

Efforts to Promote Technology Transfer: Informal System Engineering Analyses

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ABSTRACT

This paper analyzes the creation and adoption of technology in the United State and focuses on current efforts within the Department of Defense to enhance those processes. It begins with a review of the importance of technology in the defense of the nation and the expression of that importance in a succession of DoD's articulations of the strategic value of the Three Offsets to the numerical superiority and geographical remoteness of the nation's foes. The paper then relies on both the history of the last half dozen decades and some well known system engineering tools to illuminate the environment in which US technology is created and how it is managed in the academic, industrial and governmental sectors of this country. The focus of this section will be on any failures, frictions and fallacies that may impede the timely provision of new technologies to the warfighters. The paper then turns to an analysis of how it may be possible to better provide the warfighters with what they need. The authors recount and quantify the amount of technology that is languishing for want of a well-defined conduit to development and implementation. They examine the need for driving forces to impel movements of technologies from the lab into feasible and fielded systems. They describe governmental efforts to address these issues and they apply various diagnostic tools to better quantify and visualize their analyses. The legislative histories of the Stevenson-Wydler Technology Innovation Act of 1980 *et seq.* are considered and assessed. Experience with the Office of Research and Technology Applications is described and its impact is considered. In conclusion, the paper forthrightly states both progress of and hurdles to technology transfer and discusses various paths forward, both in better understanding current conditions and in enhancing existing initiatives.

ABOUT THE AUTHORS

Christopher J. Root is an Advanced Technology & Innovation IPT Lead at the US Navy Fleet Readiness Center Southwest in San Diego California. Chris' duties there include facilitating technology transfer through the Office of Research and Technology Applications (ORTA). This effort focuses on such transfer vehicles as Cooperative Research and Development Agreements, Educational Partnership Agreements, Partnership Intermediary Agreements, and intellectual property issues. Chris's team engages with industry, academia and federal agencies, including Small Business Innovative Research (SBIR) and Small business Technology TRansfer (STTR) companies to successfully transition technology to improve aircraft reliability and enhance maintenance processes. During his 30 year career with the Navy, he has served in a variety of positions with increasing responsibility supporting the fleet and depot production customers across a variety of airframes. Chris received a B.S. degree in Aerospace Engineering from San Diego State University, where he has subsequently served on several advisory boards.

Dan M. Davis is active as a consultant at the Institute for Creative Technologies, University of Southern California (USC), focusing on large-scale DoD simulations and avatar uses. Prior to retirement, he was the Director of the JESPP project at USC for a decade. As the Assistant Director of Advanced Computing Research at Caltech, he ran Synthetic Forces Express, bringing HPC to DoD simulations. He also served as a Director at the Maui High Performance Computing Center and in computer research roles at the Jet Propulsion Laboratory and Martin Marietta. He was the Chairman of the Coalition of Academic Supercomputing Centers and has taught at the undergraduate and graduate levels. As early as 1971, Dan was writing programs in FORTRAN on one of Seymour Cray's CDC 6500's. He saw duty in Vietnam as a USMC Cryptologist and retired as a Commander, U.S.N. He received B.A. and J.D. degrees from the University of Colorado in Boulder.