### **104** Years of Service



## The Manufactures Alliance















www.themanufacturersalliance.org





# OUR MANUFACTURING FUTURE







# 4 Trends Shaping Advanced Manufacturing



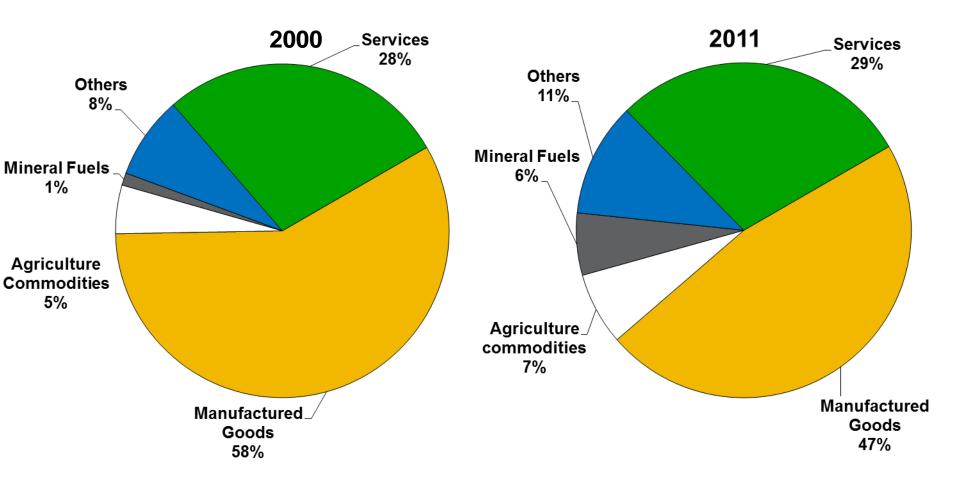




# The World as the Market







Source(s): U.S. Census Bureau and MAPI calculations

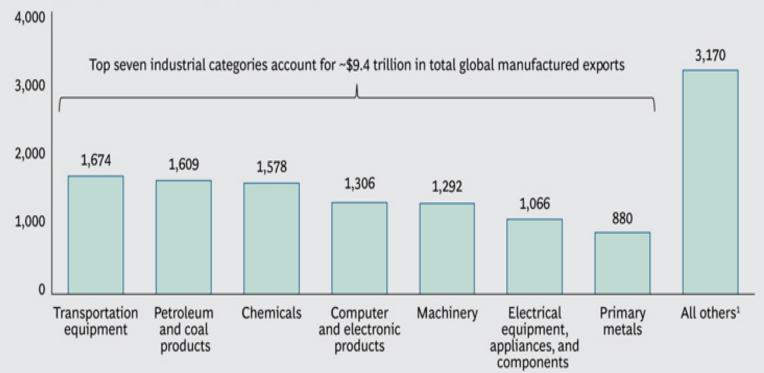


## **Industrial Sectors**



#### EXHIBIT 5 | Three-Quarters of Global Manufactured Exports Are Concentrated in Seven Industrial Categories

Value of global exported manufactured goods, 2011 (\$billions)

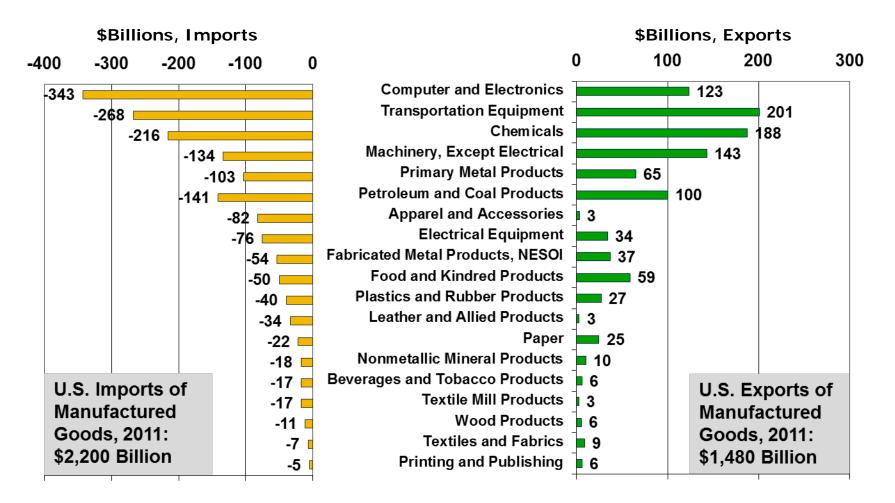


#### Sources: OECD, BCG analysis.

Note: Nominal US\$. Excludes countries where industry-level export data are not available (e.g., South Korea, Hong Kong, Singapore, and Malaysia). <sup>1</sup>Includes food products, textile product mills, miscellaneous, plastic and rubber products, fabricated metal products, paper, nonmetallic mineral products, and wood products.



# Figure 65 – A Few Core Industries Dominate Foreign Trade in Manufactures

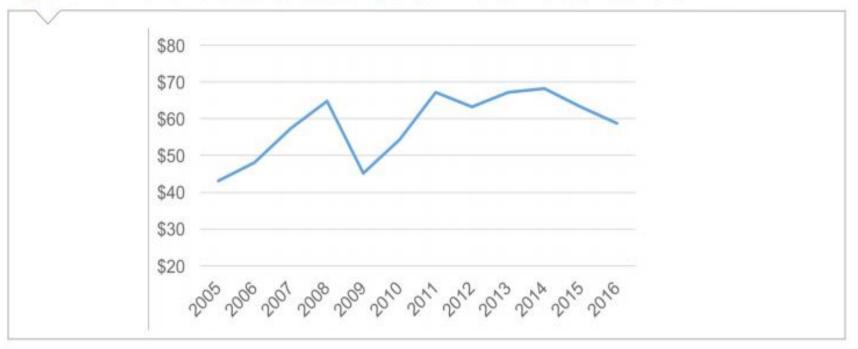


Source(s): U.S. International Trade Commission and MAPI









NAM Manufacturing Facts, April 2017



## MRI Study Results



Manufacturing Export Intensity by State (2008)			
1	Florida	39%	
2	Washington	38%	
3	New York	35%	
4	Vermont	33%	
5	Nevada	32%	
6	Arizona	30%	
7	Massachusetts	27%	
8	Texas	27%	
9	Idaho	24%	
10	California	24%	

Upstate New York Metro Areas	2009 Exports (\$ billion)
Rochester	\$4.9
Buffalo/Niagara Falls	3.6
Albany/Schenectady/Troy	3.2
Poughkeepsie/Newburgh/Middletown	2.2
Syracuse	1.3
Utica/Rome	0.5
Binghamton	0.3
Ithaca	0.2
Glen Falls	0.2
Kingston	0.2
Elmira	0.1







Source: Annual Survey of Manufactures, U.S. Census Bureau, TradeStats Express, International Trade Administration

## MRI Study Results



2000 NYS Manufactu Exports (billions)	uring	
Canada	\$9.2	
Switzerland	3.2	
Japan	3.1	
United Kingdom	3.1	$\backslash$
Israel	1.8	$\sim$
Mexico	1.7	
Germany	1.6	
Hong Kong	1.4	/
Belgium	1.2	
France	1.2	
South Korea	0.8	

<b>2010</b> NYS Manufacturing Exports (billions)		2000 Rank	Annual % Change	
Canada	\$8.7	1	-1%	
Israel	4.1	5	9%	
Hong Kong	4.1	8	12%	
United Kingdom	3.2	4	0%	
Switzerland	2.6	2	-2%	
Germany	2.4	7	4%	
China	2.2	13	13%	
Belgium	2.1	9	6%	
Mexico	2.1	6	2%	
India	1.8	14	14%	
Japan	1.8	3	-5%	



Source: Foreign Trade Statistics, U.S. Census Bureau





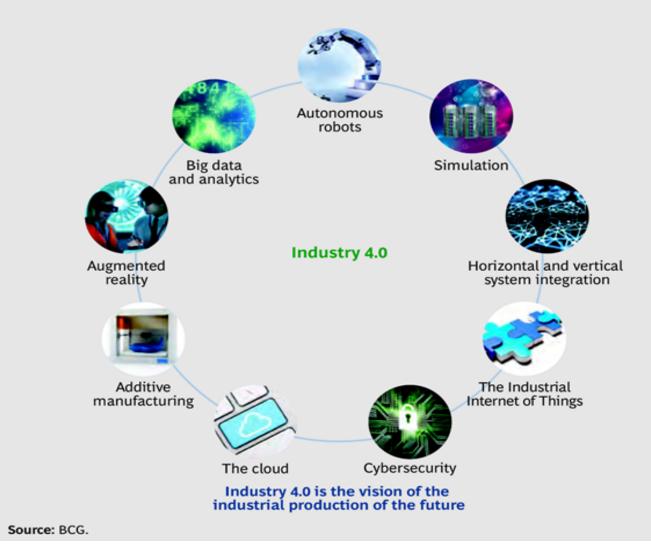
# **Technology Explosion**







#### **EXHIBIT 1** | Nine Technologies Are Transforming Industrial Production





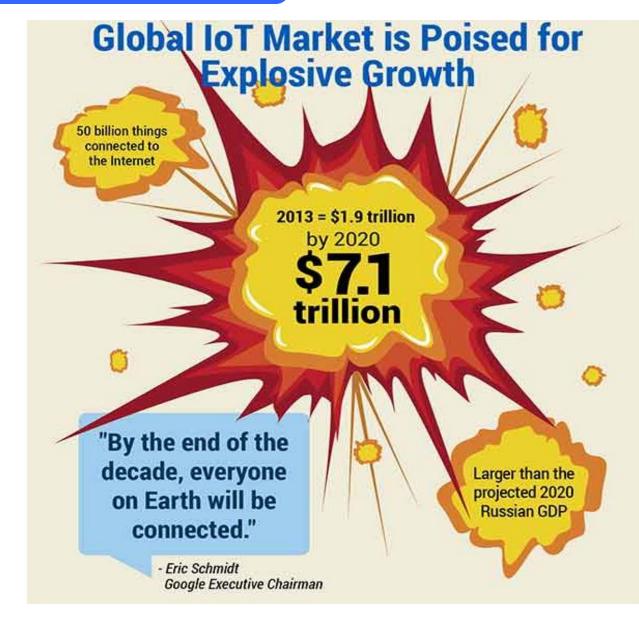
# **TOP 8 EMERGING TECHNOLOGIES**

- » Big Data
- » Internet of Things
- » Robotics and Artificial Intelligence
- » Virtual and Augmented Reality
- » Miniaturized Electro-mechanical Elements
- » Biotechnology
- » Nano Materials
- » 3D Printing



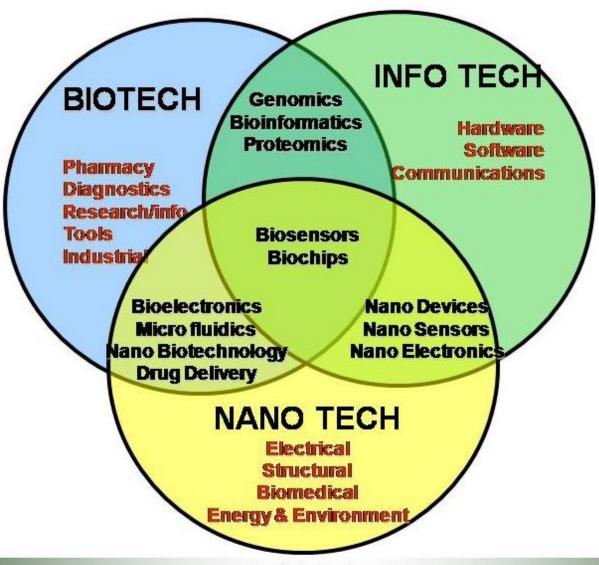
## Years of Service





## **CONVERGENCE OF TECHNOLOGIES**

### **BIO-INFO-NANO**

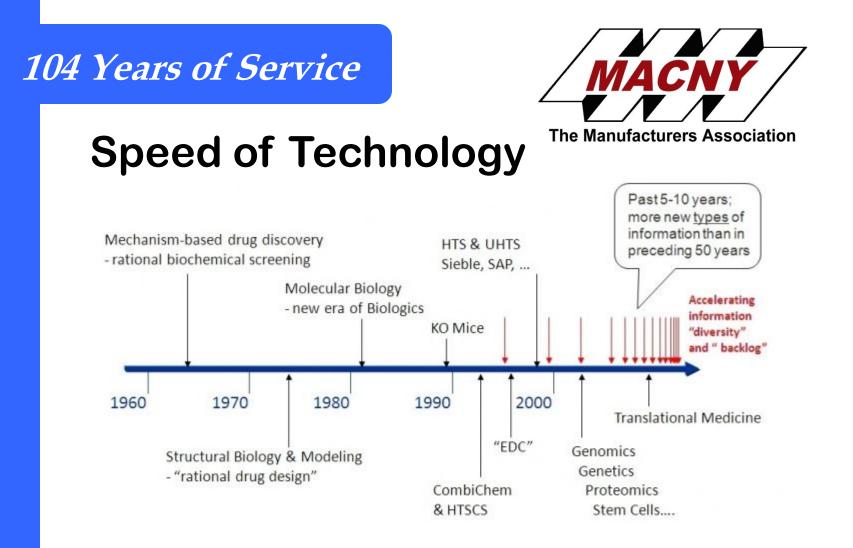


www.abdulkalam.com

# Technology Explosion



#### www.themanufacturersalliance.org









# **Brains not Brawn**



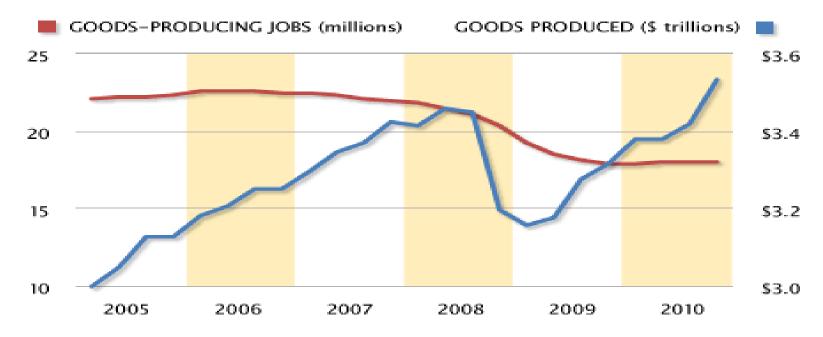
## Brains not Brawn



# Where have all the jobs gone?

#### Missing manufacturing jobs

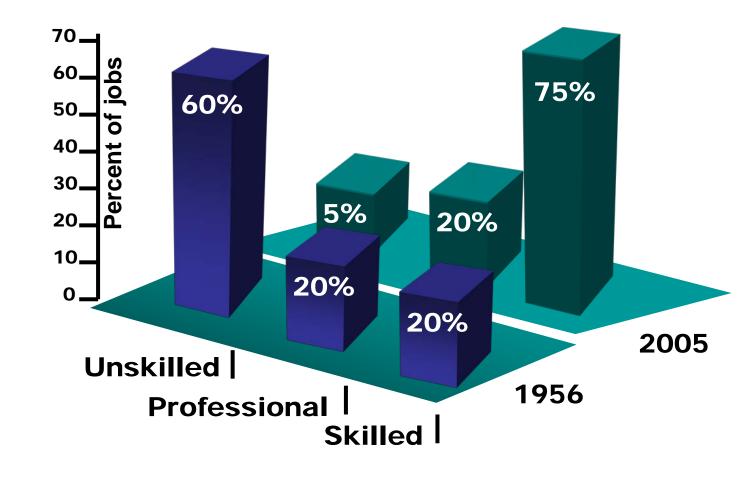
Despite a strong rebound in manufacturing industries since the recession, hiring has not kept pace.



SOURCE: BEA, BLS

msnbc.com

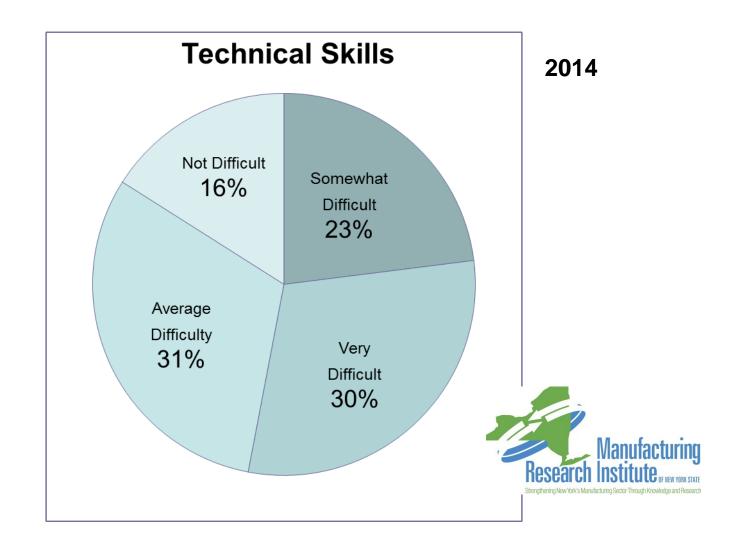
### Workforce Skills Level Needed

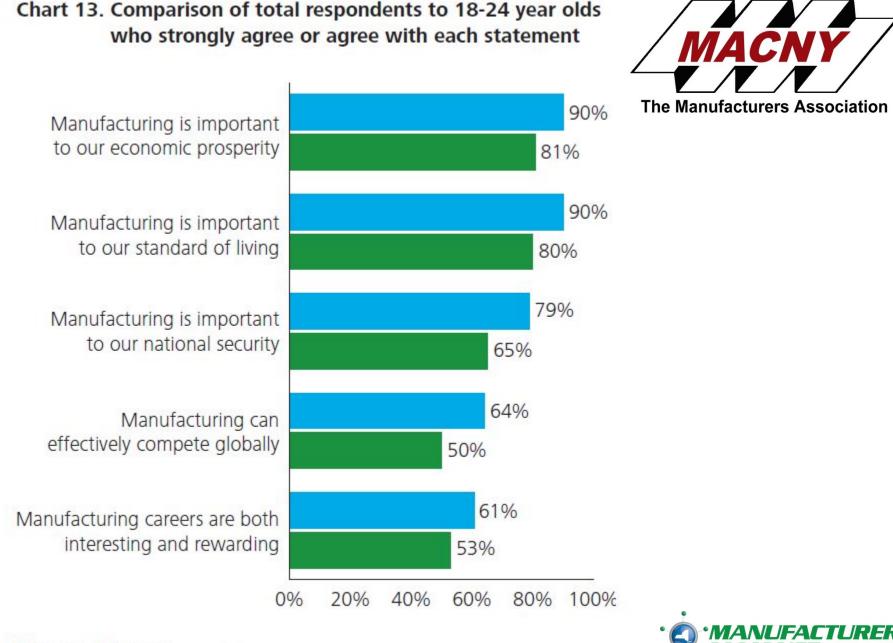


What would you say is the **best thing about having manufacturing business operations** within the State of New York?



Indicate the degree of difficulty your business has in filling the following job categories.





ANCE of Now York

Total 📕 18-24 year olds





# **Clusters Matter**





Clusters are geographic concentrations of interconnected businesses, suppliers, service providers, and associated institutions in a particular sector.

As defined by The Brookings Institution,

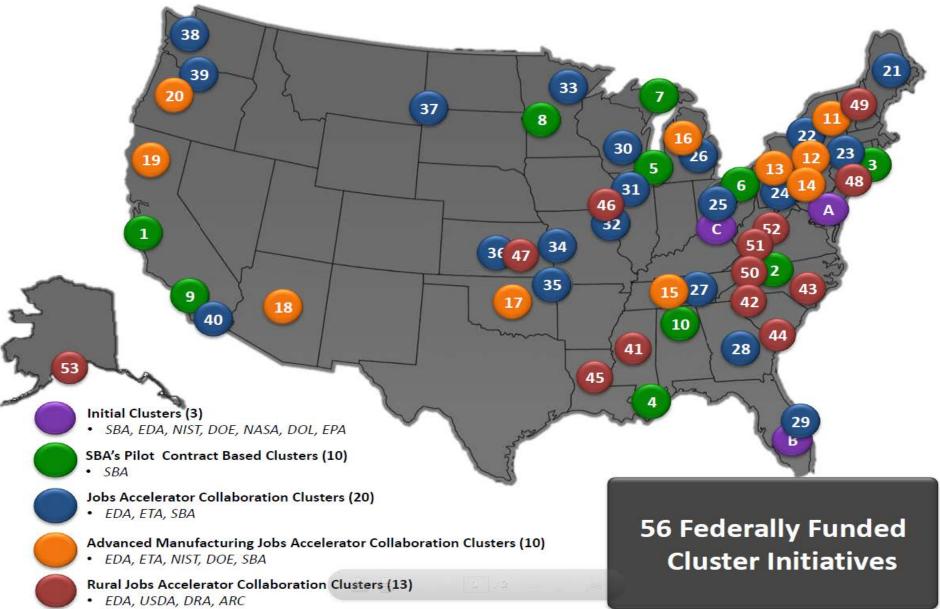


## What is a Cluster?













#### SBA's Pilot Contract-Based Clusters

- 1 CA Agriculture Innovation Cluster / Project 17 Ag Tech Agriculture Innovation
- 2 SC Carolinas' Nuclear Cluster Nuclear energy technology and components
- 3 CT Northeast Electrochemical Energy Storage Fuel cell and hydrogen fueling systems
- 4 MS Enterprise for Innovative Geospatial Solutions Geospatial technology
- 5 IL Illinois Smart Grid Regional Innovation Cluster Smart grid / efficient energy
- 6 OH NorTech Flexmatters Flexible electronics
- 7 MI Upper Michigan Green Aviation Coalition Green aviation
- 8 MN Defense Alliance of Minnesota Advanced power and energy (DoD Focused)
- 9 CA San Diego Advanced Defense Cluster Autonomous systems and cyber security (DoD Focused)
- 10 AL Huntsville Advanced Defense Technology Initiative Aero-space technology (DoD Focused)

#### Jobs Accelerator Advanced Manufacturing

Economic Development Agency, Employment and Training Agency, Small Business Administration, National Institute of Standards and Technology, Department of Energy

- 11 NY Rochester Regional Optics, Photonics & Imaging Accelerator
- 12 NY Advanced Manufacturing of Thermal and Environmental Control Systems
- 13 PA Agile Electro-Mechanical Product Accelerator
- 14 PA Greater Philadelphia Advanced Manufacturing Innovation and Skills Accelerator
- 15 TN Advanced Manufacturing and Prototyping Center of East Tennessee
- 16 MI Advanced Contract Manufacturing of Southeast Michigan Cluster
- 17 OK Manufacturing Improvement Program for the Oil and Gas Industry Supply Chain
- 18 AZ Southern Arizona Aerospace and Defense Cluster
- 19 CA Advanced Manufacturing Medical/Biosciences Pipeline for Economic Development (AM2PED)
- 20 OR Innovations in Advanced Materials and Metals Cluster (IAM2)

#### Jobs Accelerator Collaboration Clusters

Economic Development Agency Employment and Training Agency Small Business Administration

- 21 ME GreenME Renewable Energy Industry Cluster
- 22 NY Finger Lakes Food Processing Cluster Initiative Food Processing
- 23 NY New York Renewable Energy Cluster Renewable Energy
- 24 PA Southwestern Pennsylvania Revitalization Energy/ Health Care
- 25 OH Northeast Ohio Speed-To-Market Accelerator Energy / Flexible Electronics
- 26 MI Southeast Michigan Advanced Energy Storage Systems Initiative Advanced Energy Storage Systems
- 27 TN Advanced Composites Employment Accelerator Advanced Composites with Focus on Low-Cost Carbon Fiber Technology
- 28 GA Atlanta Health Information Technology Cluster Health Information Technology
- 29 FL Space Coast Clean Energy Jobs Accelerator Clean Energy
- 30 WI Milwaukee Regional Water Accelerator Project Water
- 31 IL Rockford Area Aerospace Cluster Jobs and Innovation Accelerator Aerospace
- 32 MO St. Louis Bioscience Jobs and Innovation Accelerator Project Bioscience
- 33 MN Minnesota's Mining Cluster Energy
- 34 MO Kansas City Regional Jobs Accelerator Advanced Manufacturing & Information Technology
- 35 AR Launching the ARK: Acceleration, Resources, Knowledge Information Technology
- 36 KS Center for Innovation and Enterprise Engagement Advanced materials
- 37 ND Upper Missouri Tribal Environmental Risk Mitigation Project Environmental Risk Mitigation
- 38 WA Washington Interactive Media Accelerator -Interactive Media
- 39 OR Portland Regional Clean Tech Advance Initiative Clean Tech
- 40 CA San Diego-Imperial Valley Renewable Energy Generation Training and Demonstration Center Renewable Energy

### 56 Federally Funded Cluster Initiatives

#### **Initial Clusters**

- A PA Greater Philadelphia Energy-Efficient Buildings Hub (SBA, EDA, NIST, DOE)
- B FL Space Coast– Space Shuttle Shutdown Transition (SBA, EDA, NASA, DOL)
- C OH- Southwest Ohio Water Cluster Water Research (EPA)

#### Rural Jobs Accelerator

Economic Development Agency U.S. Department of Agriculture Delta Regional Authority Appalachian Regional Commission

- 41 MS Community and Economic Development in Rural Mississippi Automotive, Furniture, Agribusiness
- 42 NC WNC AgriVentures -- Cultivating Jobs and Innovation Project Agribusiness
- 43 NC North Carolina Eastern Region Aerospace and Automotive Cluster Project Aerospace, Automotive
- 44 SC South Carolina Alliance Rural Jobs and Innovation Accelerator Challenge Nuclear Energy
- 45 LA- I-20 Corridor Regional Accelerator Bioscience
- 46 IL Henry-Rural Rock Island-Mercer County Economic Development Consortium Agribusiness/Food processing
- 47 KS Project 17: Together We Succeed Advanced Manufacturing
- 48 CT New England Food Hub Cluster Initiative Food Processing
- 49 NH Northern Tier Farm and Forest Jobs Accelerator Agribusiness
- 50 VA Appalachian Spring Using Asset-Based and Creative Economy Methods to Catalyze Rural Job Acceleration *Music/Craft/Local Tourism*
- 51 WV Southern West Virginia Rural Jobs Accelerator Partnership Music/Craft/Local Tourism
- 52 WV Value Chain Initiative Food Processing
- 53 AK Bristol Bay Jobs Accelerator Project Fisheries, Seafood Processing



# **RETURNING U.S. MANUFACTURING**

Companies cite numerous reasons for locating manufacturing in the US to include:

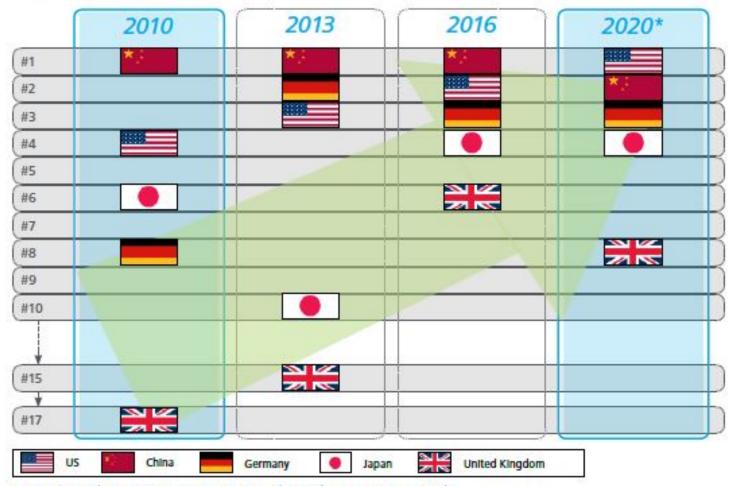
- » Talent Availability & High Productivity
- » Quality Control of Complex Products
- » Shorter Supply Lines
- » Protecting IP
- » Energy Cost Competitiveness & Availability



## **104** Years of Service



Figure 1: Global CEO survey: Manufacturing powerhouse rank trending and future forecast



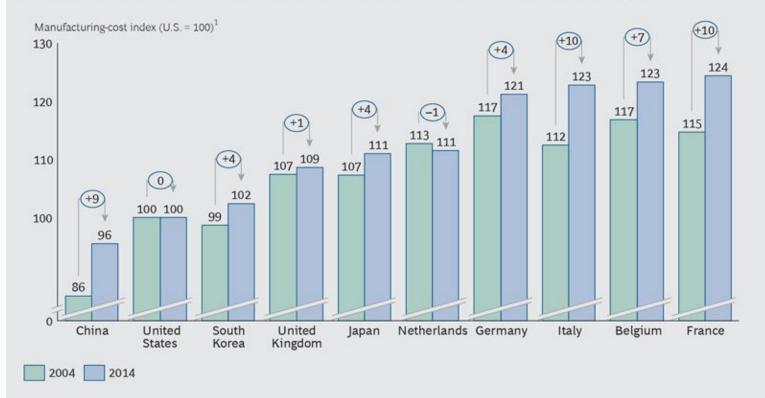
Source: Deloitte and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index \* represents projected 2020 ranks



### 104 Years of Service







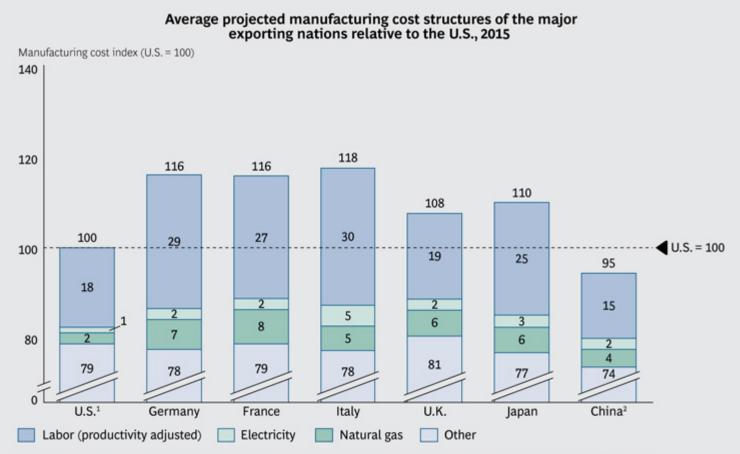
Source: BCG analysis; Economist Intelligence Unit; Euromonitor International; International Labour Organization; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statisics; and U.S. Economic Census. Note: The index covers four direct costs only: wages, productivity growth, energy coasts, and currency exchange rates. No difference are assumed in other costs (for example, raw-material inputs, machine and tool depreciation); the cost structure is calculated as a weighted average across all industries.



## US as Low Cost?



## EXHIBIT 1 | Labor and Energy Cost Advantages Will Make the U.S. One of the Developed World's Lowest-Cost Countries



Sources: U.S. Economic Census; U.S. Bureau of Labor Statistics; U.S. Bureau of Economic Analysis; International Labour Organization. Note: Cost structures were calculated as a weighted average across all industries. No difference was assumed in "other" costs (e.g., raw materials inputs and machine and tool depreciation). Differences in values are a function of the industry mix of each exporting country. <sup>1</sup>U.S. figures represent costs in a set of select lower-cost states specified in previous publications. <sup>2</sup>Chinese figures represent the Yangtze River Delta region.



## Abundant Natural Gas



## EXHIBIT 3 | Abundant Natural Gas Has Led to a Large Energy-Cost Advantage for Domestic Manufacturers in the U.S.

Natural gas prices in other major manufacturing economies are around 2.6 to 3.8 times higher than in the U.S....

#### ...and industrial electricity prices are around 1.6 to 3.9 times higher

Natural gas prices (indexed, U.S. = 100) Industrial electricity prices, 2012 (indexed, U.S. = 100) 387 400 400 375 358 350 299 300 300 263 235 207 192 200 200 161 100 100 U.S. = 100 U.S. = 100 0 0 U.K. U.K. Germany France Italy Germany France Italy Japan Japan

Sources: International Energy Agency quarterly energy price and tax statistics; BCG analysis. Note: Energy prices based on 2012 averages.



## **104** Years of Service



#### Linking drivers of competitiveness and country performance

Table 6: Global CEO survey: Focus country performance by key competitiveness drivers

elected country manufacturing ompetitiveness drivers	United States	Germany	Japan	South Korea	* China	() India
<b>1</b> TALENT	89.5	97.4	88.7	64.9	55.5	51.5
INNOVATION POLICY AND INFRASTRUCTUR	e 98.7	93.9	87.8	65.4	47.1	32.8
COST COMPETITIVENESS	39.3	37.2	38.1	59.5	96.3	83.5
ENERGY POLICY	68.9	66.0	62.3	50.1	40.3	25.7
PHYSICAL INFRASTRUCTURE	90.8	100.0	89.9	69.2	55.7	10.0
LEGAL AND REGULATO	DRY 88.3	89.3	78.9	57.2	24.7	18.8

Most competitive

Least competitive

Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global Manufacturing Competitiveness Index







## Why It's Time to Bring Manufacturing Back Home to the U.S.

Consumers have numerous reasons for buying products manufacturing in the US to include:

- •Quick turnarounds, prototypes, and innovation
- •Customers have come to expect short delivery windows
- •"Greener" products
- •Societal demand for local, sustainable, and responsible manufacturing is rising







# CHALLENGES FACING NYS MANUFACTURERS

- » Global Competition
- » Use of Unfair Trade Practices
- » Increases in Costs Burden on Manufacturing (ie. Taxes and Regulations)
- » Speed of Technological Change
- » Shifting of growth markets to Developing World
- » Growing Skills Gap and Difficulty in Finding Talent







# **OPPORTUNITIES IN MANUFACTURING**

- » Global Growth Opportunities
- » Direct Foreign Investment in the US
- » Increasing cost competitiveness of US Manufacturing
- » Use of Technology
- » Conversation concerning use of Fair Trade Practices





#### (Updated April 2014) 120,000 Number of Manufacturing Firms in 2011 107,256 Total Number of Firms: 254,941 90,000 60,000 47,315 46,589 38,587 30,000 11,670 3,524 0 0-4 5-9 10-19 20-99 100-499 500+

Manufacturing Firms by Number of Employees

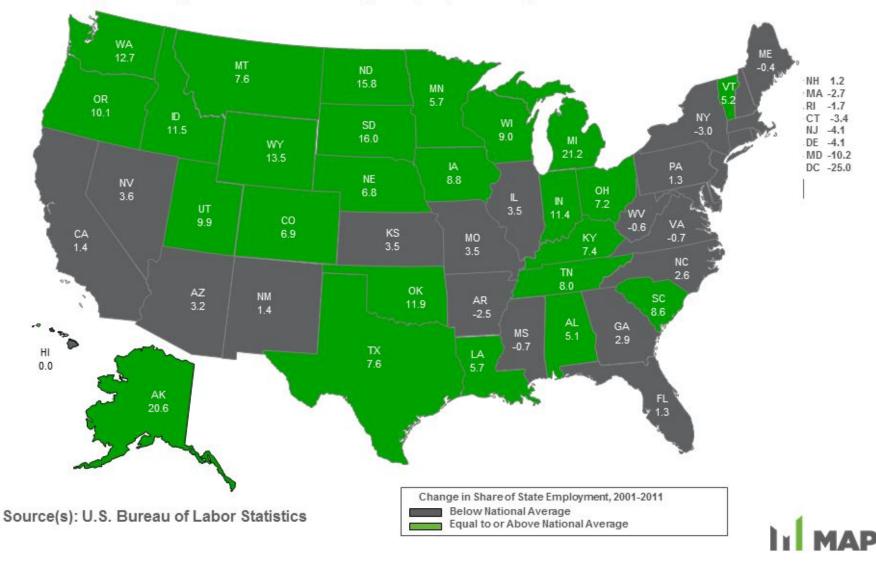
Number of Employees per Firm

Source(s): U.S. Census Bureau and MAPI



#### Manufacturing Job Gains Are Largest in the Midwest and Northwest (Updated March 2014)

#### Percentage Change in Manufacturing Employment by State, Dec 2009 – Oct 2013

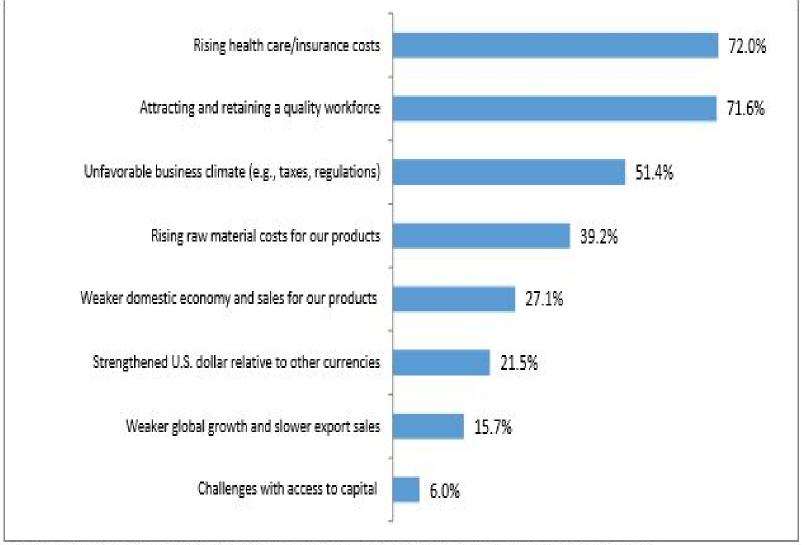


#### NAM MANUFACTURERS' OUTLOOK SURVEY THIRD QUARTER 2017

September 29, 2017

Percentage of Respondents Positive in Their Own Company's Outlook 89.8%	NAM Manufacturing Outlook Index 61.0 (June: 60.8 – revised)			
(June: 89.5%) Small Manufacturers: <b>85.1%</b> (June: 84.8%) Medium-Sized Manufacturers: <b>89.8%</b> (June: 90.6%) Large Manufacturers: <b>94.9%</b> (June: 92.8%)	Expected Growth Rate for <u>SALES</u> Over the Next 12 Months 个 4.5% (June: 个 4.8%)			
Expected Growth Rate for <u>PRODUCTION</u> Over the Next 12 Months 个 4.5% (June: 个 4.8%)	Expected Growth Rate for <u>EXPORTS</u> Over the Next 12 Months			
Expected Growth Rate for <u>CAPITAL INVESTMENTS</u> Over the Next 12 Months	Expected Growth Rate for <u>PRICES</u> Over the Next 12 Months 个 1.8% (June: 个 1.7%)			
Expected Growth Rate for <u>FULL-TIME EMPLOYMENT</u> Over the Next 12 Months	Expected Growth Rate for <u>INVENTORIES</u> Over the Next 12 Months 个 1.0% (June: 个 1.3%)			
Expected Growth Rate for <u>EMPLOYEE WAGES</u> Over the Next 12 Months $\uparrow$ 2.2% (June: $\uparrow$ 2.1%)	Expected Growth Rate for <u>HEALTH INSURANCE COST</u> Over the Next 12 Months			
RIGHT TRACK: 46.4% WRONG	t direction, or is our country on the wrong track?" TRACK: 21.4% UNSURE: 32.2% UNSURE: 28.9%)			

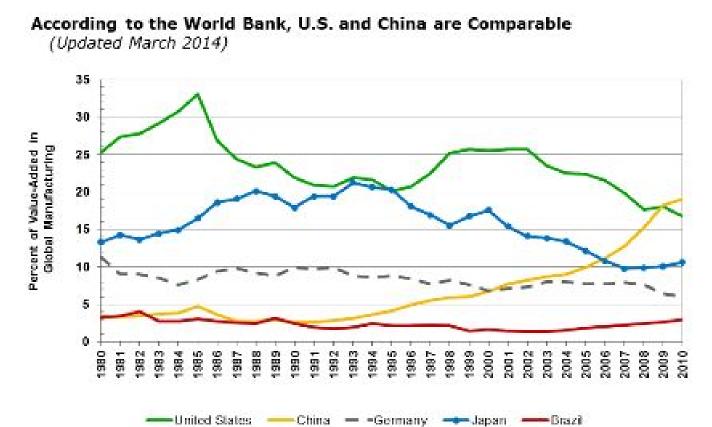
## Figure 4: Primary Current Business Challenges, Third Quarter 2017



Note: Respondents were able to check more than one response; therefore, responses exceed 100 percent.

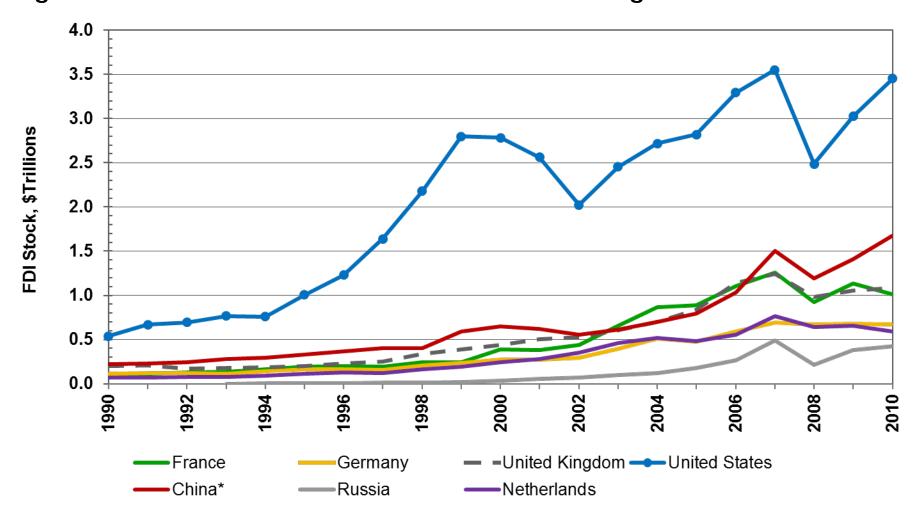






Source(s): World Bank, WDI and GDF databases and MAPI

II MAPI MANUFACTURERS ALLIANCE of New York

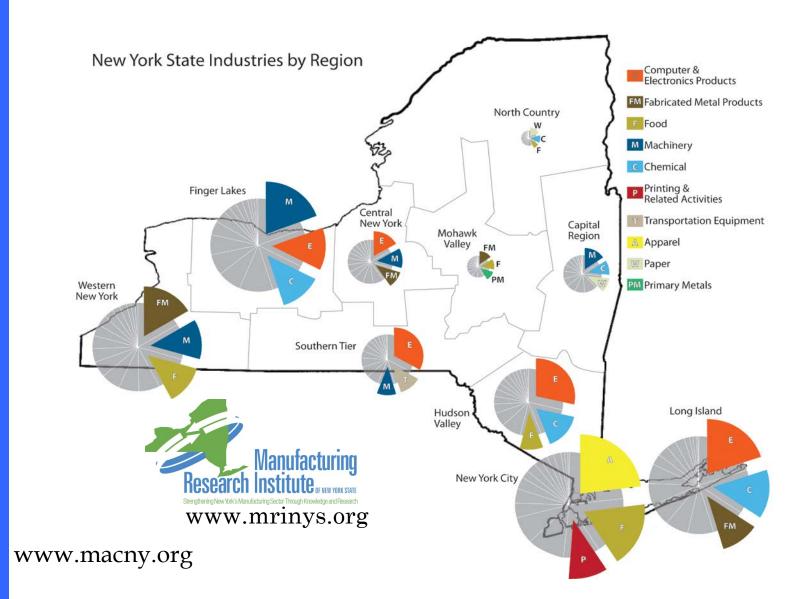




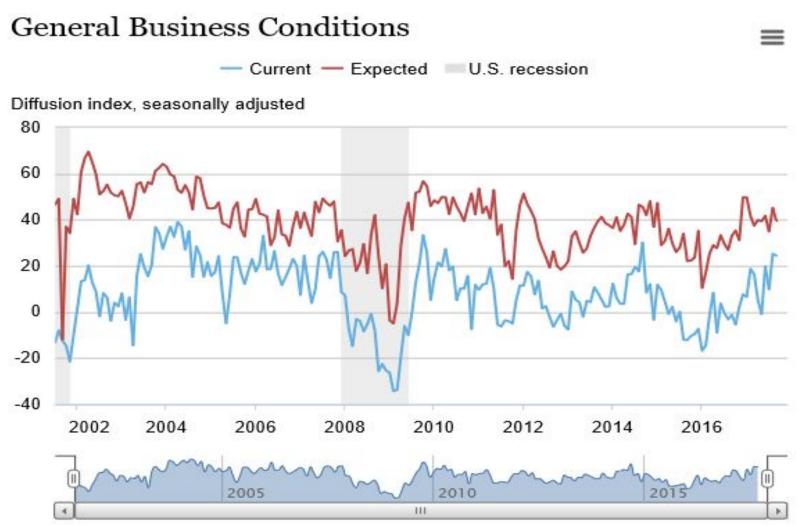
\* Includes Hong Kong Source(s): UNCTAD World Investment Report

## New York Manufacturing







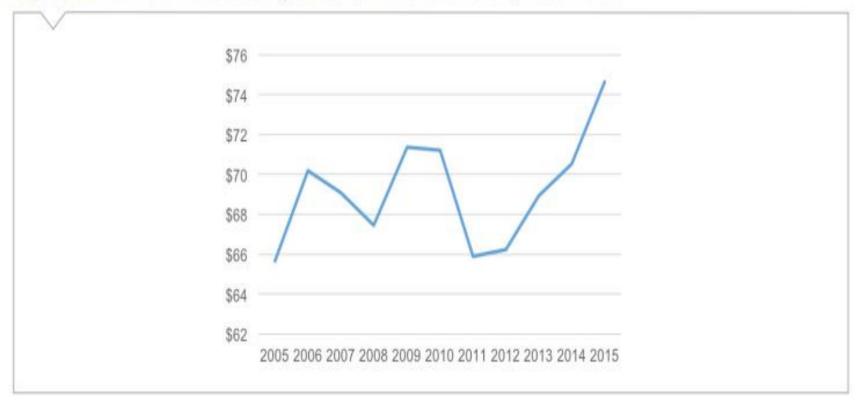


Empire State Manufacturing Survey, September 2017





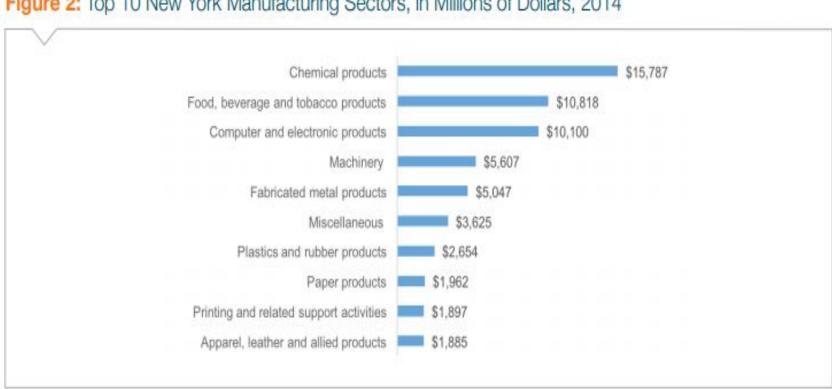
## Figure 1: New York Manufacturing Output, in Billions of Dollars, 2005–2015



NAM Manufacturing Facts, April 2017







## Figure 2: Top 10 New York Manufacturing Sectors, in Millions of Dollars, 2014

Research

Revised March 2017

## Manufacturing Employment New York State Regions and Metro Areas, 2000 and 2010<sup>\*</sup>



The Manufacturers Association

	Employment		Change:	
Metro Area	2000	2010	Net	Percent
New York State	752,300	457,800	-294,500	-39.1%
United States	17,253,700	11,546,500	-5,707,200	-33.1%
Downstate Region (10 county area)	320,200	178,100	-142,100	-44.4%
New York City	178,300	79,700	-98,600	-55.3%
Putnam-Rockland-Westchester	36,600	26,400	-10,200	-27.9%
Nassau-Suffolk	105,300	72,000	-33,300	-31.6%
Upstate Region (52 county area)	447,200	277,000	-170,200	-38.1%
Albany-Schenectady-Troy Metro Area	28,600	20,100	-8,500	-29.7%
Binghamton Metro Area	23,000	14,400	-8,600	-37.4%
Buffalo-Niagara Falls Metro Area	83,000	47,400	-35,600	-42.9%
Glens Falls Metro Area	7,600	6,100	-1,500	-19.7%
Ithaca Metro Area	4,300	3,000	-1,300	-30.2%
Kingston Metro Area	6,400	3,500	-2,900	-45.3%
Poughkeepsie-Newburgh-Middletown Metro Area	30,500	17,900	-12,600	-4 <mark>1.3</mark> %
Rochester Metro Area	103,000	59,300	-43,700	-42.4%
Syracuse Metro Area	44,700	27,800	-16,900	-37.8%
Utica-Rome Metro Area	18,900	11,100	-7,800	-41.3%
Non-Metro Counties	97,200	66,400	-30,800	-31.7%

\*Average of January-June employment.





## Central New York Region Employment Levels<sup>\*</sup> by Supersector, 2000 and 2010 Syracuse MSA; Cayuga and Cortland Counties

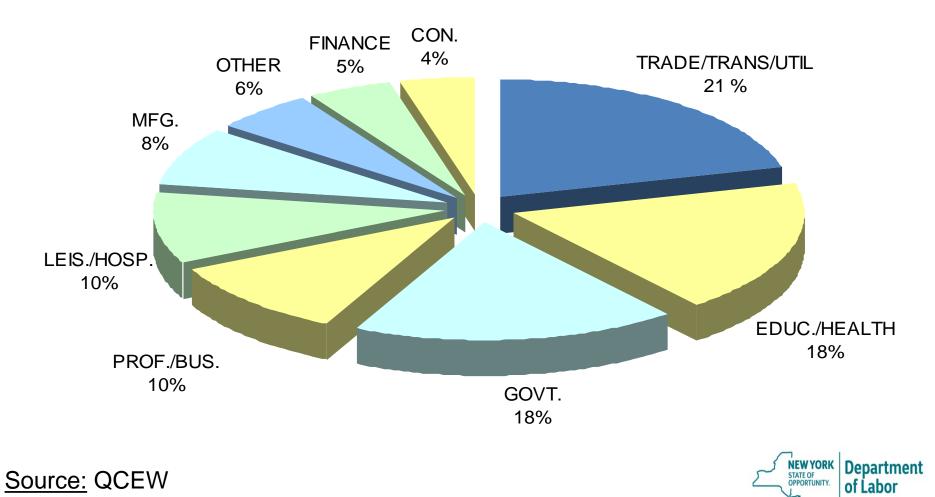
	Employment Level*		Change:	
Supersector	2000	2010	Net	%
Total Nonfarm	368,900	356,500	-12,400	-3.4%
Total Private	301,600	286,800	-14,800	-4.9%
Natural Resources, Mining and Construction	13,200	13,100	-100	-0.8%
Manufacturing	52,200	33,000	-19,200	-36.8%
Trade, Transportation and Utilities	75,500	68,200	-7,300	-9.7%
Information	8,000	5,400	-2,600	-32.5%
Financial Activities	18,900	18,000	-900	-4.8%
Professional and Business Services	32,900	36,400	+3,500	+10.6%
Educational and Health Services	56,700	66,900	+10,200	+18.0%
Leisure and Hospitality	28,700	31,800	+3,100	+10.8%
Other Services	15,600	14,200	-1,400	-9.0%
Government	67,400	69,700	+2,300	+3.4%

\*Average January - June job count.



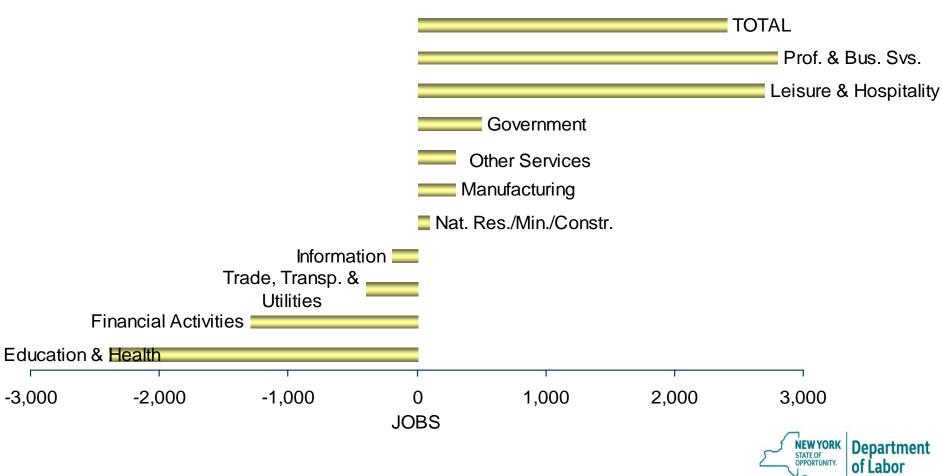


## Employment by Industry 4<sup>th</sup> Quarter 2016



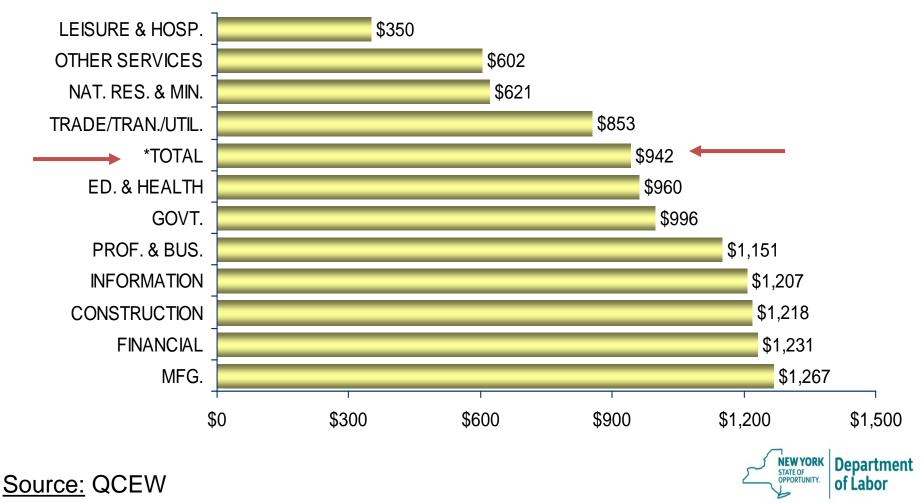
\* The Syracuse MSA includes Onondaga, Madison & Oswego counties.

# Jobs Gained or Lost August 2017 vs. August 2016



\*The Syracuse MSA includes Onondaga, Madison & Oswego counties.

## Average Weekly Wage by Industry, 4<sup>th</sup> Quarter 2016



\* The Syracuse MSA includes Onondaga, Madison & Oswego counties.

# Many Companies & Industries Are Growing in Central NY!

- **AGRANA FRUIT US INC** (fruit processing mfg.)
- ALOFT HOTEL

Syracuse

**MSA** 

- BITZER SCROLL (air conditioning/refrigerator compressor mfg.)
- **DESTINY USA** (retail/entertainment/restaurants)
- **DIELECTRIC LABS** (capacitor & film mfg.)
- **DUMAC BUSINESS SYSTEMS** (customizes point-of-sale devices)
- EMBASSY SUITES BY HILTON SYRACUSE DESTINY USA
- **F.W. WEBB CO.** (plumbing supply distributor)
- **G&C FOOD DISTRIBUTORS AND BROKERS INC.** (frozen food distributor)
- G.A. BRAUN INC. (maker of commercial washers/dryers)
- HILL-ROM (WELCH ALLYN) (medical diagnostics equipment mfg.)
- HYATT HOUSE HOTEL
- JADAK TECHNOLOGIES (barcode scanner mfg.)
- JMA WIRELESS (maker of wireless communications equipment)
- **LABORATORY ALLIANCE OF CENTRAL NEW YORK** (laboratory operations)
- **LIGHT 4 LIFE CANDLES LLC** (candle manufacturing)
- LOCKHEED MARTIN (design and build radar/sonar/sensors)





## Many Companies & Industries Are Growing in Central NY!

- NORTHEASTERN ELECTRONICS CO. (power cables, wiring harnesses mfg.)
- POINT PLACE CASINO
- **PROTERRA LED** (produces energy efficient high-output lighting)
- RAPID RESPONSE MONITORING (home security & medical monitoring)
- **SAAB DEFENSE AND SECURITY** (radar maker)
- **SHOREGROUP** (systems network management)
- **SPECIALIZED PACKAGING GROUP** (paper printing plant)
- **SRC INC.** (defense-related engineering, design & mfg.)
- ST. JOSEPH'S HOSPITAL HEALTH CENTER
- **STERI-PHARMA LLC** (antibiotic maker)
- **TERRADIOL NEW YORK** (medical marijuana grower)
- TESSY PLASTICS (plastic molding products mfg.)
- ULTRA DAIRY LLC (dairy products mfg.)
- UPSTATE MEDICAL UNIVERSITY
- VERIZON COMMUNICATIONS (voice, Internet, video services)



**104** Years of Service



# **GROWTH CLUSTERS IN CNY**

According to Battelle's findings, the clusters with the greatest prospects for growth are:

- (1) biosciences
- (2) digital and electronic devices
- (3) environmental systems (AMTEC)
- (4) packaging
- (5) precision metalworking

For all but the biosciences cluster, the potential clusters are at least 40 percent more concentrated in the region than they are nationally, with environmental systems four times more concentrated.







## HOW GLOBAL MANUFACTURERS CAN SUCCEED

- » Make Talent "The" Top Priority
- » Embrace Advanced Technologies to Drive Competitive Advantage
- » Leverage Strengths of Partnerships Beyond Traditional Boundaries
- » Develop a Balance Approach Across the Global Enterprise
- » Cultivate Smart, Strategic Public-Private Partnerships







## WHAT IS MACNY DOING ?

» Success Networks

» Workforce Initiatives

» Member Services

» Advocacy & Issues Coalitions







# **NEW INITIATIVES**

- » Individual Members Success Networks
- » Senior and Emerging Leaders Services
- » PTECH and CTE Initiatives
- » Regional Apprenticeships Approach
- » Statewide Advocacy Efforts & Networks







# WHAT CAN YOU DO?

- » Invest and Pursue Excellence
- » Lead and Adapt
- » Make Great Products
- » Engage with MACNY and our members







# THANK YOU

