Anatoly Kitov: Technology vs Ideology

The Story about the First in the USSR Project of Nationwide Computer Network

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Abstract — **This article examines the first Soviet initiative to develop a national computer network as the basis for an automated information system for the management of the national economy. This initiative was made by prominent Soviet scientist Engineer Colonel Anatoly Ivanovich Kitov whose 90th anniversary is celebrated in 2010. The article attempts to view the history of Soviet computer networks as part of Soviet history, in which technology and politics closely intertwined.**

Index Terms — **Cybernetics, informatics, nationwide computer network, management information system.**

I. INTRODUCTION

In 2010 the 90th anniversary of outstanding Russian scientist Anatoly Ivanovich Kitov (1920-2005) (Fig. 1) will be celebrated.

He was founder of several scientific trends in the field of informatics [1]-[4] He published the first in the USSR textbooks in computers, programming, algorithmic languages and different computer applications. Kitov worked out basics of management information systems for military purposes and made a lot to implement computers into economy, defense industry and medicine. More than 10 years A. I. Kitov had been national representative of the USSR in the IFIP Technical Committee № 4. A. I. Kitov made a lot for popularization of cybernetics and informatics in the USSR and worldwide. His scientific works, monographs and articles ([1]-[4] and many others) played important role in development of cybernetics and informatics in the USSR and Russia.

Several decades passed before the name of Anatoly Ivanovich Kitov, one of the representatives of the first generation of Soviet computer scientists, regained recognition in computer history. Nevertheless, some episodes of Kitov′s biography are not widely known yet.

II. THE FIRST PROJECT OF NATIONWIDE NETWORK FOR MILITARY AND CIVILIAN PURPOSES

In the middle of 1950-s in the USSR a process of rehabilitation of cybernetics as a science was launched. The article «Main features of cybernetics», written by Kitov and printed in the leading Soviet ideological magazine «Studies on Philosophy», played an important role in this process. This enabled scientists of the USSR to work on a wide variety of problems in computer science, including computer applications to management and economics.

Figure 1. Anatoly Kitov – the creator of the project of first Soviet nationwide computer network (1958).

Since 1955 in many articles and presentations A. I. Kitov paid considerable attention to prospects of economic and management applications of computers which could become feasible after the full amount of economic data was collected and processed. As a necessary tool for that he proposed to create a unified nationwide computer network, which would collect all economic data including the state of different enterprises, material supplies, monetary movements, labor force data and process this information for planning and management of economics of the USSR. These suggestions were particularly risky at that time as Soviet Party ideologists continued to consider applications of mathematics in economics «the instruments of capitalist apologists». Such indictment could have particularly serious consequences for supporters of mathematical economy.

The proposals of Kitov, considering computer applications, were introduced in two letters to the head of the USSR.

In January 1959 A. I. Kitov sent a letter to the leader of the USSR N. S. Khrushchev in which he proposed radical change and improvement of methods and means of management by making a transition from the manual and personal forms of management to automated systems, based on the use of electronic computing machines (Fig. 2 and Fig. 3).

Figure 2. Anatoly Kitov′s letter to Nikita Khrushchev (first page). Signed copy from family archive.

This document is of great scientific research interest. It was written on the threshold of the XXI Special Congress of the Communist Party of the Soviet Union and exerted substantial influence on Soviet scientific and technical policy in the field of computer engineering. In his letter A. I. Kitov after formal greetings to the Soviet leader turned to the essence of his proposal: «vital necessity of national economy reorganization is ripened and it is necessary to create nationwide automated management system». A. I. Kitov suggested to build this system using two components: scientific methods and computers (not the Marxist philosophy and political economy which he meant to be out of date).

In the letter A. I. Kitov supporting government decisions of creating «sovnarkhoses» (regional economic councils) pointed out the defects in the work of executive organs on all levels. He wrote that systematic measures in administrative personnel reduction gave no positive results due to be guided by old approach of state leaders.

A. I. Kitov drew a conclusion that the situation could be improved by total nationwide using of computers. In other words he suggested turning from administrative commanding leadership style to management information systems. He stressed that this turn would allow using in full scale such advantages of socialist system as planned economy and centralized control. Management information systems introduction would make possible real reducing inflated bureaucratic staffs in the country.

Figure 3. Anatoly Kitov′s letter to Nikita Khrushchev (last page). Signed copy from family archive.

A. I. Kitov proposed to build nationwide automated system in stages: on the first stage to create it for ministries, government agencies and the largest enterprises. After that to unite separate computing centers into united nationwide network of computer centers. Kitov stressed that all efforts would be doomed to fail if special government agency responsible for management information system project implementation would not be created.

Leonid Brezhnev, the future General Secretary of the CPSU Central Committee, considered Kitov′s letter to Nikita Khrushchev. He invited A. I. Kitov to Kremlin were in private talk cleared up his proposal.

This first letter sent on January 7th 1959 received understanding in the political circles and some of the proposed measures were implemented. However, the major proposal – the creation of the nationwide computer network for effective and timely economic management – was not accepted. The second letter written by Kitov to Khrushchev in autumn 1959 contained even more radical project (named «the Red Book») of management computerization of national economy and military forces based on the unified nationwide computer

network with double functionality – for national economy and for the USSR military forces.

Creation of such network, according to Kitov, could bring management of national economy and military forces on a qualitatively new level and to liquidate outlined backlog from the USA in use of computers (as A. Kitov wrote, «to overtake the USA without catching up with them»).

Figure 4. Anatoly Kitov (c1962).

The first part of the second Kitov′s letter to the Soviet leader contained severe criticism of several top leaders of the USSR and firstly leaders of the Ministry of Defense for their sluggishness in developing and implementing computers.

This document caused anger of influential party and military officials since realization of its ideas seriously limited power of the Communist Party in the country. The project was rejected, and its author was excluded from the Communist Party (which actually meant civil exclusion), discharged from office and army with prohibition to occupy command positions.

It is indicative that Anatoly Kitov′s persecution followed the campaign against writer Boris Pasternak awarded in 1958 the Nobel Prize in literature, and chronologically preceded persecution of General Piotr Grigorenko in 1961. These three campaigns revealed that Soviet communist party, wishing to preserve its political monopoly power, toughened its control over arts, science and politics.

It is quite possible that the USSR had the only alternative not to break down – to follow the way suggested by A. I. Kitov and probably to become the second China.

A comprehensive analysis for the explanation of the Kitov′s project rejection is needed, since this was the first-ever project of a national computer network for management of economy of the whole country and its military forces. In the report an attempt is made to consider the project «the Red Book» both in technological and political contexts of the USSR in the late fifties – the beginning of the 1960th.

Additional pages about scientific activity of Anatoly Kitov (Fig. 4) and his projects can be taken from [10]-[16].

III.   Conclusion

In 1959 Anatoly Kitov presented to the Soviet government the first soviet project to create a nationwide computer network as the basis for an automated information system for the management of the national economy of the USSR.

Initiatives to create a national computer network were continued in the USSR during next twenty years.

The history of these projects is presented in [5-9]. Unfortunately, the nationwide computer network in the USSR was never built.

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