Emergency Management Information Systems (EMIS)

Overview

- Description: Emergency management information systems (EMIS) are complex IT tools to support decision making during emergency situations by enhancing the situational awareness of disaster management teams. It supports the management of infrastructures, as well as all affected parties (such as first responders and affected civilians) by real-time, collaborative group decision making. EMIS are also used for risk mitigation and recovery actions.
- State of research: There are already commercial EMIS available and in use, e.g. FEMIS[1]. Current research concerning these systems is focused on the incorporation of big data analytics and artificial intelligence, to enable the advanced use of e.g. real-time sensory data, social media contents, remote sensing data and geographical systems.
- Capabilities: EMIS can already support decision-making processes of emergency managers in the areas of safety and security. The collaborative nature of such systems enhances communication between all involved parties and accelerates the implementation required actions.
- Limits: Many systems are still confusing to work with and preparatory training courses are essential for users to gain best results. The trust in artificial decision making is limited.

Further Information

- Key player: EMIS systems are available from several IT companies, such as PRIMARY[3] or CAE[4]. Additionally several university departments around the world are involved in the research for EMIS.
- Readiness: EMIS are already in use by governments and other concerned institutions. Soft- and hardware components can be used directly of the shelf (COTS), however they are under steady further development.
- Users: Decision makers, disaster management experts, S&R teams, coordination teams
- Future outlook and foresight: Further development of big data analytics and artificial intelligence will allow the enhanced integration of information from social media sources and on-side sensory data (e.g. sensors on firemen's garments[2]). Thus the public can also be directly integrated into the EMIS process. Additionally, on-site sensory information will be able to be directly fed into such a system. This will allow enhanced and even more precise actions of all involved parties.
- Related Technologies: Big data, Cloud Computing, Artificial Intelligence, Sensor Technologies, Social Media, Disaster Support Systems (DSS)
- Links: [1] http://www.globalsecurity.org/security/systems/femis.htm; [2] http://www.jpl.nasa.gov/news/news.php?feature=6590; [3] http://www.primary.gr/Emergency_Response.html; [4] http://www.cae.com/defence-and-security/public-safety-and-security/simulation-products/integrated-solutions/CAE-integrated-emergency-management-systems-IEMS/