On the History of Gosplan, the Main Computer Center of the State Planning Committee of the USSR

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Abstract. In the 1970s and 1980s, the Main Computer Center (MCC) of the State Planning Committee (Gosplan) of the USSR was one of the largest civilian computer centers in the USSR and in Eastern Europe. Available historical literature contains only the basic facts about this center. In this article, the history of the Main Computer Center of the State Planning Committee of the USSR is supplemented and refined. The article describes the prerequisites for its creation, the transformation of its structure, the chronology of the use of various computers for economic calculations. The author reveals new facts about the Main Computer Center, its leading role in conducting economic calculations on computers, and its coordinating role in organizing the work of the computer centers of the planning committees of the union republics and other socialist countries. This work is based on the works of Soviet computer scientists and historians, on official materials, on the personal memories and archive of the author (who worked as a programmer in the Main Computer Center of the USSR State Planning Committee in the 1970s) and on the memories and personal archives of his former colleagues.

Keywords: ASPR · Calculation of economic planning · EGSVC · Main Computer Center of the State Planning Committee of the USSR (Gosplan)

1 Prerequisites for Creation the Main Computing Center of the USSR State Planning Committee

In October 1959, as a result of initiatives and publications of a number of progressive domestic scientists, the Council of Ministers of the USSR issued a decree on the creation of a computer center under the State Planning Committee of the USSR whose main goal would be to ensure calculations on economic plans throughout the country. This computer center, which since 1963 became known as the Main Computing Center (MCC) of the State Planning Committee (Gosplan) of the USSR, existed for more than thirty years until the second half of 1991, when the Soviet Union collapsed.

In the 1950s, before the appearance in the USSR State Planning Committee of its own computing center, there were already computer centers in the USSR, such as the Computer Center No. 1 of the Ministry of Defense, the Computer Center (CC) of the Academy of Sciences, CC of the Moscow State University, CC of the Academy of

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Sciences of Ukraine, CC at the Institute of applied mathematics, CCs of the nuclear centers Arzamas-16 and Chelyabinsk-70 and for the secret research institute Almaz.

Soviet scientists A. I. Kitov, I. S. Brook, V. S. Nemchinov and A. I. Berg, in the 1950s, wrote letters to the Soviet leaders and other publications [1–5] strongly recommending that leaders of the USSR use computers to solve problems of economic planning and management. Thus, in the article "The Main Features of Cybernetics" (the first positive publication on cybernetics in the Soviet Union, August 1955), S. L. Sobolev, A. I. Kitov and A. A. Lyapunov declared the enormous possibilities of using computers and mathematical methods to solve the problems of the economy. The final part of A. Kitov's monograph *Electronic Digital Machines* (the first book on computers in the USSR, published in February 1956) is devoted to the use of computers for solving economic problems. It is called "Non-Arithmetic Applications of Electronic Digital Computers". In 1956, I. S. Brook at the meeting of the Academy of Sciences made a presentation on a number of problems of using medium-power computers to automate the management of processes in industrial enterprises. 1958 was marked by the publication of A. Kitov's book *Electronic Computers* from the publishing house of the All-Union Society "Knowledge". This book, published in mass circulation, describes the need to create in the USSR many computer centers for making calculations for the needs of planning and production. A. I. Kitov noted that in the future these computer centers should be integrated into a single network with the goal of creating USNCC (United State Network of Computing Centers of the USSR). The proposal of A. Kitov on the need to create the USNCC (EGSVC in Russian) was a prototype of the current Internet project. V. S. Nemchinov, a passionate propagandist of advanced economic approaches, was one of the main organizers in 1958 of All-Union Conference on the use of mathematical methods for solving economic problems.

On 7 January 1959, A. I. Kitov sent a letter to the head of the USSR, N. S. Khrushchev. This letter contained a proposal to restructure the entire system of economic management in the country, moving from an administrative-command style to a scientific one, based on extensive use of computers and mathematical methods. Moreover, in the indicated letter all major computers of the country were proposed in several stages to be linked to the united network, called USNCC. The Secretary of the CPSU Central Committee, Leonid Brezhnev, responsible in those years for scientific and technical issues, mostly approvingly approached Kitov's letter and created for its consideration a governmental commission, headed by A. I. Berg. The members of this commission supported all the statements of this letter from Kitov [9].

Well-known experts in the field of the history of Soviet computer science (V. Gerovich, V. Shilov and A. Kuteinikov) believe that Kitov's letter played a catalytic role in the process of increasing the number of computers produced in the country [7–11]. In particular, this letter contributed to the preparation of the statements of the Plenum of the Central Committee of the Communist Party, held in June 1959. This Plenum considered a set of problems on the creation of computers in the USSR and their use for the needs of the national economy. In the same year, the All-Union Conference on Computational Mathematics and Computer Science was organized, on the cybernetic section of which Kitov made a report "On the Possibilities of

Automating the Management of the National Economy" (co-authors A. I. Berg and A. A. Lyapunov). This report was the first in the country and in the world about the urgent need to implement the nationwide project "State Automated System for Economic Management and Planning". This report was subsequently published as a separate article in the scientific collection of the USSR Academy of Sciences "Problems of Cybernetics". Finally, in October 1959, as a result of these publications and proposals on the urgent need to organize a separate computer center in the country for carrying out routine economic calculations, the deputy chair of the USSR Council of Ministers, Alexei Kosygin, signed a special resolution on this. It was prescribed to create in the State Planning Committee of the USSR (Gosplan of the USSR), a computer center for the purposes of computer planning and economic calculations.

2 The Tasks of the Main Computer Center of the State Planning Committee of the USSR and Its Development

Gosplan of the USSR operated from 1963 to 1991 at the status of a state ministry. Its two main tasks were planning of the development of the national economy and control over the implementation of government plans.

The planning of a centralized socialist economy can be represented in the form of a four-tier hierarchical system:

- The first level was the planning of the socialist economy on the scale of the entire USSR. This was implemented by the State Planning Committee of the USSR.
- The second level was the economic planning for 15 Soviet republics (Russia, Ukraine, Belarus, Moldova, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Georgia, Armenia, Azerbaijan, Lithuania, Latvia, Estonia). This was done by the State Planning Committees of the republics of the USSR.
- At the third level, economic planning was carried out for the regions of the Soviet republics. This was done by the regional planning commissions.
- At the fourth level, economic planning was carried out for districts and cities that were part of the region. This was done by district and city planning commissions.

In its work, the USSR State Planning Committee was guided by: the CPSU Program, the directives of the Central Committee of the CPSU, and decisions of the Council of Ministers of the USSR.

The main task of the Computing Center of the State Planning Committee was to assist the Gosplan in solving the problems of the first level using computers, i.e., in solving the problems of planning and monitoring the adopted plans throughout the USSR. Among the first computer tasks of the Computer Center were:

- development and practical application of economic-mathematical methods and models in planning and
- demographic forecasting for the USSR and all of its 15 republics.

An important achievement of the Computer Center was the implementation of computer calculations of interbranch balances of production and distribution of the output of the national economy in a natural measure. This was done for the first time in the world. As a basis, the mathematical model of the Nobel Prize winner Wassily Leontief, a scientist with Russian roots, was taken. Before Leontief, the balance was a purely statistical document. Since 1975, the Main Computing Center has fully calculated all state plans on computers.

The attempt to implement ASPR (Automated System for Planned Calculations) was a large-scale project of the Main Computer Center. Its goal was to introduce long-term, medium-term, and short-term economic planning of the national economy of the USSR with the help of computers. This project was not implemented in full.

The first head of the Computer Center of the State Planning Committee of the USSR was M. E. Rakovsky.

In accordance with the decision of the Soviet Government, this center was rapidly growing, primarily due to the involvement of military specialists from the Computer Center No. 1 of the USSR Ministry of Defense. Ten years later, there were already about a thousand people working there, and it became one of the largest civilian computer centers in the USSR and Eastern Europe. It used the accumulated experience of the first in the Soviet Union the Computer Center No. 1 of the USSR Ministry of Defense. This military computer center, created in early May 1954, by 1960 already had a good experience in computer calculations for space missions of rockets and interplanetary stations. Priceless assistance to state planners was provided by military colleagues in the form of highly qualified personnel. In accordance with the decisions of the Soviet government, the positions of deputy heads of the Computer Center of the State Planning Committee in different years were occupied by well-known military scientists from the Computer Center No. 1 of the Ministry of Defense of the USSR: N. A. Krinitskiy, Yu. I. Bezzabotnov, and L. N. Kutsev.

In addition to the transfer of experienced professionals of all levels (from senior management to engineers, analysts and programmers), Computer Center No. 1 of the Ministry of Defense assisted in the deciding of defense planning tasks on computers. These tasks were performed by a large secret department of the Computer Center, to which the entire 10th floor of its building was provided.

The Computer Center of the USSR State Planning Committee also worked closely with several leading research institutes of the Academy of Sciences of the USSR. Among them, it is necessary to single out the Central Economics and Mathematics Institute and the Institute of Economics. In 1963, the Computer Center was named the Main Computer Center of the USSR State Planning Committee (the MCC of Gosplan of the USSR) in accordance with the Resolution of the Central Committee of the CPSU and the Council of Ministers of the USSR No. 564, “On Improving the Management of the Introduction of Computer Technologies and Automated Management Systems in the National Economy”, and continued to exist with this name until the end of 1991 (Fig. 1).

Fig. 1. The building of the Main Computer Center of the USSR State Planning Committee in Moscow on the Kirov street (now Myasnitskaya street), 45

The new building of the Main Computer Center was the first building in the country designed specifically for a computer center for civilian purposes. At that time, it was ideal for hosting large computers and specialists.

Approximately 50% of the staff of the Main Computer Center were men (chiefs, engineers, programmers, economists), and 50% were women (operators, perforators, programmers, economists) (Fig. 2).

Fig. 2. 1972. Employees of the information retrieval systems subdepartment of the MCC of Gosplan of the USSR (author is on the left).

The State Planning Committee of the USSR was liquidated in 1991. After several transformations, the Main Computer Center became the Analytical Center under the Government of the Russian Federation in 2005.

3 Periods of Use of Various Computers

The government of the USSR, given the importance of the tasks to be performed at the Main Computer Center, generously allocated money (including currency) for the acquisition of modern computers.

In its early years, the Soviet computers were used in the Computer Center. Two computers, Ural-2 and Ural-4, were used in the first half of the 1960s.

Later, western computers were acquired, such as Emidek-2400 and Elliot-503, as well as the mainframe ICL System 4. The computers Emidek-2400 and Elliot-503 were used in the second half of the 1960s. Two ICL System 4–70 computers were used in the 1970s.

Over its last ten years of work, the Main Computer Center of the USSR State Planning Committee carried out economic calculations on the domestic ES EVM computers. They were used in the 1980s. The first models of ES EVM computers (late 1960s/early 1970s) were clones of IBM System/360 computers. In the 1980s, later ES EVM models were developed by Soviet specialists (Fig. 3).

Fig. 3. The computer Emidek-2400.

ES EVM computers were the last type of computers used in the Main Computer Center of the USSR State Planning Committee until 1991. Work on ES EVM computers for specialists of the Main Computer Center was not a difficult task. There were several reasons for this:

- In the USSR, a large network of training centers was created, providing a variety of educational literature on ES EVM hardware and software.

- Specialists of the Main Computer Center had 10 years of experience working on ICL System 4–70 computers. It was a good preliminary experience for working on ES EVM computers.
- Students of Soviet technical universities carefully studied the hardware and software of IBM System/360 and ES EVM computers for 3–4 years. In addition, they carefully studied various programming languages and technologies.
- Soviet students had good preparation in mathematics.

4 The Main Computer Center's Coordinating Role in the USSR and Socialist Countries

The Main Computer Center of the USSR State Planning Committee fulfilled the important role of intra-union and international coordination of the work of the computer centers of the planning committees of the republics of the USSR, on the one hand, and the computer centers of planning committees of socialist countries, on the other. On a regular basis, a methodical guide was provided for the computer centers of the planning committees of all the Union republics, which for this purpose were equipped with ES EVM computers.

In the late 1970s, a special board of directors of computer centers of planning committees of socialist countries was created. In this organization the Main Computer Center of the USSR State Planning Committee was the actual leader of the activities of its colleagues from the socialist countries. It organized on a regular basis working meetings of its colleagues in the Council for Mutual Economic Assistance (Fig. 4).

Fig. 4. 1972. In the Main Computer Center of the USSR State Planning Committee: leader of Cuba Fidel Castro, Chairman of the State Planning Committee of the USSR N. N. Baibakov, and Head of the Computer Center N. P. Lebedinsky.

5 Conclusion

The article confirms that the Main Computer Center of the State Planning Committee of the USSR was the leading research and production center in the field of solving computer problems in the planning of the national socialist economy. In the USSR, its role was also important as one of the recognized computer centers – pioneers in the practical use of new information and communication technologies and advanced system and application programs. Very important was its coordinating role in organizing the work of the computer centers of the planning committees of the union republics and other socialist countries. Since 2005, the Main Computer Center of the USSR State Planning Committee has been called Analytical Center under the Government of the Russian Federation.

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References

1. Sobolev, S.L., Kitov, A.I., Lyapunov, A.A.: The main features of cybernetics. Problems of Philosophy, no. 4 (1955). http://www.computer-museum.ru/books/cybernetics.htm
2. Kitov, A.I.: Electronic Digital Machines. Soviet radio (1956). http://www.computer-museum.ru/books/kitov_ecm.htm
3. Brook, I.S.: Prospects for the use of control machines in automation. Report at the session of the USSR Academy of Sciences on the scientific problems of production automation (1956). http://www.computer-museum.ru/articles/galglory_ru/278/
4. Kitov, A.I.: Electronic Computers. All-Union Society "Znanie." (1958). http://www.computer-museum.ru/books/evm_kitov_1958_2.pdf
5. Berg, A.I., Kitov, A.I., Lyapunov, A.A.: On the possibilities of automating the management of the national economy. First report in the USSR on the need to establish the National Automated System of Economic Management of the USSR. It was introduced by A. I. Kitov on the cybernetics section of the All-Union Conference on Computational Mathematics and Computer Science in November 1959. In 1961 it was published like special article in the scientific collection of the USSR Academy of Sciences "Problems of Cybernetics". http://www.computer-museum.ru/books/kitov_asu.htm
6. Belik, Y.: Economic Headquarters of the Country (Russian). Sovetskaya Rossiya: newspaper, 25 February 2011
7. Kuteinikov, A.V.: The first projects of automation of the management of the Soviet planned economy in the late 1950s and early 1960s. - "electronic socialism"? (Russian). Econ. Hist. Rev J. **15**, 130, 134–135 (2011). Moscow State University, Moscow
8. Kuteynikov, A.V.: The fate of the original idea of A. I. Kitov, the project to create an automated system for managing the Soviet economy (OGAS). Scientific works of the Free Economic Society of Russia, vol. 143, pp. 132–138 (2010) and on the site "Kitov Anatoly Ivanovich: pioneer of cybernetics, computer science and automated management systems (ASU)". http://www.kitov-anatoly.ru/o-kitove-ai/stati-ob-ai-kitove/kutejnikov

9. Kuteynikov, A.V., Shilov, V.V.: ASU for the USSR: Letter of A.I. Kitov to N.S. Khrushchev (1959). Questions of the History of Natural Science and Technology, no. 3, pp. 45–49 (2011). https://drive.google.com/file/d/0B7DBKVxXzlD_M2M3YjVlMGYtNzljNy00MDA5LTlhZDgtMjE4ODZjNDNhYjAy/view
10. Kuteinikov, A.V.: Thesis "The project of the State Management System for the Management of Soviet Economy (OGAS) and the problems of its implementation in the 1960–1980s"
11. Gerovich, S.: From Newspeak to Cyberspeak: Soviet Cybernetics as a Vehicle of Reform and a Bandwagon. Science, Technology and Society Program Colloquium, MIT, April 1999