


Business Processes in Disaster Risk Information Management

Horst Kremers  ¹

Abstract: The processing and use of data holds enormous potential for new ways of enabling foresight, situation management and ex-post evaluation. For a successful decision and action support, we have to make the best possible use of this potential. Big Data volume, variety, velocity and veracity methods and techniques along with adequate application of management principles contribute essentially to avoid subjectivity, deception and implausibility. These data type oriented typologies need to be complemented by information use procedures quality measures like incompleteness, uncertainty, precision, ambiguity, reliability, usability, compliance.

While currently the focus is mainly in generating “availability” and “access” of information, the next years will much more intensely show a shift of focus into domains of information use (decision making support, analysis and all other management categories of action and control).

On the operational level, syntactic, semantic and pragmatic coherence (full semiotics coherence i.e. on syntax, semantics and pragmatics level) needs to be achieved on local, regional, national and international levels. Special attention is given to ontologies that cover pragmatics (multi-stakeholder operational decision and action management concepts for workflows and processes in dynamic situations) including modeling goal reaching control.

Decision&Command Support Systems based on cross-level and cross-organizational integration are widely missing. Joint projects across borders, domains, organizational boundaries, including Private Sector, can not only improve shared information processing but also raise awareness in the benefit of building on sound management principles, including prerequisite competences education and development especially for the huge variety of administrative / organizational units involved.

Advanced Process Modeling Models, Notations and Languages are urgently needed to formalize and guarantee fast and reliable procedures for Risk Information generation, documentation, analysis, flow and use in all the different phases of disaster management. special attention is paid to the following details: Service Level Agreements, decision and action contexts, dependencies, scenarios and alternatives, boundary conditions, exceptions, thresholds, deviations from compatibility requirements (including highly dynamic time-varying facts, data flow boundary conditions, and actors).

Current investigations in management deficits of the 2021 Central European Flood

¹ CODATA-Germany, Berlin, office@Horst-Kremers.de,  <https://orcid.org/0000-0002-3992-6340>

Disaster indicate on the massive disaster losses and humanitarian consequences of the lack of timely preparation (anticipatory action) and inadequate incoherent information processing. Post-disaster detailed analysis of goal-reaching, performance and effectiveness control is in the key interest of all those that suffered (including post-event long-term health, social and economic consequences).

The EMISA Community of Experts can effectively contribute to reduce essentially the immense suffering of the deplorable victims.

Future research and development in those areas will provide significant contributions to all the complete cycle of Disaster Management only, if the inherent complexity of interdisciplinary/cross-organizational data, data analytics, data transmission and use processes, and sophisticated ontology models for situation prediction along with consequences scenarios for all types of stakeholders is based on formal methods standards and Information Infrastructure principles.

Keywords: Standard Operating Procedures, Service Level Agreements, Rapid Needs Assessment, Anticipatory Action, Preparedness, Resources Management, Operational Anticipation and Preparedness, Relevance and Consequences of Decisions and Actions, Process Management Models and Implementations in Humanitarian Domains

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