



Where Manufacturing Technology and Talent Matter

# The National Advanced Materials Manufacturing Innovation Institute

## Welcome to the Voice of the Industry Workshop

*LIFT is operated by the American Lightweight Materials Manufacturing Innovation Institute (ALMMII), a Detroit-based nonprofit public-private partnership*

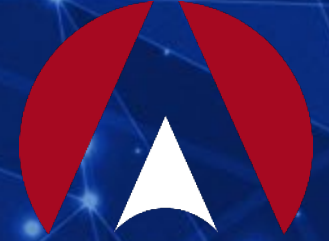
Rev. 4-23-24



# Joe Steele

Vice President , Communications & Legislative Affairs LIFT





# Mike Listau

Dean, Workforce Education at Pensacola State College (PSC)



# Alex Andrade

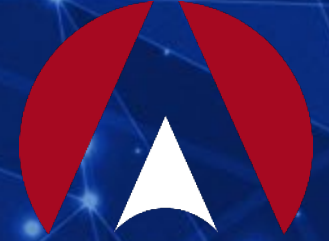
State of Florida Representative



# Howard Haug

Executive Vice President, Treasurer & Chief Investment Officer





# Carrie Davis

Branch Chief, Naval Surface Warfare Center, Carderock Division, Office of Secretary of Defense Government Program Manager for LIFT

Department of Defense Perspective on the need for Innovation in Support of our Warfighters



# What is LIFT?



## Driving American Advanced Manufacturing Into the Future Through Technology and Talent Development

LIFT is an accelerator convening and connecting government, industry and academia in the fields of **advanced materials, manufacturing processes, systems engineering and talent development** to enhance America's manufacturing competitiveness, national economy and national security.

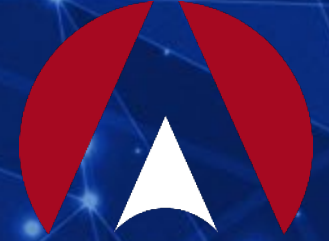


Nonprofit 501(c)3 | Public-Private Partnership | Member Based









# Jason Bridges

Sr. Manager Material and Process Technology Corporate Enterprise  
Operations Transformation



# Melanie Spare

Siemens Digital Industry Software in the Americas



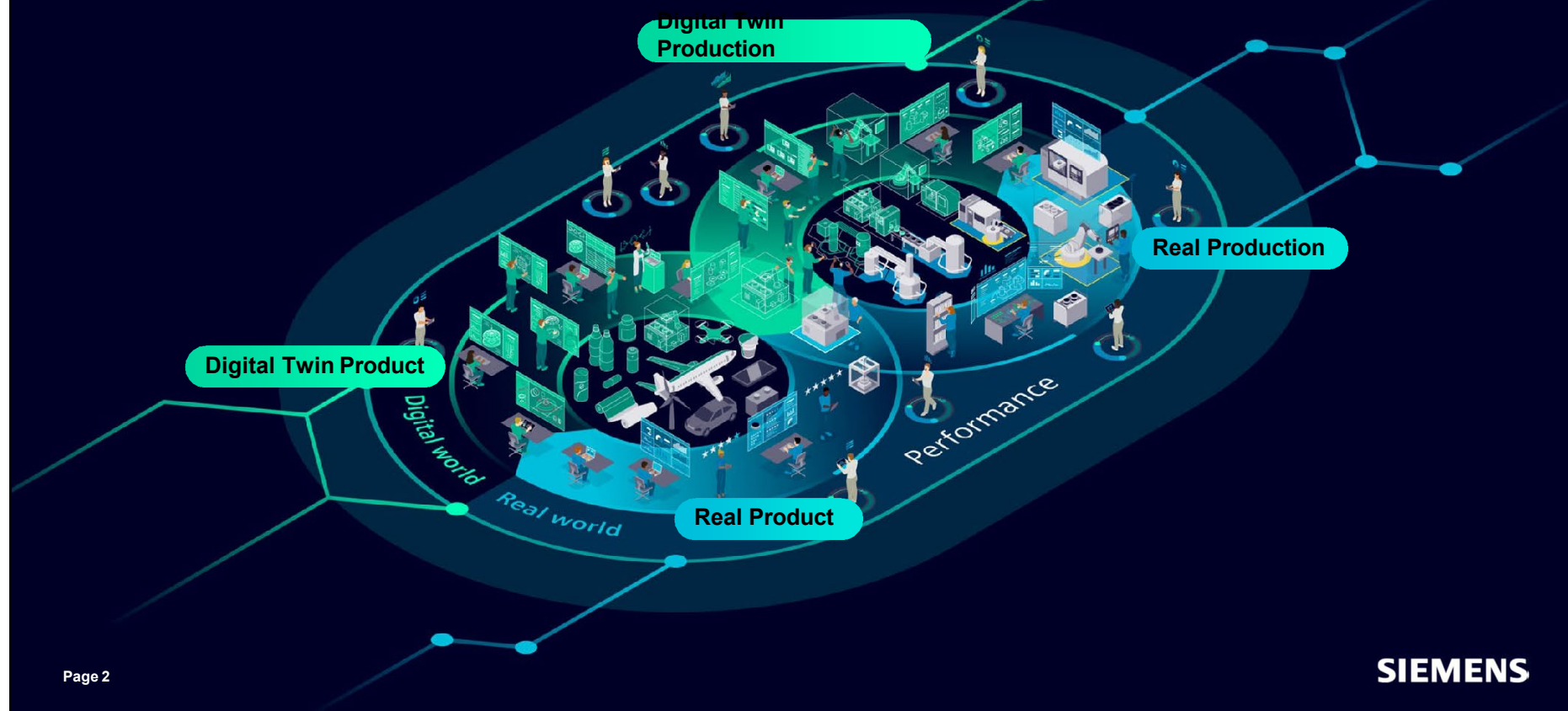
# Developing the Future Workforce



Unrestricted | © Siemens 2024 | Siemens Digital Industries Software

**SIEMENS**

# Transforming Learning Everyday to Create a Better Tomorrow





Transform the future  
workforce through a  
digital skillset and  
mindset

A digital mindset requires a digital skillset

## Top 10 skills for the future

Source: WEF Future of Jobs 2023

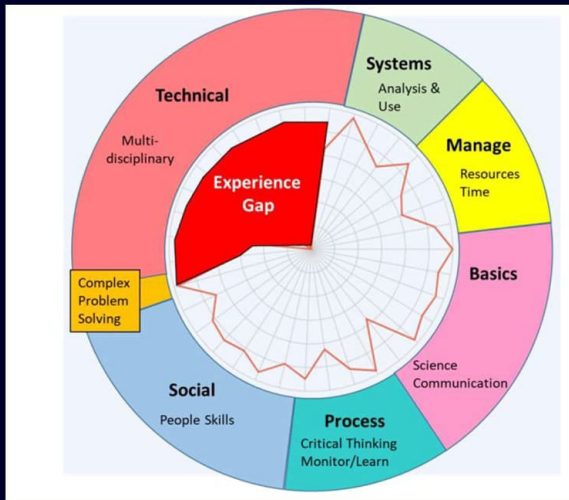
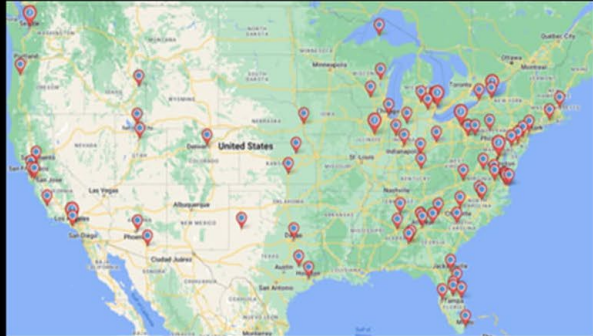


Fig. 1. Radar plot adapted from data on the critical and distinctive skills necessary for those generically working in the Electrical Engineering field....(2020). Bureau of Labor Statistics. [1]

Creative thinking  
Analytical thinking  
Technological literacy  
Curiosity and lifelong learning  
Resilience, flexibility and agility  
Systems thinking  
AI and big data  
Motivation and self-awareness  
Talent management  
Service orientation and customer service



## Academic Focused Accounts



## Top 100 Active Customers (HQ)



# Customer Driven Academic Collaboration

### Diamond Accounts

Arizona State University  
Texas A&M  
University of Texas  
University of California System  
Clemson University  
University of Cincinnati  
University of Michigan  
University of South Carolina  
Penn State

### Canada

University of Toronto  
University of British Columbia  
McGill University  
University of Montreal  
University of Alberta  
McMaster University  
University of Waterloo  
Western University  
Queens University  
University of Calgary

### Platinum Accounts

Cal Poly  
Cal State  
University of Washington  
Wichita State University  
University of Southern California  
Georgia Tech  
University of Maryland  
Florida Institute of Technology  
University of Central Florida  
Virginia Tech  
SUNY System  
Oakland University  
Indiana University  
Florida International University  
Ohio State University  
U.S. Air Force Academy  
Georgia Tech

### Gold Accounts

MIT  
Ohio University  
University of North Carolina  
Carnegie Mellon University  
Michigan Tech University  
Brigham Young University  
Cal Tech  
Purdue  
Kennesaw State University  
Michigan State University  
Texas Tech  
Illinois State University  
Wayne State University  
University of Wisconsin  
Virginia Commonwealth University

## Workforce development is our Academic Enablement team focus

### Voice of industry

Needs and wants

OEMs



SMBs



STEM (K-12) ecosystem programs



Higher Education



Workforce Development Pathways

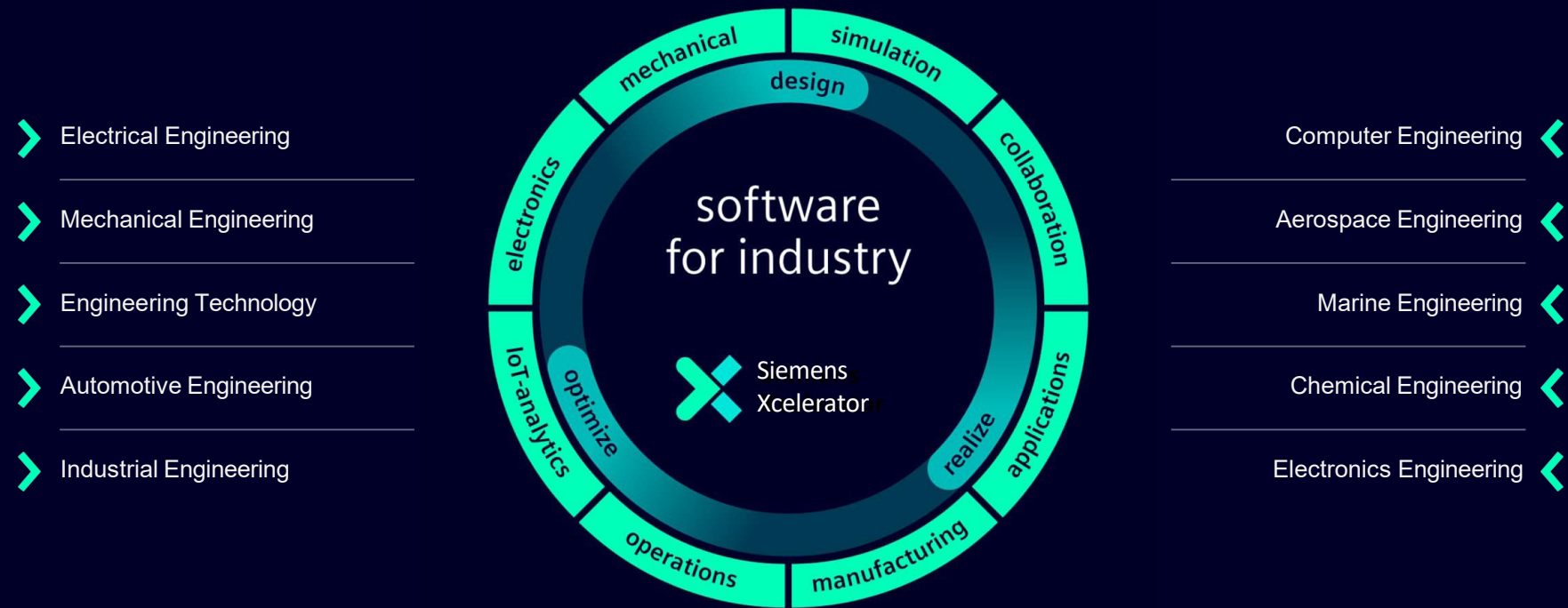


Empowering Industry and Academia Collaboration





## Siemens Xcelerator supports digital curriculum threads disciplines with comprehensive software, training and curriculum



## 5 Step Academic Approach to Skill Readiness



1

Awareness



2

Tek Talks



3

Joint Projects



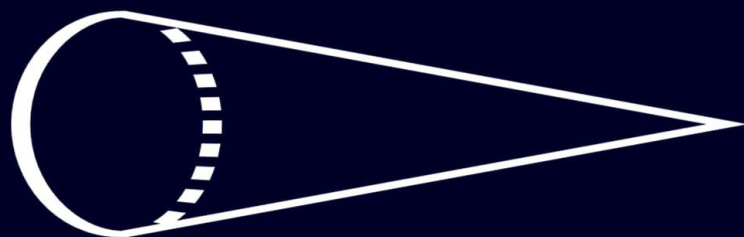
4

Curriculum  
Augmentation

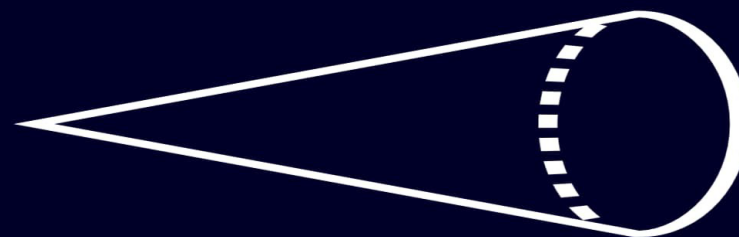


5

Curriculum  
Adoption



FOCUS



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Self-Driving Cars Teach-Out

Autonomous vehicles are set to play an integral role in how we move people and goods from point A to point B. This course will cover what a self-driving car is, legal questions surrounding the technology, and how it has the potential to change our modern society.



IIoT with MindSphere

This course allows students to familiarize themselves with the theory of the Internet of Things (IIoT). Throughout this course students will learn about the basics of connecting devices, cloud computing, machine learning, and data analytics. Students will have the opportunity to work on a cloud computing algorithm, become familiar with the concepts of visualization, develop applications for IIoT and deploy them in a cloud environment.



PLM with Teamcenter and NX

Learn about product life cycle management with PLM and Teamcenter NX with this free curriculum download. Learn about PLM theories then put what you've learned into practice with Teamcenter and NX.



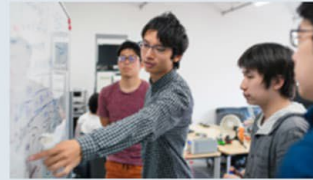
ASIC Verification

This course covers the verification process used in validating the functional correctness in today's complex Application Specific Integrated Circuits (ASICs).



Design For Test

This course provides a coverage of the most essential digital circuit testing techniques, including practices and automation methods for high-quality low-cost manufacturing test.



Introduction to Digital Transformation

This course focuses on current trends in computing, visual, connectivity and artificial intelligence. As well digital tools for design, manufacturing and usage of products.



## Complete curriculum packages

We provide a robust selection of classroom-ready curricular materials, completely free.

Our learning resources are developed cooperatively by professors at our partner universities and Siemens technical experts to help you prepare students for Industry.

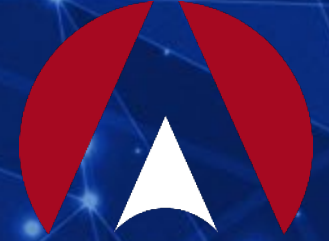
These materials can be implemented as-is or integrated with your existing syllabus.

[Siemens.com/software/academic/curriculum](https://www.siemens.com/software/academic/curriculum)

**Together we can  
empower the next  
generation of Talent .**







# Joe Ehinger, Kearney

Senior Manager

**Joe Ehinger**  
Senior Manager  
Atlanta



Joe Ehinger is a senior manager in Kearney's Strategic Operations practice based out of the Atlanta office. He focuses on manufacturing, supply chain and digital transformations across a variety of industries with specializations in consumer goods, planning and i4.0 technologies. He leads Kearney's Digital Model Factory which showcases the art of the possible in digital manufacturing and supply chains, highlighting the business value that can be unlocked through strategic deployment of the latest technologies. He partners with providers across each type of manufacturing technology to bring the best the market has to offer to his clients.

Prior to joining Kearney, Joe worked as a process engineer and operations manager at P&G where he led continuous improvement efforts, drove cost savings, and implemented digital solutions. He holds a bachelor's degree in mechanical engineering and a master's in business administration.

**Areas of Expertise**

- Industry Experience:
  - Consumer Product Goods
  - Chemicals
  - Oil & Gas
  - Food & Beverage
  - Semiconductors
- Functional Experience:
  - 4-Walls Operations Capacity and Cost Improvement
  - Digital Transformations
  - Supply Chain Transformations

**Education**

- MBA, Southeast Missouri State University
- BS Mechanical Engineering, University of Missouri

**Prior Work Experience**

- Procter & Gamble

# Reset and Resilience: Preparing for Whatever's Next

**Keynote Address**  
**June 12, 2024**

Joe Ehinger

KEARNEY





### Topics

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① **Need for Supply Chain Resiliency**

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② **Resiliency Improving via Reshoring**

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③ **Technology-Enabled Manufacturing**

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### Key takeaways

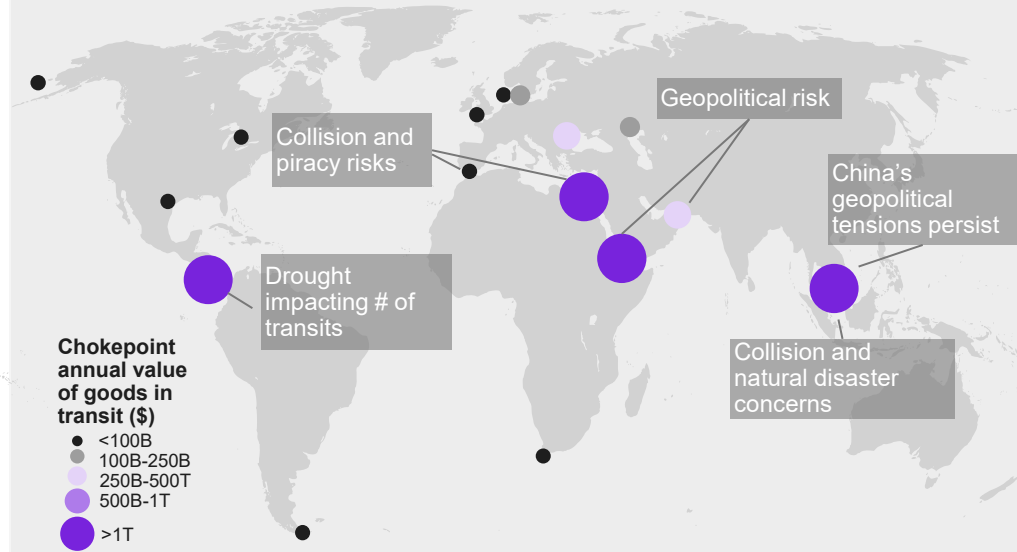
As **disruptions in the global supply chain continue** to drive cost impacts, companies are prioritizing **resiliency** and risk-sensing.

**Reshoring** represents a prime opportunity to improve **supply chain resiliency** and **mitigate risks** from geopolitical issues and ESG policies. **North America re-shoring** is on the rise, but cost represents the driving barrier to entry.

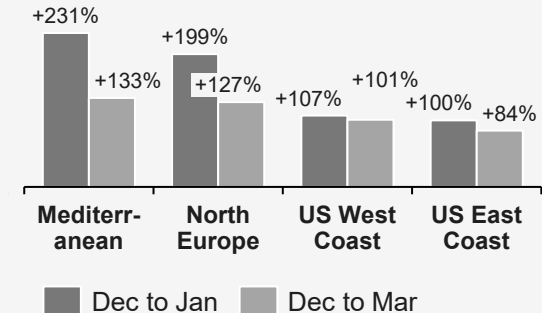
**Tech-enablement** in manufacturing facilities allows companies to **optimize labor efficiency** and compete with low cost of labor

Recent disruptions revealed the fragility of global supply chains, leading to higher costs and greater operational challenges

## Select Supply Chain Disruptions



## Broad Cost and Operational Impacts



Carriers are implementing **price increases across all lanes**, but they are **starting to deflate**



Delays in one part of a supply chain can impact **downstream inventory build and sales<sup>1</sup>**

## Companies must chart the best route forward to sense risk and react with agility

### 1 Establish robust risk sensing and escalation

- Establish dedicated team or software solution to monitor global events
- Invest in predictive tools to allow for proactive decision making
- Establish clear communication and escalation channels for risk & mitigation

### 2 Bolster resilience in your supply chain

- Build a library of mitigating actions to draw from (e.g., alt. supply sources)
- Use cognitive automation tools that use real-time data to identify alt. transit options
- Conduct scenario planning drills across your risk areas

1. Source: Drewry rates from Shanghai to Genoa, Rotterdam, Los Angeles, and New York

**Our North American clients are increasingly shifting away from high concentration manufacturing operations**

**Major levers leading to geographic diversification in manufacturing**



**Post-COVID focus on supply chain resiliency**



**Global push for ESG-friendly practices**



**Heightened barriers to trade, new challenges accessing markets with geopolitical tension**

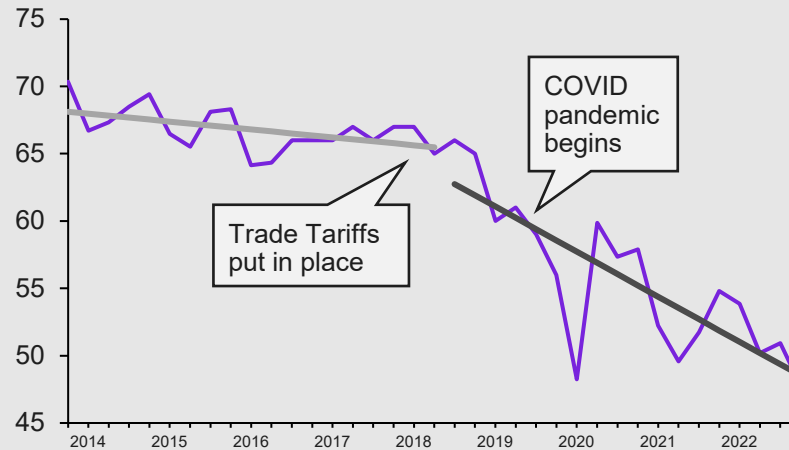


## Asia LCCs are diversifying, North American re-shoring is on the rise

### Other Asian Low-Cost Countries (LCCs) are growing....

- China's share of total US imports from Asian LCCs has declined **from 56% after the initial COVID impact to 51% in 2022**
- **Vietnam has continued to gain share** but is starting to run out of capacity and labor
- **Other Asian LCCs, such as Thailand, Taiwan, and India** continue to pick up share from China

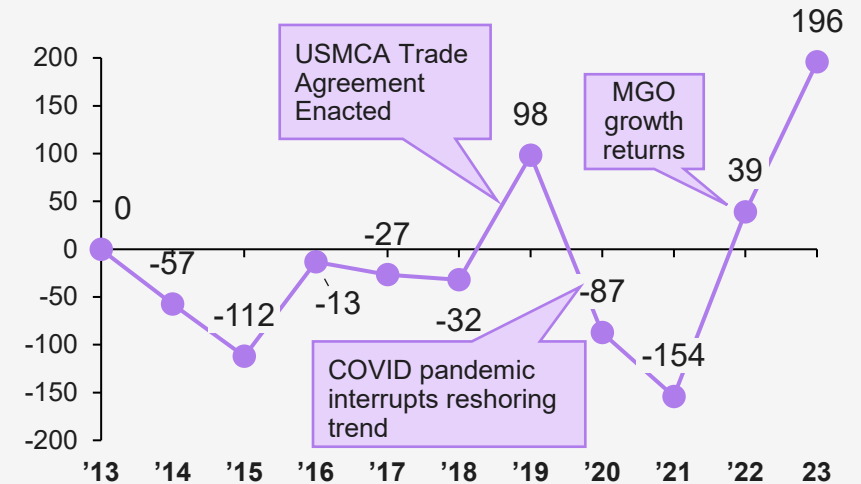
**Kearney China Diversification Index (CDI)**  
Seasonally Adjusted Share of U.S. LCC Manufacturing Import Value from China <sup>1</sup>



### ... but re-shoring to N.A. is also on the rise for critical industries with fragile supply chains

- 2022 and 2023 domestic manufacturing gross output (MGO) growth outpaced US imports from Asian LCCs
- Extensive effort has been placed on North American **reshoring for priority supply chains**
- This category includes **batteries** and related **critical minerals**, plus **semiconductors**

**U.S. Reshoring Index<sup>2</sup>: YoY Change in the MIR<sup>3</sup>**  
Basis Points, 2013 – 2023





1. Includes US imports from Hong Kong; 2. The U.S. Reshoring Index is the YoY change in the MIR, expressed in basis points (1% change = 100 basis points). - a positive number indicates net reshoring—the degree by which gross domestic output exceeded imports from the 14 LCCs as compared to the preceding year. A negative number indicates an increase in offshoring – Asian LCCs include China, Vietnam, Philippines, Malaysia, Indonesia, Pakistan, Sri Lanka, Taiwan, Thailand, Bangladesh, India, Singapore, Hong Kong, Cambodia – 2022 value is forecasted as official MGO numbers are only available on March 31<sup>st</sup>, 2023; 3. MIR = Manufacturing Import Ratio, i.e. total manufactured goods imports from 14 Asian LCCs as % of domestic manufacturing gross output (MGO)  
Source: Kearney analysis, United States International Trade Commission, United States Department of Commerce Bureau of Economic Analysis

# Reshoring can be optimized to ensure benefits outweigh cost disadvantages

## Benefits of being in (or closer) to the US...

### Commercial benefits


 Higher revenue


 Higher flexibility

 Friendly Industrial Policy

### Operational efficiency

 Lower supply chain risk


 Easier supervision

 Streamlined operations


 Sustainability

### Reduced cost

 Expedites


 Cost of capital

 Shipping costs

 Consolidation

## ...with cost disadvantages

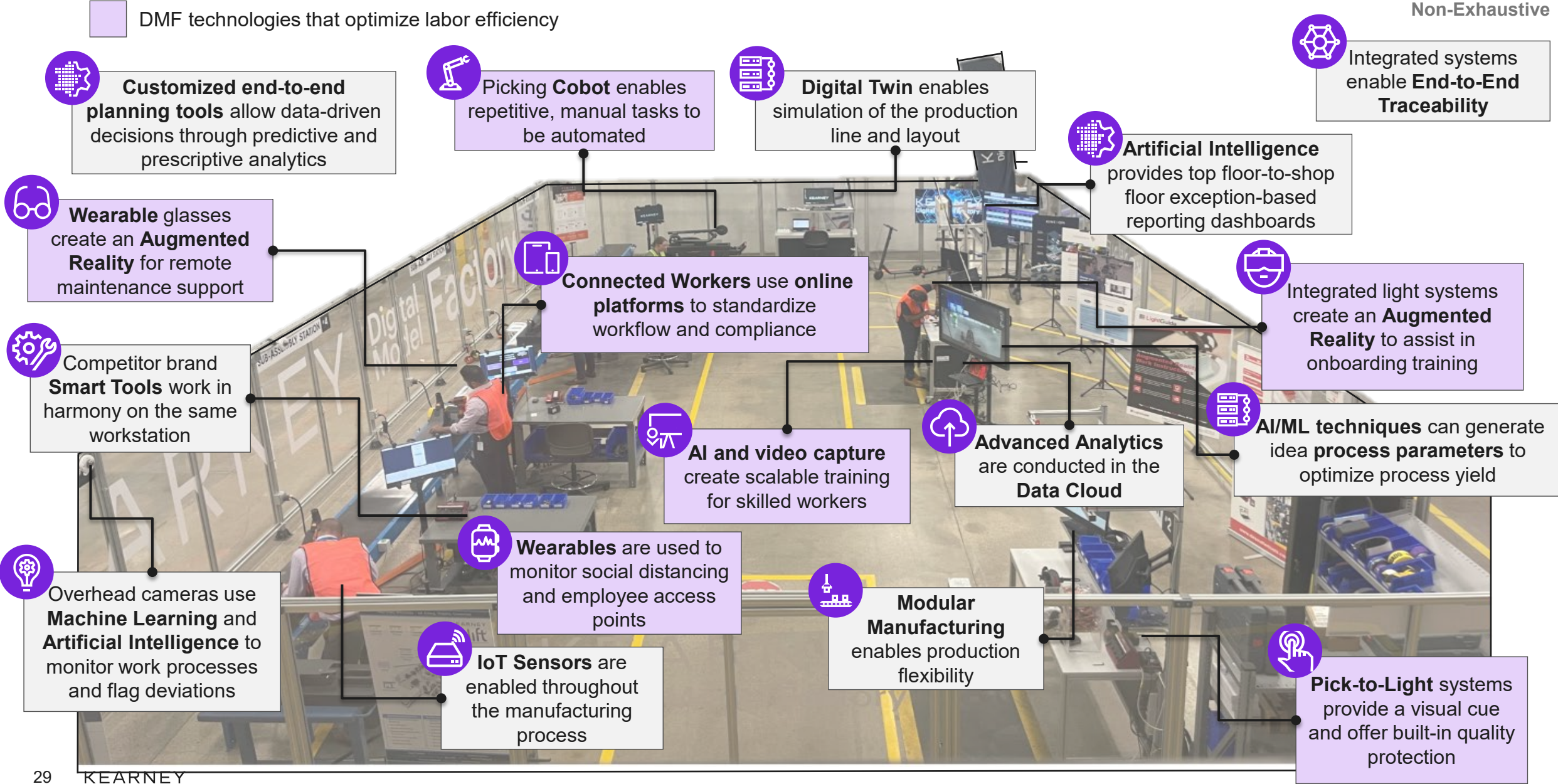
### Manufacturing cost

 Higher factory costs

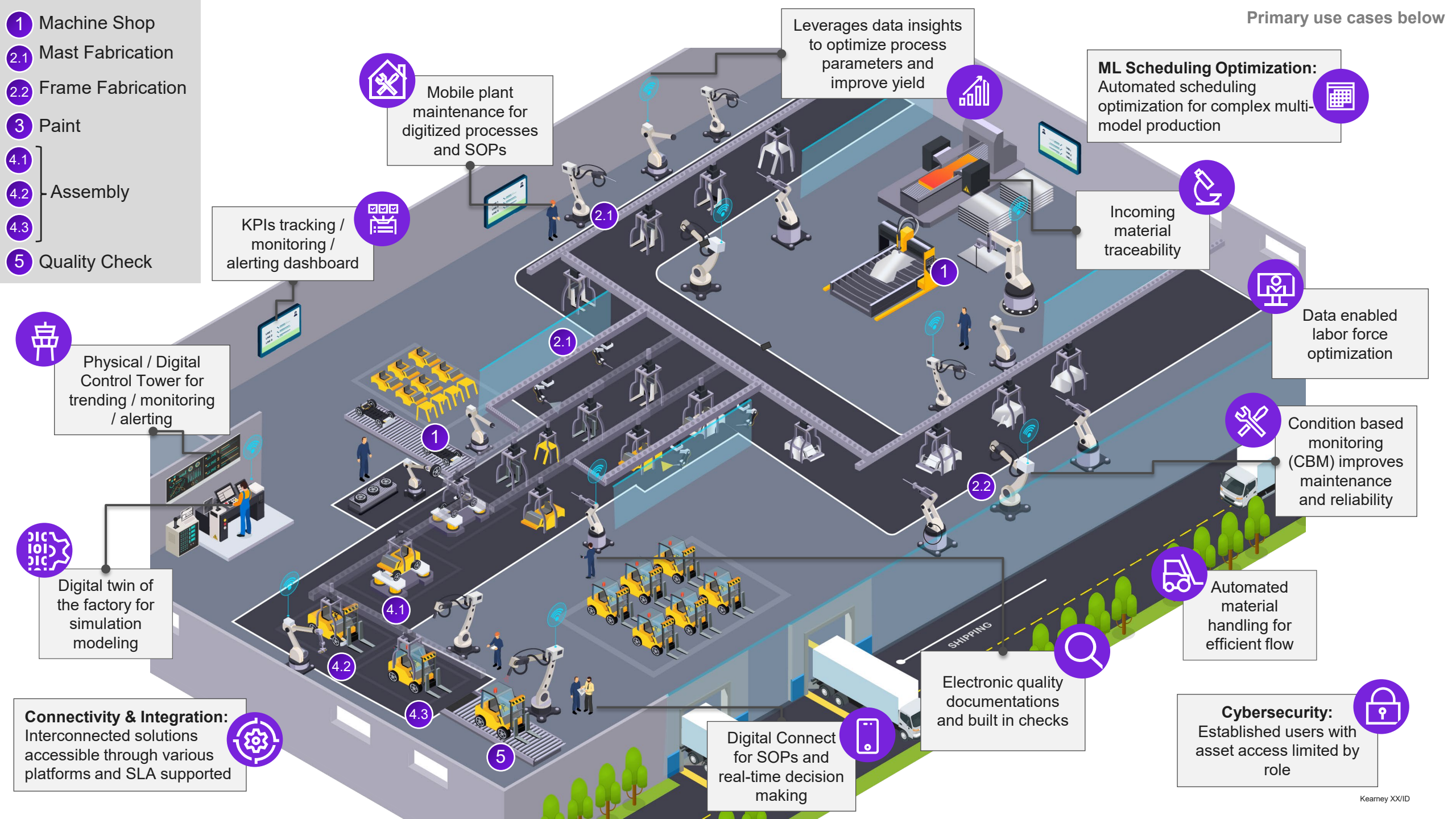
 New factory cost

 Cost inefficiencies

# Technology-enabled manufacturing efficiencies allow companies to compete with low-cost labor











# Time is of the essence

Leaping ahead of our global competitors takes *transformational* – not incremental – change.

# Florida Technology and Talent Visioning Workshop

## Breakout Activity

June 12, 2024

### Leaders:

Kevin Kerrigan

Joe Steele

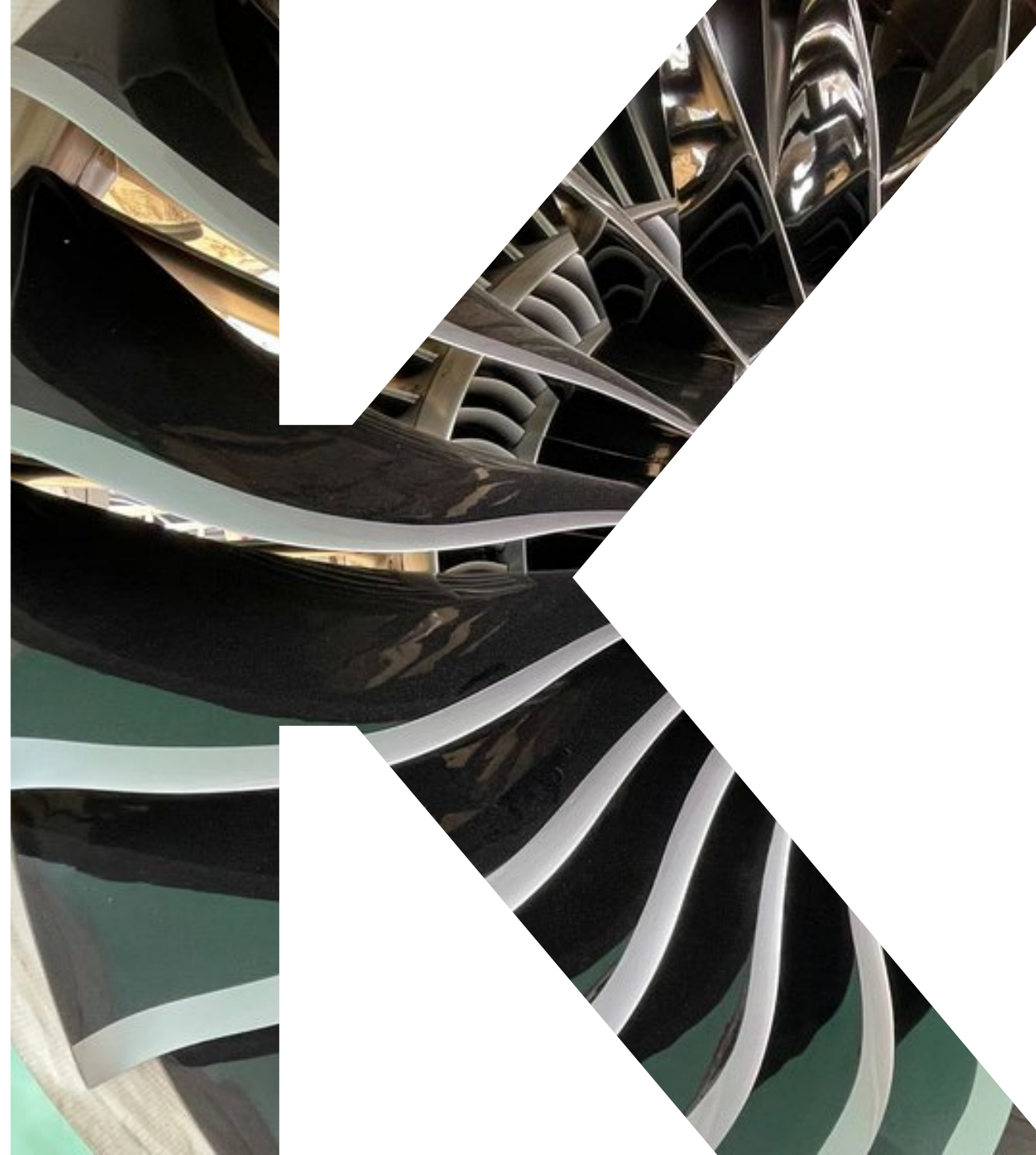
Christine Longroy

Felipe Perea

Joe Ehinger (Kearney)



KEARNEY





## Introductions, Goals, Objective, and Outcomes

### GOALS:

- Visualize the future-state of manufacturing in Florida
- Identify pain points, related to technology and talent
- Prioritize areas of focus for LIFT in order to expand and improve manufacturing in Florida

### AGENDA:


1. **Technology and Talent Visioning Session** – online poll to formulate our vision of the future state
2. **Technology and Talent Obstacles / Blockers** – active brainstorming exercise with sticky notes and thought-starters
3. **Success Stories** – open discussion on what has worked for you
4. **Recap & Next Steps** – alignment on key themes coming out of our session and next steps for LIFT

## Workshop Overview

### RULES OF THE ROAD

- **Be open** - open mindset, put judgement and filters aside, eliminate “but” from your vocabulary
- **Be specific** - which specific technologies, types of talent (e.g., welders, design engineers)
- **Respect each other / listen** - leverage potential of the group’s collective wisdom to build on each other’s ideas and explore a rich range of possibilities
- **All ideas matter** - even though a “crazy, impossible idea” might not actually be feasible, it could take everyone’s thinking down a new pathway and reveal some hidden gems
- **Strive for quantity** - get as many ideas on the table as possible - more ideas give you more choices and improve your chances of connecting different ideas in new ways
- **Have fun!**

## Agenda



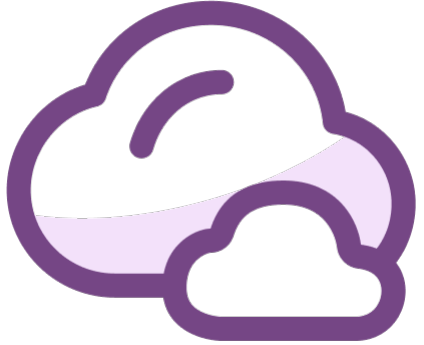
Times	Topic
10:00 AM - 10:30 AM	<b>Visioning Session</b> - what does the ideal future-state look like if we remove all barriers?
10:30 AM - 11:30 AM	<b>Technology</b> - what obstacles exist or enablers need to be put in place to reach our vision?
11:30 AM - 12:30 PM	<b>Talent</b> - what obstacles exist or enablers need to be put in place to reach our vision?
12:30 PM - 1:30 PM	<b>Lunch</b>
1:30 PM - 2:00 PM	<b>Success Stories</b> - what has been successful in your companies?
2:00 PM - 2:30 PM	<b>Recap &amp; Next Steps</b>



### Guiding Questions

1. What does our future-state plant look like?
2. What are key technologies / key features?
3. What do we want from technology?
4. How can technology help us run our business better?

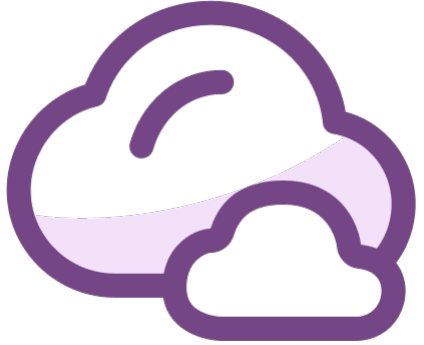
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**What does our future-state plant look like?**

① Start presenting to display the poll results on this slide.

slido



**What are key technologies / key features?**

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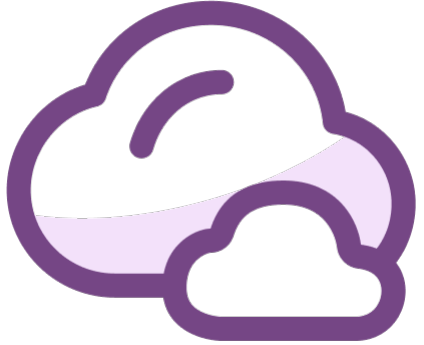
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**What do we want from technology?**

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**How can technology help us run our business better?**

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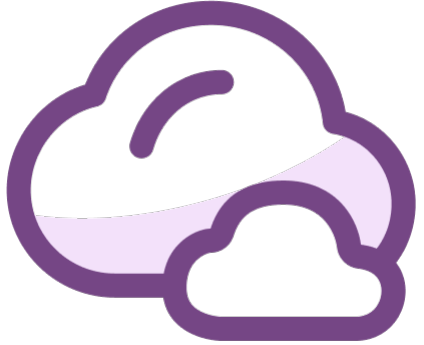
# Former State Senator Don Gaetz



### Guiding Questions

1. What do we want from our talent?
2. What skills / experience are important?
3. Who do we want to hire?
4. What type of culture do we want to build?

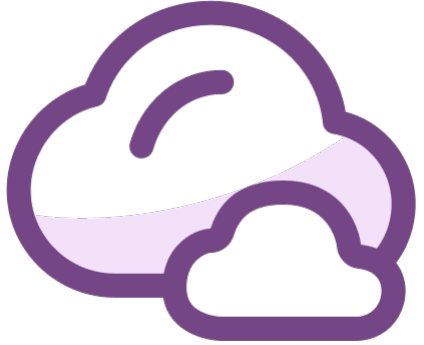
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**What skills / experience are important?**

① Start presenting to display the poll results on this slide.

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**What do we want from our talent?**

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**Who do we want to hire?**

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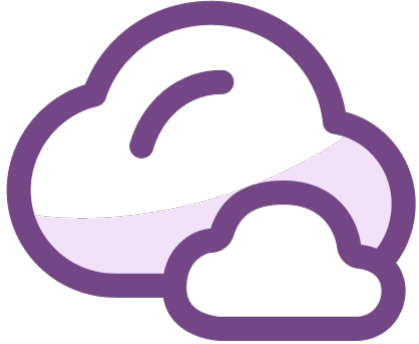
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**What type of culture do we want to build?**

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**What did you learn today that you can action tomorrow?**

① Start presenting to display the poll results on this slide.

## Session: Technology

### Enabler Thought-starters

- What would help us achieve our goals?
- If [...] happened, we could make progress toward our goal
- Who / what can help us make progress?
- What are tailwinds?

### Types of Enablers

- Government
- Academic
- Internal (company policies)
- Company culture
- Macro / regional challenges
- Others?

### Enablers

## Session: Technology

### Obstacles Thought-starters

- What is preventing us from achieving our future-state?
- If [...] stopped / was not a constraint, we could make progress toward our goals
- Who / what is blocking us?
- What are unfavorable trends?

### Types of Enablers

- Government
- Academic
- Internal (company policies)
- Company culture
- Macro / regional challenges
- Others?

### Obstacles



Recap of Industry Needs

Next Steps

Recap

	Priority Enablers	Priority Obstacles / Blockers
Talent		
Technology		