Chapter 7

R&D Management in the Transition: From the Soviet Union to Russia

With its large, educated population, more than adequate amount of scientists and engineers, and an abundance of resources, the status of the USSR as one of the world's greatest industrial powers would have appeared to have been assured. This, however, was not the case. The preceding chapters have illustrated and discussed the wealth and potential of the Soviet system, the status of research and development or, more generally, science and technology, and the influence of Soviet-style management on these components and their role as essential catalysts for economic growth and development.

A blending of economic and innovation theories has impressed on us that the social manner of doing things, which implies the absence of individual competition as described in the Arrow model, will make *all* of us better off. Soviet-style socialism did not achieve this. Under no such circumstance did the central planning system prove that it could achieve results superior to those of other systems. In fact, the inadequacies of management techniques based on Communist central planning principles have made the overall successes of capitalist market economies appear even more respectable had the latter not such an opposite example to be compared with.

Studies on the mismanagement of research and development in the former Soviet Union or, rather, the preceding management based on distorted economic signals reveal, however, that there is much room for improvement and future promise. A reorganization of R&D management under new conditions as part of the transition to a market economy could lead to the blossoming of this sector. As a key element of economic growth, the appropriate style

C. M. Schneider, *Research and Development Management: From the Soviet Union to Russia*

of investment in R&D could, in turn, act as a catalyst facilitating and aiding expansion and development, benefiting Russian residents and influencing the status of the successor republics (mainly Russia) of the former USSR in the international scientific, technological, and economic communities.

History has proved time and time again that there is no future without a past. This is no less true in the field of research and development, or in the science and technology sector as a whole, than in any other area – perhaps even more so, due to the value of an accumulated stock of knowledge in the propagation of new innovations. Throughout history, and most accountable since the first industrial revolution of the nineteenth century, the impacts of new innovations have influenced the organization and development of society from technological, economic, and cultural perspectives. Countless major and minor challenges and opportunities have been afforded by developments in new technologies. The potential for new innovation lies in a long-standing commitment to support domestic R&D that cultivates and secures national technological capabilities.

The Soviet Union made such a historical investment. Successful science was part of the cultural pride and identity; in fact, it was anchored in ideology. Today, the USSR no longer exists, but, to a large extent, its science and technology sector, which boasted to have one of if not the largest R&D establishments in the world at the time, lives on for the most part in the new Russian Federation.

The following excerpt from a recent volume on technical change and economic theory emphasizes the requirements of the past for growth and an improved standard of living in the future.

> Previous capital is needed to produce new capital, previous knowledge is needed to absorb new knowledge, skills must be available to acquire the skills and a certain level of development is required to create the scale effects that make development possible. In summary, it is within the logic of the dynamics of technology and growth that the technologically more advanced get richer and the gap remains and widens for those left behind. [Perez and Soete, 1988, p. 459]

Judging by its assets described in the preceding chapters, a large part of the former Soviet Union is not a candidate for being left behind, least of all in research and development. Today, the level of achievement in many fields of scientific endeavor appear to be lagging behind the levels attained in other leading R&D nations. Nonetheless, the achievements in specific areas provide evidence that they are still contenders in global S&T advancement.

During Gorbachev's years of *perestroika* between 1985 and 1991 in the USSR and even more so in Russia today, which is undergoing remarkable changes in all spheres at the hands of courageous reformers, efforts indicate