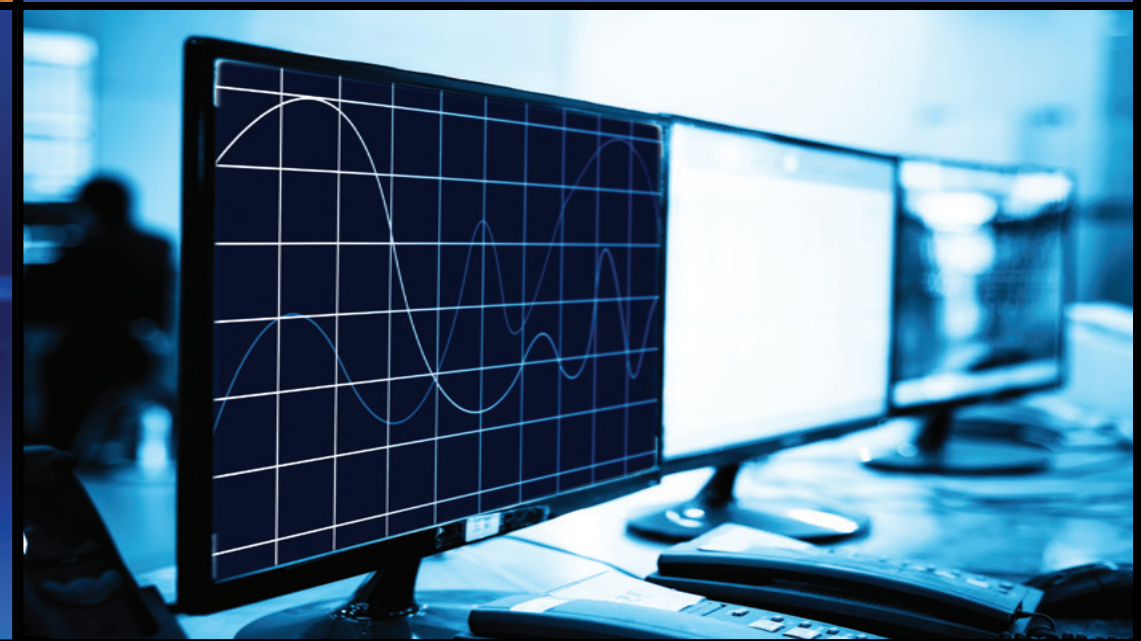
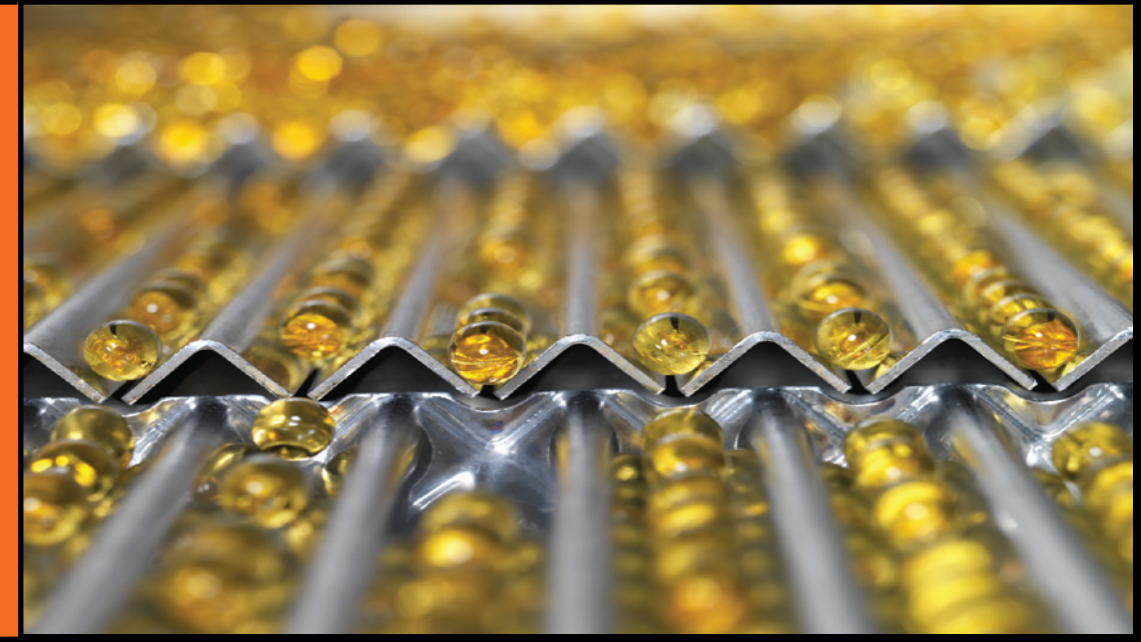


BROOKINGS

WHAT  
WHERE  
WHY



BROOKINGS  
ADVANCED  
INDUSTRIES  
PROJECT



# Metropolitan Washington Council of Governments

Board of Directors Meeting

April 8th, 2015

**1 2 3 4**

Context

Advanced industries: what, why

Trends

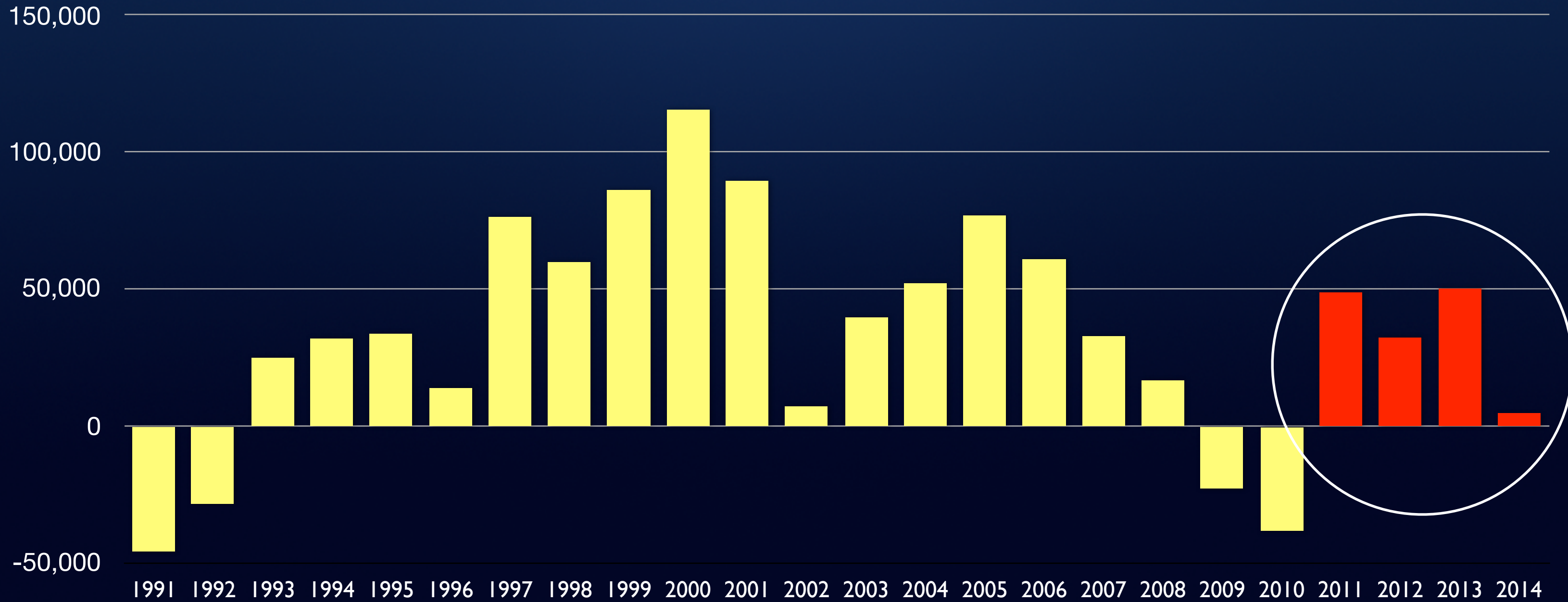
Strategy

**2 3 4**

**1** Context

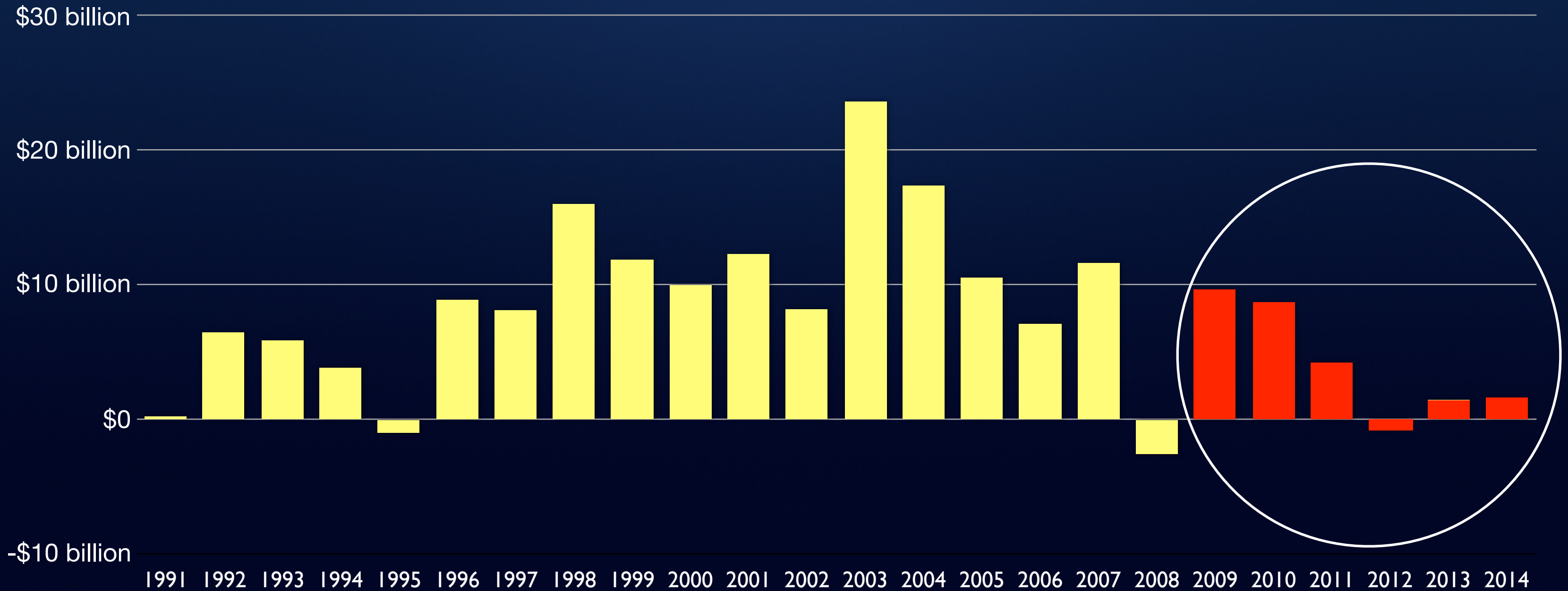
# Job Growth in Metropolitan Washington

1990-2014



# GDP Growth in Metropolitan Washington

1990-2014



**1 3 4**

**2** Advanced Industries: What, why

# The economy is changing



Relentless pace  
of technological  
change



Blurring distinction  
between  
manufacturing  
and services

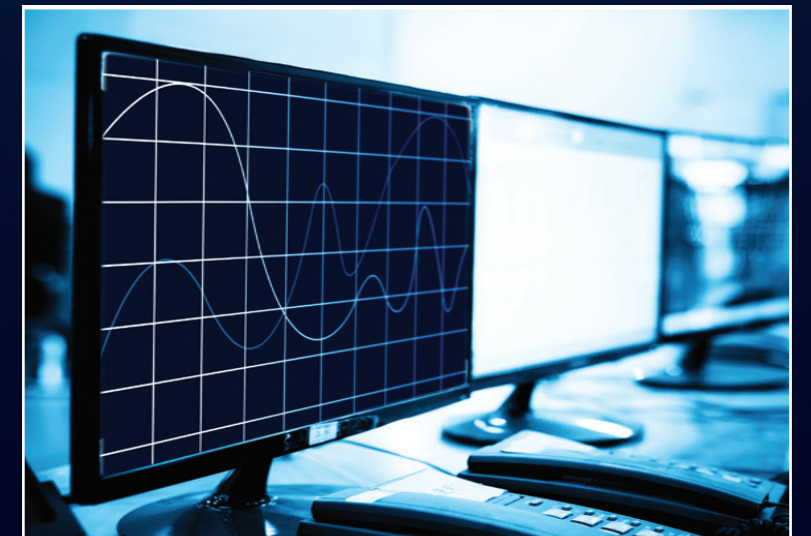
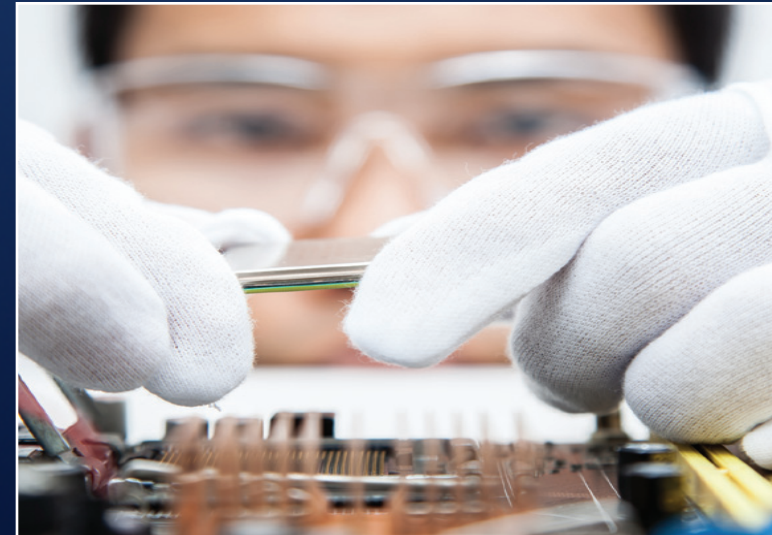


“Digitization of  
everything”



# Advanced Industries

**R&D-intensive** industries that concentrate the nation's **science, technology, engineering, and mathematics** (STEM) workforce



# Advanced Industries

## Manufacturing

35



Pharmaceuticals



Aerospace



Motor Vehicles & Parts



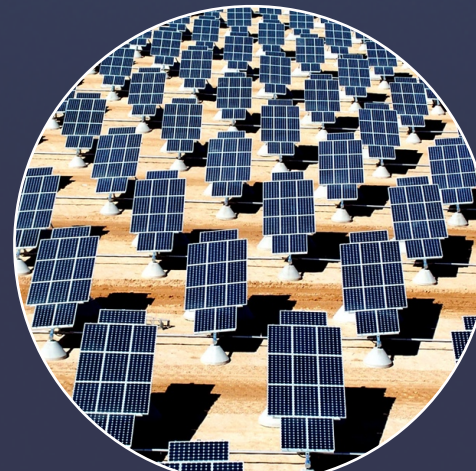
Medical Equipment

## Energy

3



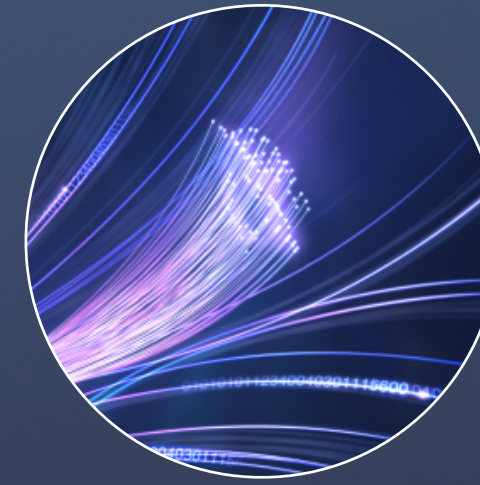
Oil & Gas Extraction



Electricity Generation

## Services

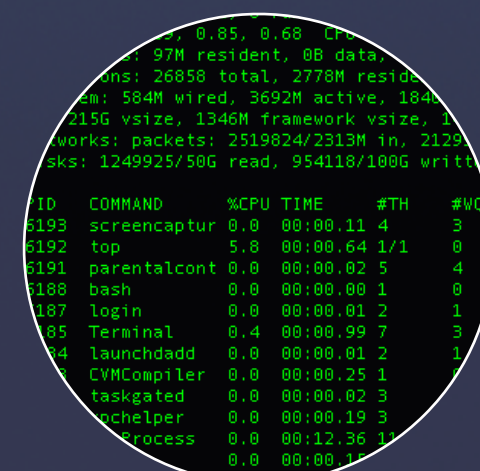
12



Telecommunications



R&D Consulting Services



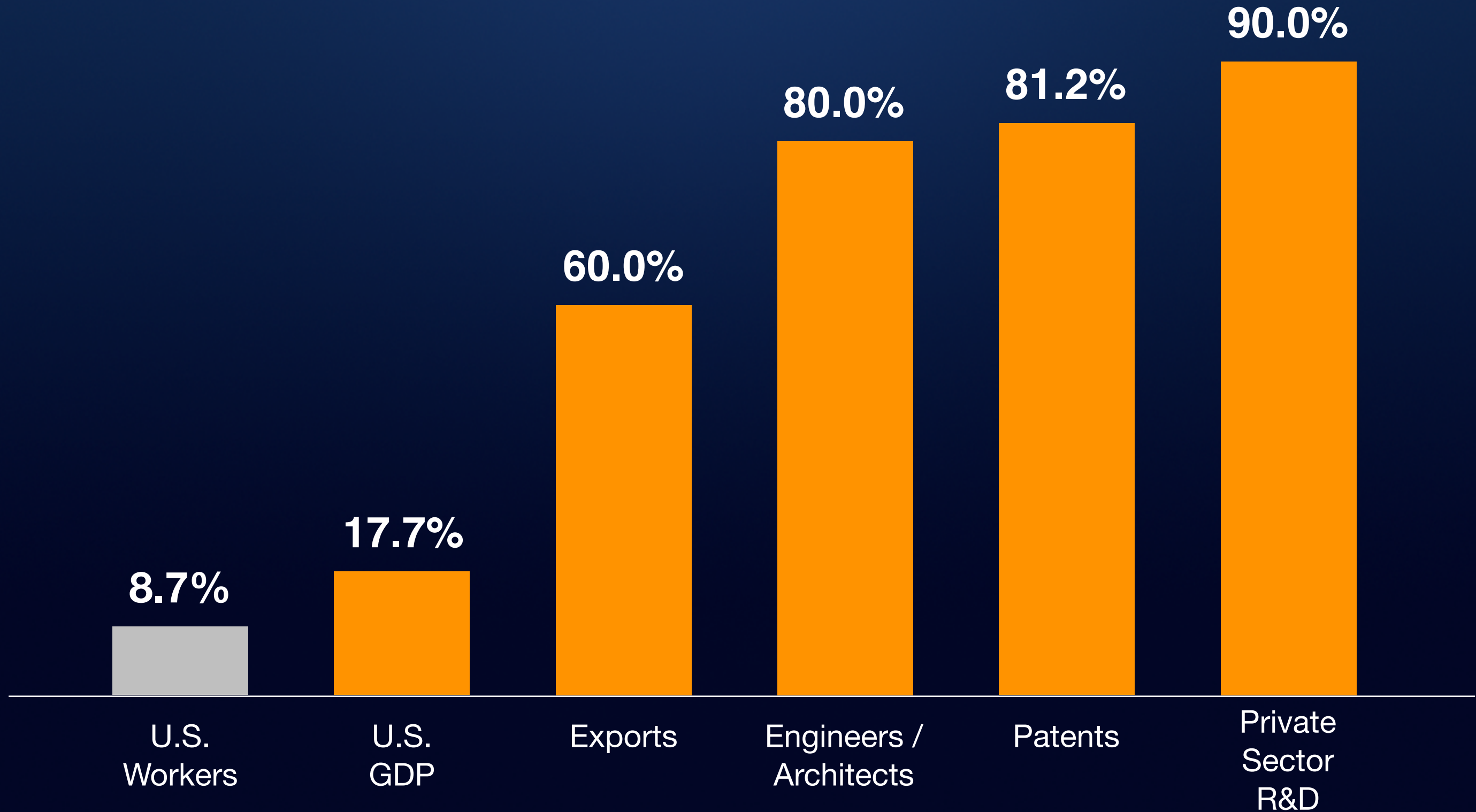
Software



Computer Systems Design

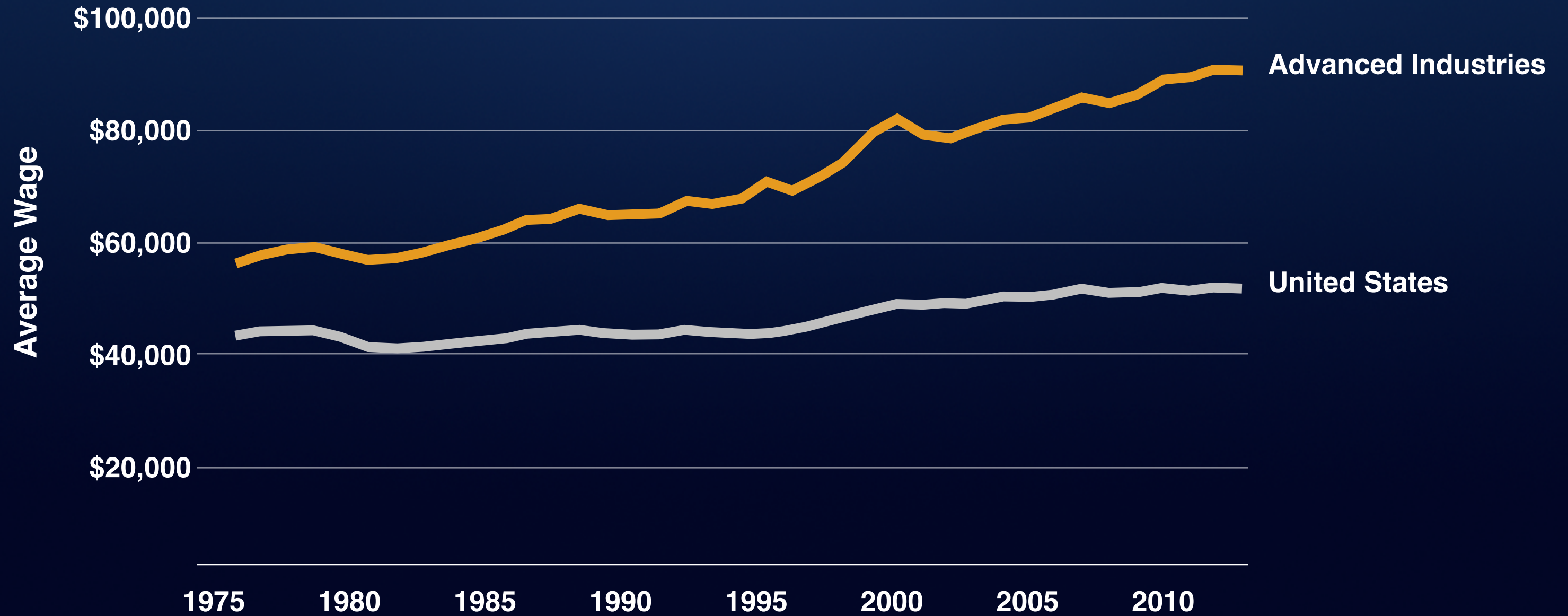
# Advanced Industries

*Concentrate the assets of the innovative economy*



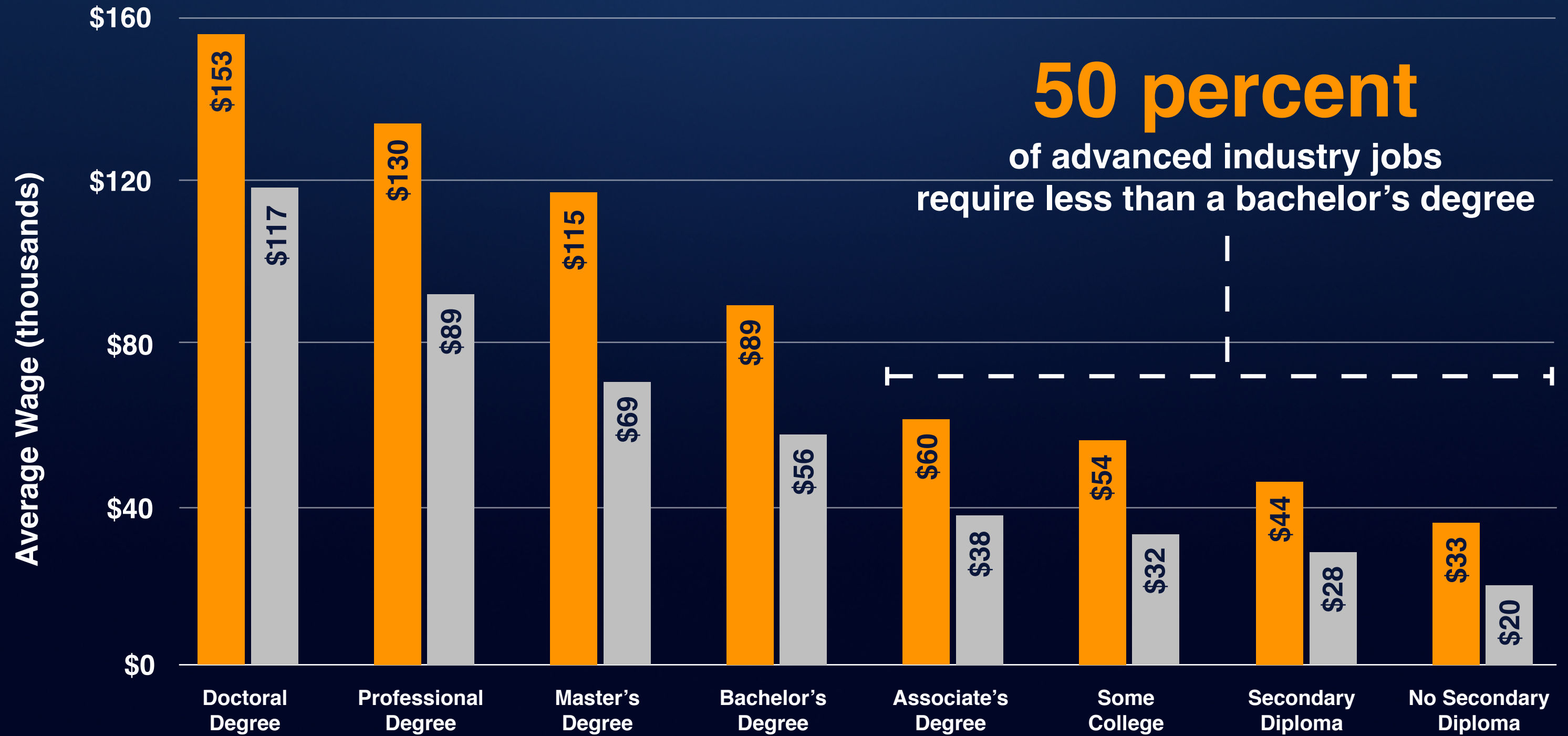
# Advanced Industries

*Provide steady wage growth, at 5 times the rate of other industries*



# Advanced Industries

*Offer a significant wage premium at every level of education*



# Advanced Industries

Develop technology that transforms lives



Drive productivity in other industries



Support long supply chains



Stimulate local economies

**39 million**  
total jobs supported by  
advanced industries

## Advanced Industries

Develop technology that  
transforms lives



Drive productivity in  
other industries



Support long  
supply chains



Stimulate local  
economies

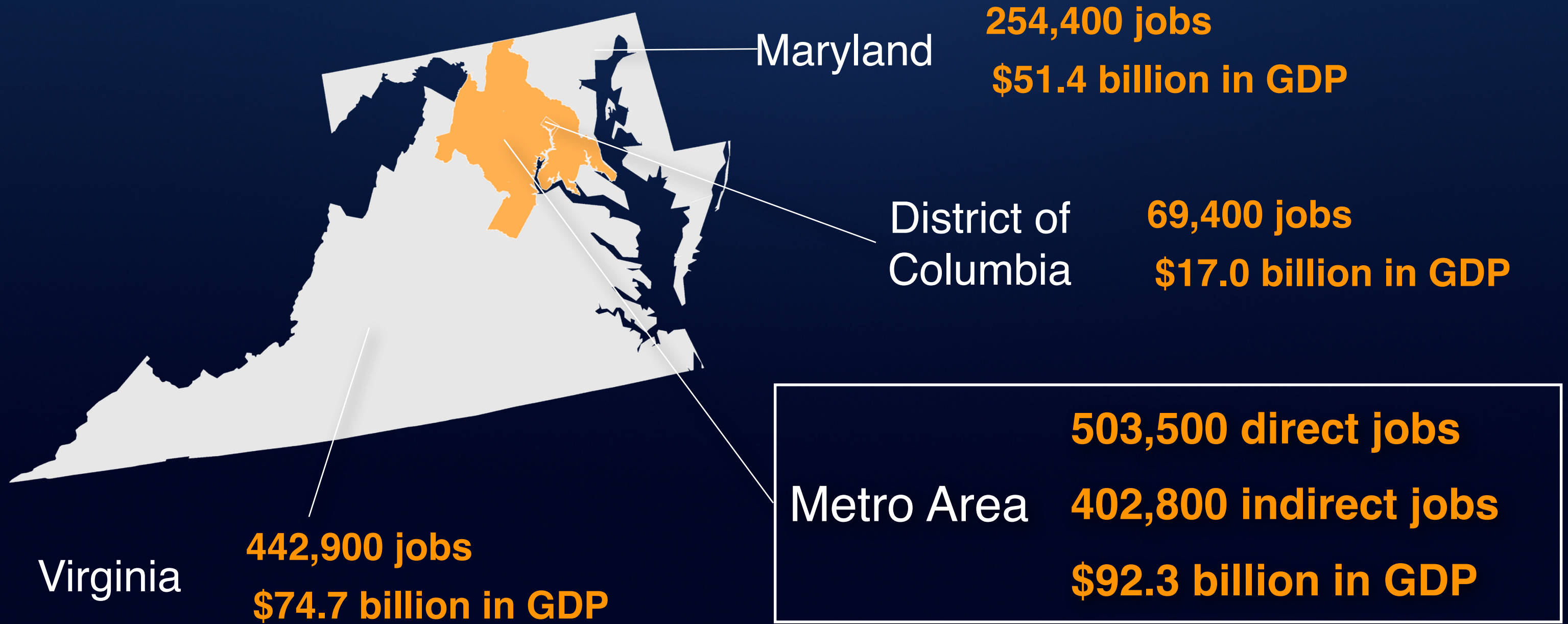
**1 2 4**

**3 Trends**



# Advanced Industries in the Region

*Employment and output (2013)*



# Advanced Industries in the Region

*Metro area dashboard (2013)*



**Washington, DC**  
Metro Area

**503,500**  
advanced industry jobs

Rank: **#3**

**13.7%**  
share of total employment

Rank: **#6**

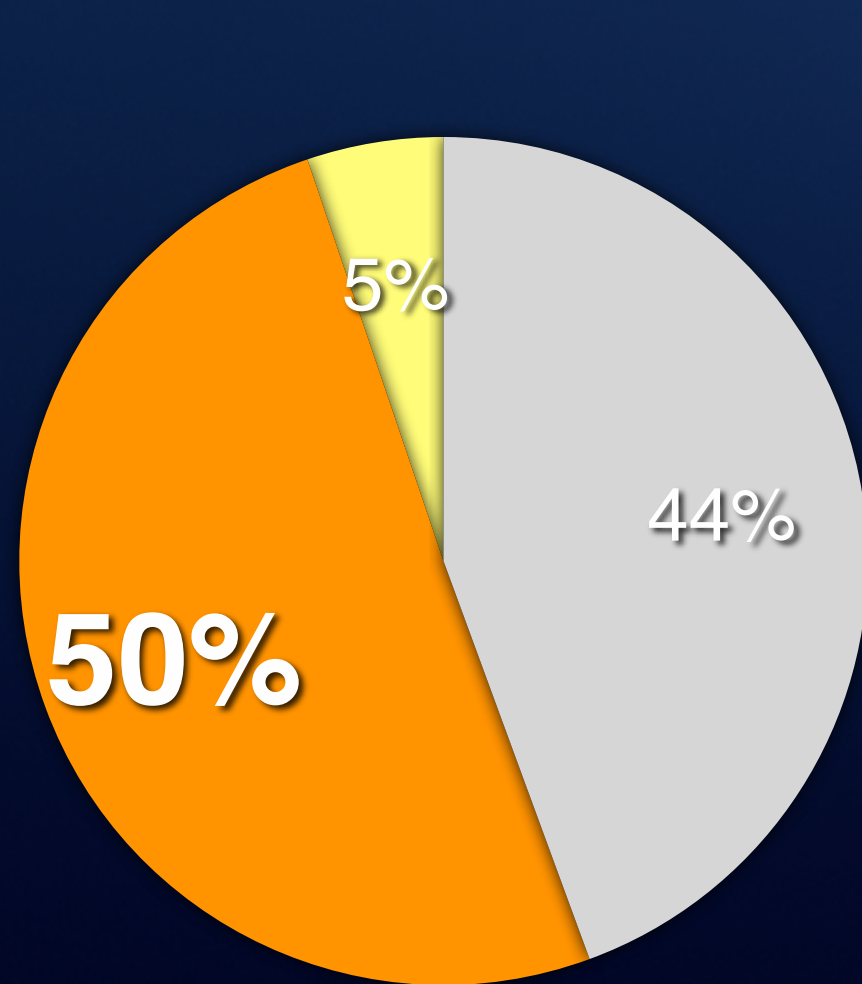
**\$112,200** average pay, advanced industries

Top industries  
by employment

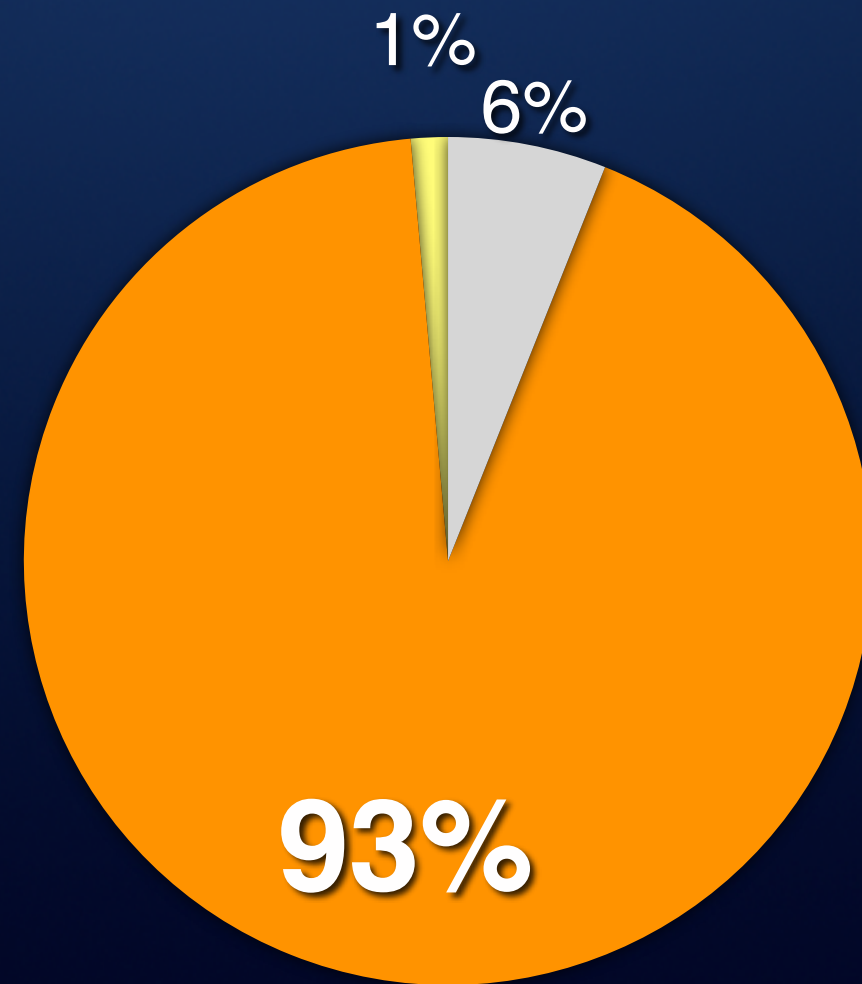
- Computer Systems Design
- Management Consulting
- Architecture and Engineering
- R&D Services
- Web Portals and Internet Publishing

# Advanced Industries in the Region

*Distribution of employment across sub-sectors*



U.S. Average

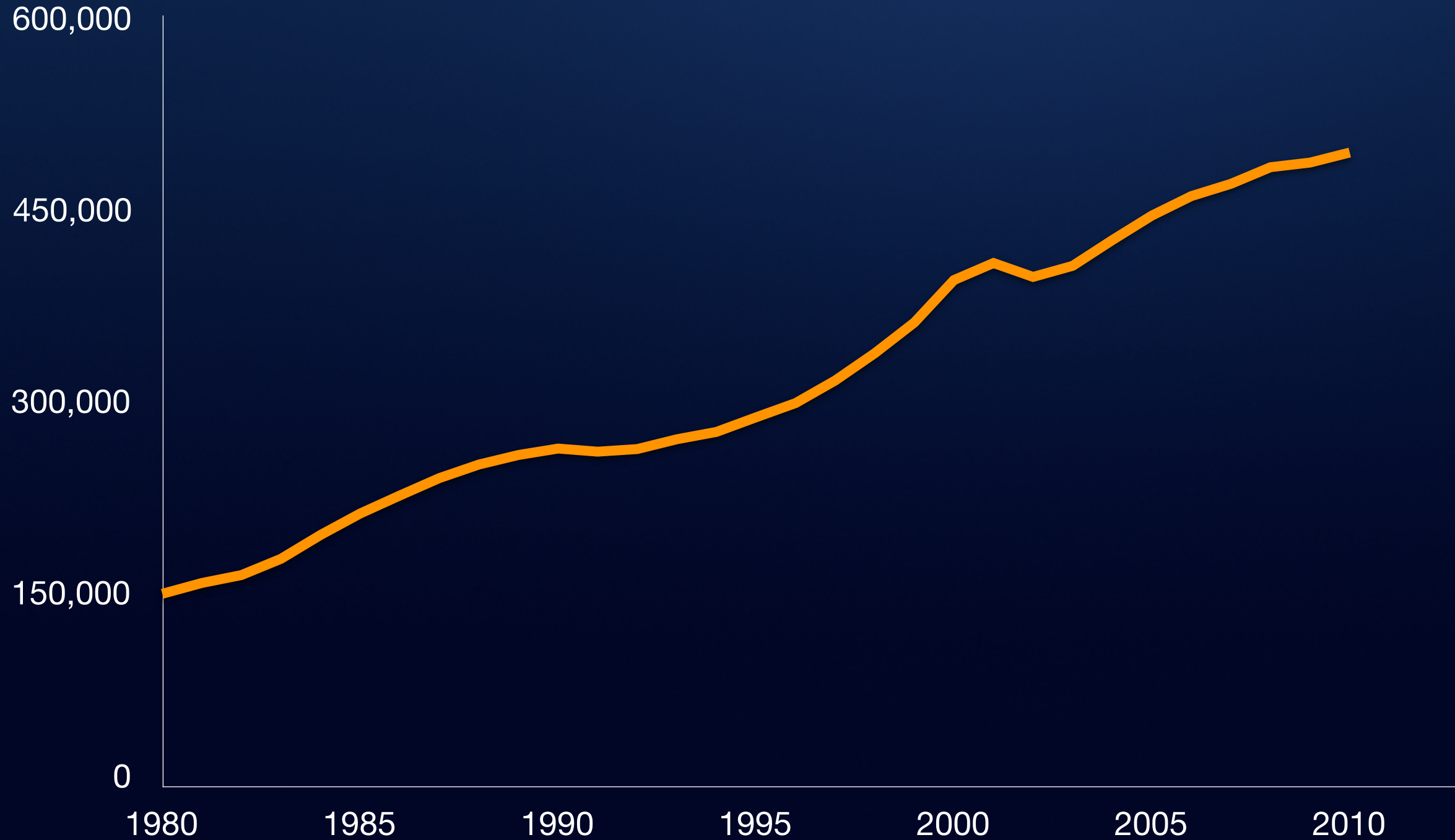


Washington, D.C.



# Advanced Industries in the Region

*Employment growth pre-2010*

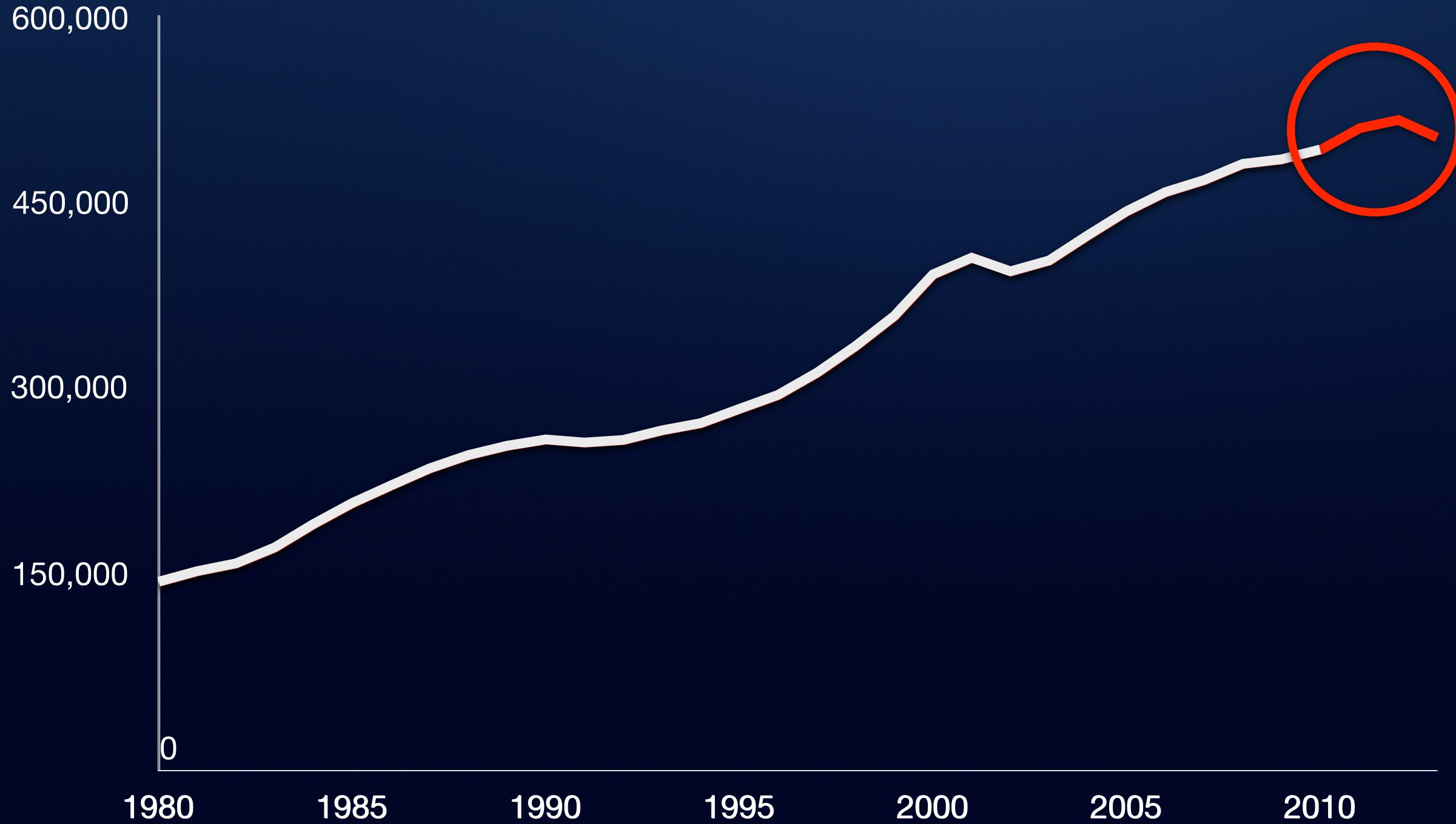


**#2**

**Ranking for  
advanced industry  
job growth  
from 1980 to 2010**

# Advanced Industries in the Region

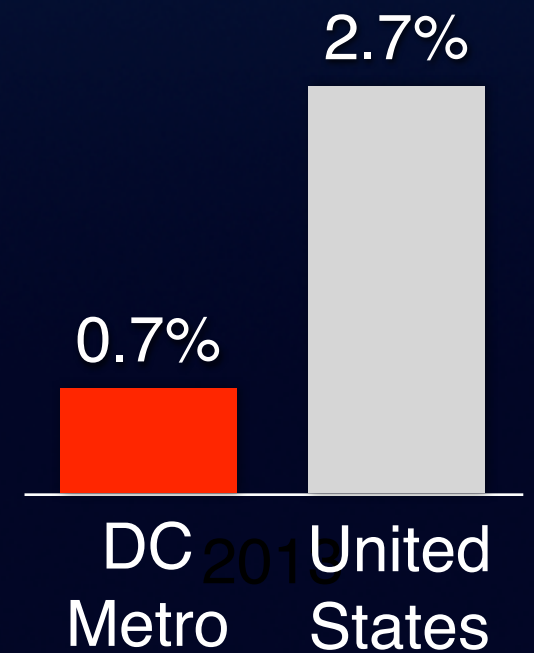
*Employment growth post-2010*



**Rank since 2010:**

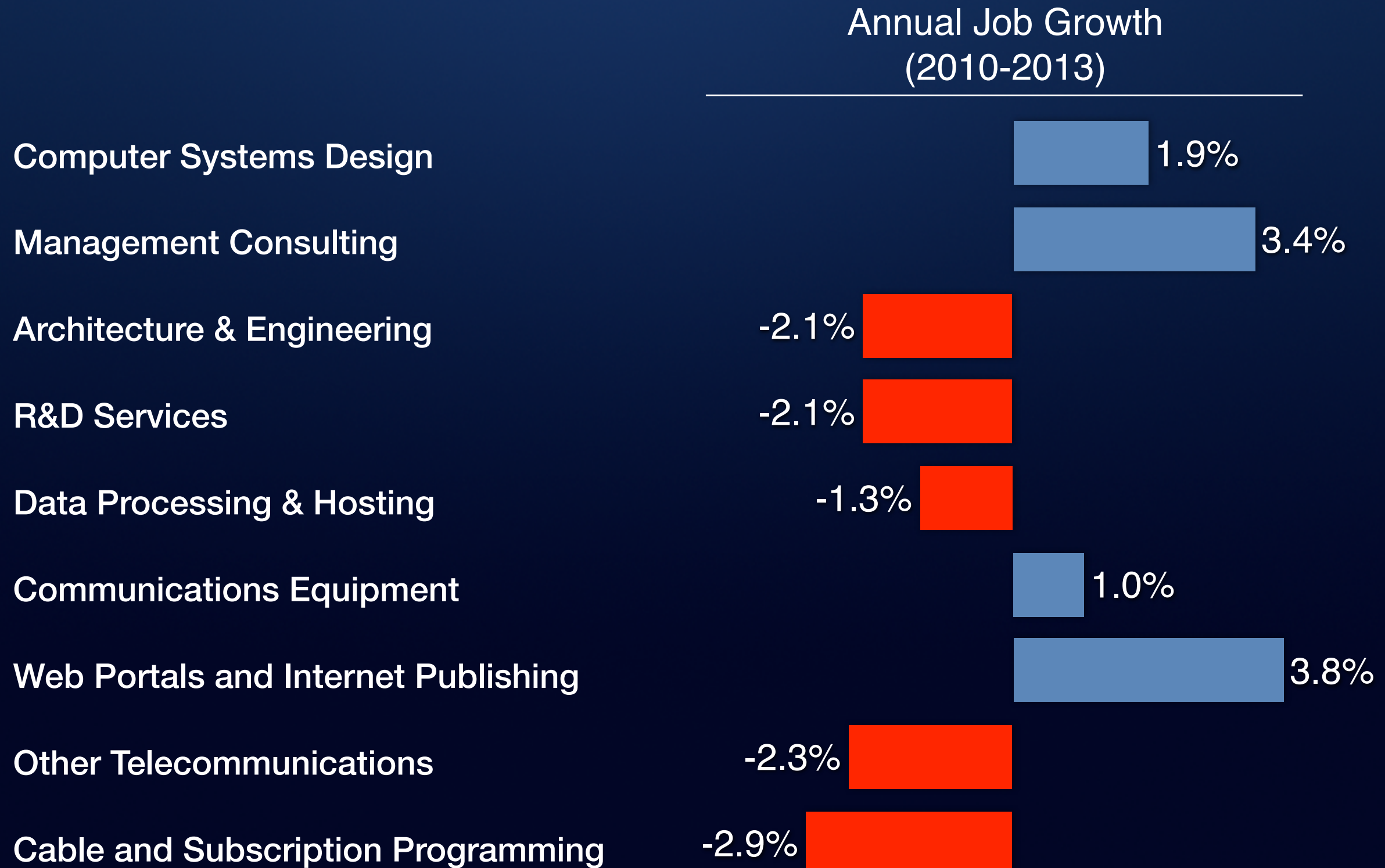
**#80**

Average job growth since 2010



# Advanced Industries in the Region

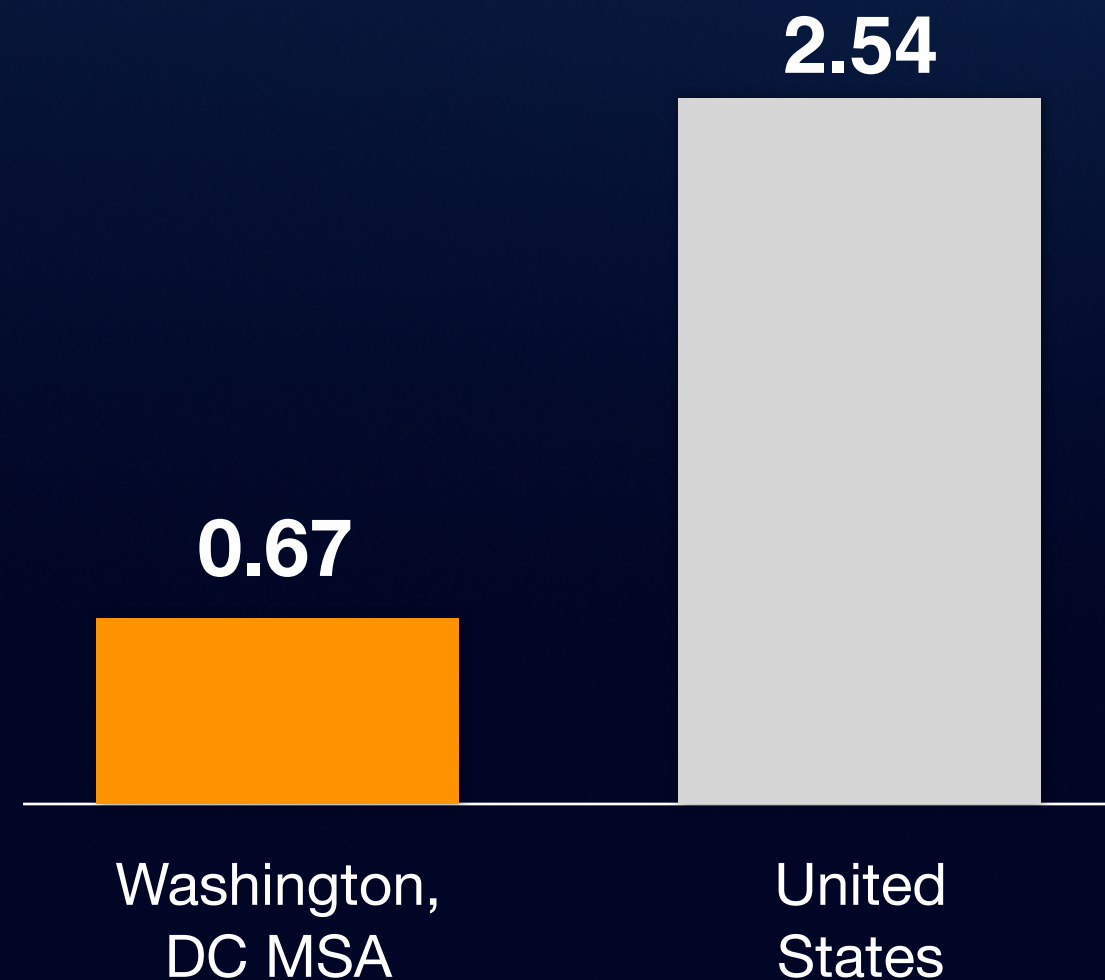
*The region is losing ground in several of its core specializations*



# Advanced Industry Challenges

*Innovation*

Patents Per Thousand Workers,  
2007-2011 average



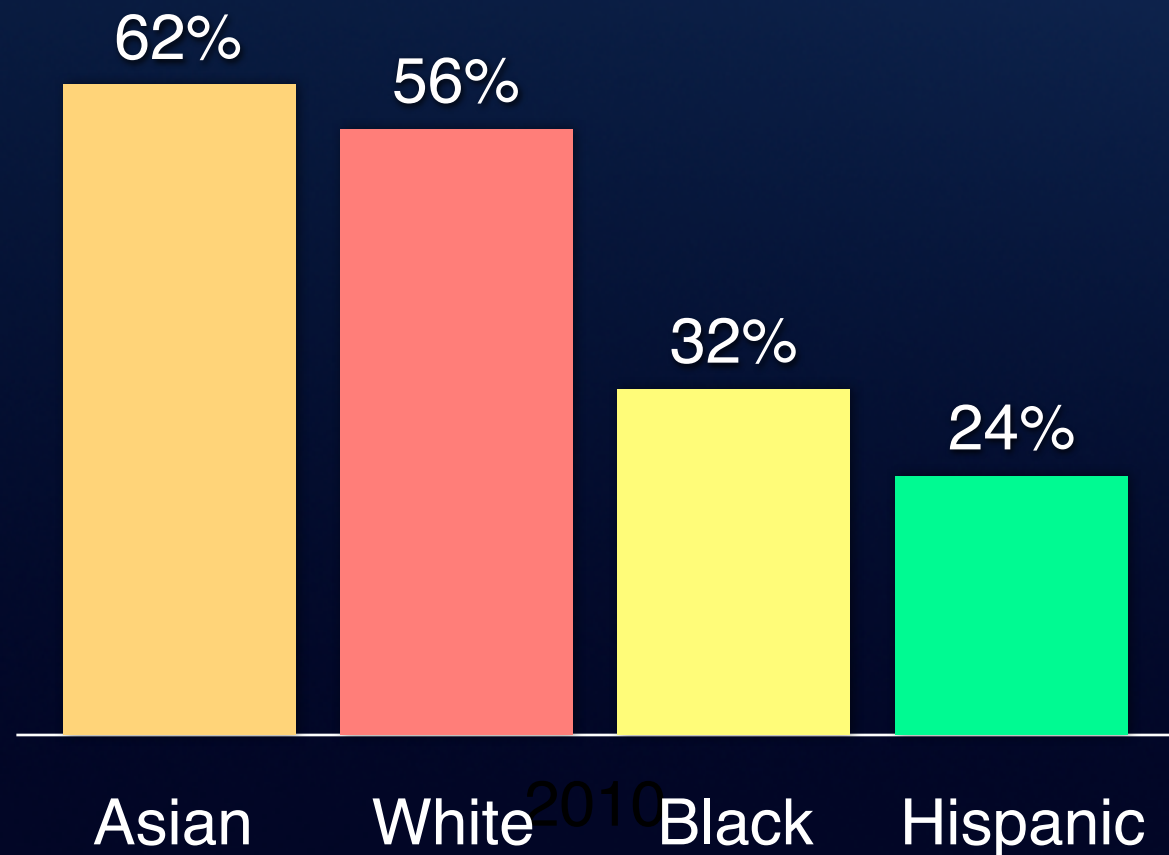
University R&D Expenditures  
Funded by Business, 2013

Rank	University	Value
1	SUNY Polytechnic	\$201.6m
2	Duke Univ.	\$177.1
3	MIT	\$122.1
---	---	---
7	Stanford Univ.	\$71.2
---	---	---
<b>15</b>	<b>Johns Hopkins</b>	<b>\$47.1</b>
---	---	---
108	U.MO.-Columbia	\$7.3
<b>109</b>	<b>U.MD.-College Park</b>	<b>\$7.1</b>
---	---	---
<b>121</b>	<b>Georgetown</b>	<b>\$5.9</b>
122	U.AK.-Fairbanks	\$5.8
---	---	---
<b>188</b>	<b>George Washington</b>	<b>\$2.0</b>

# Advanced Industry Challenges

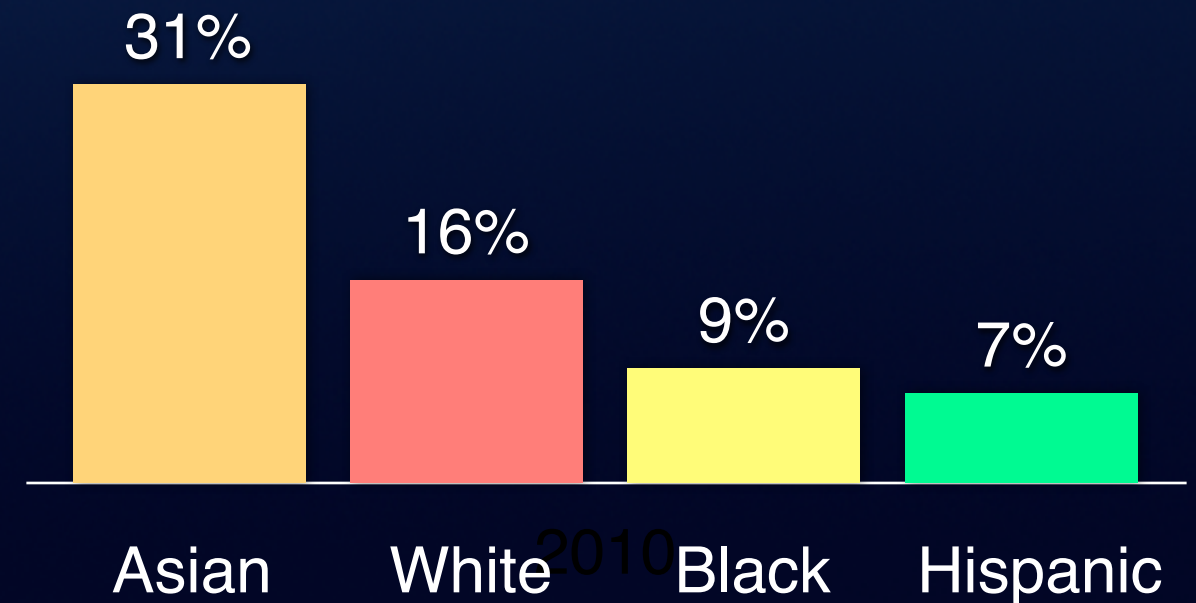
## Skills

Significant disparities in educational outcomes persist across the region



Share of population with at least a **Bachelor's degree**

Even smaller percentages of minority residents are credentialed for high-paying STEM jobs



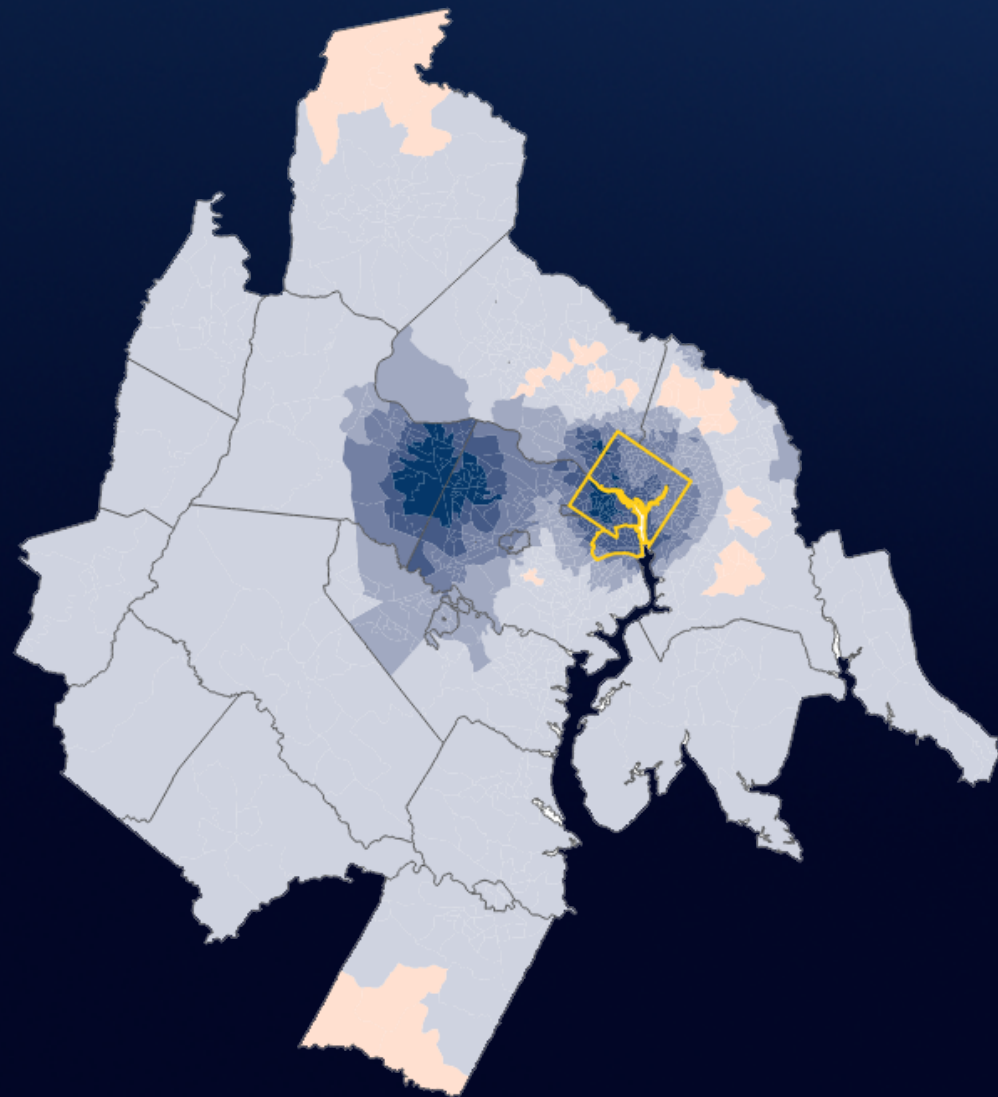
Share of post-secondary graduates with a **STEM degree**



# Advanced Industry Challenges

## *Ecosystems*

The region's development pattern remains **lopsided and too sprawling** for advanced activities



New jobs within 9 miles  
2000-2012



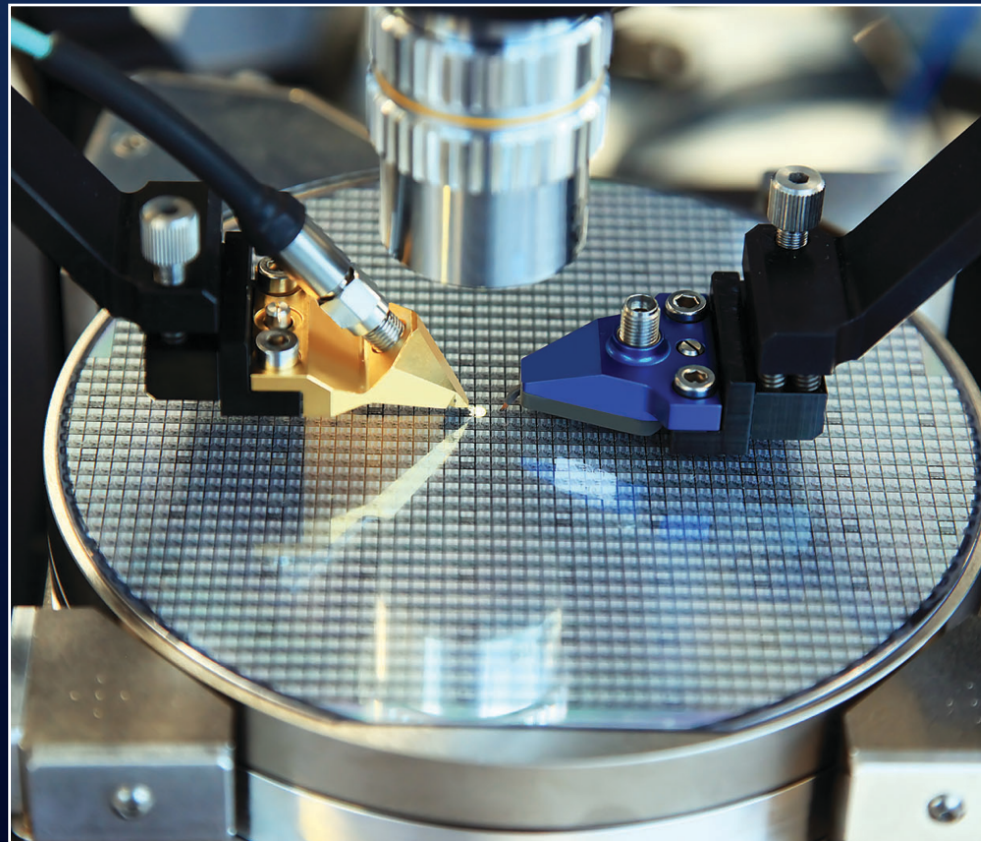
**1 2 3 4**

**4 Strategy**

# Commit to innovation



Expand basic and applied research



Build research specializations aligned with industry needs



Seek to maximize the commercial impact of innovation activities

# Develop the STEM pipeline



Set a strong vision  
of STEM's  
importance



Invest in industry  
aligned regional skills  
initiatives



Address the basic  
proficiency crisis

# Embrace the ecosystem



Focus on bottom-up regional economic development

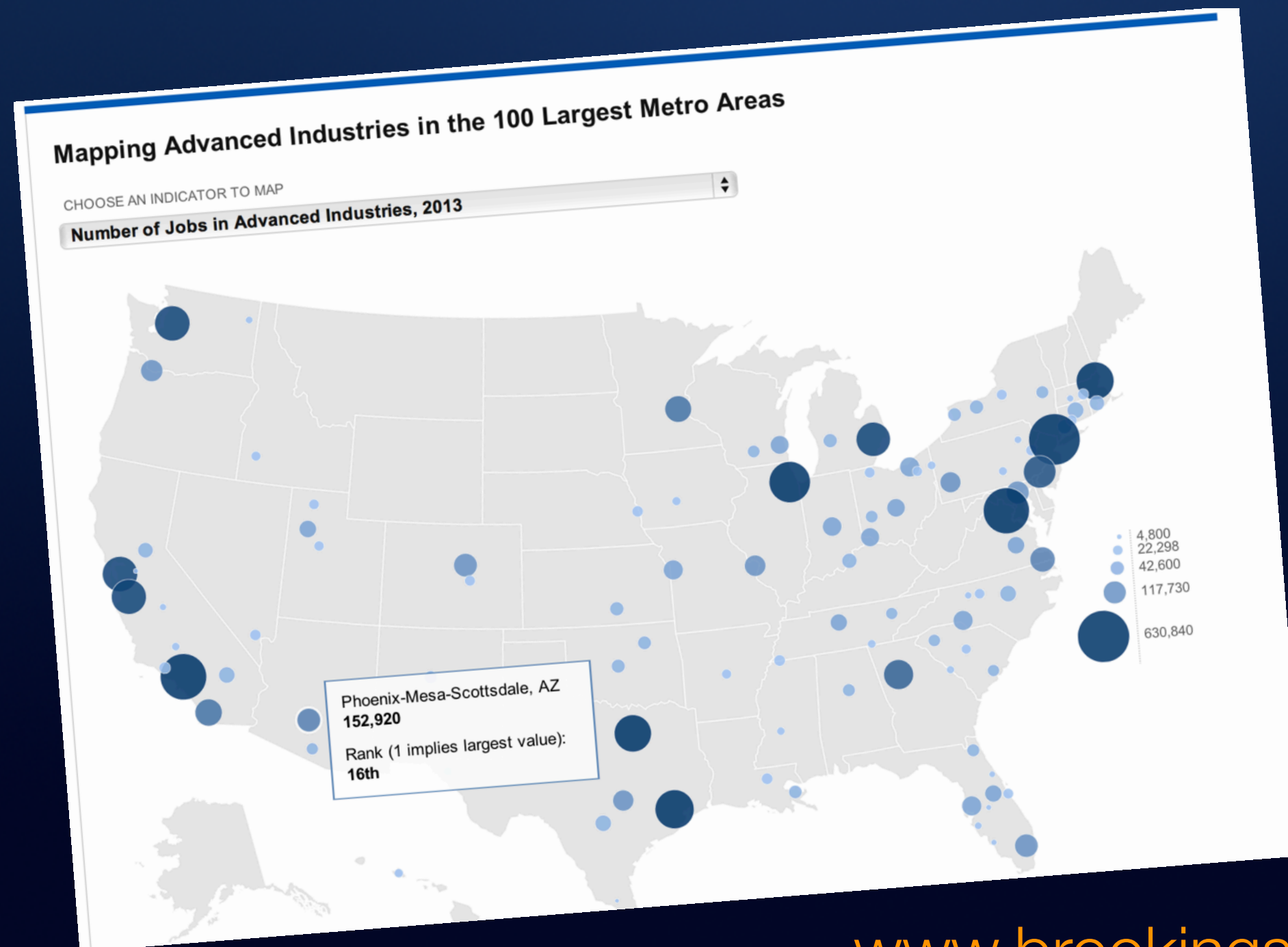


Aid and abet the emergence of local clusters



Create greater networking and collaboration hubs

# Advanced industries interactive



[www.brookings.edu/advancedindustries](http://www.brookings.edu/advancedindustries)

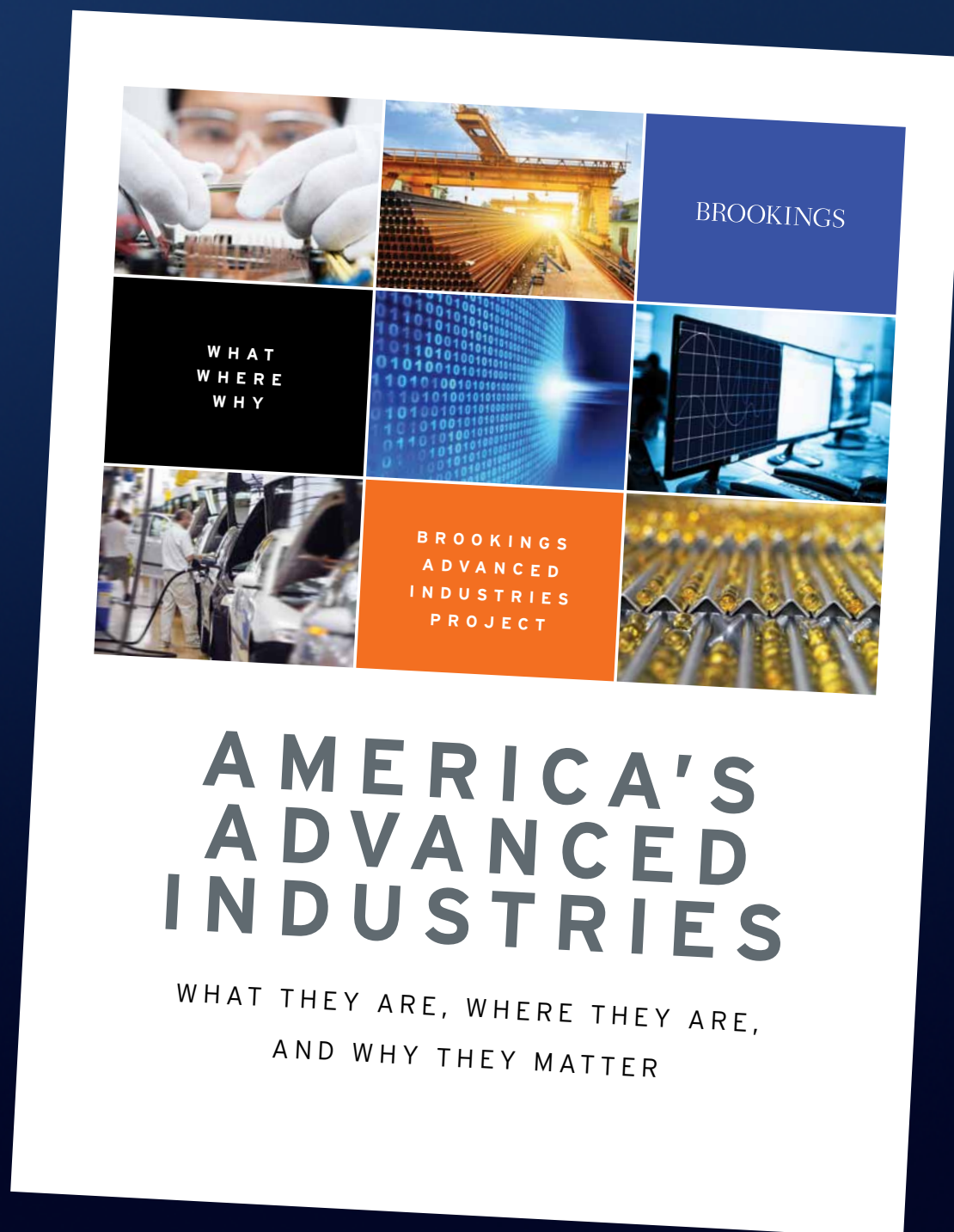
## Contact:

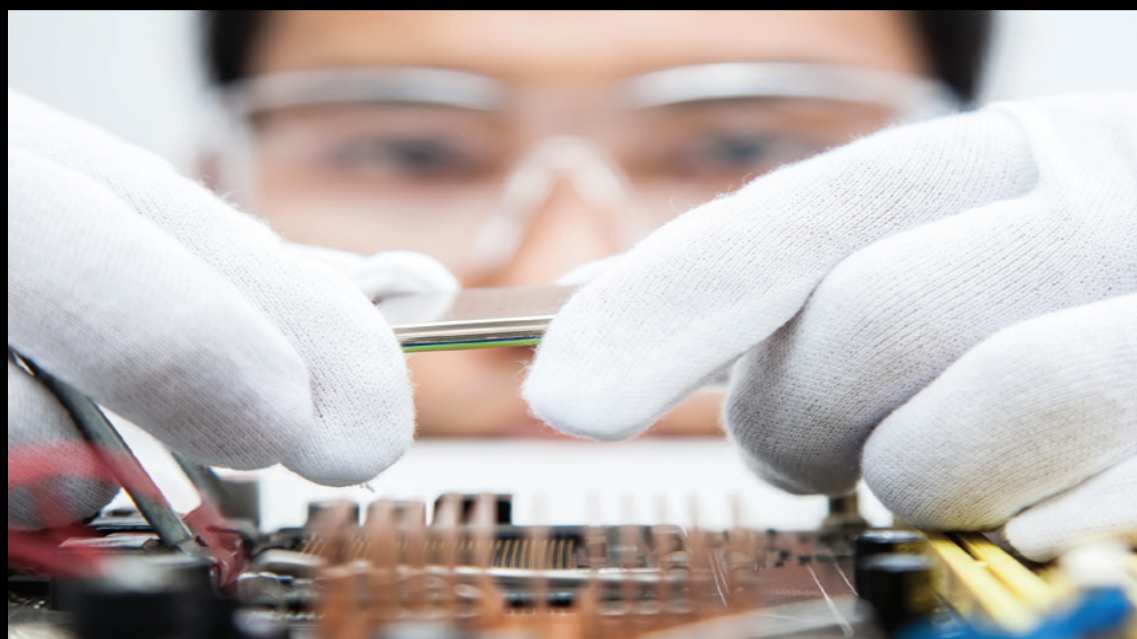
Mark Muro  
Senior Fellow  
Brookings Institution  
[mmuro@brookings.edu](mailto:mmuro@brookings.edu)

 @MarkMuro1

## View the report:

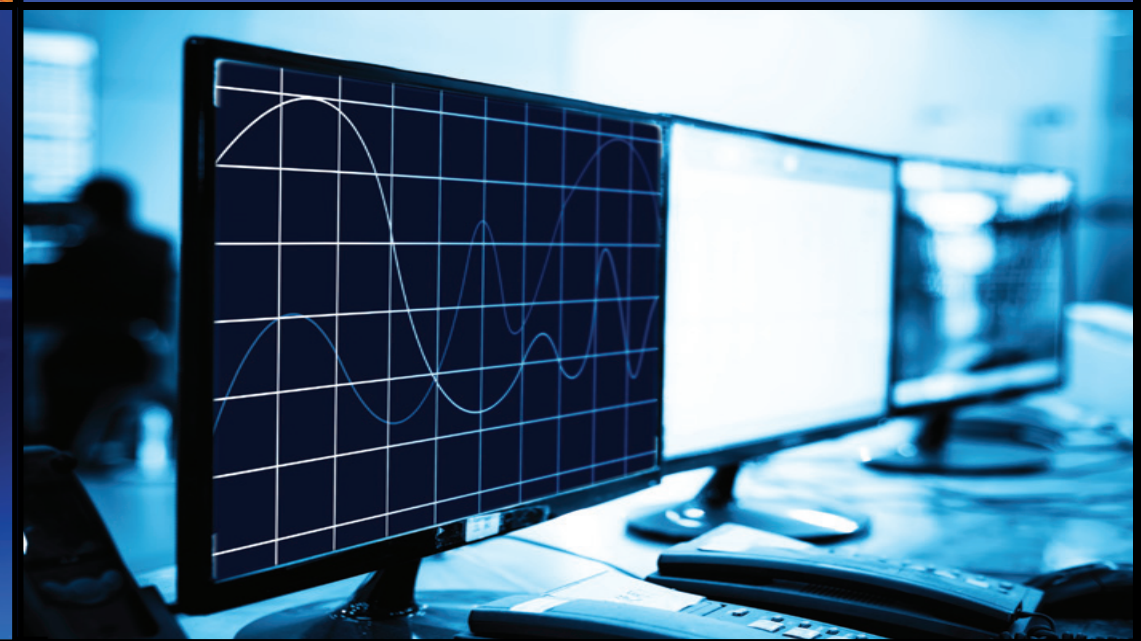
[www.brookings.edu/advancedindustries](http://www.brookings.edu/advancedindustries)





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