IFIP newsletter
International Federation for Information Processing

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MEDINFO 83

MEDINFO 83, the Fourth World Conference on Medical Informatics took place in Amsterdam, The Netherlands, in August, 1983. More than eighteen hundred attended this event and an associated program of seminars sponsored by the International Medical Informatics Association of IFIP (the IFIP special interest group). Four hundred papers were presented during the six day meeting. Mr. J. Roukens (Belgium) chaired the Organizing Committee.

In his introduction to the conference proceedings *(MEDINFO 83,* J.H. van Bemmel, M.J. Ball, and 0. Wigertz, editors, published by North-Holland Publishing Co. in 1983), Scientific Program Chairman Dr. Gwilym Lodwick (USA) pointed out the dynamic nature of medical informatics: *We have had a number of surprises. For*

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IFIP COUNCIL MEETS IN SOUTH AFRICA

Greater Cooperation with Unesco Planned

Council Meeting in Cape Town. Seated: **0.** Dalton, J. Fourot, **P.** Bobillier, R. Piloty, G. Glaser, **A.** Goldsworthy; Standing **S.** Smit, D. Dolan, **G.** Roberts, **H.** Zemanek, **A.** Melbye, **G.** Morris, B. Sendov, J. Navez, J. Finch, G. Sacerdoti, J. Carteron, T. Uozumi, J. Poyen, J. Rosenfeld

The IFIP Council met in Cape Town, Republic of South Africa, 13-15 March.

One of the most important matters considered was a proposal from the United Nations Educational, Scientific and Cultural Organization (Unesco) for a closer relationship with IFIP. (See the article *Unesco Head Addresses IFIP* in this issue.) Unesco suggested several areas of cooperation. It might-

1) provide additional travel grants to permit people from developing countries to attend IFIP events. (Unesco already subsidizes some IFIP events.)

2) commission IFIP to perform specific technical surveys and studies, and Unesco would then disseminate the resulting reports.

3) co-sponsor events with IFIP-especially in developing nations where IFIP is not represented.

4) request IFIP to recommend informatics experts to fulfill the needs of nations that require help.

5) distribute IFIP publications more widely.

The Council viewed the Unesco proposal as providing IFIP an opportunity to be of greater service to developing nations and formed a committee (Liaison with Unesco), under the chairmanship of Prof. R. Narasimhan (India), to handle the matter.

25th Anniversary

IFIP's 25th anniversary, to be celebrated 27 March 1985 in Munich, in conjunction with the Council meeting, was discussed. **Prof.** F. L. Bauer (FRG) is chairman of the committee preparing a symposium planned for the event. IFIP vice-president Mr.

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Ashley Goldsworthy (Australia) was appointed chairman of a committee helping organize the celebration. In addition, the Publications Committee (PC) is preparing a book to commemorate the event. PC chairman Prof. Heinz Zemanek (Austria) also announced that IFIP's one hundredth working conference proceedings will be published soon by Elsevier Science Publishers (North-Holland).

IFIP trustee Mr. Graham Morris (UK), chairman of the Task Group on Restructuring, gave its report. Questions have been raised as to whether the current structure of Technical Committees (TCs), Working Groups (WGs), Special Interest Groups (SIGs), and Affiliate Members is the most appropriate. Is it serving the needs of both the theory-oriented and the applications-oriented? How can IFIP respond more rapidly and effectively to new technological developments? Among the suggestions offered was that a regular program of IFIP conferences be established for each continent, which could be structured to suit local needs. A questionnaire concerning these issues will be sent by the Task Group to all General Assembly (GA) members, TC, WG, and SIG chairmen, and Affiliate Members.

TC Reviews

The process by which IFIP Technical Committees (TCs) are periodically reviewed was discussed by IFIP vice-president Mr. George Glaser (USA), chairman of a Task Group examining the review process. Council passed certain measures designed to make the review process more effective: to shorten the time for the review itself and to ensure that the TCs respond to the reviews in a constructive way and within a reasonable time.

IFIP Trustee Acad. B. Sendov (Bulgaria) was asked to prepare a position paper on the desirability of re-establishing TC4 in the field of Medical and Biological Informatics, concentrating on areas such as mathematical modelling. This TC would not duplicate the work of the International Medical Informatics Association of IFIP (IMIA) but would deal with those technical problems not currently addressed by IMIA.

Mr. Dudley Dolan (Ireland), Organizing Committee chairman, presented plans for Congress '86. The report of Program Committee chairman Prof. Dines Bjørner (Denmark) was reviewed. It includes the following: *The purpose of Congress '86 is to bring together EDP professionals from business and industry, computer scientists from academe, and software engineers from leading software houses, with the aim of exchanging views and news; to provide a ground for mutual theory, methodology and technology transfer; to make scientists aware of the medium-range problems of practitioners; and to make practitioners aware of the longer-range promises of the informatics sciences. There will be a larger than usual number of invited papers, and some of these will be followed by "responder-led" discussions. There will be a similarly larger number of panels, featuring two "extreme" positions and a mediating position.* (See the article *Plans for IFIP Congress '86 Under Way* in the February, 1984 *Newsletter.)* The Organizing Committee for Congress '83 promised its final report by June.

TC11

The aims of TC11, "Security and Protection in Information Processing Systems," the newest TC, were approved: *To increase the reliability and general confidence in information processing, as well as to act as a forum for security managers and others professionally active in the field of information processing security.*

The Organizing Committee for the TC6 symposium "Network in Office Automation," to be held 25-30 Sept. 1984 in Sofia, Bulgaria, expressed a desire for a large attendance from around the world. The symposium will give an opportunity to those working in the field of implementing networks in office automation to exchange their thoughts and present results of their research. Prospective registrants can write for information to Institute of Mathematics with Computer Center, Symposium Secretariat—IFIP/Network '84, Sofia 1090, P.O. Box 373, Bulgaria.

Computer Society of S.A.

The Computer Society of South Africa (CSSA) was host for the Council meeting. Prof. Gerhard Wiechers, its president, welcomed the Council at one of the gatherings for CSSA and Council members. Many CSSA representatives on IFIP TCs were present. Mr. Hennie Le Roux, former president of CSSA and current South African delegate to the IFIP GA, made all arrangements. The hospitality accorded Council couldn't have been better.

IFIP COUNCIL

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CSSA held a seminar entitled "Trends and Developments in Management Information Systems" following the Council meeting. The program comprised presentations by IFIP Council members. President Dr. Kaoru Ando's paper summarized the state of Japan's computer industry. Vice-president Glaser discussed project management, claiming that it is generally weak and ineffective; that the use of critical path tools is important; and that frequent reviews of progress are essential. Trustee Mr. Jim Finch (Canada) talked about strategic planning and security issues. He asserted that most security problems are straightforward, and their solutions do not require sophisticated techniques or equipment. Trustee Morris discussed training and education and the shortage of skilled computer staff. Secretary Mr. Jacques Fourot (France) summarized the state of the European data processing market. He presented a variety of figures and concluded that the European computer industry is unable to control its own market. Trustee Mr. Aage Melbye (Denmark) presented the Scandinavian approach to banking applications.

Panel discussions following the seminars touched on questions of exporting information processing technology to developing nations, next generation languages, the responsibilities of computer professionals, and other topics. The seminar, given both in Cape Town and Johannesburg, attracted over 150 registrants.

Future IFIP meetings are scheduled as follows:

Council and GA-17-21 Sept. 1984, Varna, Bulgaria

Council—between 25 and 30 March 1985, Munich, FRG

Council and GA-2-7 Sept. 1985, Tokyo, Japan. ■

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example, in past sessions, clinical laboratory systems have been a topic of great interest requiring several separate sessions to accommodate the volume and quality of the submissions. To our surprise the number of submissions to this topic for MEDINFO 83 has been relatively much smaller, so that clinical laboratory systems has been reduced to a single session. On the other hand, the upsurge of interest in the subject of medical decision making, and particularly of artificial intelligence, has been an exciting trend, and fully five sessions dealing with this subject have been possible at MEDINFO 83...Investigators are not now interested in microcomputers as a topic, but rather in how microcomputers can be optimally used to advance the practice of medicine. Computers are old hat: it is how computers are to be used that is important. To a great extent, the software dictates the hardware: form follows function.

Dr. Lee Lusted (USA) presented an invited paper, "Design for Decisions—a 25 Year Perspective." First he reviewed progress in computer-aided diagnosis and medical information systems during the past 25 years. He then offered some predictions for the future. Excerpts from his paper follow. *

Predictions

Speculation about future technical developments in any field, although stimulating, tends to be risky. Predictions need to take into account social and economic factors as well as technical developments. These days all three areas may be expected to produce unforeseen future developments. Some very powerful social and economic factors outside and inside the field of medicine are likely to stimulate the development of MISs, computer-aided diagnosis systems, the development of medical data bases and computer-medical data networks.

Expensive physician care is starting to be replaced by less expensive, paramedical personnel in both outpatient and inpatient settings. In this context computer-based consultation systems have much expertise to offer.

The harder a national government is pressed to contain medical costs, the more willing the government officials are to support the development and use of MISs and computer-aided consultation services for health care.

There is some indication that patients wish to participate in their medical decisions. This trend is related to an increasingly popular idea that the individual wishes to have more freedom to make (and to accept responsibility for) decisions related to personal health and life style. The availability of personal computers in the home; access to medical data bases and to home diagnostic and monitoring kits could stimulate the development of MISs and computer-assisted medical advisory systems.

Interest in AI and computer-aided medical decision-making systems was demonstrated at MEDINFO 83 by the large number of abstracts submitted and the presentation of a workshop devoted to AI. It seems likely that physician resistance to computer-aided medical decision-making systems will decrease as personal computers become commonplace in home and office. However, it will be a challenge to all of us if and when patients with personal computers have access through medical telecommunication networks to medical information.

Thus, one might foresee a great expanded role for computers, medical information systems and computer-assisted medical decision-making projects in health and medical care. III

** C) IFIP*

INFORMATION SYSTEMS CONFERENCE

CRIS 85 Planned

The next CRIS (Comparative Review of Information Systems Design Methodologies) conference will be held in Noordwijkerhout, The Netherlands 9-11 Sept. 1985 and will focus on the question of how to apply the understanding gained in the first two CRIS conferences to the problem of improving the way in which people design computerized information systems and of improving the standard of design specifications.

IFIP Working Group 8.1 (Design and Evaluation of Information Systems) held CRIS 1 in May 1982. It had the aim of taking stock of the then-available information systems design methodologies. From the large number of papers submitted, thirteen were accepted on the basis that they collectively covered the spectrum of capability to be found in such methodologies.

The second CRIS conference, in July 1983, presented eight papers which analyzed the features of the CRIS 1 methodologies and of others considered of interest by the authors.

The next conference will focus sharply on the needs of practitioners and will seek to attract contributions and attendance from experienced designers, persons involved in training designers, and researchers who feel that their work is of immediate value to practitioners.

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From the Editor

Dear Reader:

I am very encouraged by the favorable comments received on the first two issues of the Newsletter. Please don't hesitate to communicate any suggestions you have; I shall be grateful for them.

Much to my surprise, there is a surplus of copy for this issue. Many people have contributed. If you don't see your article here, it will appear in the August issue.

Finally, I ask for your help in producing the Newsletter. Any type of assistance will be welcome and useful. Hopefully, it will be fun for you. Please contact me at the address given on page 1.

Jack Rosenfeld

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Themes

CRIS 85 will have three themes:

1) CRIS 1 revisited. A small number of practitioner-oriented methodologies will be included in the program. These papers will present the methodologies, the CRIS 1 test case, and explain in what ways the methodologies are superior to the 1981-82 submissions.

2) Improved Design Specifications. This theme concentrates on the design product itself and not on the process which caused it to be produced. The preferred test case may be the same as in CRIS 1.

3) Cost-effective Design. This theme concentrates on the cost-effective aspects of designing information systems. What are the factors influencing cost effectiveness? Are some methodologies more cost-effective than others? Can an inexpensive design lead to an expensive system? How critical are designer skill and experience to the cost-effectiveness of the design process? Is computerization of the design process a critical factor in determining cost-effectiveness? What is the importance of a smooth transition?

The Organizing Committee Chairman is Prof. Dr. Henc Sol, Dept. of Computer Science, Information Systems Group, University of Delft, Julianalaan 132, Delft, The Netherlands. Letters of intent expressing interest in preparing a submission for CRIS 85 should be sent to him before July 1984. Authors will receive further details regarding the preparation of submissions. Those interested in receiving an invitation to attend the conference should also write. Prof. Alex Verrijn-Stuart (The Netherlands) is General Chairman of the conference; Dr. Bill 011e (UK) is Program Committee Chairman. III

Copies of this Newsletter are available from the IFIP Secretariat at the address given below. Please apply to the Secretariat in order to be added to (or removed from) the mailing list.

The Secretariat can also provide other information about IFIP.

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UNESCO HEAD ADDRESSES IFIP

M'Bow Looks to Future of Computer Revolution

Mr. Amadou-Mahtar M'Bow (Senegal), director-general of the United Nations Educational, Scientific and Cultural Organization (Unesco) since 1974, addressed the opening session of IFIP Congress '83 last September. He discussed Unesco's role in IFIP, the history of computer development, and the major areas of innovation today. He closed with a caution for us all regarding the handling of computer technology:

The computer revolution is a worldwide social phenomenon. Unlike the great scientific and technological upheavals that have preceded it in the course of history, it is the first to be experienced simultaneously in all parts of the world as an event of major importance. It is extremely fortunate for mankind that a change which so deeply affects our lives is not exclusively in the hands of scientists, industrialists or political leaders, but concerns every citizen of every country; for the whole weight of universal consciousness is needed to steer the future course of this revolution.

Informatics raises a number of serious problems: to begin with, the danger of dividing the world into computerized and under-computerized areas and of conferring on some sectors within particular societies the power to inform, while others remain at the mercy of that power and are exposed to the risks that it may entail, such as manipulation of people's thinking, monitoring of their every movement and violation of individual freedoms.

The powers inherent in computer knowledge and know-how thus contain both the promise of freedom and the danger of restrictions on that freedom. It will take a concerted effort by all men of good faith and good will to ensure that those powers are used to enhance democracy, justice and solidarity, throughout the world and within the frontiers of each country.

Like all great technological breakthroughs, informatics unleashes forces which are not, in themselves, either beneficial or harmful. They are what society makes of them, according to the goals it sets itself, the ethical ideals it embraces, the kind of future it wishes to build and its ability to choose between the higher aspirations of mankind and the narrow ambitions of a few.

Society's Choice

The family of nations is called upon today to help make this choice. It must be so, because its whole future is at stake. It can do so, because people everywhere are coming to realize that they have a single common future, and that they have a duty to share responsibility for it.

Informatics is a source of tremendous power, which can be used for the common good only if it is gradually brought under everyone's control. Only then can this power be used to fight poverty, ignorance and disease; to relieve human beings completely of life's most tedious tasks and to let them give free rein to their imagination and creative initiative; to offer every people the means of listening constantly to what others have to say while making its own voice heard; and to promote ever greater mutual understanding and respect among peoples and individuals.

This is what Unesco has been striving for since its foundation, convinced that at a time of incessant scientific and technological upheaval the great ideals of freedom, the dignity of the individual, the independence of peoples and solidarity among nations are more necessary than ever to guide our steps towards a future which is commensurate with the aspirations and needs of all human beings.

Unesco's Plans

En this spirit, the General Conference of Unesco set up a committee responsible for preparing an Intergovernmental Informatics Program. The program is planned to encourage Member States—especially developing countries—to devise appropriate strategies to increase their national informatics capacities, to promote public education and information on the subject, and to encourage international and regional cooperation with a view to developing computer and their applications. Thirty-three Member States were elected to serve on the committee. The Director-General should submit final proposals thereon to the General Conference at its 23rd session. The *IFIP Newsletter* will report on these activities as information becomes available. (See also the article *IFIP*

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PROGRAMMING LANGUAGES AND SYSTEM DESIGN

TC2 Working Conference

A working conference on Programming Languages and System Design was held in 1983, sponsored by IFIP's Technical Committee 2 on Programming. The focus of the conference was the application of programming *methodology* to system design, as stated in the preface to the proceedings by the editor, Prof. Dr. J. Bormann (German Democratic Republic): *

During the last twenty years many high-level programming languages have been developed, but the majority of programmers are still writing programs in BASIC, FORTRAN or COBOL. Many techniques to increase reliability, efficiency etc., have been introduced, but only specialists are using them. Thus questions arise: Do the programming tools meet the needs of the user? Have we already a reasonable programming methodology? What should be done?

The opening remarks by Prof. Dr. Erich J. Neuhold (Federal Republic of Germany) elaborated on the theme of whether programming methodology is being applied properly to system design. His talk was perceptive, pointed, and often humorous. It appears in the conference proceedings, published by the Elsevier Science Publishers (North-Holland). Selections from it follow. *

New Languages

Why do we have a conference like this, when so many new programming languages and system development methodologies have already been discussed during the last years? Names like MOD ULA, ADA, PROLOG, Functional Programming, VAL, SMOLCS, ALPHARD, COSY, SCRIPT, and, SETL all have appeared in the literature extensively, and many papers have been written about them. How many programmers do we have in these systems? "A thousand or so," is my guess. Why do we have all the new languages? The idea is, of course, to increase productivity, ease of use, methodology, modularity, adaptability, correctness, documentation—all the little things that decrease the complexity of systems, the cost of building them, and the cost of their maintenance. Naturally these are very good goals, and if these new languages really satisfy these goals it is very puzzling why 2 million people are doing BASIC and only a few are using the new languages.

Application of Methodologies

Recently I was present at a conference, and I asked a simple question of the 300 attendees: "Who of you has ever used one of the presented techniques as a manager or chief designer or even just as a co-worker in a project that was actually building a system of, let us say, 50 000 lines of code or larger?" Five people raised their hands; it turned out that they were only consultants at such projects. So there was nobody among the 300 persons who ever used one of the techniques himself. We should insist on testing methodologies on real projects before making any claims about them.

I also asked the question, "Why do you structure your system in such a way?" The usual answer was—and I could not find anyone who would answer in a systematic fashion—"That structure was obvious, it was my intuition, it was my experience, etc."

How much methodology is actually given in the set of papers at today's conference? How often have we been told, "In such or such a situation you proceed by structuring/choosing such and such?" When, for example, is it better to use a recursive implementation as against a non-recursive one? If the authors have criteria for answering such questions they usually do not mention them in the papers, but these criteria are very essential to the programmer/implementer. Especially in the papers describing real implementations, we can find that special rules had to be set up to allow a constructive cooperation between the implementers. The 'new' languages have so many features and offer so many alternative ways that additional rules are necessary to ensure coherent programming style and even consistent interfaces.

Unfortunately, in practice nobody is willing to give you 50 or even one trial before you start with the real product specification and design. A proper methodology on how to proceed is therefore of utmost importance, but unfortunately this problem is sadly neglected in most of our current research efforts.

Methodology for Real Time

A concern for the needs of realtime systems is also missing. I think that we will have to deal with quite different concepts, for example some way to treat time explicitly. Also multiprocess and multiprocessor systems, when specified using design or implementation technologies not suited for them, will result in rather strange realizations. Because parallelism, cooperation, synchronization etc. cannot be expressed in some languages properly, isolated workstations have been produced. Now, during my work I cannot 'talk' to my neighbour, who has his own workstation, to get his opinion or his suggestion for my work anymore. Only because the implementation languages had no good facilities for describing interaction, sharing of data, sharing of activities and communication, such situations have become common.

Finally, I want to charge all the attendees of this conference with writing more papers about their languages and methodologies. Maybe I have given you some ideas on where to concentrate. And last, but not least, use your techniques. I think this will be the best proof to everybody on their usefulness and will probably be the best way to get them into real production environments. ■

** n IFIP*

UNESCO continued from page 4

Council meets in South Africa in this issue.)

Mr. M'Bow ended his IFIP address with the following words:'

I hope that your Federation will be able to participate fully in the activities of the programme. With this hope, and with the further hope that your Congress will not only contribute to the advance of informatics but also help to affirm the ideals which place it in the service of all mankind, I express my most sincere wishes for the success of your proceedings. ■

NEW MOROCCAN JOURNAL

The Association Marocaine pour le Développement de l'Electronique, l'Informatique et l'Automatique (AMADEIA) announces the publication of a new journal, the *Moroccan Journal of Control, Computer Science and Signal Processing.* For further information, contact AMADEIA, Lab. d'Electronique, Faculté des Sciences, B.P. 1014, Rabat, Morocco ■

HANDI-COMMUNICATIONS

*by Dr. Julian Davies **

A subgroup on Message Systems and the Communication Impaired was formed almost two years ago within IFIP's Working Group on International Computer Message Systems-WG6.5. (The February, 1984 *IFIP Newsletter* contains an article on WG6.5's activities in messaging for developing nations.)

The subgroup's goal is to improve awareness and promote contact between those interested in using computer message systems to help handicapped people communicate. We wish to help bridge the barriers separating handicapped people from each other. For instance, without an interpreter, a blind person and a deaf person are usually not able to converse in either direction.

It is important for the subgroup to make contacts world wide, though it must be admitted that the subgroup's membership is predominantly English-speaking at present. It is also important to have the participation of those who are themselves handicapped. It would be unfortunate to discuss proposals for helping people communicate without consulting the intended users!

The subgroup is meeting during the May WG6.5 meeting at Nottingham, UK; it also plans a session at IFIP Congress '86 in Dublin.

Newsletter

The main focus of activity at present is the publication of a low-cost quarterly newsletter, to be called *Handi-Communications.*

Handi-Communications shares news and views, both technical and non-technical, concerning message systems and the handicapped. The scope is potentially quite broad, covering, for instance, telecommunications options for the impaired; the impact of message systems and terminals for the handicapped at work, at school, and in the home; human-computer interactions by handicapped people; and design of terminals for people with different handicaps.

The first issue has been distributed to some 300 people around the world. If any of you reading this *IFIP Newsletter* are aware of persons in your own countries or communities who might be interested, please tell them about *Handi-Communications.* They can write to

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The subscription rate for the first year will be $5 U.S. for four issues.

Since the topic of *Handi-Communications is computer* message systems, we shall of course be looking at possibilities for electronic distribution of *Handi-Communications.* That may take a while to become a reality, however. ■

* chairman of WG6.5 subgroup on Computer Message Systems and the Communication Impaired

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WG8.2 AIRS METHODOLOGY DEBATE

The IFIP Working Group on The Interaction of Information Systems and the Organization (WG8.2) has a new chairman and a new newsletter. Chairman Prof. Enid Mumford (UK) published the first issue of the newsletter *Oasis* in September, 1983.

Included in that newsletter is the summary of a paper that deals with research methodology. It was presented at the most recent WG8.2 meeting by Dr. Hans-Erik Nissen (Sweden). Excerpts from Mumford's summary of Nissen's paper follow.

There are two opinions on methods of Information Systems research. Some wish to strictly adhere to methods of research developed within the natural sciences, and see these methods as the sole source of valid results. But there are also those who advocate other methods, such as the investigation of personal experience, values, attitudes, distortions etc. This group believes that no amount of "scientific" research can assist the understanding of how computerized information systems are related to the human action that is involved in their development and use. This understanding is required not just by specialists, but also by all people affected by information systems.

The first group believe that they are the only source of true knowledge and that the research of those who do not follow the same path lacks validity. The second group argue that strict adherence to scientific methodology produces trivial results, because scientific methods limit the aspects of real world experience that can be studied. A difficulty here is (hat the methods of science are well established in departments of Computer and Information Science.

Because the research route taken has a major impact on practice and theory, 'here is a need for a metascientific debate on the philosophy of science, and WG8.2 should initiate and support this debate.

Its task would be to start the debate, keep it going and document it. It should also encourage other IFIP groups to participate. The debate might be called Method Monopoly vs. Method Diversification.

Starting Points for the Debate:

1. *to examine what has already been written on research methodology for information systems*
2. *to summarise the main schools of thought on metascience and see how their teachings apply*
3. *to identify the areas and ideas on which both groups agree*
1. *to examine the two approaches as interdependent.*

Many scientists are not aware that this debate is taking place. They take the scientific approach for granted. Therefore the debate will be a way of giving both sides new perspectives. It may also persuade researchers to make their methodological values explicit. In this way research will be improved. The debate will also influence what is studied and how it is studied and will, in turn, have an impact on our knowledge and 'each ing.

Roth sides taking part in the debate fill learn how to handle conflicts and the importance of historical knowledge in understanding human action.

This kind of debate about what is valid research when studying the use and development of information systems seems urgently needed. Yet advocates of the scientific approach may disagree. They vant to improve the use of the scientific net hod. They will not initiate the de-bate.

Dr. Nissen will be the first speaker at he WG8.2 colloquium, "Information Systems Research Method—a

Manchester, UK in September, 1984. For that colloquium, a number of)eople who have published interesting r[e]search findings will be asked to describe the methodologies they used 'or their research and the reasons for their choices of methodology. Unusual methods will be of special interest. After the presentation of each paper, .here will be a critique of the methodology by two other persons and then a general discussion. ■

CHANGES IN IFIP

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NAME CHANGE

Finnish Association has changed its name to Finnish Information Processing Association

CALLS FOR PAPERS

Tenth Symposium on Microprocessing and Microprogramming, EUROMICRO 84
Aug 28-30 1984, Copenhagen, Denmark
scientific papers due: Feb 15 1984
Final version: May 6 1984
contact: Bjorn Myrhaug, Tandberg Data A/S, P.O. Box 9, Korsvoll, Oslo 9, Norway
short notes due: Jun 1 1984
contact: Derek Wilson, Polytechnic of Central London, 115 New Cavendish Str. London W1M 8JS, UK
industrial papers summary due: May 20 1984
contact: Robin Gurden, Industrial Seminars Ltd., Convex House, 43 Dudley Rd., Turnbridge Wells, Kent TN1 ILE, UK

Workshop: The Benevolent Bureaucracy: Can Information and Communication Technology be Used to Promote it?
sponsor: IFIP WG 9.2
Sep 4-7 1984, Jouy-en-Josas (Paris), France
contact: Richard Sizer, 26 Avenue Road, Farnborough Hants, GUI 47B, UK

IFIP/SEC'84 Second International Congress and Exhibition on Computer Security
sponsor: IFIP TC 11
Sep 10-12 1984, Toronto, Ontario, Canada
papers due: Feb 29 1984
contact: IFIP/SEC'84, International Security Congress 1984 Inc., 160 Duncan Mill Road, Don Mills, Ontario, Canada M3B 1Z5

Working Conference on Knowledge Engineering in Computer-Aided Design
sponsor: IFIP WG 5.2
Sep 17-20 1984, Budapest, Hungary
papers due: Feb 24 1984
contact: Prof. John S. Gero, Dept of Architectural Science, University of Sydney, Sydney, N.S.W. 2006, Australia

International Symposium on Network in Office Automation
sponsor: IFIP TC 6
Sep 25-30 1984, Sofia, Bulgaria - abstract due: Dec 15 1983
contact: Symposium Secretariat IFIP'84, Institute of Mathematics with Computer Center, P.O. Box 373, Sofia, Bulgaria

International Symposium on Networks 84
sponsors: Computer Society of India and IFIP TC 6
Oct 23-25 1984, Madras, India
contact: Prof. H.N. Mahabala, Computer Centre, Indian Institute of Technology, Madras 600 036, India

Workshop on Artificial Intelligence Pattern Recognition in Economics and Management
sponsors: IFAC/IFORS/IFIP
Mar 12-14 1985, Zurich, Switzerland
contact: Prof. L.F. Pau, Batelle Institute, 7, Route de Drize, CH-1227 Carouge, Switzerland

Working Conference on Theoretical and Formal Aspects of Information Systems **1985, TFAIS 85**
sponsor: IFIP WG 8.1
Apr 16-18, 1985, Sitges, Spain
papers due: Jul 1 1984
contact: Prof. Janis Bubenko, Jr., SYSLAB, Dept. of Information Processing and Computer Science, Univ. of Stockholm, S-106 91 Stockholm, Sweden

IMEK0'85 10th World Congress: New Measurement Technology To **Serve** Mankind
sponsors: IFAC/IFIP/OIML/EOQC
Apr 22-26 1985, Prague, Czechoslovakia
contact: IMEKO World Congress Secretariat, House of Technology, Gorkého nám. 23, 112 82 Prague 1, Czechoslovakia

6th Conference: **PROLAMAT 85,** Software for Discrete Manufacturing
sponsors: IFIP/IFAC, organized by AFCET
Jun 11-13 1985, Paris, France
papers due: May 1 1984
contact: AFCET, 156 Bd. Pereire, F-75017 Paris, France

WCCE/85-World Conference on Computers in Education
sponsors: IFIP TC 3 and AFIPS
Jul 29-Aug 2 1985, Norfolk, VA, USA
papers due: Aug 1 1984
contact: John McGregor, Computer Science Dept., Christopher Newport College, Newport News, VA 23606, USA

Symposium on Automation for Safety in Shipping and Offshore Petroleum Operations - **ASSOPO '85**
sponsors: IFIP/IFAC
Jun 25-27 1985, Trondheim, Norway
contact: The Norwegian Society of Automatic Control, Kroonprinsens gt. 17, Oslo 2, Norway

3rd Symposium on Computer Aided Design in Control and Engineering Systems
sponsors: IFAC/IFIP
Jul 31-Aug 2 1985, Copenhagen, Denmark
contact: Prof. P.M. Larsen, Electric Power Engineering, Binding 325, DK-2800 Lyngby, Denmark

International Conference on VLSI **85:** Design, Architecture and Technology for VLSI-Systems,
Sponsors: IFIP TC 10 /WG 10.5
Aug 26-28, 1985, Tokyo, Japan
contact: VLSI 85
c/o Business Center for Academic Societies, Japan,4-16 Yayoi 2-chome, Bunkyo-ku, Tokyo 113, Japan

Second IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS - COMP-**CONTROL 85**
sponsors: IFIP/GTE/MTA/CAEB/ IFORS
Aug 27-30 1985, Budapest, Hungary
contact: APMS-COMPCONTROL 85, Gépipari Tudományos Egyesület Kossuth L. ter 6-8, Pf. 451, 1372, Budapest V, Hungary

2nd Conference on Analysis, Design and Evaluation of Man-Machine Systems
sponsors: IFAC/IFIP/IFORS/IEA
Sep 1985, Stresa, Italy
contact: Prof. Dr. Ing. Gunnar Johannsen, Laboratory for Man-Machine Systems (FB 15), University of Kassel (GhK), P.O. Box 10 13 80, D-3500 Kassel, FRG

7th Symposium on Digital Computer Application to Process Control
sponsors: IFAC/IFIP/IMACS
Sep 17-2Q 1985, Vienna, Austria
contact: Dr. P. Kopacek, OPWZ, Postfach 131, A-1014 Vienna, Austria

NEW IFIP PUBLICATIONS*

CONFERENCE PROCEEDINGS

Ring Technology: Local Area Networks, Proceedings of the IFIP WG 6.4/University of Kent Workshop, Kent, UK, Sep 1983, (I.N. Dallas, E.B. Spratt, Eds.)

JOURNALS

Computers in Industry, The International Journal of IFIP TC 5-four issues per year

Information & Management, The International Journal of Information Systems Applications-six issues per year

Microprocessing and Microprogramming, The Euromicro Journal-ten issues per year

Computer Networks, The official Journal of the International Council for Computer Communications-six issues per year

Computers & Security, The International Journal of IFIP TC 11-four issues per year

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CALENDAR OF IFIP EVENTS

Event	Dates	Location	Organized by
Working Conference on *Computer-Based Message Services*	1-4 May 84	Nottingham, UK	WG 6.5
Working Conference on *The Role of Programming in Teaching Informatics*	7-9 May 84	Paris, France	TC 3
Working Conference on *Impact of Informatics on Vocational Education*	14-18 May 84	Jerusalem, Israel	WG 3.4/IPAI
1st African Conference on *Computer Communications AFRICOM '84*	21-23 May 84	Tunisia	TC 6/CNI
Working Conference on *Informatics Security Management*	24-25 May 84	Amsterdam, NL	TC 11
Working Conference on *Personal Control and Information Systems*	28-30 May 84	Vienna, Austria	WG 9.1
Working Conference on *Industrial Robotics in Discrete Manufacturing*	6-8 Jun 84	Como, Italy	WG 5.3/IFAC
Working Conference on *Protocol Specification, Testing and Verification*	11-14 Jun 84	N.Y., USA	WG 6.1
International Symposium on *The Semantics of Data Types*	27-29 Jun 84	Antibes, France	WG 2.2 co-sp.
14th International Symposium on *Fault Tolerant Computing*	Jun 84	Orlando, Florida, USA	WG 10.4/IEEE
9th World Congress of *IFAC*	2-6 Jul 84	Budapest, Hungary	IFAC
Working Conference on *Knowledge Representation for Decision Support Systems*	24-26 Jul 84	Durham, UK	WG 8.3
Working Conference on *Informatics and Teacher Training*	25-29 Jul 84	Birmingham, UK	WG 3.1
7th International Conference on *Pattern Recognition*	30 Jul-2 Aug 84	Montreal, Canada	IAPR, et al.
10th Triennial Conference on *Operations Research - IFORS '84*	6-10 Aug 84	Washington, D.C., USA	IFORS
International Symposium on *Spatial Data Handling*	20-24 Aug 84	Zurich, Switzerland	IAPR
6th Symposium on *Computational Statistics - COMPSTAT 1984*	27-31 Aug 84	Prague, CSSR	IASC
Working Conference on *Recent Advances in System Modelling and Optimisation*	27 Aug-I Sep 84	Santiago, Chile	WG 7.1
Tenth Symposium on *Microprocessing and Microprogramming EUROMICRO 84*	28-30 Aug 84	Copenhagen, Denmark	EUROMICRO
Working Conference on *Modelling of Production Management Systems*	29-31 Aug 84	Copenhagen, DK	WG 5.7/IFAC
Conference on *Human Factors in Computer Systems, Human-Computer Interaction - INTERACT 84*	4-7 Sep 84	London, UK	IFIP/IFAC IFORS/IEA
Working Conference on *Stochastic Differential Systems*	4-7 Sep 84	Baku, USSR	WG 7.1
Workshop on *The Benevolent Bureaucracy*	4-7 Sep 84	Jouy-en-Josas, France	WG 9.2
2nd International Conference on *Computer Security*	10-12 Sep 84	Toronto, Canada	TC 11
Working Conference on *New Generation Computer Architecture*	17-19 Sep 84	Manchester, UK	WG 10.3
Working Conference on *Knowledge Engineering in Computer-Aided Design*	17-20 Sep 84	Budapest, Hungary	WG 5.2
Working Conference on *System Programming Languages Experiences and Assessment*	17-21 Sep 84	Canterbury, UK	WG 2.4/IFORS
International Conference on *Women, Work and Computerization*	17-21 Sep 84	Riva del Sole, Italy	WG 9.1
Conference *SEARCC '84*	24-28 Sep 84	Hong Kong	SEARCC
Symposium on *Network in Office Automation*	25-30 Sep 84	Sofia, Bulgaria	TC 6
Working Conference on *Security and Authentication in OSI* Architecture	Sep 84	?	TC 6/NBS
Working Conference on *Stochastic Differential Systems*	Sep 84	Visegrad, Hungary	WG 7.1/Hung. Acd. of Sci.
Working Conference on *Functional Programming Languages and Computer Architecture*	Sep 84	Nancy, France	TC 10/TC 2
Working Conference on *The Role of Informatics in Health Data-Coding and Classification System*	Sep 84	Ottawa, Canada	IMIA
Open Conference *VLSI 84*	7-11 Oct 84	New York, USA	WG 10.5/IEEE
Symposium *Networks 84*	23-25 Oct 84	Madras, India	TC 6
Conference *ICCC 84*	30 Oct-3 Nov 84	Sydney, Australia	ICCC
Working Conference on *The Role of Informatics in the Reconstruction of Health Care Systems*	Oct 84	Brindisi, Italy	IMIA
Working Conference on *Stochastic Modelling and Filtering*	10-15 Dec 84	Rome, Italy	WG 7.1
10th Anniversary Symposium, *Performance 84*	19-21 Dec 84	Paris, France	WG 7.3

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