

The Soviet Weapons Industry: An Overview

Summary

Over the last two decades, the Soviet Union has delivered weapons to its military at a level unequaled anywhere in the world. Over 50,000 tanks, 80,000 light armored vehicles, 9,600 strategic ballistic missiles, 50,000 aircraft, 650,000 surface-to-air missiles, and 270 submarines have been procured since 1965.

In the process, the Soviets have built the largest weapons industry in the world. Roughly 50 major design bureaus control the development of 150 to 200 weapons at any one time. Weapons are assembled in about 150 major production complexes scattered throughout the Soviet Union. Designers and producers are supported by thousands of organizations in Soviet academia and industry.

Since the 1920s, the entire complex has been operated in a way that exploits the priority given to defense and the advantages of a command economy, and minimizes the impact of Soviet technical weaknesses. Soviet weapons acquisition has been characterized by:

- Centralized management by party and government organizations, demonstrating continuity and stability in personnel and programs.
- Final leadership authorization of weapon programs and their funding early in the acquisition process.
- Relatively simple, low-risk weapon designs, emphasizing standard components and existing technologies.
- Easily manufactured systems, which can be fabricated by a technologically unsophisticated industrial base with semiskilled or unskilled labor operating general purpose conventional machine tools and equipment.
- Long production runs yielding large numbers of weapons.
- Weapon advances that emphasize incremental upgrades instead of the development of completely new systems or subsystems.

Developments in the economy, technology, and the foreign threat are inducing the Soviets to modify these strategies. The slower growth of the Soviet economy in the past decade and harsh constraints on the availability of key resources have led the Soviet leaders to stress efficiency more than in the past. At the same time, dramatic improvements in Western weapons and advances in their own and foreign military research and development

(R&D) have led them to seek greater advances in weapon performance and capabilities. Changes are under way in the Soviet defense industrial establishment that respond to these new conditions:

- *In resource allocation.* The Soviets appear to be evaluating more carefully the priority accorded the defense industries. Defense will continue to have a high priority, but the increasing costs and complexities of producing advanced weapons are inducing them to seek more cost-effective ways to meet military requirements. In addition, writings and statements indicate the Soviets recognize that their long-term defense needs require more balanced development in Soviet industry, services, and the technology base.
- *In weapon development.* The Soviets are shifting from well proven to more advanced technologies and from simple to more complex weapon designs. They will continue to rely on traditional, proven approaches to develop most of their weapons. But in several areas—such as strategic defense—they will find it more and more difficult to meet new threats by relying on those strategies. Development cycles for some systems may lengthen as a consequence, particularly in the test phase.
- *In production.* The Soviets are manufacturing advanced weapons in smaller quantities and at lower rates. Improved weapon performance and greater multimission capabilities, along with greater production problems and the higher procurement and maintenance costs of new weapons, are encouraging the Soviets in some cases to reduce the numbers produced. The danger of obsolescence from a more rapidly changing threat and military technology base will further encourage shorter production runs. Retrofit programs, which enhance and prolong the combat worthiness of older systems, are probably intended to partly compensate for this.
- *In the industrial base.* The high-technology support sector of the weapons industry—radioelectronics, telecommunications, specialty materials, and advanced production equipment—will generally continue to grow more rapidly than weapon and equipment producers. Throughout the defense industries, the Soviets are using incentives and investment policy to encourage the renovation and modernization of established facilities instead of new plant construction.

- *In administration.* Small-scale changes in planning and management are being implemented. The Soviets are modifying industrial organization and revising plan targets, prices, and incentives to encourage innovation and quality over quantity. They will not undermine the central planning system by providing managers with real autonomy, however, and the defense industries will continue to be the most thoroughly scrutinized part of the Soviet economy.
- *In seeking help from abroad.* The Soviets are stressing and supporting the buildup of the scientific-technical base of their East European allies and will seek more imports of technology and equipment from them. They will also continue to rely heavily on acquisition of Western technology.

Changes in the Soviet armed forces in the 1990s will drive—and be driven by—changes in the weapons industry. Alterations in doctrine, force structure, logistic organization, maintenance requirements, and manpower utilization are likely to accompany the evolution in the products of the defense industries. In some cases, the long-term impact of increasingly sophisticated weapons may be a reduction in total numbers maintained in active inventories. Overall force effectiveness is likely to increase, nonetheless, as the mobility, survivability, and lethality of new weapons improve.

Certain aspects of the weapons industry are unique in the Soviet economy, but many of its problems confront the civilian sector as well. Although the defense industrial ministries have never been completely insulated from civilian industry—an indispensable supplier of materials, components, and subassemblies—the lines between the two sectors have become increasingly blurred as weapons have grown in complexity. Since the last years of the Brezhnev era, the Soviets have been implementing policies to speed the modernization of both the civilian and defense industries.

The Soviet defense industries face considerable challenges in their mission to produce sufficient quantities of highly advanced weapons for the forces of the next decade. Nevertheless, expansion in high-technology industries, advances in precision machining and other fabrication technologies, and continued aggressive exploitation of Western technology will allow the Soviets to overcome some of the difficulties with which their domestic R&D base is currently struggling. Moreover, the Soviets' speed in introducing generic equivalents of Western technologies into their own systems and their ability to surge ahead along a narrow front of military technologies will help them remain competitive in deployed military capabilities.

In any event, the Soviet weapons industry will remain a potent force in the 1990s. It has been a vital ingredient in Soviet military power, which has been the primary instrument of the Soviet leadership in achieving national security, political leverage, and prestige throughout the world. The weapons industry will continue to be at the forefront of Soviet technology and industrial prowess, and it will absorb a large share of the best Soviet resources. Its leaders will continue to wield considerable influence on Soviet policy. And—because of growing economic constraints and the potential of advancing military technology—its performance is likely to be an even greater determinant of Soviet military power than is the case today.