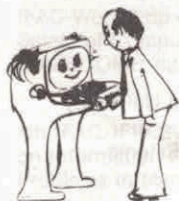




1981
No. 6
Dec

Newsletter



Seasons Greetings

to all our Readers

Contents:

IFAC's New Constitution

Forthcoming Events 1982

IFAC Workshop on Management Control Systems

25th Anniversary of IFAC

Next Issue of Automatica

Who is Who in IFAC

This Newsletter may be reproduced in whole or in part. We encourage reprinting in national and local automatic control periodicals. Acknowledgement to IFAC would be appreciated.

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Layout: Margaret A. Gottfried

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IFAC's New Constitution

After several years of discussions, drafts and re-drafts the new IFAC Constitution and By-Laws have been approved by the General Assembly for a test period of three years. When the General Assembly meets again in June 1984 in Budapest, the Constitution will be reviewed in the light of three years experiences, amended if necessary and then be finally adopted.

The Constitution will thus be put to test by applying it to practical activities and by feeding back your comments to the Secretariat.

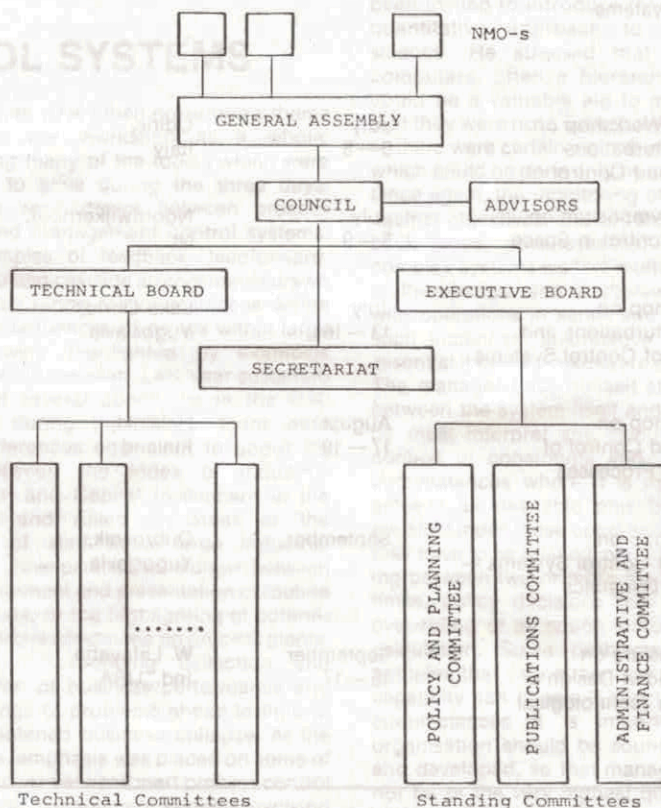
The Overall Structure

Membership can only be granted to one scientific or professional engineering organisation of each country. This organisation should have a strong interest in automatic control and a sound professional background. If two or more such organisations exist in one country, they ought to form a council which would then be eligible for membership of IFAC. There is no individual membership, but each member of the National Member

Organisation (NMO) is considered a member of the "IFAC Family". He/she is entitled to receive the IFAC-Newsletter regularly and will be welcome to join IFAC activities such as Technical Committees, Workshops, Symposia and Conferences in agreement with the respective NMO.

The supreme body of the Federation is the General Assembly, which consists of delegates from all NMOs (42 at present), each one having equal rights and equal voting power. Between two meetings of the General Assembly, the Federation is managed by the Council. To deal with the technical or executive activities respectively, there are two working organs of the Federation, both reporting to the Council: the Technical Board and the Executive Board. All the Technical Committees are subordinate to the Technical Board while subordinate to the Executive Board there are three Standing Committees, namely the Policy and Planning Committee, the Publications Committee and the Administrative and Finance Committee.

The structure is depicted in the following chart:



The full text of the Constitution and By-Laws can be obtained from the Secretariat.

FORTHCOMING EVENTS 1982

Title	Date	Place	Deadlines	Further Information
IFAC Symposium on Control Aspects of Prosthetics and Orthotics	May 7—9	Columbus, Ohio, USA	Papers: April 1	Prof. Herman R. Weed Biomedical Engineering Center, Ohio State University, 2015 Neil Ave., Columbus, Ohio 43210 USA
Prolamat '82 5th International Conference on Programming Research and Operations Logistics in Advanced Manufacturing Technology	May 16—18	Leningrad, USSR	—	USSR 199164 Leningrad, Mendelejevscaya linia 1 Leningrad Research Computer Centre of the USSR Academy of Sciences PROLAMAT '82 Organizing Committee
4th IFAC Workshop on Distributed Computer Control Systems	May 24—26	Tallinn, USSR	Papers: April 19	Prof. B. Tamm DCCS 82 Tallinn Technical University Ehitajate tee 5 Tallinn 200026, Estonia USSR
6th IFAC Symposium on Identification and System Parameter Estimation	June 7—11	Washington, D.C., USA	—	IFAC-82 Symposium c/o Department of Electrical Engineering Systems, University of Southern California, Los Angeles, Calif. 90007, USA
IFAC Workshop on Computer Aided Design of Projects and Development Policies	June 22—24	Ankara, Turkey	Papers: March 31	Dr. Önder Yüksel Electrical Engineering Department, Middle East Technical University Ankara, Turkey
IFAC Workshop on Application of Non-Linear Programming to Optimal Control Problems	June 22—25	Rocquencourt, France	not yet known	J. P. Yvon INRIA, Domaine de Voluceau — Rocquencourt, B. P. 105 F-78153 Le Chesnay Cedex, France
3rd IFAC Symposium on Control of Distributed Parameter Systems	June 29— July 2	Toulouse, France	—	L. Le Letty Symposium IFAC/CDPS CERT-DERA 2, ave. Edouard Belin BP 4025, F 31055 Toulouse, Cedex, France
IFAC/CISM Workshop on Singular Perturbations in Systems and Control	July 5—8	Udine, Italy	not yet known	Dr. Marc Ardema N.A.S.A. Ames Research Center Moffet Field, Calif. 94305, USA
IFAC/ESA Symposium on Automatic Control in Space	July 5—9	Noordwijkerhout, NL	Papers: February 1	c/o K.I.V.I. Postbus 30424 2500 GK 'S Gravenhage, Netherlands
IFAC Workshop on Singular Perturbations and Robustness of Control Systems	July 13—16	Lake Ohrid, Yugoslavia	not yet known	Prof. Petkovski Institut za mernu tehniku i upravljanje, Fruskogorska 11, 21000 Novi Sad, Yugoslavia
IFAC Workshop on Modeling and Control of Biotechnical Processes	August 17—19	Helsinki, Finland	Abstracts: March 31 Papers: August 17	Prof. J. Virkkunen Control Engineering Lab. Helsinki University of Technology SF 02150 Espoo 15
IFAC Workshop on Management Control Systems — Modeling of Dynamics	September	Dubrovnik, Yugoslavia	not yet known	Prof. M. Rajkov Facultet Org. Nauka ul. Oslobođenja Beograd, Yugoslavia
IFAC Symposium on Computer Aided Design of Multivariable Technological Systems	September 15—17	W. Lafayette, Ind., USA	Papers: May 15	Prof. G. Leininger Purdue University IFAC/CAD, School of Mechanical Engineering West Lafayette, Ind. 47907, USA

FORTHCOMING EVENTS 1982 (ctd.)

Title	Date	Place	Deadlines	Further Information
IFIP/IFAC Int. Symposium on Ship Operation Automation (ISSOA '82)	September 20—22	Genoa, Italy	—	Istituto Internazionale delle Comunicazioni Via Pertinace — Villa Piaggio I-16125 Genoa, Italy
IFAC/IFIP/IFORS/IEA Conference on Analysis, Design and Evaluation of Man-Machine Systems	September 27—29	Baden-Baden, FRG	Papers: March 31	VDI/VDE Gesellschaft Meß- und Regelungstechnik (GMR), Postfach 1139, D-4000 Düsseldorf 1, FRG
3rd IFAC/IFIP Symposium on Software for Computer Control (SOCOCO '82)	October 5—8	Madrid, Spain	Papers: April 15	SOCOCO '82 E.T.S. Ingenieros Industriales, Castellana 84, Madrid 6, Spain
IFAC Workshop on Safety of Computer Control (SAFECOMP '82)	October 11—14	W. Lafayette, Ind., USA	not yet known	Mr. Roy W. Yunker PPG Industries Corp. One Gateway Center Pittsburgh, PA, 15222, USA
4th IFAC/IFIP Symposium on Information Control Problems in Manufacturing Technology	October 26—28	Gaithersburg, Maryland, USA	Abstracts: January 15	M. Auman, Secretary IVth IFAC/IFIP Symposium National Bureau of Standards Building 220, Room A 123 Washington DC 20234, USA
IFAC Symposium on Components and Instruments for Distributed Control Systems	December 9—11	Paris, France	not yet known	Dr. Z. Binder Laboratoire d'Automatique de Grenoble — ENSIEG B. P. 46, F-38402 St. Martin-d'Hères, France
5th International Conference on Analysis and Optimization of Systems	December 14—17	Sophia Antipolis, (Antibes), France	Papers: March 31	INRIA — Service des Relations Extérieures, Domaine de Voluceau — Rocquencourt B. P. 105, F-78153 Le Chesnay Cedex, France

IFAC WORKSHOP on MANAGEMENT CONTROL SYSTEMS

About 30 people attended this Workshop, held at Hertford, England, during the three days April 15th to 17th, 1980. In addition to participants from the U.K. itself, others had come from Finland, Holland, Austria, Poland and Yugoslavia.

The three days of the Workshop had been broadly programmed as:

- Day 1 — What are we trying to achieve, and why?
- Day 2 — How do we try to achieve it?
- Day 3 — How do we present the results for Management Control purposes and
How do we teach the principles and practice of Management Control to people at different levels of operation?

The first meeting started with a welcome to the Workshop by Professor J. Kivinen (Finland) who outlined the purposes of the Economics and Management Systems Committee (EMSCOM) of IFAC and its three Working Groups. This workshop had been arranged at the instigation of the Management Systems Group led by Professor Janssen (Holland), one of the participants.

Mr. S. T. Lunt (U.K.) then presented a theme paper for the Workshop as a whole, introducing many of the topics which were expected to arise during the three days. Analogies were drawn between process control and management control systems, with examples of feedback, feedforward, compound and cascade arrangements drawn from a wide range of circumstances. Some of the consequences of delays within large systems were highlighted by examples drawn from the repeated 4½ year sustained cycling of several conditions in the U.K. economy during the 1960's; there were phase differences equivalent to about 1½ years between the Index of Industrial Production and Capital Investment in the Chemical and Allied Industries or the numbers of staff in a large industrial company. Other parallels were drawn between the measurement and presentation of routine process data, or the highlighting of potentially dangerous conditions on process plants, and the corresponding collection and presentation of business performance and the warnings of problems ahead in time to avoid threatened business collapse. At the same time, emphasis was placed on some of the differences between inert process control systems and management systems involving people.

The second theme paper was presented by Professor A. Straszak (Poland), who had been invited to introduce the aspect of the quantitative approach to management science. He stressed that models and computers, often a hierarchy of models, could be a valuable aid to managers, but that they were not a substitute for managers — there were certain aspects of management which could be done only by a human being. Once again, the monitoring of performance against objectives, and the associated feedback loops, were essential. In the more complex systems we find multi-dimensional, multi-objective and multi-level processes, with operations in series and in parallel. In such instances, quantitative aids may be essential if desired results are to be achieved. The manager finds himself at the interface between the system itself and these aids — he must interpret any calculations in the context of constraints and, frequently, in circumstances where it is not possible to achieve all desirable objectives simultaneously. Under these conditions, some goals may have to be relaxed, perhaps by bargaining between two or more managers. Sometimes, policy decisions may result in the over-riding of an action indicated by some calculation. Some problems may be so complex that only a manager of the highest capability can handle it effectively; in these circumstances it is important that the organisation should be soundly structured and developed, so that managers who may not be of the very highest quality may still play an effective role.

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October 1st, 1982 25th Anniversary of IFAC

In September 1956 a small group of enthusiasts gathered in Heidelberg (FRG) to discuss the possibility of founding an international organisation of automatic control engineering specialists.

Resulting from this preparatory work the International Federation of Automatic Control was founded almost exactly one year later, when in September 1957 the first General Assembly of IFAC convened for the constitutive meeting in Paris.

To commemorate both events in one, the IFAC Council at its recent meeting in Kyoto agreed to celebrate IFAC Anniversary Day on October 1, 1982 in Heidelberg (FRG) with a special Council Meeting, followed by a one day International Colloquium "The Impact of Automatic Control: Present and Future".

The Colloquium is intended to deal with four main topics:

automatica

The Journal of IFAC the International Federation of Automatic Control

Preview for the Next Issue January 1982

PAPERS

Exponential Convergence of Adaptive Identification and Control Algorithms
(B. D. O. Anderson, C. R. Johnson, Jr.)

Identification of Systems Composed of Linear Dynamic and Static Nonlinear Elements
(S. A. Billings, S. Y. Fakhouri)

Estimation of Continuous-Time Linear System Parameters From Periodic Data
(E. V. Bohn)

A New Solution to Optimization Satisfaction Problems by a Penalty Method
(K. Shimizu)

Coherency Based Decomposition and Aggregation
(P. V. Kokotovic, B. Avramovic, J. H. Chow, J. R. Winkelman)

Convergence in the Boundary Layer for Singularly Perturbed Equations
(B. A. Francis)

BRIEF PAPERS

The Renovation and Automation of a Tandem Cold Rolling Mill
(H. J. ter Maat)

Invariants in the Application Oriented Specification of Control Systems
(S. J. Goldsack)

Combining Model Reference Adaptive Controllers and Stochastic Self-Tuning Regulators
(I. D. Landau)

Practical Non-Linear System Identification Using a Modified Volterra Series Approach
(G. A. Parker, E. L. Moore)

Some Properties of the Output Error Method
(T. Söderström, P. Stoica)

Suboptimal Control of Linear Stochastic Multivariable Systems with Unknown Parameters
(H. El-Sherief, N. K. Sinha)

Properties of Optimal Stochastic Control Systems with Dead-Time
(Z. J. Palmor)

Technology
Society
Economy
Developing Countries.

It is further intended to publish an IFAC Anniversary Volume, containing the lectures background material, discussion summaries and editorial remarks of both anniversary events.

All NMOs and TCs are invited to provide contributions concerning their own activity: the particular topics they have dealt with over the years of their adherence to IFAC and the topics they intend to emphasize in the next future. As far as possible their contributions should also focus on the four topics selected for the Colloquium. Everyone interested in automatic control and in IFAC is invited to participate, both events will be open to the public.

For invitations and further information please contact

IFAC Secretariat
Schloßplatz 12
A-2361 Laxenburg, Austria

IFAC Workshop (ctd.)

The third theme paper was a Case Study by W. T. Bane (U.K.) on the use of business models as an aid to senior management in Reed International Limited. The overall company could be regarded as a set of about 60 relatively non-interacting businesses, each of which was modelled for a forward period of 10 years. A range of strategy options was investigated, such as advancing, or falling behind, in a major market. In cases of a growth option, such growth could be organically self-generated, or could be achieved by acquisition. Constraints were built into the models such as the recognition that, for the continuance of effective management, no business could grow to more than double its size in less than 10 years; other financial constraints on dept/equity ratio were also incorporated. From some 30 strategies for each of the 60 companies, one strategy was chosen for each business such that the constraints were not violated in any year, and the value of the overall portfolio was maximised at a 10 year forward time. The robustness of the solution was investigated under conditions of uncertainty in forecasts. It was claimed that the project had been very beneficial to the Company in its formulation of strategies.

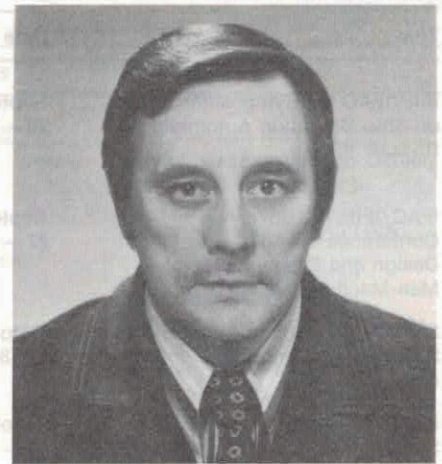
The second day opened with a paper by Dr. D. A. Conway (U.K.) on "The characteristics of successful management control systems".

Dr. B. Wilson (U.K.) then presented his paper on "The Maltese Cross — a tool for information analysis".

The next paper was by Professor Kivinen on "Planning and Control in a conglomerate type company".

The third day opened with Mr. R. S. Medlock (U.K.) introducing the subject of "The presentation of information".

WHO IS WHO IN IFAC



Academician Boris Tamm
Vice President of IFAC

Boris Tamm was born in 1930 in Tallinn, Estonian SSR. He graduated in 1954 from Tallinn Technical University as an electrical engineer. His post-graduate studies took place at the Institute of Automatics and Telemechanics, Academy of Sciences, Moscow, where he took a Doctor of Science degree in 1969. He has been a member of the Academy of Sciences of the Estonian SSR since 1972 and a professor since 1975.

From 1969 to 1976 Prof. Tamm was Director of the Institute of Cybernetics of the Academy of Sciences of the Estonian SSR and was made Rector of the Tallinn Technical University in 1976. His special fields of activity are in technical cybernetics, system programming and computer science. He has published more than 60 scientific papers, both in English and Russian, most of them on computer science and programming.

As regards to IFAC, Prof. Tamm became Vice Chairman of the TC on Computers in 1972. At the 1981 Congress in Kyoto he was elected Vice President of IFAC, thereby also resuming the responsibilities of a Chairman of the new Technical Board.

In the final session Dr. J. A. Sharp (U.K.) presented his paper on the "Teaching of management control systems".

Finally, the Workshop ended with a brief summary of his impressions by Professor Seaman (U.K.). All participants and the organisers were thanked for their part in a successful and often stimulating Workshop.

(Proceedings of this Workshop will not be published)

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