Acad. N. TEODORESCU

A Manifestation of International Co-operation in the Field of Electronic Computer Utilization

The electronic computer can be used within the conditions of any organizational structure and of any procedure. To attain the maximum of efficiency, it is however necessary that the managing staff adopt a new way of thinking, a new working style and that adequate organizational structures be available, since the computer suppresses numerous restrictions to which the decision-making factors were submitted before.

Notwithstanding the fact that only 25 years elapsed from the appearance of the electronic computer in the world techniques and economy, the influence of this revolutionary automation means, which rapidly spread out in certain countries, while little used or even not at all in many other countries — among the latter nearly all developing countries — revealed itself as being especially stimulating as regards the development rate.

It may be considered as one of the most clever and efficient weapons of the technical-scientific revolution, acting both directly on the technical-economic processes, and immediatly on the production management and organization, through the essential role it plays in a series of social-economic subject matters, which make up together the management science, this last being an offspring of the agitation of the same revolution.

In the same maner as with other problems of world interest, requiring international co-operation, whose necessity and efficiency is demonstrated, our country continued to be a promoter of the co-operation vith a wiew to using, on world scale, computers for the social-economic progress.

During the 23^d UNO-session, on Romania's initiative, to which other states joined, resolution no. 2458 on „International co-operation with a view

to the use of computers and computation techniques for the development" was adopted in the plenary sitting of December 20th, 1968.

Through this resolution U.N. Secretary-General is asked to prepare a report with the object of taking into special consideration the condition of the developing countries, as concerns:

a) the generally obtained results, as well as the needs and the schemes regarding electronic computers use for speeding up economic and social development processes;

b) the various forms which international action in the computers field could take on;

c) the part U.N.O. could play in promoting international co-operation in this field, with regard to problems concerning transfer of technologies, specialists' formation and endowing with technical equipment.

To carry out this report, the assistance of U.N. „Advisory Committee on the Application of Science and Technology to Development", as well as other co-operations, later considered as necessary, was asked.

Questionnaries were addressed during 1969 to all governments of member-countries, to the organizations belonging to U.N.O. and to other important organizations, the co-operation being extended also to international professional organizations.

The information stuff and suggestions received from all sources were distributed by the Secretary-General to a number of specialists entrusted with the preparation af a series of basic documents.

The drawing up of the draft report was entrusted to a Panel of Experts, convened by the Secretary-General with a view to helping him to indite this Report to the General Assembly, and which has to be presented firstly to the Economic and Social Council, in answer to the requirements of General Assembly Resolution no. 2458, initiated by Romania.

Upon invitation of the Deputy Secretary-General for economic and social affairs, Mr. Philippe de Seynes, I had the honour to belong to this Panel of Experts, being considered one of the 12 authors of the report. As a result I took part in the Session convoked this year at U.N. Headquarters, New York, where the first form of the draft report, drawn up by two of the convoked experts: Prof. H. D. Huskey, California University and Prof. C.C. Gotlieb, Toronto University, both advisers of the U.N. Secretary-General U Thant, was analysed and discussed.

I was glad, on this opportunity, to see how highly appreciated Romania is, in the United Nations family, for her generous and far-sighted initiatives in promoting international co-operation. In the opening sitting Mr. Philippe de Seynes rendered homage to Romania as promotor of Resolution no. 2458, and of other resolutions, of special importance, within U.N.O., U.N.E.S.C.O. and other international organizations, and as active associate to other peace, progress and world-peoples development initiatives. Mr. de Seynes welcomed the presence and participation of a Romanian expert in the draft report drawing-up, and this particular attention was exclusively paid to our country, a fact which immediatly created us a first-rate position within the framework of the Conference.

Besides the 11 invited experts: D. Chevion (Israel), O. J. Fagbemi (Nigeria), E. Friedman (Chile), V. Gluskov (U.S.S.R.), C. C. Gotlieb (Canada), H. D. Huskey (U.S.A.), Y. Lecerf (France), S. Moriguti (Japan), P. Pant (India), M. Parlar (Turkey), N. Teodorescu (Romania), to whom joined B. Barg (Australia), head of U.N. Office for Science and Technology, to form together the International Panel of Experts, numerous representatives of the managing staffs of United Nations organizations took part. Thus, P. de Seynes was accompanied by G. B. Gresford (Director of U.N. Division for Science and Technology), F. Muhnamad and H. Grutton (on behalf of U. N. Public Administration Division) and M. Kodicara (on behalf of U. N. Centre for Development Planning, Projections and Policies). In addition, representatives of U. N. organizations U. N. D. P., U.N.E.S.C.O., U.N.I.D.O., F.A.O., I.L.O., W.H.O., as well as representatives of some professional speciality organizations, as I.F.A.C., I.F.I.P., I.C.A.D.P. (International Council for Automatic Data Processing) and A.I.C.A. (International Association for Analogic Computation), took actively part in the sittings.

The widescope of the debates, as well as the importance granted, at world level, to this Conference, result from the presented enumeration.

The report starts from the established fact that in the modern society, the social-economic development level essentially depends on the development stage of science and technology, of their progresses and of the capacity of assimilation, by all States, of the technical-scientific achievements in everyday life.

With particular reference to the advantages resulting from the introducing of computers and computation techniques, the report establishes great differences of level and scope in using these stupendous automation equipments, and classifies all countries in four classes, of which the first is termed as rudimentary, from this viewpoint. In the remaining higher classes the level is considered, successively and in progress, as: initial (basic), operational and advanced.

In the first speech within the Conference, we showed that our country places herself, from the viewpoint of the present computation equipment, in the basic class, but as concerns government support, equipment quality, computation requirements and especially specialists training level and their participation in the international manifestations and publications, we are placed both in the operational and the advanced class.

Starting from this ascertained fact and on the basis of the experience achieved in the universitary and academic framework, beginning with 1957, when we disposed but of a modest equipment (but completely carried out by our own means, in this country), we emphasised the primordial importance of the human factor and consequently of its preparing in a national institution devoted to computers teaching, science and technology.

Warmly supported by some experts and by some representatives of the U.N. or professional institutions, as U.N.E.S.C.O., U.N.I.T.A.R., I.F.I.P., and I.F.A.C., the proposal was adopted, with a priority character, for the report's conclusions and recommendations.

Picking among the principal points of these conclusions, one can mention the following ones, having not an exhaustive, but only an orientating character:

— Developing countries must assimilate the computation techniques.
— Priority must be granted to certain possible computers application.
— Computers put to disposal means of obtaining better decisions, services and products.
— National specialists forming centres are necessary.
— Both hardware and software are important.
— National computing centres are necessary.
— It would be necessary to extend the computers service life.
— International actions, in view of preparing specialists, exchanging informations, granting support for endowment and organization, are necessary.

A second viewpoint, sustained by us during the debates, was the promoting of scientific research in higher education institutions and in national research institutes, with international aid. This point of view was also embraced warmly and with a particular interest by participants in the Conference, being supported and stressed by some experts, supported by U.N.E.S.C.O. and by the two U.N. advissers, who admitted the necessity of letting it be introduced and concretized into the report, according to our suggestions, and so did I.F.I.P., I.F.A.C. and A.I.C.A. through their representatives.

The Conference recommendations include in many points improvements, precisions and amendments, adopted as a result of the Romanian interventions during discussion of the initial report text. This was considerably altered and improved as a result of the debates and was presented in a new version, where all received improvements, as well as the achieved systematizations in presenting its various articles and paragraphs, are clearly registered.

Among the numerous recommendations concerning the organization of an international actions programme with a view to promoting the computation techniques for the peoples development, we remember the following ones, which are illustrative:

— Education and preparation in the computers field, as much as possible within the framework of the institution in the respective country (seminars, panels, conferences, demonstrations etc.).

— Developing of information exchange by facilitating and subsidizing participations in international conferences and lectures, subsidizing the organization of speciality scientific manifestations a.s.o.

— Guiding and supporting the developing countries, with a view to widening the application of computers in the social and economic life.

— Using present day's means, both national and international, of education, equipment and computation centres.

— Promoting the compatibility between hardware and software in order to achieve a simple and economic transfer of programmes and data, terminologies a.s.o.

The draft report indicted by the Panel of Experts was sent for notes and comments to all organizations of the U.N. family, to the speciality professional organizations, as well as to a significant number of interested institutions and persons.

The received remarks had to be discussed, together with the draft report, by an "ad hoc" working group of U.N. Advisory Committee on the Application of Science and Technology to Development, after which, the report had

to get the final form, in which it would be presented to the U.N. Secretary-General.

It was stated that this Working Group, consisting of A.C.A.S.T.- members, had to gather in Bucharest.

On behalf of our country, as a member of U.N. Advisory Committee, had to take part Prof. I. Staicu, corresponding fellow of the Romanian Academy, which made the connection with this Committee, as well as Academician N. Teodorescu, in his capacity as an expert and co-author of the draft report, together with Prof. C. Gotlieb and Prof. H. Huskey, U.N. advisers.

The A.C.A.S.T. Working Group session went on with an outstanding success in Bucharest, the participants being as follows:

Prof. Pierre Auger (President); Sir Ronald Walker, Prof. I. Staicu, Prof. S. S. Peters, forming the A.C.A.S.T. Working Group.

The Group's secretary was Mr. B. Barg, on behalf of U.N. Office for Science and Technology.

On behalf of U.N. organizations took part:

Mrs. W. H. Whilfrild (W.H.O.), R. L. Munteanu (World's Meteorological Organization. M. Hamdy (U.N.I.D.O.), E. A. Paulis, J. Dey, J. Livingston (I.L.O.) on behalf of W.I.P.O. (World Intelectual Propriety Protection Organization) and Prof. C. Gotlieb and Prof H. Huskey, U.N. advisers, together with Acad. N. Teodorescu, constituted the Panel of Experts.

As observers took part: Mr. L. Gros (Prof. P. Auger's adviser), as well as Dr. P. Constantinescu, V. Ticovschi on behalf of the Government's Board for Computers.

After debates, a reduced commission, composed of B. Barg, I. Staicu, H. Huskey, C. Gotlieb and N. Teodorescu, drew up the final form of the alterations of the draft report, on behalf of A.C.A.S.T., the final working having to be transmitted to the Secretary-General U Thant.

Among the most important recommendations the following ones are more prominent, as better materializing some of those previously made by the Panel of Experts:

— to build up a Advisory Council for Applying Computation Techniques in Development and having the following main functions:

a. to promote computation techniques applications for development, by the international co-operation effort in association with the U.N. organizations;

b. to offer, upon request, independent and objective advices to developing countries, as regards using computation techniques for their development;

— the elections of the Advisory Council members should be done by the U.N. Secretary-General upon advice of the P.N.U.D. administrator;

— to make considerations upon the national and regional activities in the computers field, the regional ones being proposed to be encouraged and supported when a governments group would desire to co-operate on the ground of such activities;

— to examine the software legal-protection problem, with a view to stimulating the software flux for the benefit of the developing countries;

— to classify the four computers development levels in order to point out the steps to be further done in development. Consequently, avoiding the

classification as rudimentary, basic, operational and advanced and replacing the classification by ordering of classes: I, II, III, IV (N. Teodorescu).

Our country's initiative, embodied in Resolution no. 2458 of U.N. General Assembly, lead, as results from the above account, to ample organizing proposals for an international co-operation in the computers field, as a support of peoples development, under U.N. care.

It is important to note that this co-operation regards the *four* developing classes, from the computation techniques viewpoint, not only the first two, i. e. the less developed countries. The greatest attention is paid, of course, to the latter, but according to our remark concerning the simultaneous possible partaking in two - or three classes (as in the case of Romania and other countries), the co-operation adresses itself to the higher classes, as possible beneficiaries.

The adoption by U.N. General Assembly of the report's text and especially of the report's conclusions and recommendations, concerning the Computation Techniques Applications in Development is meant to open a new era in promoting these techniques and the relevant equipments, whose frenzy can easily be imagined. It is sufficient to compare it to the motor car's or broadcasting's or television's outbreak in the social life, noting that if at present the computers price is impressing for firms or institutions disposing of moderate means, we may hope that this price will diminish down to common possibilities.

At present, introducing and using informational systems became a universal necessity. Their importance in planning and development compels us to consider as sure their amplification and their ever more prominent spreading in the next future. They concern: countries resources, city development, actions with legislative character, demographic data, census information about individuals, management and administration of economic operations, especially of enterprises a.s.o.

From the statistics viewpoint, any government needs a systematic and current information. It is essential for any government to have accurate statistics, as follows:

— data concerning population and demographic problems,

— production statistics in various branches, as industry, mining, constructions, farming a.s.o.,

— economic indexes, trade balance sheets, manpower movement, national incomes, specific consumption indexes a.s.o.,

— statistics on education, as regards the number and type of educational institutions, teachers training, population cultural level a.s.o.,

— data concerning taxes and charges of all kinds.

On an international level, such data are interesting U.N.O., U.N.E.S.C.O., the International Monetary Fund, F.A.O., W.H.O. a.s.o.

If one gets more deeply into the various classes of computer uses, for development, one rapidly arrives to the conclusion that they form nowadays absolutely indispensable automation equipments for collecting and processing information.

UNE MANIFESTATION DE LA COOPERATION INTERNATIONALE DANS LE DOMAINE DE L'UTILISATION DES ORDINATEURS ELECTRONIQUES

Afin de mettre en pratique la Résolution 2458 concernant „La coopération internationale pour l'utilisation des ordinateurs électroniques et des techniques de calcul en vue du développement", adoptée à la 23-e session de l'Organisation des Nations Unies, un rapport du Secrétariat Général de l'ONU a été rédigé sur l'initiative de la Roumanie, recommandant un programme d'actions internationales, en vue de la promotion de la technique de calcul dans le monde entier.

Les suivants points principaux ont été développés:

a) les projets relatifs à l'utilisation des ordinateurs électroniques dans l'accélération des processus de développement économique et social;

b) les diverses formes sous lesquelles pourraient se manifester les actions internationales dans le domaine des ordinateurs;

c) le rôle que l'ONU pourrait avoir dans la promotion de la coopération internationale dans ce domaine, se rapportant aux problèmes concernant le transfert de technologie, la formation de spécialistes et le nantissement avec des équipements techniques;

d) la protection légale du soft-ware au profit des pays en voie de développement;

e) la classification des quatre niveaux de développement des ordinateurs pour pouvoir ndiquer le chemin à suivre dans le développement.

ПРОЯВЛЕНИЕ МЕЖДУНАРОДНОГО КООПЕРИРОВАНИЯ В ОБЛАСТИ ПРИМЕНЕНИЯ ЭЛЕКТРОННЫХ КАЛЬКУЛЯТОРОВ

Для претворения в жизнь резолюции 2458 о «Международном кооперировании в применении электронных калькуляторов и техники расчета для развития», принятой на 23-ей сессии Организации объединенных наций, по инициативе Румынии был подготовлен доклад генерального секретаря ООН, в котором рекомендуется программа международных мероприятий в целях внедрения техники расчета во всем мире.

Подробно излагаются важнейшие пункты, касающиеся следующего:

а) проекты применения электронных калькуляторов для ускорения процессов экономического и социального развития;

б) различные формы, которые могли бы получить международные мероприятия в области калькуляторов;

в) роль, которую ООН могла бы играть в развитии международного кооперирования в этой области в отношении вопросов передачи технологии, образования специалистов и оснащения техническим оборудованием;

г) законная охрана «software» в пользу развивающихся стран;

д) классификация четырех уровней калькуляторов для указания пути, по которому должно итти развитие.