



KANSAS AVATION RESEARCH & TECHNOLOGY GROWTH (KART) INITIATIVE

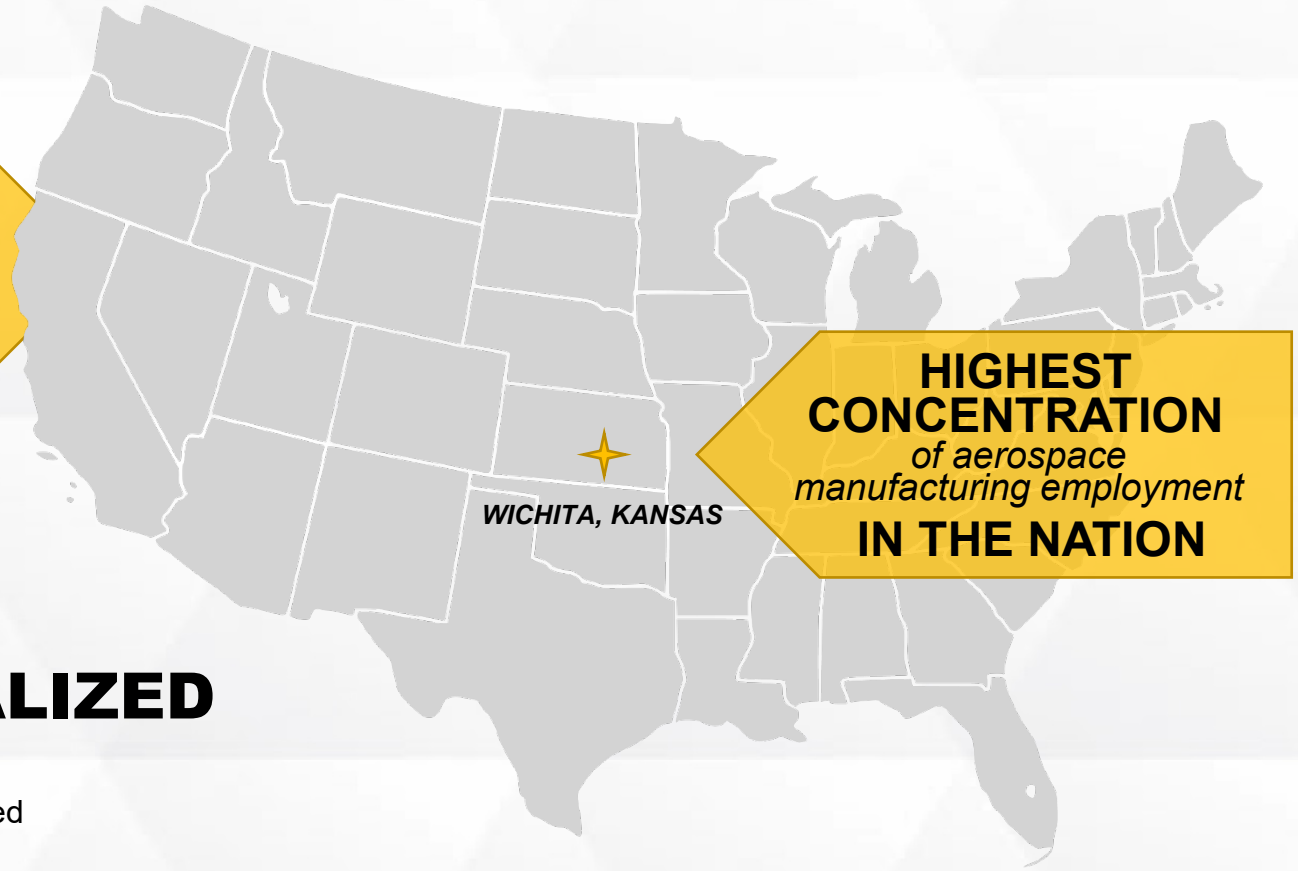
WICHITA STATE UNIVERSITY

OF THE 100 LARGEST U.S. METRO AREAS

WICHITA RANKS #1

IN MANUFACTURING JOBS

AS PERCENT OF ALL JOBS



HIGHEST CONCENTRATION
of aerospace manufacturing employment
IN THE NATION

Brookings calls South Central Kansas the

MOST MANUFACTURING-SPECIALIZED REGION IN THE UNITED STATES

with 17.7% of regional jobs in manufacturing, more than half of which are engaged in making some of the world's most sophisticated aircraft.

OF THE 100 LARGEST U.S. METRO AREAS

Brookings Institution Rankings

WICHITA RANKS ***#1*** IN PERCENTAGE OF JOBS INVOLVING

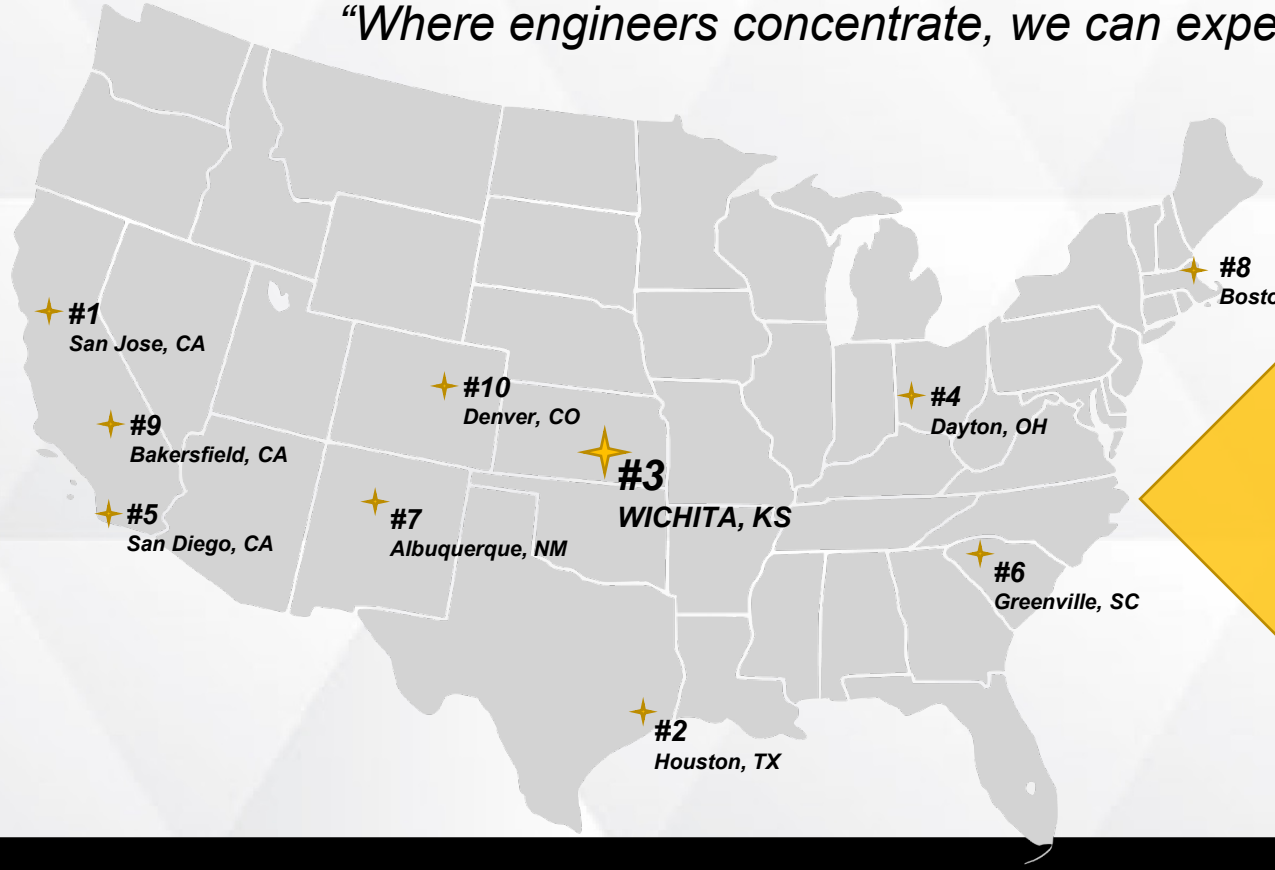
Science, technology, engineering, and math (STEM Occupations)

ADVANCED INDUSTRY HOTSPOT

RANKED **# 3** NATIONALLY

America's Engineering Hubs: The Cities With The Greatest Capacity For Innovation

"Where engineers concentrate, we can expect the greatest capacity for innovation."



WICHITA RANKS

#3

AMONG METROS FOR HIGHEST CONCENTRATION OF ENGINEERS PER 1,000 EMPLOYEES (22.4 / 1,000)

Aerospace Engineering – Industry Funded

WICHITA STATE UNIVERSITY #1

Engineering – Industry Funded

WICHITA STATE UNIVERSITY #3

- National Science Foundation

TODAY, IF YOU LOOK AT EVERY AIRPLANE FLYING
IN THE COMMERCIAL FLEETS AROUND THE WORLD,

26,000 AIRCRAFT

IN THE NEXT **20 YEARS** WE ARE GOING TO BUILD

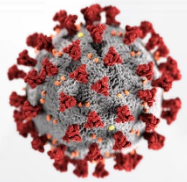
40,000 MORE.

In the past, every 10 to 12 years, there was a major up and down cycle in aerospace

CURRENTLY, WE ARE IN THE 18TH CONSECUTIVE YEAR OF AN UP

Air traffic is growing at about

7% PER YEAR



Post-COVID recovery is stronger than expected

SPIRIT AEROSYSTEMS®

KANSAS AVIATION INDUSTRY

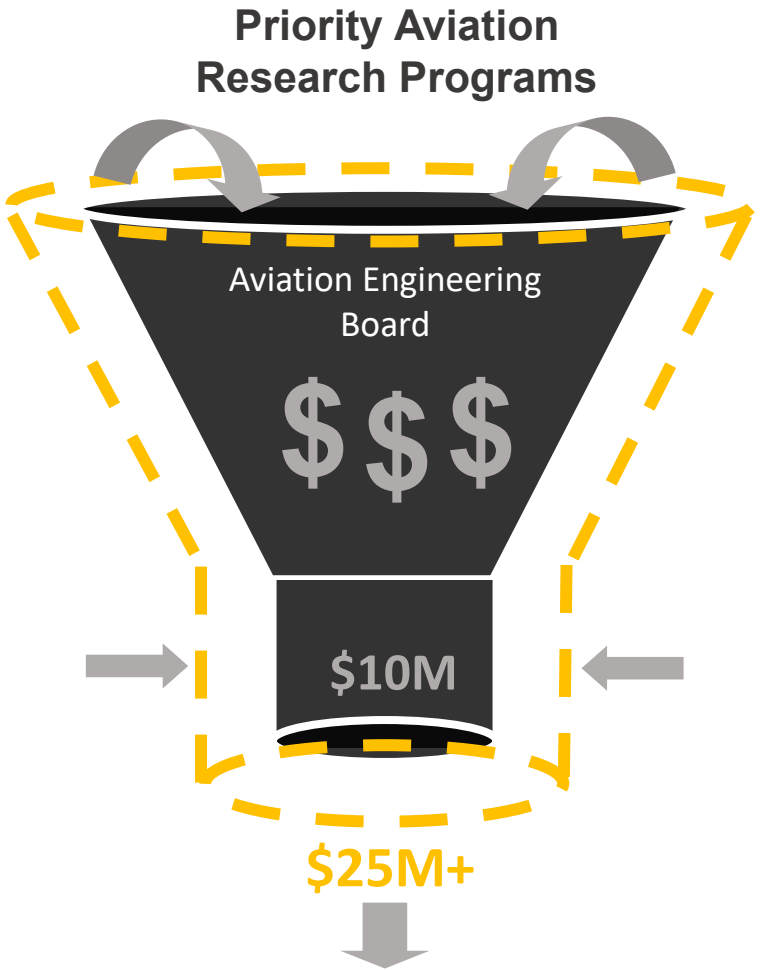
WHY THIS IS SO IMPORTANT TO US

- **KANSAS CONTRIBUTIONS**
  - **30,700** direct aerospace jobs and **113,590** indirect jobs as a result of the aerospace industry with an average wage of $70,381
  - Direct payroll of **$2.3 billion** and indirect payroll of **$5.2 billion**
  - Each aviation job generates an additional **3.7** jobs
  - Kansas Aerospace Products & Parts accounted for **21.5%** of all exports for Kansas

Sources: *Mfg Report CEDBR, Foreign Trade Division, U.S. Census Bureau, KS Dept of Labor, Bureau of Labor Statistics*

WICHITA STATE UNIVERSITY

KART RESEARCH PROGRAM OVERVIEW



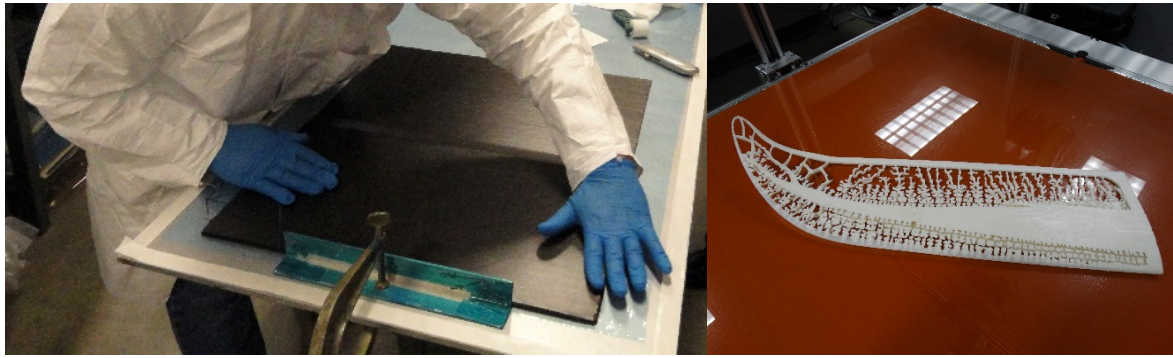
RESEARCH PROGRAM OVERVIEW

- Program been in place since 2003
- The protocol used by the program is for the ***industry*** to supply high priority research programs to increase KS competiveness in the global market.
- These programs are then downselected by the ***industry*** to fit within the available budget.
- Programs are continually reviewed every two weeks by ***industry*** points of contact to ensure deliverables are being achieved.

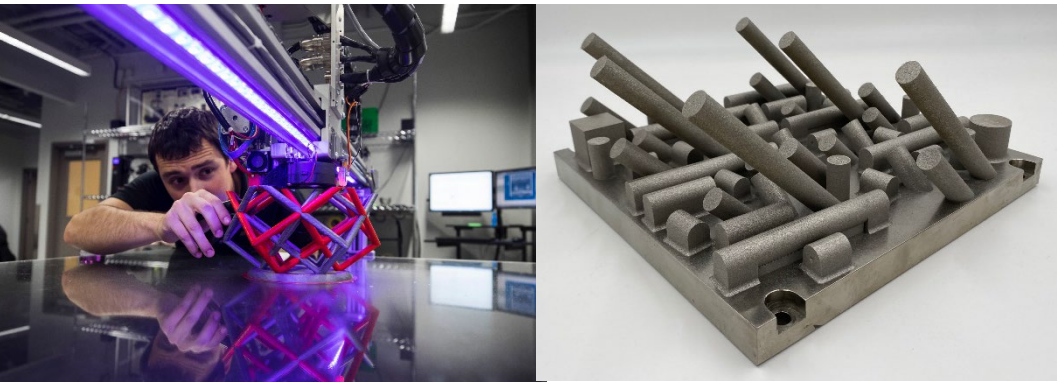
RESEARCH FUNDING DISTRIBUTION

2021

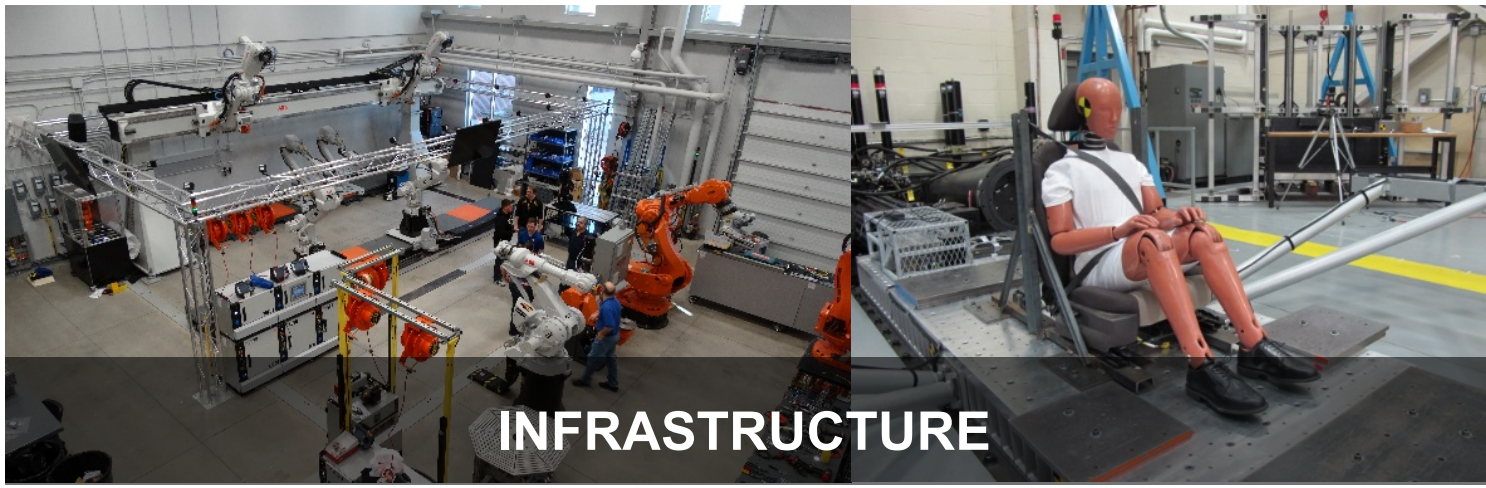
MATERIAL/STRUCTURES CHARACTERIZATION



COMPOSITE/ADVANCED MATERIALS



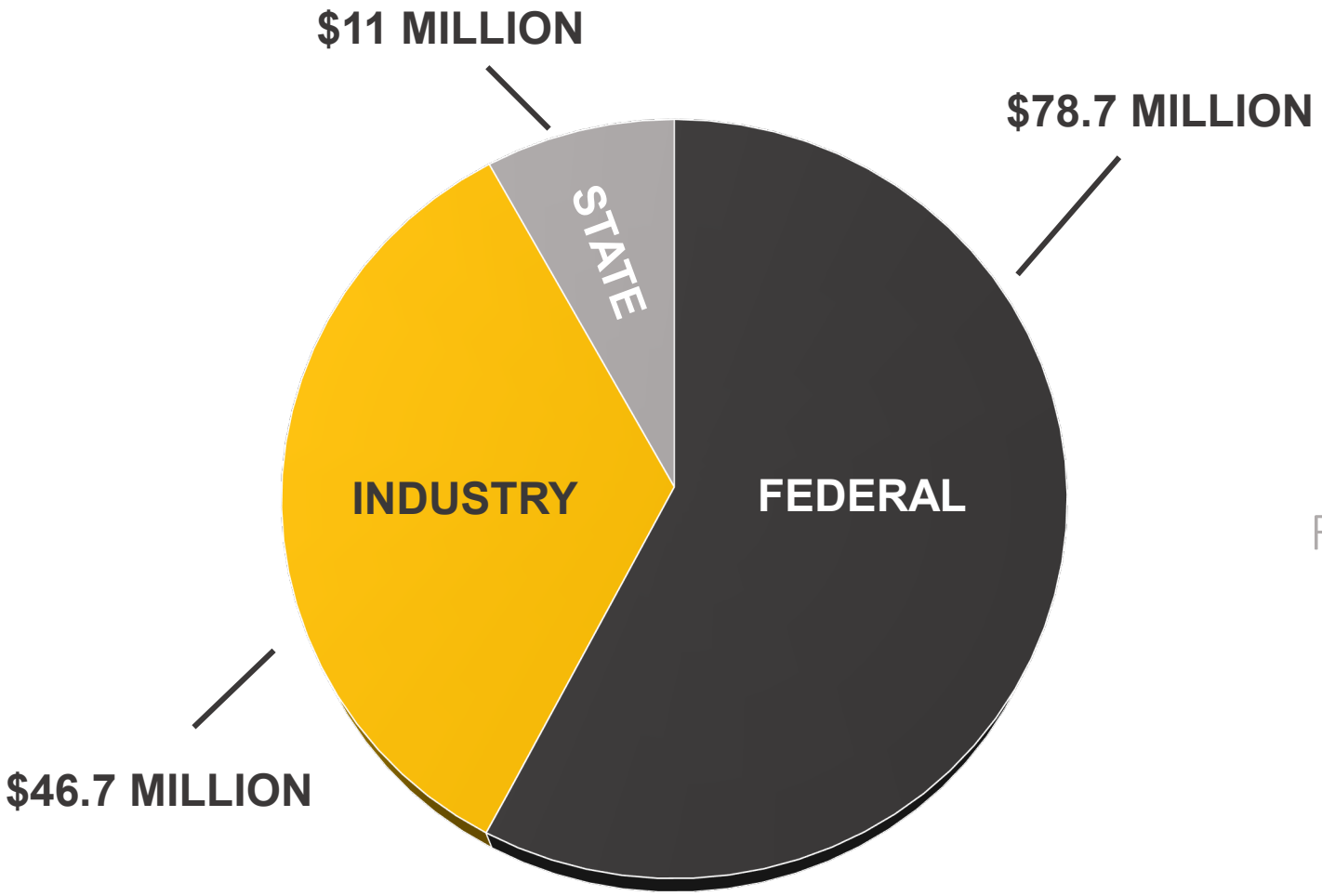
ADDITIVE MANUFACTURING



INFRASTRUCTURE

KANSAS AVIATION INDUSTRY

AWARDS 2021



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RETURN ON INVESTMENT

WICHITA STATE UNIVERSITY

NSF AERO R&D RANKINGS

2020 NSF HERD DATA

2020 TOTAL AEROSPACE R&D EXPENDITURES

- 204 MILLION — UTAH STATE UNIVERSITY
- 180 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 132 MILLION — JOHNS HOPKINS UNIVERSITY
- 131 MILLION — WICHITA STATE UNIVERSITY
- 97 MILLION — UNIVERSITY OF COLORADO BOULDER

Source: National Science Foundation Higher Education Research and Development survey 2020

2020 INDUSTRY-FINANCED AEROSPACE R&D EXPENDITURES

- 74 MILLION — WICHITA STATE UNIVERSITY
- 8 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 6 MILLION — MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- 4 MILLION — UNIVERSITY OF NOTRE DAME
- 4 MILLION — UTAH STATE UNIVERSITY

Source: National Science Foundation Higher Education Research and Development survey 2020

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DIGITAL TWIN

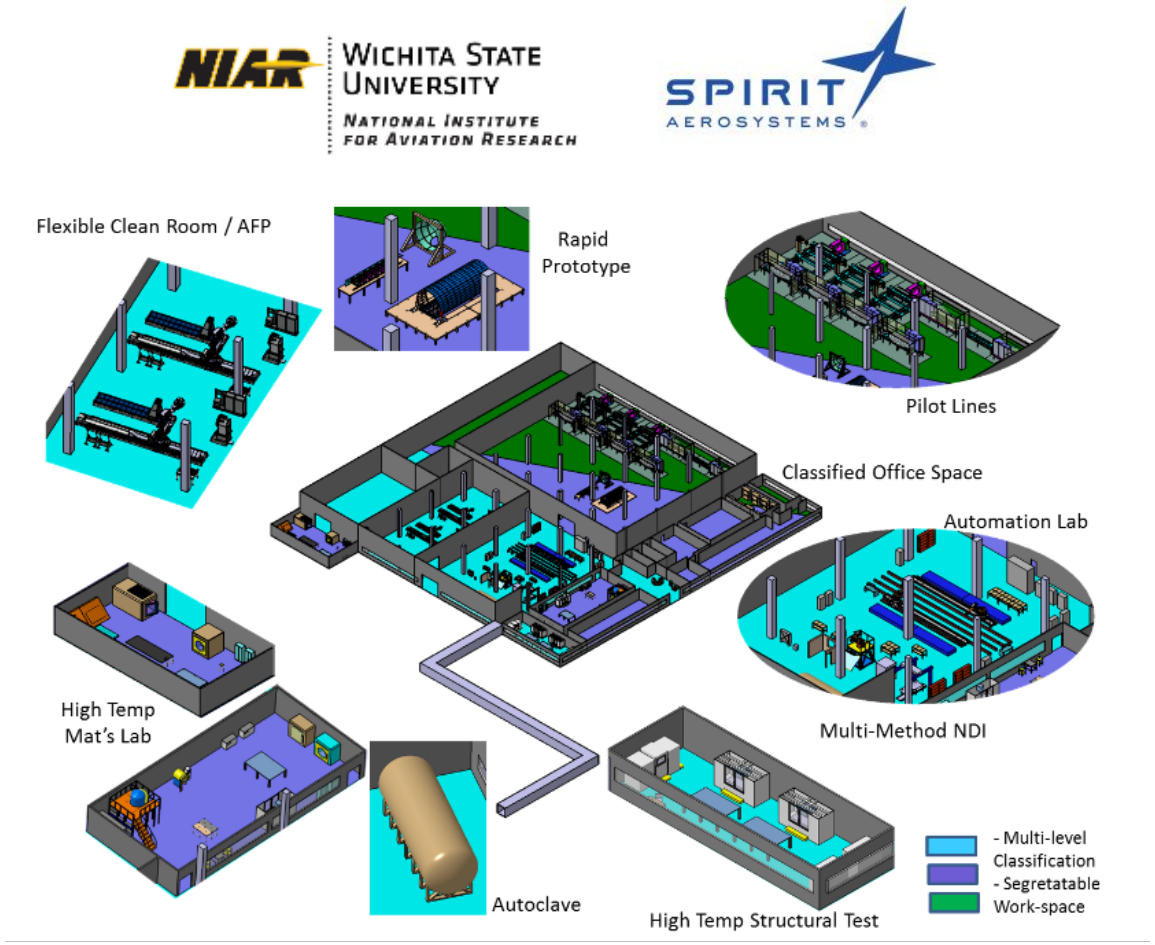
PUSHING THE BOUNDARIES OF DIGITAL ENGINEERING TO ADVANCE LEGACY AIRCRAFT INTO THE DIGITAL AGE

NIAR®

NATIONAL INSTITUTE FOR AVIATION RESEARCH

National Defense Prototype Center (NDPC)

- Joint collaboration between Wichita State University's National Institute for Aviation Research and Spirit AeroSystems.
- Provides a secure space for high temperature materials testing, development, prototyping and industrialization.
- More than 125,000 square feet of manufacturing and lab space with processing and characterization capabilities, including high temperature testing, furnaces for fabricating and processing materials, multi-method non-destructive inspection, robotic automated fiber placement technology and a large autoclave.



Joint Classified Center for Development, Prototyping, Industrialization & Test

NEW FUNDING TO KANSAS

$7.0 M

$10 M

$2.0 M

$500k

Wichita State University