

M-Eco news

No 2

The 2nd M-Eco newsletter provides an overview on the current state of the project, as well as on achievements in year 2011. You can also get more information by visiting our website <http://www.meco-project.eu/> and subscribing to our news. The M-Eco project is funded by the European Commission under Project No. 247829.

The overall goal of this European research project is to help reducing the impact of epidemics by early detection of disease activity to support a rapid response.

M-Eco Objectives Revisited

The consortium took the opportunity after the first review and after some feedback from the advisory board members, to concretize the project objectives. As the main outcome, the M-Eco project will provide services for the monitoring of social media and multimedia sources which can be integrated into other event-based surveillance systems. Social media data and transcripts achieved via speech-to-text analysis require other methods for processing than currently used by systems like MediSys or HealthMap for processing online news. These new methods will be the outcome of the M-Eco project. The focus will be on infectious diseases that are under monitoring by the M-Eco users Robert Koch-Institut and Niedersächsisches Landesgesundheitsamt to be able to verify the signals generated by the system. For testing

the functionality and to find out what information on infectious diseases and outbreaks can be found in social media and multimedia data we will focus in the evaluations on a few selected diseases: E.coli, measles, influenza-like illnesses and norovirus.

The M-Eco services allow to

- include a broader range of sources of information relevant for event-based surveillance,
- provide personalized presentation and filtering of results, and
- enable access to additional information related to disease outbreaks, collected from multiple sources.

Some of these services will be included into MediSys and the indicator-based system SurvNet@RKI to show this easy integration. In MediSys, M-Eco signals will provide an additional source of information. A tag cloud

for a signal together with documents associated with a signal will be presented.

The M-Eco System

The second M-Eco project year focused on

- refining the project objectives,
- improving and evaluating the single approaches, and
- integrating the components in the M-Eco portal.

The refined project objectives have been integrated into an updated deliverable on user requirements which has additionally been extended by detailed use case descriptions. The consortium is focusing the development now only on two languages, German and English. A substantial amount of work has been spent into the improvement of the data collection. Another focus of the second project year was the evaluation of the single components which resulted in an evaluation report. Approaches in the four technology areas of M-Eco: (1) Content collection and preprocessing, (2) Event detection and signal generation technologies, (3) Personalization technologies, (4) System architecture design have been improved and evaluated.

Evaluation Results

In the second project year, several evaluations have been conducted. Three strategic evaluation goals have been specified: (1) Do the individual services function? (2) Do the services function together as a system? (3) How does the system capture real world public health events? Is social media data useful? Details can be found in deliverable D2.2.

Among other the relevance classifier has been tested. It achieves for English and German

tweets a precision of 83% . The recall is 74% for English and 46% for German tweets.

The recommendation algorithm was evaluated in a user study with the advisory board members. The participants considered the recommendations satisfactory but highlighted a number of improvements that could be considered. Overall, participants expressed that they would like to have more control over recommendations received. In that sense, they suggested more information regarding the reasons why the recommendations are generated and more options to assess them.

Bringing together the single components in an integrated system took longer than expected. Therefore, the user interface is only partly working (status: November 2011). Additionally, an evaluation of the complete integrated system from the user perspective was not yet possible.

The M-Eco user institutions assessed to what extent social media data can provide information on public health threats. One outbreak assessed was a norovirus outbreak at a canteen in Oldenburg. The first notification of this case was made by the canteen to the local health department, a report not required by established laws for indicator-based surveillance of Norovirus in Germany. News and social media followed. Social media was also used for information exchange about the event, creating more information and more noise, and potentially amplifying possible signals for monitoring purposes. Additional evaluations will follow.

Events

Workshop: From indicator-based to event-based surveillance

On September 28, 2011, the workshop "From indicator-based to event-based surveillance" took place in conjunction with the GMS

Jahrestagung in Mainz. We had four interesting presentations. Tim Eckmanns gave an overview on indicator- and event based systems and showed the delays in traditional reporting on the EHEC outbreak in 2011. Jas Mantero from ECDC spoke about the event-based surveillance as performed by ECDC. Jens Linge from JRC presented the MediSys System as an example of an event-based system. Kerstin Denecke (L3S) introduced the M-Eco projet. The audience was very interested in the topic and asked motivating questions.

Second M-Eco User Workshop

On May 26, the second M-Eco user workshop took place. Representatives from several health organizations, as well as the M-Eco consortium, came together to discuss the current state in the project and support in evaluation issues. The advisory board members Johannes Schnitzler from the World Health Organization Europe (Geneva), Philippe Barboza (Institut de Veille Sanitaire, Paris), Jas Mantero, Daniel Faensen from ECDC and Moe Ko Oo (Mekong Basin Disease Surveillance) attended the meeting. The consortium presented the first prototype and several evaluation experiments have been performed.



MedEx Workshop at CIKM 2011

On October 28, 2011 the Second International Workshop on Webscience and Information Exchange (MedEx 2011) took place in

Glasgow. The audience had the opportunity to learn more about the facets and research questions related to webscience in medicine and healthcare. Three full papers and five position papers were presented covering a wide spectrum of research problems in medical natural language processing and webscience.

Among others, two papers from the M-Eco context have been introduced. In her keynote, Wendy Chapman provided insights into her vision of enabling collaboration and sharing in clinical natural language processing. The second keynote was held by Sophia Ananiadou on advances of biomedical text mining for semantic search. The position papers provided lots of discussion points so that at the end of the day all of the presenters got interesting feedback. Talks and short papers are available on the [workshop website](http://www.meco-project.eu/medex2011) (<http://www.meco-project.eu/medex2011>).

News

The M-Eco consortium organizes a special issue of the journal "Methods of information in Medicine" on "Webscience in Medicine". Submission deadline is March 1, 2012 (<http://www.meco-project.eu/methodscfp>).

Contact

For more information about the M-Eco Project, please contact the M-Eco Project Coordinator.

Project coordination: Dr. Kerstin Denecke
Leibniz University Hannover, L3S Research Center

Office: Appelstrasse 9a, 30167 Hannover

Phone: +49 511 762 17725

Fax: +49 511 762 17777

E-Mail: denecke@L3S.de