The Vision for the

Kummer Institute

Center for Advanced Manufacturing
Kummer Institute Center for Advanced Manufacturing

- A full-scale manufacturing ecosystem, where experts, innovators, businesses, entrepreneurs, and educators come together to develop and adopt the manufacturing technologies to keep Missouri a national leader in manufacturing.
- Provides applied R&D outreach for companies and integration with all S&T research centers working in collaboration with manufacturers to provide a total manufacturing solution to meet the challenges facing US manufacturing.
The Protoplex

> > 200,000 ft² total square footage
> 60,000 ft² net high bay space
> Occupants
>   – Kummer Institute Center for Advanced Manufacturing
>   – Peaslee Research Center for Steel Processing (future growth)
>   – Other KI Centers - TBD
Vision

> Economic Development
  – Grow Missouri manufacturing
    > Increase competency to be more competitive
    > Increase Missouri GDP
    > Increase number of manufacturing companies in Missouri
  – Industry “Protoplex Partners” co-located within the Center for advanced R&D conducted jointly with S&T faculty
  – Engage S&T faculty to a greater degree with the community

> Increase S&T Research Awards
  – All Centers
  – Full-scale R&D in TRL 4 – 6 range
Strategy for Achieving Vision

> Economic Development
  – Outreach to large, mid-size, and small businesses
  – Full-scale manufacturing equipment
  – *Shared Manufacturing* model of operation for business
  – Industry & faculty select critical new equipment
Early Programming

- Mechanical & Aerospace Engineering
- Materials Science Engineering
- Civil Engineering
- Computer Science
- Engineering Management
- Trade Schools
Mission

- Advanced Manufacturing
- Advanced Materials
- Teaming
Additive Manufacturing

- Powder Bed Fusion
- Laser Wire
- Cold Spray
- Wire Arc
- Composites
- Ceramics
- Machining
- Others
Concrete Additive Manufacturing
Intelligent Manufacturing

CyberSecurity  CyberPhysical Systems  Digital Twin Systems Integration  Process Control
Mission #2: Advanced Materials

Hypersonic Materials

Carbon Matrix Composites

Metal Powders
Mission #3: Teaming

> Teaming with various stakeholders
  > S&T Centers
  > Leading universities
  > Trade schools
  > Industry
  > Policy makers
  > City & State Agencies

> Teaming for ...
  > Advanced Research and Development
  > Workforce Development
Some Early Decisions

- Not the Director’s personal research facility
- Also a magnet for other S&T research
- Large open manufacturing shop floor
- No personal labs
- No new equipment purchase unless accompanied by a **sustainable funded** research grant
- No bench scale equipment
- Access Control for Export Controlled research
Status

- Architect selection underway
- Outreach to large companies as “Protoplex Partners”
- Outreach to SMEs for grants, equipment selection, and sharing of manufacturing equipment
- Candidate equipment selection underway
- Outreach to policy makers
- Proposal writing
  - Federal
  - Industrial
- Fulltime staff recruitment underway
To Discuss Further

richard.billo@mst.edu