National Center for Supply Chain Automation
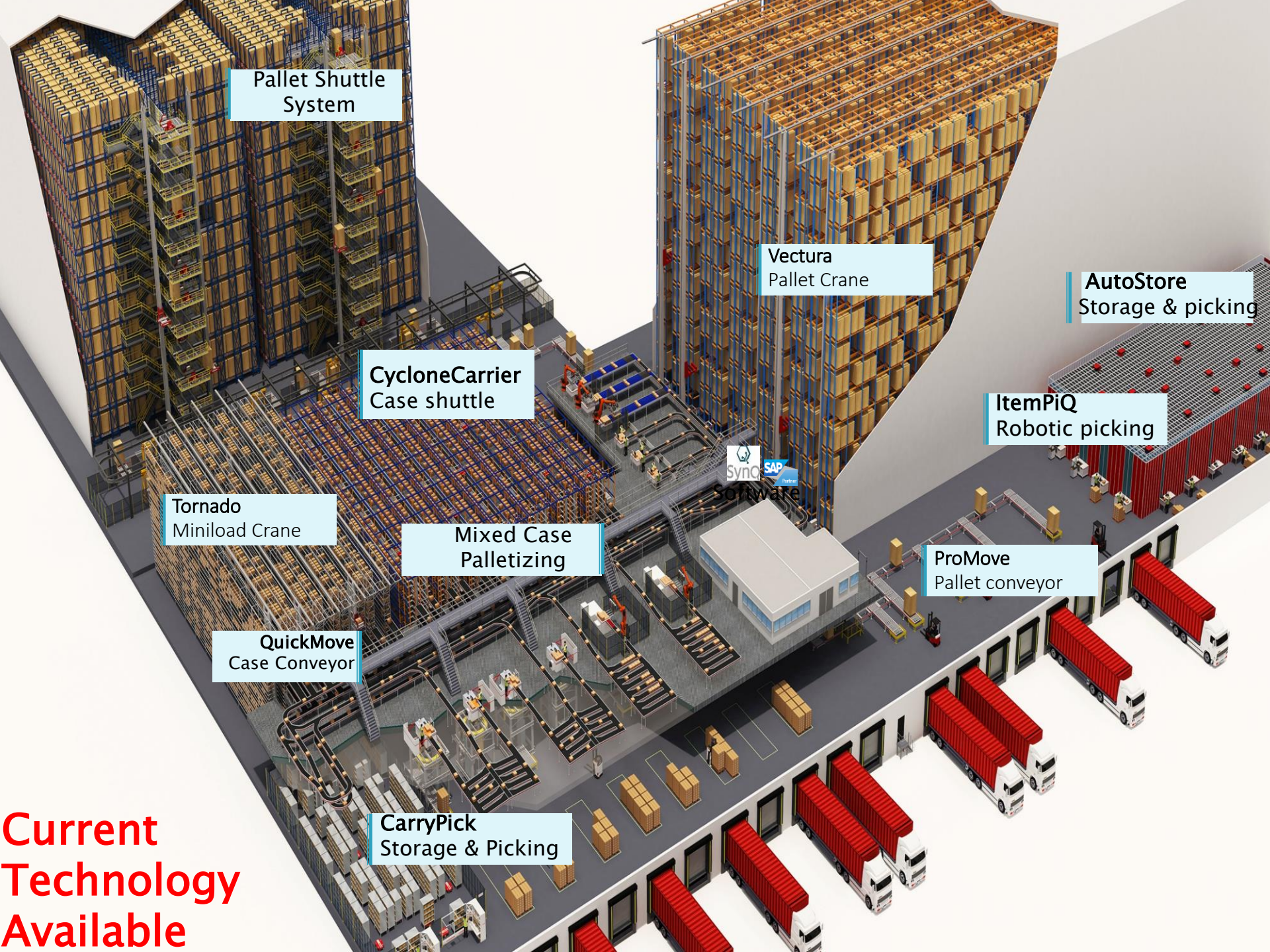
RESOURCES FOR EDUCATION & INDUSTRY

SCA

Next Generation Workforce Certification: Innovative Tools for Educating and Upskilling Supply Chain Automation Technicians

Pallet Shuttle System

Vectura
Pallet Crane

AutoStore
Storage & picking

CycloneCarrier
Case shuttle

ItemPiQ
Robotic picking

SynQ
SAP Partner
Software

Tornado
Miniload Crane

Mixed Case
Palletizing

ProMove
Pallet conveyor

QuickMove
Case Conveyor

CarryPick
Storage & Picking

Current
Technology
Available

NCSCA Overview (SCA)

- NSF Funded
- Focus-Technician Education
- Resource Development
- Industry Guided & Driven
- No User Cost-Grant Funded
- No Student Education

MISSION & OBJECTIVES

The goal of the National Center for Supply Chain Automation is to **increase the supply of highly qualified supply chain automation technicians** to meet the growing national need across the private and public supply chains

1

Implement model 2+2 supply chain automation career pathways through high school and community college partnerships nationally to meet the need for educated technicians.

2

Convene supply chain automation stakeholders via a National Symposium event to enhance collaboration and deliver professional development.

3

Disseminate information and product deliverables to audiences that include secondary and post-secondary educators, industry and current and potential Supply Chain Technicians.

4

Establish and promote stackable national industry certifications in Supply Chain Automation, which are validated and recognized by industry.

Original Partner Colleges

Norco Community College
2001 Third Street
Norco, CA 92860
951.739.7880

Tacoma Community College
6501 South 19th Street
Tacoma, WA 98466
253.566.5253

Sinclair Community College
444 West Third Street
Dayton, OH 45402-1460
937.512.2759

Oakton Community College
1600 East Golf Road
Des Plaines, IL 60016
847.635.1975

Jefferson Community & Technical College
1000 Community College Drive
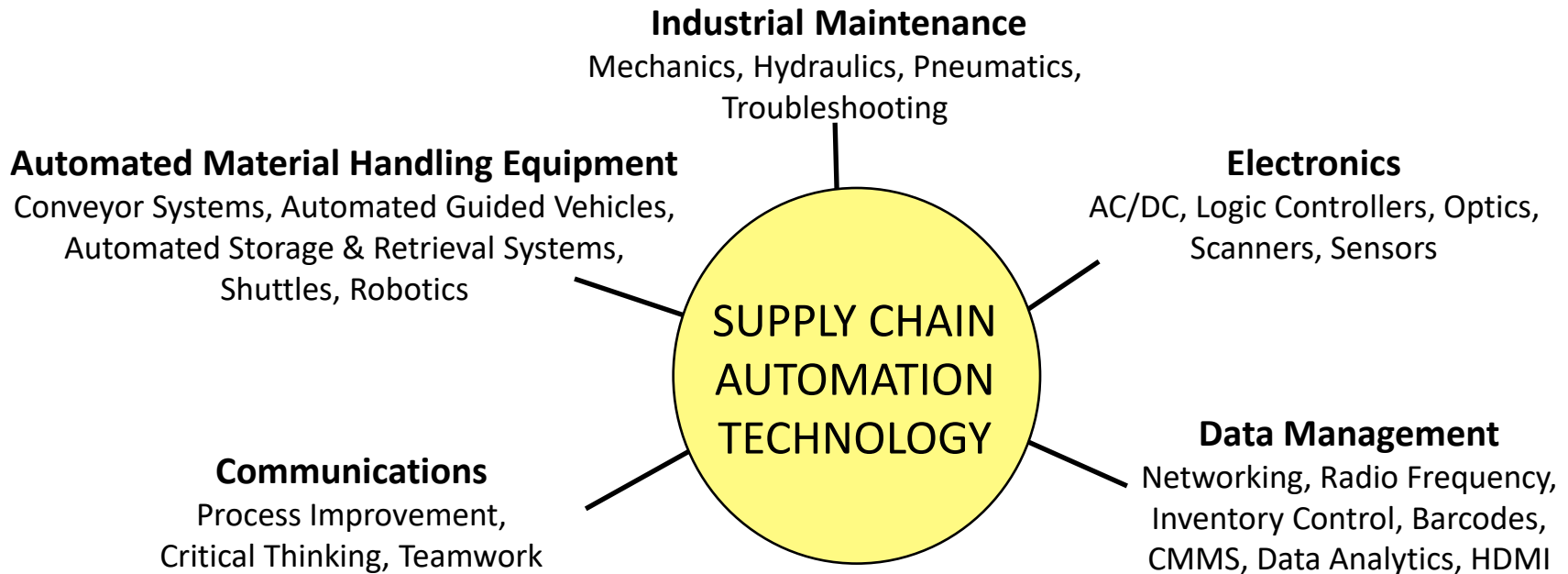Louisville, KY 40272
502.213.7280

Initial Advisory Team Members

INDUSTRY OCCUPATIONAL DEFINITION OF
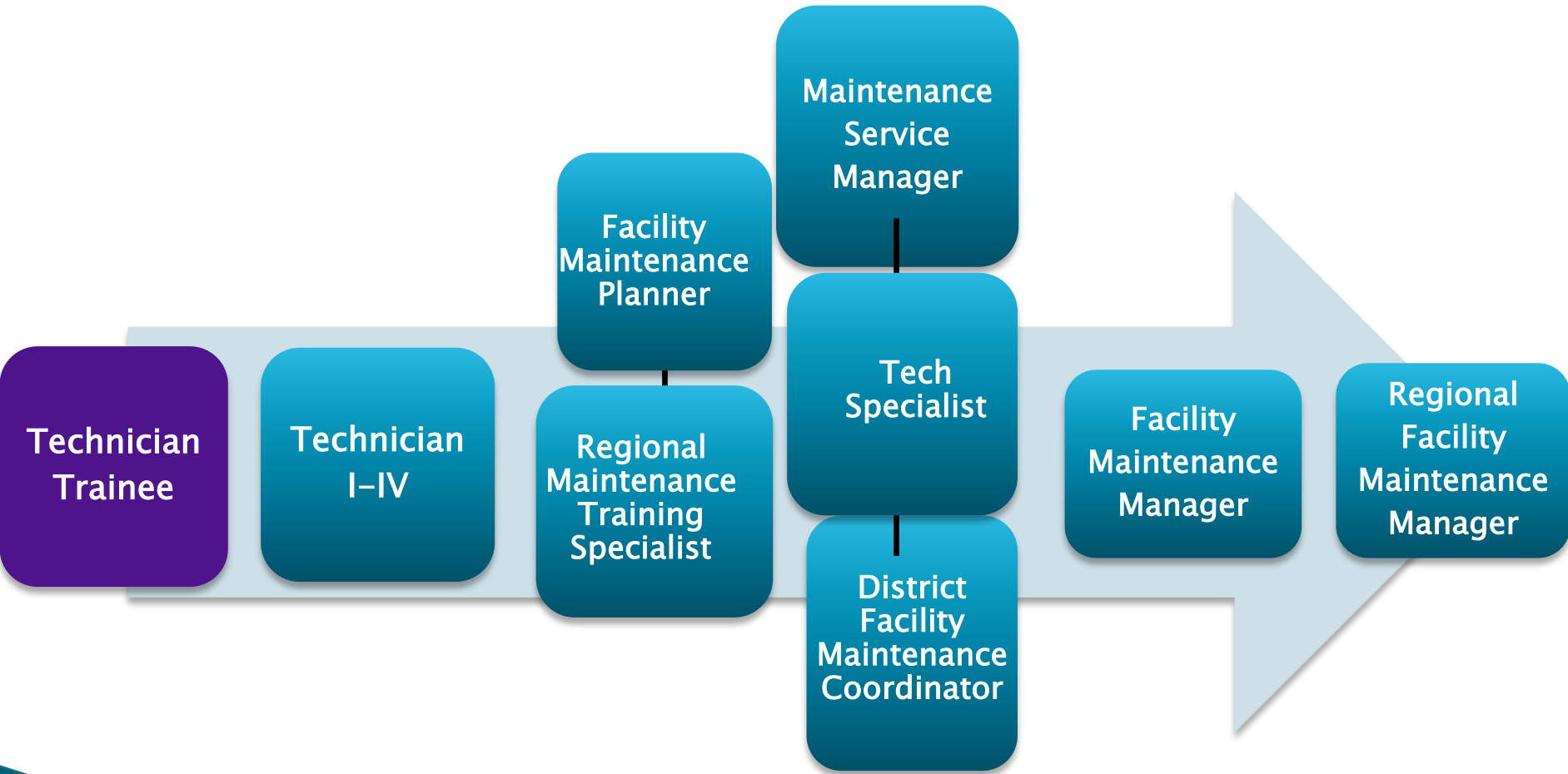# SUPPLY CHAIN AUTOMATION TECHNICIAN

A person who installs, maintains, supports, operates or upgrades the automated material handling equipment and systems which support the supply chain.

Industrial Maintenance
Mechanics, Hydraulics, Pneumatics, Troubleshooting

Automated Material Handling Equipment
Conveyor Systems, Automated Guided Vehicles, Automated Storage & Retrieval Systems, Shuttles, Robotics

Electronics
AC/DC, Logic Controllers, Optics, Scanners, Sensors

SUPPLY CHAIN AUTOMATION TECHNOLOGY

Communications
Process Improvement, Critical Thinking, Teamwork

Data Management
Networking, Radio Frequency, Inventory Control, Barcodes, CMMS, Data Analytics, HDMI

Organic Career Growth Opportunities

Automation Operations →

Technician Trainee

Technician I–IV

Facility Maintenance Planner

Regional Maintenance Training Specialist

Maintenance Service Manager

Tech Specialist

District Facility Maintenance Coordinator

Facility Maintenance Manager
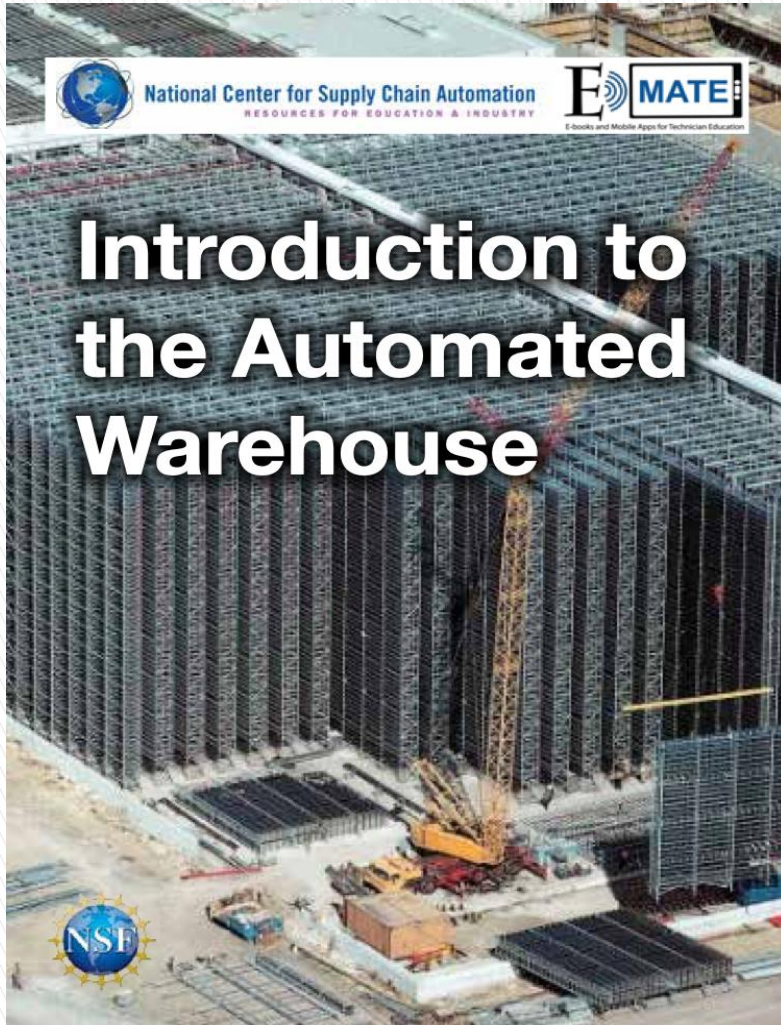
Regional Facility Maintenance Manager

Engineering (Maintenance, Systems, Projects) →

Available in iBook and PDF

Download PDF by Chapter

Survey Course– HS or CC
Career Awareness Resource

Interactive Widgets
- Puzzles
- Games
- Videos

Instructor's Manual
- Sample syllabi
- Textbook solutions
- Laboratory exercises

https://supplychainautomation.com/resources/etextbook/

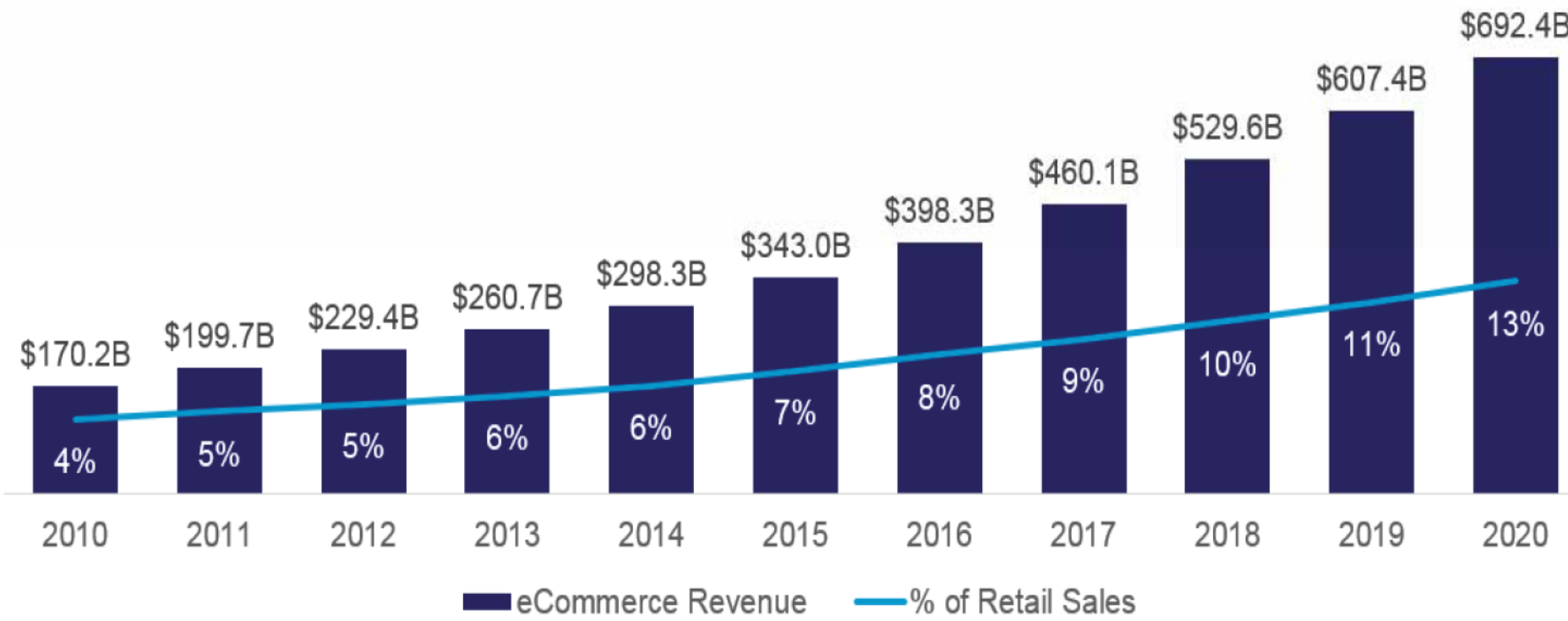# Ecommerce Driving Logistics Automation

3248

Number of parcels shipped world-wide per second in 2019

103 Billion total items shipped *Source: Pitney Bowes*

eCommerce is the fastest growing segment of the retail sector, and as such B2C shipping has accounted for over half of shipping volume since 2014.

US eCommerce Revenue
$Billions, % of Retail Sales

Year	eCommerce Revenue	% of Retail Sales
2010	$170.2B	4%
2011	$199.7B	5%
2012	$229.4B	5%
2013	$260.7B	6%
2014	$298.3B	6%
2015	$343.0B	7%
2016	$398.3B	8%
2017	$460.1B	9%
2018	$529.6B	10%
2019	$607.4B	11%
2020	$692.4B	13%

Legend: ■ eCommerce Revenue —— % of Retail Sales

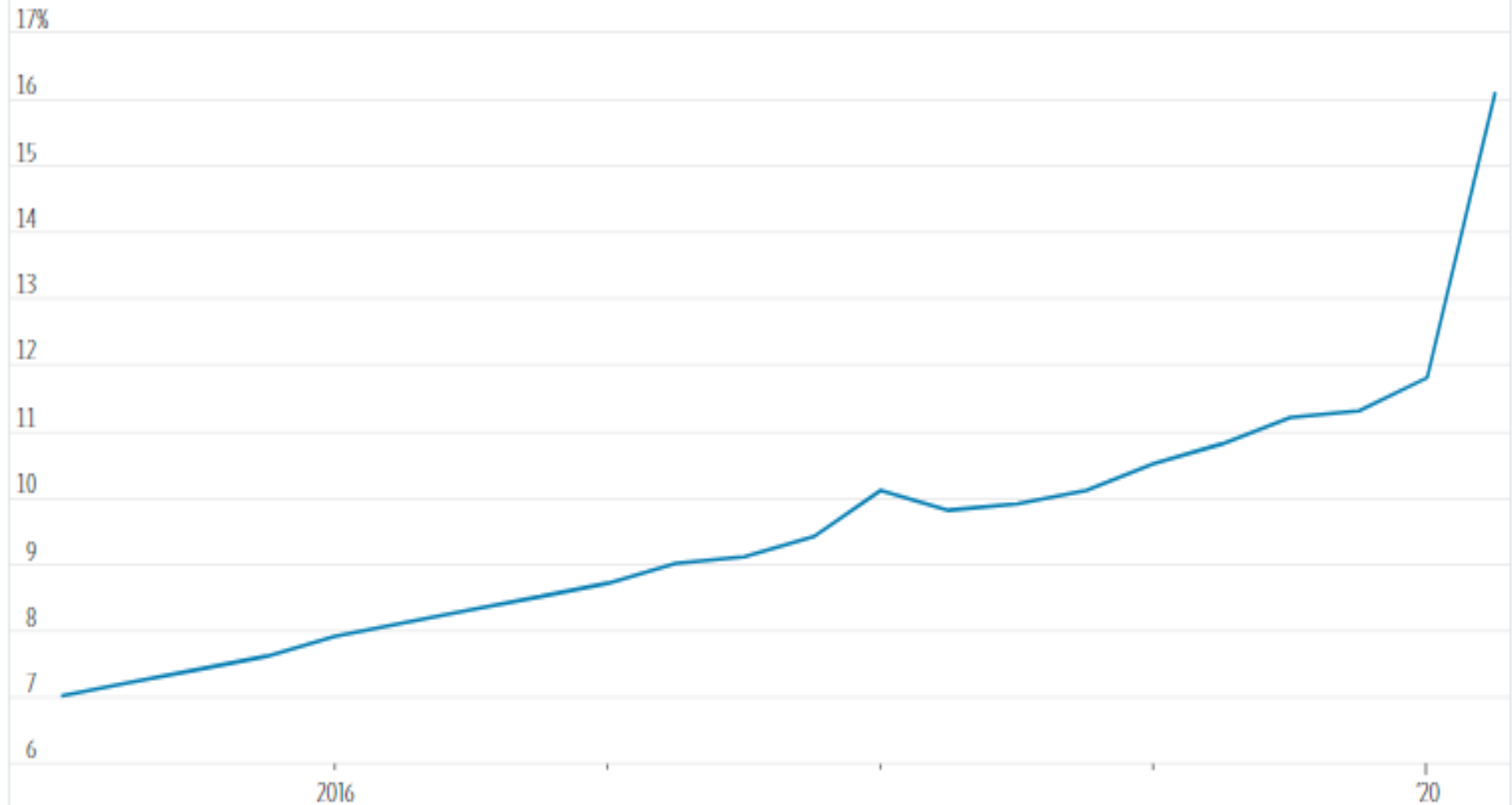## Trends Driving Online Sales Growth

- Increased returns
- Online grocery
- Online / mail-order prescriptions
- Ship-from-store growth
- Increased demand for small parts
- Increased B2B healthcare shipments

E-com % Total US Retail Sales
2020 Q2 16.1% = 46% YOY Growth

Shopping Online

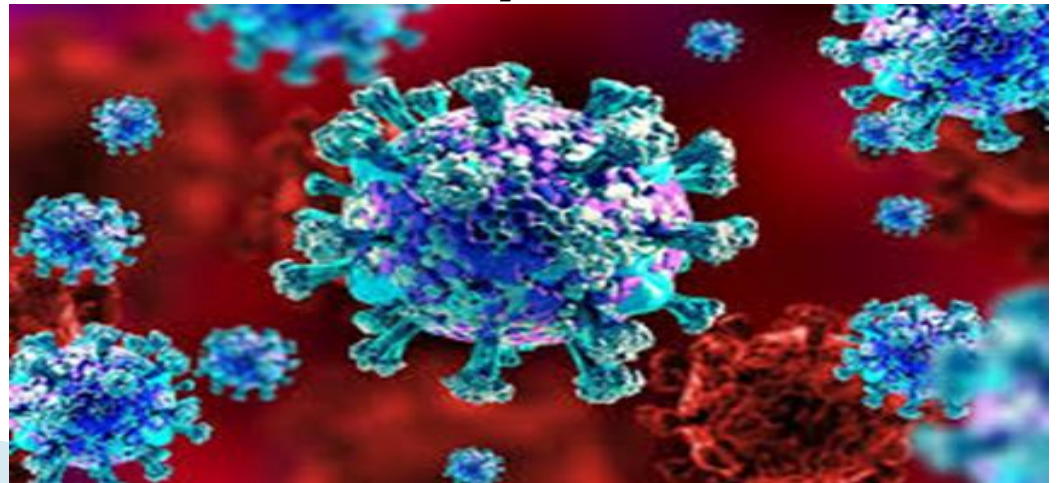Quarterly U.S. e-commerce sales as a share of retail sales, seasonally adjusted.

COVID Accelerates Ecom Tusanmi

UBS: *…25% of all U.S. retails spending will be online by 2025, a trend expected to force 100,000 physical stores to close…*

Shopify: …Covid-19 has pushed e-commerce growth forward by 10 years

The International Council of Shopping Centers estimates that e-commerce holiday sales will jump 25% this year.
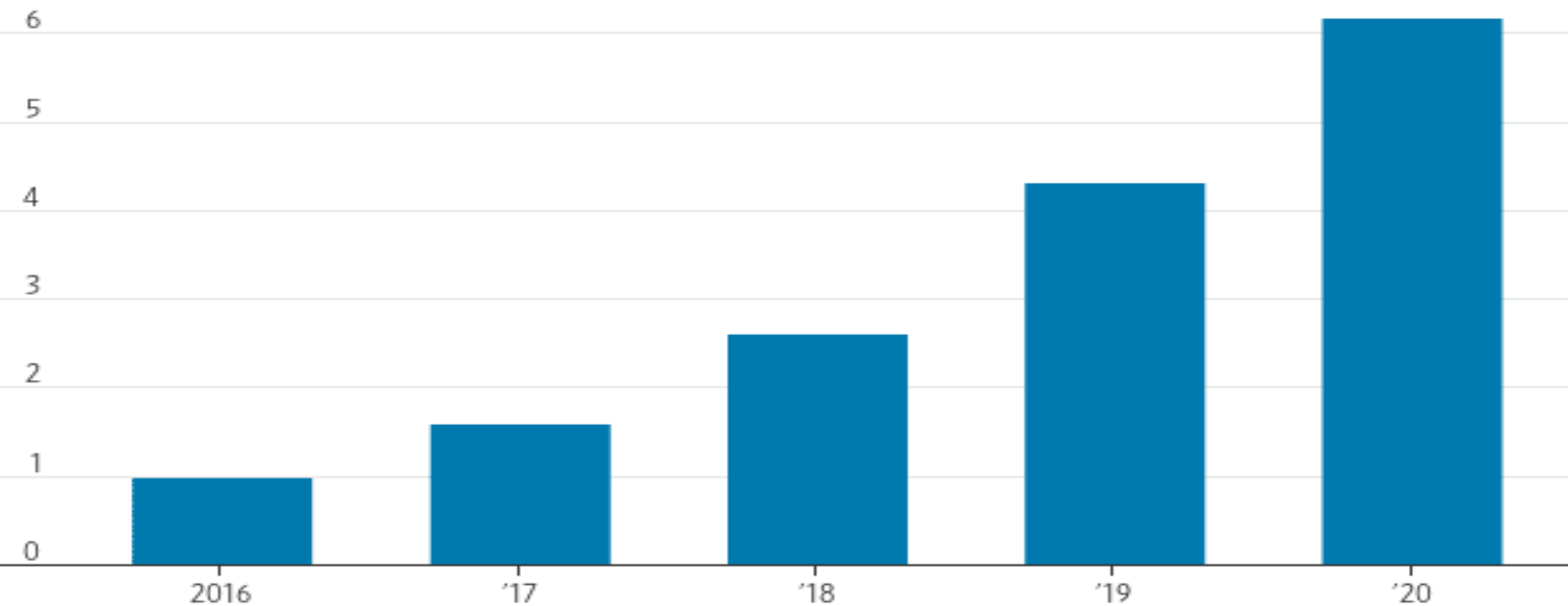
Source: Wall Street Journal

Prime Day 36% Annual Increase

Prime Shopping

Amazon brought an early start to the holiday shopping season with Prime Day

Amazon U.S. Prime Day sales

$7 billion

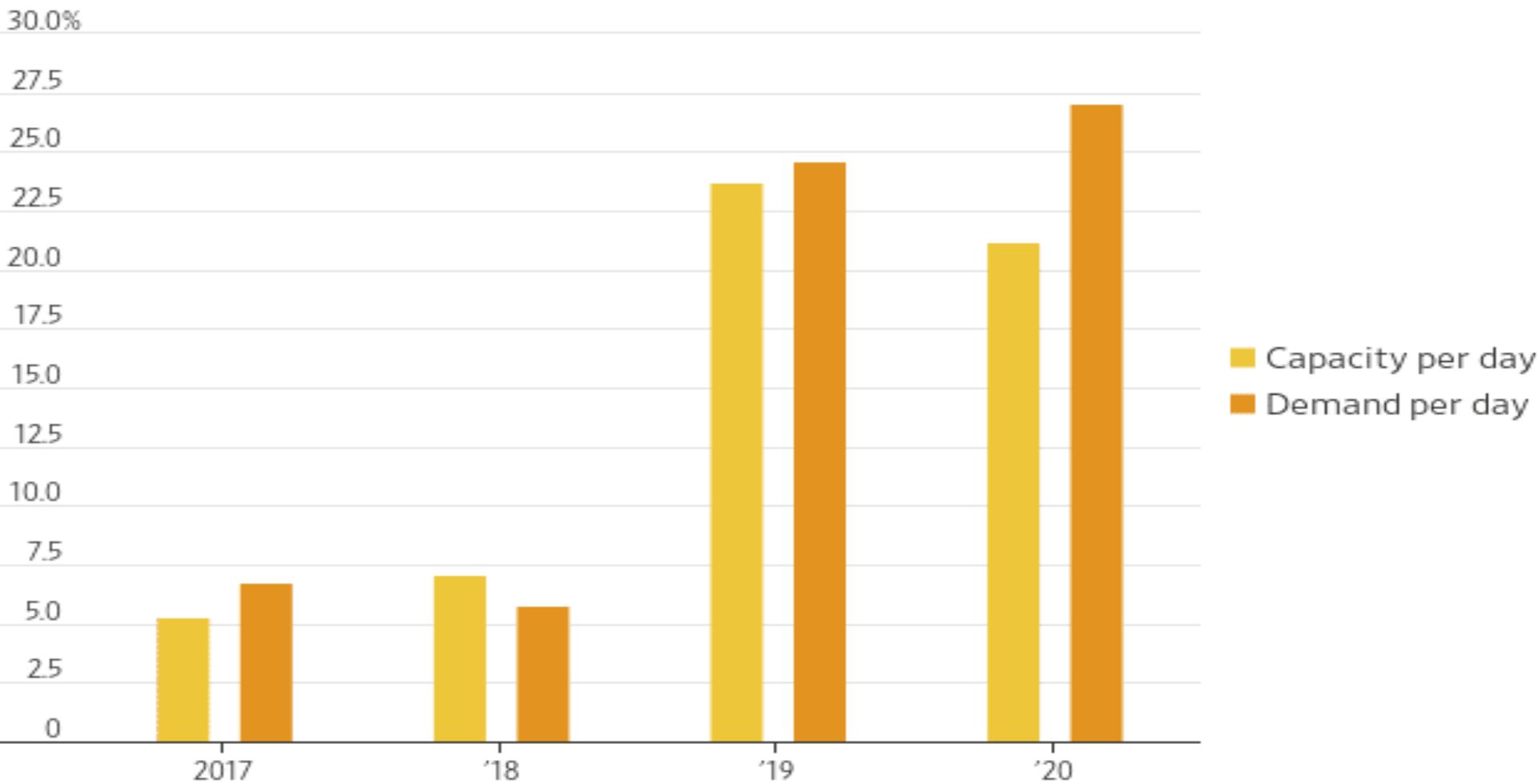|	2016	'17	'18	'19	'20

Note: Figures are estimates as Amazon doesn't release Prime Day sales data
Source: eMarketer

YOY Change: 2020 Holiday Season Daily Demand=86.3M Packages- US Capacity=79.1M

Estimated package delivery capacity and demand, change from previous year

Legend:
- Capacity per day
- Demand per day

Note: 2020 capacity is based on FedEx Ground expanding delivery to 7 days a week and ShipMatrix's projection that UPS will do the same this peak season.

Source: ShipMatrix

HOW MUCH EXTRA WAREHOUSE SPACE DEMAND DOES E-COMMERCE GENERATE?

$1B
E-com
Sales

1.25M
Distribution
Space

175M SQ FT Needed Annually

Trend= Accelerating Need for Skilled Technicians

Source: CBRE

SCA's Certification Development Role

- Research– Gap Identified
- MOU– MSSC & MHI
- Convened ILT Focus Groups
- CG Retailers, Package Shippers
- Automated Systems Suppliers

Cert Development Continued

- Industry Research to MSSC
- ILT: Validation, SBL design
- E-Learning Review
- Future: Raise Awareness

Certification Pilot Programs

- Norco CC
- Sinclair CC
- Oakton CC
- Central Piedmont CC
- Chippewa Valley TC
- Columbus State CC
- Valencia CC
- **Target– VA, IL, CA, TX**

- **Industry Executive Interested in Connecting?**
  Steve@supplychainautomation.com

National Center for Supply Chain Automation
RESOURCES FOR EDUCATION & INDUSTRY

Need SCA Industry Grant Application Data?

Steve Harrington, Industry Liaison
steve@supplychainautomation.com

www.supplychainautomation.com

National Science Foundation
WHERE DISCOVERIES BEGIN