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IFIP was founded in 1960 under the auspices of UNESCO, following the first World Computer Congress held in Paris the previous year. A federation for societies working in information processing, IFIP's aim is two-fold: to support information processing in the countries of its members and to encourage technology transfer to developing nations. As its mission statement clearly states:

> *IFIP is the global non-profit federation of societies of ICT professionals that aims at achieving a worldwide professional and socially responsible development and application of information and communication technologies.*

IFIP is a non-profit-making organization, run almost solely by 2500 volunteers. It operates through a number of technical committees and working groups, which organize events and publications. IFIP's events range from large international open conferences to working conferences and local seminars.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is generally smaller and occasionally by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is also rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

IFIP distinguishes three types of institutional membership: Country Representative Members, Members at Large, and Associate Members. The type of organization that can apply for membership is a wide variety and includes national or international societies of individual computer scientists/ICT professionals, associations or federations of such societies, government institutions/government related organizations, national or international research institutes or consortia, universities, academies of sciences, companies, national or international associations or federations of companies.

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Yuko Murayama · Dimiter Velev ·
Plamena Zlateva (Eds.)

Information Technology in Disaster Risk Reduction

4th IFIP TC 5 DCITDRR International Conference, ITDRR 2019
Kyiv, Ukraine, October 9–10, 2019
Revised Selected Papers

Springer

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ISSN 1868-4238 ISSN 1868-422X (electronic)
IFIP Advances in Information and Communication Technology
ISBN 978-3-030-48938-0 ISBN 978-3-030-48939-7 (eBook)
https://doi.org/10.1007/978-3-030-48939-7

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The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

The effects of disasters are very serious and it may take a very long time to recover from the destruction caused. Related damage can be severe and offering relief may lead to expenses in the billions of euros. There has been an increase in natural disasters that has occurred in the past years and it is expected that their frequency will continue in the coming years.

Due to the multidisciplinary nature of work in the field of disaster risk reduction, people from various backgrounds will be included in this field of research and activity. Their backgrounds are likely to include industry, diverse geographical and global settings, not-for-profit organizations, agriculture, marine life, welfare, risk management, safety engineering, and social networking services.

At present, at global and national levels, a wide range of scientific and applied research activity is conducted in the area of disaster risk reduction concerning individual types of disasters. Modern information and communication technologies (ICT) can facilitate significantly the decision-making processes from the point of view of disaster risk reduction.

Following the increasing number of disasters worldwide and the growing potential of both ICT and ICT expertise, at its General Assembly held during October 8–9, 2015, at the Daejeon Convention Center, South Korea, IFIP established the Domain Committee on Information Technology in Disaster Risk Reduction in order to:

- Promote disaster risk reduction within the ICT community
- Provide an additional opportunity for IFIP members to work with other specialized bodies such as the UN, UNISDR, ICSU, ITU, and ISCRAM
- Coordinate the efforts of member societies as well as different Technical Committees and Working Groups of IFIP in the disaster-related field

The disaster support offered by the Domain Committee is based on the following major pillars:

- Information acquisition and provision
- Shelter information management for local governments
- Disaster Information Systems
- State-of-the-art ICT (such as the Internet of Things, Mobile Computing, Big Data, and Cloud Computing)

IFIP's Domain Committee on Information Technology in Disaster Risk Reduction organized the 4th IFIP Conference on Information Technology in Disaster Risk Reduction (ITDRR 2019), held during October 9–10, 2019, at the Kyiv National University of Culture and Arts, Ukraine.

ITDRR 2019 provided an international forum for researchers and practitioners to present their latest R&D findings and innovations. The conference was focused on various ICT aspects and the challenges of disaster risk reduction. The main topics

included areas such as Natural Disasters, Big Data, Cloud Computing, Internet of Things, Mobile Computing, Emergency Management, Disaster Information Processing, and Disaster Risk Assessment and Management.

ITDRR 2019 invited experts, researchers, academics, and all others who were interested to disseminate their work and attend the conference. The conference established an academic environment that fostered the dialogue and exchange of ideas among different levels of academic, research, business, and public communities.

The Program Committee received 53 paper submissions, out of which 19 research papers were successfully accepted. We are grateful to the members of the Program Committee and to paper reviewers for their dedication in helping produce this volume.

April 2020

Yuko Murayama
Dimiter Velev
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