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Masatoshi Yoshikawa Eric S.K. Yu (Eds.)

Advanced Conceptual Modeling Techniques

ER 2002 Workshops
ECDM, MobIMod, IWCMQ, and eCOMO
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Series Editors

Gerhard Goos, Karlsruhe University, Germany
Juris Hartmanis, Cornell University, NY, USA
Jan van Leeuwen, Utrecht University, The Netherlands

Volume Editors

Antoni Olivé
Universitat Politecnica de Catalunya, Campus Nord, C5-D207
Jordi Girona 1-3, 08034 Barcelona, Spain
E-mail: olive@lsi.upc.es

Masatoshi Yoshikawa
Nagoya University, Information Technology Center
Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan
E-mail: yosikawa@itc.nagoya-u.ac.jp

Eric S.K. Yu
University of Toronto, Faculty of Information Studies
140 St. George St., Toronto M5S 3G6, Canada
E-mail: yu@fis.utoronto.ca

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Preface

The objective of the workshops held in conjunction with ER 2002, the 21st International Conference on Conceptual Modeling, was to give participants the opportunity to present and discuss emerging hot topics, thus adding new perspectives to conceptual modeling. To meet this objective, we selected the following four workshops:

- 2nd International Workshop on Evolution and Change in Data Management (ECDM 2002)
- ER/IFIP8.1 Workshop on Conceptual Modelling Approaches to Mobile Information Systems Development (MobIMod 2002)
- International Workshop on Conceptual Modeling Quality (IWCMQ 2002)
- 3rd International Joint Workshop on Conceptual Modeling Approaches for E-business: a Web Service Perspective (eCOMO 2002)

ER 2002 was organized so that there would be no overlap between the conference sessions and the workshops. This proceedings contains workshop papers that were revised by the authors following discussions during the conference. We are deeply indebted to the members of the organizing committees and program committees of these workshops for their hard work.

July 2003 Antoni Olivé, Masatoshi Yoshikawa, and Eric S.K. Yu
Workshop Co-chairs
ER 2002

ECDM 2002

Change is a fundamental but sometimes neglected aspect of information and database systems. The management of evolution and change and the ability of database, information and knowledge-based systems to deal with change is an essential component in developing and maintaining truly useful systems. Many approaches to handling evolution and change have been proposed in various areas of data management, and this forum seeks to bring together researchers and practitioners from both more established areas and from emerging areas to look at this issue. The second ECDM workshop (the first ECDM workshop was held with ER 1999 in Paris and its report can be found in SIGMOD Record 29(1):21–25, March 2000) dealt with the manner in which change can be handled, and the semantics of evolving data and data structure in computer-based systems. The workshop topics included:

- Semantics of Change in Time and Space
- Modelling and Management of Time-Varying Data, Temporal Databases
- Handling Changes and Versioning of Semi-structured Data
- Handling Changes of Metadata, Schema Evolution and Versioning

- Change Detection, Monitoring and Mining
- Evolution and Change in Internet-Based Information Systems
- Evolution and Change in E-services and E-world Systems
- Induction of Cause and Effect, Logics for Evolution
- Maintenance of Views, Summaries, Dictionaries and Warehouses
- Managing Evolution of Sources in Information Integration

With respect to the main ER conference, the ECDM workshop aims at stressing the evolutionary aspects involved in conceptual modelling and in the development and implementation of systems, ranging from the modelling of information dynamics to the dynamics of the modelling process itself. Another explicit aim of ECDM 2002 (as it was also for ECDM 1999) was to bring together scientists and pratictioners interested in evolution and change aspects in different research fields and, thus, people who often belong to completely separate communities. It is our opinion that such interactions can be tighter and cross-fertilization can be more useful in the context of a collaborative workshop like ECDM than in the context of the main conference sessions. Moreover, since the emphasis is on the evolutionary dimension, a special insight is sought upon this specific aspect, one that could hardly find an appropriately broad coverage in the scope of the main ER conference.

Following the acceptance of the workshop proposal by the ER 2002 organizing committee, an international and highly qualified program committee was assembled from research centers worldwide. As a result of the call for papers, the program committee received 19 submissions from 15 countries, and after rigorous refereeing 10 high-quality papers were eventually chosen for presentation at the workshop, and these appear in these proceedings.

We would like to thank both the program committee members and the additional external referees for their timely expertise in reviewing the papers. We would also like to thank all authors for submitting their papers to this workshop. Last, but not least, we would like to thank the ER 2002 organizers for their support, and in particular the workshop co-chairs, Antoni Olivé, Eric Yu, and Masatoshi Yoshikawa.

September 2002

Fabio Grandi and John Roddick
Program Co-chairs
ECDM 2002
`http://kdm.first.flinders.edu.au/events/ECDM02.html`

MobIMod 2002

Mobility is perhaps the most important market and technological trend in information and communication technology. With the advent of new mobile infrastructures providing higher bandwidths and constant connections to the network from virtually everywhere, the way people use information resources is predicted

to be radically transformed. The rapid developments in information technology (IT) are substantially changing the landscape of organizational computing. Workers in many business areas are becoming increasingly mobile. Workers in more and more areas will be required to act more flexibly within the constraints of the business processes they are currently engaged in. At the same time they will often want to use the same information technology to support their private tasks. During the last few years, a new breed of information system has emerged to address this situation, referred to as m-commerce systems or mobile information systems. The objective of the workshop was to provide a forum for researchers and practitioners interested in modeling methods for mobile information systems to meet, and exchange research ideas and results.

The relevant topics for the workshop included the following aspects of m-commerce and mobile information systems:

- Mobile commerce models and architecture
- Service modeling
- Mobile access to enterprise systems (ERP, CRM, SCM, etc.)
- Enterprise modeling and business process re-engineering
- Workflow modeling
- Meta-modeling and method engineering
- Evaluation of modeling languages and experience
- Modeling of access control to provide security and privacy
- Content personalization and user modeling
- Context modeling
- Requirement modeling
- Information and database modeling
- Component engineering and integration
- Geographical information systems and location-based services
- Cross-platform conceptual interface modeling
- Mobile modeling tools
- Modeling of embedded systems
- (Mobile) Agent modeling and design
- Agile modeling, extreme modeling, and extreme programming

October 2002

John Krogstie
Program Chair
MobIMod 2002

IWCMQ 2002

Conceptual modeling has been recognized as a key task that lays the foundation of all later design and implementation work. The early focus on conceptual modeling may help in building better systems, without unnecessary rework at later stages of the development when changes are more expensive and more difficult

to perform. Quality in conceptual modeling has been a topic of research since the early 1990s but recently a stronger emphasis has been given to the assessment, evaluation, and improvement of the models produced in the early phases of the system development life-cycle. The theme of the 1st International Workshop on Conceptual Modeling Quality was methodologies and instruments for the quality assurance of conceptual modeling processes and products. The workshop intended to provide a forum for researchers and practitioners working on approaches, frameworks, methods, techniques, guidelines, and tools for measuring, predicting, evaluating, controlling, and improving the quality of conceptual modeling processes and artifacts.

February 2003

Geert Poels
Workshop Co-chair
IWCMQ 2002

eCOMO 2002

The Internet is changing the way businesses operate. Organizations are increasingly relying on the Web to deliver their goods and services, to find trading partners, and to link their existing legacy applications to other applications. Web services are rapidly becoming the de facto enabling technology of today's e-business systems, and will soon transform the Web as it is now into a new distributed application-to-application computation network. This will be the basis for the future network economy which comes with the need for new and adapted business models, business technologies and, as a consequence, new challenges for the developers and users of e-business systems. They will have to supply and to adopt Web-based services over the complete supply chain as well, in the context of new digital products. In particular, services that allow enterprises to combine or integrate their business processes will have to be developed, respectively their models, with those of the partners when forming a dynamic network or a virtual enterprise.

Web service technology is generally perceived as an ideal candidate to fulfil the requirements of modern networked enterprises because they allow both loose-coupling and dynamic composition at both the enterprise and the business application level. Progress has been made in the area of Web service description and discovery, and there are some important standards emerging. Nevertheless, there is still a list of issues that need to be addressed and researched in connection with conceptual modeling methodologies that are tailored to deal with the specifics of Web-services and their alignment with e-business requirements before Web services becomes the prominent paradigm for distributed computing and electronic business. Industry is delivering new exciting solutions at a fast rate, but most of them lack a firm scientifically validated foundation.

The eCOMO workshop series was started in 2000. It aims to bring together experts from practice and academia who are working from different, but re-

lated perspectives on the same research questions, such as from the perspectives of business modeling, enterprise application integration, the semantic Web, business metadata and ontologies, process management, business re-engineering, business models, and business communication languages.

The contributions to eCOMO 2002 that are collected in these proceedings passed a careful review process in which each of the submitted papers was assessed by three experienced reviewers. They deal with modeling aspects of e-business processes, the model-based composition of processes and Web services, specific approaches to managing unstructured e-business information and to extracting relevant data from Web forms, and with the question of designing successful e-business Web applications.

Many persons deserve appreciation and recognition for their contribution to making eCOMO 2002 a success. First of all we have to thank the authors for their valuable contributions. Similarly, we thank the members of the program committee, who spent a lot of time in assessing submitted papers and participating in the iterated discussions on acceptance or rejection. Special appreciation is due to Christian Kop, who organized and co-ordinated the whole preparation process including the composition of these proceedings. We also express our thanks to Jian Yang and Klothilde Pack for the organizational support they provided. Last, but not least, we thank the ER organizers and the ER workshop co-chairs (Antoni Olivé, Masatoshi Yoshikawa, and Eric Yu) for their support in integrating eCOMO 2002 into ER 2002.

February 2003

Willem-Jan van den Heuvel
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Program Co-chairs
eCOMO 2002

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