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## Record Contract

University of Dayton

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# NEWS



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## Record Contract

The University of Dayton Research Institute has been awarded a \$99-million contract to help the Air Force quickly integrate new or better technologies to more affordably, safely and efficiently sustain its entire fleet.

Under the new Enterprise Product Support Engineering effort, sponsored by the Air Force Materiel Command Life Cycle Management Center, University of Dayton researchers will find, evaluate,

demonstrate, transition and train personnel to use existing technologies that can reduce the cost and fleet downtime associated with maintaining aircraft and ground-support systems across the Air Force.

The five-year contract, the largest award ever received by the Research Institute, "will support LCMC's big rock initiatives that are bending the cost curve and supporting the Air Force's future operating concept," according to Sukh Sidhu, head of the Research Institute's energy technologies and materials division.

The effort includes an initial work order for \$5.4 million for the development of technologies that will monitor key aircraft components and automatically alert maintenance personnel when aircraft maintenance is needed.

### **Improving sustainment enterprise-wide**

Sustaining aging systems can incur a great deal of expense, Sidhu said. "Our job will be to help the Life Cycle Management Center, which manages the sustainment of aircraft from acquisition to boneyard, find and transition technologies that will reduce the cost of keeping aircraft flying, while also reducing the amount of time aircraft are grounded for maintenance."

In doing so, the effort will also address "the Valley of Death," a sort of limbo where newly developed and proven technologies often languish before they are picked up for practical use, Sidhu said. "We will work to bridge that gap between demonstration and application by evaluating those new technologies to see where they could replace outdated or less efficient systems. We will also look at any new approaches that have been successfully adopted within one program area, to see where that solution could be successfully applied within other areas."

In addition, researchers will look for "off-the-shelf" technologies already in use in the commercial world but have not yet been adopted by the Air Force, and then modify or adapt them to meet Air Force needs.

"The real value of this effort is its enterprise-wide framework, which allows the Air Force to leverage its best existing capabilities, skills, research and developments to reduce redundancy and maximize efficiency. Rather than making decisions about sustainment on a program-by-program basis, we'll help the Life Cycle Management Center evaluate technologies for use across the entire Air Force," Sidhu said.

### **A holistic approach**

The effort was designed for a holistic approach to sustainment, Sidhu said. "The focus of this work will be on prevention and proactivity. Rather than using a 'band-aid' approach for short-term solutions to problems after they surface, we'll look for the best ways to prevent problems from occurring. For example, aircraft have to be grounded when parts become corroded, so we'll look for the best materials and processes to remove the corrosion, but we'll also look for advanced coatings and application methods that will do a better job of prohibiting corrosion. And we'll specifically look for coatings that are free of chromium and cadmium, so they will also be less hazardous to personnel and to the environment."

The researchers' first task order under the contract will be for the development of technologies that will monitor and assess key aircraft components to automatically alert aircraft maintenance personnel to a condition that needs addressed. Condition-based maintenance can save time, materials and labor, because work is performed only when it's actually needed, rather than on a set schedule. In addition, maintenance management based on real data means reduced aircraft downtime and increased fleet readiness, Sidhu said.

The contract also will cover research into improved technologies for cleaner, more environmentally friendly energy resources; engine sustainment; automated non-destructive inspection of components; composite repair; and additive manufacturing processes that will enable the Air Force to produce, as needed, small quantities of obsolete parts for aircraft that are no longer manufactured but are still flying, Sidhu added.

## **Educating the workforce**

Sidhu said the effort has a huge educational component that fits well with the University's educational mission to train tomorrow's workforce.

"When it's time to transition technologies into field use, we will train airmen how to use them. We will also develop courses at UD to educate Air Force personnel, as well as our students, on the issues involved in sustaining aerospace systems and how to manage them," he said. "For example, we may develop a course in additive manufacturing that will not only educate personnel and students about the technology itself, but also teach them to design, produce and qualify parts using this technology.

"We're very excited about this part of the program, because this is what we do at UD. We create courses around new technologies and provide students with the skills to use them. In this case, we'll not only be educating our sponsors, but we'll be preparing the next-generation workforce for them."

For media interviews, contact Pamela Gregg, University of Dayton Research Institute communications coordinator, at 937-229-3268 or [pamela.gregg@udri.udayton.edu](mailto:pamela.gregg@udri.udayton.edu).