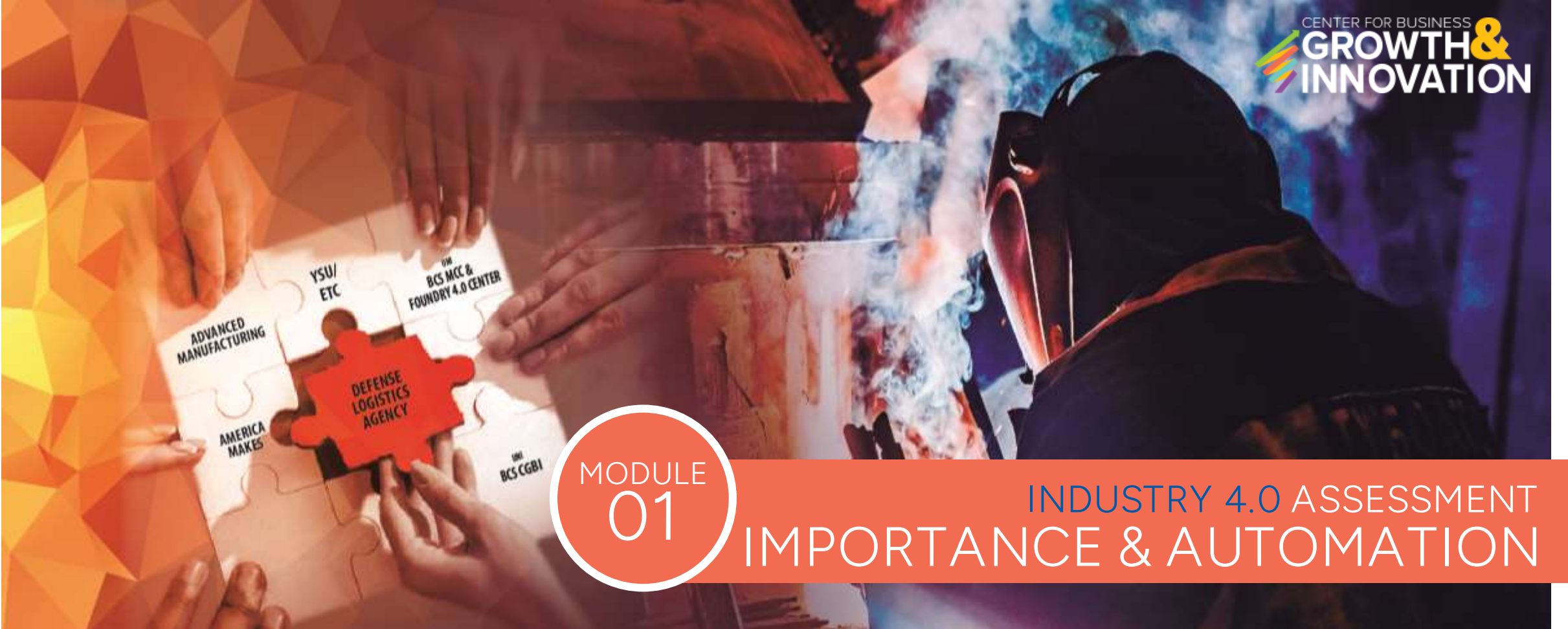


FOUNDRY 4.0 | Engage & Explore

TRAINING & ONLINE SEMINAR SERIES

BUSINESS SOLUTIONS



CENTER FOR BUSINESS
GROWTH & INNOVATION

MODULE
01

INDUSTRY 4.0 ASSESSMENT IMPORTANCE & AUTOMATION



BUSINESS
SOLUTIONS

FOUNDRY 4.0 | Engage & Explore

INDUSTRY 4.0 ASSESSMENT Importance & Automation

Todd Hutcheson, University of Northern Iowa

CENTER FOR BUSINESS
**GROWTH &
INNOVATION**



welcome



FOUNDRY 4.0

Technologies revolutionizing
the metal casting industry!

SHAPING
THE FUTURE OF AN
INDUSTRY

FOUNDRY4.0@NCDMM.ORG



PROJECT
MISSION

Create **resiliency** in the
FOUNDRY & CASTING INDUSTRY
through the implementation
of Industry 4.0 technology

FOUNDRY 4.0

Technologies revolutionizing the metal casting industry!

UNI BCS



CENTER FOR BUSINESS GROWTH & INNOVATION

UNI CBGI

CENTER FOR BUSINESS GROWTH & INNOVATION

UNI University of Northern Iowa, Business & Community Services

UNI FOUNDRY 4.0 CENTER



UNI MCC

& FOUNDRY 4.0 CENTER



YOUNGSTOWN State University



Todd
Hutcheson

TODD HUTCHESON

Executive in Residence & Business Professor

University of Northern Iowa (UNI)
Business & Community Services (BCS)
Center for Business Growth & Innovation (CBGI)

32+ Years at a major A&D Prime and Sub-contractor
4+ Years as MBA Program Director at a Midwest Liberal Arts College
3 Years at UNI as a Strategic Management Professor
& Small to Medium-sized Business Consultant
CBGI - providing targeted solutions, guiding small and mid-sized enterprises as they thrive, grow and succeed, assisting firms in overcoming obstacles, helping identify new opportunities, and delivering value businesses
Undergraduate in Industrial Technology, Master in Business Administration, 14.0 Certificate in Progress at Massachusetts Institute of Technology



University of Northern Iowa.
Business & Community Services

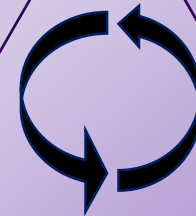
MANUFACTURING'S PERFECT STORM

ATTRACTION
RETENTION

EMPLOYEE
CONCERNS

SUPPLY
CHAIN

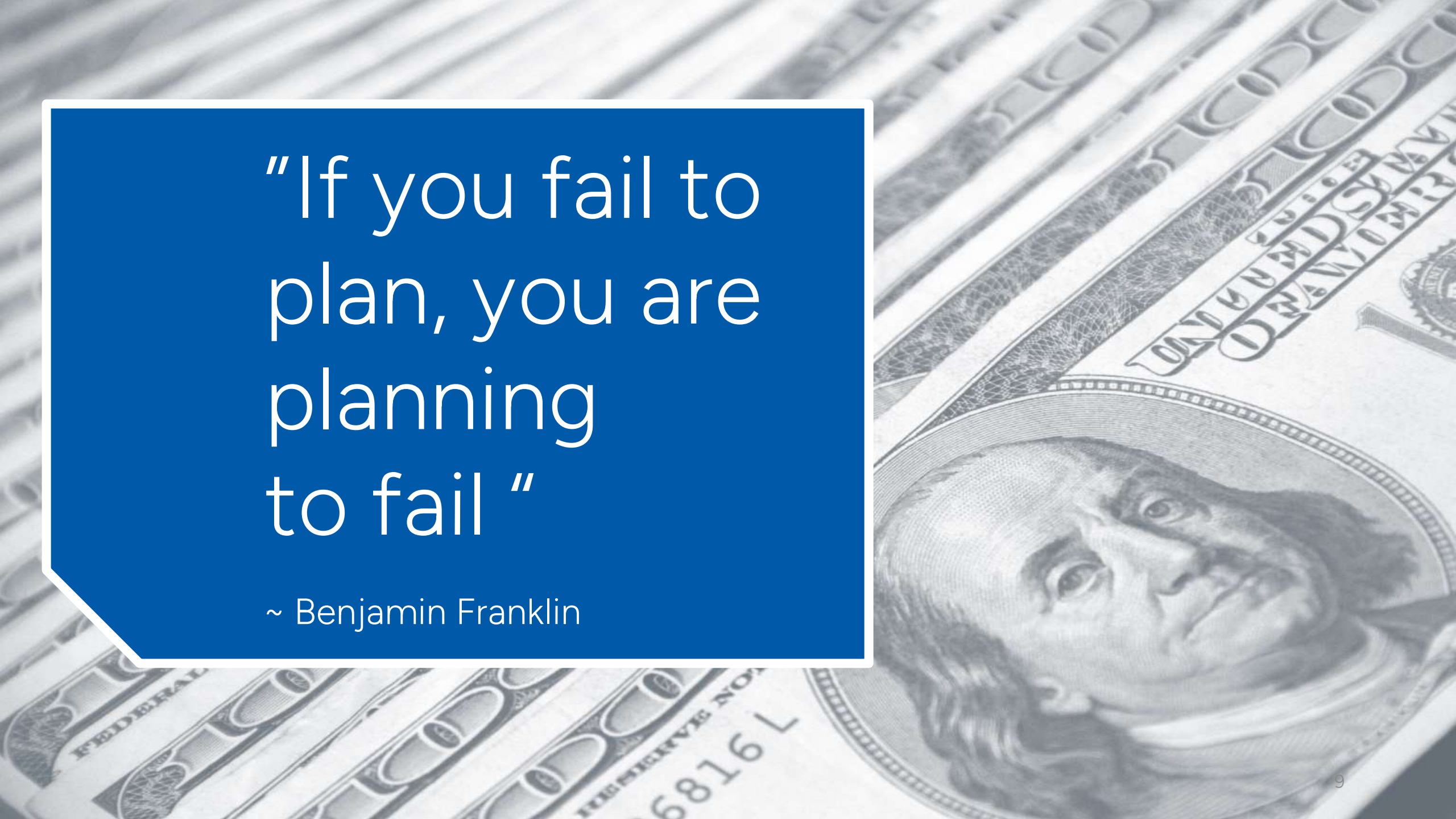
RELIABILITY
COST



LABOR

COST
EXPERTISE

Our **CURRENT SITUATION** requires a totally different approach

The background of the slide is a grayscale image of several US dollar bills, with a prominent portrait of Benjamin Franklin on a one hundred dollar bill in the lower right quadrant. The bills are slightly out of focus, creating a sense of depth.

“If you fail to
plan, you are
planning
to fail”

~ Benjamin Franklin

WHY CONSIDER Industry 4.0?

14.0
OFFERS

1. Increased Efficiency and Productivity
2. Predictive Maintenance
3. Enhanced Quality Control
4. Customization and Flexibility
5. Supply Chain Optimization
6. Cost Savings
7. Innovation
8. Real-time Data and Analytics
9. Competitive Advantage
10. Global Connectivity

What is INDUSTRY 4.0 & How did we get here?



Industry 1.0
Around 1760
Mechanization



Industry 2.0
~1860s onwards
Automation



Industry 3.0
~1970s
Digital



Industry 4.0
~ 2000 - Today
AI & ML,
cyber physical
systems

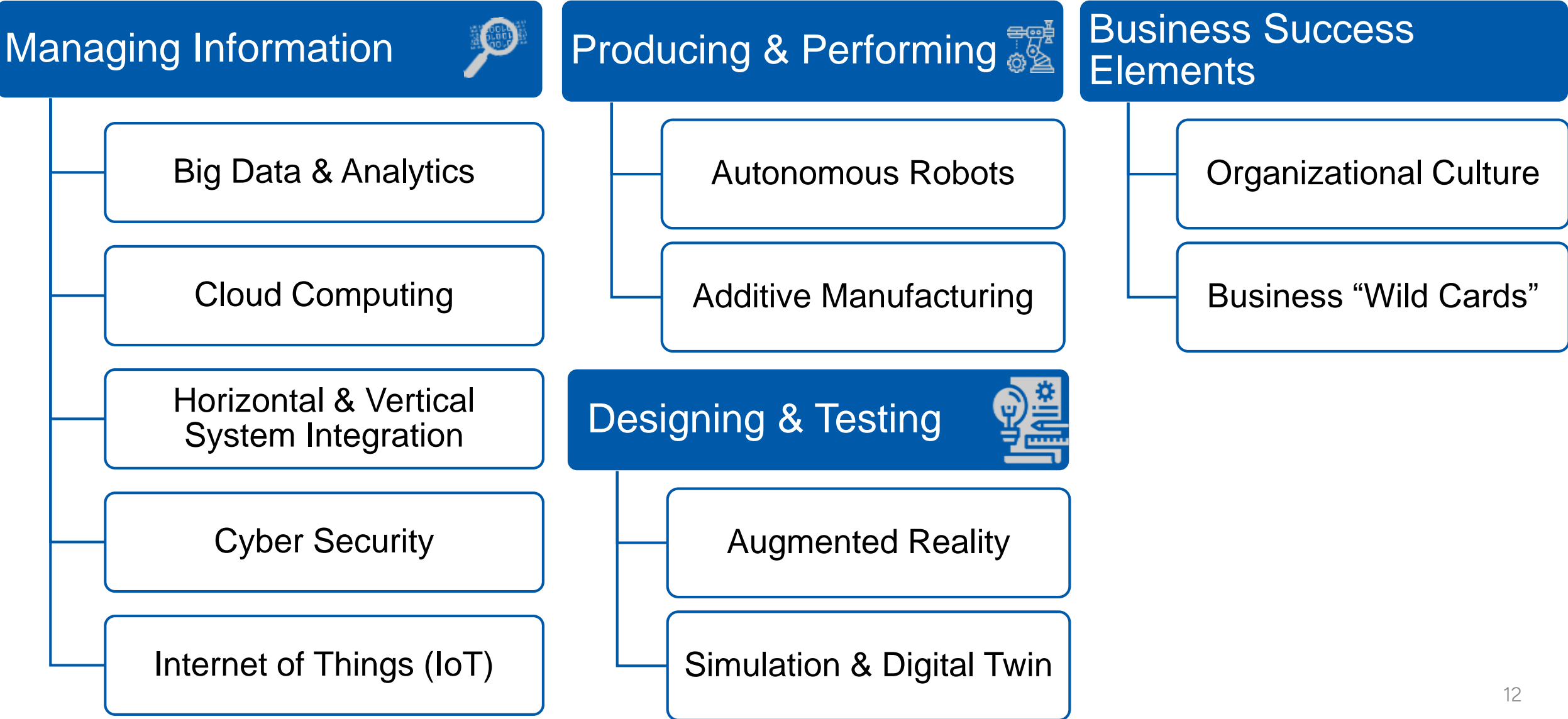


Industry 5.0
Has already started!
Mass customization &
cyber physical
cognitive systems

Note:

Industry 4.0 applied to an industry can become "Foundry 4.0", "Manufacturing 4.0", "Logistics 4.0"
... all apply similar principles

Understanding INDUSTRY 4.0 Technologies – Four Broad Buckets



INDUSTRY 4.0

Converting Data
Into Useful
Wisdom

DATA



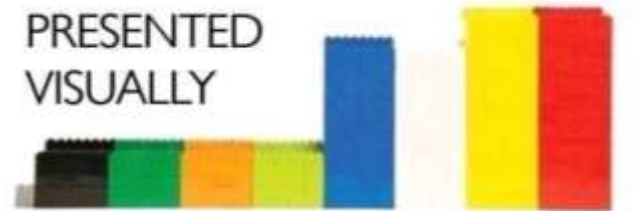
SORTED



EXPLAINED
WITH A STORY



PRESENTED
VISUALLY



ARRANGED



4.0 VALUE

Increased efficiency and productivity

Industry 4.0 technologies can enable real-time monitoring of production processes and machine performance, leading to greater efficiency and productivity.

Improved product quality

With the help of Industry 4.0 technologies, manufacturers can reduce defects, ensure consistency, and improve quality control in their production processes.

Enhanced safety

Industry 4.0 technologies can improve safety in industrial environments by automating dangerous or hazardous tasks and providing real-time monitoring of safety conditions.

Cost reduction

By optimizing production processes and reducing waste, Industry 4.0 technologies can help manufacturers save costs and improve their bottom line.

Faster time to market

With the help of Industry 4.0 technologies, manufacturers can quickly respond to changing market demands and bring new products to market faster.

Improved customer satisfaction

With better product quality, faster delivery times, and personalized products and services, Industry 4.0 can help manufacturers enhance customer satisfaction and loyalty.

Overall

The implementation of Industry 4.0 technologies has the potential to transform manufacturing and industrial processes, leading to greater efficiency, productivity, safety, and customer satisfaction.

14.0 IMPROVEMENT METHODOLOGY

BEGINS WITH →

Assessments

GOAL:
Provide
Applied,
True
Business
Value

Technology
Research &
Development

Key Business
Performance
Indicators

Implementatio
n,
Integration

INDUSTRY 4.0 ASSESSMENT

Importance & Automation Modules

Watch Sequentially or
Stand-Alone

- 01 The Importance of I4.0 Assessment and Overview of the Automated Assessment Process
- 02 Data Gathering: coming soon!
- 03 The Assessment: TBD
- 04 KPI Connection: TBD
- 05 Report Generation & Action Plan Creation: TBD

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Elements of 14.0 Improvement Implementation



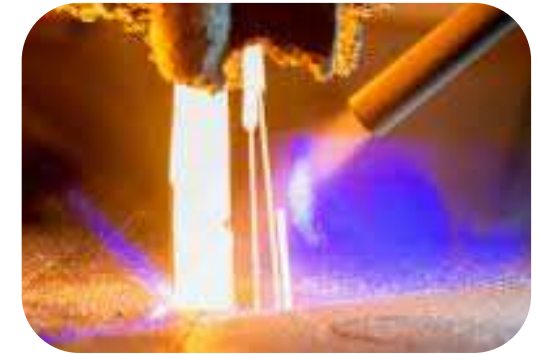
Data Collection



Assessment



Key Performance
Indicators



Action Plan &
Implementation



Why Begin with Assessment?

Many I4.0 Assessments exist ... most exhibit one or more of the following issues:

- Lack of an “ease of use” in gathering inputs
- Difficulty gathering honest inputs from a cross-section of leaders
- Difficulty maintaining an ability to offer honest, objective inputs without confrontation
- Disconnects between assessment scores and needed impact on business objectives/KPIs
- Long waits for conclusions including some not discussed in initial review meetings
- Quick turnaround of summary reports written at too high a level high to be useful
- A lack of follow-up connecting organizations with enabling integrators and I4.0 technology

Honest Assessment and Feedback is a Foundational Key to Success



Data collection:

- Code and location given to company/individuals

Complete assessment administered via Qualtrics or Google Sheets:
Data collection from individuals at a partner company

DATA

Gathered by CBGI Team, fed into core spreadsheet (eventually creating automated reports)

1

Size, Industry, Location, etc. dependent

3

AI help to generate key points
Discussion to review output

Summary Report

- Priorities
- Action Plans
[Can be initially AI populated, then adjusted]

Top 5 Prioritized Actions –
Cost: Benefit (Impact) priority order

PHASES OF Assessment Automation Development

Phase 1: Relatively manual data collection & consolidation

- A. Multiple user inputs gathered independently per partner organization
- B. Collected by UNI-CBGI into a consolidation spreadsheet for the organization
- C. Facilitated discussion with organization based on consolidated average outputs

Phase 2: Automated data collection & consolidation

- A. Automated collection of the user provided data for an organization using Google Forms
- B. Automated gathering, consolidation and analysis of the user data into a spreadsheet/database
- C. Automated creation of an I4.0 Technology report card for discussion

Phase 3: In parallel, working to connect I4.0 pillar data for organization KPIs impacted by implementing technology in that pillar

Phase 4: Creation of a summary report, potential actions and prioritized planned actions based on KPI impact... maximizing business value

Phase 5: In parallel, creating AI queries & prompts to automate the creation of the summary report

4.0 VALUE

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Improved product quality	With the help of Industry 4.0 technologies, manufacturers can reduce defects, ensure consistency, and improve quality control in their production processes.
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INDUSTRY 4.0 ASSESSMENT

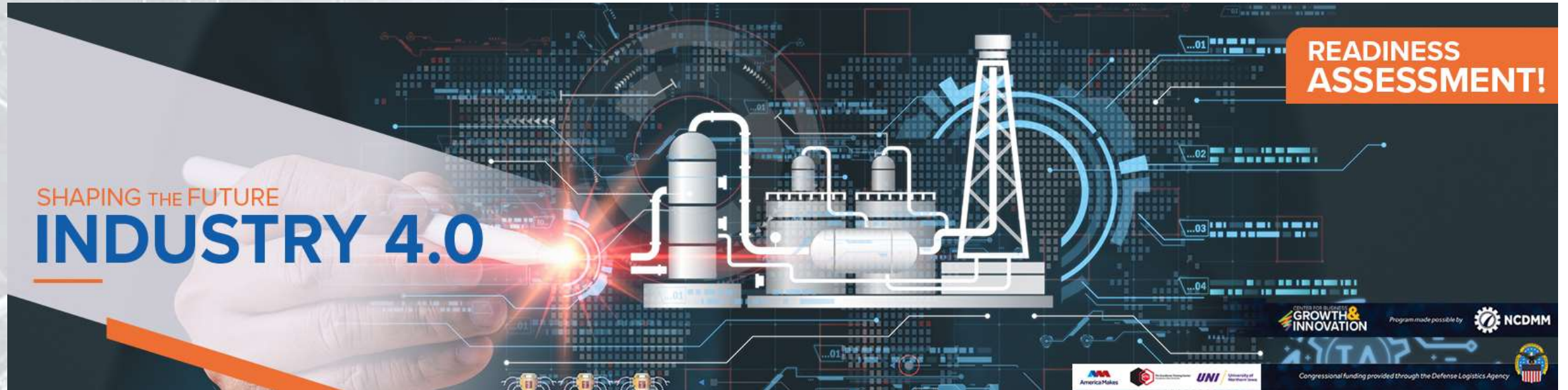
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INTRODUCING OUR

Foundry 4.0 Readiness Assessment Tool



Whether you're a large-scale enterprise or a growing business, our **Foundry 4.0 Readiness Assessment Tool** offers a foundational understanding of where you stand in the journey towards Industry 4.0. By harnessing the power of data-driven insights, you can make informed decisions that set the stage for innovation and sustainable growth.

We invite you to explore the possibilities and learn more about our Foundry 4.0 Readiness Assessment Tool. Reach out directly at todd.hutcheson@uni.edu or call (319) 273-6008 and I will answer any questions and get you started. We look forward to the opportunity to assist you on this exciting journey and together we can begin to reshape the future of the foundry industry.

For Additional
INFORMATION:



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Connect

let's
WORK
together!!

with US!



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Thank you!

