



Fostering partnerships and pathways to educate the advanced manufacturing workforce.

Researching
Developing
Training and Educating
Dissemination
Mentoring
Consulting
Partnerships
Deploying

☑ Preparing the Next Gen
Manufacturing Workforce



CT State Colleges & Universities and College of Technology

- Working with Office of Workforce Strategies and Governor's Workforce Council and participating in Regional Sector Partnerships to meet their workforce development goals and objectives
- Regular participation in industry association initiatives (e.g. CT Manufacturers' Collaborative) and educational advisory meetings (e.g. CT Technical Education & Career System)
- Developing strategic plan for community college manufacturing programs to address the need manufacturing employees

Industry-Driven Curriculum

- College of Technology (COT) Site Coordinators Council
- Stackable Credential Model-driven by industry and workforce
- Career Pathways
- Microcredentials, Certificates, A.S. Degrees through Community Colleges with partnerships with secondary schools
- Oversees Community College Engineering and Technology Curriculum including all Manufacturing certificates and degrees
- Prepares Students for Immediate Employment as well as seamless transfer to four-year colleges/universities as juniors
- Address the recruitment and retention of underrepresented populations
- Programs include:
 - Mechatronics
 - Machine Technology
 - Welding,
 - Electronics Technology
 - Electro-Mechanical Maintenance
- Programs are added and modified in response to industry needs





Fostering partnerships and pathways to educate the advanced manufacturing workforce.



National Science Foundation Funding

- Recognizes infrastructure of COT as a national model
- First funded in 2004 to establish the Regional Center for Next Generation Manufacturing
- Four rounds of funding including award in 2018 to create a National Resource Center for Next Generation Manufacturing
- In 2021, NSF awarded the COT \$7.5M for a National Center for Next Generation Manufacturing – Focus on Industry 4.0
- Focus on professional development for educators and counselors and outreach programs for high school and community college students



National Center for Next Generation Manufacturing

Goals:

- Develop a national manufacturing leadership network
- Create an advanced manufacturing education repository
- Provide Faculty and instructor professional development
- Improve the image of advanced manufacturing
- Provide resources and strategies to develop a diverse workforce
- Partners:
 - College of the Canyons (CA)
 - Columbus State CC (OH)
 - Central CC (NE)
 - Indian River State College (FL)
 - Manufacturing Extension Partnerships (MEPS) with FLATE
 - Diversity Consultants
 - Manufacturing USA Institutes
 - NST ATE National Centers and Projects
 - Industry - including professional associations and organizations using the BILT model to ensure engagement



Contact:

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National Center for Next Generation Manufacturing Technology Teams

1. Design Team

CAD: 2D/3D & Blueprint Reading
Additive Manufacturing
Laser Scanning/ Reverse Engineering

2. Fabrication Team

CNC Machining/Precision Machining/ Assembly/Metal forming
Welding

3. Processing Team

Mechatronics/Robotics/Automation
Industrial Maintenance
Instrumentation/ Plastics
Laser & Fiber Optics
Biomanufacturing

4. Supply Chain, Logistics & Quality Control Team

Metrology, Process Control
Supply Chain & Logistics

5. Industry 4.0 Team

Virtual & Augmented Reality
Smart Manufacturing/Big Data/AI/Machine Learning
Internet of Things/Communications Protocols
Cybersecurity

Academic Teams with Industry

Professional Skills

Mentoring

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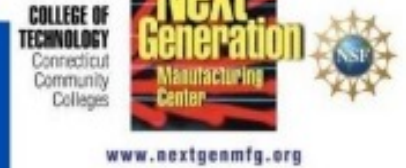
Chris Dennis – Instructor

Columbus State Community College

Worked in the automotive industry for 25 years in SCM

Classes Taught :

- Supply Chain Management Principles
- Procurement
- Procurement and Negotiations
- International Business
- Logistics Engineering Technology
- IT in Logistics



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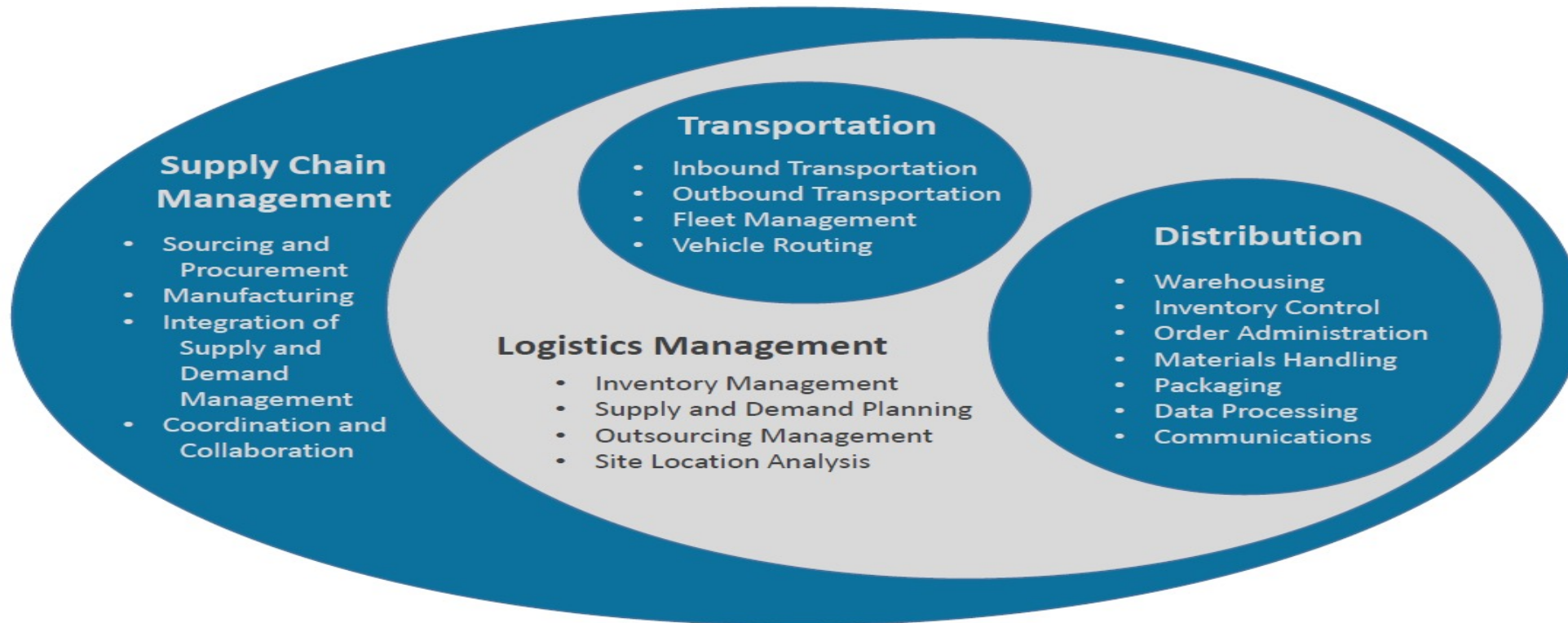
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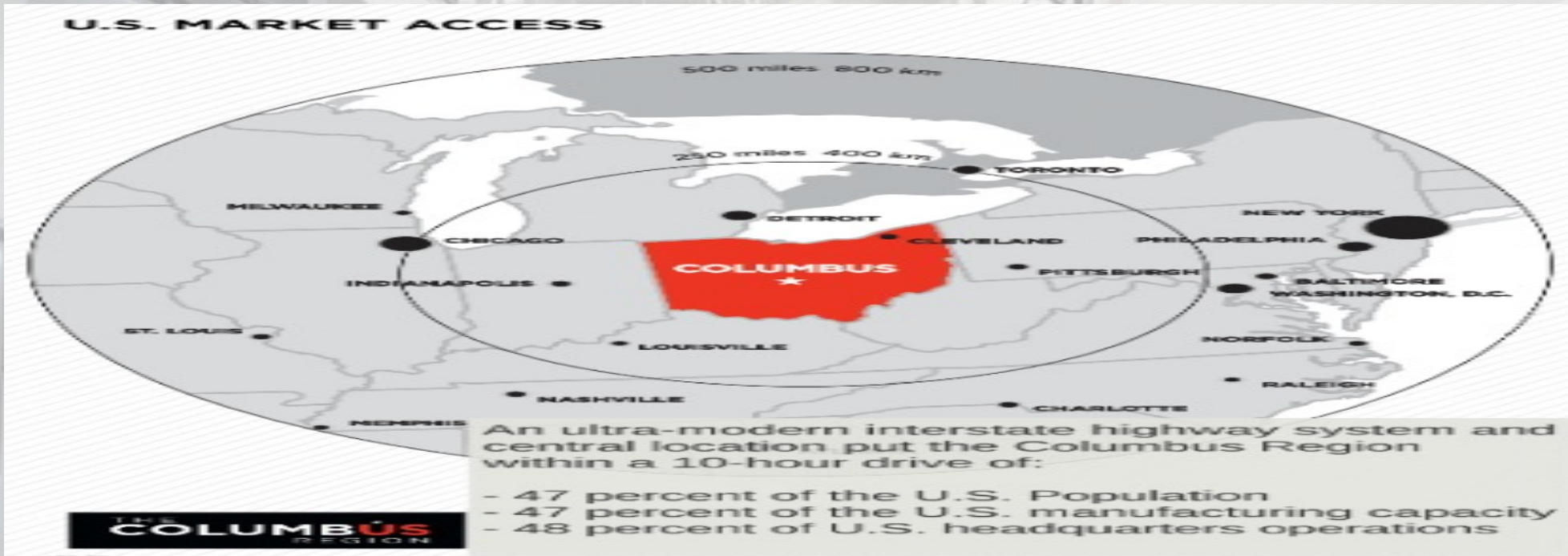
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What is the Supply Chain?



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In Central Ohio the Supply Chain is very Important



- In central Ohio there are hundreds of DC's
- Our location is a prime target for large manufacturers

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ANN TAYLOR



BANANA REPUBLIC



TARGET

The Top 15
Logistics
Companies in
Columbus Employ
Over 32,000
People

Abercrombie & Fitch

lululemon  athletica



amazon

Justice

Eddie Bauer



ODW Logistics

thirty-one

amazon



PINK
VICTORIA'S SECRET

Walmart



CardinalHealth™



VICTORIA'S SECRET

LANE BRYANT



Boar's Head

DSW
DESIGNER SHOE WAREHOUSE®



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*The Ohio Supply Chain Academic Network
is a collaboration between the supply chain industry and higher education.*

*O-SCAN promotes the value of supply chain education
and advances the field by integrating emerging technologies
from the logistics industry into academic curricula.*

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COVID 19 and the Supply Chain Crisis



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2021–2022 global supply chain crisis

From Wikipedia, the free encyclopedia



The examples and perspective in this article **may not represent a worldwide view of the subject**. You may improve this article, discuss the issue on the talk page, or create a new article, as appropriate. *(January 2022)* *(Learn how and when to remove this template message)*

In 2021, as a consequence of the [COVID-19 pandemic](#), [global supply chains](#) and shipments slowed, causing worldwide shortages and affecting consumer patterns. Causes of the economic slowdown include workers becoming sick with COVID-19 as well as mandates and restrictions affecting the availability of staff. In cargo shipping goods remain at port - again due to staffing shortages. The related [global chip shortage](#) has continued to affect the supply chain crisis specifically as it relates to the automobile and electronics sector. During the [Christmas and holiday season](#) of 2021, an increased amount of economic spending in North America combined with spread of the [Omicron variant](#) of COVID-19 further exacerbated the already backed up supply.



So how can we play a part in the improvement of the SC?

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Keys to Improving the Global Supply Chain

- Constant Communication of SC status
- Utilizing the latest technology to improve throughput:
 - Increasing Ocean Freight Capacity
 - Usage of Drones, Robots, as well as IT solutions
- Educate Supply Chain Administrators to –
 - Improve Supply Chain Design
 - Improve Long Term Planning
- Educate Supply Chain Technicians to –
 - Improve the design of SC Operations



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Increasing the Capacity of Ocean Freighters



- The Ever Ace's maiden voyage in July 2021
- TEU for this ship is over 23,000

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Utilizing Robots and Automation in the SC



Robots can be used to ease manpower shortages and to improve quality

Video: Highly Automated Robotic Warehouse Can Pack 50 Items in Five Minutes



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Utilizing Robots and Automation in the SC

- **Distribution Centers are becoming more automated and resemble manufacturing centers**
- **Robots are now being used to load and unload containers and tractor trailers**
- **Robots are now used in DC's and WH's to increase throughput and to help ease manpower concerns**
- **With the use of this automation, it is also important to have highly skilled personnel in WH's and DC's.**



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Drones are being utilized in the supply chain



Video

- Drones could ease driver concerns and improve delivery times



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Driverless Vehicles

Video



- Driverless vehicles could make the roadway safer
- This technology could help companies that are now suffering due to driver shortages.

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IT Solutions for Enhanced SCM

- Improved MIS and ERP systems
- EDI and Web Portals for better communication
- Management Systems that improve efficiency
- More Administrators that are able to utilize management systems



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Exposing students to ERP and MIS Systems

- With the help of KSU we are now offering a new ERP class
- The course utilizes JD Edwards ERP software
- This course is available if anyone is interested
- Every module of an ERP system is covered



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The LET Program at CSCC Year 1

LET Year One

First Semester		15.0
SCM1100 - Supply Chain Mgmt Principles	3.0	✓
ENGL1100 - Composition I	3.0	✓
MATH1111 - Discrete Mathematics for Computing	3.0	✓
BOA1102 - Excel I	2.0	✓
ESSH1101 - Intro to Environ Science, Safety, Health	3.0	✓
COLS1100 - First Year Experience Seminar	1.0	✓
Second Semester		17.0
CSCI1103 - Intro to Programming Logic	3.0	✓
SCM2111 - Inventory Management	3.0	✓
ENGT1200 - Intro Industrial & Systems Engineering	3.0	✓
BOA1172 - Excel II	2.0	✓



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The LET Program at CSCC Year 2

LET Year Two

Fourth Semester		16.0
ENGT1300 - Intro Electric Motors, Controls, PLC's	4.0	✓
ACCT1212 - Managerial Accounting	3.0	✓
SCM1501 - IT in Logistics	3.0	✓
SCM2110 - Warehouse Management	4.0	✓
ITST1102 - Industrial Network Communications	2.0	✓
Fifth Semester		11.0
EET2235 - Data Acquisition Systems	3.0	✓
SCM2802 - SCM Seminar	1.0	✓
SCM2902 - SCM Practicum	1.0	✓
SCM2601 - Performance Mgmt SCM Managers	3.0	✓
BMGT2250 - Project Management Principles	3.0	✓

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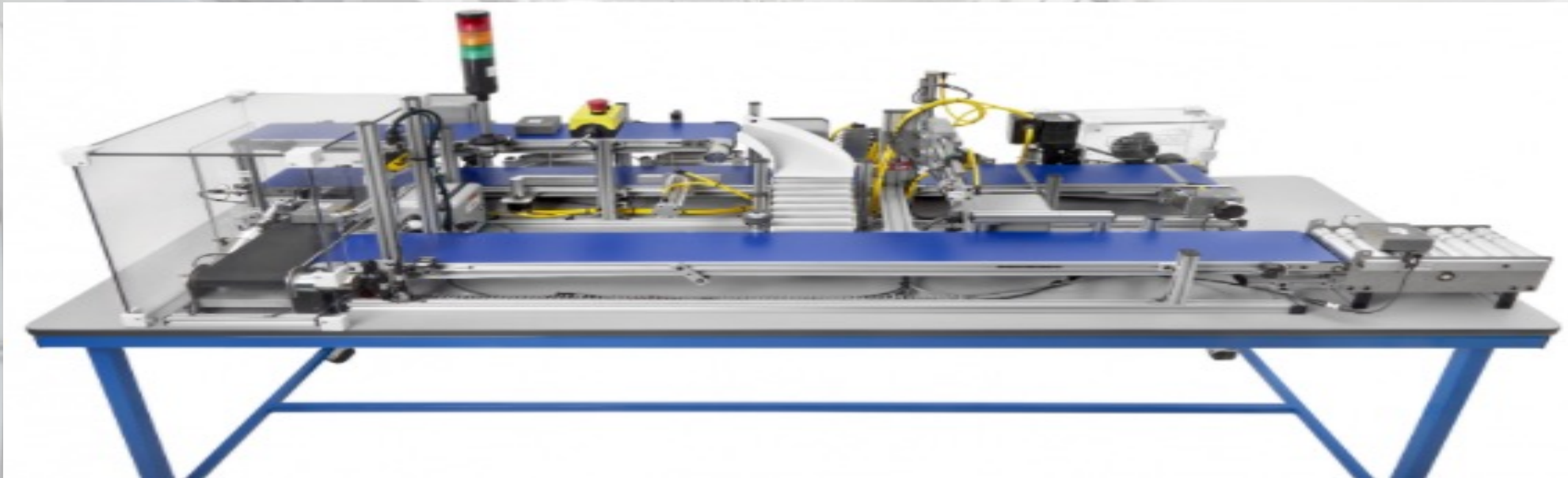
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Utilizing the Amatrol Logistics Skill-Boss



- This equipment simulates all of the technology that is used in a modern distribution center
- The Skill-boss is used to test for MSSC Certification

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On Behalf of the NCNGM I would like to thank you for attending our first Webinar!

Now we would be glad to answer any questions that you might have!

Thank you!!!

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