Report on TIMS XXVI : 26th international meeting of the Institute of Management Sciences, Technical University of Denmark, Copenhagen, June 18-20, 1984

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26th International Meeting of
The Institute of Management Sciences,
Technical University of Denmark,
Copenhagen, Denmark, June 18-20, 1984

C. Bernhard Tilanus,
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Preliminary and confidential
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CONTENTS

INTRODUCTION

The twenty-sixth International Meeting of The Institute of Management Sciences was held at the Technical University of Copenhagen in Lyngby, a suburb of Copenhagen, June 18-20, 1984. Favourable factors were the location in the capital of the oldest kingdom of the world, the time of the year, the weather and the high exchange rate of the dollar. There were 702 papers in the preliminary program, only an estimated 69% of which were actually presented. There were 686 registrations at the meeting, 15 of which were complimentary.

The TIMS Vice-president for Meetings expressed as a general feeling that this was one of the very best meetings TIMS has ever had. The purpose of this report is two-fold: not to forget next time those items that went well this time, and to try and improve next time those items whose past imperfection the TIMS XXVI Executive Committee is only too well aware of.

A dozen items of either category is discussed. This report does not aim at completeness. A manual how to organize TIMS ≧ XXVII should discuss an order of magnitude more items. Leave alone the, still an order of magnitude larger, number of things that have implicitly to be taken for granted, if hundreds of people from all parts of the world are meeting and together make their meeting a success.

A. THINGS THAT WENT WELL AND SHOULD NOT BE FORGOTTEN

1. Bilaterality: both sides of the Atlantic

TIMS International Meetings are the only meetings in the MS/OR field that succeed in bringing together Americans and Europeans in a proportion approaching 50:50. Actual proportions in TIMS XXVI, based on the papers in the preliminary program, were:

- 62% from North-America
- 33% from Europe
- 5% from other parts of the world.

By contrast, the Joint "National" TIMS/ORSA meetings consist almost exclusively of Americans, in spite of the slogan, launched by the TIMS President, H. Newton Garber, that TIMS is an international society and, therefore, all TIMS meetings are international. Alternatively, in the IFORS and EURO meetings the Americans are underrepresented. (The joint TIMS/ORSA membership constitutes about one third of the total IFORS membership.)

Bilaterality was strengthened by:

1) Having one first-class program chairman in America and another in Europe. Since the job of a program chairman depends a lot on personal knowledge, personal relations and the telephone, I recommend this idea for future TIMS International Meetings.
2) Suggesting to all invited session chairmen to choose a co-chairman on the other side of the Atlantic and to organize a session of mixed nationality.
3) Mailing the Call for Papers not only to the TIMS/ORSA membership, which is 80% American, but also (in bulk) to the member societies of the Association of European Operational Research Societies within IFORS (see also Item 5).

2. Constitution of the program

Apart from the foci of the program, Dick Francis in Gainesville and Jan Karel Lenstra in Amsterdam, many other nuclei were active to

organize sessions:

- All colleges and chapters were invited to sponsor at least one session.
- Many individuals that were personally known and thought to be reliable were invited to organize an invited session.
- Some individuals wrote and proposed themselves to organize a session.

The effect of these activities is evident from the following proportion: 308 papers (44%) were submitted upon a personal invitation by an invited session chairman; 394 papers (56%) were contributed on the basis of the general Call for Papers.

Invited session chairmen should be timely and rather carefully briefed, to prevent misunderstandings with authors about deadlines, abstracts to be submitted, registration fees to be paid, etc.

3. Semi-plenary tutorials

One full hour each day was reserved for two parallel, semi-plenary tutorials, one theory-oriented, one practice-oriented, without competition from other parallel sessions. The six tutorials were:

MC20 M. Florian, "Transportation networks in practice"

MC21 W.R. Pulleyblank, "Polyhedral combinatorics"

TC20 D. Klingman, "Network optimization in practice"

TC21 P. Whittle, "Optimization over time"

WC20 T.L. Magnanti, "Mathematical programming in practice"

WC21 A.H.G. Rinnooy Kan, "The computer science interface: The design and analysis of algorithms".

The opening plenary address was:

MB1 R.E. Gomory, "Trends in computers".

Plenary and semi-plenary sessions are most important binding elements in a large, general meeting, where constant centrifugal forces seduce people to sit together in specialized sessions and streams, talk only to each other, form their own working groups and, in the end, their own societies.

4. Prize competition

To stimulate the submission of papers, several sponsors of prizes were sought. We succeeded only with a $2000 prize from IBM for the best paper showing the role of computers in MS/OR. 24 papers were submitted to the jury, constituted by:

J.K. Lenstra (chairman), Centre for Mathematics and Computer Science, Amsterdam

L.F. Escudero, IBM Scientific Center, Madrid

M. Florian, Université de Montréal

R.L. Francis, University of Florida, Gainesville

F. Maffioli, Politecnico di Milano

B. Rosenkrands, IBM Denmark, Lyngby

The jury divided the prize between a paper by R.E. Markland and S.K. Vickery and a paper by M. Grötschel, M. Jünger and G. Reinelt, and gave a honourable mention to a paper by P. Korhonen and J. Laakso.

As a follow-up, the jury is guest-editing a special issue of the European Journal of Operational Research from the papers submitted for the prize plus R.E. Gomory's plenary address (only after Management Science declined even to publish the prize-winning papers).

5. Call for papers

The Call for Papers was printed on beautiful colourful "shells" that were made available and shipped to America free by the Danish tourist office. The print-run was 30,000 and it was mailed:

- to TIMS/ORSA members individually;
- to participants of EURO V/TIMS XXV, Lausanne, 1982, individually;
- to all the member societies of the EURO Associaton, in bulk with enough copies for all their members;
- to the OR societies of non-European IFORS member societies in a small number with a covering letter asking them to distribute it among selected individuals at their discretion;
- to related societies in Scandinavia (in bulk).

The Call for Papers contained information about:

- the IBM prize,
- the keynote address by R.E. Gomory,

- the tutorials,
- a partial list of invited sessions and their chairpersons,
- the social program,
- accommodation, travel, tours,

which, therefore, had to be fixed beforehand. It contained no indication of the budgeted registration fee, which I find underhand but which is common practice in Calls for Papers of similar conferences.

6. Lay-out of final program

It was tried to publish the final program with the quality of a book: with a proper title page, a colophon at the back of the title page, a table of contents, decimally numbered chapters and sections, and an author index. A subject or keyword index will hopefully be possible next time.

Figure 1 shows page 139 of the final program as a sample. Note the following:

- The abstracts have a 50 words maximum. This seems advisable if there are so many papers.
- An asterisk means that a full written paper is available upon request. This may save people the trouble of requesting a paper whose abstract has no asterisk. Incidentally, the meaning of the asterisk was only explained in the colophon at the back of the title page; it should also have been explained the section on Session Codes, and, redundantly, as a footnote at its first occurrence.
- The papers in a session are simply numbered and are not given a full code.
- Room numbers are identical to stream numbers and clearly indicated in situ. No intermediate fancy room names were used, such as, "Stream 17 is in Room El Dorado, and Room El Dorado is designated in the building".
- One paper has been canceled just before printing.
- Readability of titles and family names. To readers browsing the program, titles and family names are all-important. It is unfortunate enough that in oral communication, the use of given names is ever expanding, but in written communication we don't want to go back to a

primitive, pre-Napoleontic system like "Fred of Stanford", "Dick of Gainesville", "Oli Mad's son" or "Bernhard William's son".

- Further improvements to the readability of the program would be, to my mind: no initial capitals within titles, still more protruding family names (bold and in capitals), a different letter type with serifs. On the other hand, this sample page compares favourably to any page from the Joint National Meeting bulletins, with their grey print mass of capitals on grey paper in too small corps with lots of unused space and horrible lay-out.

7. Advertisements

With considerable effort, advertisements were obtained to be included in the program and providing the only revenues to the conference independent of the number of participants (see also Figure 4). However, the Executive Committee would rather sell their skin than the cover of the program. The cover of the program is invaluable for over-all information like main events, daily schedule, schedule of streams and maps. The advertisements should be put on the last pages of the program or interspersed in the author index.

8. Local arrangements

The local facilities were excellent. They consisted of beautiful university buildings made available to us just at cleaning charge, shuttle buses to down-town Copenhagen and a number of first class hotels. The excellent public transport facilities were deemed too complicated and cumbersome for the Americans. A luxurious reception was offered to the congress in the Town Hall by the Lord Mayor of Copenhagen. A paid-for get-together party was held in the greenhouse environment of Ny Carlsberg Glyptotek.

Our invaluable man on the spot was the Arrangements Chairman, Oli Madsen, who should have been given a freeer hand to operate, especially in financial matters with delegated budget control. Next time, the

General Chairman should preferably be local, too, even though Denmark and Holland look confusingly close from an American perspective.

9. Badges and bags

Conferences try to bring about face-to-face contacts between colleagues who often know each other by name from the literature, but not by face. To find out such colleagues, it is essential that badges can be read at a discrete glance from a distance of at least two metres. Badges typed with IBM's golf-ball Orator type will not perform this function. Smith-Corona's typewriter with Bulletin type-face is sufficiently large, but this machine cannot be bought in Europe and should have to be brought from the States. In the end, the TIMS office produced beautifully clear badges by a computer terminal.

Canvas conference bags with the conference logo impressed on them were provided as a souvenir. A sample of good Danish taste, mediated by the Danish conference bureau Spadille, and a pleasant variant to the usual plastic conference portfolio's.

10. Attendance

Overall attendance figures in the sessions were higher than I had expected.

A survey of attendance by streams is given in Table 3. Streams, in the order of expected attendance, should be allocated to rooms in the order of seating capacities. But what can we conclude from Table 3 for the next TIMS meeting? We can not conclude that large streams have large attendance (of specialists talking to each other), since large streams have both high attendance (e.g., 3. Combinatorial optimization), and average (e.g., 14. Mathematical programming), as well as low (e.g., 30. Natural resources). We can not conclude that there is relatively much, or little, interest either for techniques, or for problem areas
or for specific sectors, given the following examples:

dimension	average attendance high/low	example
techniques	high	3. Combinatorial optimization
techniques	low	29. Queueing
problems	high	1. Routing
problems	low	33. Long range planning
sectors	high	12. Military
sectors	low	34. Health,

though the average attendance for specific sectors seems to be rather low. Should we conclude that attendance is determined by fashion? Topics like (1) Routing and (2) Decision support systems being "in" and topics like (36) Systems dynamics being "out". What strikes me is the lack of interest in (35) Education, because education at the university level is what some 80 per cent of the meeting participants have to earn their living with.

A survey of attendance by individual sessions is given in Table 4. The extra information provided by this table is that the dispersion of attendance within streams is large, which makes the task of allocating streams to rooms, such that the total amount of standing or balking is minimized, even more difficult.

11. Time schedule

The deadline of the TIMS XXVI project was achieved: the conference was ready to be launched on the due day, after some heroic efforts.

Isn't it a disgrace for MS/OR that such a meeting is scheduled without any project planning technique? Next time, a conference activities network should be made, if only for a hobby.

In Table 5, a primitive time schedule for the next TIMS meeting is proposed. Relations between activities, minimum and maximum duration, etc. are not given. The general principles are:

(1) the project duration should be shortened, so that authors have shorter lead times for committing themselves with abstracts of papers, payments, etc.;

(2) ample time should be allocated to such exogenous agents like sponsors, post and customs;

(3) the TIMS organizers, if they are on the critical path, should work as fast as possible and, if they have some float available, should do their homework activities at their earliest start and save the float to compensate for delays caused by others.

12. Administration

TIMS executive offices excellently fulfilled administrative functions at about half the fee that an external commercial organization bureau would charge ($20 versus $40 per participant). Moreover, accumulated TIMS executive office experiences can be used to organize future TIMS meetings ever more smoothly and efficiently. The Executive Director, Mary DeMelim, and the TIMS XXVI Administration Chairwoman, Julie Eldridge, and their cooperators are to be congratulated for this fine result.

Three very much time consuming functions can be performed by TIMS executive offices:

(1) Text processing of abstracts and authors' data;

(2) Registrations;

(3) Money handling and budget control.

Ad 1. Hopefully, this has been the last time that a TIMS meeting has been organized without a text processor. Next time, a processor should be used and software developed for handling registrations, preliminary program and final program and the software should be improved from one TIMS meeting to the next.

Ad 2. Registrations can be handled in conjunction with abstracts and authors' data, because, alas, TIMS meetings consist of speakers only, to all ends and purposes.

Ad 3. Money handling and budget control means power and power seems to have to stay in the hands of the TIMS Vice-president Finance and TIMS executive offices. Nevertheless, more facilities should be created to disjoin budget control from money handling and to delegate more budget authority to other Organizing Committee members.

The budget was constituted item by item for different numbers of participants but, in fact, it is a linear function of the number of

paying participants, see Figure 4. The budget alternatives are represented by dots and squares and the range has been extended to find the "zero-participants fixed costs and revenues" although the function will not be valid over all this range.

The following relations hold for TIMS XXVI, with expected 500 paying participants (N):

- Budgeted costs: $60,000 + N × $84
- Budgeted revenues: $3,000 + N × $200
- Budgeted net revenues: - $57,000 + N × $116
- Break-even number of paying participants (B): 490
- Actual number of paying participants (A): 670
- Budgeted surplus at (A): $21,000
- Actual surplus obtained: $34,000.

B. THINGS THAT WENT NOT SO WELL AND COULD BE IMPROVED

13. Manual for TIMS International Meetings

At the outset, a sore lack of clarity appeared about who was responsible to do what and when. I thought I had to reconnoitre congress facilities, organization bureaus and hotels and did so. This was done all over again by the TIMS executive office one year later. I thought most of the administrative functions would have to be performed by a local organization bureau and I contacted Danish organization bureaus, only to find out in the end that almost all administrative functions were to be taken care of by TIMS headquarters, the only functions that were delegated to a local organization bureau being:

- providing personnel to man the registration desk,
- supplying the conference bags.

A manual for ORSA/TIMS Joint National Meetings was available, but this was hardly applicable. It is now agreed that Julie Eldridge will make a draft Manual for TIMS International Meetings. To my mind, this should not be as forbiddingly voluminous as the Joint National Meetings manual (150 pp). It could be more in the format of an extended checklist (with a project network for hobbyists), if only it eliminates ambiguity and prevents misunderstandings.

14. Bridging gaps in standards of living

Differences in living standards between Americans and Europeans, and between Europeans and third world representatives, are formidable. We can hardly imagine them. A given level, for instance of public transport facilities in Copenhagen, may at the same time be too low for the rich and too high for the poor. Colleagues from many East-European and third world countries just cannot obtain hard currency to participate in an international meeting. We may of course take the stance that those countries that adopt an inefficient political regime should bear the consequences, but our colleagues can hardly be held responsible for their regime. On the other hand, the West cannot

subsidize everybody and it would be very difficult indeed to administer stepwise differentiated registration fees taking account of differences in national income per capita.

For TIMS XXVI, the General Chairman was authorized to waive the registration fees of five participants maximum, to be selected at his discretion. Individuals were selected from Poland, Hungary, Turkey, etc. For future TIMS meetings, the number of participants whose registration fee may be waived can hopefully be increased. But it should always be done judiciously and not made generally known, because it can never be a categorically just system.

Difficult as it may be to categorize countries, it is easy to discriminate for students. For TIMS XXVI, students could pay a reduced fee of $50 (this was announced at a very late moment). Alternatively, students could be admitted freely if they earn their living by, for instance, monitoring the sessions.

15. Field trips

Field trips to several companies in the Copenhagen area were tentatively scheduled for Thursday, 21 June. Participants had to register in advance at $10 to cover transportation cost, and could choose between

- Copenhagen-Hamburg Bank
- Christian Rovsing (Computers)
- Operations Analysis Centre (OR/MS consultants)
- NOVO (Medicine, Enzymes).

It was announced that the field trips would last from 9.30 AM to 2.30 PM and that professional speakers would talk about the OR/MS activities at each firm.

Due to lack of interest, the only field trip actually held was the one to Operations Analysis Centre. 23 persons had registered, 17 actually showed up. We were offered a fine program by an interesting Danish consulting firm in a beautiful Danish-taste office environment. The program was:

10.00 Arrival
10.10 Presentation of the Carl Bro Group
10.30 "OR consultancy in Denmark" (Steen Hansen)
10.45 Cases
"Energy planning" (Steen Hansen)
"Third world projects: the Botsuana livestock model" (Aagaard Svendsen)
"Fishery planning model" (Aagaard Svendsen)
"Bank branch planning" (Aagaard Svendsen)
11.45 Discussion
12.00 Lunch
13.30 Transportation back to hotels.

I am giving these details because I think that if more concrete information had been supplied in the Invitation Program, just like the information given about the scientific program, and if the field trips had been more treated as an integral part of the scientific program, there would have been more interest to participate.

It remains an open question if the interest would have been sufficient. To my mind, the best argument for holding an International Meeting in an exotic country, is establishing a link with that country, within the scientific program, by paying professional visits to firms and institutions in that country. But if almost all participants of TIMS meetings think otherwise, it should not be tried to organize field trips again.

16. Exhibition

Another item that did not work out well was an exhibition by bookshops, or publishers, or software houses. A local exhibition organizer, Per Arildsbo, gave up, either because he was not authorized in time to go ahead, or because it is really hopeless to try and organize an exhibition at an international conference.

Evidence collected so far indicates the following.

(a) Bookshops are not at all interested to exhibit, because they know foreign participants may spoil or steal their books, but will not buy and carry them home on airplanes.

(b) Large publishing houses (North-Holland, Pergamon, Wiley) may be the only ones interested in exhibiting their books.

(c) Software exhibiting is expensive and labour-intensive to do, and laborious to organize. For HORSE, the Hamburg OR Software Exhibition of IFORS 1981, the organizer, Hans Zimmermann, counted two full days for each exhibitor: one day to persuade him to do it and another day to discuss details.

17. The shadow congress

By shadow congress, I mean a process that runs parallel to the real congress and consists of authors having their papers and addresses announced in the program and interested parties writing to them and obtaining a copy without participating in the real congress.

The shadow congress is a wonderful service provided by the real congress, but the former should not detract too much from the latter. I have the feeling that more and more people, especially Americans, are conscious of the existence of the shadow congress and run light-footedly to get into the program, without bothering to actually participate in the real congress. This must be counteracted, I think, by two measures:

1. By not giving authors' full mailing addresses in the preliminary program. The preliminary program should just list, in a logical order, titles of papers and authors' names (see also Sections 18 and 19 and Figure 2).
2. By including papers in the final program only after the full (early) registration fee has been obtained. This procedure will e.g. be followed for EURO VII, June 1985 in Bologna. Of course, the production time of the final program should then be made as short as possible and use of a text processor is prerequisite. Also, empty sessions will have to be scheduled, to be filled up with papers from silly authors whose payment was received too late.

18. Cancellations and no-shows

TIMS International Meetings have, at worst, the image of providing tax-deductible holiday trips to Americans. This image is not just, because most cancellations and no-shows do not concern people who prefer to lie on exotic beaches than to present their paper, but people who actually cannot travel because they did not get the travel funds they had hoped, perhaps too light-heartedly, to obtain.

Moreover, if this is the image from the perspective of IFORS and EURO who believe that they perform better, I think this is not true. Perhaps in the past, when IFORS was almost a closed shop, there were fewer cancellations and no-shows, but now that IFORS and EURO, like TIMS, are open and free for all and getting larger and less socially controlled, I think the three series of conferences converge. But there is a general lack of exact observations.

For conference organizers, it is easy to administer last minute changes and cancellations and pin up notes on message boards. For conference participants, this may be the biggest of all nuisances. They just won't check up and copy all changes and cancellations; they scheduled their conference participation on the basis of the final program and want to get what they expect. For example, program upheavals were the most serious criticism that Graham Rand ventilated in his report of IFORS 1984 in the October issue of the British OR Newsletter.

For TIMS XXVI, we tried to make exact observations, and the chaos is greater than some people would like to believe (see Tables 1 and 2). An estimated 31% of the papers in the Preliminary Program have not actually been presented. 6% had been cancelled before the printing of the final program, and 25% were late cancellations and no-shows. These are figures that have been corrected by a factor 168/139, for 29 missing session attendance forms (Table 2, footnote).

As to uncorrected figures (Table 1), North-America with 27% cancellations and no-shows is worse than Europe with 21%, but the 26 small countries with together 63 papers are the worst with 46% cancellations and no-shows.

19. Text processing and lay-out of preliminary program

In the two preceding sections, it has been argued that the situation regarding late cancellations and no-shows is more serious than some people believe and that ever more authors want to get into the program and participate in the shadow congress without participating in the real congress. To prevent this, the preliminary program should give no authors' addresses and the final program should only give addresses of fully paid-up participants.

Sessions and papers can be arranged either in logical order, by streams, or in chronological order, by periods. In the final program, the sessions have to be arranged in chronological order, by periods, and within periods, by streams, as has actually been done in the final program. In the preliminary program, the same order has been followed, but chronological ordering of papers is premature at that time.

In my opinion, the preliminary program should list the papers in logical order, by streams, just mentioning titles and authors' names, as given in the sample lay-out of Figure 4. This would save a lot of space and mailing costs, and would prevent authors from getting into the shadow congress without participating in the real thing.

If everything is in the text processor, then what has to be done by the Program Chairmen at full speed after the deadline for paying full early registration fees, is rearrange the papers in chronological order and compose final sessions. Some empty spaces should be left to be filled in with late papers. It is better to insert papers from naughty authors into the program in the last minute, than allow irresponsible no-show authors to benefit from the shadow congress.

20. Participants list and the participants to papers ratio

To TIMS, meeting participants that do not present a paper are like thin air. They do not exist, except for paying registration fees. The ORSA/TIMS Joint National Meeting Bulletins specify a "List of Participants" which in fact lists only authors of papers. This is very unfortunate, because it accelerates the decline of the participants-to-papers ratio, which is for TIMS below unity already (for TIMS XXVI it

is 686 (total registrants)/702 (papers in the program) = 0.98). Unity is not even an asymptote, as Heiner Müller-Merbach thought! [Cf. H. Müller-Merbach, "Asymptotisch zum Tagungsquotienten 1? (Asymptotically towards a conference ratio of 1?), DGOR-Bulletin 16 (1979), Nr. 6; C.B. Tilanus, "The European OR congresses: What are we doing?, Where are we going?", European Journal of Operational Research 10 (1982), 12-21, Table 9. In this table, participants/papers ratios of well over 10 are found for IFIP conferences.]

In order to honour and cherish those participants that come to a conference to listen and not to preach, i.e. not presenting a paper, it is proposed that next time a decent list of participants is distributed among all participants on the morning of the second day of the conference. This would be a great improvement on having a computer print-out of participants available for inspection only on the third and last day of the conference. After all, a participants list serves as an orientation about who is there and whom to look for and should not come on the last day of the fair.

21. Stationery and logo

With considerable care and effort, a TIMS XXVI logo and stationery was produced by the Centre for Mathematics and Informatics in Amsterdam, see Figure 3. Use was made of the International Standards Organization (ISO) A4-format. However, Americans drive miles, tank gallons, type on old-fashioned quarto paper format and use American National Standards Institute (ANSI) norms inconsistent with international norms. Therefore, if the A4-stationery was photocopied on American machines, the addresses mentioned in the lower margin would be cut off. As a consequence, TIMS headquarters started to use ordinary TIMS quarto stationery for TIMS XXVI.

Next time, if the Americans remain stubborn, quarto format stationery should be prepared, although in my opinion TIMS as an international institute should conform to international standards.

22. Mailing

International mailing can take incredibly long. For letters direct to individuals, one month should be scheduled; for a response, two months. If printed matter is to be mailed to individual members of OR societies in two steps: first in bulk from TIMS head offices to societies, then inserted into a mailing by the societies to their members, three months should be scheduled.

23. International payments

International bank transfers can be very costly indeed. A $25 transfer, for instance, may cost $4. Eurocheques are only valid within Europe but, if sent to the US, can apparently be cashed without any further costs. This seems to be the best way to make international payments from Europe to the US. On the registration forms, this should be pointed out to registrants.

24. Recording

Photography was a forgotten organization item. At the opening session, Newt Garber brought his own camera and gave it to my wife. Unfortunately, the flashlight went off backwards.

Likewise, tape-recording of the session was thought of in the last minute. Thanks to the tape-recording of the keynote address of Ralph Gomory, his speech can probably be edited for inclusion in the EJOR special issue on the role of computers in MS/OR.

It is worth-while to make exact observations of no-shows, etc. To this end, four doctoral students were chartered who were given free access to the conference, if they monitored sessions and collected session attendance forms from all session chairmen. In the hectic days of the conference, it was neglected to monitor their work and afterwards it was found that 29 of 168 session forms were missing.

WE17 MANAGEMENT SCIENCE AND COMPUTERS II

CHAIR: Y. M. EL-FATTAH, CIT-ALCATEL, Etablissement de Lannion, Route de Perros-Guirec, B. P. 344, 22304 Lannion-Cedex, France

3:50 - 5:20 PM Rm 17

1.* **Optimizing Functional Softwear Assignment among Multiple Processing Activities,** Thomas J. **Martino,** Naval Underwater Systems Center, Code 3512 Building 1171, Newport, Rhode Island 02841

Elementary mathematical programming is used to assign softwear functional responsibilities to multiple processing activities sharing a common dynamic goal. Activities are divided into "base" and "field" components with optimization of an appropriately formulated objective function based on timely goal attainment. Constraints include processor capacity limitations, softwear timing, accuracy, and development costs.

2.* **Allocating Databases among the Processors of a Distributed Computer System,** Hasan **Pirkul,** Academic Faculty of Accounting, Ohio State University, Columbus, Ohio 43210

Distributed computer systems have been attracting increasingly more attention in recent years. One of the problems faced in designing such systems is the allocation of databases among the available computer installations without violating the various capacity constraints. This problem is formulated as a linear integer program. Solution algorithms are presented and implications of this model as a design tool are discussed.

3.* **Users' View of Computer System Availability,** C. Warren **Axelrod,** Lewco Securities Corporation, 2 Broadway, New York, New York 10004

Computer system suppliers usually present reliability and availability statistics that reflect engineering and support performance independent of system use, whereas the customer values availability more on the basis of its effect on workload. Here supplier and customer measures of availability are compared and evaluated from a business viewpoint.

4. **Learning Automata for Simulation, Modeling and Analysis of Decision Systems,** Yousri M. **El-Fattah,** CIT-Alcatel, Rue de Perros-Guirec BP 344, 22304 Lannion Cedex, France

Networks of adaptive decision elements, namely learning automate, can be used for simulation, modeling and analysis of decision systems.

5.* **The Design of Consensus Machines,** Werner **Horsmann,** Hochschule Bremerhaven, Butteler-sielstrasse 5, D-2854 Loxstedt-Indiek, Federal Republic of Germany

In situations with very high complexity and soft data it is unreasonable to try for optimal solutions. At the most, acceptable ones can be generated. This requires the design of "consensus" machines. The basic logic and some practical aspects of the design of such machines are presented.

WE18 MANAGERIAL CYBERNTICS III: ETHICS AND MANAGEMENT PHILOSOPHIES

Co-Sponsored by the TIMS College on Management Philosophy and American Society for Cybernetics

CO-CHAIR: Per AGRELL, Ecole Nationale Supérieure des Mines de Paris, 60 Boulevard St-Michel, 75272 Paris, France; Laurence D. **RICHARDS,** Department of Administrative Science, Colby College, Waterville, Maine 04901

3:50 - 5:20 PM Rm 18

1.* **The Philosophy of Engineering Management: Is It Really Different?** Richard A. **Dudek,** Department of Industrial Engineering, Texas Tech University, Lubbock, Texas 79409

With the advent of numerous Engineering Management programs, it is important to examine possible differences between the philosophy of engineering management and other management philosophies. This paper takes a step in this direction, giving consideration to issue areas for philosophy formulation that should aid in curriculum and program development.

Figure 1. Sample page 139 of final program.

FORECASTING

A comparative evaluation of methods for combining forecasts, **S. Sankaran**

Airline deregulation and the demand for domestic air transport, **C.S. Galbraith, L.W. Johnson**

Long range forecasting in developing regions: Lessons from an Alaskan Delphi study, **T. Eschenbach, G. Ceistauts**

Model selection and model fit when forecasting human judgment, **W.E. Remus**

Loss-cost functions for forecasting methods, **E. Mahmoud, S.K. Goyal**

An interactive adaptive forecasting algorithm, **C.P. Tsokos, M. Appelbaum**

MARKETING

Forecasting automobile sales: An application of a value priority algorithm, **J.R. Hauser, G.L. Urban, J.H. Roberts, J. Dables**

Advertising for new products: An empirical analysis based on scanner data, **K.-H. Sebastian**

Comparative evaluation of multiattribute consumer preference model, **I.S. Currin, R.K. Sarin**

Metric canonical correlation approach to conjoint analysis, **P. Cattin, J.-P. Frappa**

Dynamics of price response and scanner data, **E. Kucher**

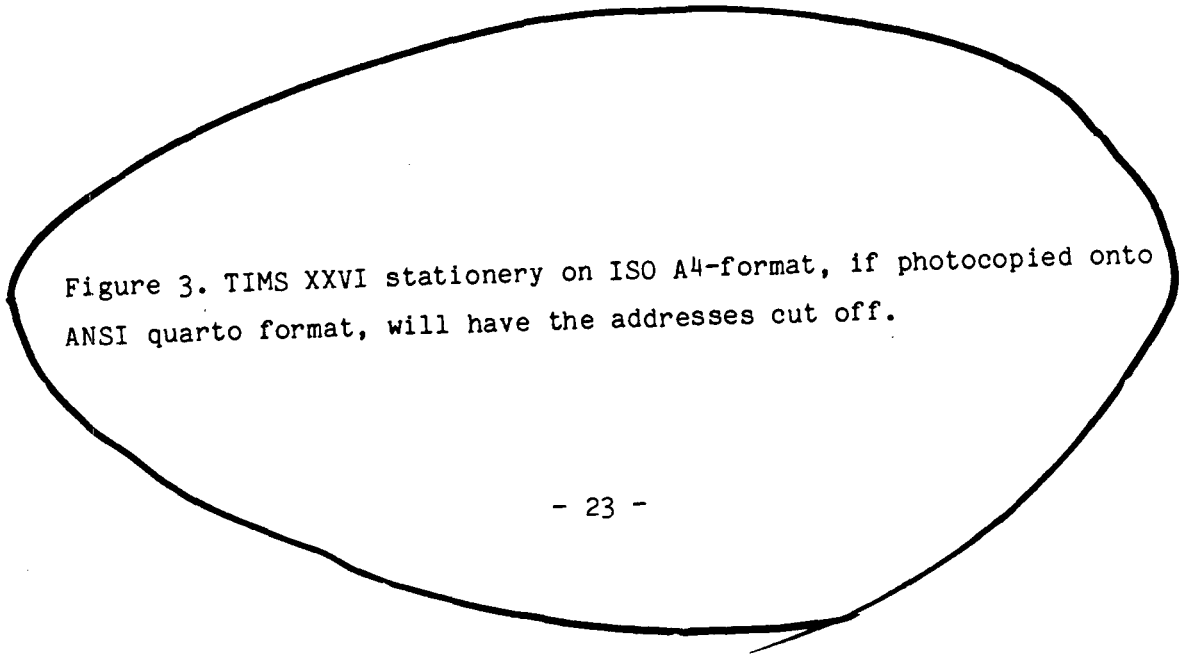
Factors affecting the choice of a new product pricing policy, **D.G. Clarke**

Game theory methods and marketing applications, **K. Chatterjee, G.L. Lilien, E. Yoon**

Generalized theory for modeling "innovator-imitator" markets, **I. Nathan**

Marketing of new products in innovative environments: A review, **A. Coughlan, S. Kalish**

Figure 2. Sample lay-out of preliminary program



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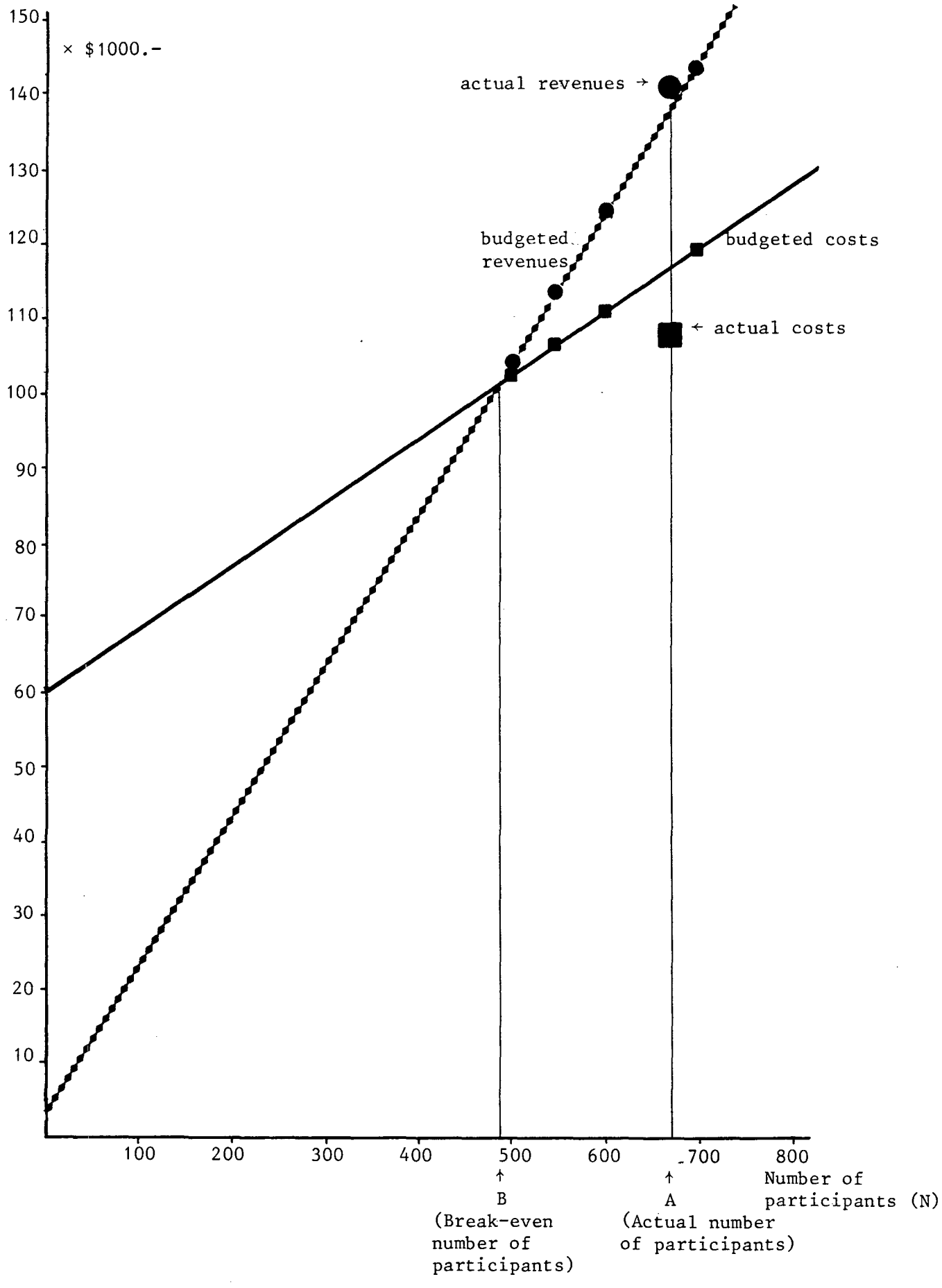

Figure 4. Break-even analysis.

Table 1. Programmed papers, cancellations and no-shows by region

Region	(1) Number of papers in preliminary program	(2) Canceled in final program	(3) Late cancellations and no-shows*	$\frac{(2)+(3)}{(1)} \times 100$
North-America	433	28	88	26.8
13 European countries (named in Table 2)	206	8	36	21.4
26 other countries	63	3	26	46.0
Total	702	39	150	

* See also footnote of Table 2

Table 2. Programmed papers, cancellations and no-shows by country

Country	Number of papers in preliminary program	Canceled in final program	Late cancellations and no-shows*
USA	375	26	77
Canada	58	2	11
U.K.	33	2	3
Germany, Fed. Rep.	28	2	5
Netherlands	22	1	2
France	18		3
Sweden	18	1	2
Belgium	14		2
Italy	14		3
Spain	12	2	7
Denmark	11		2
Switzerland	10		2
Austria	9		2
Norway	9		2
Greece	8		1
26 other countries	63	3	26
Total	702	39	150

* Out of 168 sessions, 139 session attendance forms were obtained. The 29 missing are probably the worst, but some late cancellations of these are included in the figures. Roughly, the figures could be corrected by a factor 168/139, giving a total of 181 late cancellations and no-shows. Adding the 39 timely cancellations gives a total of 220, which is 31% of the total number of papers in the preliminary program.

Table 3. Attendance by streams

Stream	Number of sessions in stream	Average attendance*
1. Routing	3	46
2. Decision support systems	9	37
3. Combinatorial optimization	10	37
4. Decision analysis	5	30
5. Production planning	5	30
6. Inventory	4	28
7. Location	3	27
8. Reliability	2	26
9. Philosophy	3	26
10. Distribution	2	25
11. Fuzzy sets	2	24
12. Military	2	24
13. Research and development	7	24
14. Mathematical programming	20	23
15. Computers	8	23
16. Financial	7	22
17. Scheduling	5	22
18. Markov programming	2	22
19. Marketing	8	20
20. Logistics	1	20
21. Simulation	3	20
22. Sports	2	20
23. Management	4	18
24. Statistics	2	18
25. Geographical	5	17
26. Organizational	9	17
27. Economics	1	15
28. Forecasting	2	15
29. Queuing	4	15
30. Natural resources	9	14
31. Perceptions and interrelations	1	13
32. Public sector	5	12
33. Long range planning	2	11
34. Health	3	9
35. Education	2	8
36. Systems dynamics/ quality assessment	1	5
37. Insurance	1	.
38. Gaming	1	.
39. Social and political	1	.
40. CPMS tapes	2	.
Total	168	

* Average of estimated maximum number of persons in the room at any moment during the sessions in the stream. A dot (.) means unknown.

Table 4. Attendance by sessions

Attendance*	Stream and session	
	Natural resources	
20	MD2	Energy I
21	ME2	Energy II
-	TA2	Energy III
.	TB2	Modeling international energy markets
.	TD2	Management of hydroelectric power systems
12	TE2	Management science for risk mitigation
12	WA2	Energy and environment
14	WB2	Water resources
8	WD2	Fishery and forestry
	Decision support systems	
.	ME3	Decision suppport systems in the public sector
51	TA3	Decision support systems I
60	TB3	Decision support systems II
.	TD3	Decision support systems III
19	TE3	Applications of decision support systems
.	WA3	Evaluating systems which support decision making
19	WB3	Advances in management control systems
.	WD3	Values and users in information systems development I: Observations
.	WE3	Values and users in information systems development II: Proposals
	Decision analysis	
.	ME4	Decision analysis
30	TA4	Decision problems I
35	TB4	Decision problems II
27	TD4	Decision problems III
27	TE4	Measurements of human judgment in decision making
	Management	
25	WA4	Management problems I
12	WB4	Management problems II
.	WD4	Management problems III
16	WE4	Business problems
	Financial	
35	MD5	Financial problems I
30	ME5	Financial problems II
6	TA5	Real estate problems
26	TB5	Monetary problems
12	TD5	Budgeting problems
23	TE5	Investment problems
.	WA5	Financial and investment analysis
	Insurance	
.	WB5	Insurance
	Economics	
15	WD5	Economics

	Forecasting	
25	MD6	Forecasting I
5	ME6	Forecasting II
	Marketing	
30	TA6	Marketing: Consumer measurement
30	TB6	Marketing: Dynamic structures
25	TD6	Marketing I
14	TE6	Marketing II
.	WA6	Marketing III
11	WB6	Advertising
12	WD6	Pricing
.	WE6	Demand and pricing
	Mathematical programming	
55	MD7	Linear programming
25	ME7	Applied linear programming
55	TA7	Software for mathematical programming
5	TB7	Geometric programming
30	TD7	Nonlinear programming I
21	TE7	Nonlinear programming II
9	WA7	Nonlinear programming III
10	WB7	Nonlinear programming IV
10	WD7	Nonlinear programming V
12	WE7	Applied nonlinear programming
50	MD8	Dynamic programming I
18	ME8	Dynamic programming II
.	TA8	Control and variational problems
18	TB8	Game theory
7	TD8	Stochastic programming
12	TE8	Goal programming
29	WA8	Applied goal programming
.	WB8	Multicriteria optimization I
29	WD8	Multicriteria optimization II
18	WE8	Applied multicriteria optimization
	Combinatorial optimization	
30	MD9	Algorithmic graph theory
30	ME9	Shortest path problems
25	TA9	Solving large scale matching problems
.	TB9	Network programming I
30	TD9	Network programming II
45	TE9	Computer science and management science
60	WA9	Combinatorial optimization
60	WB9	Integer programming I
30	WD9	Integer programming II
20	WE9	Integer programming III
	Location	
26	MD10	Location problems
35	ME10	Discrete location models
19	TA10	Computers and stochastic location models
	Routing	
65	TB10	Routing I
32	TD10	Routing II
40	TE10	Routing III

Distribution

25 WA10 Distribution
. WB10 Multi-level supply and distribution systems

Logistics

20 WD10 Logistics

Scheduling

32 MD11 Sequencing and scheduling I
27 ME11 Sequencing and scheduling II
19 TA11 Sequencing and scheduling III
15 TB11 Sequencing and scheduling IV
17 TD11 Timetabling and scheduling

Production planning

56 TE11 Production planning I
26 WA11 Production planning II
. WB11 Material requirements planning
23 WD11 Manufacturing planning
15 WE11 Capacity planning

Reliability

25 MD12 Reliability and quality control
27 ME12 Reliability

Inventory

15 TA12 Replacement
41 TB12 Lot sizing in production and purchasing
30 TD12 Inventory I
25 TE12 Inventory II

Queueing

- WA12 Numerical methods for queueing systems
18 WB12 Queueing I
11 WD12 Queueing II
15 WE12 Queueing III

Fuzzy sets

24 MD13 Fuzzy sets I
. ME13 Fuzzy sets II

Statistics

25 TA13 Statistics and optimization
12 TB13 Statistics

Simulation

. TD13 Simulation
26 TE13 Modelling and simulation
15 WA13 Statistical analysis of simulation experiments

Gaming

. WB13 Gaming

Markov programming

24 WD13 Markov programming I
20 WE13 Markov programming II

	Geographical	
34	MD14	Management science in Japan
10	TA14	Management science in developing countries I
21	TB14	Management science in developing countries II
12	TD14	Management science in developing countries III
7	TE14	Management science and international problems
	Military	
23	WA14	Management science in military resource analysis
25	WB14	Military matters
	Sports	
.	WD14	Sports and gambling
20	WE14	Sports
	Social and political	
.	MD15	Social and political science applications
	Public sector	
17	ME15	Urban problems
.	TA15	Crime and justice
9	TB15	Management science and legal problems
10	TD15	Management science and public policy
13	TE15	Public sector
	Health	
5	WA15	Health services analysis
12	WB15	Management science and health I
10	WD15	Management science and health II
	Systems dynamics/quality assessment	
5	MD16	Systems dynamics/quality assessment
	Perceptions and interrelations	
13	ME16	Perceptions and interrelations
	CPMS tapes	
.	TA16	1983 TIMS/CPMS management science achievement award competition videotapes
.	TB16	1983 TIMS/CPMS management science achievement award competition videotapes
	Long range planning	
-	WA16	Long range planning I
11	WB16	Long range planning II
	Education	
10	MD17	Management science applications in education
6	ME17	Academic questions
	Computers	
50	TA17	Microcomputers I
8	TB17	Microcomputers II
35	TD17	Microcomputers III
10	TE17	Microcomputers IV
.	WA17	Robots and computer control
30	WB17	Interactive graphical data analysis
18	WD17	Management science and computers I
8	WE17	Management science and computers II

		Research and development
51	MD18	Research and development I
10	ME18	Research and development II
16	TA18	Technology and development
28	TB18	R&D decision making
20	TD18	Management of innovation
18	TE18	College on the management of technological change I
26	WA18	College on the management of technological change II
		Philosophy
40	WB18	Managerial cybernetics I: The philosophical implications of knowledge based management systems
22	WD18	Managerial cybernetics II: Philosophies of Planning
16	WE18	Managerial cybernetics III: Culture, Ethics and Management Philosophies
		Organizational
16	ME19	Organizational processes and design
22	TA19	Optimal incentive contracts
33	TB19	Incentives in organizational design
.	TD19	Panel on organizational design
:	TE19	Meeting with the editor and associate editors for the Management Science department of organization analysis, performance and design
18	WA19	Organizational human resources policy analysis I
19	WB19	Organizational human resources policy analysis II
4	WD19	Employee questions
6	WE19	Organizational issues

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* Estimated maximum number of persons in the room at any moment during the session. Legend:

- Session attendance form obtained, but attendance not indicated;

. No session attendance form obtained.

Table 5. Time schedule proposed for next TIMS International Meeting

Lead time	Action by*	Activity
4 years	TIMS	Choose location, nominate local General Chairman and TIMS Executive Offices Administration Chairwoman
3 years	G	Constitute Executive Committee, design logo and stationery
	T + G + L	Reconnoitre and reserve congress facilities and hotels; first publicity
2 1/2 years	G	Find sponsors for prizes
	T + G	Prepare time schedule, project network, budget, first announcement, publicity
	P	Write to Colleges and Chapters to sponsor sessions
2 years	P	Invite plenary and tutorial speakers and invited-session chairmen
	T	Make agreement with US travel agent and local Organization bureau
1 1/2 years	T + G	Prepare copy of Call for Papers; further publicity
	G	Present and defend plans and budget for TIMS Council
15 months	T	Mail Call for Papers to individual TIMS/ORSA members and in bulk to OR societies for further distribution among their members
	L + G	Organize field trips
	L + T	Organize exhibition
	T	Find advertisements for program
12 months		Call for Papers in the hands of individual OR society members
9 months	T	Abstract deadline: all abstracts, contributed and invited, received and input in textprocessor. No abstract submission fees.

	P	Abstracts arranged in logical order by streams; unacceptable ones eliminated
8 months	T	Send form letters of acceptance or rejection to authors
	G + L	Prepare front matter and cover design
7 months	T	Print preliminary program, just listing titles and authors' names by streams. Send preliminary program plus registration form to TIMS/ORSA members, session chairmen, authors and individuals that have turned in a request for further information from Call for Papers.
6 months		Preliminary programs plus registration forms in the hands of individuals
2 months	T	Deadline for reception of early registration fees
	P	Rearrange abstracts for which early registration fees have been received in sessions in chronological order by periods. Compose program with empty sessions for authors paying late. No print-proofs are sent; proofs are read at TIMS offices.
	G	Invite VIPs for dinner
1 1/2 months	T	Letter with session information to session chairmen and authors
1 month	T	Print final program Prepare preliminary participants list
1 day	T	On-site registration and check-in
- 1 day	T	Update, print and distribute participants list, arranged by countries Monitor session rooms, observe attendance and no-shows
- 3 months	T	Make up financial accounts
	G	Write report.

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* Legend: G = General Chairman, P = Program Chairmen, L = Local Arrangements Chairman, T = TIMS Executive Offices Administration Chairwoman.