Leaders Magazine
18 Apr 84
Final

TECHNOLOGY FOR PEACE: THE OTHER SIDE OF THE COIN

Assessing Soviet science and technology and the potential therein for military and strategic surprise is perhaps the most critical and difficult challenge we in the US Intelligence Community face. As of now the US still appears ahead in most of the critical technologies we survey but the Soviets have pulled even in some areas and are out in front in others and our margins of advantage and the lead times we possess, have shrunk. Even more troubling, however, is that recent assessments show that the ability of the Soviet military-industrial complex to acquire and assimilate Western technology far exceeds previous estimates.

During the late 1970s, the Soviets obtained about 30,000 samples of Western production equipment, weapons and military components, and over 400,000 technical documents both classified and unclassified. The majority was of US origin, with an increasing share of our technology obtained through Western Europe and Japan. This truly impressive take was acquired by both legal and illegal means. We estimate that during this period, the KGB and its military intelligence equivalent, the GRU, and their surrogates among the East European intelligence services, procured abroad about 70 percent of the technology most vital to Soviet military equipment and weapons programs. For example:

-- The Soviets had our plans for the C-5A even before it first flew.

-- The precise gyros and bearings in their heavy missiles were based on US designs.

-- The radar in their AWACS is of US origin.

-- Their space shuttle is a virtual copy of the US shuttle design.

-- The Soviet trucks which rolled into Afghanistan came from a plant outfitted with $1.5 billion worth of modern American and European machinery.

-- And the list goes on and on.

Just how do the Soviets get so much of our technology?

First of all this is not a haphazard program but one endorsed at the highest levels in the Kremlin. Significantly, a single organization--the Military Industrial Commission, or VPK--is responsible both for supervising the collection of Western technology and for coordinating all Soviet military research and production. The VPK, therefore, is well positioned to know what the military needs in the way of Western technology and to ensure that this technology is used effectively.

Defectors have told us that the search for Western technology commands the highest priority in the KGB and the GRU. As a result, there are several thousand Soviet bloc collection officers at work primarily in the US, Western Europe and Japan. In addition to engaging in the more classic forms of espionage, these Soviet agents comb through our open literature, buy sensitive technologies through legal channels, and religiously attend our scientific and technological conferences. Students sent by the Soviets and their allies to study in the West also serve as transmission belts for technological data that is easily obtained.

Since 1970 the Soviets purchased some $50 billion worth of Western equipment and machinery, much of which had potential military applications. For example, Western equipment openly purchased on the world market is being used to make Soviet artillery barrels with substantial savings in time, material and labor.

The Soviets also use dummy firms in sophisticated international operations to divert and steal Western technology. We have identified some 300 firms engaged in diversion schemes operating from more than 30 countries--and there are probably many more. Most diversions occur via Western Europe, which is why we have sought the help of our European allies in combating illegal trade activities.

The Soviets pinpoint and target small, highly innovative companies in the computer and microelectronics field, not only because they are at the leading edge of the technologies that Moscow most needs, but also because the security procedures at such firms are usually inadequate to the threat of penetration posed by a determined, hostile intelligence service.

US microelectronics production technology is the single most significant industrial technology acquired by the USSR since World War II. In the late 1970s alone, Moscow acquired thousands of pieces of Western microelectronic equipment worth hundreds of millions of dollars in all of the major processing and production areas. On this basis, the Soviets have systematically built a modern microelectronics industry. The Soviet equivalent of Silicon Valley, the Zelenograd Science Center, for example, was equipped, literally from scratch, with Western technology. In addition, all Soviet monolithic integrated circuits are

copies of US designs. Today, the Soviets lag behind US and Japanese microelectronics technology by about five years compared with a 10-year lag in the mid-1970s. The gap in military microelectronic applications is even less and is narrowing.

What can we do to stem this tide? We already have had a fair number of successes in frustrating the Soviet technology search. I will cite just one.

You may recall in late 1983 and early 1984, West German and Swedish Customs seized several advanced VAX computers and 30 tons of related equipment that were being smuggled to the USSR by the notorius illegal trader, Richard Mueller. Unfortunately, our evidence shows that much larger quantities of computing and electronic equipment have been successfully diverted to the USSR through the activities of Mueller's firms, others like them and unscrupulous Western manufacturers.

Despite successes like the VAX case, the West still needs to organize more effectively to protect its military, industrial, commercial, and scientific communities. In so doing, we ought to keep two objectives clearly in view. First, the West must seek to maintain its technological lead over the Soviets in vital design and manufacturing know-how. Second, manufacturing, inspection, and, most importantly, automatic test equipment, which can alleviate acute Soviet deficiencies in military-related manufacturing areas, must be strictly controlled.

Western governments not only have powerful incentives to stop the hemorrhage of their technology, they also have substantial potential for controlling and restricting its flow. The laws necessary to accomplish this are largely in place--stricter enforcement of the existing laws, however, is needed. To this end greater cooperation among states will lead to greater effectiveness. A cooperative intra-state approach--if it is to be successful--must also serve to alert the private businessman to the nature and extent of the problem. Similarly, if the West is to be successful, our intelligence services will also have to increase their joint efforts to meet this challenge.

In the final analysis, the threat posed by growing Soviet technological absorption will not soon disappear, and certainly not because of any self induced change of heart by Kremlin leaders. The stakes are sufficiently high to ensure that the Soviets will devote whatever resources are required to fulfill critical military-related collection requirements. The West can do no less if we are to succeed in frustrating Soviet efforts.

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