Abstracts of Scientific Papers-WADEM Congress on Disaster and Emergency Medicine 2017

EDXL-LD and Architectural Tactics towards Information Sharing and Interoperability in Emergency Context

Julia Kantorovitch, Jarmo Kalaoja, Ilkka Niskanen
VTT - Technical Research Center of Finland, Espoo/Finland

Study/Objective: The objective of this study is to propose a new architectural approach supported by information models, to manage knowledge in the dynamic emergency context towards interoperable knowledge sharing and reuse.
Background: The knowledge systems for emergency management are based on evolvable information provided by various actors, by diverse collections of sensors and information supplied by human volunteers. In order to achieve a common operational picture - situation awareness, various knowledge, vocabulary and information models need to be aligned. This requires extendable time, application context architecture and models representing detailed evolvable knowledge about the types of adverse events, their potential impact and the means and resources that are best suited for response. The existing semantic research has a potential to address the identified needs, however the reported ontologies are rarely publically available, and they are also disconnected from widely used standard data models, data-exchange formats, and protocols related to emergency management.
Methods: The literature review and the inputs provided by domain experts in the CONCORDE consortium and WHO, have facilitated the addressing of shortcomings and challenges identified above.
Results: The Emergency Data Exchange Language (EDXL) based domain specific standards are taken as a base to create domain specific vocabularies. Vocabularies are published as a Linked Data (LD) and can be downloaded from GitHub software repository *https://github.com/OntoRep/EDXL*. The Model-View-Presentation (MVP) based architectural tactics as a software engineering pattern (see below) are exploited to achieve a desired extensibility and dynamicity of the system at its deployment stage.
Conclusion: By keeping applications' business logic separate from data and semantics, the underlying knowledge models can evolve without necessarily requiring changes to the interfaces and applications built on top of the models.

Prehosp Disaster Med 2017;32(Suppl. 1):s228
doi:10.1017/S1049023X17005878

The J-SPEED: A Medical Relief Activities Reporting System for Emergency Medical Teams in Japan

Tatsuhikiko Kubo[1], Hisayoshi Kondo[2], Yuichi Koido[2]
1. Department Of Public Health, University of Occupational and Environmental Health, Kitakyusyu/Japan
2. National Disaster Medical Center, Tokyo/Japan

Study/Objective: To introduce the J-SPEED; medical relief activities reporting system for Emergency Medical Teams (EMTs) of Japan.
Background: During a disaster, information gathering and analysis are key elements for better coordination and timely response. Previous cases revealed that EMTs sometimes became the only capacity which could report medical, or more broadly health situations to a coordination body, and standardization of the reporting process from EMTs to the EMT Cortication Cell (EMTCC) will allow for better coordination, and for strengthening of the disease early warning system, since EMTs will act as additional sentinel reporting sites. One good existing model for this issue is the Surveillance in Post Extreme Emergencies and Disasters (SPEED) system employed in the Philippines. The SPEED was developed by Philippine's Department of Health and the WHO in 2010. Based on the lessons learned from relief mission of the Japan Disaster Relief Medical Team against the super typhoon Yolanda in 2013, a Japanese version of the SPEED, so called J-SPEED has been developed and published in 2015.
Methods: Field study.
Results: The J-SPEED was first activated at the Kumamoto earthquake which occurred on April 14, 2016. During the 48 days of response, EMTs from various affiliation sent 1,828 daily reports to the EMTCC, which represented medical demand of 8,089 patients. Standardized information processing and quantitative information made communications among stakeholders efficient, and supported evidence, consensus based decision making by the local authority.
Conclusion: Employment of the J-SPEED drastically changed the EMT coordination in Japan. Countries which don't have a relevant system can easily set up a national reporting system utilizing the SPEED framework.

Prehosp Disaster Med 2017;32(Suppl. 1):s228
doi:10.1017/S1049023X1700588X

How do we Measure Severity? An Assessment of Five Indexes used in Sudden Onset Disasters and Complex Emergencies to Measure Severity and Risk

Anneli Eriksson[1], Martin Gerdin[1], Thorkild Tylleskär[2], Johan Von Schreeb[3]
1. Public Health Science, Karolinska Institutet, Stockholm/Sweden
2. Centre For International Health, Bergen University, Bergen/Norway
3. Department Of Public Health Sciences, Karolinska Institutet, Stockholm/Sweden