

# TECHNOLOGY AND STRATEGY: FUTURE TRENDS

Shai Feldman



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## II. Doctrine and Technology in the Soviet Union

### Current Trends in Soviet Thinking on Weapons Development

Matthew Evangelista

Prof. Evangelista's paper explores various Soviet views regarding the development of new weapons systems. It discusses their differing conceptions of the origins of weapons innovations, the requirements for successful innovation, the relationship between the economy and weapons development, and possible alternatives to technological competition with the United States.

The Soviets have traditionally blamed the US-Soviet arms race on the United States, arguing that innovations in weapons technology have invariably originated in the US. Both Nikita Krushchev and General G.I. Pokrovskii, for example, claimed that high profitability in the American capitalist system encouraged weapons development. They stressed that the United States utilized technology to achieve military and political goals: gaining military superiority over the Soviet Union; dictating terms from a position of strength; and bankrupting the Soviet economy by forcing Moscow to compete with the technologically more advanced United States.

Evangelista argues that Soviet inferiority in military innovativeness can be explained by the fundamental structural differences in the military research and development systems of the United States and the Soviet Union. "Centralization, compartmentalization, and an obsession with secrecy...have tended to inhibit innovation [in the Soviet system]." Due to limitations on publishing and outside income, for example, the Soviet military sector has not been able to attract the country's top scientists. In addition, Soviet industry is generally configured for the mass production of goods that are of relatively simple design.

Many Soviet observers have noted a direct connection between

the overall technological development of the American civilian economy and that of its military sector. In turn, western analysts have suggested that this realization may create support within the Soviet military for Gorbachev's economic reforms. Evangelista questions whether such an expectation is realistic, given the fact that the military does not comprise a coherent, self-identified group articulating common interests.

Indeed, the author identifies three separate schools of thought in the Soviet military regarding the relationship between the civilian economy and military power:

At one extreme, are found proponents of an all-out militarization of the Soviet economy in preparation for a long war, and a major reallocation of resources from the civilian to the military sector. This group could be termed the "mobilizers."

Somewhere in the middle are those who argue for the priority of the military sector, but suggest that efficient use of existing resources is more appropriate than substantial new increments, and that the Soviet military should rely more on technology and less on accumulating stockpiles of weapons. This group could be called the "technocrats."

At the other extreme, there appear to be some military figures whose arguments suggest a willingness to restrain current military spending in the interest of reforming the civilian economy to provide for long-term military-technical advances. These are the "reformers."

'Reformist' writers like Major General M. Iasiukov argue for a major program to encourage basic, exploratory research "and the solution of military-technical problems, connected with finding the new prospective means of conducting armed conflict that the aggressor is counting on employing in war." Iasiukov further emphasizes "the need for widescale adoption of computer technology in the Soviet armed forces, and, especially, [the fact] that a prerequisite for such adoption is a high level of civilian progress in this sphere." He characterizes developments in computer technology, robotics, and electronics as "basic catalysts of military-technical progress," and implies that advances will not come from the military sector alone: "the current stage of military-technical competition, imposed on us by the imperialists, demands a high

level of development of the most promising branches of industry, the most up-to-date technology, and a highly qualified work force."

Iasiukov implies that resources needed for the recommended transformation of the Soviet civilian economy could be released by a more moderate response to NATO arms acquisition. Rather than responding symmetrically to western "leaps" in weapons technology, Iasiukov advocates an incremental approach in which basic weapons are designed to be modernized throughout long life cycles.

Such forthright expressions of views is extremely rare for Soviet military officers. Hence, the precise strength of the 'reformers' among the Soviet military remains in question. More common are similar statements by civilian analysts. Although usually couched in economic rather than military terms, these commentaries point to many of the same problems, and reach similar conclusions about the future of East-West competition. The fear of being left behind (or, worse, 'beaten') by the technologically more advanced United States, and the consequent need to divert all efforts to catch up, is a recurring theme among these commentators. Soviet newspapers rely on reader familiarity with the issue, and frequently allude to the military and political consequences of a failure to narrow the technology gap.

A number of Soviet academic writers have pursued this argument further, arguing that widespread use of computers in the American military "owes to their relatively low cost; that under present circumstances development of software constitutes the limiting factor in further growth in military use of computers; and that development of software in turn depends on increasing the effectiveness and productivity of computer programmers."

While some in the civilian and military sectors call for increased math and computer literacy, and others insist that an improved work ethic is needed across Soviet society as a prerequisite for technological progress, many argue precisely the opposite: that "the goals of Soviet weapons development can be attained *without* economic reforms and the widescale introduction of computer technology into the civilian sector." Proponents of this view further argue that, given primacy, military R&D will not only

provide a sufficient level of technological sophistication for weapons systems, but its spin-offs will also drive the civilian side of the Soviet economy.

This view was rejected by Soviet leader Michael Gorbachev. In a July 1986 meeting with Soviet and foreign scientists, Gorbachev stressed that the proposition "that science and technology can be developed only with the help of an arms race is an absurd argument." In October 1986 the journal *Kommunist* printed an article by a nuclear scientist, L. Feoktistov, elaborating the same point. Citing international statistics on the relative inefficiency of military versus civilian expenditures, Feoktistov argued that

the military sphere devours a disproportionately large share of the intellectual resources of society: a given amount of means invested in military research and development gives 20 times less return than if it had been used in the civilian sphere....The significance of the military sector for civilian production is often exaggerated, and their relationship to each other is wrongly interpreted. Contrary to the widespread view, the military sphere much more often borrows from the civilian than the other way around....[The hope that] results of military research and development will be able to find wide application in civilian sectors is essentially unfounded.

Evangelista notes that while there are civilian and military adherents to each view, published statements indicate relatively more military support for the mobilization extreme and more civilian support for reform. Overall, it seems that at this point the mobilization school is relatively weak. Indeed, under present economic conditions it is unlikely that the mobilizers could succeed in promoting policies for a large scale militarization of the civilian economy and increased stockpiling of weapons and raw materials.

The technocratic approach — favoring the development of advanced technology weaponry rather than continuing the accumulation of existing weapons — is reflected in the writing of Marshal Nikolai Ogarkov, former chief of the General Staff. Stressing that the nuclear stockpiles accumulated by the two superpowers have reached absurd and senseless dimensions

Ogarkov repeatedly draws attention to the "rapid changes in the development of conventional means of destruction" and the "appearance in the developed countries of automated reconnaissance-strike complexes, long-range, highly accurate combat systems with remote-controlled guidance, unpiloted flying machines, and qualitatively new electronic control systems."

The author notes that Ogarkov combines his warnings about the West's new advanced-technology conventional weapons with remarks stressing the importance of "the state's economic system and capabilities," and its "level of development of science and technology," as "determining factors in war." Thus, argues Evangelista, if the Ogarkov approach prevails, one would expect to see increasing Soviet efforts to develop the kinds of systems associated with NATO's "Follow-On-Forces-Attack" (FOFA) concept. Indeed, the Soviets might attempt to overcome the difficulties entailed in developing microelectronic and computer technologies that are essential for the new conventional and SDI-type systems through a vigorous program of industrial espionage of the sort carried out in the late 1970s.

Gorbachev and his immediate political advisors appear to be steering the Soviet Union toward a third alternative. Mindful of the need to reform the Soviet economy if the USSR is to compete meaningfully with the West in the future, Gorbachev seems to favor limiting American weapons development through arms control rather than attempting to increase the Soviet capability to produce high tech weapons. In this approach, Gorbachev has received support from Ogarkov's successor as chief of the General Staff, Marshal Sergei Akhromeev, who has called attention to NATO's development of non-nuclear weapons that "rely on principles never before used to hit personnel, military equipment and targets." These "might include ray, radio wave, infrasonic, geophysical, and genetic weapons...In their strike characteristics, these types of weapons may be no less dangerous than mass strike weapons." Akhromeev argues that rather than develop comparable weapons, the Soviet Union should press for a ban on them.

In addition, Gorbachev seems to be banking on economic reforms as the key to the Soviet Union's future ability to compete

with the West in the realm of military technology. Thus, he has called attention to America's "attempts to undermine the USSR economically by means of an arms race," and emphasizes the resultant need to find an adequate response in the economic realm. "If we are weak economically," argues Gorbachev, "the pressure from the enemies of socialism intensifies." But, if "we become stronger, more solid economically, [socially, and politically], the interest of the capitalist world in normal relations with us will grow, illusions will be dispelled, [and] history could be turned back."

## The Soviet Conventional Debate and its Implications for the Operational Art

David R. Jones

David Jones' paper details the evolutionary shift in Soviet military doctrine. This shift took place in two separate realms: from an emphasis on strategic nuclear forces to the development of a conventional war-winning capability; and from a focus on protracted war to an emphasis on the decisive importance of the initial phase of warfare. These changes have led America's General W.E. Odom to state that the "Soviet General Staff has embarked upon a third revolution in military affairs."

Jones notes that this revision began in the mid-1970s, yet it is most closely identified with Marshal Ogarkov, who became chief of the General Staff in 1977. Prior to this, Soviet doctrine held that "any general systemic warfare would be waged first and foremost with nuclear weapons at every level" and that nuclear superiority and damage limitation were the key to surviving and 'winning' a nuclear war. By the late 1970s, however, there were indications that Soviet leaders — including L.I. Brezhnev and K.U. Chernenko — were beginning to accept the reality of mutual assured destruction, and to rule out the possibility of achieving meaningful victory or military superiority in the nuclear age.

The most important pronouncement on the irrelevance of nuclear weapons to warfighting was made by Marshall Ogarkov

who argued, in a 1984 interview, that existing nuclear parity meant that retaliation would deprive the aggressor of the capacity "not only of waging war, but [of conducting] any kind of warfare whatsoever." Given this reality, he emphasized, "it is criminal to look on nuclear war as a rational, almost legitimate means of conducting policy." In turn, Ogarkov's views have led General Gareev, deputy chief of the General Staff, to reassert "the contemporary relevance of a number of pre-nuclear (i.e., conventional) aspects of the military art."

Another Soviet strategist, Lt. General V.A. Alexandrov, drew attention to NATO's development of advanced technology conventional weapons as inducing the denuclearization of warfare. In June 1986 he wrote that "the accelerated creation of highly accurate conventional armaments and the reorganization of the armed forces of the US and its allies in NATO aim at providing an opportunity for achieving victory in modern war with conventional means as well."

Ogarkov elaborated this point in his 1982 book, pointing to the "profound, and in the full sense of the word, revolutionary upheaval that in our time is taking place in military affairs in connection with the creation of thermonuclear weapons, the rapid advances in electronics, and the development of new physical principles, as well as the extensive qualitative improvement of conventional means of armed combat." Since then, Ogarkov has reiterated this theme, and warned that "the present state of science and technology is facilitating the creation of means of armed combat that are capable even in a non-nuclear war of rapidly destroying all life over enormous areas. This is especially so if one considers the types of weapons that are based on new physical principles which the future clearly holds." According to Jones, appreciation of the aforementioned developments led Ogarkov and his followers to develop a doctrine

that combines three, main interrelated strands: the growing lack of utility possessed by nuclear weapons in an age of "rough parity;" the qualitatively new capabilities for destruction, and the great utility for battle possessed by high tech conventional systems, and the promise of even greater future utility held by future advances in both existing and