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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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Eunika Mercier-Laurent (Ed.)

# Artificial Intelligence for Knowledge Management

6th IFIP WG 12.6 International Workshop, AI4KM 2018

Held at IJCAI 2018

Stockholm, Sweden, July 15, 2018

Revised and Extended Selected Papers



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# Preface

The IJCAI 2018 program was more diversified than the previous, covering quite a number of fields in artificial intelligence (AI) (<https://www.ijcai.org/proceedings/2018/>). We did not find knowledge management (KM) but the main conference included some of its components such as knowledge representation, dynamics of knowledge, knowledge base, knowledge transfer, shared knowledge, knowledge engineering, visual knowledge, and combining knowledge with deep convolutional neural networks.

Understanding the benefits of KM for research, organizations, and businesses, and then applying it, is still a challenge for many. The overall process involving people, big data, and all kinds of computers and applications has the potential to accelerate discovery and innovation from an organized and optimized flow of knowledge. This collection of selected, extended, and updated articles aims in challenging researchers and practitioners in better exploring all AI fields and integrating world feedback from experience.

KM is a large multidisciplinary field having its roots in management and AI. AI brought a way of thinking, knowledge modeling, knowledge processing, and problem-solving techniques. Knowledge is one of intangible capitals that influence the performance of organizations and their capacity to innovate. Since the beginning of the KM movement in the early nineties, companies and nonprofit organizations have experimented various approaches.

After the first AI4KM (Artificial Intelligence for Knowledge Management) was organized by IFIP (International Federation for Information Processing) group TC12.6 (Knowledge Management) in partnership with ECAI (European Conference on Artificial Intelligence) in 2012 and the second workshop was held during the Federated Conferences on Computer Science and Information Systems (Fedcsis 2014) in conjunction with Knowledge Acquisition and Management conference (KAM), the third manifestation began a partnership with IJCAI (International Joint Conference on Artificial Intelligence) since in 2015. The 4th AI4KM was held in New York (IJCAI 2016) and the 5th in Melbourne, Australia, co-located with IJCAI 2017.

The objective of this multidisciplinary conjunction is still to raise interest of AI researchers and practitioners in KM challenges, to discuss methodological, technical, and organizational aspects of AI used for KM and to share the feedback on KM applications using AI.

We would like to thank the members of the Program Committee, who reviewed the papers and helped put together an interesting program in Stockholm. We would also like to thank all authors and our invited talk by Prof. Helena Lindskog from Linköping University. Finally, our thanks go out to the Local Organizing Committee and all the supporting institutions and organizations.

This volume contains the selection, updated, and extended papers presented during the workshop. The selection focused on new contributions in any research area

concerning the use of all AI fields for KM. An extended Program Committee then evaluated the last versions of the proposals, leading to this volume.

Our invited talk by Prof. Helena Lindskog from Linköping University, Sweden, addressed a timely topic: “Globalization - Understanding the Correlations Between Attitudes Towards Globalization, Time, Resources and Financial Resources.” Paradoxically, we have an increasing amount of technology supposed to help us and allow for more time, but the results are the opposite – we have less time. How can AI help in being “time rich”?

The next article presents the latest thesis work on “Integrated System for Students’ Evaluation Using KM Approach.” It describes a KM approach to the evaluation of international students’ profiles. Based on AI techniques the proposed system aims in providing accurate evaluation of candidates considering also their cultural background, behaviors, and wishes. It explores existing expertise in this field.

Collaboration of SME is a condition for survival. The authors of “ICT Platform Design for SME Collaboration” propose to define a conceptual platform for functional and process flows in discrete complex manufacturing industries.

Another “Platform for Knowledge Society and Innovation Ecosystems” aims in fulfilling the very important hidden need – having a digital place grouping world knowledge related to innovation. The current pandemic of COVID-19 highlights the necessity of grouping world research on the topic to be more effective in managing the crisis.

The authors of the next paper “Measuring Successful Digital Services by Identifying Active Users” propose applying KM approach to evaluate the success of digital services. Compared to traditional methods they present an alternative and innovative method of “understanding” the user satisfaction from his/her activity.

“Effective Management of Information Processes with CMS in Smart City. The Concept of Crowdsourcing” describes some principles of sustainable managing a smart city and the related flow of knowledge. The proposed Resident Portal aims in fully coordinated and properly managed communication between residents, stakeholders, and municipal authorities. Such a portal enhance collaborative innovation of all stakeholders.

The next paper entitled “A Naming System for “The Internet of Things” Adapted to Industry - A Case Study in Electrical Engineering” points out the difficulty of comprehensive naming of processes and associated functions in digitalization of industry. The authors propose cognitive representations of these processes with focus on the denomination of computer objects in relation to their real-world correspondence and the functional representation within the information systems.

“Augmented Learning and Data Filtering: Knowledge Management and Discovery” describes designing predictive modeling of strategic decision systems with applications to analytics, enterprise modeling, and cognitive social media business interfaces. The areas explored range from plan goal decision tree satisfiability with competitive business models to predictive analytics models that accomplish goals on a three tier glimpse to business systems.

Focus on education, the authors of “A Note on Knowledge Management Education: Towards Implementing Active Learning Methods” present useful teaching methods in active education, especially oriented towards courses where innovation and delivering

dynamic knowledge are critical. The goal of the paper is to present and discuss criteria relevant in the selection of active educational methods supporting KM courses.

We invited Konstantin M. Golubev, working on original “Intellect Modelling Kit.” The intellect modeling aims to amplify of human intellect and is an alternative to traditional AI. The goal is to assist human intellect on every step of its activity, accept human knowledge, and develop new knowledge together with people. The activity of intellect modeling applications could be verified by human expert on every stage.

We hope you will enjoy reading these papers.

May 2020

Eunika Mercier-Laurent

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