



Department of the Air Force
Scientific Advisory Board

DEPARTMENT OF THE AIR FORCE HEADQUARTERS AIR FORCE WASHINGTON DC

Sensor Data Exploitation Study

Abstract

For many years, various elements of the United States Government, including the Air Force, have acquired sensors and platforms for various purposes. Often, these sensors were procured on an individual basis without full consideration or funding for the exploitation and distribution of the data these sensors produced to those who needed the data to fulfill their missions. Recent technology advances have permitted the acquisition of much higher volumes of sensor data that, if properly exploited and fused, can offer our tactical as well as our strategic forces a decisive edge. However, much more needs to be done to optimally exploit and provide this data to our warfighters in the form of useful knowledge and intelligence, and there are impediments to merging these data streams (fusion) that arise from the independent ways we design, acquire and manage our sensor systems. New sensor systems introduced into ongoing conflicts in Iraq and Afghanistan have produced a growing imbalance between the sensor data collected and the ability to process, exploit and disseminate it to the warfighters. This Study – *Sensor Data Exploitation (SDE)* – was tasked to address this issue and propose workable solutions. In response to this tasking, the Air Force Scientific Advisory Board (SAB) assigned a Study Panel of Board members and domain expert consultants to study this problem.

The SDE Study Panel gathered and analyzed a comprehensive amount of both historical and current sensor and processing approaches, spoke with many technologists, sensor manufacturers, exploiters, and end users, and visited major Air Force and other locations associated with the exploitation of such data. The Panel also reviewed numerous past studies and assessments of this problem.

The cooperation and assistance of these organizations and individuals were essential to the successful completion of our effort. It was their involvement that guided the Study Panel toward the findings, concepts, conclusions, and recommendations that comprise this Study. The undersigned also wish to acknowledge the outstanding efforts put forth by the SAB Secretariat, the members of the Study Panel and the Study Executive Officers in the preparation of this Study—whatever value is found in this work is attributed to them. The errors and omissions are ours.

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