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Preface

Currently, the field of information system technology is rapidly extending into several dimensions. There is the semantic dimension (e.g. object orientation, data deduction and extended knowledge representation schemes), there is the improved systems integration (DB communication systems, "interoperability", multibases), and there are the new tools (DBPLs, 4GL, visual interfaces, etc.). All these extensions aim at providing semantically richer and better engineered information systems that allow more adequate and complete representations and thus extend the effective use of database technology to a wider class of applications.

Database researchers and developers, whether they are committed to application or to system construction, are convinced that next generation information system technology will be heavily determined by a handful of new concepts that they have to understand and work out in detail now. Consequently, the volume at hand concentrates on the following list of topics:

- extended data types and data models, database programming languages;
- rule-based data deduction, expert systems, knowledge bases;
- object orientation and semantic data modelling;
- DB application development, methodologies and tools;
- novel information system architectures;
- interface technology, parallelism, interoperability, ...;
- new database applications.

This volume results from a workshop on "Next Generation Information System Technology" which represents the first in a series of events organized by researchers from the West and East and dedicated specifically to the improved exchange of experience and development in the field of advanced data- and knowledge-based systems.

A driving force behind this activity is the Europe-based International Foundation in "Extending Database Technology (EDBT)", devoted to the furtherance of the field through the organization and sponsoring of scientific conferences, technical workshops and educational events such as summer schools and tutorials.

The four-day scientific workshop was held in Kiev, USSR, in early October 1990. It consisted in the presentation of more than 25 invited papers accompanied by extensive discussions. A major criterion for the selection of a contribution was its expected impact on next-generation data- and knowledge-based applications. The scientific chairmen of the workshop were Leonid Kalinichenko (Moscow) and Michele Missikoff (Rome). They were supported by a scientific advisory committee consisting of Victor Alexandrov (Leningrad), Peter Apers (Enschede), Matthias Jarke (Aachen), Victor Ivannikov (Moscow), Ronald Morrison (St. Andrews), David Stemple (Massachusetts), Bernhard Thalheim (Rostock), Alexander Zamulin (Novosibirsk).

The workshop was preceded by a one-and-a-half day tutorial on advances in Database Programming Languages and Persistent Systems. This tutorial was prepared under the

auspices of the FIDE[1] ESPRIT Basic Research Project and presented by three of its members (Malcolm Atkinson, Florian Matthes and Joachim Schmidt). The tutorial was intended primarily for young researchers from the host country, but served further as an impetus and platform for discussions during the workshop.

A final component of the workshop was a technical exhibition and demonstration of advanced software systems from various projects in the USSR. Short descriptions of selected projects are found in these proceedings.

The workshop was supported by grants from the following institutions: Institute for Applied Informatics, NPO "Gorsystemotechnicka", Kiev, USSR; Department of Computer Science, University of Hamburg, Germany; EDBT Foundation, Rome, Italy; Commission of the European Communities, Directorate General XIII, and its ESPRIT Basic Research Action FIDE; Institute for Informatic Problems, Academy of Sciences, Moscow, USSR; Personal Computer User Association, Kiev, USSR; Novintex Joint Venture, Kiev branch, USSR.

The workshop participants were most appreciative of the quality of support provided by the members of the organizing committee (Vladimir Kolinko and Sergey Pisarev, Kiev; Rumjana Kirkova, Sofia) and, in particular, by the dedication and enthusiasm of the hosting personnel (Natali Grigorova, Tanya Sudienko, Zoya Bogemskaya, Marina Chertina, Natali Trachenko, Vladimir Paschke).

Our special thanks are due to Ingeborg Mayer and Dr. Hans Wössner of Springer-Verlag, Heidelberg, and to Helen Brodie, Claudia Niederée and Andreas Rudloff, Hamburg, for their continuing support in preparing these proceedings.

Finally, on behalf of all the workshop participants we would like to express our sincere thanks to everybody who helped to make this first "East/West Workshop" in the area of databases a success.

Anatoly A. Stogny, Kiev, USSR
Joachim W. Schmidt, Hamburg, Germany

Workshop Chairmen

[1]FIDE (Formally Integrated Data Environments) is supported by ESPRIT/CEC under grant number 3070. The FIDE tutorial is available through its members.

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