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Current news

CeBIT: HPI database technology helps contain epidemics more rapidly
CeBIT 2015

Potsdam/Hanover. Serious epidemics as the outbreak of Ebola in West Africa can cost the lives of thousands of people. A new IT system should prevent infectious diseases such as the measles, the bird flu and cholera from spreading extensively. This system is being first introduced at the CeBIT (hall 9, stand D44).

A research consortium composed of scientists of the Hasso Plattner Institute (Potsdam), Helmholtz-Center for Research on Infectious Diseases (Braunschweig), the Robert-Koch-Institute (Berlin), the Bernhard-Nocht-Institute for Tropical Medicine (Hamburg) and researches from Nigeria developed the system. It is named "Surveillance and Outbreak Response Management System", in short SORMAS. It combines big data technologies with intelligent mobile applications. This research project of infectious disease researchers and epidemiologists was funded with 700,000 Euros by the German Federal Ministry of Education and Research. In addition to the HPI, the software company SAP supports the project.

The Hasso Plattner Institute provides an insight into the latest research results at the CeBIT stand. Among others, it is demonstrated how interactivity is used in the future to prepare situational analyses, identify trends early on and simulate forecasts for potential developments. "To collect suspicious cases helps the persons involved locally such as specialists at various government levels to organize suitable countermeasures efficiently in order to prevent further spread effectively," says HPI Project Manager Dr. Matthieu Schapranow.

It is particularly important to find and question locally any contact persons who were potentially exposed to the person with the disease – the so-called "contact tracing". Compact smartphones and tablets are equipped with a special app allowing medical personnel to document infected persons and their contacts systematically and to report the symptoms. "This should ensure that other persons did not contract the disease," says HPI PhD student Cindy Fähnrich. In March, this system will be first tested in Nigeria. A pilot application will follow.

The research approach for the IT specialists of the HPI was the ability to analyse information in real time to find traces and trends rapidly and to make any forecasts. "Because epidemics do not stop at a country's border. They

are a global problem. Therefore, everyone must work together," says Fähn-rich.

SORMAS is based on the In-Memory database technology researched at the HPI. It allows analysing big data volumes interactively and according to freely selected criteria. Researchers can check massive data volumes rapidly to recognize any connections.

Practical information about the on-site application were provided by the Nigerian experts in the field of epidemiology and the laboratory training program. Through the systematic approach, they prevented a nationwide outbreak of Ebola in their country. Persons in Nigeria, who had contact with infected persons, were visited by medical staff daily during the incubation time, which is up to 21 days in case of Ebola and they were asked about symptoms of the disease. Many things were still documented on paper.

In order to respond in real time in the future and to exclude any transmission errors, the mobile app developed by the HPI and its partners will be used. Any suspicious symptoms will be documented on smartphones and tablets and directly transmitted to the central database system. Therefore, there can be a direct response and the affected persons can be helped more rapidly. On March 16, the Federal Minister of Education and Research, Prof. Johanna Wanka watches the demonstration of the program at the HPI stand. An article about the SORMAS methodology will be published by the scientific journal Eurosurveillance on the 26th of March.

This year, the Hasso Plattner Institute is among the largest exhibitors in the area of "Research and Innovation" at the CeBIT. Information technology scientists present in this area their latest research and development results from the world of "big data" for "d!conomy" – the newly created word for "digital economy". It should express the transformation toward a completely networked economy. On over 380 square meters, HPI shows for example how company stakeholders will be able to use in the future novel real time data support is sort of a cockpit during meetings. In addition, a new financial simulation software enabling swift profit analyses and innovative possibilities of big data analysis in football will be presented. Furthermore, new solutions are presented for greater IT security and free online courses for anyone to take on the topics of information technology are introduced.

Information for media outlets and editorial offices:
For detailed material (texts, images, videos) consult our website on CeBIT:
www.hpi.de/cebit.
Interviews with renowned CeBIT guests on the topic IT location Germany can be found during the trade fair on www.it-gipfelblog.de.

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