting tools. We have developed 13 alerts so far, which fall into three main categories:

- identifying *posts* that may interest a particular user e.g. because the user has not yet seen or rated that post, and the post appears in a map branch that has interested that user in the past
- identifying *users* that may merit attention e.g. that have been “lurking” (viewing but not rating or contributing posts)



- identifying *map branches* that may merit additional contributions e.g. because they are currently under-populated or under-evaluated

The complete list of the analytics server's metrics and alerts will be documented in full in our project's final reports.

UZH also worked with OU to design visualizations for presenting the analytics (both metrics and alerts) in an accessible and insight-promoting way to the harvesting tool users. These are described further in section 6, below.

### 5.3.2 Evolution further to the tests:

The interoperability tests led to a number of clarifications in the CIF specification, as well as to improvements in the analytics server CIF parser. The tests also drove enhancements that radically improved server response time, including more efficient analytics algorithms, CIF caching, and compression of the data sent to and from the analytics server.

## 5.4 Development tasks to be completed before end of Catalyst

The remaining development tasks for this track of the project include extending the suite of implemented metrics and alerts, refining the algorithms used to prioritize alerts for users, and co-designing additional analytics visualizations with OU. We also plan to integrate the alerts capability with the Assembl harvesting tool.

## 6. Map visualization and edition tools

**Task Leader: OU**

Previous relevant deliverable: [D3.6](#) (8)

Next relevant deliverable: D4.3 Project Testbed: Harvesting, Mapping & Analysing Arguments (23)

### 6.1 Status of the last deliverable and developments anticipated at this date:

In the last report we described the four main functionalities of DebateHub: Grouping, Argumentation-based Discussion, Voting, and Moderation; and the main concept mapping

We also described the main functionalities of concept mapping and synthesis creation, commenting and publishing in Assembl.

The following developments were anticipated for the two tools.

**For Debate Hub**, the following developments were anticipated:

- Adding new Group management features to allow group invitation.
- Interface changes due to comparative testing with alternative online discussion tools.
- Adding Alternative idea selection mechanisms
- Adding Moderation features
- Developing attention mediation alerts and visualisations.
- Improving loading speed

All the above developments have been implemented exception made for two: Alternative idea selection mechanisms, and comparative testing with alternative online discussion tools.

The first development will be object of the final coding phase and will be reported on Month 23. Comparative testing was not carried out in the end because it put too much constrains for the community involved in the testing. They argued that splitting community participation in two or more groups to carry on comparative analysis would have been counterproductive since community effort would be split. Also because community members often know each other and communicate, than the results of the analysis would have not been sound.

**For Assembl**, the following developments were anticipated:

- Idea-typing (IBIS categorizing) : ideas in Assembl are currently untyped (uncategorized). It is required to support untyped ideas to support any message a participant may send. Assembl’s progressive structuring methodology applies just as well to an IBIS argument structure (for appropriate debates) as it does to a more general topic/subtopic structure. We intend to implement full IBIS support in the near future.
- Richer email version of the synthesis: right now, the system provides little help for providing an email version of the synthesis that allows participants to directly respond to a single point like they can on the web.
- Feedback on the synthesis: we intend to use the multi-criteria voting widget developed in Task 3.8 to solicit feedback on the synthesis as a whole (is the structure clear, is it too long/short, clear/unclear, well balanced/slanted, etc.) rather than just comments on individual ideas.

These developments were not yet carried out, because other tasks were deemed more urgent due to user feedback. In particular, we have noticed that the participants had more issues with navigating the conversation itself, as opposed to the table of ideas. One reason is that the culture of threaded conversation has been lost, most users carrying out their conversations in forums or facebook. Also, we found many users need to be guided through the software’s functionality, as the combination of functions is unusual. However, work on the table of ideas is still on the agenda, to be completed before the end of the project.

## 6.2 Tests conducted (user feedbacks):

**DebateHub** was so far tested by Purpose (Catalyst partner) and University of Naples (Community partner selected with the OpenCall)

Overall users found that Debate Hub has an intuitive interface and it was very easy to use.

In particular users really enjoyed the “debate health’ monitor and explainer and the idea “support/opposition” bar. They also enjoyed the clear UI layout of pro and con right next to each other which enables easy comparison. The social aspect of the platform such as the bio and pictures in the users profile were also appreciated to make sense of “who you are engaging with”). The voting features on ideas and arguments were also appreciated, as well as the in line entry boxes to easy add ideas.

As main improvements users suggested the following changes:

- Faster loading time
- Be able to upload media content
- Add social sign on
- Add helpers/introduction pages to explain how to use the site.
- Improving navigation back to the homepage.
- Allowing automatic group joining (for unvented groups)
- Redesign and simplify the homepage (too much information)

**Assembl** was so far tested by OECD, Ashoka and Loomio (Community partners selected with the OpenCall).

Overall users found that Assembl was well suited for complex debates. Major concerns were related to the onboarding efforts required by the system.

As main improvements users suggested the following changes:

- Improve onboarding and reduce time to get in action (e.g. “Too hard to get started”)
- Improve the navigation (e.g. “it was hard to know what to do first and why.”, “Having three panels made it difficult to know where to start.”)
- Improve synthesis visibility and usability
- Improve vocabulary (e.g. “Assembl has created it’s own lingo around discussions that I found distracting.”)

- Implement incentives and recognition system to better motivate participant to contribute (e.g. “Assembl could be much more fun, intuitive and using the principals of gamification to delight and add curiosity to site platform to hold the attention of users.”)
- Improve compatibility with older browsers
- Improve and diversify notification system
- Improve harvesting
- Improve overall performance (loading time, stability, bugs, etc.)

## 6.3 Evolution of the tool:

### 6.3.1 Evolution already planned on Debate Hub:

On **Debate Hub**, as mentioned above, most of the improvements already planned have been implemented successfully. Between those we listed, the most prominent changes are:

- Traffic light statistic on the Debate page.
- User obfuscation: Separation of private user data from main data on Restful API calls including a security key system.
- A new Moderators concept has been added to Debate Hub to allow Debate owners and group Admins to moderate Debates. This exposes two existing 'moderator' features: splitting an idea into more than one idea, and merging several ideas into one.
- These features were formerly only seen by system admins.
- New Debate sidebar section to list Debate moderators.
- New section under Ideas to list Moderator comments on an idea or its arguments.
- New Debate sidebar section to show Moderator Alerts relevant for the moderators of the Debate.
- New Debate sidebar section to show User Alerts relevant for the logged in user.
- Interface changes to move the 'Add Idea' form into the main section of the page to make adding Ideas more obvious. Also a small plus button has been added in front of the Arguments link on Ideas to show more obviously where you go to add arguments.
- Group admins have now been highlighted to the group by putting a border around their picture in the Groups members list.

### 6.3.2 Evolution further to the tests on Debate Hub:

As a direct result of users' feedback we implemented the following features:

- Implementation of Caching of key datamodel classes to enhance performance (faster loading pages).
- New group joining management system.
- 'My Groups' tab in user area to show groups I manage and groups I am in.
- New homepage design showing you your Groups and Issues when logged in.
- New scrolling lists on homepage.
- Social Sign on
- Rich content editor for groups and issues.
- Small interface tweaks.

### 6.3.3 Evolution already planned on Assembl:

On Assembl, many improvements planned before tests have been implemented successfully. Between those we listed, the most prominent changes are:

- So we have emphasized the structure of the message list, to make operations clearer, especially navigation.
- The connection between the table of ideas and the synthesis was sometimes unclear for users, especially as the ideas can be rephrased significantly. We now allow to navigate the table of ideas through the synthesis.
- We have also worked on keeping the context of the user alive, so they can resume a session in a known state.
- Better onboarding process (integration of a tutorial along with a more guided/explicit experience)
- Improved identification and login system
- Improved automatic notification system for new users
- Improved interface for notifications by email
- Improved notifications setting for participants and experts
- Improved user experience when writing a new message/post
- Improved experience when writing a synthesis
- Improved filters system for messages (e.g. filtering all messages from one user, from me, all messages replying to my messages, etc.)
- Improved formulation and vocabulary throughout Assembl
- Improved experience for writing a report from Assembl
- Possibility to share messages and ideas to social networks
- Possibility to switch from threaded views to flat views and vice versa (to see messages in different contexts)
- URLs available on messages and ideas' description
- Better compatibility with older browsers
- Improved overall performance (stability, bugs, speed, database, tests diagnosis, etc.)

#### **6.3.4 Evolution further to the tests on Assembl:**

As a direct result of users' feedback we implemented the following features in Assembl:

- Design and implementation of a Tutorial
- Development of the clickable synthesis
- Significant improvement of the performance of Assembl

## **6.4 Development tasks to be completed before end of Catalyst:**

### **DebateHub:**

At this stage we anticipate that the final developments of DebateHub will mainly consist of: refining the existent coding features, adding mechanisms for alternative idea selection, and answering to emerging community needs that are being gathered during the ongoing community testing.

### **Assembl:**

The final developments will mainly consist of the following items:

- Categorization of ideas (IBIS)
- Full synthesis content in email with topical feedback
- Possibility to cut and paste the nuggets in the synthesis
- Putting the message panel in the center of the basic interface to improve the focus of users on the messages
- Ability to easily go from a "Facebook/Twitter" view (unthreaded and reverse-chronological view) to a threaded view of each message in order to understand its historical context
- Integration of social media functions (like, @mention)
- Better understanding of links between messages and ideas ("Which idea is this message linked to?")
- Preliminary leaderboard with statistics on usage
- Ability to mark messages as harvested

- Improve filters and views configuration for an easier interaction
- Notifying community managers when a new user registers (to welcome him/her individually)
- Improvement of the stability of the interface for the harvesters
- Follow an idea (and all messages attached to it)

## 7. Weak co-occurrence creativity tool

### Task Leader: I4P

Previous relevant deliverable: [D3.7.1](#) (8),

[D4.4.1 Project Testbed: Online creativity Support / Textual co-occurrence](#) (14)

Next relevant deliverable: no remaining Deliverable.

### 7.1 Status of the last deliverable and developments anticipated at this date:

#### *The use of Wikipedia*

We planned to use the co-occurrence function on Wikipedia, in the form of the “See also” links. This presents several advantages:

- Most of the entries are concepts, not adjectives
- Wikipedia usually has at least minimal coverage even for emergent concepts (which allows harnessing a form of collective intelligence in and of itself).
- In the form of DBpedia, Wikipedia can be entirely downloaded to allow very fast server side processing.
- It gives us multilingual support, royalty free.

#### *Increased re-use of found videos*

If a participant found a video that is inspirational and relevant to a topic of the discussion, there is a strong chance that this video could inspire other people. This widget being focused on individual interaction, we believed there was a potential to explore by displaying the video inline with the messages in some circumstances.

### 7.2 Tests conducted:

Test on the new creativity widget will start on July 15, 2015 and will be implemented by CSCP.

### 7.3 Evolution of the tool:

#### 7.3.1 Evolutions already planned:

- Here are all the evolutions of the video-based creativity widget:
- Implementation of the search on Wikipedia in order to suggest “associated concepts”: the user types a term in the Wikipedia query field of the widget, the widget then queries Wikipedia for the page associated to this term, and looks for a “See also” (or equivalent) section in this Wikipedia page. It then displays back to the user a clickable label for each element (related page) found in this section. When the user clicks on one of these labels, it gets added to his Youtube search query.

Inspire me!

Use the search bar down here to find videos which would inspire you about the idea "How should we measure and define youth well-being?", in the "Wikiprogress Online Consultation on Youth Well-being" discussion. For example, you can use some of these keywords taken from the discussion:


well-being | definition | Different | concept | dynamic | one | relative


✕ youth | ✕ Philosophy of happiness  Search


Related terms (via Wikipedia)  
You can also type here a concept for which you would like to find some related terms. Then click on the found terms to add them to your video search.

happiness  Search

Aversion to happiness | Biopsychosocial model | Extraversion, introversion and happiness | Hedonic treadmill  
Mania | Paradox of hedonism | Pleasure | Psychological well-being | Serotonin | Subjective well-being  
Sara Ahmed | C. Robert Cloninger | Daniel Gilbert | Barbara Ann Kipfer | Stefan Klein | Koenig HG  
McMahon, Darrin M. | Richard Layard | Desmond Morris | Bertrand Russell | Martin E.P. Seligman  
Wladyslaw Tatariewicz

 **Hackschooling makes me happy | Logan LaPlante | TEDxUniversityofNevada**  
by TEDxTalks · 2013-02-13  
Never miss a talk! SUBSCRIBE to the TEDx channel: <http://bit.ly/1Fag8hB> When 13 year-old Logan LaPlante grows up, he wants to be happy and healthy.

 **Pyrrho and Ancient Skepticism**  
by · 2014-04-20  
credit to The History of philosophy without any gaps by Professor Peter Adamson. Pyrrho was a Greek philosopher from Elis, and founder of the Greek school of ...

 "I want to be an Astronaut" or

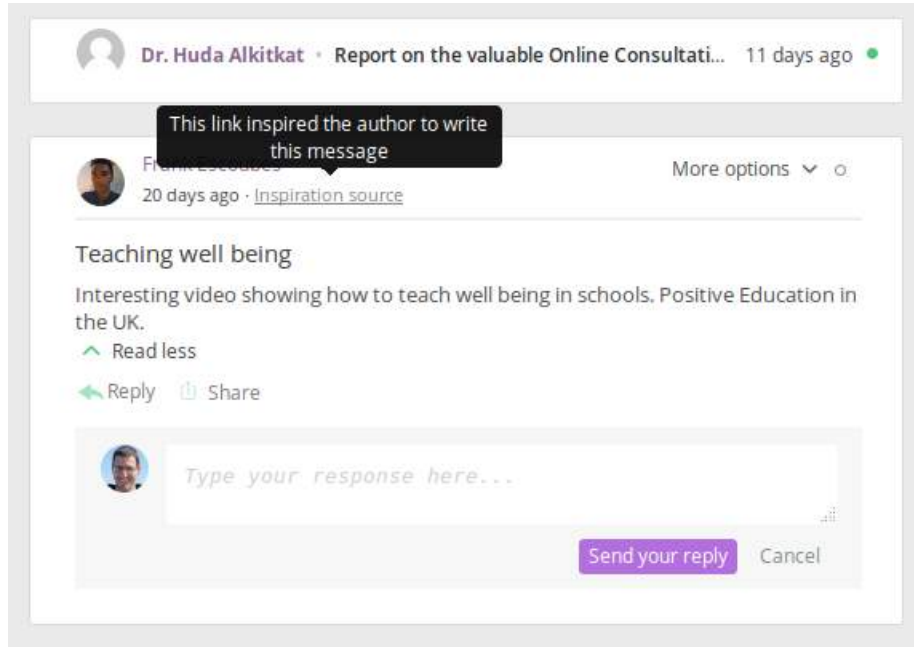
0:29 / 11:13

**Hackschooling makes me happy | Logan LaPlante | TEDxUniversityofNevada**

Does this video inspire you? Write your idea below

title

- Export of messages from creativity widget to Assembl message panel



- Improvement of video-based Creativity widget UI (buttons colors, elements sizing)
- Detect the language of the user, and use this language for translations of the User Interface and to query the right subdomain of Wikipedia
- Various improvements to errors handling

### 7.3.2 Evolution further to the tests:

Not applicable due to test taking place in July 2015

## 7.4 Development tasks to be completed before end of Catalyst:

The remaining development tasks are:

- Improve quality of suggested words (co-occurrences), by better filtering out stop words, by improving the internal co-occurrences algorithm, and by parsing the content of messages associated to the idea (instead of only the title and description of the idea and their children)
- Expand the initial list of suggested words shown to the user, by adding co-occurrences which have been automatically found on Wikipedia (this means executing several client-side searches on Wikipedia, using as input some of the initially suggested words)
- Small phrasing and user experience improvements

## 8. Gamification creativity tool

**Task Leader: I4P**

Previous relevant deliverable: [D3.7.2](#) (8)

Next relevant deliverable: D4.4.2 Project Testbed - Online creativity Support / Video-based gamification (22)

**D3.10 – Final report on the software ■ June 2015 ■ Imagination for People**

The CATALYST project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n°6611188

## 8.1 Status of the last deliverable and developments anticipated at this date:

- We wanted the online card editor to allow community managers to define their own card that is tailored to their context.
- Sharing decks of cards that are designed for or adapted to online interaction is a central objective. .
- We focused on the creativity tool itself, but a lot of the user motivation is likely to come from outside the widget itself. Specifically, in the case of Assembl, we intended to communicate prominently how long will a creativity session last, how much time left there is before the end of the session, and how many people participated already to try to increase participation.
- We wanted to better expose users of the platform to the cards that inspired a user already, giving a second chance for idea generation, and hopefully leading to “Oh, I also have a new idea” type of interaction.

## 8.2 Tests conducted:

Test on the new creativity widget will start on July 15, 2015 and will be implemented by CSCP.

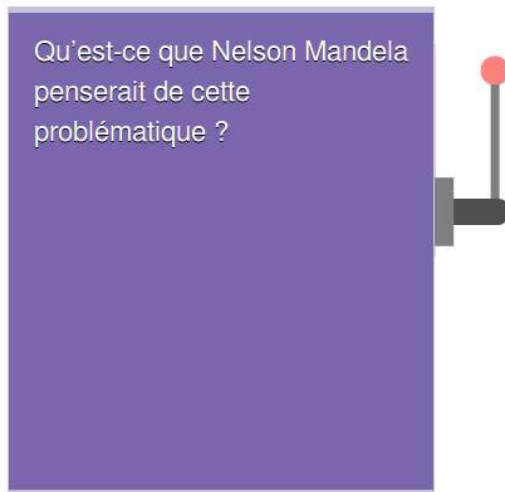
## 8.3 Evolution of the tool:

### 8.3.1 *Evolution already planned*

Here are all the evolutions of the card-based creativity widget:

- Integration of 1 additional deck of cards





Does this card inspire you? Write your idea below.



Send

- The card widget creator can import any deck of cards from the internet, by writing its URL. This way, debate animators can mimic the file format used by the 2 decks already available and create and import their own decks, or import a deck shared by the animators of another debate.

Configure the creativity widget associated to the discussion

[Back](#)

## Configuration of the card module (of a creativity widget)

Currently selected widget is [/data/Widget/1](#). The URL for a user to interact with this widget (on one of its associated ideas) is [here](#).

### Deck of cards

Choose here which deck of cards will be displayed to the user.

Deck 1 ([link](#))

Deck 2 ([link](#))

Other: URL

[Save](#)

- Development of the discussion feature attached to each card in the form of a mini-forum
- Improvement of card-based creativity widget UI

### 8.3.2 Evolution further to the tests:

#### D3.10 – Final report on the software ■ June 2015 ■ Imagination for People

The CATALYST project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n°6611188

Not applicable due to test taking place in July 2015

#### **8.4 Development tasks to be completed before end of Catalyst:**

The remaining development consists in enabling the widget page to resize its container (case of an iframe) once it's loaded, so that the User Interface takes just as visual space as necessary.

### **9. Pledging commitment system**

#### **Task Leader: I4P**

Previous relevant deliverable: [D3.8](#) (8), [D4.5 Project Testbed: Improving Engagement & Pledging](#) (14)

Next relevant deliverable: no remaining Deliverable.

#### **9.1 Status of the last deliverable and developments anticipated at this date:**

We are currently refactoring the voting widget, to enable optional link to an Idea as criterion (instead of mandatory), and to enable type-specific computation of the vote results by the backend: as the backend will know the type of question (Binary, MultipleChoice, Lickert, etc), it will know which algorithm to apply in order to aggregate the votes of every user and show these totals (and optionally compute which option is the winner).

#### **9.2 Tests conducted:**

Test on the voting widget will start on July 15, 2015 and will be implemented by CSCP.

#### **9.3 Evolution of the tool:**

##### **9.3.1 Evolution already planned**

Here are all the evolutions of the voting widget:

- o Add the "Binary" type of vote, for "Yes/No" questions

Voter sur l'idée 'Créer des vidéos pour nos médias sociaux' ✕

L'idée a-t-elle un impact fort et positif ?

**Impact**

forte

5

4

3

2

1

0

faible

0 1 2 3 4 5

faible **Faisabilité** forte

L'idée est-elle faisable et exécutable ?

**Force de mobilisation**

forte

5

4

3

2

1

0

faible

Suis-je susceptible de me mobiliser personnellement pour réaliser cette idée ?

**Réalisable cette année**

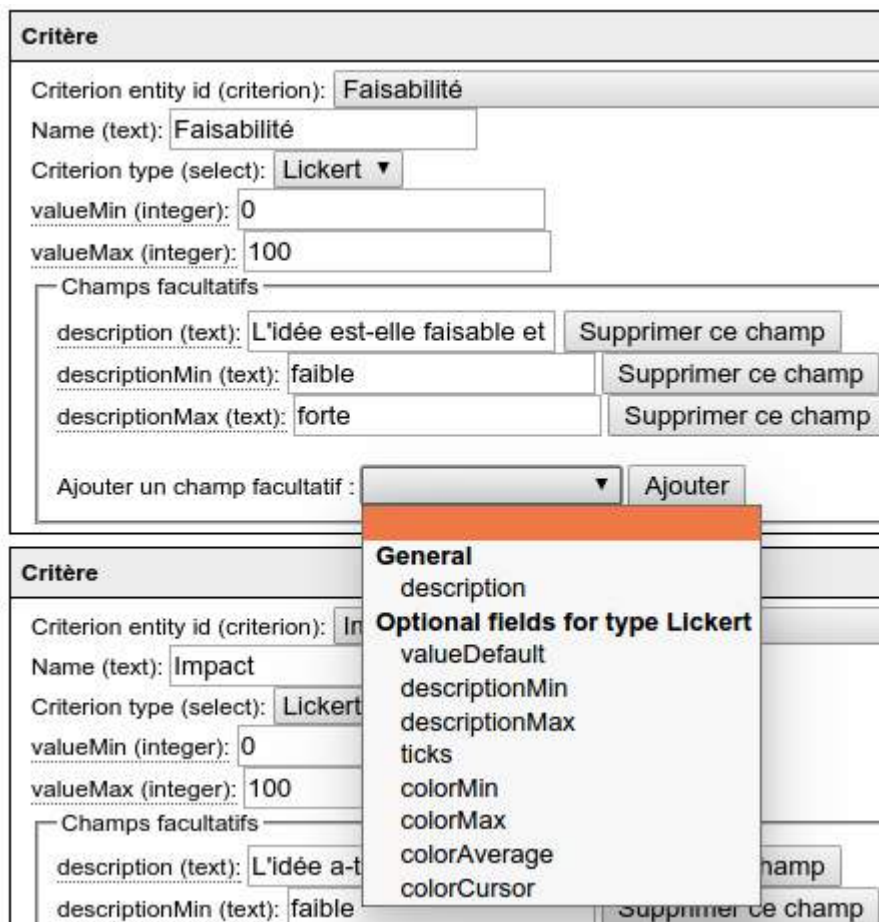
Est-ce que vous pensez que cette proposition est réalisable cette année ?

Non

Oui

Validez votre vote

- o Improvement of voting widget UI. In the vote widget administration interface, the dynamic form which customizes the appearance of the vote widget is now easier to use. Improvements include:
  - Showing exactly the right number of forms for criteria associated to a given item type (automatically creating them if needed), depending of which number of criteria this type of item requires (for example: a 2D graph item needs exactly 2 criteria, whereas a lickert item needs exactly 1 criterion). Previously, the vote creator had to manually add the right number of criteria, according to which item type they had chosen.
  - The select box used to add an optional parameter now contains only options which are compatible with this criterion type, plus the options which are available in every type of criterion.



**Critère**

Criterion entity id (criterion): Faisabilité

Name (text): Faisabilité

Criterion type (select): Lickert ▼

valueMin (integer): 0

valueMax (integer): 100

Champs facultatifs

description (text): L'idée est-elle faisable et Supprimer ce champ

descriptionMin (text): faible Supprimer ce champ

descriptionMax (text): forte Supprimer ce champ

Ajouter un champ facultatif : ▼ Ajouter

**Critère**

Criterion entity id (criterion): In

Name (text): Impact

Criterion type (select): Lickert

valueMin (integer): 0

valueMax (integer): 100

Champs facultatifs

description (text): L'idée a-t Supprimer ce champ

descriptionMin (text): faible Supprimer ce champ

**General**

description

**Optional fields for type Lickert**

valueDefault

descriptionMin

descriptionMax

ticks

colorMin

colorMax

colorAverage

colorCursor

### 9.3.2 Evolution further to the tests:

Not applicable due to test taking place in July 2015

## 9.4 Development tasks to be completed before end of Catalyst:

The remaining development tasks are:

- Graphical display of the results of a vote (show histograms or pie charts, instead of numbers only)
- Add the "Multiple Choice" type of vote (the user can vote for one among several candidates)
- Make the association of an idea to a criterion optional instead of mandatory
- Enable grouping of questions ("Vote specifications"), so that some vote results are then published in pairs of questions, for analysis
- Enable the voting about several targets on the same screen
- Add a state for a vote widget (open, closed), so that no user can vote after the vote has closed
- Improve User Experience of the whole voting process (for voters and for vote creators)

## 10. Collective Intelligence dashboard

**Task Leader: OU**

Previous relevant deliverable: [D3.9](#) (8), [D4.6 Project Testbed: Collective Intelligence Analytics Dashboard Usability Evaluation](#) (14)

## 10.1 Status of the last deliverable and developments anticipated at this date:

Report D3.9 presented the main CI Dashboard purpose, that is to provide interactive visualisations and attention mediation streams (alerts) to make usable and useful the feedback, knowledge, and insights coming from advanced analytics and processing of the online discourse. We also presented its main components and 4 initial visualizations. By the time D4.6 was written the CI dashboard already consisted of 10 Visualisations. These visualisations were evaluated in depth via both a field test carried out by Purpose (wisdom Hacker Community) and a usability lab experiment (carried out at the Open University and Involving OU's employees) and evaluation results are detailed in D4.6. In summary the testing showed that the CI dashboard provides a wide range of useful and useable visualisations readily available for their application to analyse a multitude of different facets of online deliberation. The usefulness and usability of most of the visualisations was rated by users as good to excellence. Also the participants involved in the testing performed well on typical information seeking and visualisation exploration tasks. In addition the deliverable contains a list of the top five CI dashboard visualisations as ranked by users' preference.

## 10.2 Tests conducted (user feedbacks):

After the CI Dashboard testing reported in D4.6, in the following 7 months (M14-21) the CI dashboard was further developed and now includes 20 large Visualisations, 5 Mini Visualisations, and 13 debate analytics alerts (produces by the CI analytics implemented in T3.5).

Some of the CI dashboard visualisations have been tested with the University of Naples (Open Call Community partner).

The aim of the experiment was to evaluate the performance of DebateHub and the CI Dashboard in terms of knowledge accumulation and organization as well as users' participation and satisfaction. Finally, the test results will be used as feedback to identify improvements and revisions in the design of the tools.

An online community of 140 subjects was involved in a two-factor, synchronous and distributed deliberation experiment. The subjects were recruited among students from an undergraduate program in Industrial Engineering, age 19-22, 61% male.

While the experiment phase and the administration of a follow-up questionnaire have been completed, the data analysis is still ongoing so main evaluation results and users feedback cannot be reported yet.

## 10.3 Evolution of the tool:

### 10.3.1 Evolution already planned:

In the following we list the main CI dashboard development realised after the last relevant reporting (D4.6).

- Handling user obfuscation to protect data privacy when calling the CI Dashboard Visualisation Service: Accept a second url to separate user details from core visualisation data. User data is only called from the client side to unobfuscate user details in the visualisation and is never stored or seen by the sever.
- New alerts page. List alert metrics that can be requested on a CIF data set, and provide an interface to test them and generate an embeddable.
- Edgesense Social Network Visualisation



- Community Interest Network Visualisation (Image below)



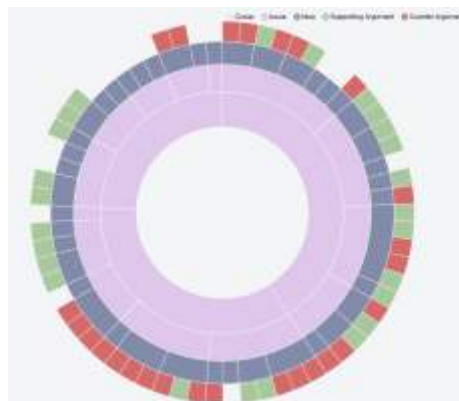
- Sub-Communities Network Visualisation (Image below)



- Conversation Sunburst Network by Branch Visualisation (Image below)



- Conversation Sunburst Network by Type Visualisation (Image below)



- Conversation Treemap Visualisation (Image below)



- Conversation Treemap By Type Visualisation (Image below)



- Conversation Treemap - Top down Visualisation (Image below)



### 10.3.2 Evolution further to the tests:

As a direct results of the users feedback we have eliminated some less effective visualisations form the embedded dashboard from catalyst's partner tools. Also, users' preferences expressed during the main CI Dashboard evaluation (D4.6) were used to select the visualisations to be object of the second round community testing that was carried out by the University of Naples.



#### 10.4 Development tasks to be completed before end of Catalyst:

At this stage we anticipate that further Cldashboard developments in the next phase of the project will be minor and will only consist in refining and consolidating the existing visualisations and the Cldashboard service features.

### 11. Conclusion and future directions

This document presented all the technical developments that were implemented between the previous Tasks Deliverables and Month 21.

The tests derived from the Open Call proved to be instrumental in assessing the potential level of adoption of all tools. It generated a rich layer of improvements:

- New features
- Stability and performance
- UX / UI
- Systemic use through interoperability

These improvements will help position CATALYST as a truly operational set of complementary “products” that can be considered as “market-ready”.

The last 3 months in the CATALYST project will be dedicated to finalizing the users tests and making sure that all key functionalities for CATALYST have indeed been properly developed. This “last mile” is to be assessed according to the following objectives:

- Usability for all types of users
- Uniqueness of features when compared with existing commercial solutions
- Minimal and functional interoperability between most of the tools