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SUCCESS FACTORS FOR TRANSFERRING SPACE TECHNOLOGIES TO SOCIETY

Abstract

Today there is an increased commitment to the cultural and scientific analysis of technology transfer (TT), which is also present in the management literature. Many companies adopt technologies developed in other industrial sectors because of the rising costs of research and development and the need to create new products in a shorter time. In addition, the development and diffusion of information technology today means that new sources of knowledge can be accessed with greater ease. The need to intensify the processes of technology transfer is particularly felt in the space sector. First of all, space agencies have attempted to increase the returns on their investments in space missions by encouraging the commercial use of advanced technologies. Secondly, the aerospace industry is characterized by complex products of very high value produced in relatively small quantities. Lastly, these products are "archipelago-like" systems of technology, to a large extent originating from other sectors, and can be transferred yet again. The following paper is a synthesis of the results of research work carried out between 2009 and 2011. In particular, we have analyzed: policies for technology transfer adopted by the major space agencies (Petroni et al., 2009), four TT case studies concerning the construction of scientific satellites (Petroni Venturini, Santini, 2010), two case studies focused on space to earth TT programs undertaken by the Japanese aerospace agency (Venturini K., Verbano C., Matsumoto M., 2011), and two TT case studies examining Italian space companies (Verbano C., Venturini K., 2012). The aim of this study is to present: 1. The policies and strategies the major space agencies adopt for technology transfer. 2. The operational mechanisms and determinants involved in the transfer of space technologies to the industrial sector. 3. A cultural comparison (cross-cultural analysis) between Italy and Japan with regard to the transfer of space technology. The results of these studies indicate that the space agencies of the more industrialized countries aim primarily at consolidating and developing the industrial systems in their own countries, which includes the use of technology transfer programs, and that the transfer of space technologies follows the route "Earth-Space-Earth". With regard to the determinants of the TT process, the most important of these correlate with the type of technology in transfer (functional similarity and versatility), whereas organizational, economic and financial determinants have less significance.