



**INNOVATE**  
UNIVERSITY OF KENTUCKY RESEARCH

# UK Innovation Connect – College of Engineering Overview



# UK Innovation Connect

*~Established March 2022~*

*will provide dedicated resources and services to support University of Kentucky research and innovation outcomes that impact corporate partners and promote economic development in our innovation ecosystem.*

# Mechanisms to create positive impact through industry partnerships in research and innovation

## Sponsored Research

- Industry-sponsored research contracts
- Government-sponsored research grants requiring industry-university collaboration
- One-time, irrevocable gifts directed to research areas

## IP Licensing

- Dissemination of University IP to promote widespread commercialization
- Pre-IP licensing options for prospective industry partners

## Faculty and Equipment Access

- Research parks & technology hubs
- Lab and equipment access
- Faculty consultation

## Employee Education

- Technology trends and problem identification
- Experiential learning programs for faculty and students
- Continuous learning and leadership development through advisory board engagement for corporations

## Consortia

- Services and support
- Combine resources to solve the most challenging problems
- Insights into new or changing policies and programs

# UK Innovation Connect

## *Our Focus*

01

Build Long-Term,  
Mutually-Beneficial  
Relationships with  
Corporate Partners

02

Build a Pipeline of  
Opportunities that  
Enhance Impact of  
UK Intellectual  
Property

03

Make It Easier to  
Partner and Work  
with UK Research  
Enterprise

04

Leverage  
Investments in New  
and Enhanced  
Facilities to Bolster  
Corporate-Academic  
Partnerships

# College of Engineering Overview

# Academic Departments

Biomedical Engineering

Biosystems & Agricultural Engineering

Chemical and Materials Engineering

Civil Engineering

Computer Science

Electrical and Computer Engineering

Mechanical and Aerospace Engineering

Mining Engineering

Engineering Technology – Computer and Lean Systems

Paducah Campus



# Strategic Research Areas: Engineering

- Advanced Materials and Manufacturing
- Computational Systems, Networks and Data Analytics
- Energy, Mobility and Sustainability
- Engineering for Human Health
- Infrastructure & Environmental Systems
- Autonomous Systems, Space and Aerospace



**3,080**

UNDERGRADUATE  
STUDENTS

**439**

GRADUATE  
STUDENTS

**13**

GRADUATE  
PROGRAMS

**\$34M**

RESEARCH  
AWARDS (FY21)

**200**

ACTIVE PARTNERSHIPS  
WITH INDUSTRY

**655**

INCOMING  
FRESHMAN

**139**

TENURE &  
TENURE TRACK  
FACULTY

**13**

UNDERGRADUATE  
MAJORS



# Testing and Analysis

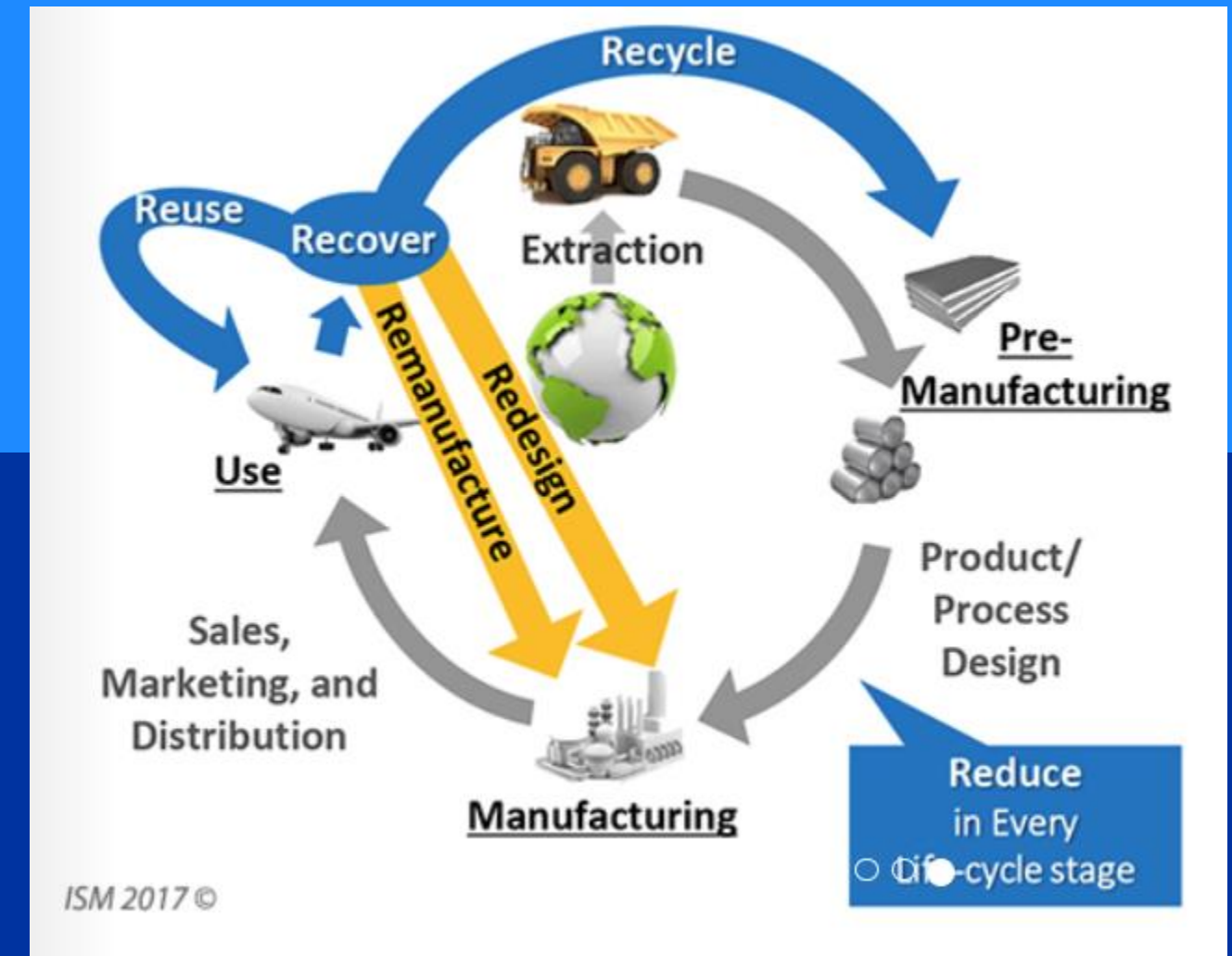
- **Electron Microscopy Center**: state-of-the-art materials characterization
- **Center for Aluminum Technology**: a multidisciplinary center providing research and educational services to the aluminum industry
- **Vibro-Acoustics Consortium**: noise and vibration modeling, prediction, and control

Case Study: Provided data from state-of-the-art in-situ process characterization testbed as input to industrial partner's finite element numerical model



# Manufacturing

- **Institute for Sustainable Manufacturing**: a multidisciplinary collaborative research unit whose primary objectives are to develop and advance sustainable manufacturing principles and practices
- **True Lean**<sup>TM</sup>: training and coaching on the Toyota Production



Multi lifecycle closed-loop material flow with **6Rs** (Reduce, Reuse, Recycle, Recover, Redesign and Remanufacture)

# NSF Regional Innovation Engines

**May 2022, NSF announced a new Regional Innovation Engines program to foster innovation ecosystems across the US**

**UK in collaboration with University of Tennessee, Oak Ridge National Laboratory, University of Louisville are pursuing:**

Generating Advanced Manufacturing Excellence for Change for the Southeastern Commerce Corridor (GAME Change)



**Type 1 Award - \$1M for engine planning**  
**Type 2 Award - \$160M and up to 10  
years for implementation**