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### **D3.7.1 Weak co-occurrence creativity tool**

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The CATALYST project consortium is composed of:

<b>SO</b>	Sigma Orionis	France
<b>I4P</b>	Imagination for People	France
<b>OU</b>	The Open University	United Kingdom
<b>UZH</b>	University of Zurich	Switzerland
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## Revision Control

Version	Author	Date	Status
0.1	Benoit Gregoire (I4P)	June 13, 2014	Initial Draft
1.0	Stéphanie Albiéro (Sigma)	June 18, 2014	Quality check and submission to the EC

## 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 an outcome of Task 3.7 Creative Ideation whose main goal is to build tools to catalyse creative thinking at scale, and feed it back to the discussion as structured data.

This specific tool exploits word co-occurrence, using the content of the discussion to seed a search on YouTube in order to allow the user to find inspiration in videos.

It is a reusable widget, designed to be used by any deliberation environment compatible with the CATALYST interoperability specification.

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## 1. Introduction

Creativity processes are important to ensure the debate keeps moving forward, and to ensure participants are able to unlock their creativity on a particularly difficult issue. The co-occurrence creativity tool is a generic web widget that facilitates individual creativity using word co-occurrence, and collective creativity by sharing inspirational videos.

Like the Gamification creativity tool delivered in the next report (D.3.7.2), this co-occurrence creativity tool is designed (and delivered) as a generic, reusable web widget. It is meant to be displayed in a modal part of any applicable web Collective Intelligence (CI) tool, and hence does not share any interface elements with the host system.

It is meant for any group that needs to generate more avenues or idea paths around any topic previously discussed. As such, we want it to be usable from any software system that can represent ideas within CATALYST's ecosystem of tools.

## 2. The video co-occurrence widget

The widget is composed of two parts.

- A backend component that provides word co-occurrences based on the deliberation.
- A user visible part where the user finds inspirational videos, and then shares the insight it gave him.

### 2.1 Entering the widget

We anticipate that the host platform will send the users to the widget from a specific topic (the idea is sent to the widget in the format defined in the CATALYST interoperability specification). In the next report, we call this the “inspire-me” scenario.

### 2.2 Word occurrence processing


As a first step to co-occurrence analysis, we have introduced a first layer of natural language pre-processing. Words are stemmed (using the snowball library, which has stemming rules for major European languages) and frequency analysis is applied to stemmed words. The words whose stem is the most frequent are used as seeds for keyword search in YouTube.

### 2.3 Selecting keywords

The system immediately performs a search with a few initial keywords taken from the content of the discussion surrounding the idea the widget is called on, so the user is not presented with a blank screen. In this case the idea was “The market for collective intelligence software”:

Use the search bar down here to find videos which would inspire you about the idea "Le marché des logiciels d'Intelligence collective", in the "Rendre assemblé utilisable en entreprise" discussion. For example, you can use some of these keywords taken from the discussion:

Le des natural china?



**Bureau Virtuel de la DGAC**

by KleeGroup · 2009-12-03

La DGAC généralise dans tous ses services (12.000 agents) le déploiement d'un bureau virtuel qui constitue la pierre angulaire de la modernisation du système ...



**Agence Leprivé - Intelligence Economique - Arnaud PELLETIER**

by AgenceLeprivé · 2010-01-05

L'agence LEPRIVE peut vous apporter conseils en maîtrise de l'information stratégique de votre entreprise : L'information est devenue stratégique pour devancer ...



**"BI" et sciences de l'information : les deux solitudes**

by savoirfairelinux · 2013-11-11

Vidéo 1 de 2. En novembre 2012, lors du Salon BI de Montréal, nous rencontrons Diane Mercier, chargée de projet principale en données ouvertes à la Ville de ...



**Colloquium - Collaboration et intelligence d'affaires**

by ParadoxxInc · 2011-04-19


Colloquium crée des connexions et partage des expertises afin d'augmenter les connaissances des gestionnaires, professionnels et entrepreneurs de Québec.



**ASE - Intelligence stratégique**

by ASEChannel · 2012-05-03

L'Intelligence Stratégique est un outil managérial que le chef d'entreprise intègre dans sa gestion pour optimiser sa rentabilité. L'ASE a mis en place un di...



**L'intelligence d'affaires en mode ouvert au Québec ? YES WE CAN !**

by savoirfairelinux · 2013-05-02

À la mi-mars 2013, Philippe Nieuwbourg, journaliste spécialisé et animateur du site www.decideo.ca, est venu chez Savoir-faire Linux pour assister à une prés...

Figure 1: Initial search

The participant is of course free to replace every keyword with his own, or add some at the end of the list:



Use the search bar down here to find videos which would inspire you about the idea "Le marché des logiciels d'intelligence collective", in the "Rendre assembl utilisable en entreprise" discussion. For example, you can use some of these keywords taken from the discussion:

Le des natural china?

× logiciels × marché × collective × d'intelligence  
philosophes

Rechercher

Figure 2: Adding one's own key words

Adding a single keywords of his own choosing to look for some specific, much more restrictive angle (in this case philosophy) often gives a handful of interesting results:

Use the search bar down here to find videos which would inspire you about the idea "Le marché des logiciels d'intelligence collective", in the "Rendre assembl utilisable en entreprise" discussion. For example, you can use some of these keywords taken from the discussion:

Le des natural china?

× logiciels × marché × collective × d'intelligence  
× philosophes

Rechercher



Figure 3: Completely different results by adding a single keyword

## 2.4 Watching the videos

Clicking in the list results starts the video on the right hand side of the screen:

Use the search bar down here to find videos which would inspire you about the idea "Le marché des logiciels d'intelligence collective", in the "Fendre assemblé utilisable en entreprise" discussion. For example, you can use some of these keywords taken from the discussion:

Le des naturel china?

logiciels marché collective d'intelligence Rechercher

**Bureau Virtuel de la DGAC**  
by KleeGroup - 2009-12-03  
La DGAC généralise dans tous ses services (12.000 agents) le déploiement d'un bureau virtuel qui constitue la pierre angulaire de la modernisation du système ...

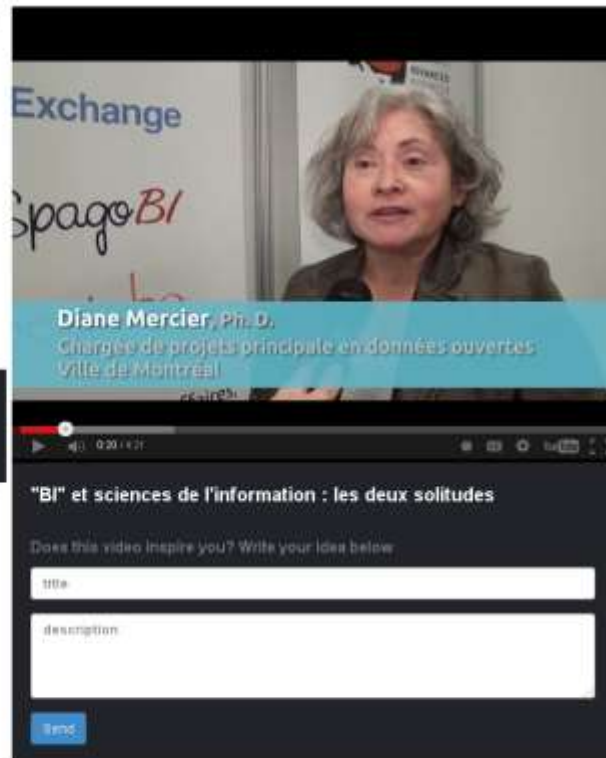
**Agence Leprive - Intelligence Economique - Arnaud PELLETIER**  
by AgenceLeprive - 2010-01-08  
L'agence LEPRIVE peut vous apporter conseils et analyses de l'information stratégique de votre entreprise. L'information est devenue stratégique pour devancer ...

**"BI" et sciences de l'information : les deux solitudes**  
by sarahlefebvre - 2013-11-25  
Mardi 19 et 20 novembre 2013, lors du Salon BI de Montréal, nous rencontrerons Diane Demers, chargée de projet principale en données ouvertes à la Ville de ...

**Colloquium - Collaboration et intelligence d'affaires**  
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**Djane Mercier, Ph.D.**  
Chargée de projets principale en données ouvertes  
Ville de Montréal

0:30 / 4:21

**"BI" et sciences de l'information : les deux solitudes**

Does this video inspire you? Write your idea below

title

description

Send

Figure 4: Watching a video

## 2.5 Idea proposal

This being part of the CATALYST ecosystem of tools, the goal is not just for the user to find inspiration, but to share his insight to the rest of the group.

When he watches a video, the user is immediately presented with an interface so he can send his idea back to the discussion:

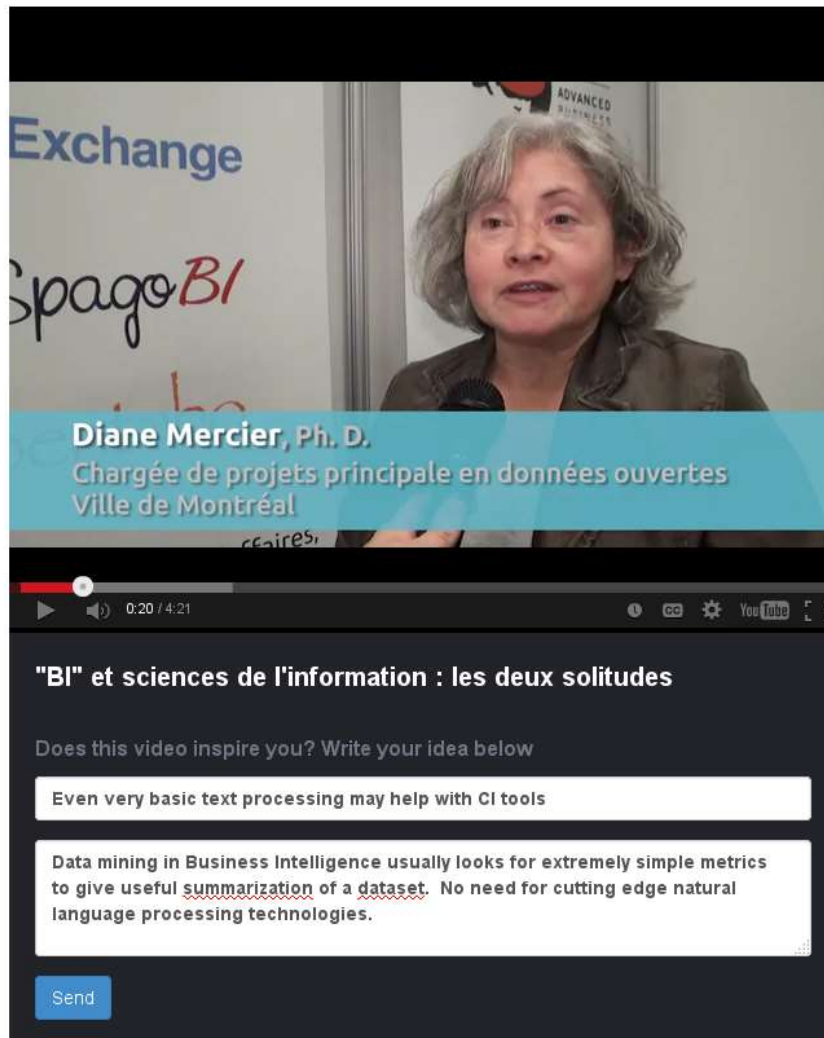


Figure 5: Sending ideas back to the discussion

To the user it looks like a message, but is actually sent to the concept map of the original system.

The interaction with the widget ends here. The system is free to display the result to the user, and share it to the other participants in whatever manner is appropriate to it.

In the case of Assembl, it will be as an idea proposal in the form of a posted message.

### 3. Conclusion and future directions

Using words to find inspiration has been used to stimulate creativity for a very long time. In this tool, we try to exploit the popularity of videos to adapt the technique to the tastes of modern Internet audiences, and are looking forward to real-world trials.

We anticipate the following future directions for the next phase of development:

#### The use of Wikipedia

Now that we have the most frequent significant words, we looked at available co-occurrence dictionaries. However, the available dictionaries focus on adjectives. After careful consideration, we concluded that they were not conducive to ideation in the collective intelligence context we are working on.

Instead, we plan to use the co-occurrence 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 said video could inspire other people. This widget being focused on individual interaction, we believe there is potential to explore by either displaying the video inline with the messages in some circumstances, or even creating “decks of videos” instead of “decks of cards” in the gamification widget created in deliverable 3.7.2.

This widget shares the Assembl repository. As with the rest of Assembl development, it is completely open, and activity can be followed here on a real-time basis:

- Code browser: <https://github.com/ImaginationForPeople/assembl>
- Commit history: <https://github.com/ImaginationForPeople/assembl/commits/develop>

More specifically the code of the functionalities described in this document can be found here:

<https://github.com/ImaginationForPeople/assembl/tree/develop/assembl/widget/creativity>

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