

# “Sense and Respond” Capabilities Can Make the Air Force Combat Support System More Agile

Combat support (CS) forces face the considerable challenge of distributing materials related to transportation, maintenance, munitions, and other essential services required to support a fighting force in the field. Working with limited financial resources, the CS system must be able to predict requirements and to respond rapidly when requirements change. Traditionally, CS forces sent “mountains of supplies” to the war zone to compensate for long supply chains and an inability to accurately predict support needs. Today’s concept of rapid deployment and employment of combat forces calls for a different approach that replaces mass with speed.

Sense and respond combat support (S&RCS) is a promising approach, based on methods and technologies used in the commercial sector to closely monitor market patterns and to produce and distribute what is required rather than what planners think should be built based on internal production goals. RAND Project AIR FORCE (PAF) studied how this concept can be applied to the Air Force environment to make combat support more agile and efficient.

## Combat Support Command and Control (CSC2) Upgrades Are Key

Sense and respond capability requires a robust system of information-gathering and analysis or, in military terms, a highly efficient command and control system. The Air Force has been developing an improved CSC2 system, which involves joint planning in which logistics process performance and resource levels are related to desired operational effects; tracking of control parameters to achieve desired operational objectives (the “sense” part of the system); signaling of logistics process owners when their processes lie outside control limits (the “respond” part of the system); and replanning to mitigate portions of the plan that are outside control limits. The Air Force can achieve S&RCS capabilities if it continues to upgrade the CSC2 architecture and its related information systems, organizations, and training.

## New Technologies Are Needed to Create S&RCS Capabilities

Although current technology has enabled a limited set of sense and respond capabilities, a full implementation of S&RCS concepts depends on substantial future technological development. Two technologies are especially important to producing S&RCS capabilities:

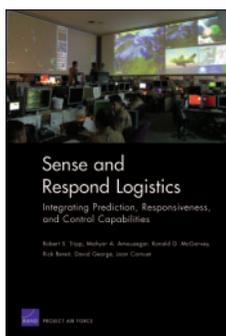
- Radio frequency identification (RFID) is an automatic identification technology that provides location and status information for items in the CS system. RFID technologies are fairly mature and have been fielded in both commercial and military arenas.
- Agent-based modeling (ABM) software allows a more robust simulation of combat support operations. These models have been used extensively in combat modeling but, until recently, there has been limited application to logistics and the technology is still in its early stages.

## Next Steps for the Air Force

The Air Force has already begun to take steps to implement some of these concepts and technologies with varying degrees of success. Further steps include making doctrinal changes to recognize the importance of CSC2 as part of S&RCS capabilities and identifying improvements in training and information systems. In addition, the Air Force should identify one organization to lead the development of CSC2 and associated S&RCS capabilities. ■

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