

# Linking MEP, Universities and SMEs

**Luis M. Proenza**

**President, The University of Akron**

for the

**National Academies**

*“Diversity and Achievements: The Role of Manufacturing Extension Partnerships  
in the Midwest” Conference*

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# The Innovation Ecosystem



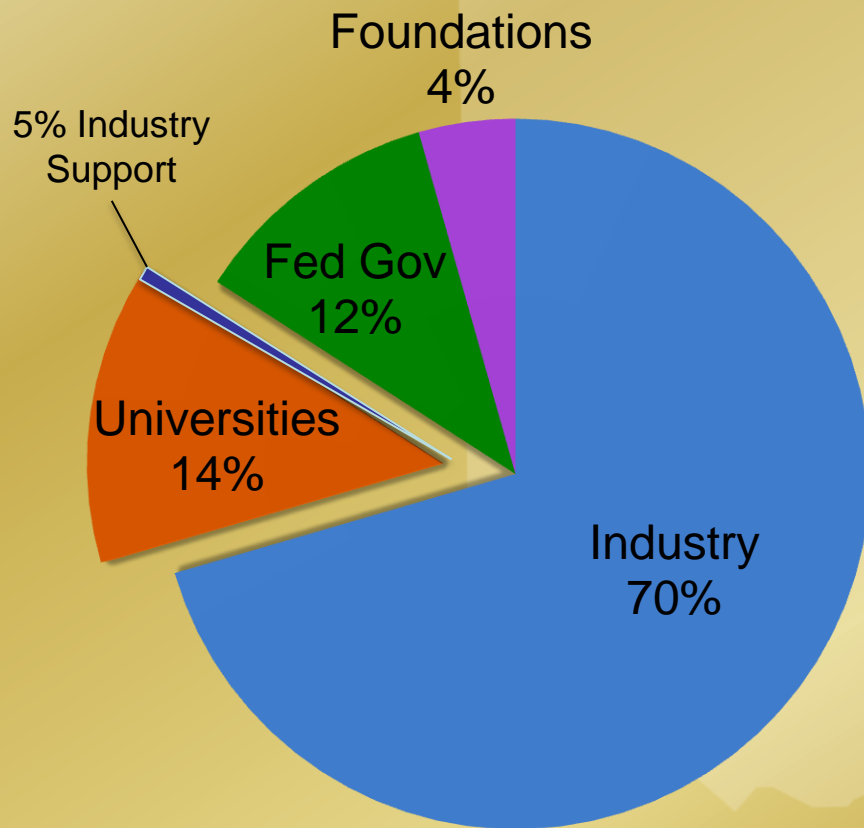
**No component can afford to be disconnected from the others.**

# Universities Are No Longer “Ivory Towers”

- Key role in 21<sup>st</sup> Century knowledge economy
- Serve as “anchor” for clusters of innovation
  - Promote creative capital
  - Generate knowledge capital
  - Train human capital
  - Build social capital
  - Attract financial capital
  - Preserve natural capital
- As convener and developer
- With a broad product line, common challenges, models and opportunities,

**YET...**

## ...Still Barely Linked to Industry



Major opportunities exist for businesses/industry to partner with universities and gain access to new talent, cutting-edge technologies and open innovation opportunities.

# Innovating on Innovation: Universities & SMEs

- **Talent:**
  - Collaboration with world-class researchers
  - Access to well-trained graduate students at modest cost
  - Identify high-potential talent for future hires
- **Technology:**
  - Access to cutting-edge research technology
  - Prototype development
  - Pilot plant capabilities
- **Partnerships:**
  - Linkage to the regional innovation ecosystem
  - Open innovation partnerships
  - Licensing opportunities,

**YET...**

# **...Companies Also Not Well-Linked...**

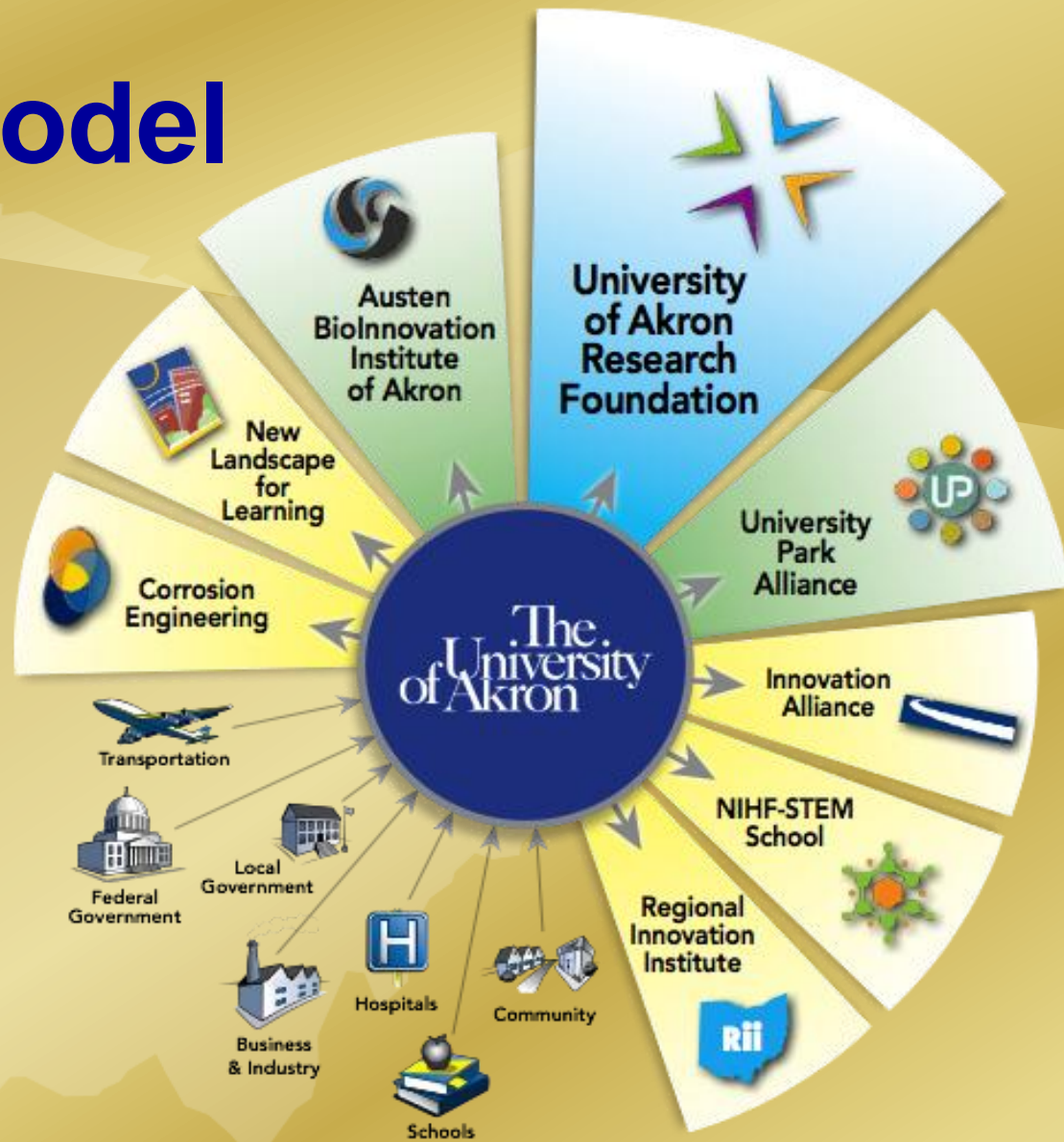
**Many don't know:**

- **what they need**
- **what to ask**
- **who to ask, or**
- **even that they need to ask.**



# The Akron Model

A Robust and  
Broad-based  
Platform or  
“Tool Chest”  
for Economic  
Development



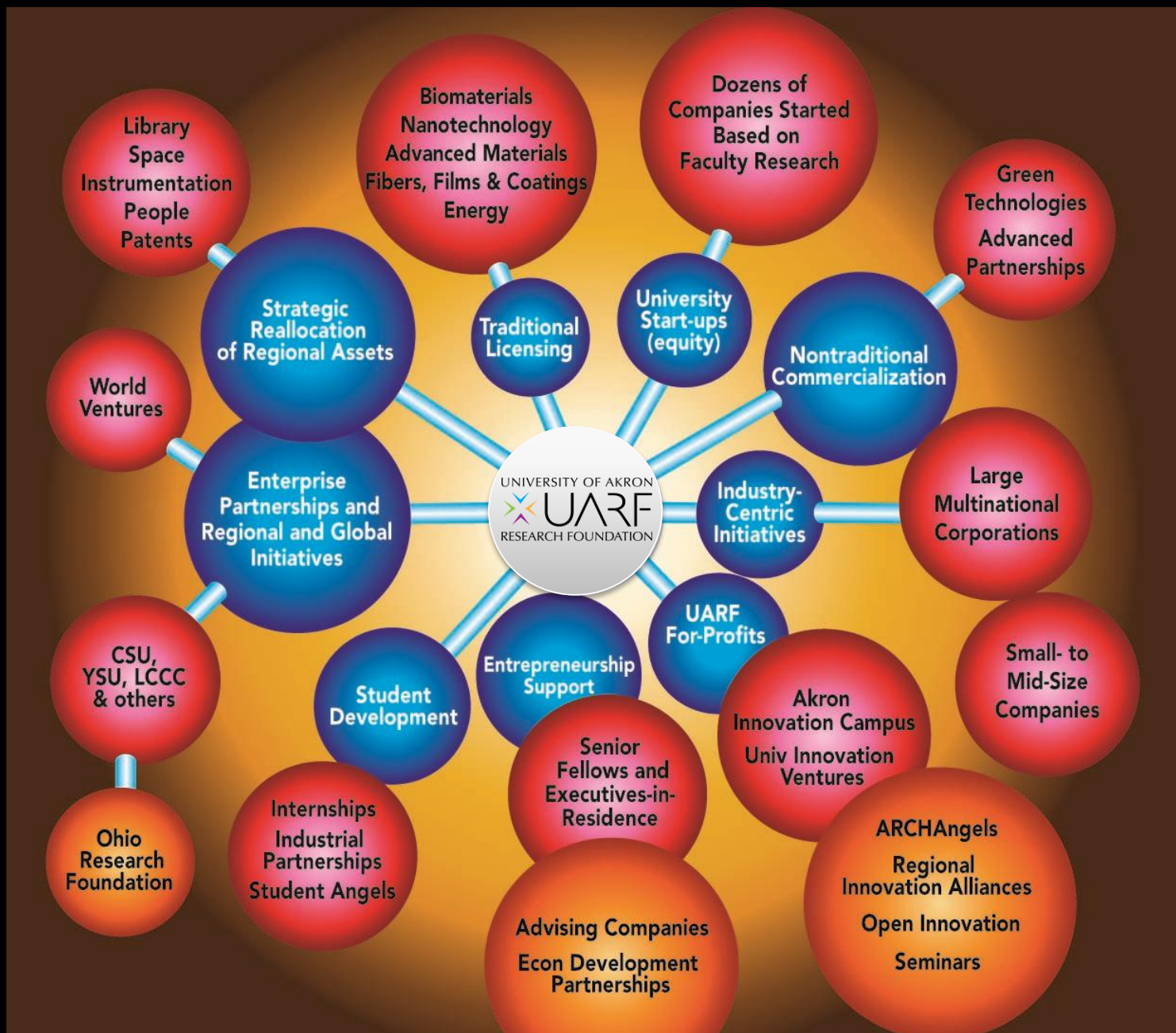
# **An Independent Entity Chartered to Benefit UA**

**UARF is a boundary-spanning organization that links industry and the University.**

- **Assesses public/private resources for mutually beneficial reconfiguration and reallocation.**
- **Facilitates tech transfer and start-ups, administers industry contracts, houses outreach efforts.**
- **Provides innovation services to internal and external researchers/organizations.**
- **Utilizes talents of industry retirees to promote innovation and entrepreneurship.**
- **Increases research funding and seed capital opportunities.**









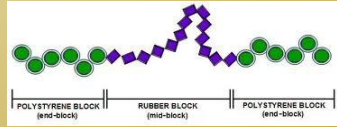
# **National Polymer Innovation Center**

## **Wright Center of Innovation in Polymer Engineering**

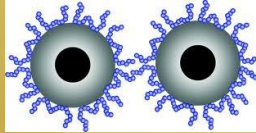
- 1. Multi-laboratory facility**
  - Fabrication processes can be developed, characterized and scaled to production at one site.**
- 2. State-of-the-art research and technology**
- 3. Large high bay areas:**
  - prototype manufacturing machinery**
  - materials and device fabrication**
  - workforce training**



# Functional Films for Flexible Electronics



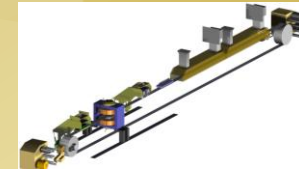
Block Copolymers



Nanoparticles

Material Source

The University of Akron



Roll-to-Roll Manufacturing  
with External Fields

Spin-Off  
Company



Flexible Displays



# **National Polymer Innovation Center Wright Center of Innovation in Polymer Engineering**

## **Potential Applications for Wright Center Technologies**

- **Medical Devices**
- **Biomedical materials**
- **Sensors**
- **Defense**
- **Automotive**
- **Aerospace**
- **Battery/fuel cells**
- **Consumer and Industrial Electronics**
- **Filtration**
- **Construction Materials**
- **Space Agency/Industry**





# **National Polymer Innovation Center**

## **Akron Functional Material Center (AFMC)**

- 1. Advanced Materials Research**
- 2. Class II bioresearch**
- 3. Characterization**
- 4. High-throughput and combinatorial testing**



# **National Polymer Innovation Center**

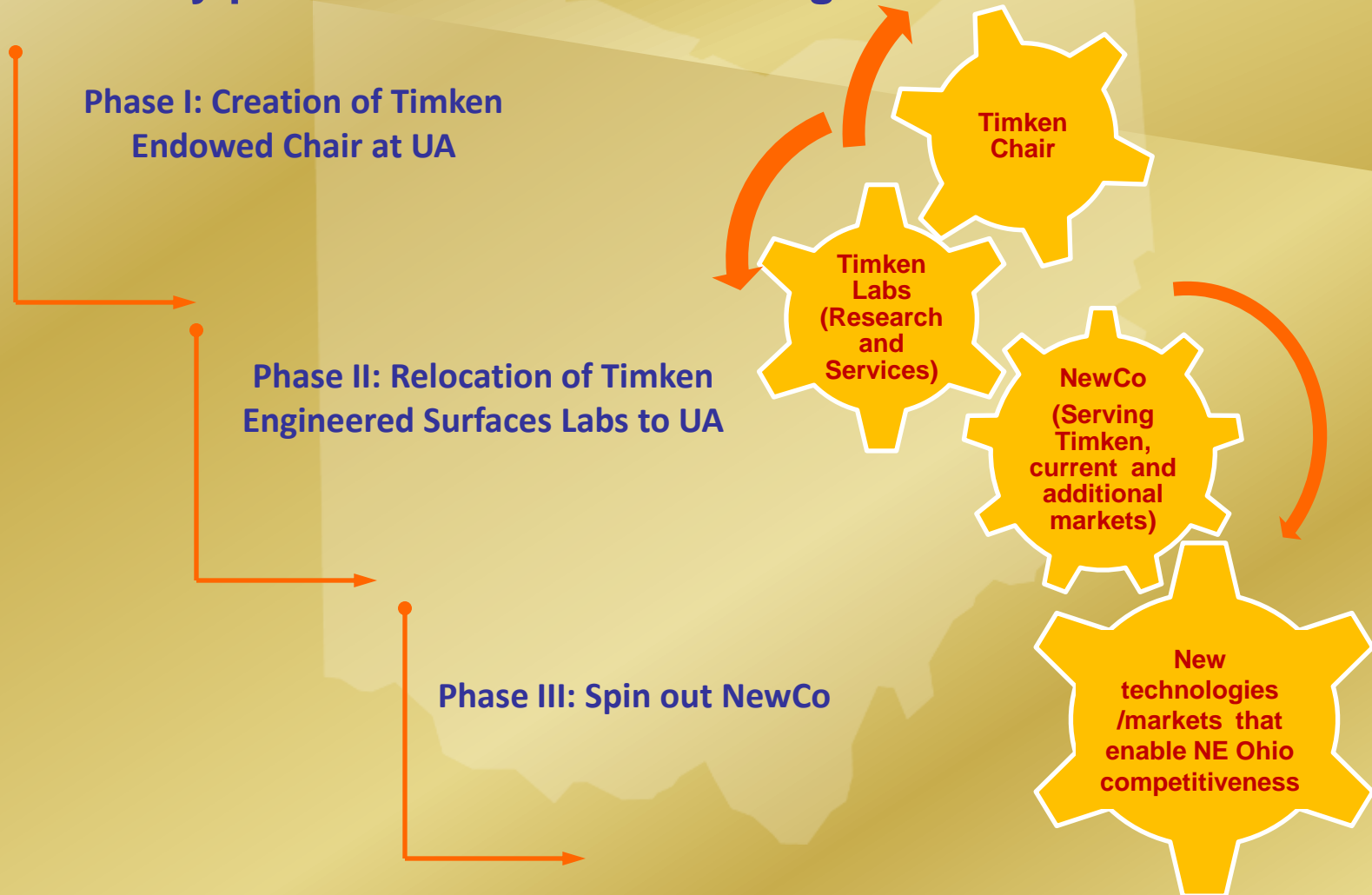
## **Akron Functional Material Center (AFMC)**

### **Current AFMC Partners**

- **Austen BioInnovation Institute in Akron\***
- **ATRP Solutions\***
- **BASF Corp.**
- **Coloplast**
- **Cook Medical**
- **DOW Corning Corp.**
- **EXXON Mobil Corp.**
- **Kraton Polymers, LLC\***
- **Lord Corp**
- **Lubrizol Corp**
- **Polyone Corp**
- **Schneller\***
- **Terumo Corp**
- **United Technology Research Center**

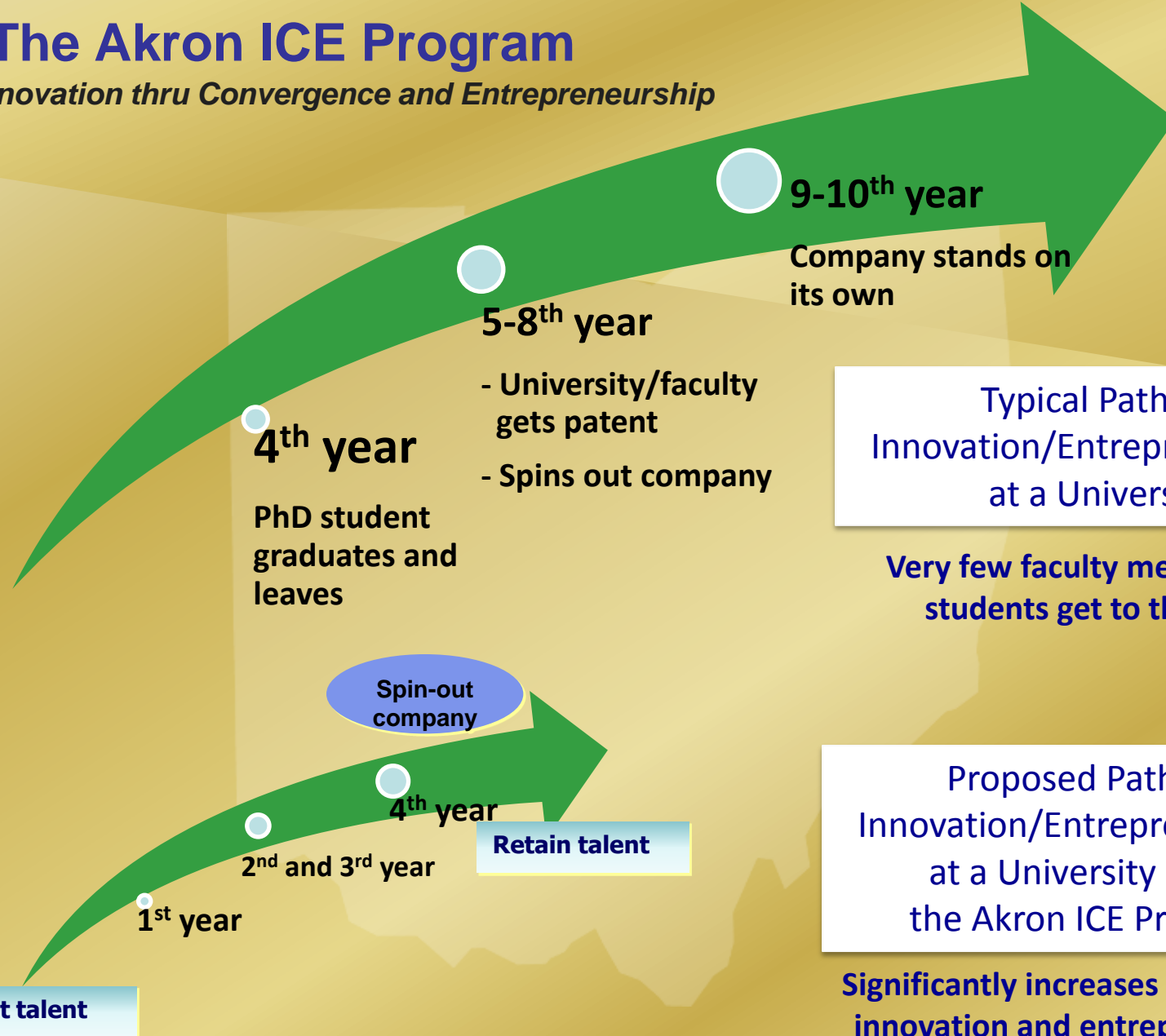
# Timken Open Innovation Agreement

## Three key phases that enable an endgame



# The Akron ICE Program

*ICE - Innovation thru Convergence and Entrepreneurship*



Typical Path for  
Innovation/Entrepreneurship  
at a University

Very few faculty members and  
students get to this point

Proposed Path for  
Innovation/Entrepreneurship  
at a University using  
the Akron ICE Program

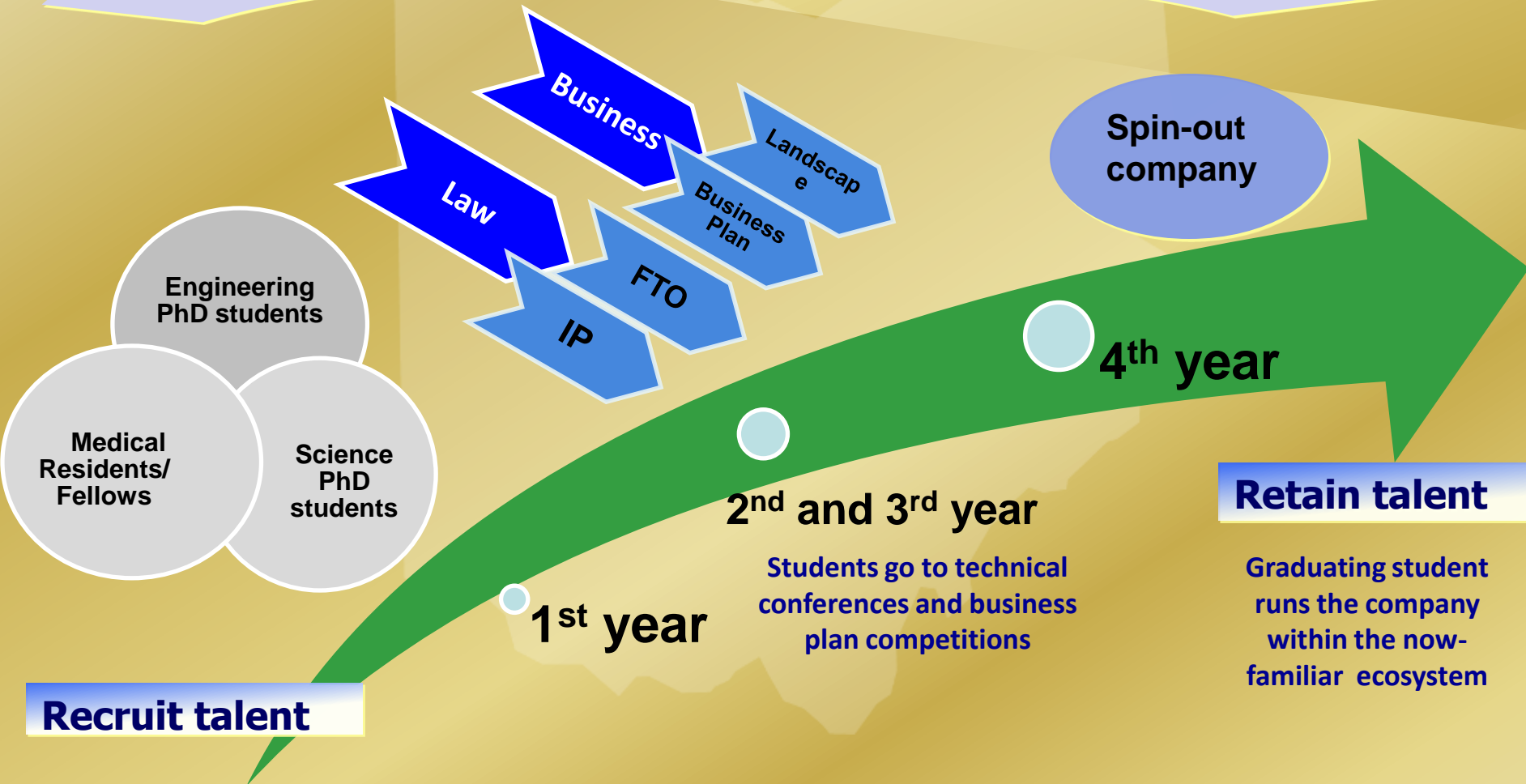
Significantly increases the odds for  
innovation and entrepreneurship

# The Akron ICE Program

*ICE - Innovation thru Convergence and Entrepreneurship*



Regional Ecosystem: University Faculty, Hospital Physicians, Investors, Business People, Entrepreneurs, Lawyers, etc.





# Summary: Benefits to SME Manufacturers

- Linkage to the regional innovation ecosystem
- Access to
  - research professionals – faculty and experienced master's/Ph.D. candidates
  - potential new employees
  - cutting-edge research, technologies and processes
- Participation in collaborations and innovation opportunities
- Accelerated pathways from innovation to commercialization

# Silo Busting



**Thank you**

**The<sup>☆</sup>  
University  
of Akron**

**Luis M. Proenza • [proenza@uakron.edu](mailto:proenza@uakron.edu)**