



## INTEGRATED SURVIVABILITY ASSESSMENT

### BACKGROUND

In response to the need identified by the Director, Operational Test and Evaluation (DOT&E) to integrate survivability operational test results with live fire test and evaluation, the SURVICE Engineering Company developed the Integrated Survivability Assessment (ISA) process. The context of “integrated survivability” is all factors that affect the ability of a vehicle to successfully operate in its tactical environment. This includes not only designed-in features and on-board systems but also off-board assets that support its survivability, such as suppression and defeat of enemy aircraft defenses, off-board jamming assets, and standoff weapons. The ISA

process evaluates the relative contributions of this wide variety of survivability factors, including signatures, countermeasures, and vulnerabilities to various types of threat weapons systems. It also provides the framework to evaluate the ability of the air weapon system to operate in a hostile multi-threat environment, using its own native assets as well as off-board assets to survive and perform its mission. The process leverages a combination of test and evaluation resources and models and simulations, and it supports not only operational and live fire test and evaluations but also requirements definition, specification compliance, analyses of alternatives, and mission planning systems.

SURVICE provided support to the Joint Aircraft Survivability Program (JASP) and the DOT&E Live Fire Test (LFT) office in the development and demonstration of the ISA process.

In applying the ISA process, SURVICE has the expertise to structure testing and analysis to support assessments of system survivability and effectiveness over the entire acquisition cycle. However, the process is most effective at assessing and ensuring system survivability when applied early in the system development process. We use a variety of analytical techniques—statistical, engineering, test and evaluation (T&E), and modeling and simulation (M&S)—to develop and analyze the data and information critical for the decision-maker and the warfighter. Our use of M&S to provide analytical information is supported by our expertise and knowledge in verification, validation, and accreditation (VV&A) and the requirements for M&S use throughout the DoD. The ISA process also makes use of the SURVICE- developed network systems survivability (NSS) methodology (see SURVICE NSS fact sheet) to assess the effect that a dynamic network has on the overall effectiveness, survivability, and suitability of the networked force, as well as the ability to assess the contributions of new technologies to individual weapons platforms.

