
Abstract

Enhancing Civil-Military Technology Integration through Institutional Improvement

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This report explores how to strategically implement the Civil-Military Technology Integration(CMTI) system in this era when creative ideas are becoming more important in Korean economy. This research suggests that CMTI is an effective tool for increasing social welfare by saving Government's R&D capacity for both civil and military sector, and promoting spin on and off reinforcing technology transfers between military and civil sector.

The laws which are targeted to promote CMTI have recently been amended after 2-year thorough deliberation, however, this research finds that there are still needed some institutional devices to take advantage of non-military technology in defense R&D such as weapons development and military support systems, etc. For this reason, the

research aims at suggesting policy direction to improve CMTI. In the first chapter, we provide the background of CMTI and the goal of the research paper, and present previously conducted studies.

Chapter 2 explains the fundamental concepts of the Creative Economy and CMTI from the economic viewpoint. Over the several decades, the Korean main manufacturing industries, i.e., automotive, shipbuilding, steel and machinery, have strengthened their global competitiveness, but their growth engines are gradually disappearing in the existing markets. On the other hand, the Korean defense industry has been under pressure to enhance their competitiveness in the global market, but it has relative sufficient resources to invest in R&D from the government point of view. Therefore, we can anticipate synergy effects throughout the successful integration between the two different sectors.

In the 3rd chapter, the research examines the prior institutional system based on the past legal system, Dual Use Technology Program Promotion(DUTP), especially focusing on the dual-use technologies development. Also it evaluates the new institutional concept, Civil-Military Technology Cooperation Program Promotion(CMTC), under the recently improved legal framework. In the last part of the chapter, we conclude that the potential challenges still remaining in the current institutions. According to the thorough analysis, we find that the new R&D system focused on CMTC have the following five problems: 1) lack of per-project investment, 2) limitation of technology transfer, 3) military sector's unwillingness for participation, 4) lacking the ability to secure a budget, 5) unsettled roles and functions of related agencies.

Chapter 4 proposes the policy implications for building more efficient CMTI system by analyzing other countries' case such as United States, Israel and France. The research provides a variety of policy implication in the following four aspects; the R&D investor, the project and its supporting system, technology transfer, the participation of small business.

In the 5th chapter, we construct the structural equation model to analyze the primary factors to have an effect on CMTI incentives and performance. we collect basic data which has been aggregated for managing the Civil-Military Dual Use Technology Program, and converts them to useful information to estimate the model. The main findings are as follows; 1) the program does not provide enough incentives to attract non-military firms, 2) defense institutions including defense firms and laboratories have relatively high participation incentives although they do not have lower outcomes than non-defense ones, 3) the scale of investment has positive effects on the outcomes, but not affects on re-participation rates, 4) expanding the government R&D investment does not increase the outcomes, but partially has positive effects on participation rate, 5) the participation rate becomes lower when the task involves many government agencies. 6) more outcomes from the program lead to higher participation rate.

In the final chapter, this report integrates all findings from the former chapters, and draws the policy direction that can upgrade the Korean CMTI systems. The main conclusions are as the following; (1) enforcing cooperation among government agencies to promote CMTI (2) increasing the requirement R&D investment rates to the CMTC

program by 2~3%, (3) boosting the participation of non-military firms into the CMTC program by targeting more marketable technology and removing barriers to hinder the potential firms from entering the domestic defense market, (4) Making CMTC Center be more specialized in planning and managing the programs, but outsourcing research functions to the designated independent research think-tank.