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## SOVIET MILITARY RESEARCH AND DEVELOPMENT

### THE PROBLEM

To assess the scope and nature of Soviet military research and development (R&D), to estimate the types of weapon and space systems likely to emerge from that effort in the next few years, and to discuss factors that will affect the course of Soviet military R&D over the longer term.

### CONCLUSIONS

A. Military research and development (R&D) has been and will continue to be one of the highest priority undertakings in the USSR. The Soviets regard such an effort as imperative in order to prevent the US from gaining a technological advantage, to gain, if possible, some advantage for themselves, and to strengthen the technological base of Soviet power. Most Soviet military R&D is directed toward the qualitative improvement of existing kinds of weapon systems, but we believe that much is also devoted to the investigation of a broad range of new and advanced technologies having potential military applications.

B. With the rapid technological advance of the postwar era, there has been a great expansion in the funds, personnel, and facilities devoted to military R&D and the space program. We estimate that between 1950 and 1966 expenditures for these purposes increased tenfold. It is impossible to make a precise comparison of US and Soviet expenditures; our analysis suggests that if Soviet military R&D and space programs at their present levels were purchased in the US, they would generate an approximate annual expenditure more than three-fourths the amount of US outlays for the same purposes. And the Soviet effort rests on a considerably smaller economic base.

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C. Soviet advanced research in fields applicable to military developments is probably now about equal to that of the West. Despite excellent theoretical work, however, Soviet military hardware frequently has not reflected the most advanced state-of-the-art in the USSR. In large part, this can be attributed to a conservative design philosophy which emphasizes proven technology and favors rugged, relatively simple equipment. In part, however, this Soviet choice may have been forced by deficiencies in manufacturing and fabrication techniques. Soviet production technology generally lags behind that of the US, although the Soviets are taking steps to correct these deficiencies.

D. It is almost certain that the Soviets have some type of R&D underway in every important field of military technology. Stringent Soviet security practices normally prevent us from detecting military R&D at the laboratory or drawing board stage. We can, however, detect major weapon systems during testing or early deployment. On the basis of evidence of development activity, our judgment of Soviet requirements, and other considerations, we can make estimates concerning the next generation of major Soviet weapon systems. We cannot estimate, however, the specific weapons which the Soviets will develop for introduction in the longer term, 10 or more years from now.

E. Soviet expenditures for R&D are continuing to grow, but the trend is showing a declining rate of growth, probably because the most costly stages of expansion have been finished. With the higher base level thus achieved, a slower growth rate still implies substantial annual increments. We estimate that total R&D expenditures—for military and civilian R&D and the space program together—will increase by about 7 or 8 percent annually through 1970. If, as we estimate, the Soviet space effort is leveling off, even this moderate growth rate would permit an increase in allocations to civilian R&D and continuation of a strong military R&D effort.

F. The Soviets will continue to press their search for new technologies and systems that offer the prospect of improving their strategic situation. We see no areas at present where Soviet technology is significantly ahead of that of the US. Considering the size and quality of the Soviet R&D effort, however, it is possible that the USSR could move ahead of the US in some particular field of strategic importance. The Soviet leaders would certainly seek to exploit any

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significant technological advance for political and military advantage, but in deciding to deploy any new weapon system they would have to weigh the prospective gain against the economic costs and the capabilities of the US to counter it.

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