

# SMMs in the Shifting Economy



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*Informing and Transforming Tomorrow's Economy*

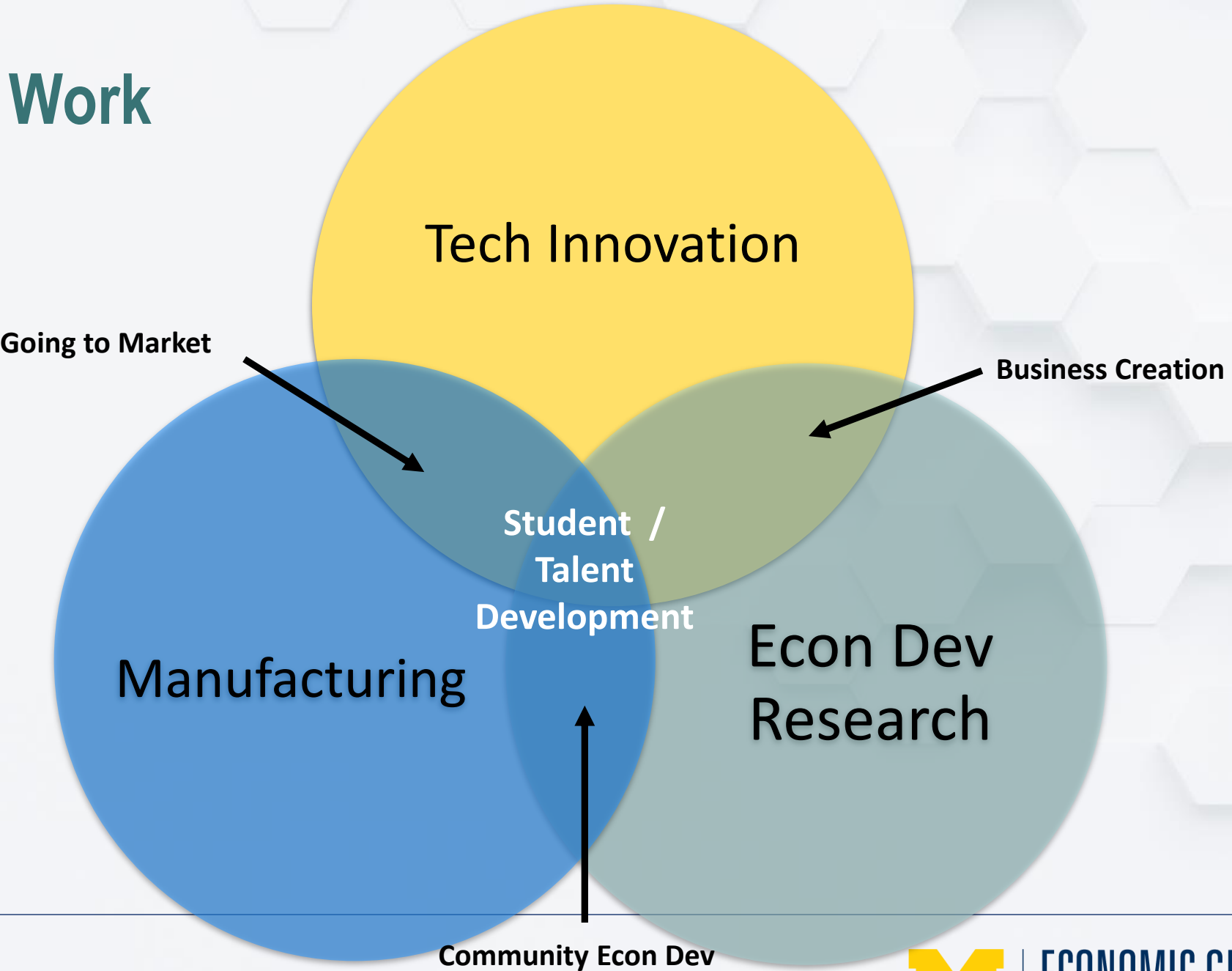
Paula Sorrell, Director  
October 2019



# Quick Poll of Audience

# Back Story

# How We Work



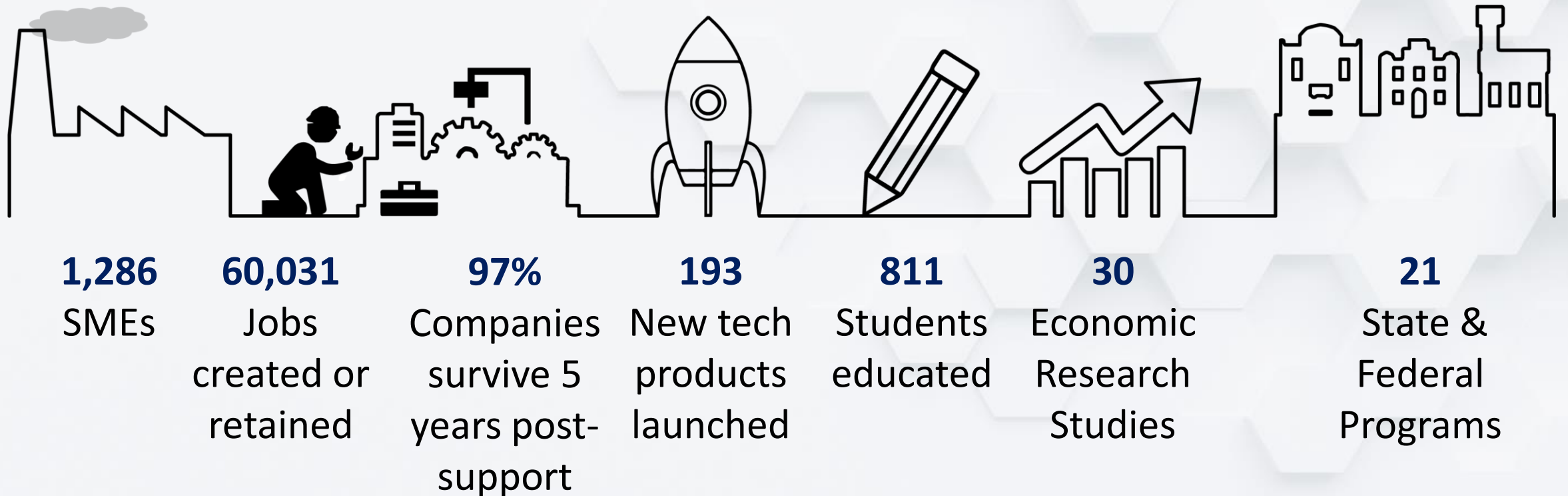
**Manufacturing**

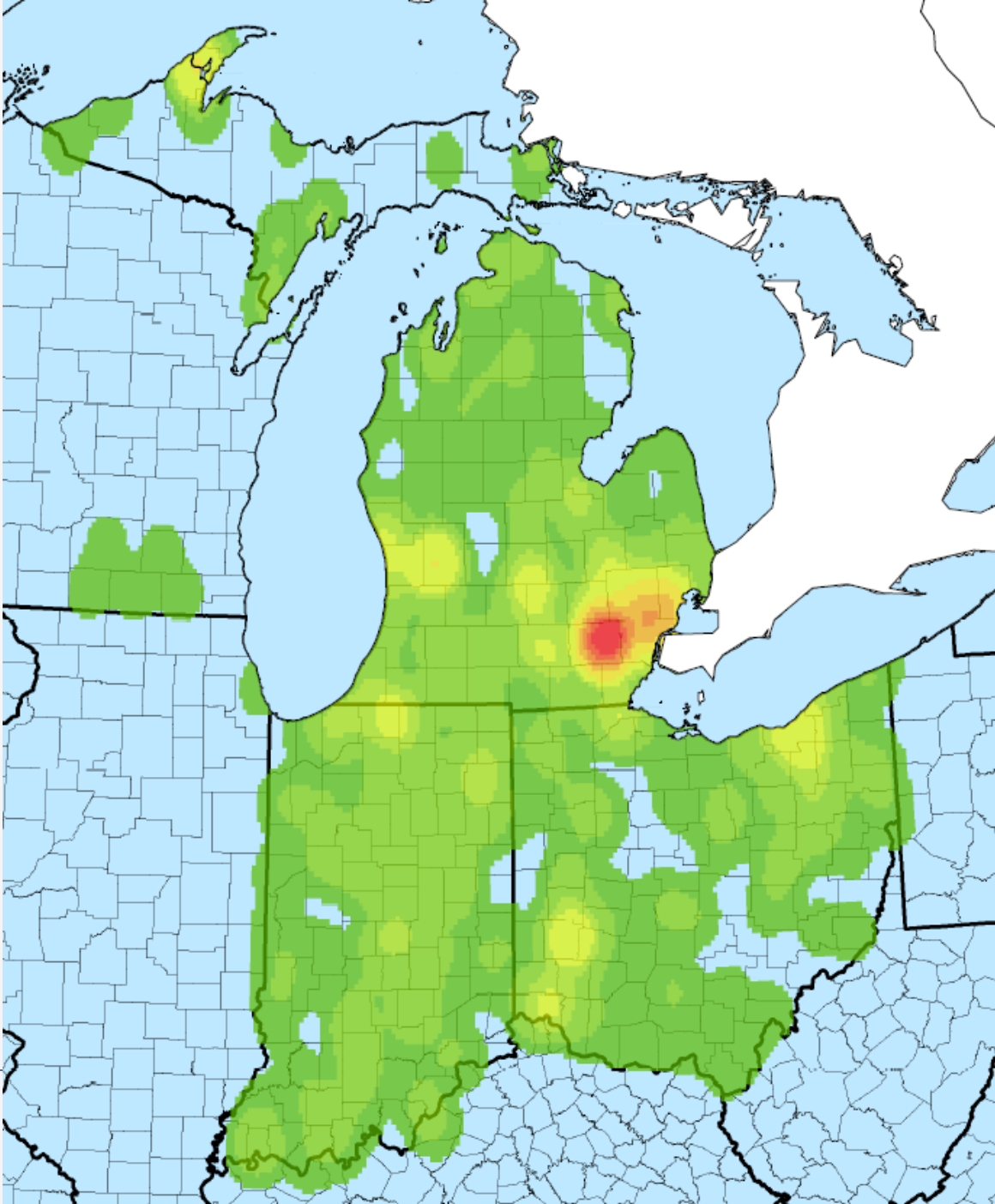


**Research**

**Innovation**

# Tracking Impact





### Automotive Manufacturing Strength

- 1 MICHIGAN
- 2 OHIO
- 3 INDIANA
- 4 TENNESSEE
- 5 KENTUCKY
- 6 ALABAMA
- 7 ILLINOIS
- 8 SOUTH CAROLINA
- 9 TEXAS
- 10 CALIFORNIA

Source: Business Facilities

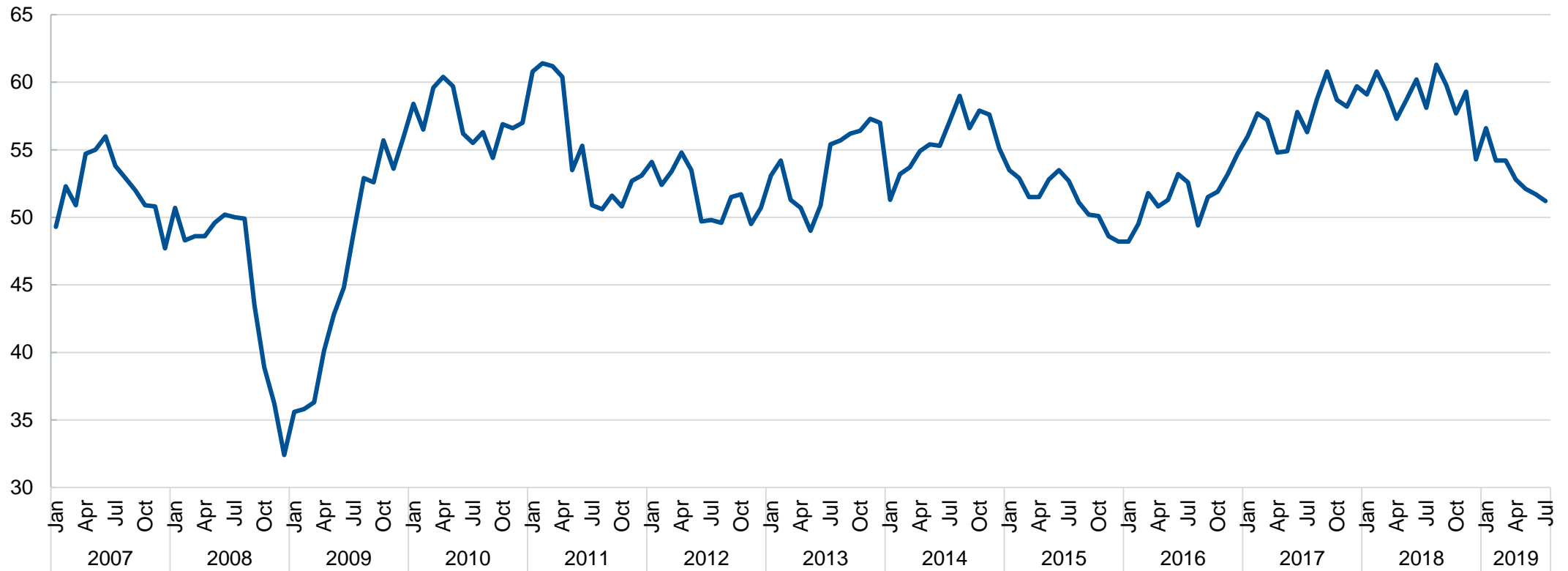


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**Got a Million Problems...**

## Mid-America Business Conditions Index: Overall US (2007 - Present)



Source: Survey of Supply Chain Managers, Creighton.edu, SSTI

— US



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# The death of the internal combustion engine

*It had a good run. But the end is in sight for the machine that changed the world*

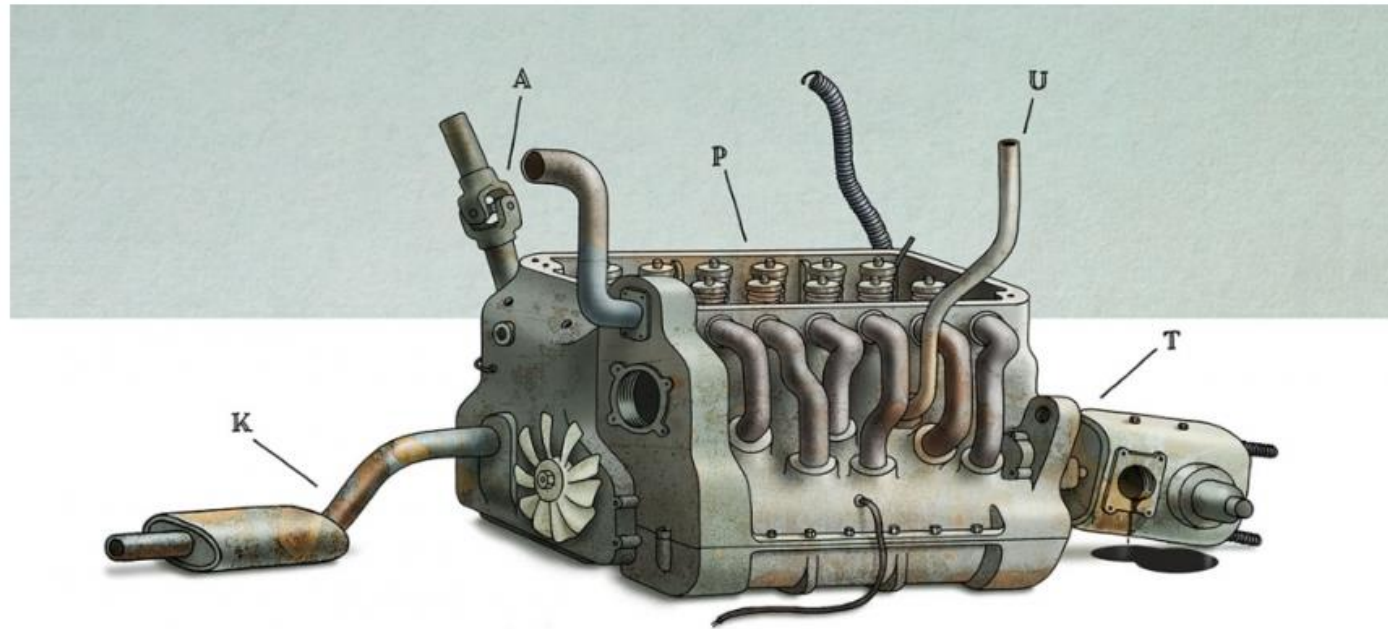


Fig.1 The Internal Combustion Engine

- Gas tank
- Carburetor
- Starter
- Water Pump
- Generator
- Exhaust system
- Gas Pump
- Oil Pump

Source: The Economist



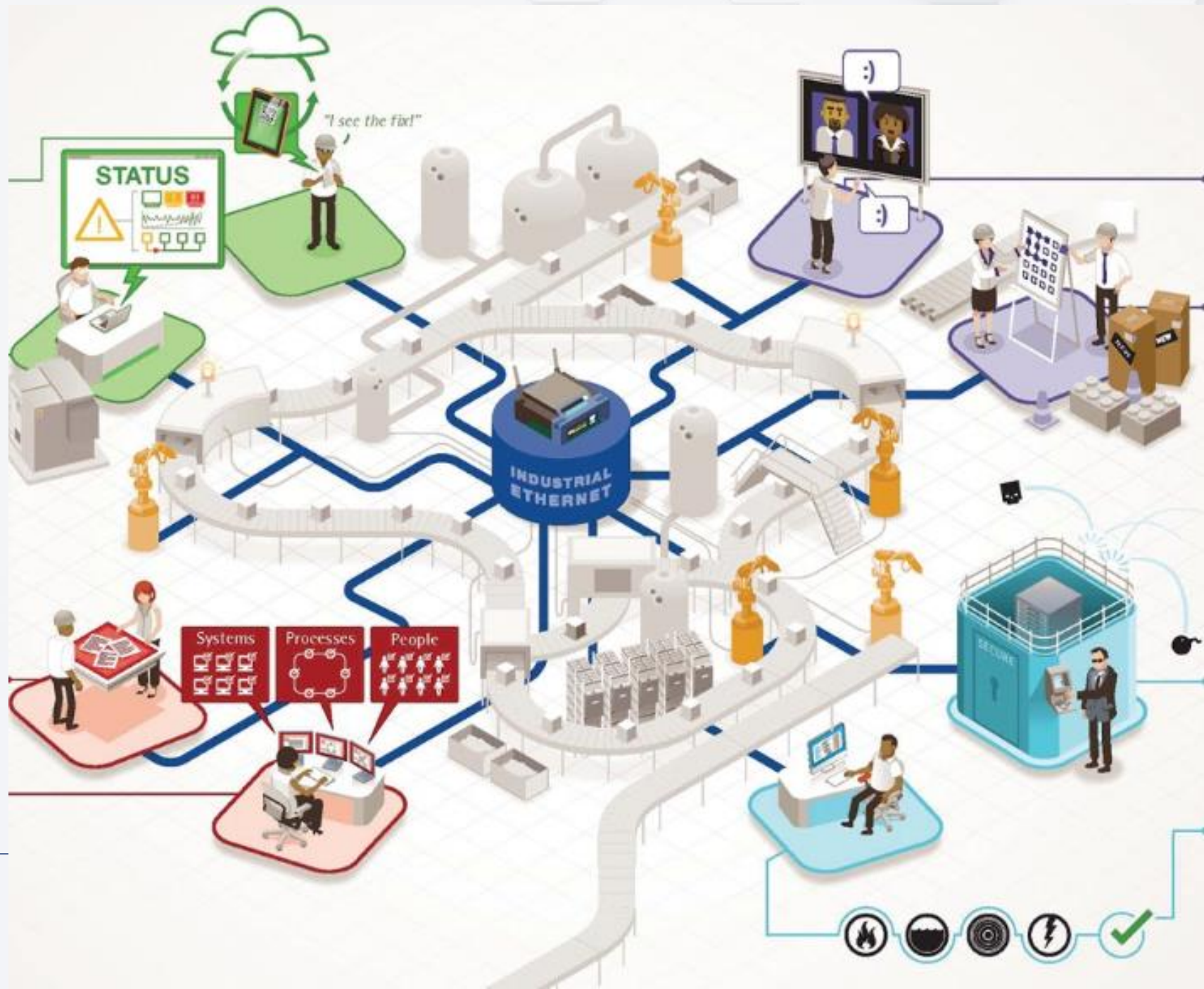
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Source: U Penn



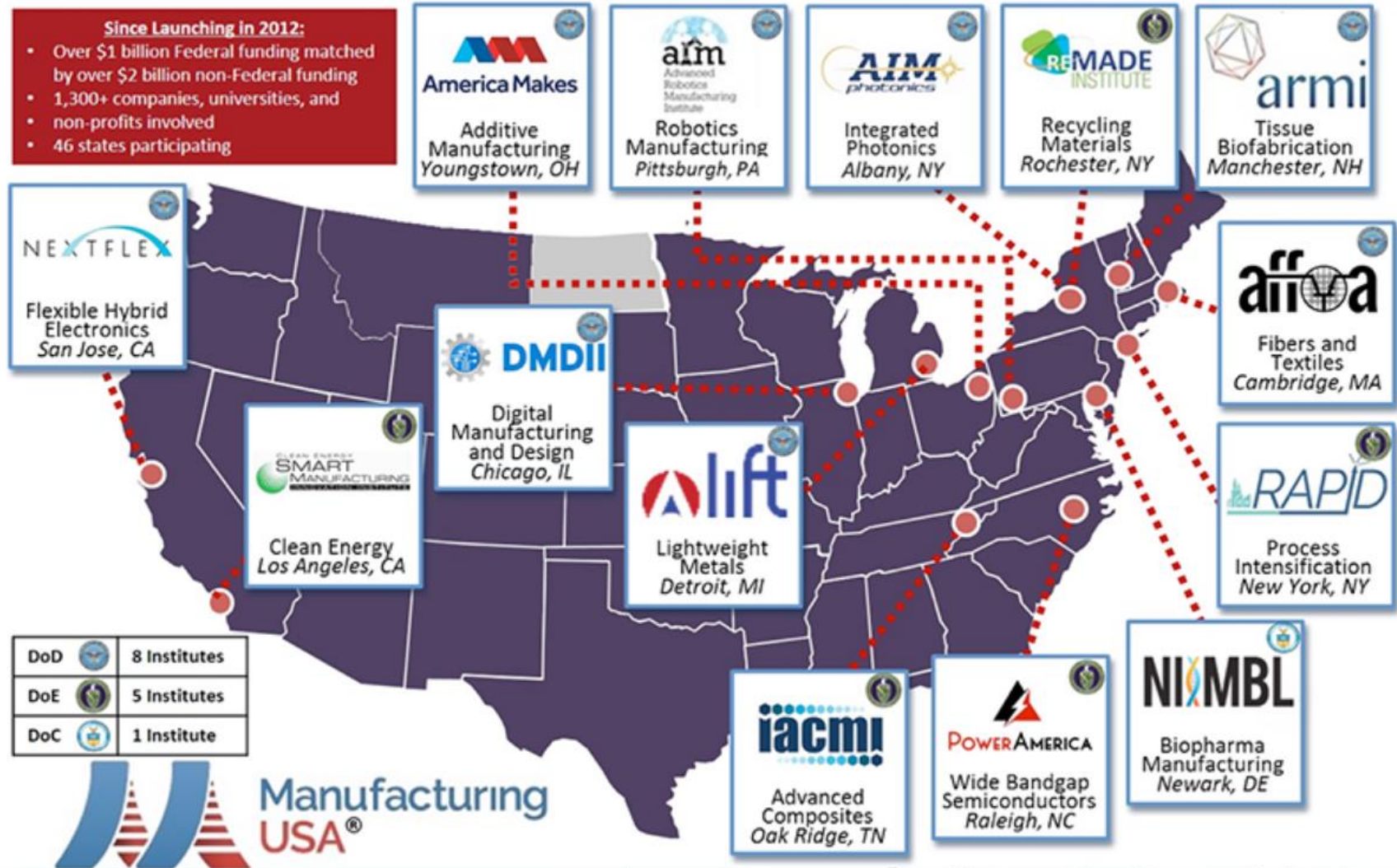
Source: Belden



# Manufacturing USA

## Since Launching in 2012:

- Over \$1 billion Federal funding matched by over \$2 billion non-Federal funding
- 1,300+ companies, universities, and non-profits involved
- 46 states participating

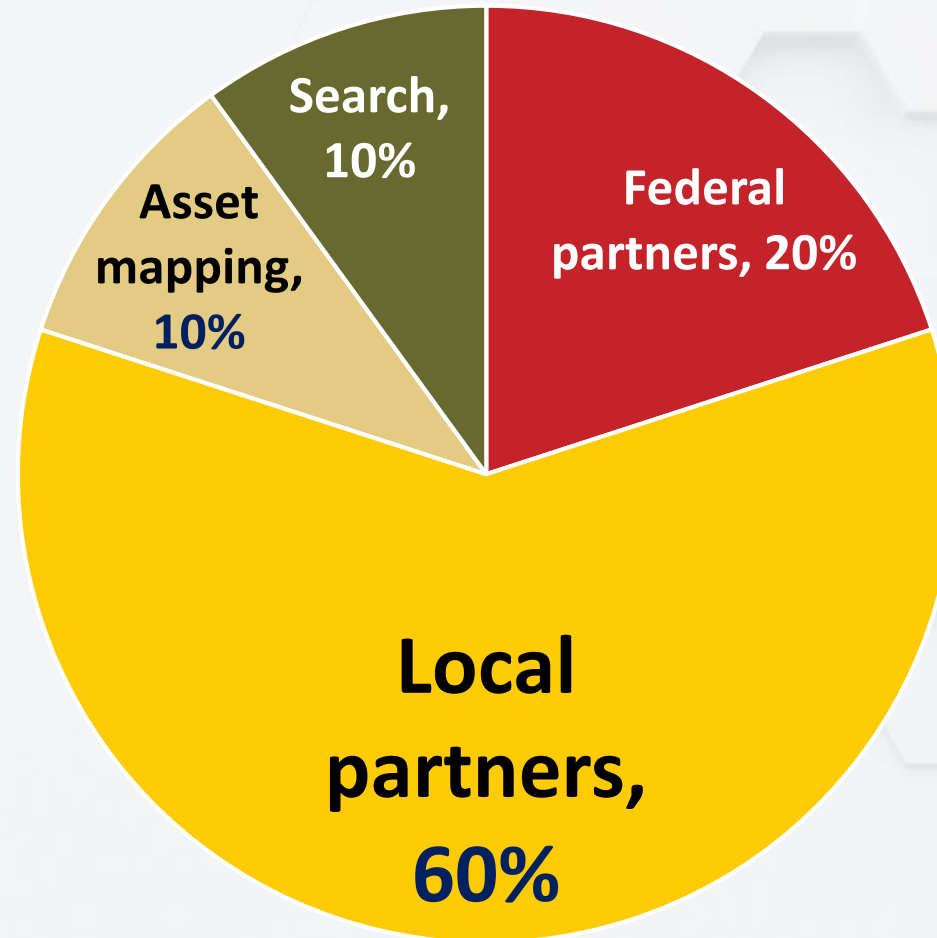






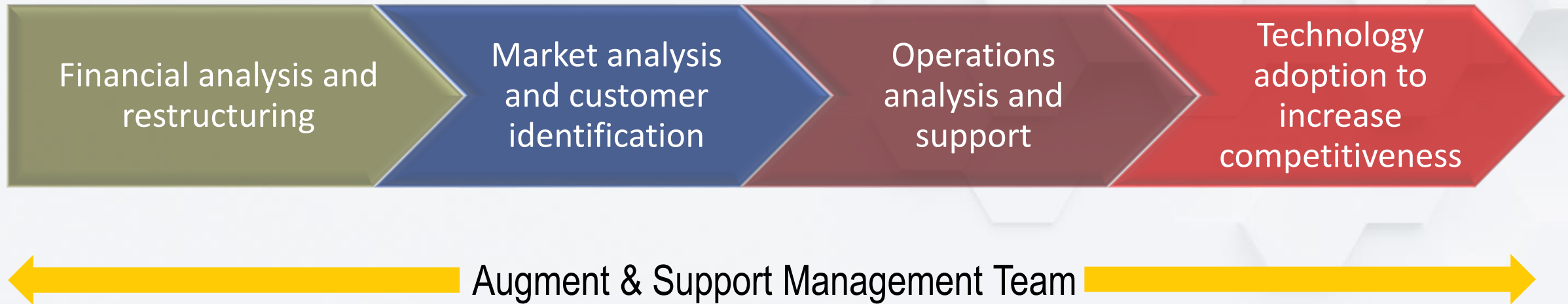
# Working With SMMs

# How Companies Find Us



# How We Work...

...with SMMs to improve survival, growth, and employee count



**Performance validation testing**

**Batteries, nanofabrication, engineering**

**Sensor projects**

**Artificial intelligence prototyping**

**Materials destructive testing**

**Chemical properties characterization**

**Sustainable materials from waste**

**Autonomous technology development**

**Flexible hybrid electronics**



# Secret Sauce





# Be Where They Are



# Assessing SMM Needs



# 1. Financial Health, Industry Comparisons



84	Current Assets	
85	Property & Equipment	139.06
86	Goodwill	
87	<b>Total Assets</b>	
88	<b>Liabilities</b>	
89	Short Term Debt	
90	Accounts Payable	
91	<b>Current Liabilities</b>	
92	Long Term Debt	
93	<b>Total Liabilities</b>	
94	Shareholder's Equity	



## 2. Operational Efficiencies



## 2. Market Status and Opportunities

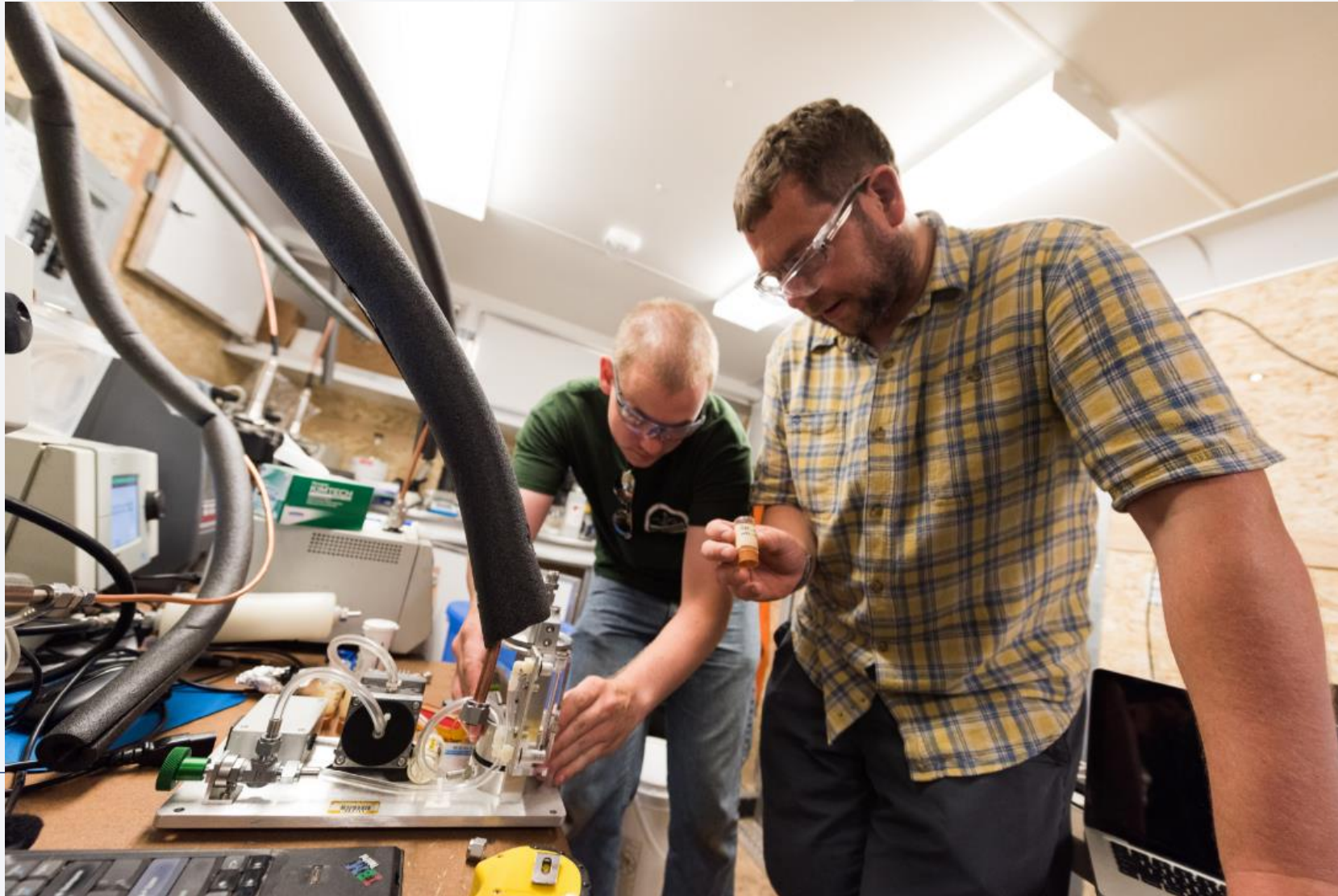




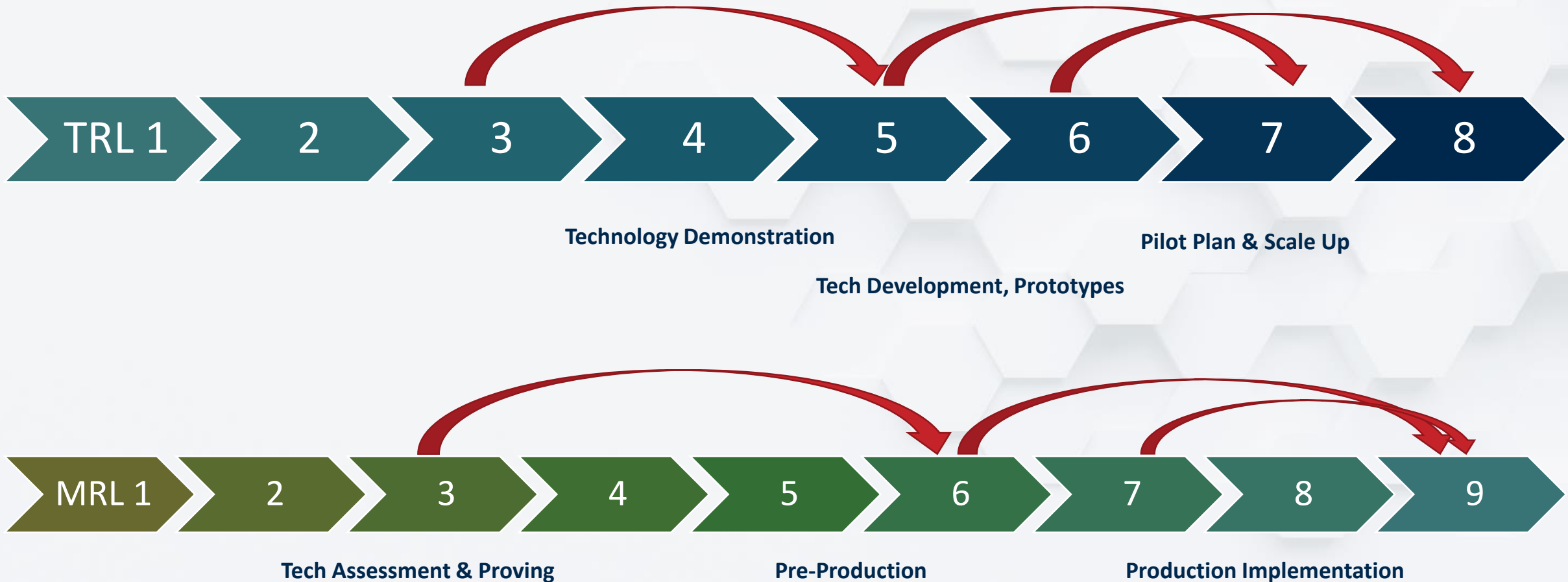
# 4. Management Team and Skillsets



# 5. Technical Capabilities

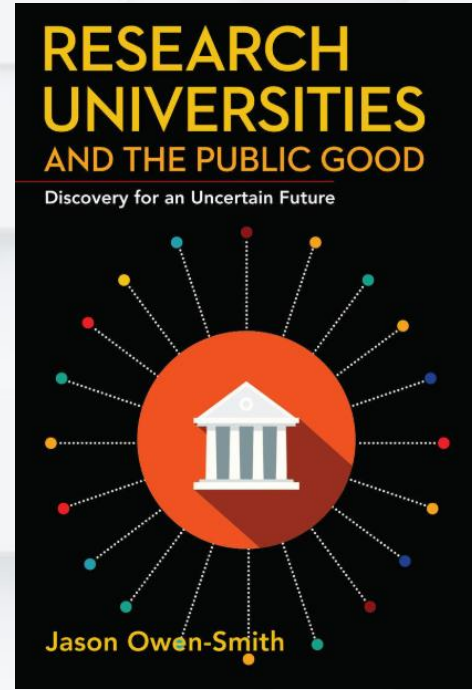


# 6. New Product Status



# Why Connect to the U?

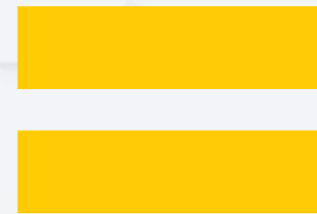




University  
Researchers



Problems  
to Solve







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**\$133**



# The Difficulties & Disconnects

## Company Concerns

Return on Investment

Workforce requirements

Prototype

Manufacturing Scale-Up

Resource Allocation



## University Researcher Concerns

Research interests

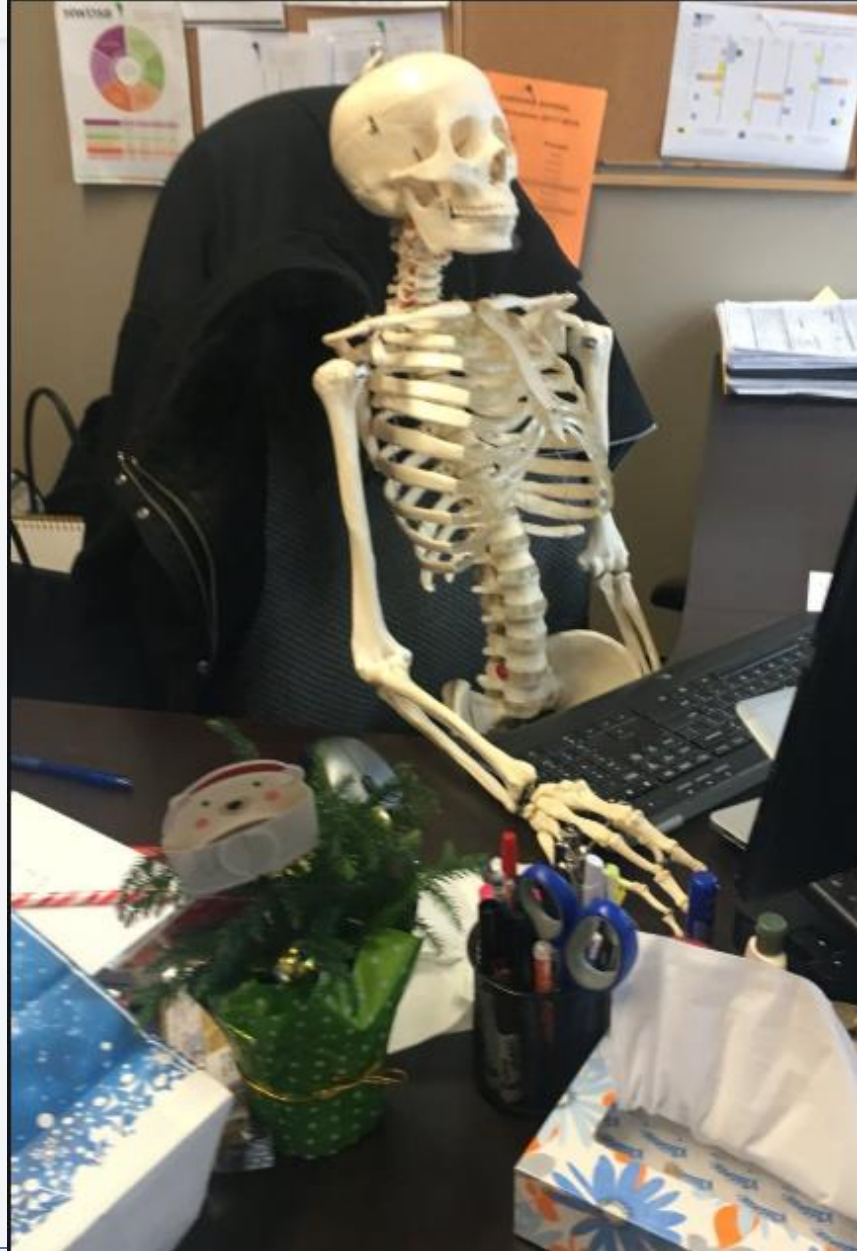
Lab Funding

Publishing Requirements

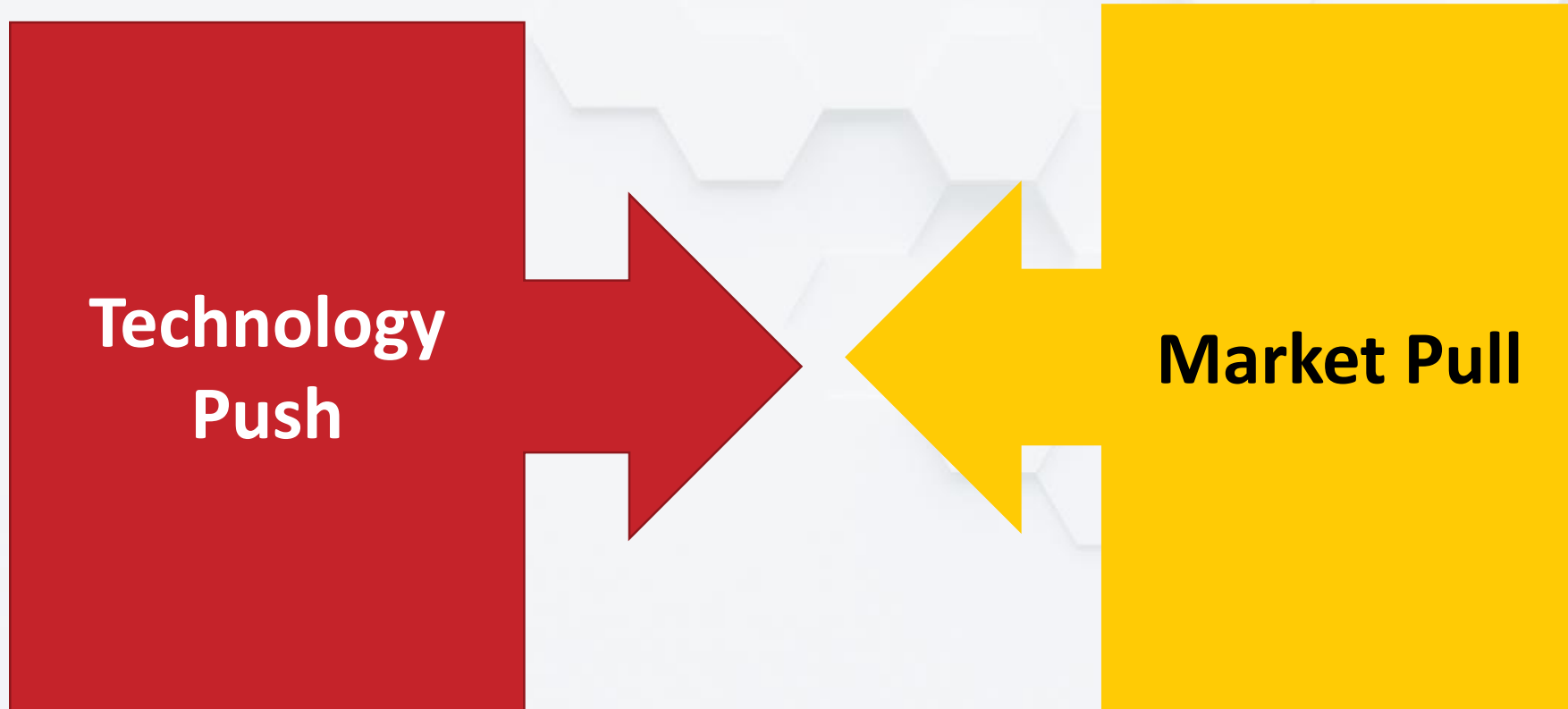
Semester Schedule

Educational priorities





# Universities by Design



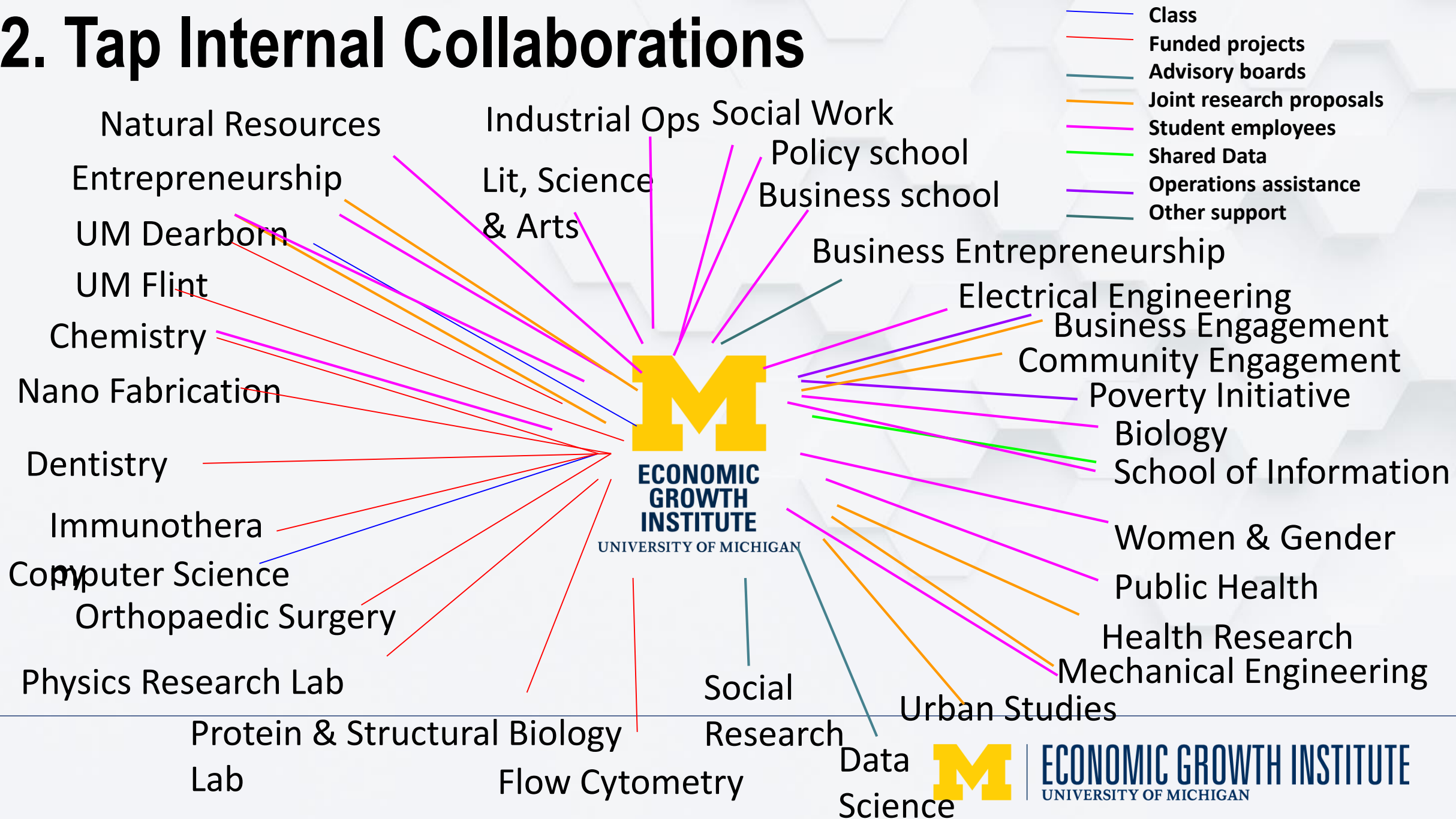
# **10 Ways to Connect SMMs & Universities**

# 1. Find Your U!

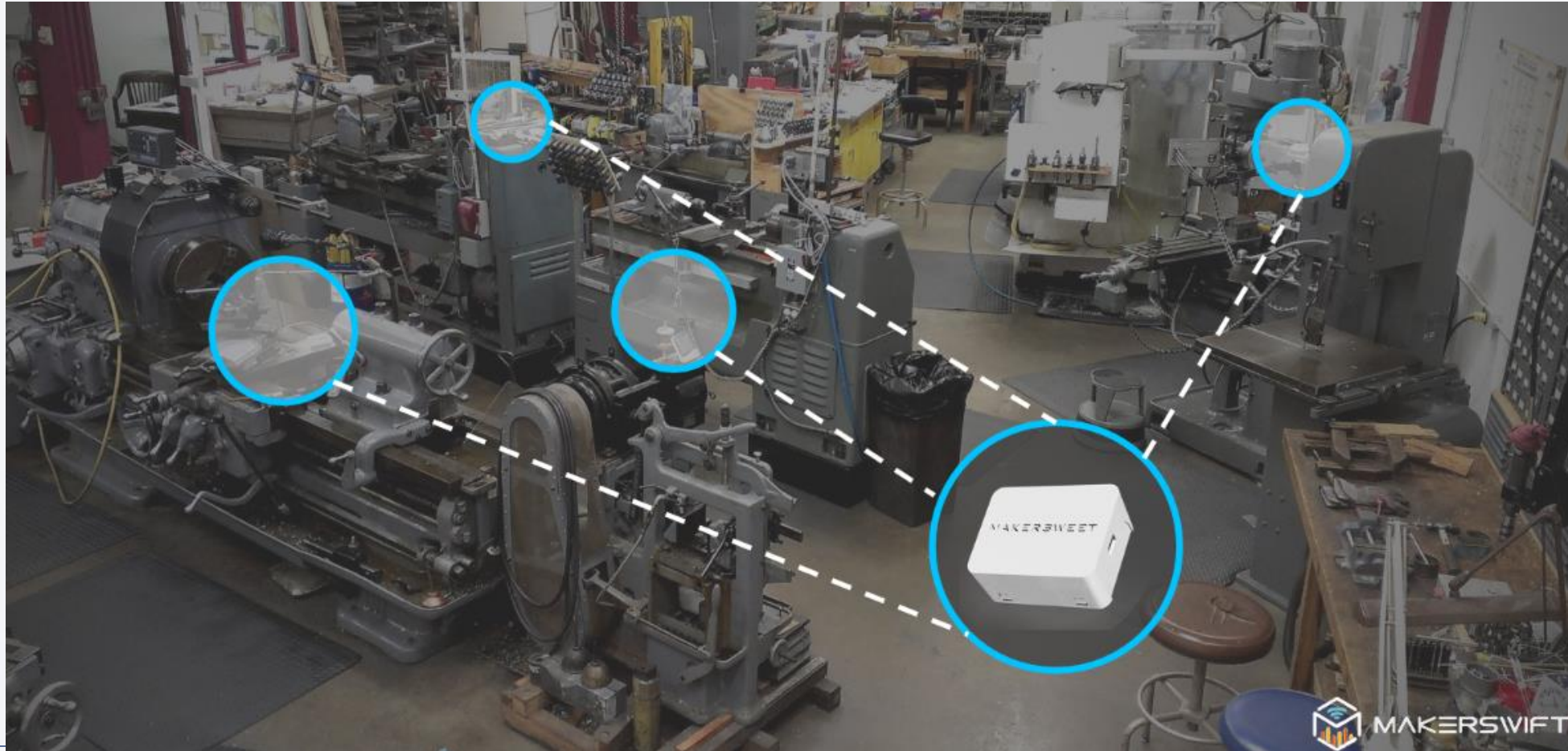




# 2. Tap Internal Collaborations



# 3. Harness Student Talent



# 4. Volunteer Case Studies



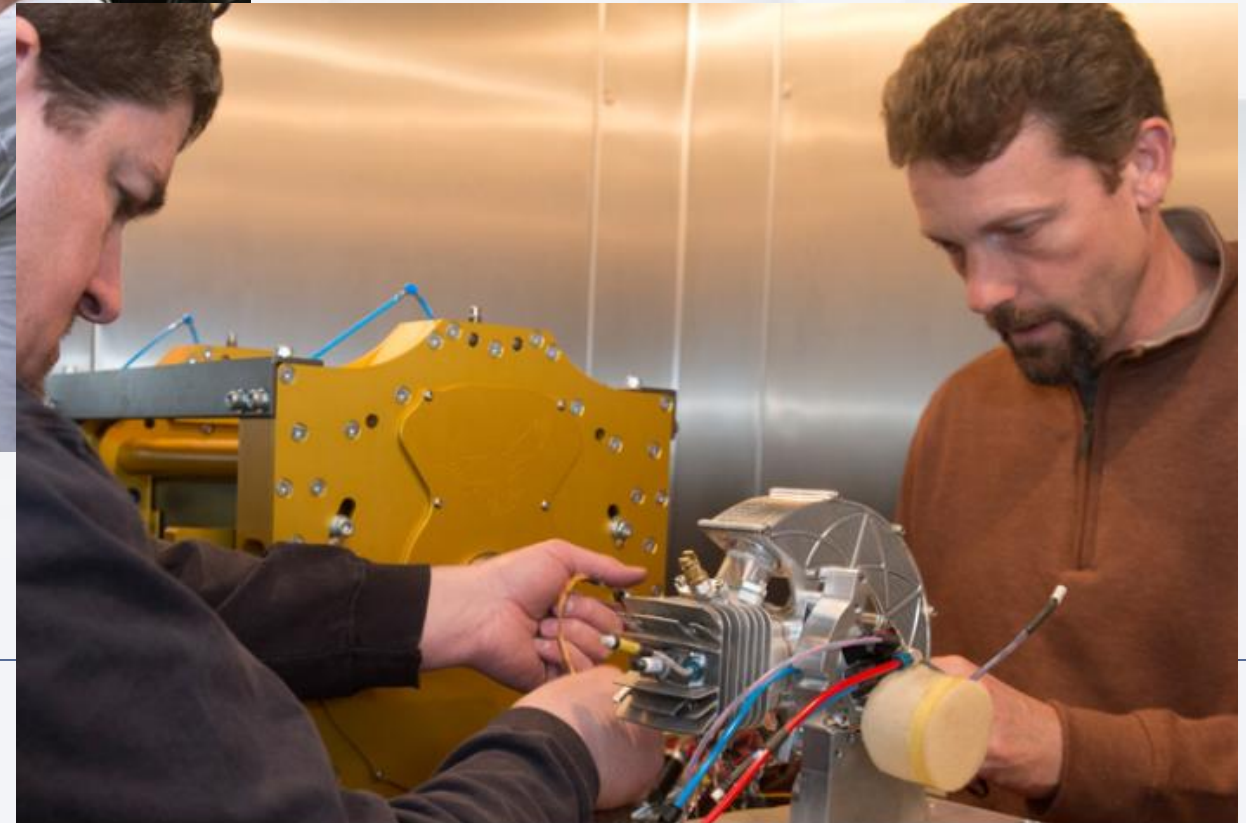


# 5. Connect to the Manufacturing Institutes





## 6. Leverage Lab & Expert Resources



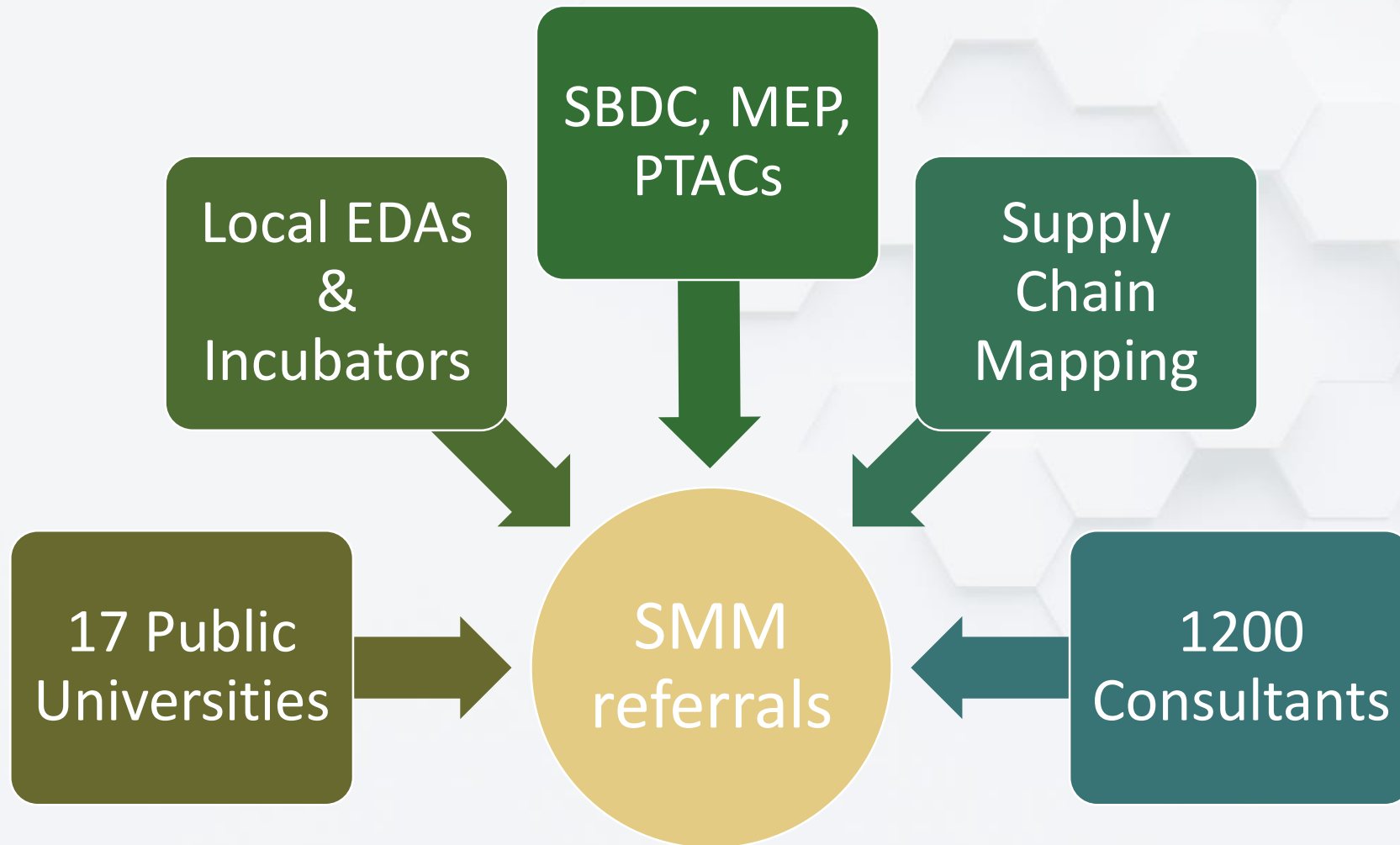
# 7. Lifelong Learning is Critical



# 8. Leverage Connections Across Universities



# 9. Formalize Referral System





# 10. Convene the Ecosystem



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# What to Expect:

<https://economicgrowth.umich.edu/dispatching-business-expertise-to-michigan-companies-um-helps-up-firm-grow-sales/>

[https://www.youtube.com/watch?time\\_continue=4&v=6YDjJ4Ddxzk](https://www.youtube.com/watch?time_continue=4&v=6YDjJ4Ddxzk)

# Questions & Thank You!

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