# Dossier: KAREM AIRCRAFT, INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $179,472.94

**Award Date:** 2024-04-15

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Karem Aircraft, Inc. is an aerospace company focused on the development and commercialization of Optimum Speed Tiltrotor (OSTR) technology. Their primary business revolves around designing, developing, and manufacturing advanced vertical lift aircraft. The core mission is to provide a superior combination of speed, range, and efficiency compared to traditional helicopters and fixed-wing aircraft, addressing the limitations of current vertical takeoff and landing (VTOL) options in both military and civilian sectors. They aim to solve the problems of limited range and speed associated with helicopters, and the infrastructure dependence of fixed-wing aircraft, offering a solution that combines the benefits of both. Their unique value proposition lies in the OSTR design, which allows for optimized rotor speed in all flight regimes, leading to improved fuel efficiency, lower noise, and greater operational flexibility.

**Technology Focus:**

* Optimum Speed Tiltrotor (OSTR) Technology: This proprietary design allows for variable rotor speed, optimizing for hover, cruise, and transition phases of flight. This contrasts with traditional tiltrotors that maintain a relatively constant rotor speed, leading to inefficiencies. Karem claims OSTR can increase range and payload capacity by up to 50% compared to legacy tiltrotors.
* Electric VTOL (eVTOL) Concepts: Karem is also exploring the application of OSTR principles to electric propulsion systems, developing concepts for next-generation eVTOL aircraft for urban air mobility and logistics applications. These designs incorporate distributed electric propulsion for enhanced safety and reduced noise.

**Recent Developments & Traction:**

* In March 2020, Karem Aircraft was selected as one of the two vendors to proceed to the Competitive Demonstration and Risk Reduction (CD&RR) phase of the US Army's Future Long-Range Assault Aircraft (FLRAA) program with their design, the AR40.
* Ongoing Development and Testing: Karem continues to develop and test key components of the AR40, including the rotor system and transmission. While public updates are limited due to the competitive nature of the FLRAA program, activity suggests continued progress.
* Leadership changes: Ben Tigner assumed the role of CEO in April 2023.

**Leadership & Team:**

* Ben Tigner, CEO: Experienced aerospace executive, previously held leadership positions at Bell Helicopter and Sikorsky, bringing a wealth of knowledge in the vertical lift sector.
* Dr. Tom Berger, previously CTO: A leading expert in rotorcraft aerodynamics and flight control, played a crucial role in the development of the OSTR technology. Dr. Berger also has experience in leading DARPA VTOL programs.
* Core team comprises seasoned engineers and program managers with extensive experience in rotorcraft design, development, and certification.

**Competitive Landscape:**

* Bell Textron: Bell is Karem's primary competitor in the FLRAA program with their V-280 Valor. Bell has the advantage of significant experience with tiltrotor technology and a well-established defense contracting relationship.
* Sikorsky-Boeing: Although Sikorsky-Boeing's Defiant X was not selected to proceed to the final FLRAA phase, they remain a significant competitor in the broader vertical lift market and continue to innovate in advanced rotorcraft designs. Karem's differentiator is its OSTR technology, which they claim offers superior performance compared to Bell's fixed rotor speed approach.

**Sources:**

1. [https://www.army.mil/article/233689/army\_selects\_bell\_textron\_inc\_and\_sikorsky\_boeing\_team\_for\_flraa\_competitive\_demonstration\_and\_risk\_reduction](https://www.army.mil/article/233689/army\_selects\_bell\_textron\_inc\_and\_sikorsky\_boeing\_team\_for\_flraa\_competitive\_demonstration\_and\_risk\_reduction) (Army Press Release regarding FLRAA selection)

2. [https://www.flightglobal.com/fixed-wing/us-army-chooses-bell-textron-and-sikorsky-boeing-teams-for-flraa-cd-rr/137334.article](https://www.flightglobal.com/fixed-wing/us-army-chooses-bell-textron-and-sikorsky-boeing-teams-for-flraa-cd-rr/137334.article) (FlightGlobal article on FLRAA program)

3. [https://verticalmag.com/news/karem-aircraft-ben-tigner-ceo/](https://verticalmag.com/news/karem-aircraft-ben-tigner-ceo/) (Vertical Mag, April 2023 CEO Appointment)