

**IGF 2020: Internet for human resilience and solidarity
- Virtually Together -**



IGF Internet
Governance
Forum



**Knowledge Generation from Global FAIR Data
for Operational Decision Support
in Public Emergencies**

IGF2020 Session on “AI Solutions and Governance for Global Public Emergencies”

**PANELIST: HORST KREMERS
CODATA-GERMANY**

CODATA Decadal Programme 'Making Data Work for Cross-Domain Grand Challenges'

<https://codata.org/initiatives/strategic-programme/decadal-programme/>

International FAIR Convergence Symposium

convened by CODATA and GO FAIR

Virtual, 27 November - 04 December 2020

1. **CRISIS REDUCTION AND RESPONSE** (learning from COVID-19 outbreak)
 - Virus Outbreak Data Network
 - COVID-19 initiatives on data exchange
 - Balancing public good and individual freedom in disaster data
 - Disaster Risk Reduction
 - Infectious Disease (including (meta)data collection, description, analysis, modelling, etc.)
 - Applying lessons from COVID-19 to other hazards
2. **FAIR specifications**
 - Semantic interoperability
 - FAIR vocabularies, FAIR metadata
 - Certification of FAIR services (repositories, process)
 - Legal challenges to tackle
 - Systems analysis
 - Core tools for cross-domain interoperability
 - FAIR data objects applications
3. **FAIR society**
 - FAIR for SDGs (including contributing to SDG data, scientific analysis of SDGs)
 - Traditional knowledge, indigenous data and CARE
 - Use cases of FAIR in business and industry
 - Ethical dimensions of data, FAIR and open
 - Smart, resilient and healthy cities
 - Citizen science and the SDGs
 - Policy monitoring: transportation, health, planning, and measuring economic impacts
4. **Data stewardship: training and career opportunities**
 - Role of data stewardship centres in research institutions
 - Data stewardship competences, skills and training
 - Data stewardship career profiles and development
 - Distributed learning on Federated Data train



C O D A T A

Working Group on Documentation, Archiving and Open Access to Disaster Information

As approved by the CODATA 26th General Assembly, Kyiv 2008

Members:

Liu Chuang, China
Bob Chen, U.S.A.
Jean Bonnin, France
Shuichi Iwata, Japan
Horst Kremers, Germany

There is a strong deficit in disaster data availability for traceback and knowledge mining. This comprises the fields of natural and technical disasters. CODATA should develop a recommendation for best practice of collecting, archiving and providing access to disaster information.

Aim / Deliverables:

Preparing a strategic report highlighting the necessity of data availability of disasters of different type.

Addresses disaster organisations (UN bodies, NGOs), government, industry, insurances, etc. on local, regional, national, and international level.

The report will address

- Demand
- Current state of the art
- Deficits
- Benefits
- Action plan / recommendations
- Identify initiatives
- Executive summary

Working plan: draw on experience of WG members discuss draft report with disaster actors (Workshop)

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The Symposium

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CODATA International Symposium on Risk Models and Applications Kiev, Ukraine, October 5, 2008


This Symposium is dedicated to the Data Science and Information System Aspects of Risk Model Structure, Implementation, and Application.


Contributions and Participants are expected from a wide range of science disciplines to present and discuss state-of-the-art development and current deficits in Risk Models.


Contact Symposium Chair

[Horst Kremers](#) 

Download Program 

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Download Abstract Template 

Post Conference Tour to
Sevastopol (Crimea)
Oct. 10/11/12 etc. 

Risk Information Management

3 Pillars (Phases)

- Prevention
- Preparedness
- Response

in Volatile, Uncertain, Complex and Ambiguous environments

In addition to comprehensive Management,
each one of those Pillars is subject to its separate
Information Management elements, phases and processes

Basic Management Principles

- critical thinking
- gaps and deficits analysis
- decision, action, and control cycle support
- transparent analysis
- control and extensive reporting obligations
- compliance to regulations and other boundary conditions
- consider phases and techniques in enabling of retrace
- include detailed financial structures, budgets and the use of financial instruments in reporting and control
- constructive goal-reaching and effectivity control
- guidance on human resources (quantity, future competence levels)
- operations concept
- reexamination, analysis
- avoidance of malpractice
- extend concepts of FAIR information principles [FAIR] to support transparency goals and accountability
- indications on weaknesses/vulnerabilities

Basic Management Principles

cf Horst KREMERS (2020) in http://www.susgis.net/LNIS_9_Geoinformation_for_Sustainable_Development__Berlin_2020.pdf#page=93

Knowledge Representation

Actors – Roles – Facts Rules and Mappings

- Ontologies
- Modelling
- Analyzing
- Reasoning
- Deciding
- Acting
- Goal–Reaching

Algebraic Properties of Information Spaces

- **Denseness**
- **Homogeneous**
- **Isotropy**
- **Continuity**
- **Differentiability**

Knowledge Generation

- Recognition of Facts
- Recognition of Patterns
- Signal / Change Detection
- Correlations / Dependencies
- Finding / Verification of Hypotheses

Knowledge Representation

- Open Data / Information
- Open Software
- Open Analysis
- Open Context Models
(weighting schemes)
- Open Process Models
- Open Quality Measures
- Open Knowledge Base

including transparent holistic Documentation

Operational Decision Support

Challenge:

- Volatile, Uncertain, Complex and Ambiguous environments

Boundary Conditions:

- Robustness
- Plausibility
- Compliance Checking / Restrictions
(Technical, Procedural, Legal, Financial, Ethical ...)
-> cf. Data Protection Guide in Humanitarian Action

Knowledge Integration in Open Environments

suggested Action Fields

- **Incompatibility**
including Variations in Time and Place
- **Inconsistency**
Accumulation / Propagation / Proliferation
- **Similarity**
- **Absence of Normative Meaning and Processes**
- **Governance**
- **Consistent Multi-Level Generalization**
- **Preference / Confidence Measure(s)**
- **Testbeds**
- **Missing Knowledge Representations of Results**
dynamics of situations, fact-related sensitiveness, stability, vulnerability
replicability, traceability, quality measures

Main Conclusions

- Knowledge Representation for Operational Purposes is based on Formal Methods that may be enriched by Artificial Intelligence Methods
- ‘Open Access’ is a key scheme and an essential policy of our time. It reaches way beyond digitization and sharing of data but affects global governance, transparent decision making, repeatable science, industry, wealth, education as well as metadata, risk models and even pandemics.
- UN Instruments information in its complexity is in due need of very broad systematic integration, processing, evaluation and goal oriented applications of large amounts of data of heterogeneous origin in real time.
- There is a need for the public and private sectors and civil society organizations, as well as academia and scientific and research institutions, to work more closely together and to create opportunities for collaboration, and for businesses to integrate extensive interoperability into their management practices.
- Application of informatics state-of-the-art methods and technology that meet the demands of complex multi-actor and cross-organizational information management is urgently required for organizationally as well as technically implementing Treaties, Frameworks and Programs and for granting coherence in the required holistic way.

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RIMMA
join Risk Information Management Community and RISK_List
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