The Role of Integrative Technologies as a "Force Exponent" on Military Capability

(Preliminary draft)

Oren Setter[1] and Asher Tishler[2]

9/4/2004

[1] Faculty of Management, Tel Aviv University

[2] Faculty of Management, Tel Aviv University

Abstract

Integrative technologies are information and communication technologies that enable separate individual systems to work in a joint, coordinated, and synergistic fashion as a single holistic system. An increasingly growing share of defense R&D expenditures are devoted to the development and fielding of integrative technologies, such as Command and Control systems, communications systems, etc. This study explores the optimal defense budget allocation to procurement and R&D of weapon systems and to the development of integrative technologies. We develop an optimization framework that captures the main characteristics of the problem. We then use it to derive the optimal allocation, and to analyze it. To demonstrate the viability of the model, we apply it to the US military.