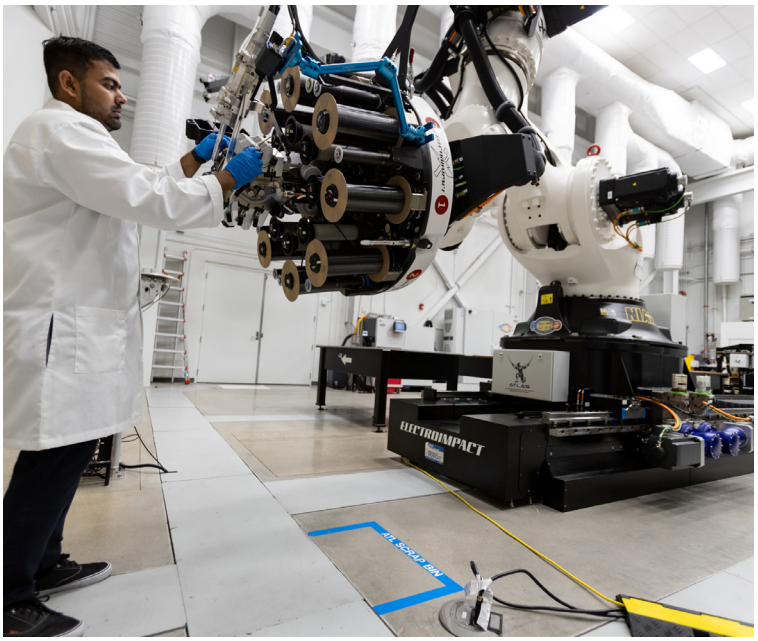
NATIONAL INSTITUTE FOR AVIATION RESEARCH
FY2024 LEGISLATIVE UPDATE

NIAR®

WICHITA STATE UNIVERSITY



NATIONAL INSTITUTE FOR AVIATION RESEARCH

WHERE TEST PLANS BECOME RESULTS

WICHITA, KANSAS
LOCATION

$380 MILLION
YEARLY R&D

1,900
EMPLOYEES

2 MILLION
SQUARE FEET

6 WICHITA AREA
LOCATIONS

1985
ESTABLISHED

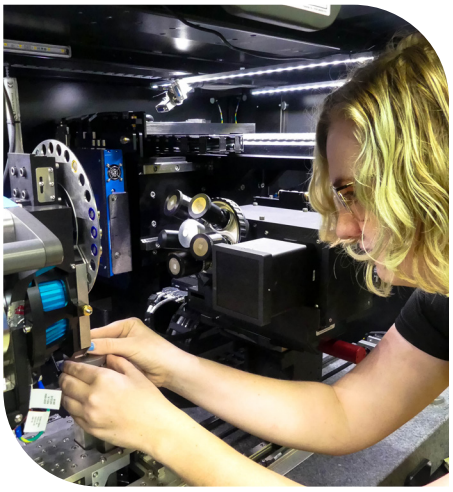
The National Institute for Aviation Research (NIAR) at Wichita State University provides research, testing, certification and training for aviation and manufacturing technologies.

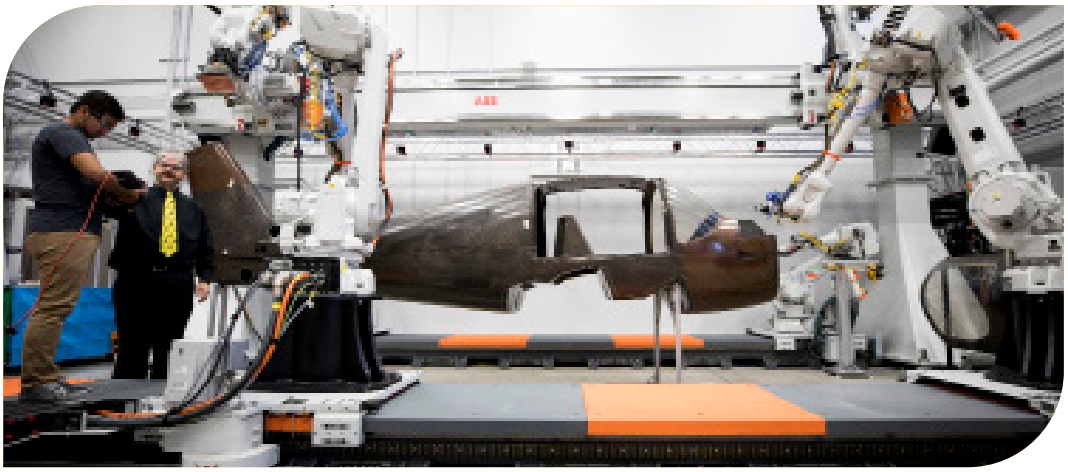
Established in 1985, NIAR has a $380 million annual budget; a staff of over 1,900; and 2 million square feet of laboratory and office space in six locations across the city of Wichita, the Air Capital of the World.

WWW.NIAR.WICHITA.EDU

AREAS OF EXPERTISE

- ADDITIVE MANUFACTURING
- ADVANCED COATINGS
- ADVANCED MANUFACTURING
- AERODYNAMICS
- BALLISTIC AND IMPACT DYNAMICS
- COMPOSITES AND ADVANCED MATERIALS
- CRASH DYNAMICS
- DIGITAL TWIN
- ENGINEERING DESIGN AND MODIFICATION
- ENVIRONMENTAL AND ELECTROMAGNETIC TESTING
- FLIGHT SIMULATION
- FULL-SCALE STRUCTURAL TESTING
- NONDESTRUCTIVE TESTING
- SUSTAINABILITY
- REVERSE ENGINEERING
- ROBOTICS AND AUTOMATION
- VIRTUAL ENGINEERING
- EXTENDED REALITY





LOCATION

NIAR'S LOCATION IS IDEAL CONSIDERING WICHITA'S STRONG MANUFACTURING AND AEROSPACE WORKFORCE.

WICHITA RANKS:

#1 in percentage of "very high-tech" manufacturing jobs of the 100 largest U.S. metro areas - *Lightcast 2021*

#1 for growth of jobs over the last 10 years - *Brookings 2020*

#3 U.S. Advanced Industry hotspot - *Brookings Institute*

#3 engineering hub in the U.S. - *Engineering Daily 2017*

3rd most engineers in the U.S. - Forbes

#4 in manufacturing jobs as a percentage of all jobs of the 100 largest U.S. metro areas - *Lightcast 2021*

Top 5 city for low start-up costs - *Smart Asset*

NIAR CENTERS

NIAR also runs several centers and initiatives that are strategically aligned with the institutes capabilities and mission including:

NATIONAL CENTER FOR ADVANCED MATERIALS PERFORMANCE (NCAMP)

The National Center for Advanced Materials Performance (NCAMP) is designed to provide the nation's commercial and military aviation industry with a center for the validation and quality assurance of composites and advanced materials. Both the FAA and EASA accept composites specification and design values developed using the NCAMP process. NCAMP works with the FAA, DoD and industry partners to qualify material systems and populate a shared materials database that can be viewed publicly.

WWW.NIAR.WICHITA.EDU/NCAMP

COMPOSITES MATERIALS HANDBOOK-17 (CMH-17)

The CMH-17 organization, administered by Wichita State University, provides information and guidance necessary to design and fabricate end items from composite materials. Its primary purpose is the standardization of engineering data development methodologies related to testing, data reduction, and data reporting of property data for current and emerging composite materials.

WWW.CMH17.ORG

FAA CENTER OF EXCELLENCE FOR COMPOSITES AND ADVANCED MATERIALS (CECAM)

CECAM is an FAA-sponsored consortium of universities competent in advanced materials research. CECAM is led by Wichita State University, which interacts directly with the FAA to support its advanced materials safety programs.

WWW.NIAR.WICHITA.EDU/CECAM

FAA CENTER OF EXCELLENCE FOR UAS RESEARCH

Wichita State University is a member of the Federal Aviation Administration Center of Excellence for Unmanned Aircraft Systems, which was awarded by the U.S. Department of Transportation in Washington in May 2015.

WWW.ASSUREUAS.ORG

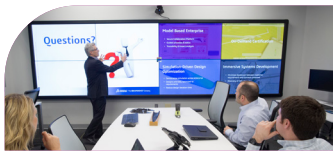
KANSAS AVIATION RESEARCH AND TECHNOLOGY GROWTH INITIATIVE (KART)

KART funds are provided to WSU-NIAR by the Kansas Department of Commerce and the Kansas Legislature with the goal of strengthening a variety of aircraft industry technologies and marketing them to other areas outside the State of Kansas and the United States. The funding supports research initiatives that benefit multiple aviation and manufacturing stakeholders in an effort to support the retention and growth of more than 30,400 direct aerospace jobs and 118,894 indirect jobs as a result of the aerospace industry with an average wage of $67,440, a total direct payroll of $2.3 billion and an indirect payroll of $5.2 billion. KART retains and grows the aviation cluster in Kansas and helps Kansas aviation companies remain competitive.

3D EXPERIENCE CENTER

The 3DEXPERIENCE® Center, a partnership with Dassault Systèmes, involves an interconnected community of top researchers, corporations and laboratories to accelerate innovation. The 3DEXPERIENCE Center enables organizations to engage in advanced product development and the manufacturing of next-generation materials and technologies including additive manufacturing, multi-robotic advanced manufacturing, reverse engineering and inspection, and virtual reality and immersive technologies.

WWW.NIAR.WICHITA.EDU/3DEXPERIENCE



AIRCRAFT STRUCTURAL TEST AND EVALUATION CENTER (ASTEC)

NIAR's Aircraft Structural Test and Evaluation Center (ASTEC) encompasses 130,000 square feet (39,000 square meters). The facility features include a 30x70-foot hangar door, a clear span of 265 feet (80 meters) and ceiling height of 48 feet (14 meters). The facility is currently home to the institute's Full-Scale Structural Test Lab, Mechanical Test Lab and Ballistics Lab.

WWW.NIAR.WICHITA.EDU/ASTEC

ADVANCED TECHNOLOGY LABORATORY FOR AEROSPACE SYSTEMS (ATLAS)

The Advanced Technologies Lab for Aerospace Systems – is a multi-disciplinary manufacturing environment and engineering education program to prepare engineers and educators for the Factory of the Future and to aid the current workforce in seamlessly adapting to advancements in the workplace.

WWW.NIAR.WICHITA.EDU/ATLAS

FIREPOINT AT WICHITA STATE

FirePoint partners with the United States Army to accelerate the delivery of innovative capabilities to the warfighter. FirePoint creates a collaborative and networked environment of national scop to investigate, collaborate and produce courses of action to solve technology and equipment challenges identified by the Army. As FirePoint's principal partner, the Army's Combat Capabilities Develoment Command Aviation and Missile Center (CCDC AvMC).

FIREPOINT.INFO

RECENT U.S. DEPARTMENT OF DEFENSE PROGRAMS

> WSU-NIAR is supporting multiple units of all major Department of Defense agencies with research and testing projects totaling more than $123 million.

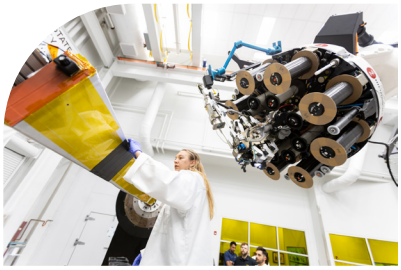
- AH-64 Apache Digitla Twin, U.S. Army Aviation
- B-1B Lancer Digital Twin, Air Force
- B-1B engineering and modificaiton support, U.S. Air Force
- F-16 Digital Twin, U.S. Air Force
- F-35 Teardown, Air Force, Navy, Marine Corps
- FirePoint joint R&D projects: technology development and transition, U.S. Army AMRDEC
- KC-135 Structural Teardown Data Management Visualization, Air Force
- M113 Digital Twin, Army AMC
- MQ-9 Reaper Airframe Durability and Damage Tolerance Testing, Air Force
- MQ-9 Reaper Airframe Static Testing, Air Force
- MQ-4 Triton Airframe Durability and Damage Tolerance Testing, Navy
- Skyborg Prototyping, Experimentation and Autonomy Development, Air Force
- UH-60L Black Hawk Digital Twin, Army AMC
- Modeling for Affordable, Sustainable Composites (MASC) research program, Air Force Research Laboratory
- Multi-university/agency research partnerships to develop techniques to enhance advanced material characterization and structural certification aided by high-fidelity damage modeling and efficient protocols for substantiation of advanced composite structures - AFRL, ONR, NAVAIR, DURIP, SBIR/ STTR
- National Defense Prototype Center
- Emerging Materials for High-Speed Missile Applications, DoD
- Digital engineering and technologies for the B-52 Stratofortress, C-130 Hercules, F-16 Fighting Falcon, B-1 Lancer, U.S. Air Force
- Modernization of IIntegrated Technology for Ground Systems (MINT-GS), U.S. Army

NIAR® Wichita State University
National Institute for Aviation Research

2023 HIGHLIGHTS

DECEMBER: $226M in Engineering R&D
WSU moved up seven places to # 13 on the list of top universities in total engineering R&D. For fiscal year 2022, WSU reported total engineering R&D expenditures of $226M, up from $192M in 2021.

NOVEMBER: Huntsville Location Grand Opening
NIAR and Firepoint Innovations Center hosted a grand opening event at the Big Spring Summit in the heart of downtown Huntsville, AL, showcasing 6,000 sq. ft. of newly renovated space in the Rocket City.



OCTOBER: Advanced Materials & Manufacturing Initiatives
NIAR is actively engaging multiple federal resources and programs to accelerate and expand growth of advanced materials and advanced manufacturing in the aviation industry in Wichita, Kansas and beyond; including $10M from FAA for metallic additive manufacturing and nonmetallic advanced materials research and a $51.4M grant from the EDA for smart manufacturing technology.

SEPTEMBER: NASA Space Spps Hackathon at NIAR ATLAS
A team of WSU grads working at Koch Industries won Wichita's NASA Space Apps challenge. Murphy Ownbey, Ethan Wells and Mirmukhammad Mirsodikov developed a web app that allows users to experience space images much like NASA researchers, merging visual and audio elements.

AUGUST: $100 Million USAF Contract for Digital Transformation
NIAR received a 5-year $100M cooperative agreement from the Office of the Assistant Secretary of the USAF for acquisition, logistics and product support for digital engineering and technologies to support sustainment and modifications for the B-52 Stratofortress, C-130 Hercules, F-16 Fighting Falcon and A-1 Lancer.

JULY: STRATO-T KC-135 Testbed
NIAR and the National Center for Manufacturing Sciences, through partnerships with the u.S. Transportation Command and the USAF air mobility command stablished a KC-135 Stratotanker innovation testbed in Wichita

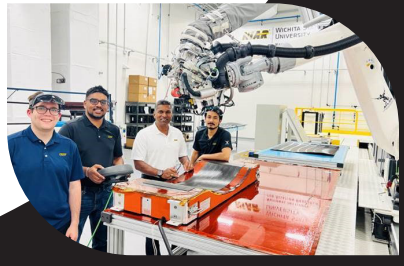
JUNE: McFarland R&D Partnership for Military Sustainment
Through a collaboration with McFarland R&D, NIAR expanded its burgeoning military fleet sustainment R&D capabilities. NIAR assumed operations of the facility, which focuses on unique airframe repair and replacement strategies, tooling development to support repairs and modifications and depot support.

MAY: Development of Additive Manufactured Metal replacement Part for Army
A 4-year collaboration with the u.S. Army Future Vertical Lift Cross Functional team led to the successful reverse engineering and production of a hydraulic ramp door actuator.

APRIL: Beech Wind Tunnel 75th Anniversary
NIAR's Walter H. Beech Wind Tunnel celebrated the 75th anniversary of the first test in the 7x10x12-foot tunnel, which continues to test aircraft models, recreational vehicles, UAS and more - at speeds of up to 230 mph with internal/external balances and flow visualization.

MARCH: $100M Army Contract for Ground System Digital Transformation
The U.S. Army Combat Capabilities Development Command Ground Vehicle Systems Center awarded NIAR a 5-year $100M contract to advance and modernize the Army's ground transportation fleet.

FEBRUARY: NIAR IAMIS wins JEC Composites Innovation Award
Developed by NIAR'S Advanced Technologies Lab for Aerospace Systems (ATLAS), the In-process AFP Manufacturing System attaches to the AFP head and employs machine-learning algorithms to detect manufacturing defects that are above the certification basis (or unacceptable).



JANUARY: WSU Ranks #20 in U.S. for Engineering R&D Funding
WSU moved into the list of the top 20 universities in engineering R&D expenditures according to data compiled by the NSF's Higher Education Research & Development survey. For fiscal year 2021, WSU reported total R&D expenditures of $192M – up from $154M in 2020.

NATIONAL INSTITUTE FOR AVIATION RESEARCH
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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

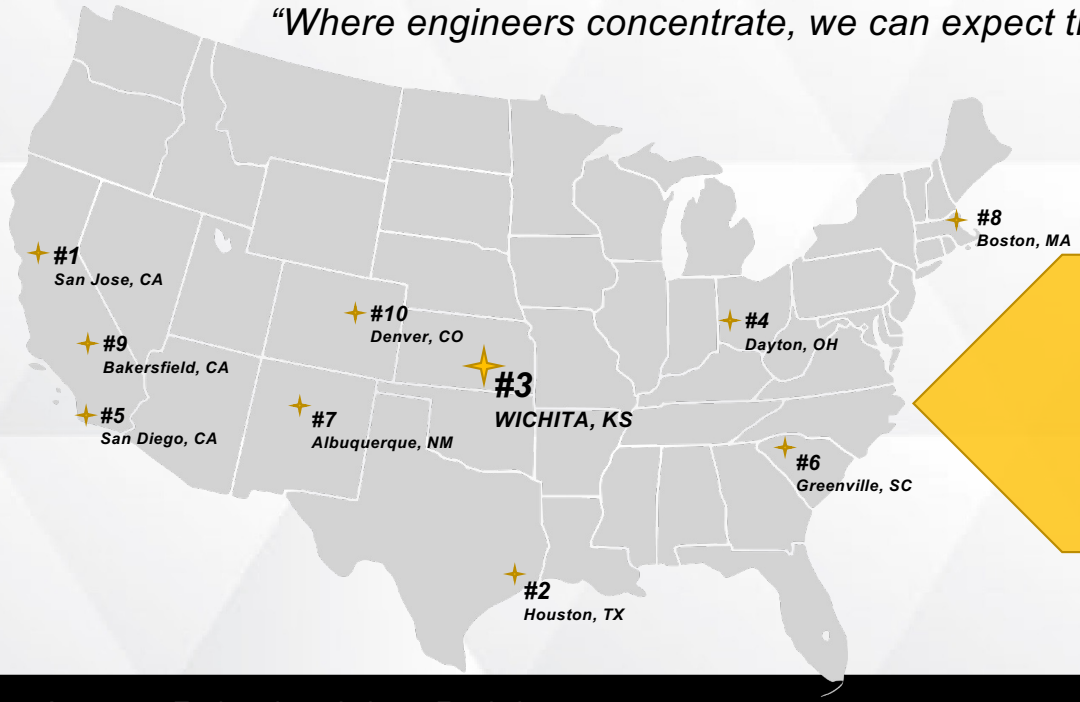
Science, technology, engineering, and math (STEM Occupations)

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

AEROSPACE MARKET

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

26,000

AIRCRAFT

AIR TRAFFIC'S LONG TERM GROWTH RATE

5.5% PER YEAR

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

40,000

MORE.

Source: PwC

PROJECTED GROWTH
28% IN 2023

AIR TRAFFIC RECOVERY
64% IN 2022

AIR TRAFFIC RECOVERY
22% IN 2021

COVID CONTRACTION
-70% IN 2020

Source: Worldwide, IATA

Beechcraft | Cessna | Hawker

TEXTRON AVIATION

BOMBARDIER LEARJET

7.8 % CAGR

SPIRIT AEROSYSTEMS®

And comprehensive network of 450+ precision machine shops, tool and die shops, and subcontract manufacturers.

KANSAS AVIATION INDUSTRY

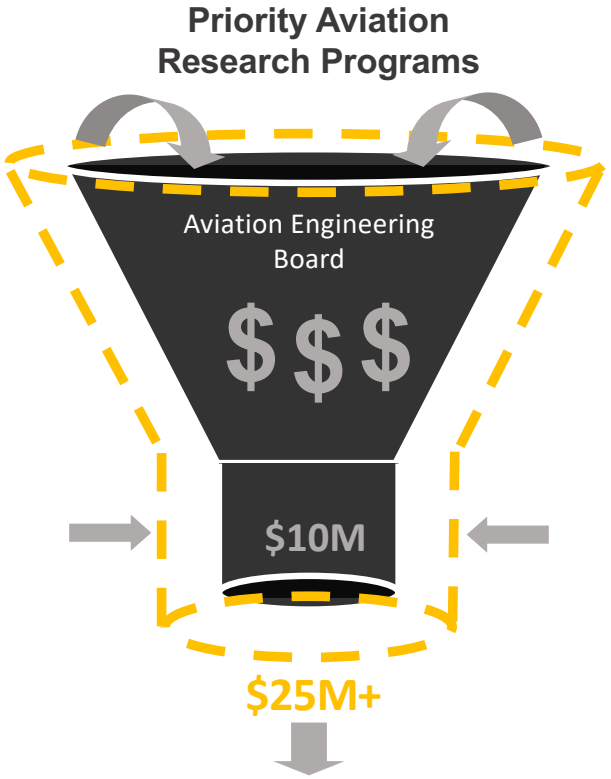
WHY THIS IS SO IMPORTANT TO US

- **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



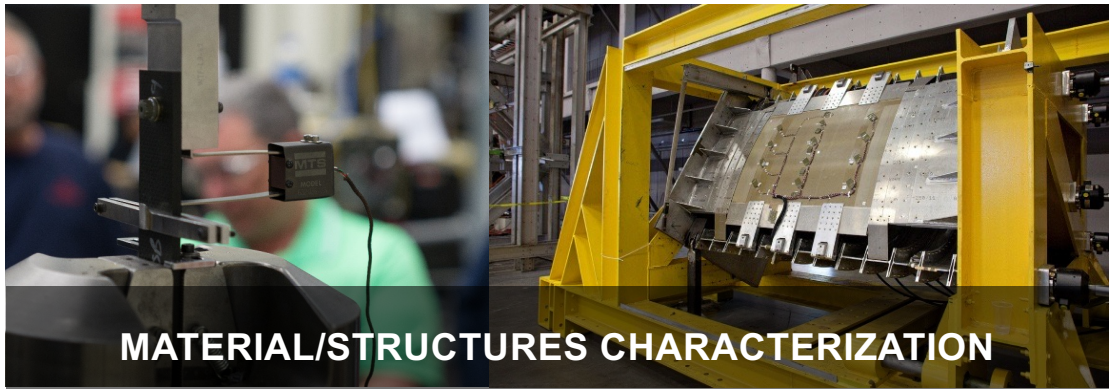
RESEARCH PROGRAM OVERVIEW

- 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.

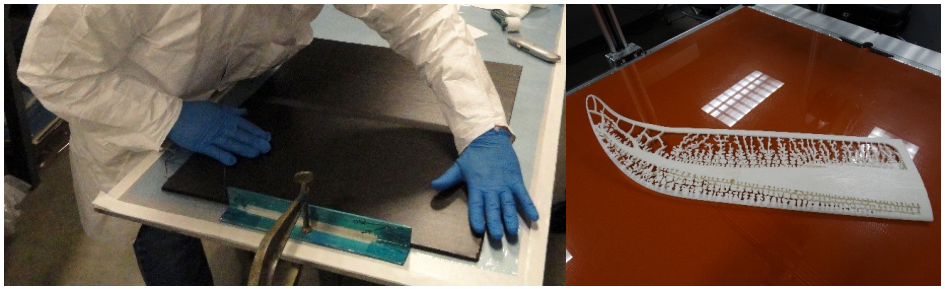
Wichita State University

RESEARCH FUNDING DISTRIBUTION

2023

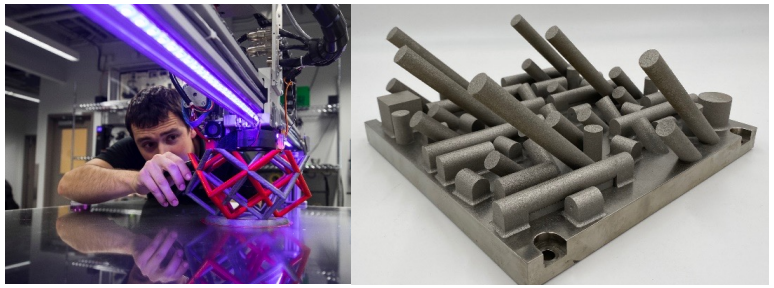


MATERIAL/STRUCTURES CHARACTERIZATION



COMPOSITE/ADVANCED MATERIALS

eVTOL

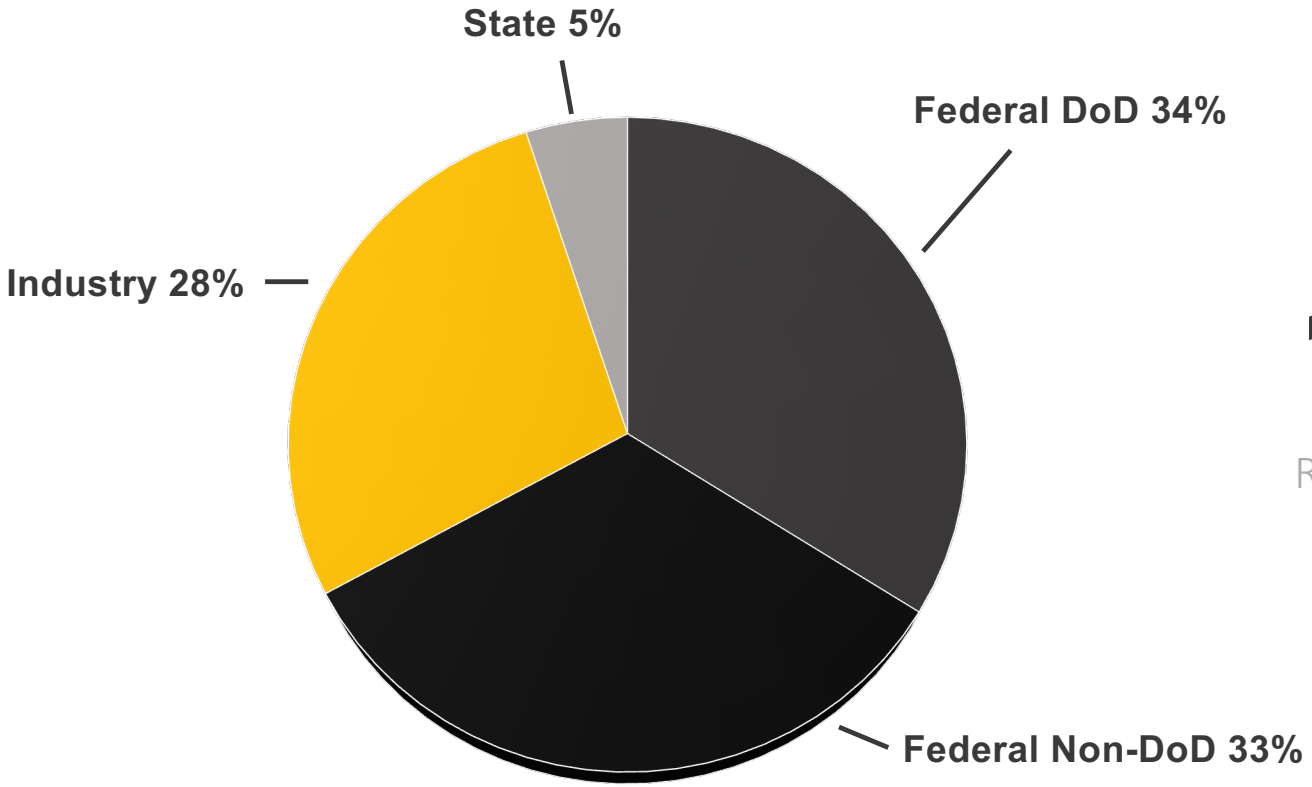


ADDITIVE MANUFACTURING

INFRASTRUCTURE

KANSAS AVIATION INDUSTRY

AWARDS 2023



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RETURN ON INVESTMENT

WICHITA STATE UNIVERSITY

COMPARISON IN SPECIALITY AREAS

Source: 2022 NSF HERD Survey

2022 WICHITA STATE UNIVERSITY
R&D EXPENDITURES RANKINGS

- **#1** ($115 MILLION) **INDUSTRY-FUNDED AEROSPACE** R&D EXPENDITURES
- **#2** ($116 MILLION) **INDUSTRY-FUNDED ENGINEERING** R&D EXPENDITURES
- **#3** ($220 MILLION) **AEROSPACE** R&D EXPENDITURES
- **#10** ($120 MILLION) **INDUSTRY-FUNDED** R&D - ALL CATEGORIES
- **#13** ($226 MILLION) **ENGINEERING** R&D - ALL FUNDING SOURCES

2022 TOTAL ENGINEERING
R&D EXPENDITURES

- 1.3 BILLION — JOHNS HOPKINS UNIVERSITY
- 935 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 411 MILLION — SUNY POLYTECHNIC INSTITUTE
- 402 MILLION — TEXAS A&M COLLEGE STATION & HEALTH SCIENCES
- 397 MILLION — MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- 385 MILLION — PENNSYLVANIA STATE UNIVERSITY PARK & HERSHEY MEDICAL CENTER
- 319 MILLION — UNIVERSITY OF TEXAS
- 312 MILLION — PURDUE UNIVERSITY
- 299 MILLION — UNIVERSITY OF MICHIGAN
- 260 MILLION — VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
- 259 MILLION — UTAH STATE UNIVERSITY
- 228 MILLION — UNIVERSITY OF ILLINOIS
- **226 MILLION — WICHITA STATE UNIVERSITY**

2022 TOTAL AEROSPACE
R&D EXPENDITURES

- 282 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 230 MILLION — UTAH STATE UNIVERSITY
- **220 MILLION — WICHITA STATE UNIVERSITY**
- 165 MILLION — JOHNS HOPKINS UNIVERSITY
- 115 MILLION — UNIVERSITY OF COLORADO BOULDER

Source: National Science Foundation Higher Education Research and Development survey 2022

2022 INDUSTRY-FINANCED ENGINEERING R&D EXPENDITURES

- 169 MILLION — SUNY POLYTECHNIC INSTITUTE
- **116 MILLION — WICHITA STATE UNIVERSITY**
- 68 MILLION — MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- 59 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 54 MILLION — OHIO STATE UNIVERSITY

Source: National Science Foundation Higher Education Research and Development survey 2022

2022 INDUSTRY-FINANCED AEROSPACE R&D EXPENDITURES

- **115 MILLION — WICHITA STATE UNIVERSITY**
- 12 MILLION — UNIVERSITY OF NOTRE DAME
- 9 MILLION — GEORGIA INSTITUTE OF TECHNOLOGY
- 7 MILLION — MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- 4 MILLION — VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Source: National Science Foundation Higher Education Research and Development survey 2022

2022 INDUSTRY-FINANCED
R&D EXPENDITURES

- 241 MILLION — UNIVERSITY OF TEXAS M.D. ANDERSON CANCER CENTER
- 208 MILLION — DUKE UNIVERSITY
- 204 MILLION — UNIVERSITY OF PENNSYLVANIA
- 169 MILLION — SUNY POLYTECHNIC INSTITUTE
- 165 MILLION — MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- 141 MILLION — OHIO STATE UNIVERSITY
- 138 MILLION — STANFORD UNIVERSTIY
- 128 MILLION — UNIVERSITY OF CALIFORNIA SAN FRANCISCO
- 121 MILLION — WASHINGTON UNIVERSITY IN SAINT LOUIS
- **120 MILLION — WICHITA STATE UNIVERSITY**

NIAR DIGITAL TWIN PROGRAMS

UH-60 L/M/V Blackhawk

2,135 HELICOPTERS

F-18 C/D

230+ AIRCRAFT

B-1B LANCER

45 AIRCRAFT

F-16 VIPER

939 AIRCRAFT

AH-64 D APACHE

800 HELICOPTERS

C-130 Hercules

2,500+ AIRCRAFT

B-52 STRATOFORTRESS

76 AIRCRAFT

5,000 VEHICLES

M-113 ARMORED PERSONNEL CARRIER

T-38 Wing

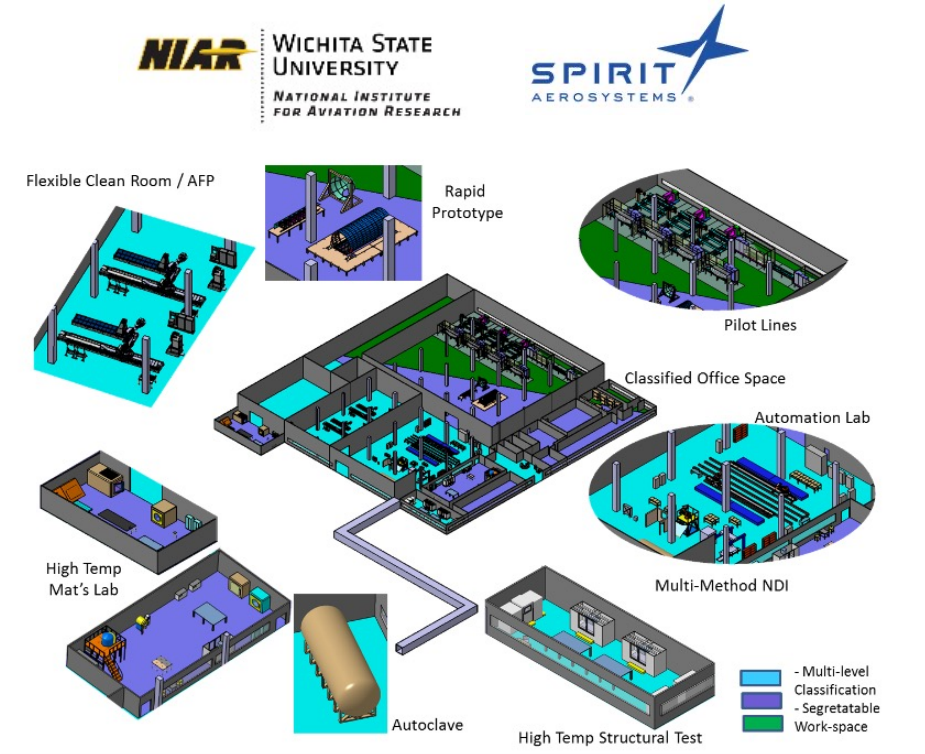
500 AIRCRAFT

>1,800 ENGINES

F100 ENGINES

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

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NIAR | WERX
AT WICHITA STATE UNIVERSITY

DIGITIAL TRANSFORMATION : MAINTENANCE, REPAIR, & OVERHAUL (MRO) AT NIAR WERX

WSU | WICHITA STATE UNIVERSITY

NIAR | WERX AT WICHITA STATE UNIVERSITY LOCATIONS

ENGINEERING SERVICES FLIGHT TEST CENTER	**NIAR WERX HEADQUARTERS** Air Capital Flight line BLDG23L
ENVIRONMENTAL TEST	**WERX TESTING** Air Capital Flight line BLDG13L
MODIFICATION REPAIR & OPERATIONS	**WERX MRO SITE 1** Air Capital Flight Line BLDG140H
MODIFICATION REPAIR & OPERATIONS	**WERX MRO SITE 2** Air Capital Flight Line BLDG163N
MODIFICATION REPAIR & OPERATIONS	**WERX MRO SITE 3** Air Capital Flight Line BLDG165N

NIAR WERX Growth Timeline

2012 Boeing Leaves Kansas – Kansas is no longer modifying large aircraft

2018 NIAR WERX starts - 55 Engineers working @ campus for one customer

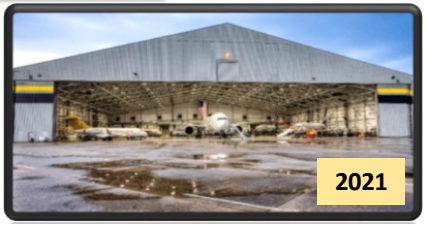
2019 NIAR WERX Grows to 100, leases old Boeing Engineering Building

2020 NIAR WERX Grows to 200, adds NIAR Environmental Test Lab to WERX

2021 NIAR WERX Grows to 400, ***adds MRO 140H (Air Force One Hangar)***

2022 NIAR WERX Grows to 550, adds New 80K square foot Hangar

2023 NIAR WERX currently @ 650, ISO AS9100/AS9110 certified, Telemetry facilities and Hangar 165N



250 MRO jobs added

NIAR WERX will add 150+ Kansas Jobs a Year

NIAR | WERX AT WICHITA STATE UNIVERSITY MRO

Secure long-term growth aligned with KS "Framework for Growth"

- ✓ Create and retain jobs in new and expanding market sectors
- ✓ Develop MRO, Flight Test, & Modification capability
- ✓ Development projects to attract and retain new business
- ✓ Support all three pillars of KBORs "Building a Future"

NIAR WERX will enable the State, Military and Private sector to:

- ✓ Diversify the Kansas aerospace market
  - ✓ MRO, UAS, Hyper/Supersonic, Modification, Flight Test
- ✓ Accelerate frequency of new product development
  - ✓ Traditional and new market sectors
- ✓ Make Kansas the location of choice
  - ✓ Reduce non-recurring cost via non-profit cost structure
- ✓ Maximize utilization of new Supersonic Transportation Corridor
- ✓ Support the modern-day warfighter via Joint Test & Evaluation Site

Leveraging Wichita, Salina and Topeka workforces and institutions

NIAR | WERX
AT WICHITA STATE UNIVERSITY

State of Kansas MRO Vision

Create a unique MRO capability unmatched in the world

Current Programs

- Aero Air MD87 Fire Tanker Modification
  - ✓ 7 Aircraft being maintained by MRO
  - ✓ 1 Aircraft modification completed
  - Potential for 3 More Aircraft to undergo Modification in Wichita by 2025

- Dynamic Aviation 737 Aerial Sprayer Modification
  - ✓ 3 aircraft completed
  - Potential for 3 more AC on contract by 2025

- Kansas Mod Center 777 Passenger to Freighter Modification
  - One 777 arrived in Wichita Oct 2021
    - ✓ Initial flight test completed
    - Delayed due to program funding delays
  - Plan to complete and deliver 7 AC in 2025 and 10 AC in 2026
  - Plan to complete and deliver 12 AC per year with Salina in 2027

Current workforce @ WERX 575 heads + 75 students

Current Programs

- Military Work: B-1B, UH60, T38, B-52, commercial derivative
  - CATIA Checking/Modeling support for Digital Twin activity
  - Finite Element Modeling for future modification as required to keep AC flying
  - B-1 Weapons release simulation activity
  - Engineering and test support to B52
  - Initial design of a commercial derivative platform
  - Defense Contract Management Agency approval for operations

- EVTOL: Electric Vertical Take-Off and Landing
  - Full aircraft systems test rig
  - Engine and battery testing

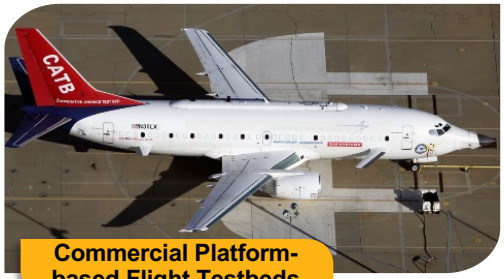
EVTOL AC

UH-60 L/M/V

Structural Analysis
Flight Test Support

T-38 Wing

Wing Redesign



Commercial Platform-based Flight Testbeds

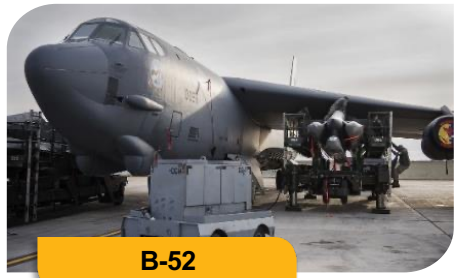
Engineering, Design, Integration, Modification, and Flight Test

Commercial Derivatives

AC Design
AC Maintenance
AC Modification

B-1B BOMBER

Structural Analysis
External Loads
Weapons Support



B-52

WERX Work
Engineering Support
Flight Test

737-500 Oil Spill Response Program

Aircraft Modification Program

- AC 1 Design Manufacture Modification and Operational in 14 months
- AC 2 Deployed in 18 months
- AC 3 Deployed in 24 months
- STC completion 28 months from program launch

MD-87 Fire Bomber Conversion and Winter MX

Aircraft Modification Program

Erickson STC Installation

- One aircraft modified to Fire Bomber configuration
- Potentially 1 more STC incorporations by 2025

Aircraft Maintenance Program

7 AC Maintenance A-Check/C-Check per year

- Aircraft return to Wichita for maintenance in the “off season”

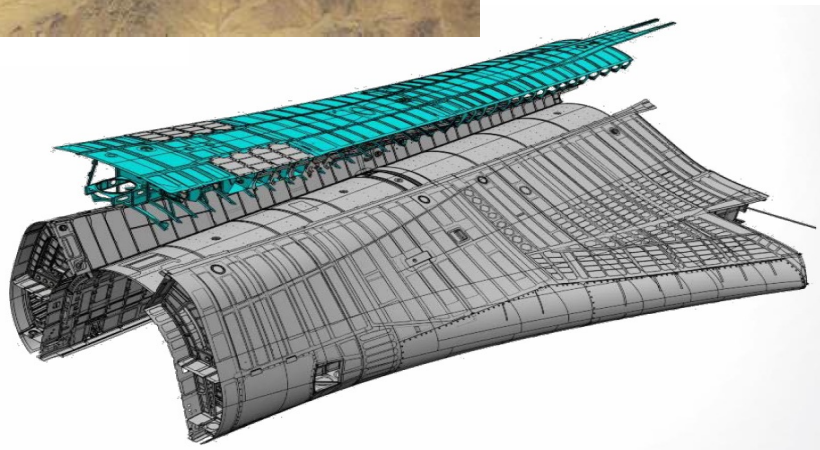
Future Programs

- Commercial Aircraft
  - 777 P2F Modification - Deliver 7 AC in 2025, 10 AC in 2026
  - Aero Air MD87 Fire Tanker Modification - Potential for 1 More AC 2024-2025
  - Boeing X-66A, development of Sustainable Flight Demonstrator
- Military Work: B-52, KC-135, commercial derivative aircraft
  - Flight Test and Mods B-52
  - Flight Test and Mods KC-135
  - E4B with SNC
  - Flight Test Demonstrator for NG
  - Bidding on Hades with BA and NG (up to 17 A/C)
- Business and Small Aircraft Work opportunities
  - Test support to EVTOL aircraft
  - Support Honda Jet development of new A/C

WERX future workforce projecting an additional 150 Jobs each year

Future Programs

- Military Work B1B Bomber
  - Skin panel replacement for B-1
  - Weapons development on B-1

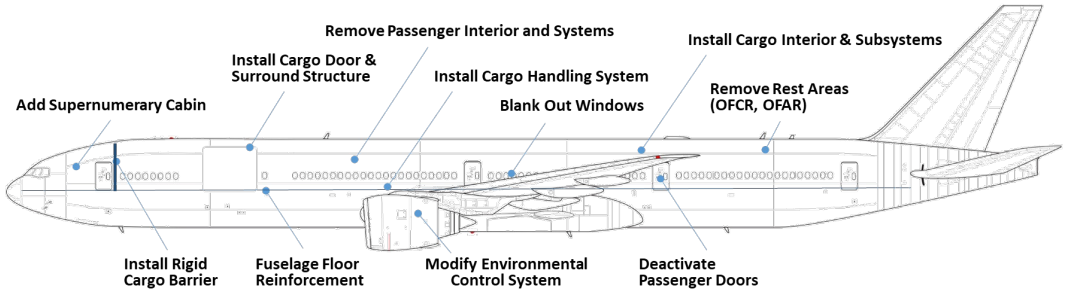


WERX future workforce projecting an additional 150 Jobs each year

777-300 P2F Conversion

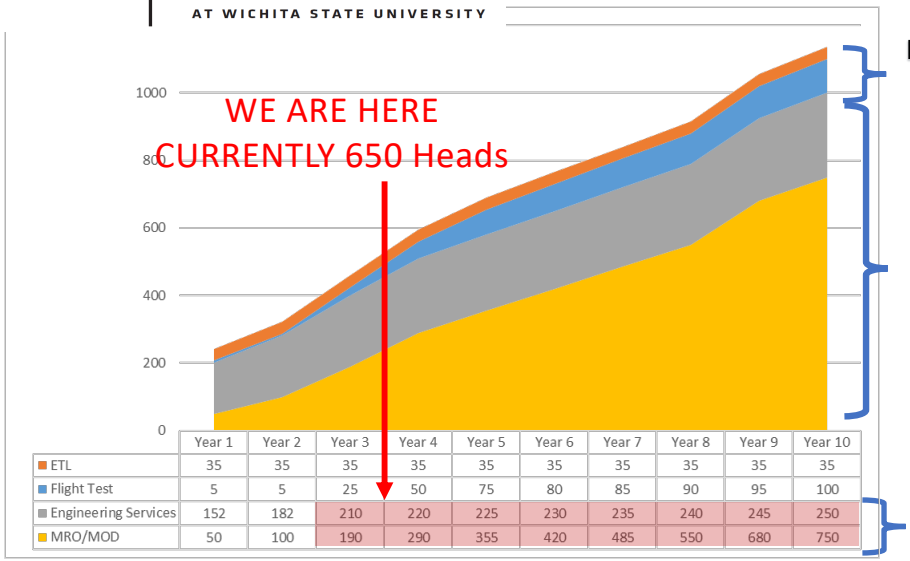
Annual Multi Aircraft Program

- FAA has accepted the Certification Plan
- Preliminary design is complete
- Detailed design underway with parts being manufactured
- Heavy Aircraft Modification Effort
- Ground and Flight Certification Testing
- FAA STC Certification and Delivery – 2025



On course for FAA Certification

777 P2F Kansas Jobs



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
ETL	35	35	35	35	35	35	35	35	35	35
Flight Test	5	5	25	50	75	80	85	90	95	100
Engineering Services	152	182	210	220	225	230	235	240	245	250
MRO/MOD	50	100	190	290	355	420	485	550	680	750

Development Programs

Conversion Programs

Up to 1000 jobs

- Engineering
- Test and Certification
- MRO / Modification
- Customer Support

Program Phases

Years 1-2 Design & Cert → Years 1-3 Wichita MRO → Years 3-7 +Salina & Topeka MRO

Sites

Wichita Design and MRO

Up to 4 production lines

8 aircraft per year

Salina and Topeka MRO

Up to 4 production lines

8 aircraft per year

16 aircraft per year at full rate

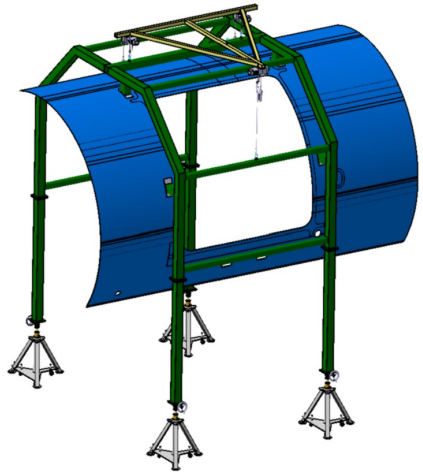
- NIAR model successful in many areas
  - Nationally renown R&D labs, training and structural & materials centers of excellence
- Extend the model into key new areas
- NIAR WERX (Putting Research to Work)
  - ✓ Engineering Services: 400+
  - ✓ Environmental Test Lab: 35+ jobs
  - ✓ Wichita MRO 300 jobs

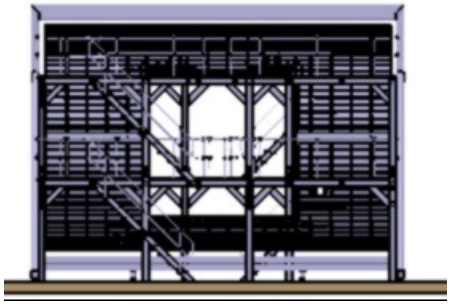
NEW

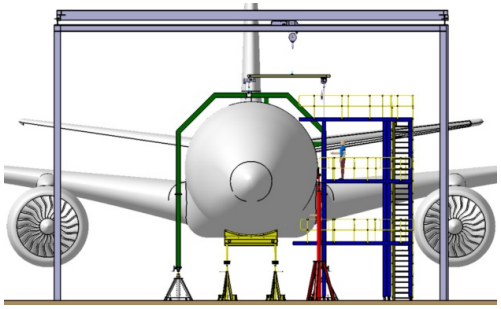
- New: MRO and modification: 750 jobs
- New: Flight Test Center: 75-100 jobs

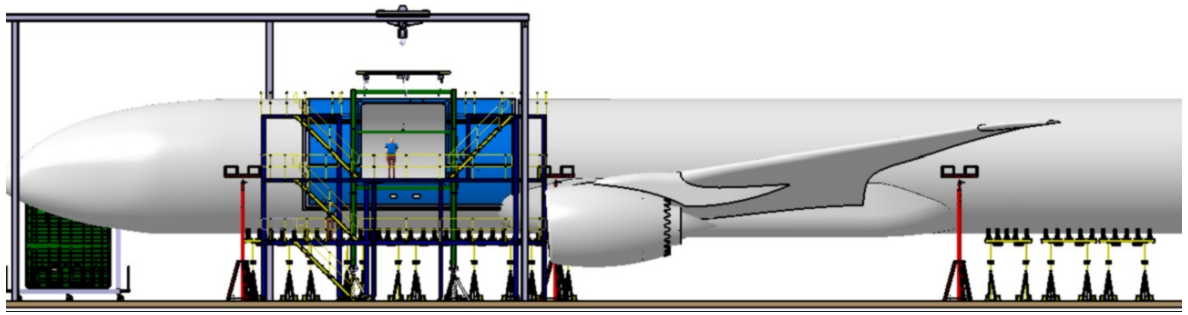
Tooling and GSE Needed

- 777 P2F Tooling Design and Fabrication in work by NIAr with aircraft rate buildup considerations
- Extensive A/C Scanning In Work and Digital Alignment Processes Planned
- Obtaining 777 Ground Support Equipment aligning with schedule









All Tooling being manufactured in Kansas

GET TO WERX

To date 75 Students in Program

Get To WERX is a three-year earn & learn program that offers full-time, paid employment with NIAR WERX while progressing through WSU Tech's Aviation Maintenance Technology program and simultaneously earning credits towards the Bachelor of Applied Sciences degree in Organizational Leadership and Learning at Wichita State University.

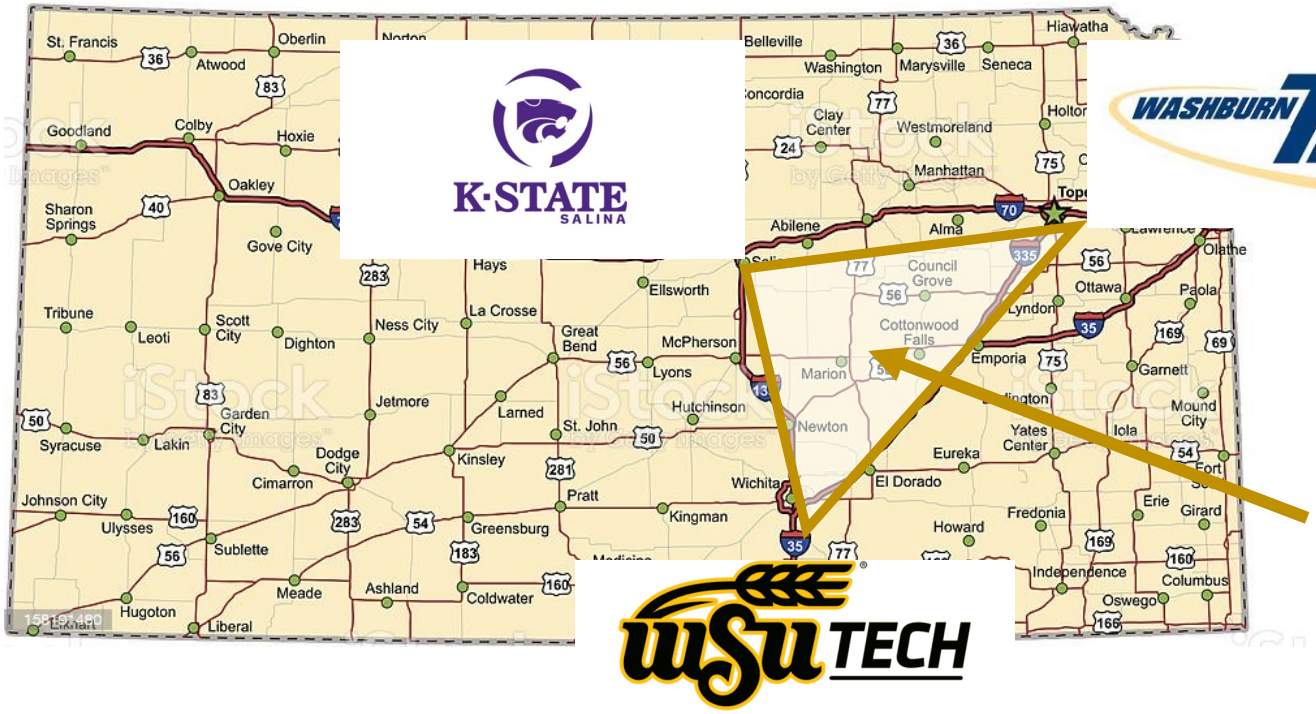
- 9 semesters (3 years)
- 2 cohorts annually
- NIAR WERX Pays: Wages and Tuition*
- Eligible to sit for FAA Certifications in Airframe & Powerplant

*Tuition reimbursement upon successful completion of each semester

WSU TECH | WSU WICHITA STATE UNIVERSITY | NIAR WERX AT WICHITA STATE UNIVERSITY

NIAR | WERX AT WICHITA STATE UNIVERSITY

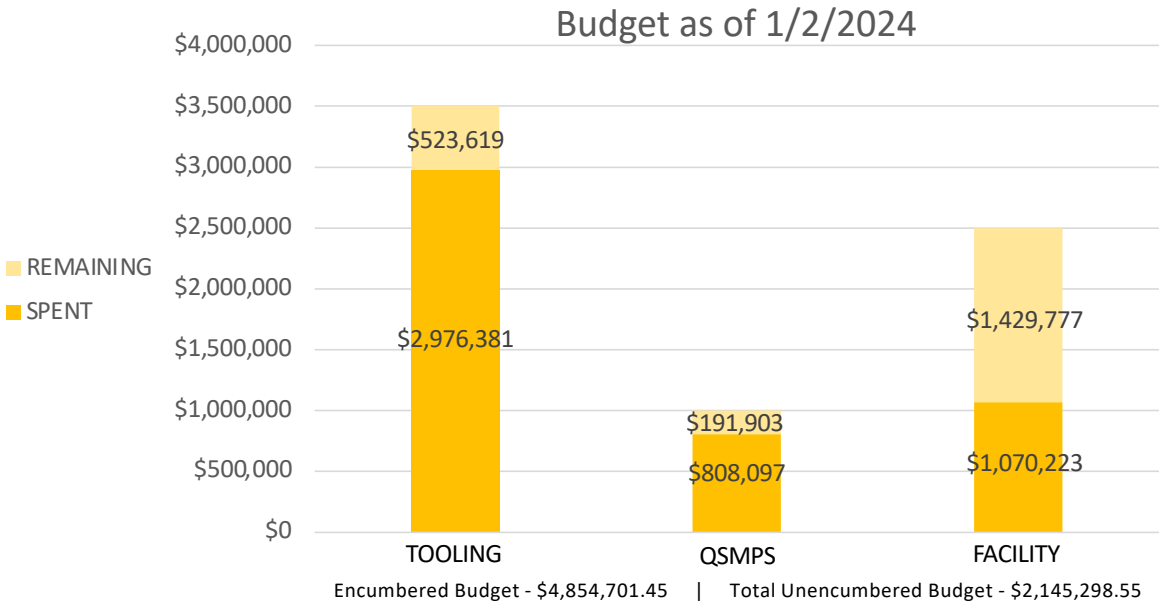
Grow a workforce to support

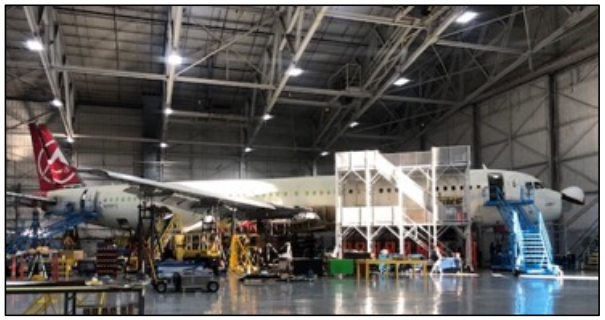


Create a unique MRO workforce system unmatched in the world

2023-2024 $7M Spend Plan in MRO

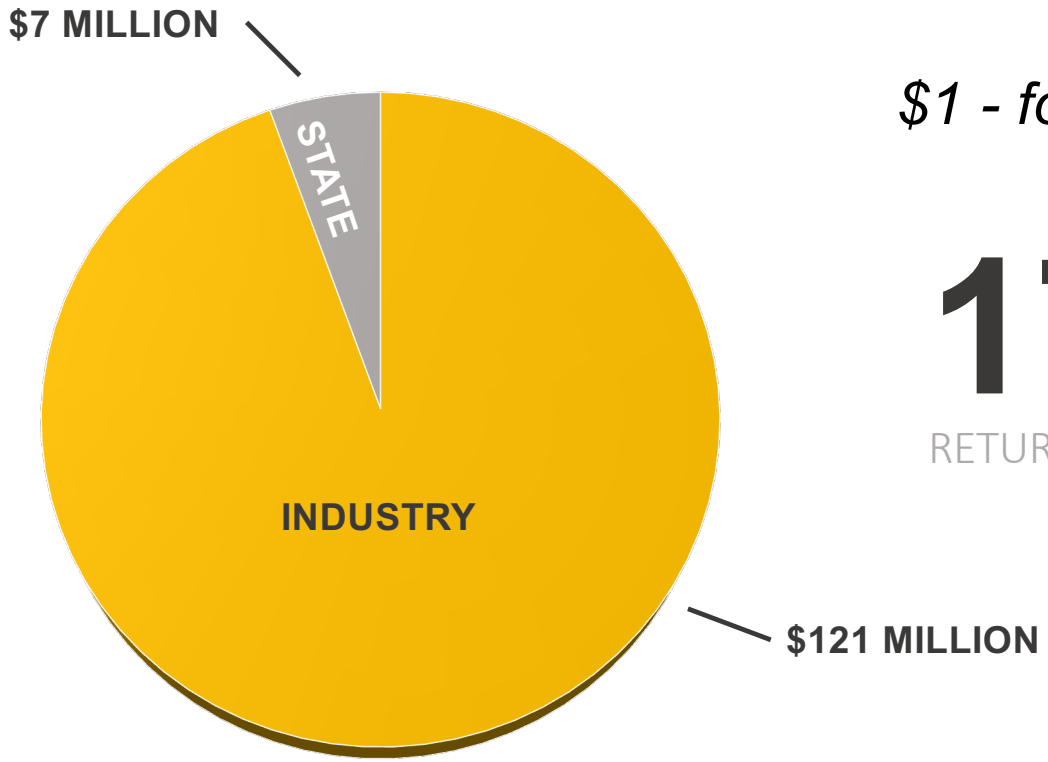
Budget	**$7.0M**
Mod and Maintenance Tooling	$3.5M
Quality System Maintenance Processes and Software (QSMPS):	$1.0M
Facility Upgrade and Enhancements	$2.5M





MATCH FUNDS FROM AVIATION INDUSTRY

AWARDS : JANUARY 2023 – December 2023



$1 - for - $1 basis for match

17.3:1

RETURN ON INVESTMENT

Wichita State University

NCAT

NATIONAL CENTER FOR AVIATION TRAINING

NATIONAL INSTITUTE FOR AVIATION RESEARCH

FY2023 LEGISLATIVE UPDATE

NCAT

NATIONAL CENTER FOR AVIATION TRAINING

Located in Wichita, KS, the National Center for Aviation Training (NCAT) is a state-of-the-art aviation facility that offers cutting-edge training and world-class research. Areas of expertise include most facets of general aviation manufacturing, research, engineering, testing and airframe and powerplant maintenance.

For every $1 spent by...

TAXPAYERS

$11.60

Gained in added taxes and public sector savings for TAXPAYERS

SOCIETY

$22.60

Gained in added state revenue and social savings for SOCIETY

WSU TECH

DEPARTMENT	CATEGORY	INVESTED FUNDS	% OF TOTAL FUNDS
AEROSPACE MANUFACTURING TECHNOLOGY	EQUIPMENT	$3,194	4%
	STUDENT INSTRUCTIONAL TRAINING	$176,948	
AVIATION FLIGHT SCHOOL	EQUIPMENT	$15,327	4%
	SOFTWARE	$12,585	
	STUDENT INSTRUCTIONAL TRAINING	$189,236	
AVIATION MAINTENANCE TECHNOLOGY	EQUIPMENT	$207,963	23%
	SOFTWARE	$14,512	
	STUDENT INSTRUCTIONAL TRAINING	$748,809	
AERO COATING & PAINT	EQUIPMENT	$232,217	3%
AVIATION TRAINING & SUPPORT	CAREER SUPPORT	$30,000	5%
	ACADEMIC SUPPORT	$326,212	
AVIONICS & ELECTRONICS TECHNOLOGY	STUDENT INSTRUCTIONAL TRAINING	$70,520	1%
CATIA MECHANICAL ENGINEERING DESIGN	STUDENT INSTRUCTIONAL TRAINING	$190,306	5%
COMPOSITE TECHNOLOGY	STUDENT INSTRUCTIONAL TRAINING	$94,309	2%
ENGINEERING DESIGN TECHNOLOGY	EQUIPMENT	$2,262	5%
	SOFTWARE	$5,580	
	STUDENT INSTRUCTIONAL TRAINING	$82,334	
INDUSTRIAL AUTOMATION AND MACHINE MAINTENANCE	EQUIPMENT	$20,719	1%
	SOFTWARE	$37,667	
NCAT INFORMATION TECHNOLOGY SYSTEMS	EQUIPMENT	$373,214	18%
	SOFTWARE	$615,413	
MACHINING TECHNOLOGY	EQUIPMENT	$337,571	3%
	SOFTWARE	$2,595	
	STUDENT INSTRUCTIONAL TRAINING	$223,274	
MANUFACTURING TECHNOLOGY	EQUIPMENT	$224,647	11%
	STUDENT INSTRUCTIONAL TRAINING	$12,500	
NIAR	EQUIPMENT	$207,405	6%
	SOFTWARE	$88,698	
NONDESTRUCTIVE TESTING (NDT)	EQUIPMENT	$96,070	3%
	STUDENT INSTRUCTIONAL TRAINING	$75,238	
ROBOTICS	EQUIPMENT	$36,415	8%
	SOFTWARE	$48,750	
	STUDENT INSTRUCTIONAL TRAINING	$161,322	
UNMANNED AIRCRAFT SYSTEMS	EQUIPMENT	$119,180	4%
	STUDENT INSTRUCTIONAL TRAINING	$73,507	
FUTUREMAKER	EQUIPMENT	$17,501	0%

NCAT STATE FUNDING = $5.2 MILLION