



U.S. Air Force  
Scientific Advisory Board

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**Multi Source Data Fusion for Target Location and Identification**

**Abstract**

Future US Air Force operations in a Highly Contested Environment (HCE) will require innovative sensing, strike, command and control architectures to enable mission execution. Targeting timelines are becoming increasingly shortened, and it is postulated that machine-assisted data fusion, when applied to an HCE, can aid in providing engagement-quality products on tactical timescales with higher combat efficiency. The Multi Source Data Fusion for Target Location and Identification (DFT) study conceptualized and defined the data fusion attributes needed to support target location and identification, with associated resolution, fidelity, latency, accuracy, and timeliness requirements. The study focused on the operational level of command and control and on the Air Force's air, space, and cyber domains. It identified combinations of data sources to include government and commercial ground, air, space, cyber, and publicly available information (PAI) that support location and identification of targets in a contested environment. It also assessed relevant future Science and Technology (S&T) efforts to address gaps in fusion capabilities, and identified required improvements necessary for optimal utilization of data-fused products. Ultimately, data fusion provides an innovative technological solution to detect and maintain custody of targets in a HCE.