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CEN
MANUFACTURING

BNMA
BUFFALO NIAGARA MANUFACTURING ALLIANCE

RTMA
ROCHESTER TOOLING & MACHINING ASSOCIATION

CI Council of Industry
The Manufacturers Association of the Hudson Valley

MAST
MANUFACTURERS ASSOCIATION
OF THE SOUTHERN TIER

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New Initiatives

» Individual Members Success Networks

» Senior and Emerging Leaders Services

» Digital Content Creation

» Next Generation Workforce Partnerships

» Regional Apprenticeships Approach

» Statewide Advocacy Efforts & Networks

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Our Manufacturing Future

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4 Trends Shaping Advanced Manufacturing

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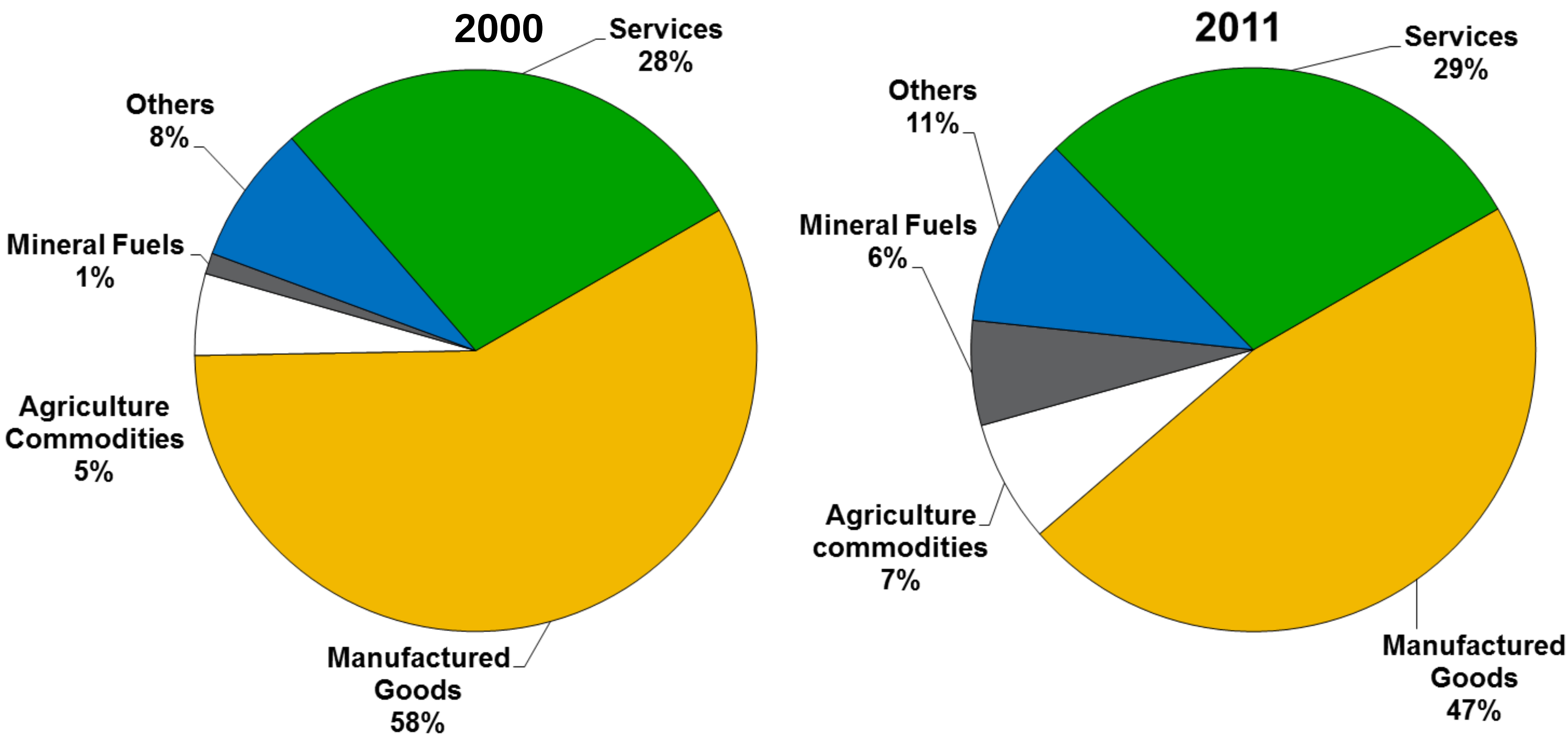
The World as the Market

Figure 32 – Manufacturing Still Dominates U.S. Exports, But Its Share Is Declining



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

Industrial Sectors

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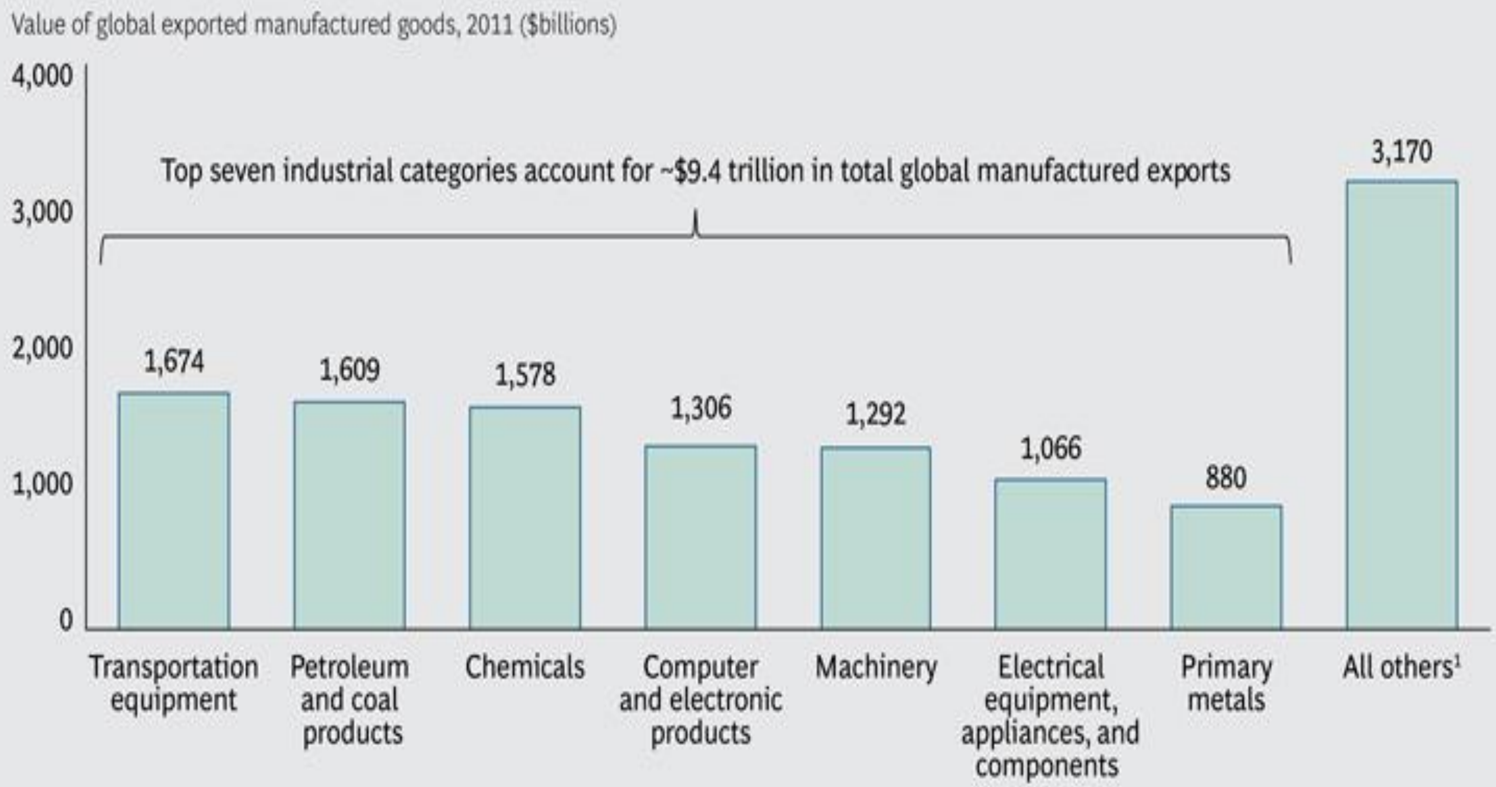
EXHIBIT 5 | Three-Quarters of Global Manufactured Exports Are Concentrated in Seven Industrial Categories



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).
[1]Includes food products, textile product mills, miscellaneous, plastic and rubber products, fabricated metal products, paper, nonmetallic mineral products, and wood products.

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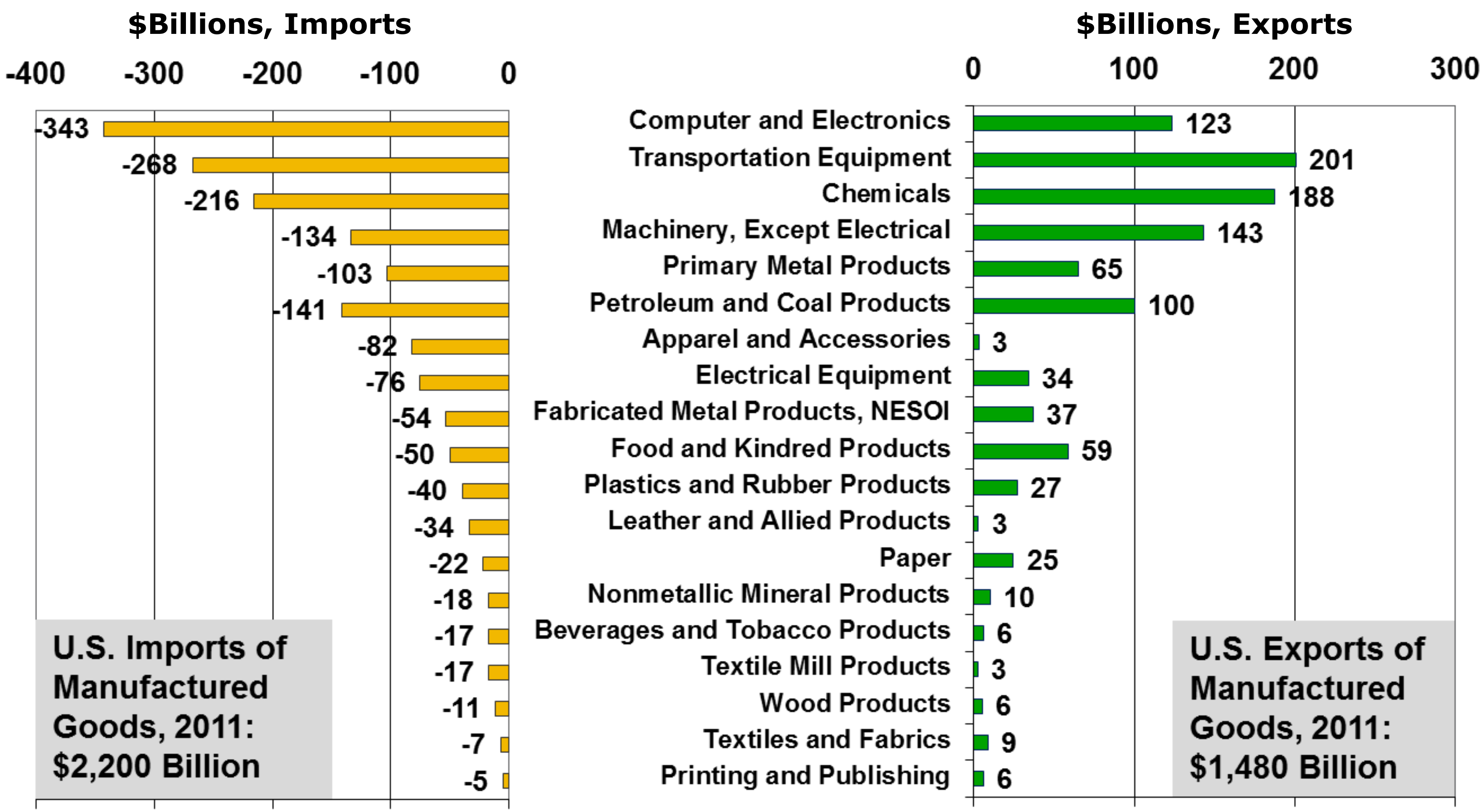
Figure 65 – A Few Core Industries Dominate Foreign Trade in Manufactures



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

MRI Study Results

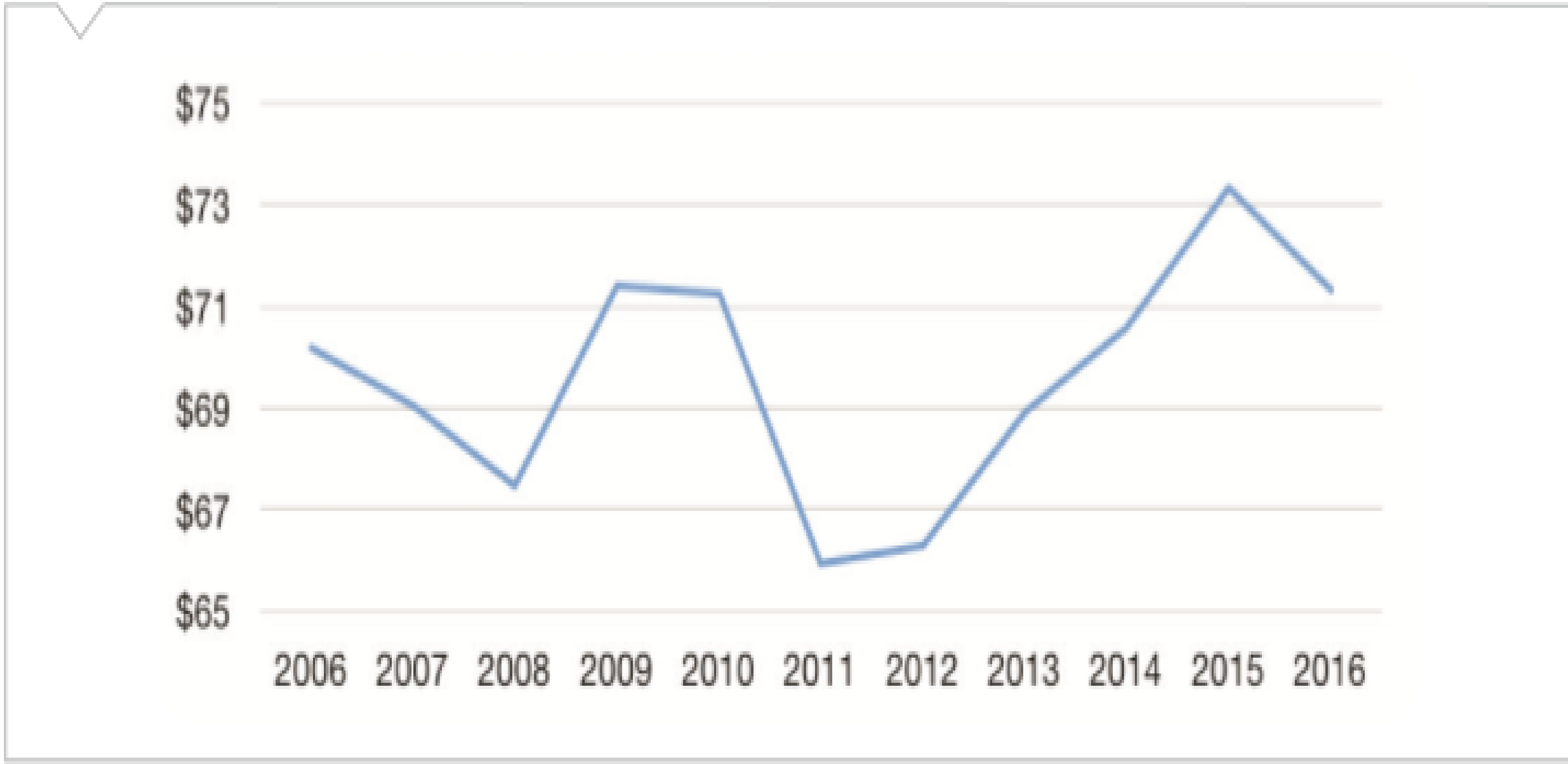
Manufacturing Export Intensity by State (2008)		
1	Florida	39%
2	Washington	38%
3	**New York**	**35%**
4	Vermont	33%
5	Nevada	32%
6	Arizona	30%
7	Massachusetts	27%
8	Texas	27%
9	Idaho	24%
10	California	24%

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

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: Sub-National Trade Statistics, International Trade Administration.

Figure 1: New York Manufacturing Output, in Billions of Dollars, 2005–2016



NAM Manufacturing Facts, January 2018

MRI Study Results

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

2010 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

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Technology Explosion

Technology Explosion

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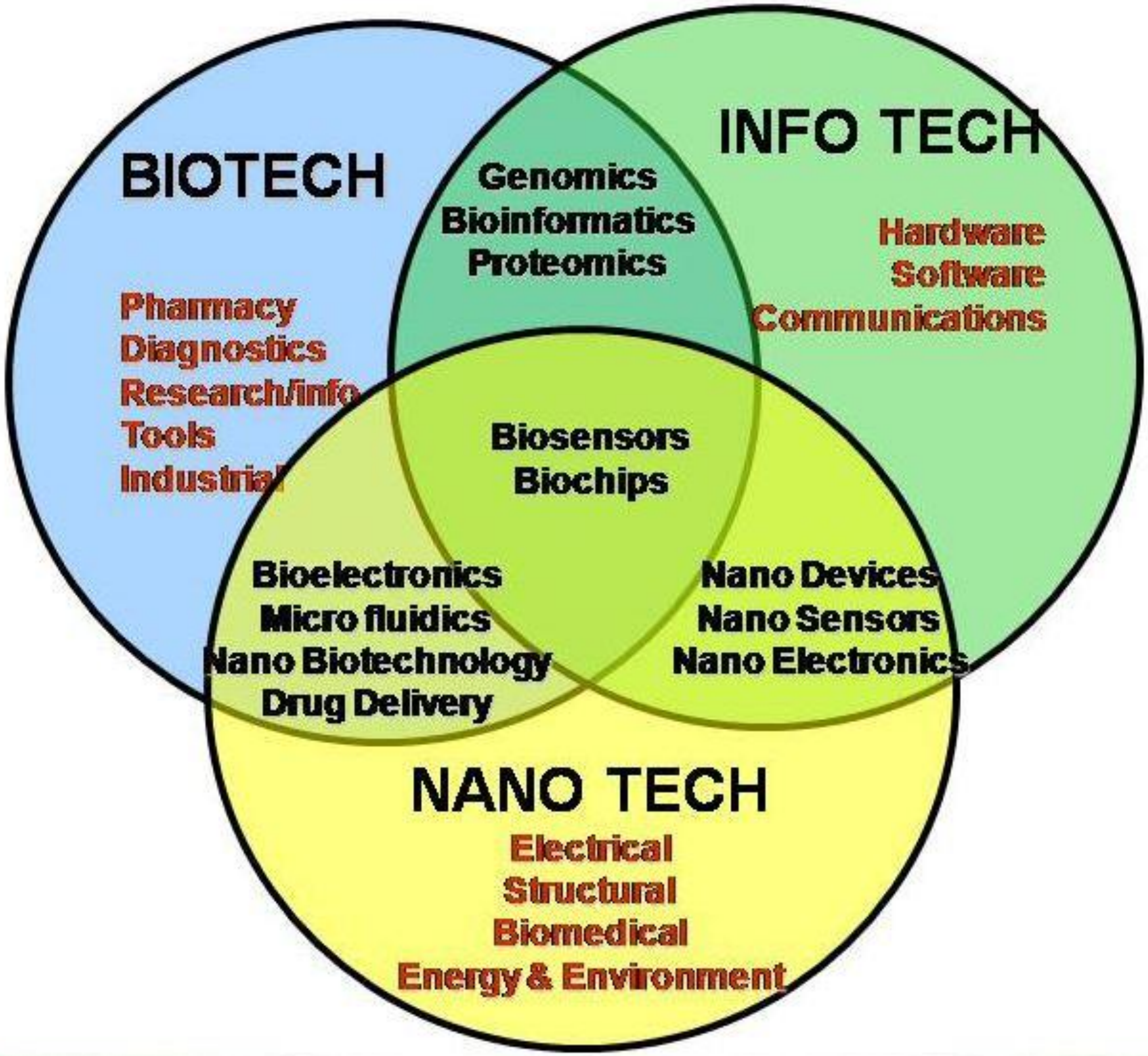
CONVERGENCE OF TECHNOLOGIES

BIO-INFO-NANO



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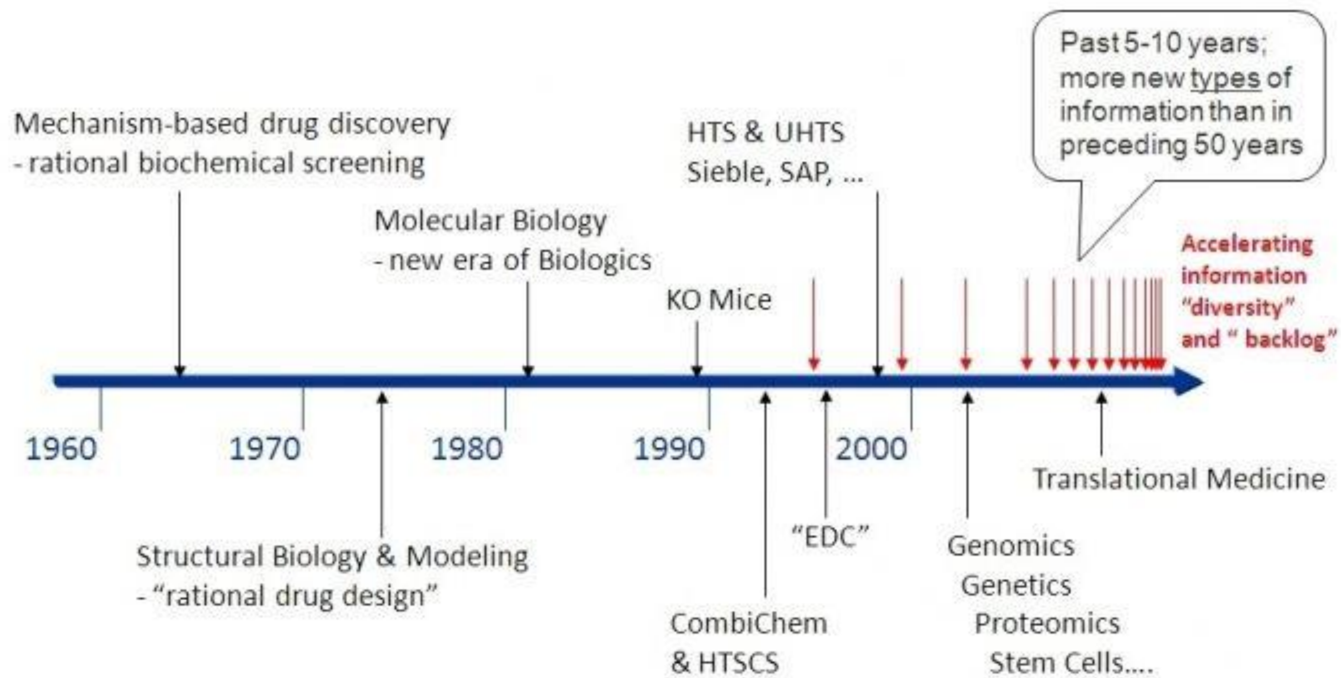
Speed of Technology



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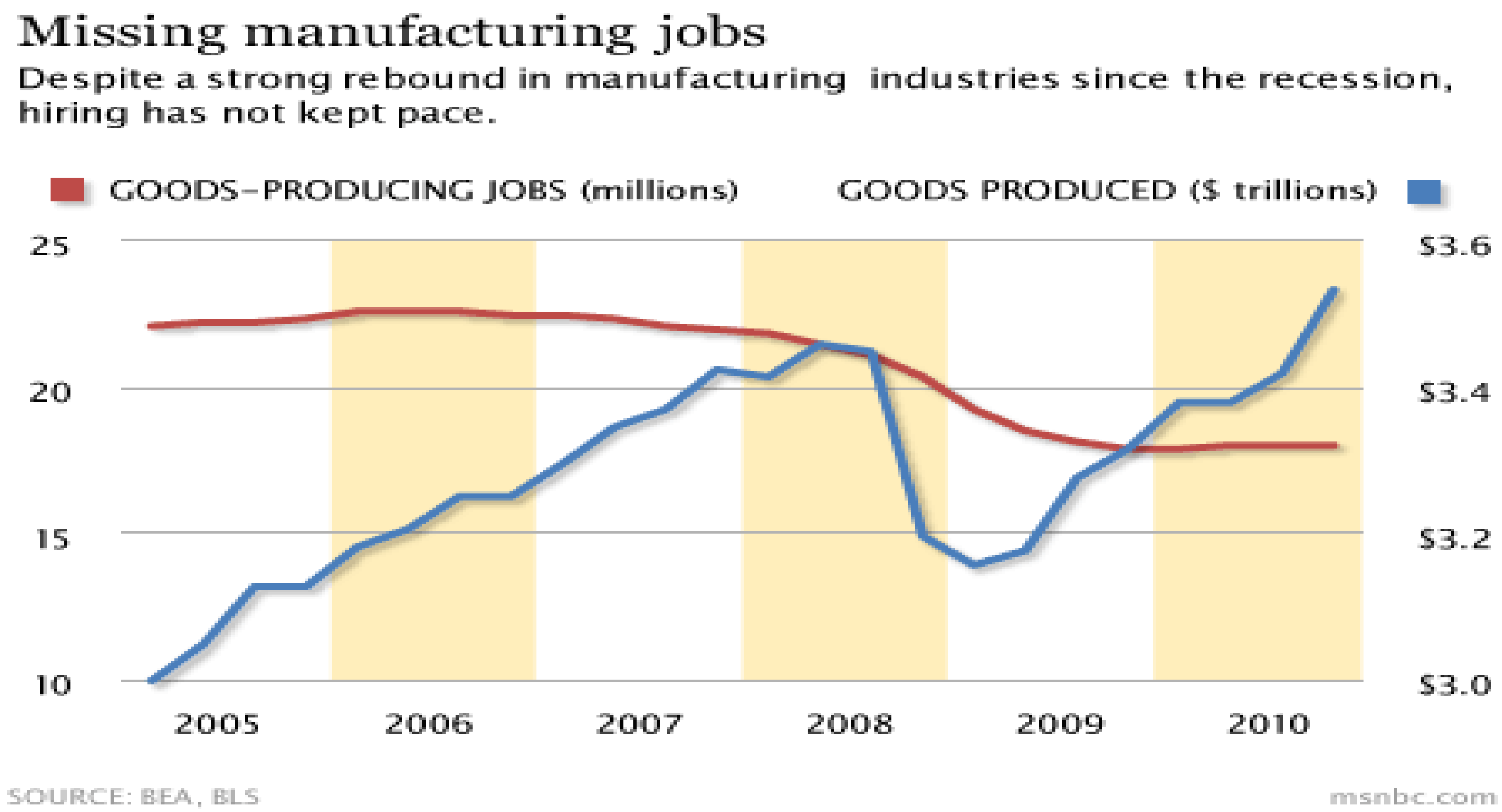
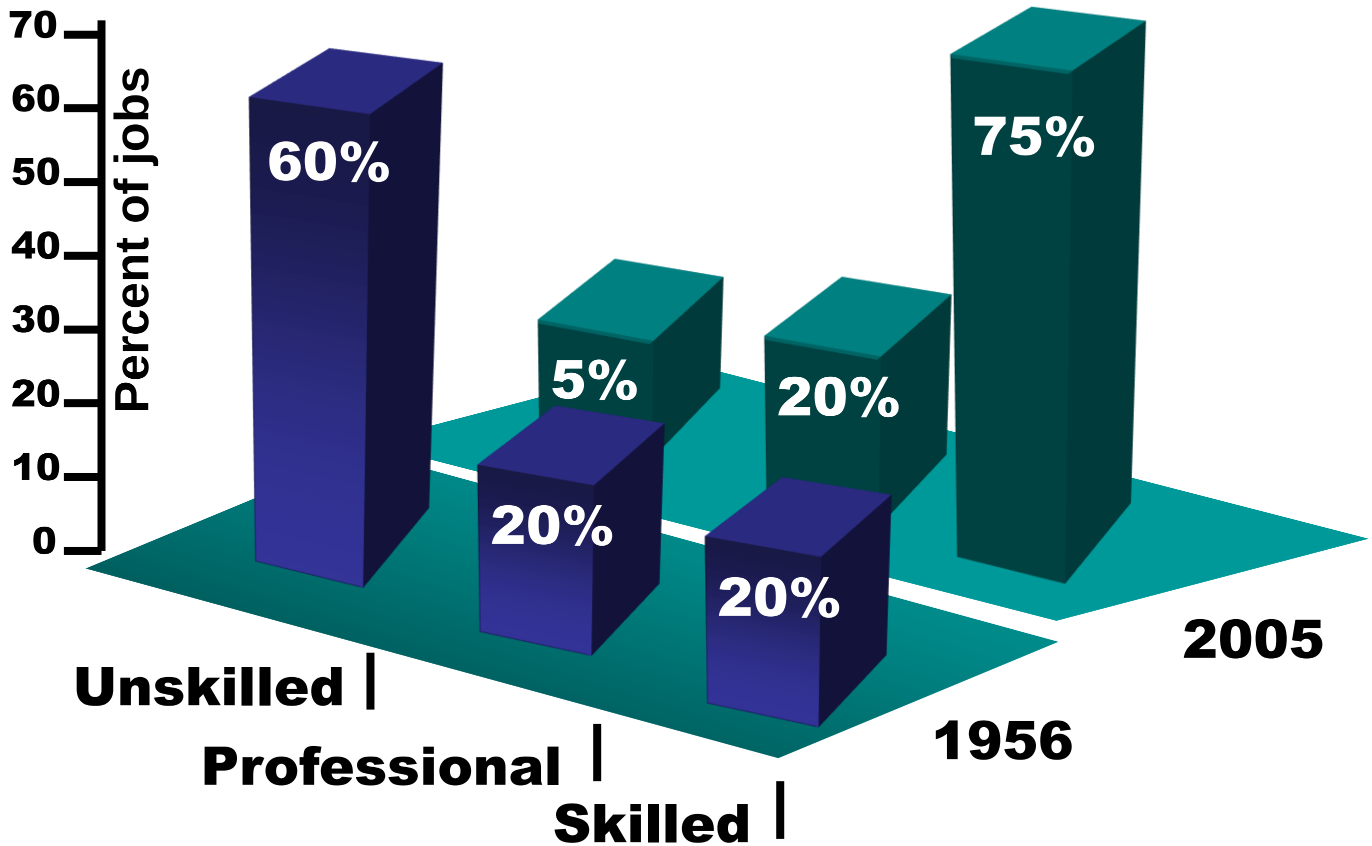
Brains not Brawn

Brains not Brawn

Where have all the jobs gone?



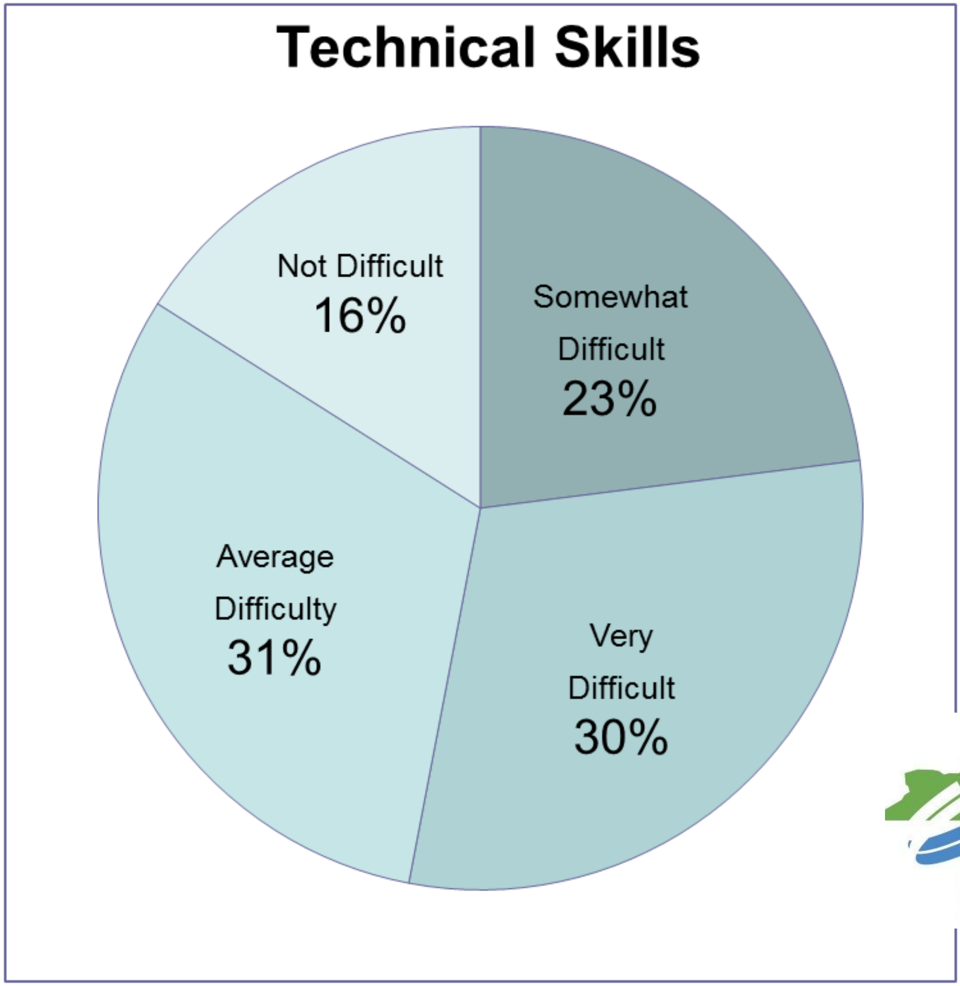
Workforce Skills Level Needed



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

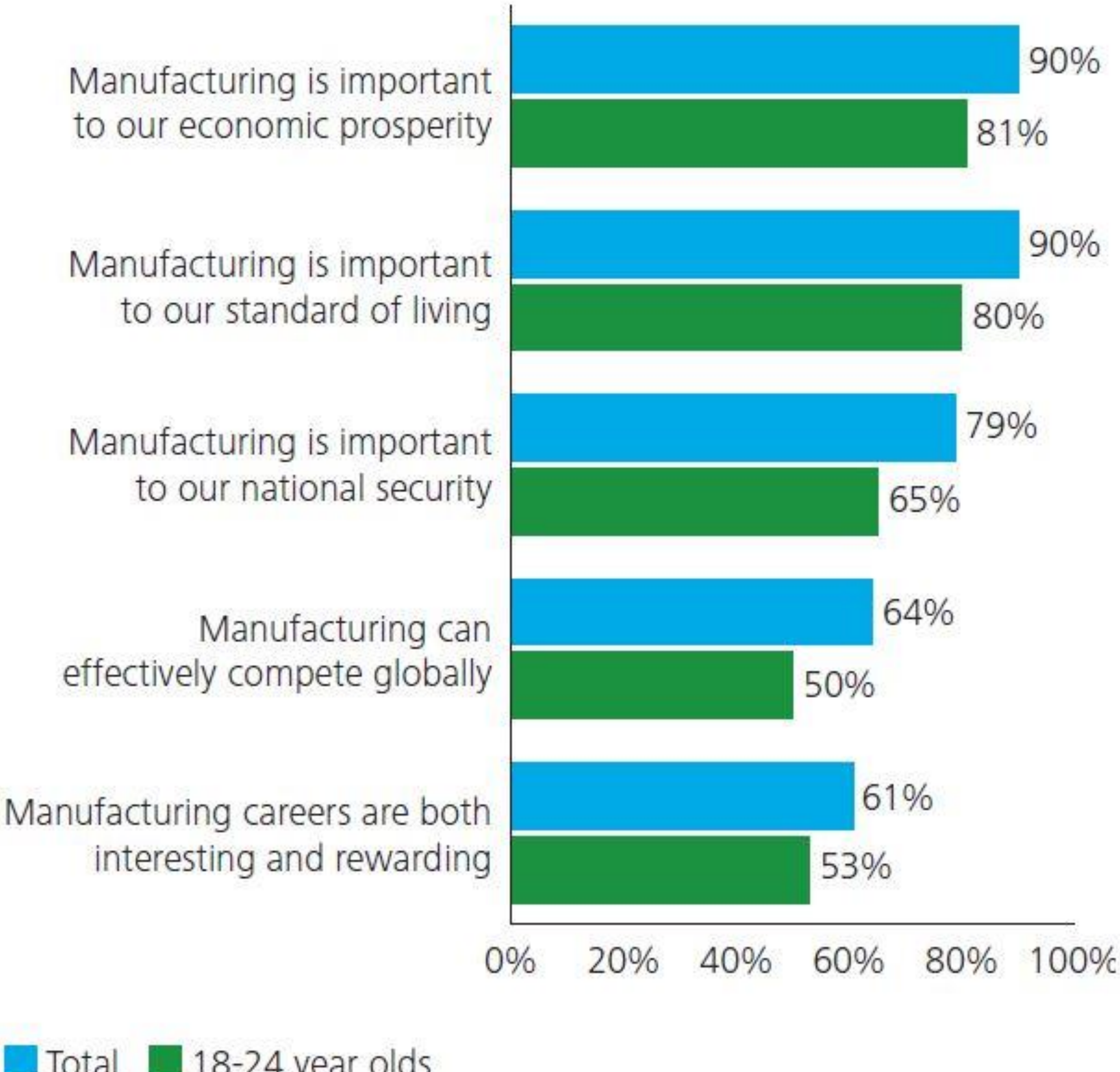
2012

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



2014

Chart 13. Comparison of total respondents to 18-24 year olds who strongly agree or agree with each statement



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Clusters Matter

What are Clusters?

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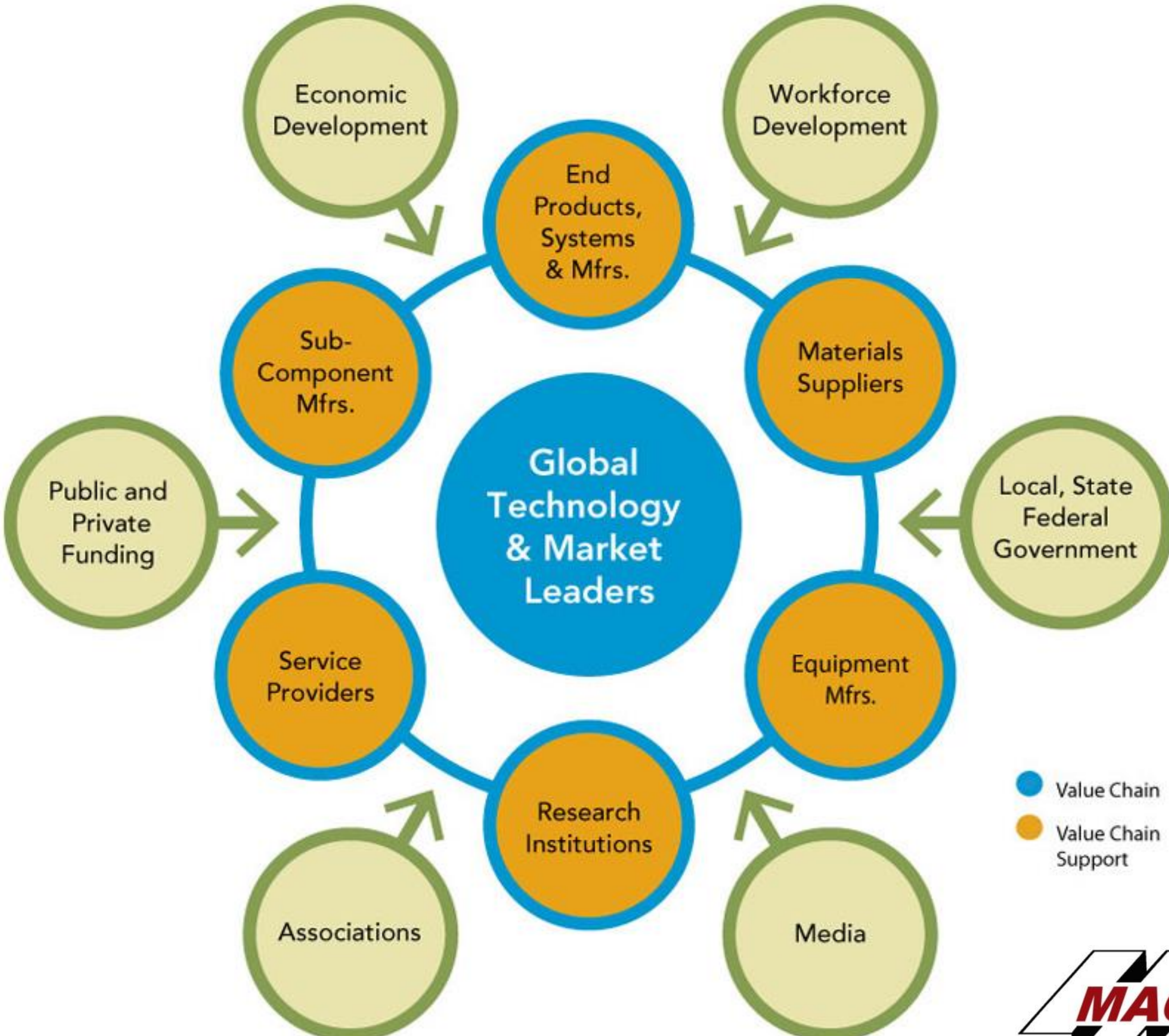
Clusters are geographic concentrations of interconnected businesses, suppliers, service providers, and associated institutions in a particular sector.

As defined by The Brookings Institution,

What is a Cluster?



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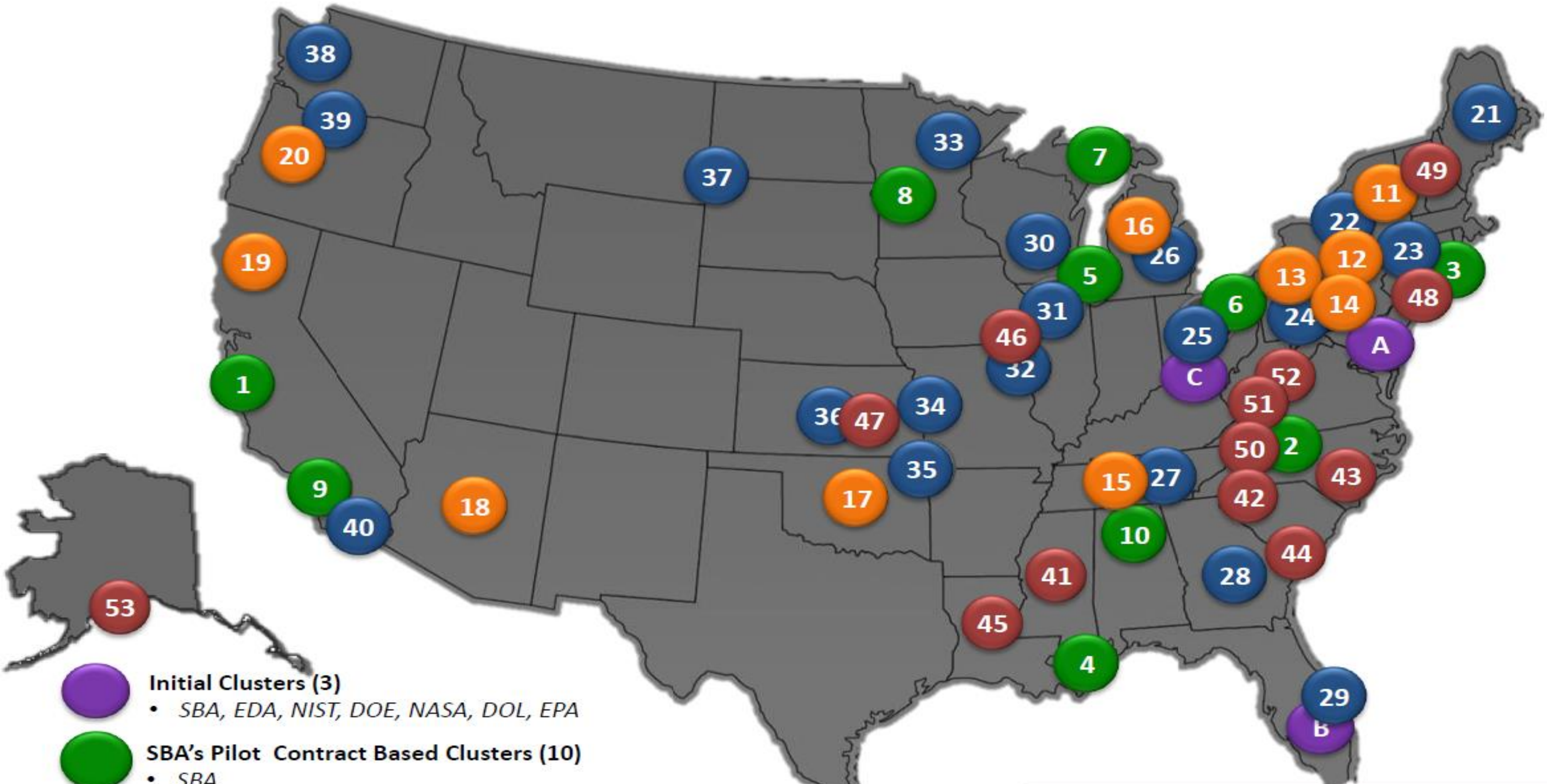

Initial Clusters (3)
- *SBA, EDA, NIST, DOE, NASA, DOL, EPA*

SBA's Pilot Contract Based Clusters (10)
- *SBA*

Jobs Accelerator Collaboration Clusters (20)
- *EDA, ETA, SBA*

Advanced Manufacturing Jobs Accelerator Collaboration Clusters (10)
- *EDA, ETA, NIST, DOE, SBA*

Rural Jobs Accelerator Collaboration Clusters (13)
- *EDA, USDA, DRA, ARC*

56 Federally Funded Cluster Initiatives

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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

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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

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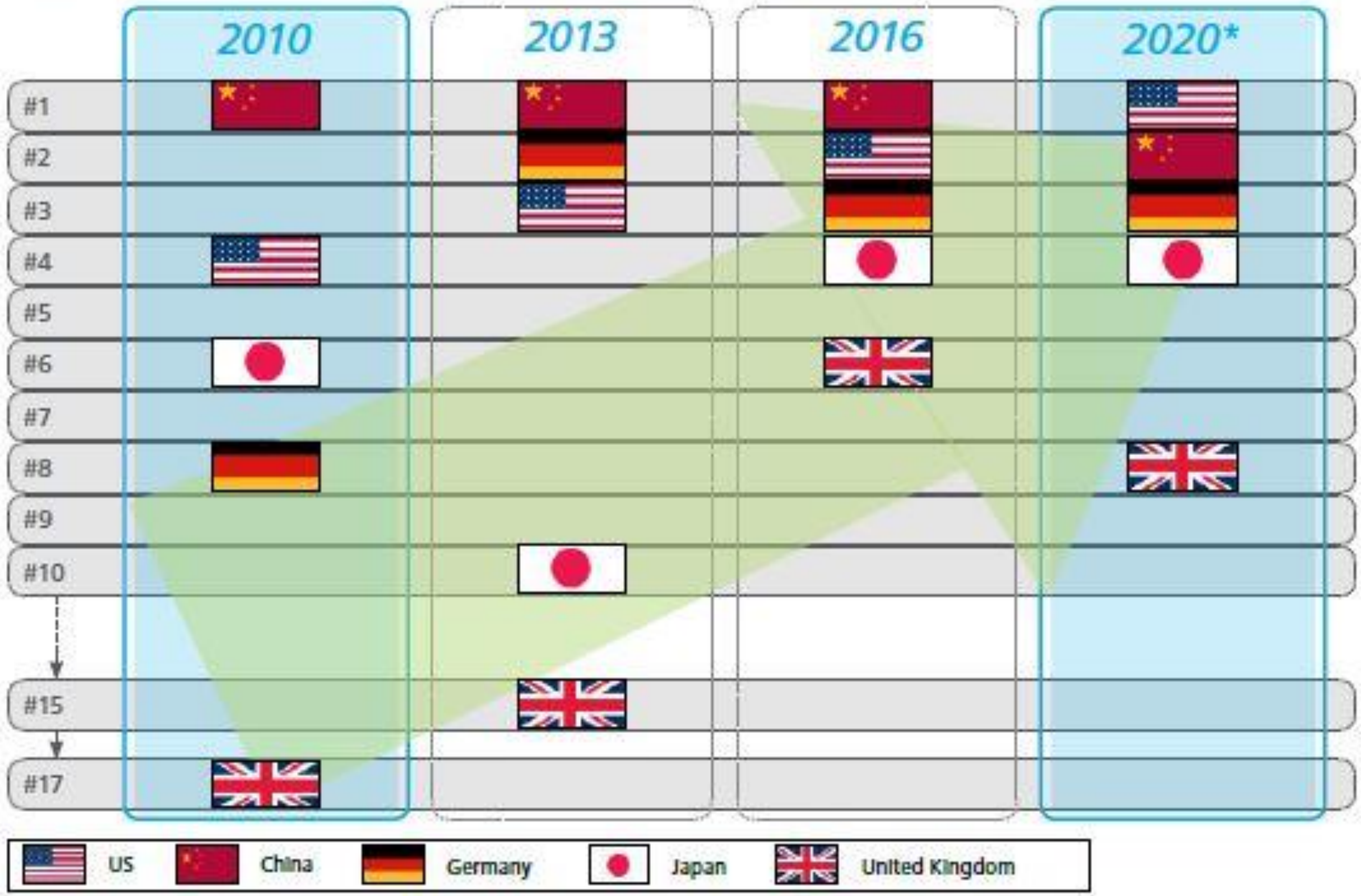
Figure 1: Global CEO survey: Manufacturing powerhouse rank trending and future forecast



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

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How Global Manufacturing Cost Competitiveness Has Shifted Over the Past Decade

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.
[1]Productivity-adjusted.

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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.
[1]U.S. figures represent costs in a set of select lower-cost states specified in previous publications.
[2]Chinese figures represent the Yangtze River Delta region.

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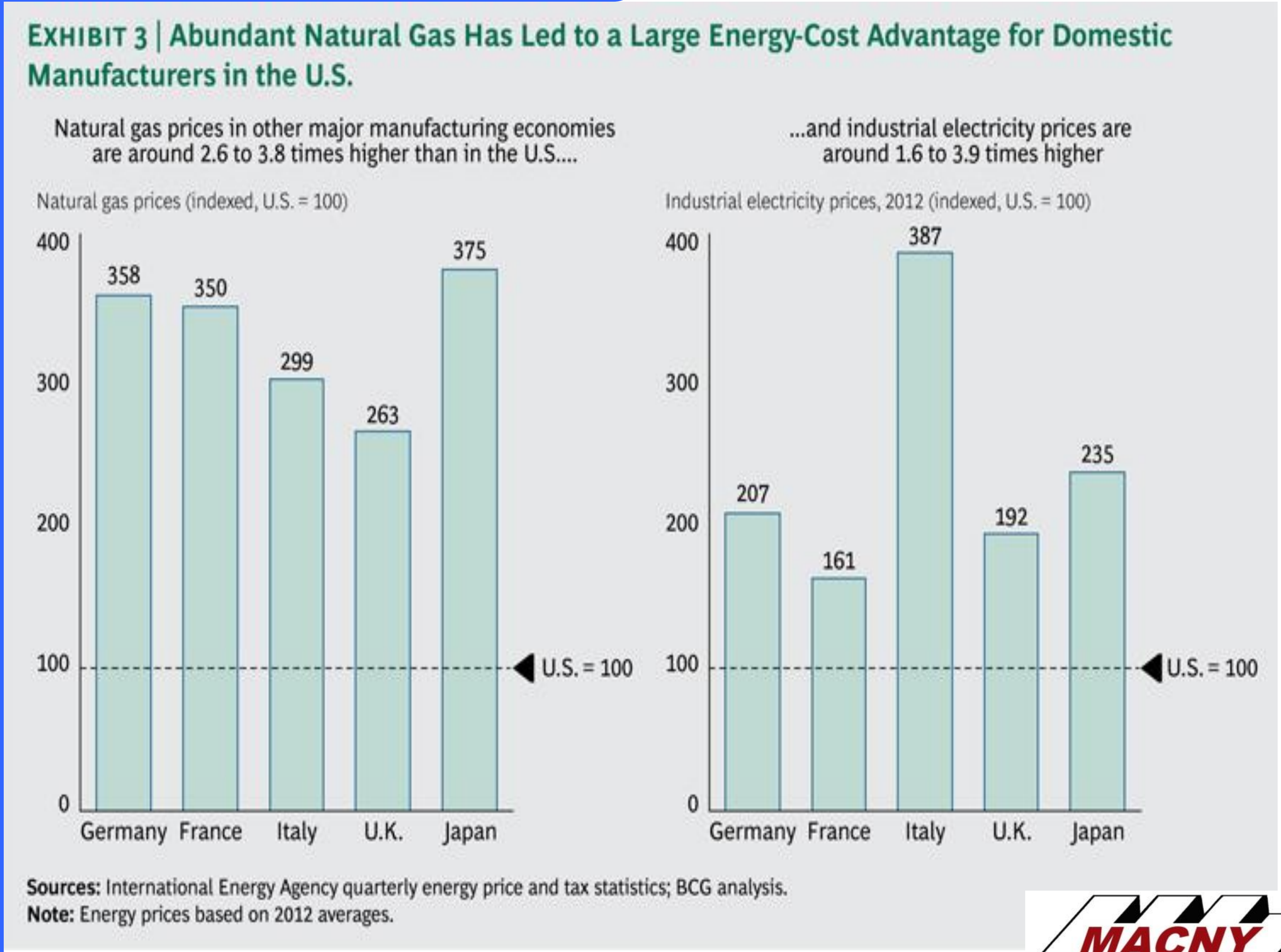
Abundant Natural Gas



Linking drivers of competitiveness and country performance

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

Selected country manufacturing competitiveness drivers	United States	Germany	Japan	South Korea	China	India
TALENT	89.5	97.4	88.7	64.9	55.5	51.5
INNOVATION POLICY AND INFRASTRUCTURE	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 REGULATORY ENVIRONMENT	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

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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

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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

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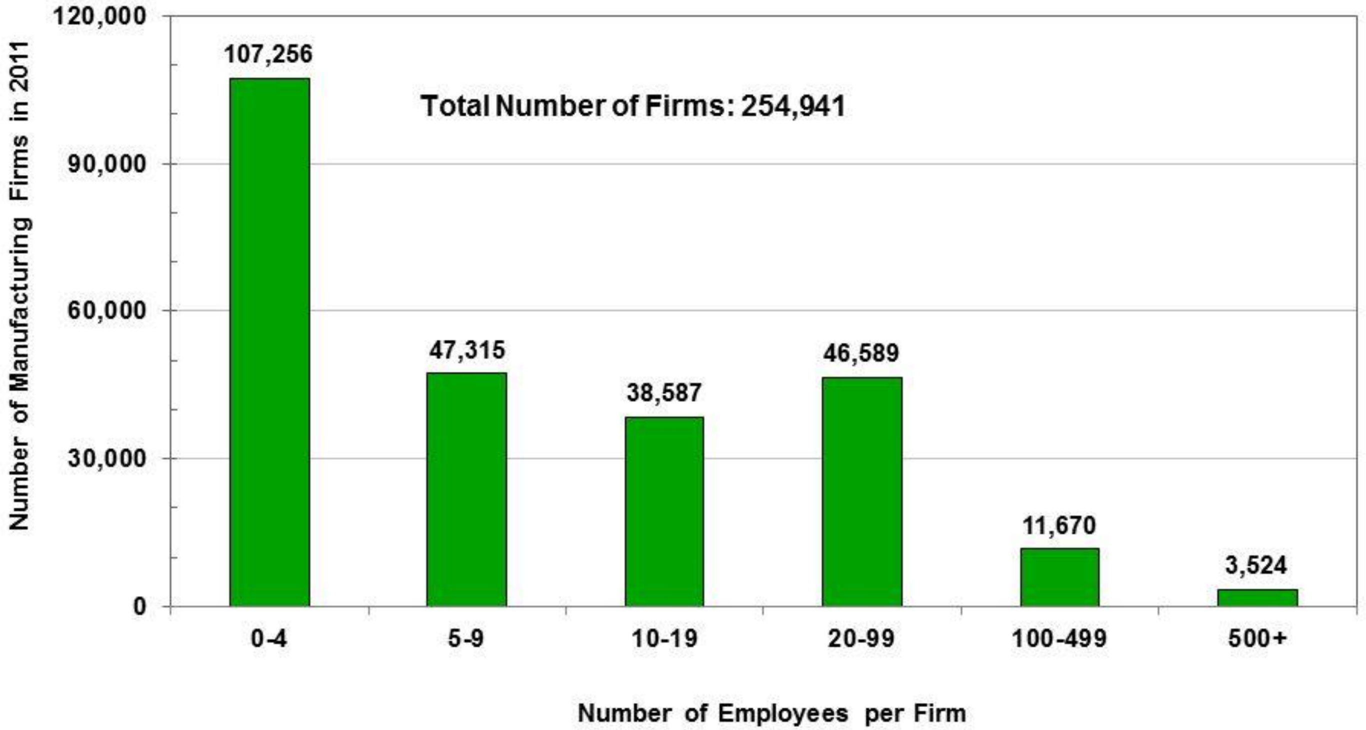
Manufacturing Firms by Number of Employees
(Updated April 2014)



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

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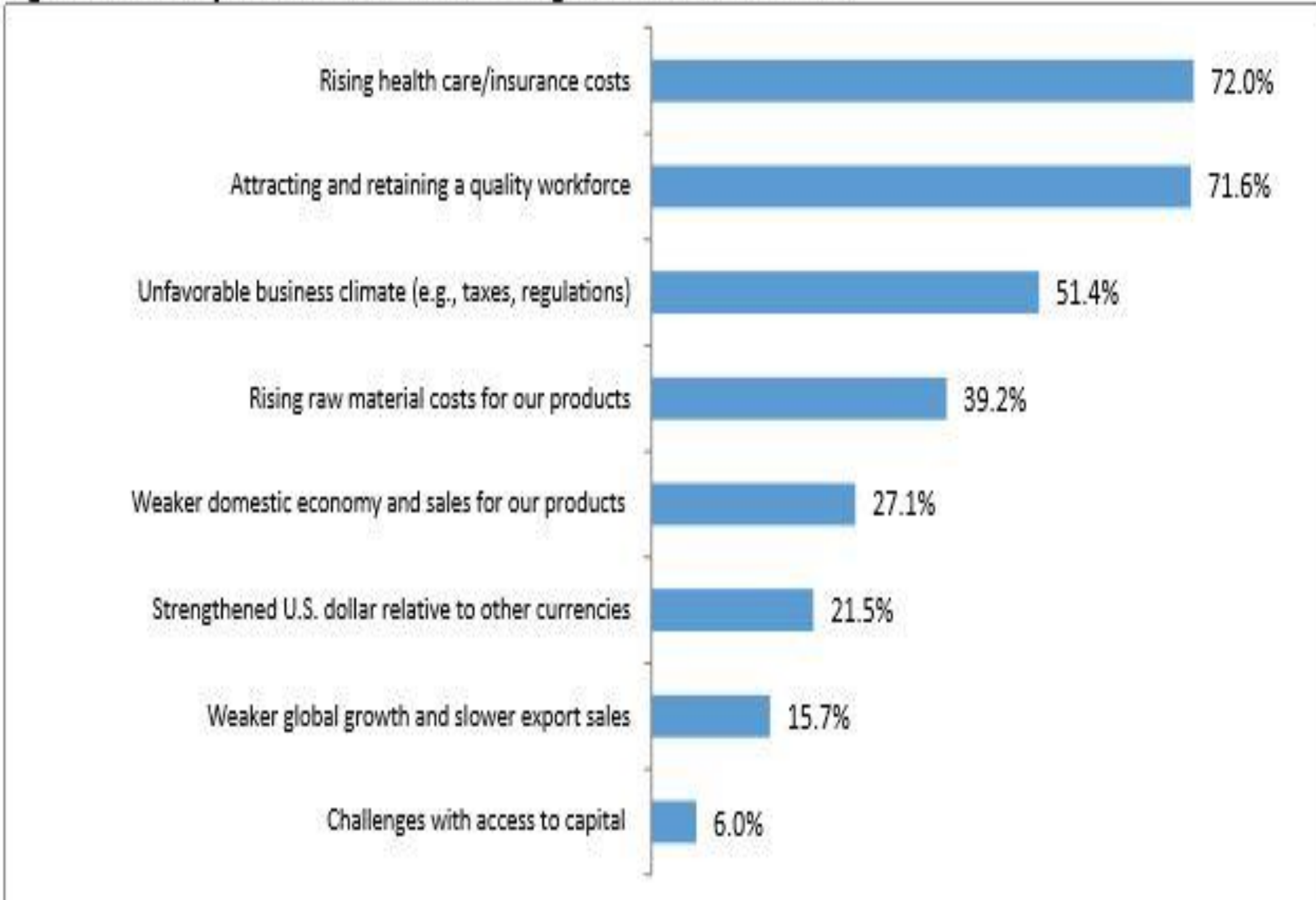
NAM MANUFACTURERS' OUTLOOK SURVEY
THIRD QUARTER 2018
OCTOBER 5, 2018

Percentage of Respondents Positive About Their Own Company's Outlook **92.5%** *(June: 95.1% – all-time high)* **Four-Quarter Average:** 93.9% * Small Manufacturers: **91.3%** *(June: 89.5%)* Medium-Sized Manufacturers: **92.5%** *(June: 95.8%*)* Large Manufacturers: **93.1%*** *(June: 97.9%*)* *** all-time highs**	**Overall Facts About the Survey** Number of Responses: 718 In the Field: August 17 to 31, 2018 Small Manufacturers: 123 responses Medium-Sized Manufacturers: 333 responses Large Manufacturers: 259 responses **NAM Manufacturing Outlook Index** **61.9** *(June: 63.6 – all-time high, revised)*
Expected Growth Rate for <u>SALES</u> Over the Next 12 Months **↑ 5.0%** *(June: ↑ 5.7% – remained the highest since 1997:4)*	**Expected Growth Rate for <u>PRODUCTION</u> Over the Next 12 Months** **↑ 4.9%** *(June: ↑ 5.7% – highest since Q added 3 yrs. ago)*
Expected Growth Rate for <u>FULL-TIME EMPLOYMENT</u> Over the Next 12 Months **↑ 2.5%** *(June: ↑ 3.1% – all-time high)*	**Expected Growth Rate for <u>EMPLOYEE WAGES</u> Over the Next 12 Months** **↑ 2.7% — still the highest since 2001:1** *(June: ↑ 2.7%)*
Expected Growth Rate for <u>CAPITAL INVESTMENTS</u> Over the Next 12 Months **↑ 3.4%** *(June: ↑ 4.1% – all-time high)*	**Expected Growth Rate for <u>EXPORTS</u> Over the Next 12 Months** **↑ 0.8%** *(June: ↑ 1.5% – highest since 2014:2)*
Expected Growth Rate for <u>PRICES OF COMPANY'S PRODUCTS</u> Over the Next 12 Months **↑ 3.2% — still the highest since 2011:2** *(June: ↑ 3.2%)*	**Expected Growth Rate for <u>RAW MATERIAL PRICES AND OTHER INPUT COSTS</u> Over the Next 12 Months** **↑ 4.8%** *(June: ↑ 5.6%)*
Expected Growth Rate for <u>INVENTORIES</u> Over the Next 12 Months **↑ 1.0%** *(June: ↑ 1.5%)*	**Expected Growth Rate for <u>HEALTH INSURANCE COSTS</u> Over the Next 12 Months** **↑ 7.4%** *(June: ↑ 7.7%)*

Figure 4: Primary Current Business Challenges, Third Quarter 2017



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

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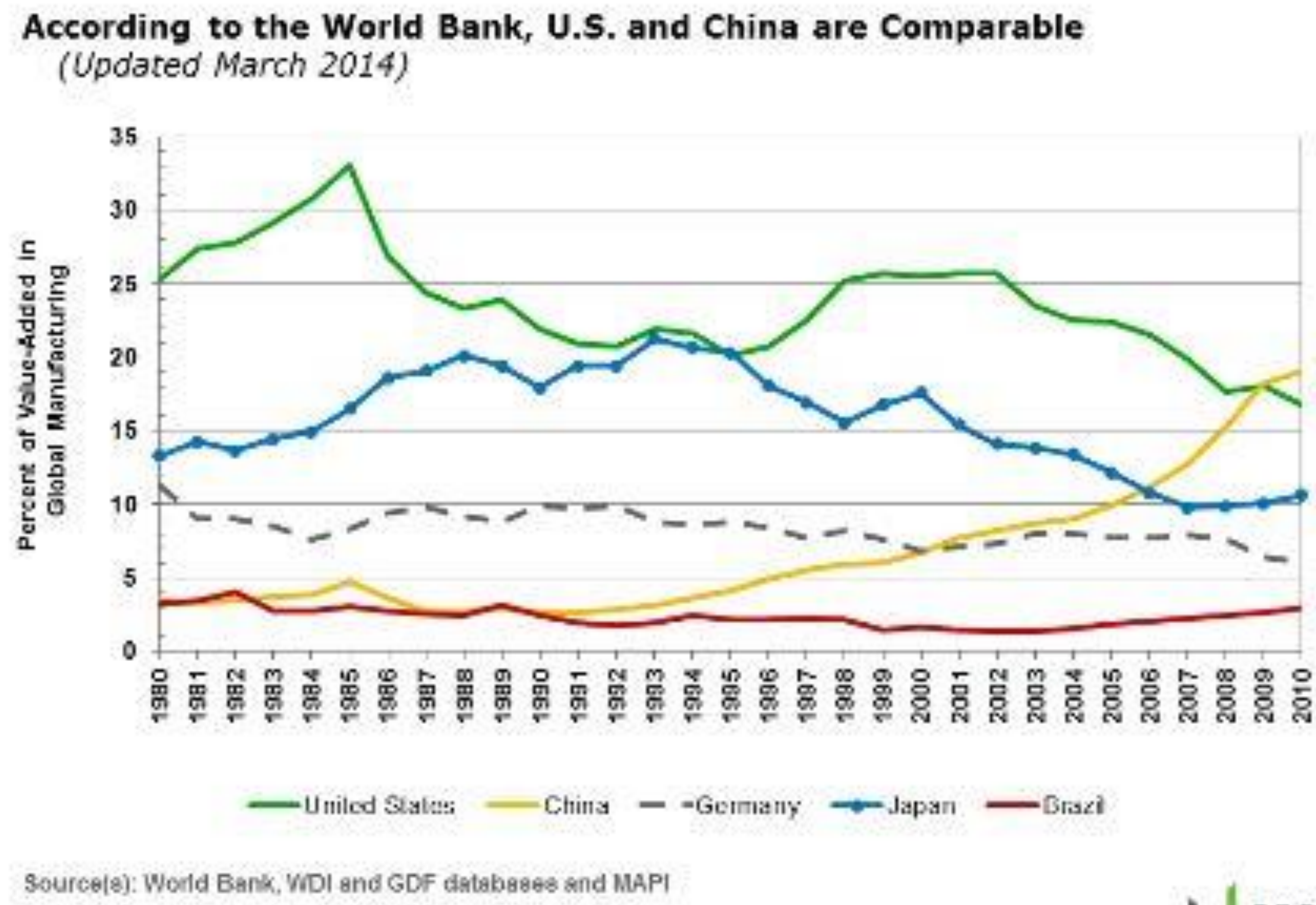

MAPI

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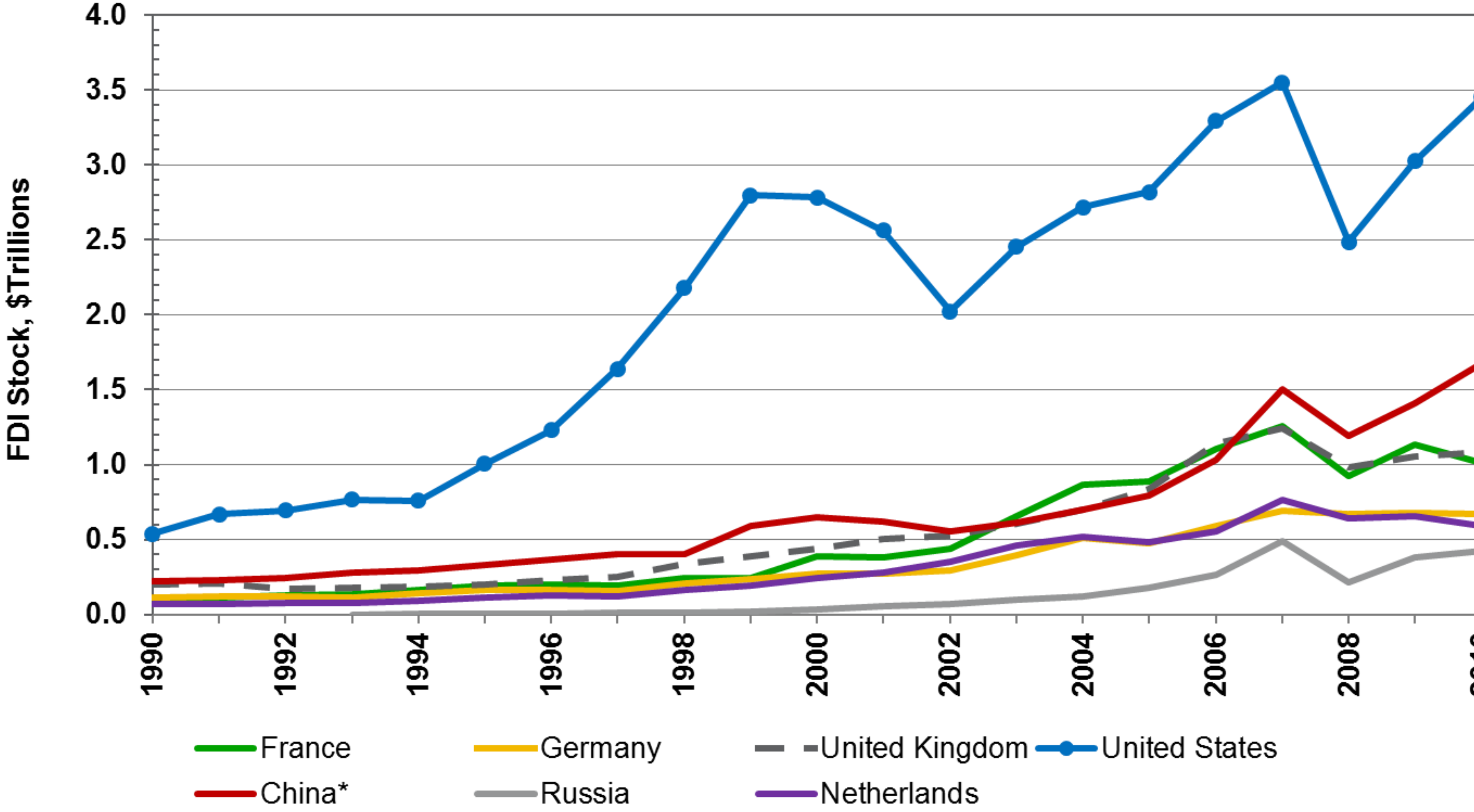
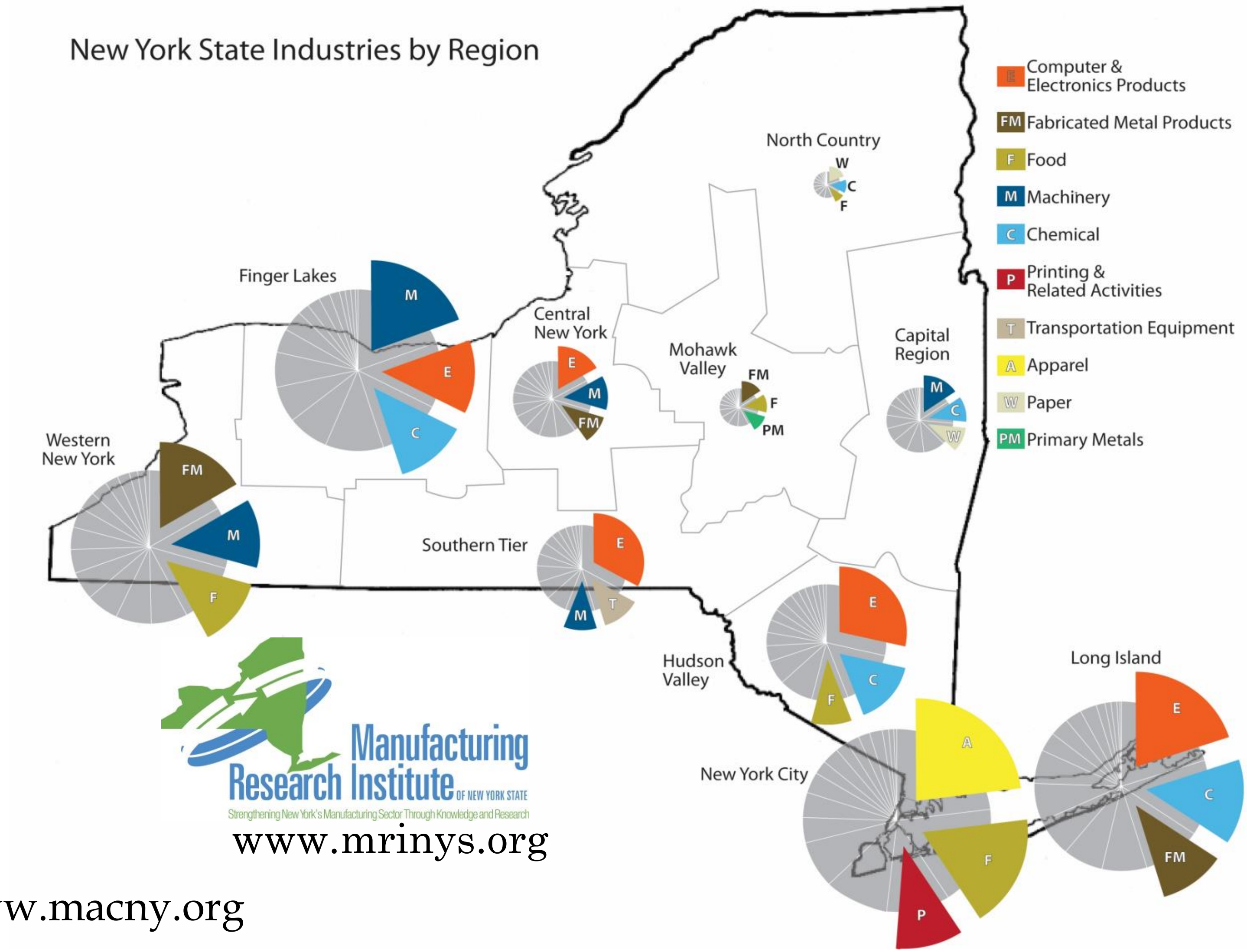
Figure 35 – The U.S. Is the #1 Destination for Foreign Direct Investment



* Includes Hong Kong

Source(s): UNCTAD World Investment Report

New York Manufacturing



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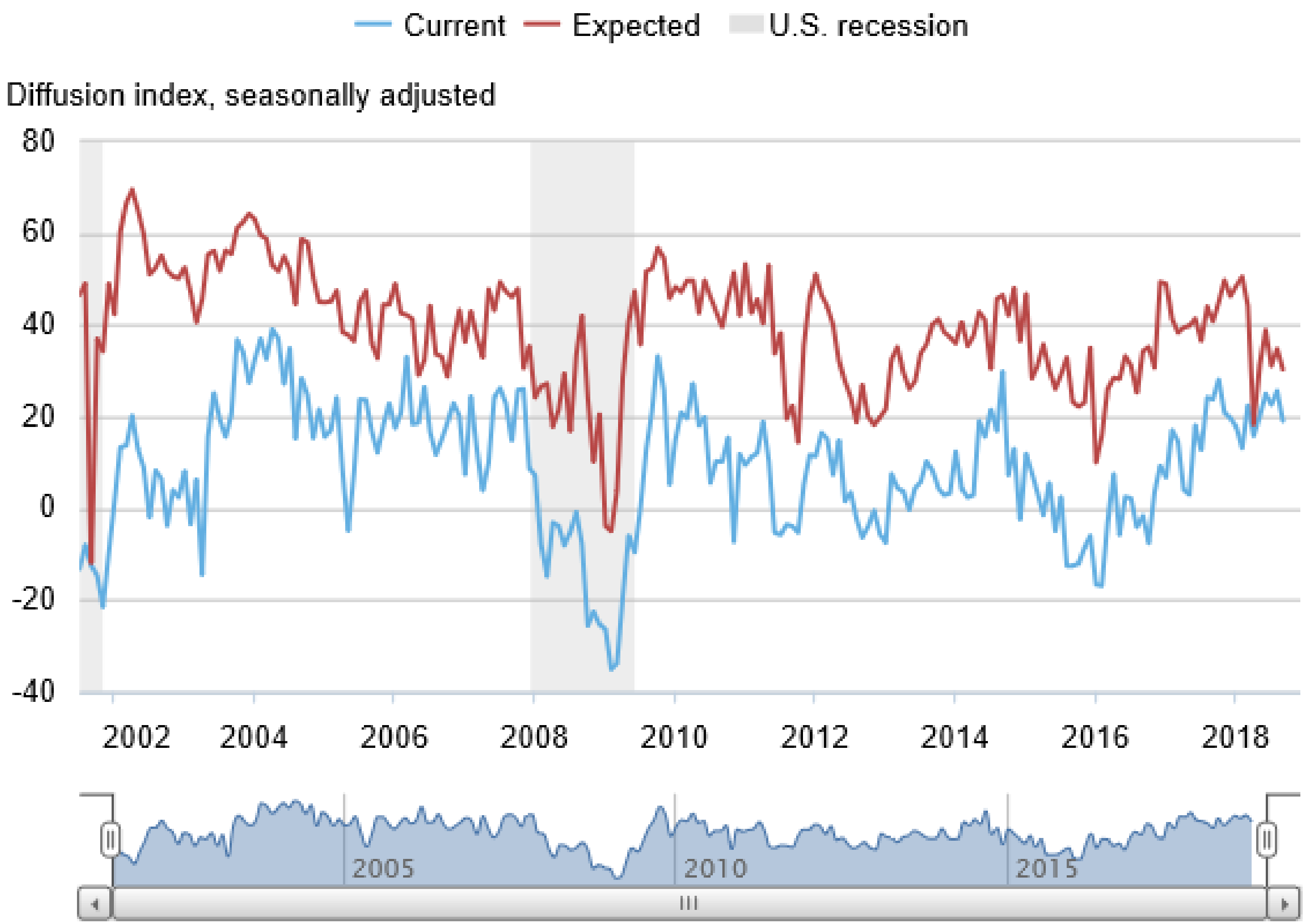
General Business Conditions



Empire State Manufacturing Survey, September 2018

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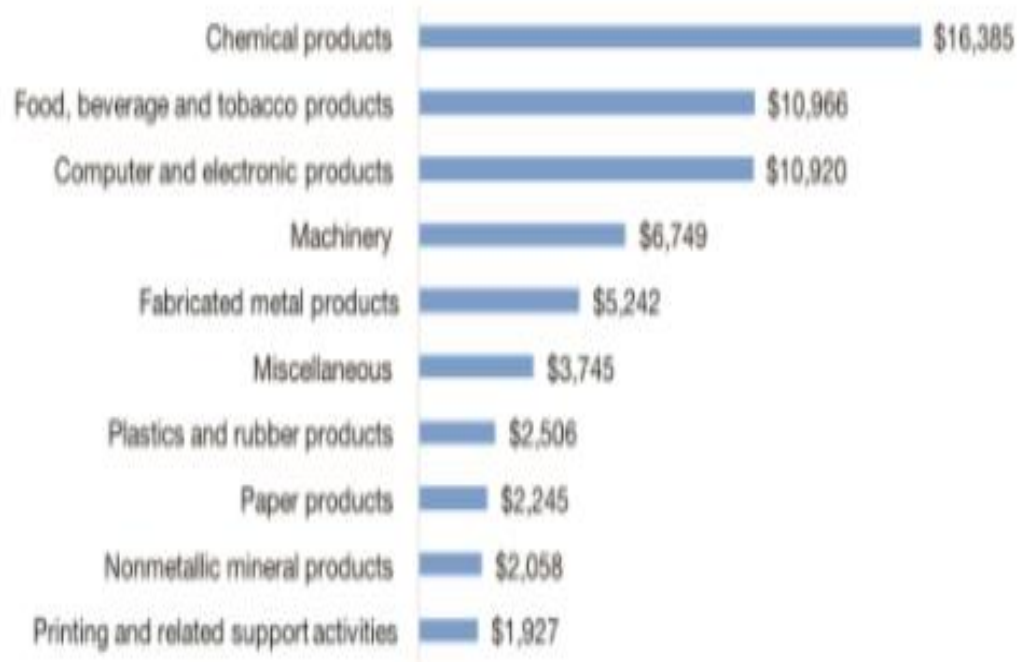
Figure 2: Top 10 New York Manufacturing Sectors, in Millions of Dollars, 2015



Revised January 2018

Center for Manufacturing Research

Manufacturing Employment
New York State Regions and Metro Areas, 2000 and 2010*

	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	-41.3%
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* by Supersector, 2000 and 2010
Syracuse MSA; Cayuga and Cortland Counties

The Manufacturers Association

	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.

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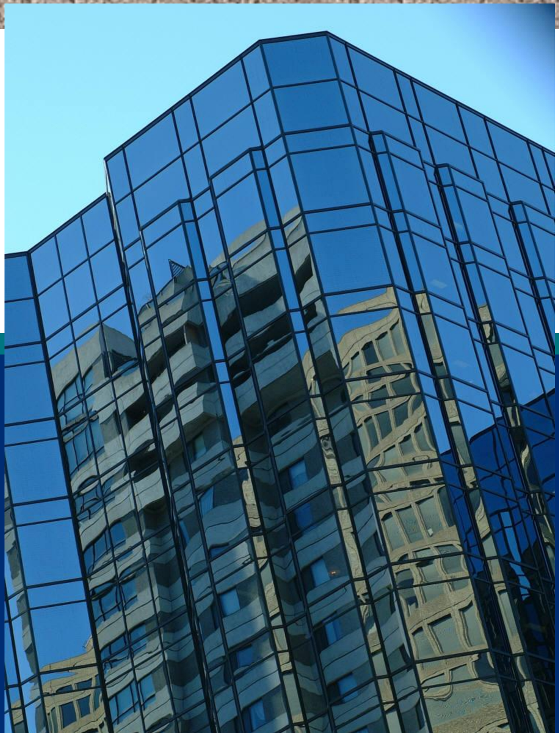
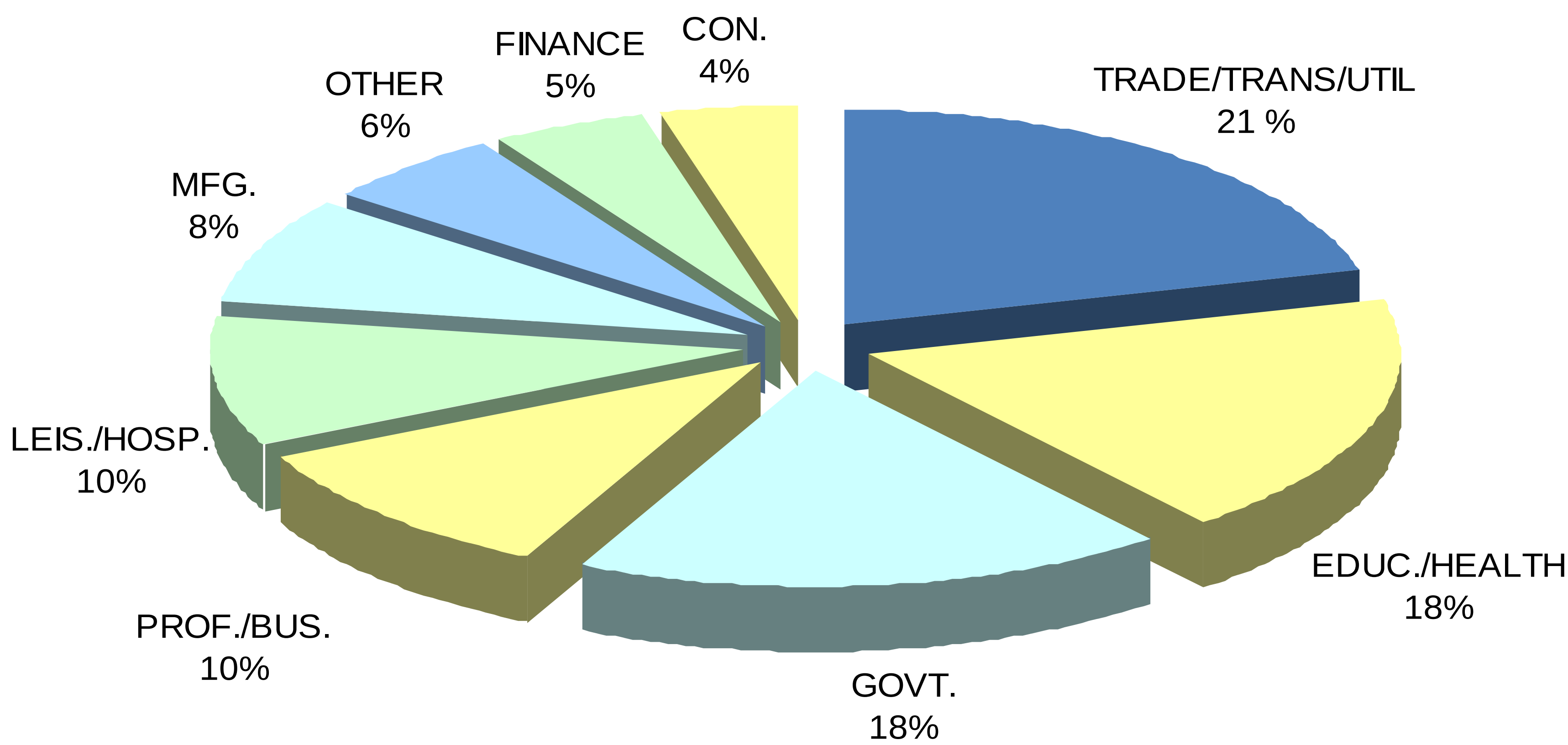
NEW YORK STATE OF OPPORTUNITY. | Department of Labor

Job Trends:
Central New York



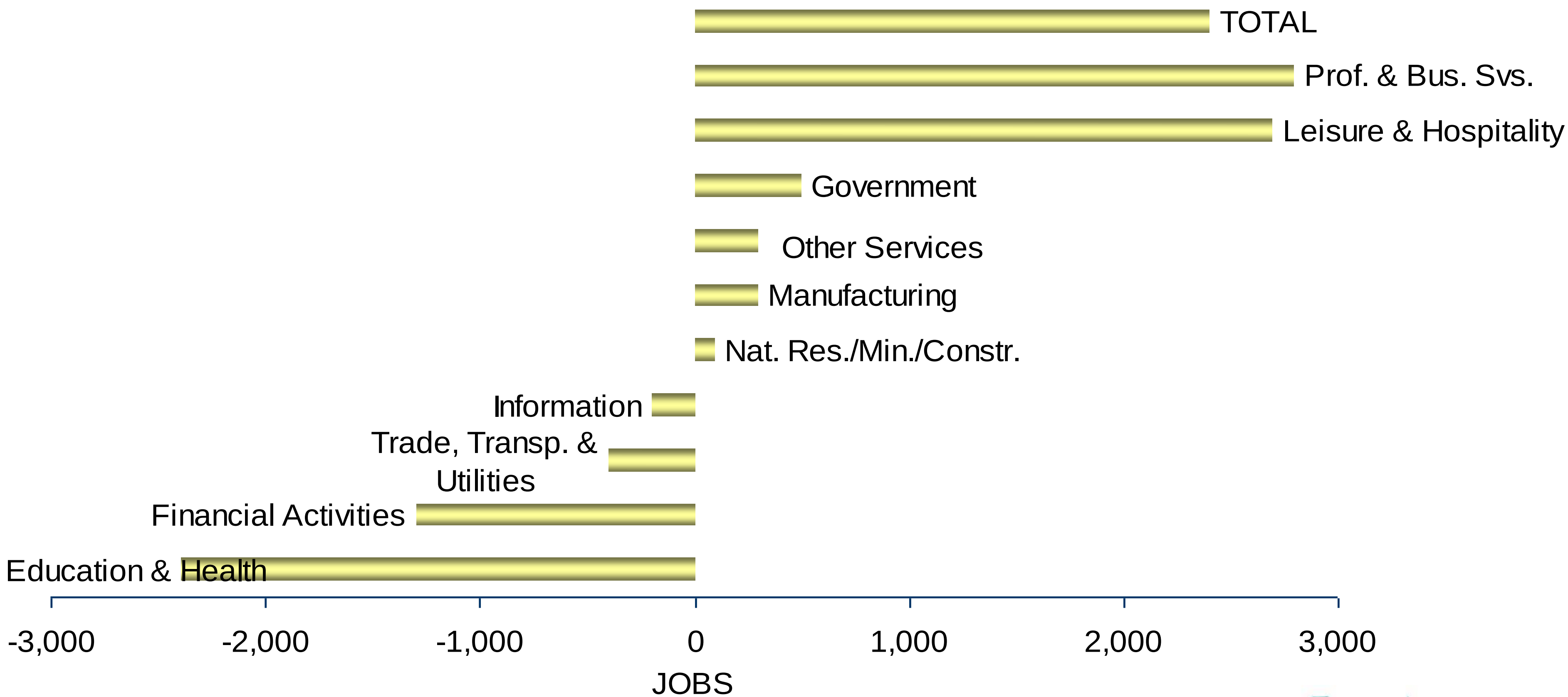
Employment by Industry
4th Quarter 2016



Source: QCEW

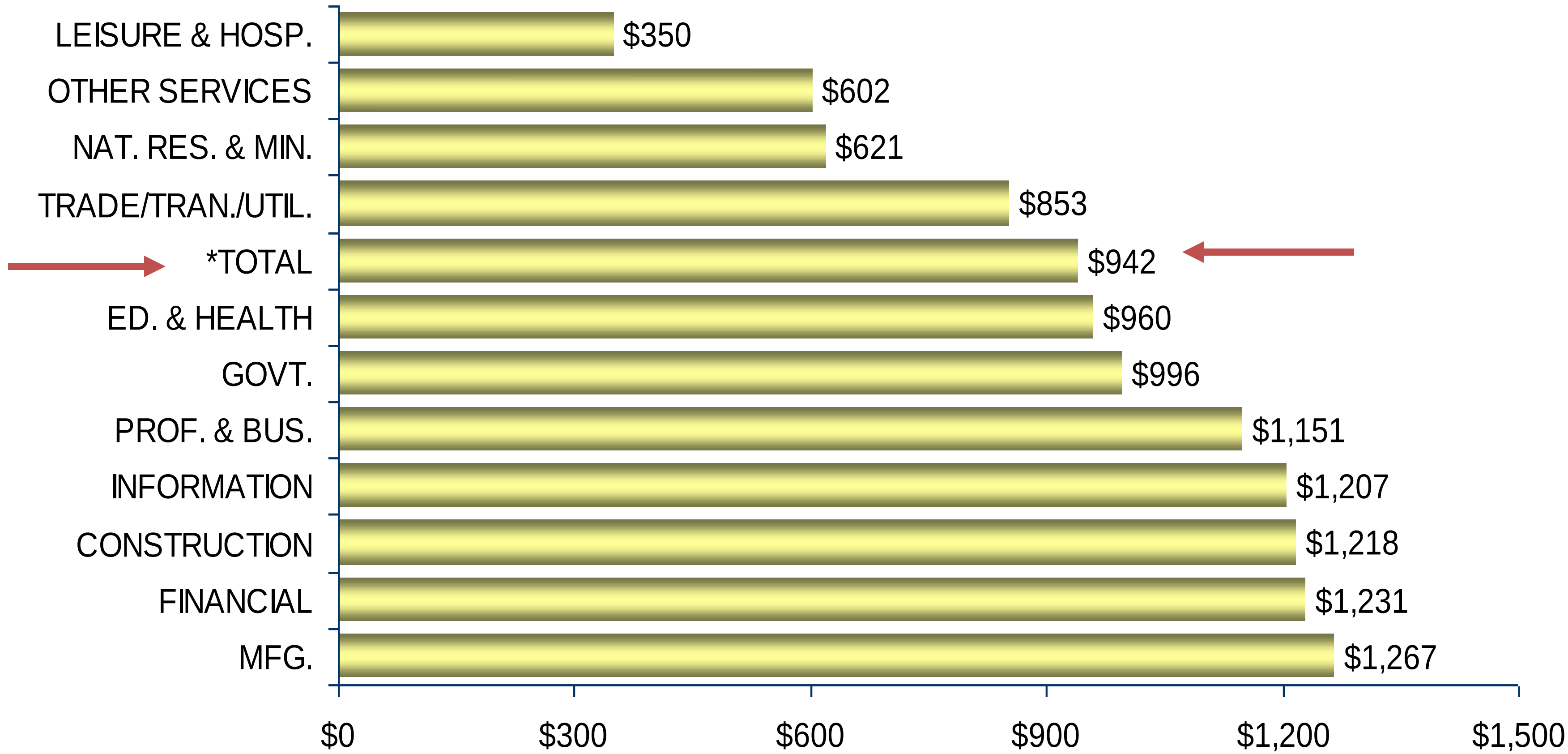
* The Syracuse MSA includes Onondaga, Madison & Oswego counties.

Jobs Gained or Lost
August 2017 vs. August 2016



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

Average Weekly Wage by Industry, 4th Quarter 2016



Source: QCEW

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

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Many Companies & Industries Are Growing in Central NY!

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

NEW YORK STATE OF OPPORTUNITY. Department of Labor

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 Will You Thrive in Today's Economy?

The Facts:

- **In the US over 400,000 new business each year – that's over 1,000 each day**
- **World-wide over 100 million – that's over 274,000 per day**
- **They are focused on winning customers and expanding into new markets - your markets.**

The Future Exists Right Now -

It’s Just Not Widely Distributed

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

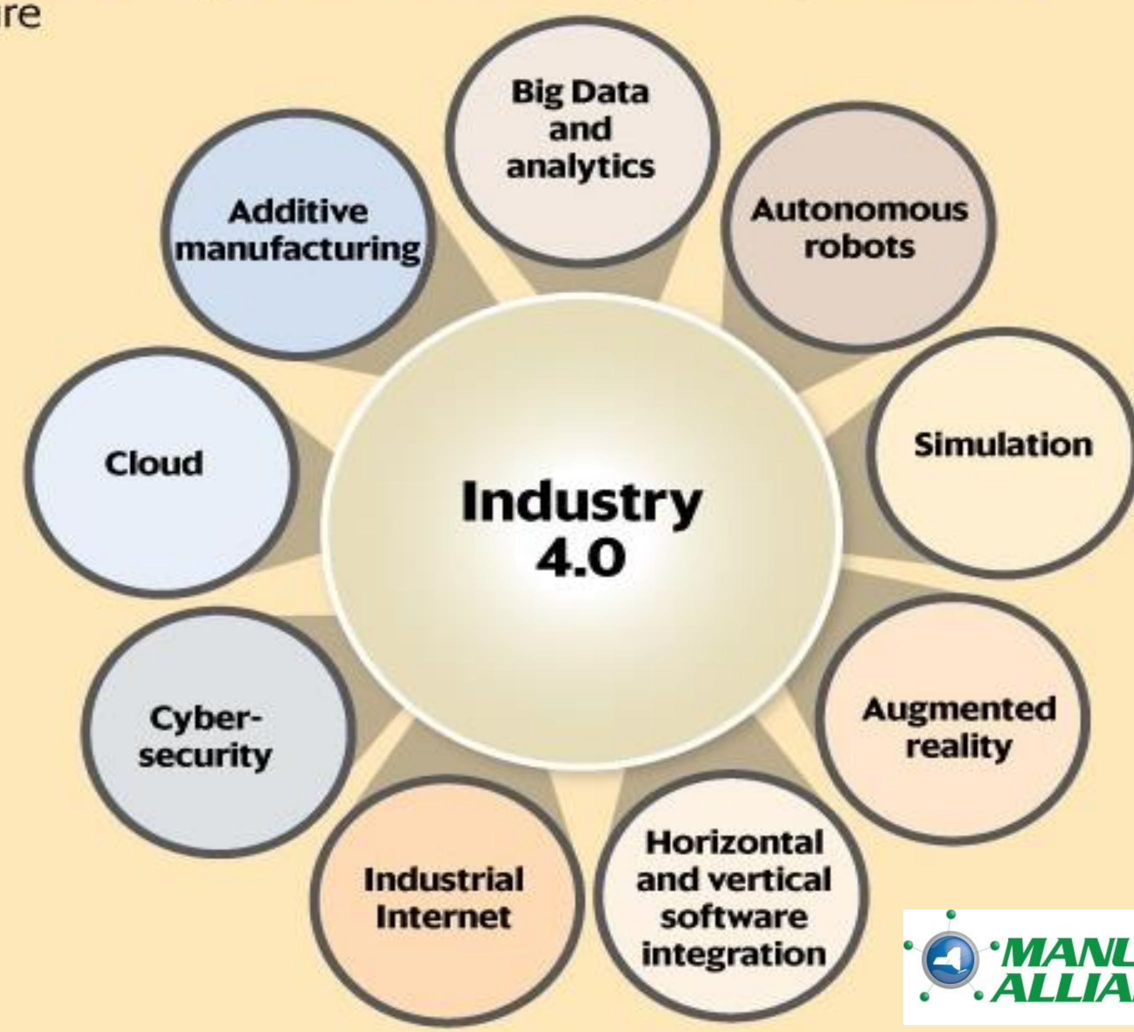
Every Job is Changing

Internet of Things (IoT)

105 Years of Service

New-age production

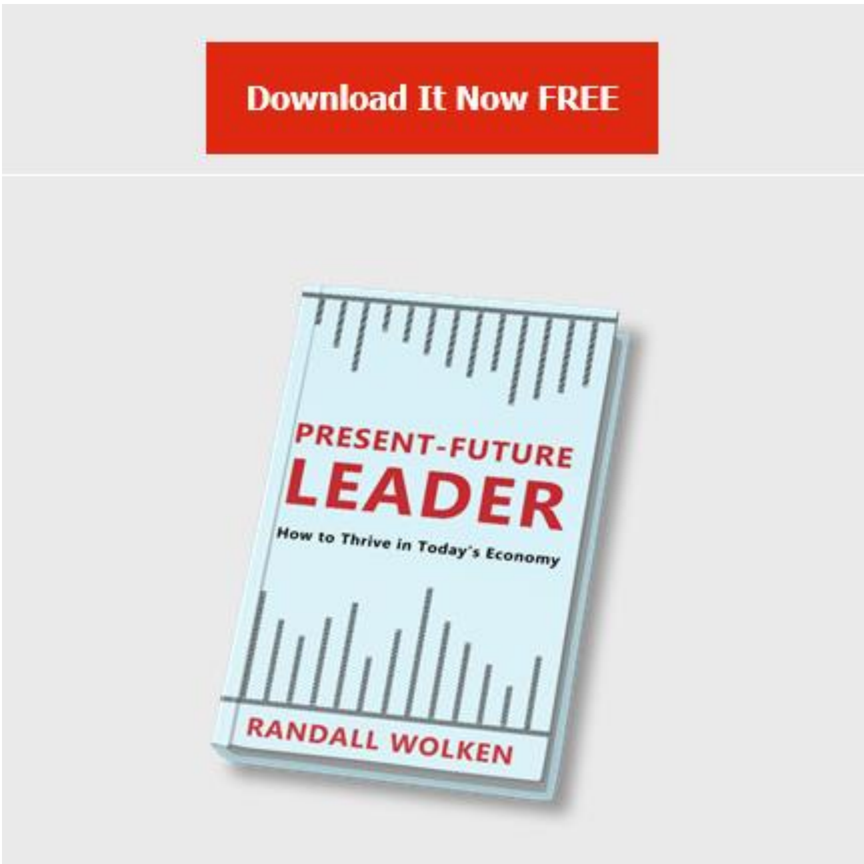
The nine technologies that will collectively drive production in the future



You Choose the Leader You are Becoming

There is no security on this earth; there is only opportunity.

— Douglas MacArthur —



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