



# The Future of Education

**Matt Thornhill**

**SIR Research/Generations Matter**

**August 25, 2015**

# Today's Agenda

- 👁️ **The 324 Places initiative**
- 👁️ **The future of PK-12 Education for Virginia's 324 Places**
- 👁️ **New models for cities, towns, and counties**
- 👁️ **Participant discussion**

# 324 Places in Virginia

- 👁️ Year-long program from VML focusing on the key trends that local governments in Virginia will face over the next 10 years.
- 👁️ Providing you a roadmap with strategies.
- 👁️ Articles monthly in *Virginia Town & City*.
- 👁️ Theme of 2015 VML Annual Conference, Oct 4-6 in Richmond: *The Future of Virginia: 324 Places*.



**EIR** Beyond research.



Generations  
**Matter**<sup>SM</sup>

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- 👁️ **The future of PK-12 Education for Virginia's 324 Places**
- 👁️ New models for cities, towns, and counties
- 👁️ Participant discussion

**Nationally, we're  
not that good in  
PK-12 Education**

# PISA 2012 Results in Focus

What 15-year-olds know  
and what they can do  
with what they know



Programme for International Student Assessment



	Mathematics				Reading		Science	
	Mean score in PISA 2012	Share of low achievers in mathematics (Below Level 2)	Share of top performers in mathematics (Level 5 or 6)	Annualised change in score points	Mean score in PISA 2012	Annualised change in score points	Mean score in PISA 2012	Annualised change in score points
OECD average	494	23.0	12.6	-0.3	496	0.3	501	0.5
Shanghai-China	613	3.8	55.4	4.2	570	4.6	580	1.8
Singapore	573	8.3	40.0	3.8	542	5.4	551	3.3
Hong Kong-China	561	8.5	33.7	1.3	545	2.3	555	2.1
Chinese Taipei	560	12.8	37.2	1.7	523	4.5	523	-1.5
Korea	554	9.1	30.9	1.1	536	0.9	538	2.6
Macao-China	538	10.8	24.3	1.0	509	0.8	521	1.6
Japan	536	11.1	23.7	0.4	538	1.5	547	2.6
Liechtenstein	535	14.1	24.8	0.3	516	1.3	525	0.4
Switzerland	531	12.4	21.4	0.6	509	1.0	515	0.6
Netherlands	523	14.8	19.3	-1.6	511	-0.1	522	-0.5
Estonia	521	10.5	14.6	0.9	516	2.4	541	1.5
Finland	519	12.3	15.3	-2.8	524	-1.7	545	-3.0
Canada	518	13.8	16.4	-1.4	523	-0.9	525	-1.5
Poland	518	14.4	16.7	2.6	518	2.8	526	4.6
Belgium	515	19.0	19.5	-1.6	509	0.1	505	-0.9
Germany	514	17.7	17.5	1.4	508	1.8	524	1.4
Viet Nam	511	14.2	13.3	m	508	m	528	m
Austria	506	18.7	14.3	0.0	490	-0.2	506	-0.8
Australia	504	19.7	14.8	-2.2	512	-1.4	521	-0.9
Ireland	501	16.9	10.7	-0.6	523	-0.9	522	2.3
Slovenia	501	20.1	13.7	-0.6	481	-2.2	514	-0.8
Denmark	500	16.8	10.0	-1.8	496	0.1	498	0.4
New Zealand	500	22.6	15.0	-2.5	512	-1.1	516	-2.5
Czech Republic	499	21.0	12.9	-2.5	493	-0.5	508	-1.0
France	495	22.4	12.9	-1.5	505	0.0	499	0.6
United Kingdom	494	21.8	11.8	-0.3	499	0.7	514	-0.1
Iceland	493	21.5	11.2	-2.2	483	-1.3	478	-2.0
Latvia	491	19.9	8.0	0.5	489	1.9	502	2.0
Luxembourg	490	24.3	11.2	-0.3	488	0.7	491	0.9
Norway	489	22.3	9.4	-0.3	504	0.1	495	1.3
Portugal	487	24.9	10.6	2.8	488	1.6	489	2.5
Italy	485	24.7	9.9	2.7	490	0.5	494	3.0
Spain	484	23.6	8.0	0.1	488	-0.3	496	1.3
Russian Federation	482	24.0	7.8	1.1	475	1.1	486	1.0
Slovak Republic	482	27.5	11.0	-1.4	463	-0.1	471	-2.7
United States	481	25.8	8.8	0.3	498	-0.3	497	1.4
Lithuania	479	26.0	8.1	-1.4	477	1.1	496	1.3
Sweden	478	27.1	8.0	-3.3	483	-2.8	485	-3.1
Hungary	477	28.1	9.3	-1.3	488	1.0	494	-1.6
Croatia	471	29.9	7.0	0.6	485	1.2	491	-0.3
Israel	466	33.5	9.4	4.2	486	3.7	470	2.8
Greece	453	35.7	3.9	1.1	477	0.5	467	-1.1
Serbia	449	38.9	4.6	2.2	446	7.6	445	1.5
Turkey	448	42.0	5.9	3.2	475	4.1	463	6.4
Romania	445	40.8	3.2	4.9	438	1.1	439	3.4
Cyprus <sup>1,2</sup>	440	42.0	3.7	m	449	m	438	m
Bulgaria	439	43.8	4.1	4.2	436	0.4	446	2.0



# USA Ranking

*5<sup>th</sup> in spending per student at \$12,464*

**READING**

**17<sup>th</sup>**

**MATH**

**27<sup>th</sup>**

**SCIENCE**

**20<sup>th</sup>**

**Virginia is not  
setting the  
education world  
on fire, either.**

According to an analysis by the American Legislative Exchange Council, Virginia ranks 26<sup>th</sup> among the 50 states and D.C. across a range of measures.

# C-

## Education Policy Grade

ALEC Historical Grading

2010: C | 2011: C | 2012: C-

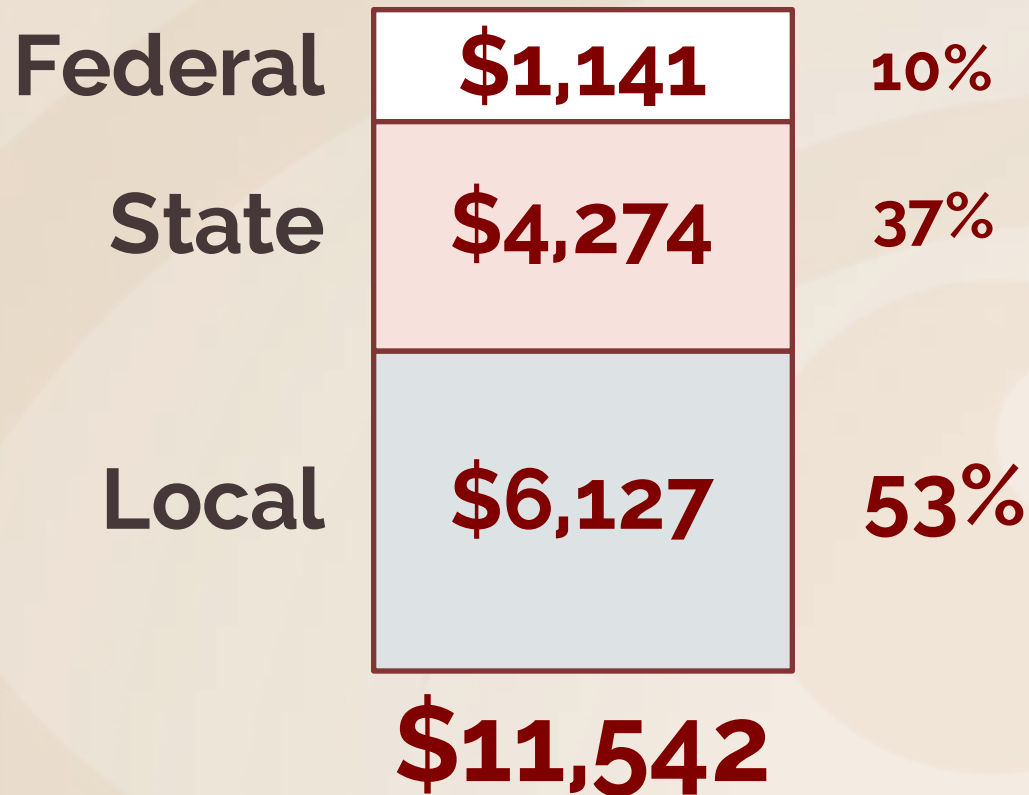
Grades state-level education policies that provide high-quality educational options to all students.

<b>State Academic Standards</b>	D
<b>Charter Schools</b>	
Charter Schools Allowed	Yes
Charter School Law Grade	F
<b>Homeschool Regulation Burden</b> <i>(A=None, B=Low, C=Moderate, D=High)</i>	C
<b>Private School Choice Programs</b>	C
<b>Teacher Quality and Policies: Overall Grade</b>	C+
Delivering Well Prepared Teachers	C+
Expanding the Teaching Pool	C-
Identifying Effective Teachers	C-
Retaining Effective Teachers	B
Exiting Ineffective Teachers	C
<b>Digital Learning</b>	B-

**These scores and grades are indicative of issues, but today's complex public education system does not come with any easy solutions.**

# Virginia Spending Sources

Per Student, 2011



# The panacea?



# The best approach:





**GENERATIONS**



# Current U.S. Census Data

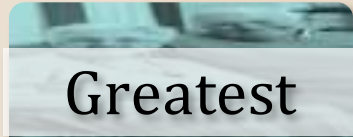
76,000,000

75,000,000

83,000,000

5,000,000

28,000,000



Greatest

Silent

Boomer

Gen X

Millennial

1909-28

1929-45

1946-64

1965-82

1983-01

97

78

60

42

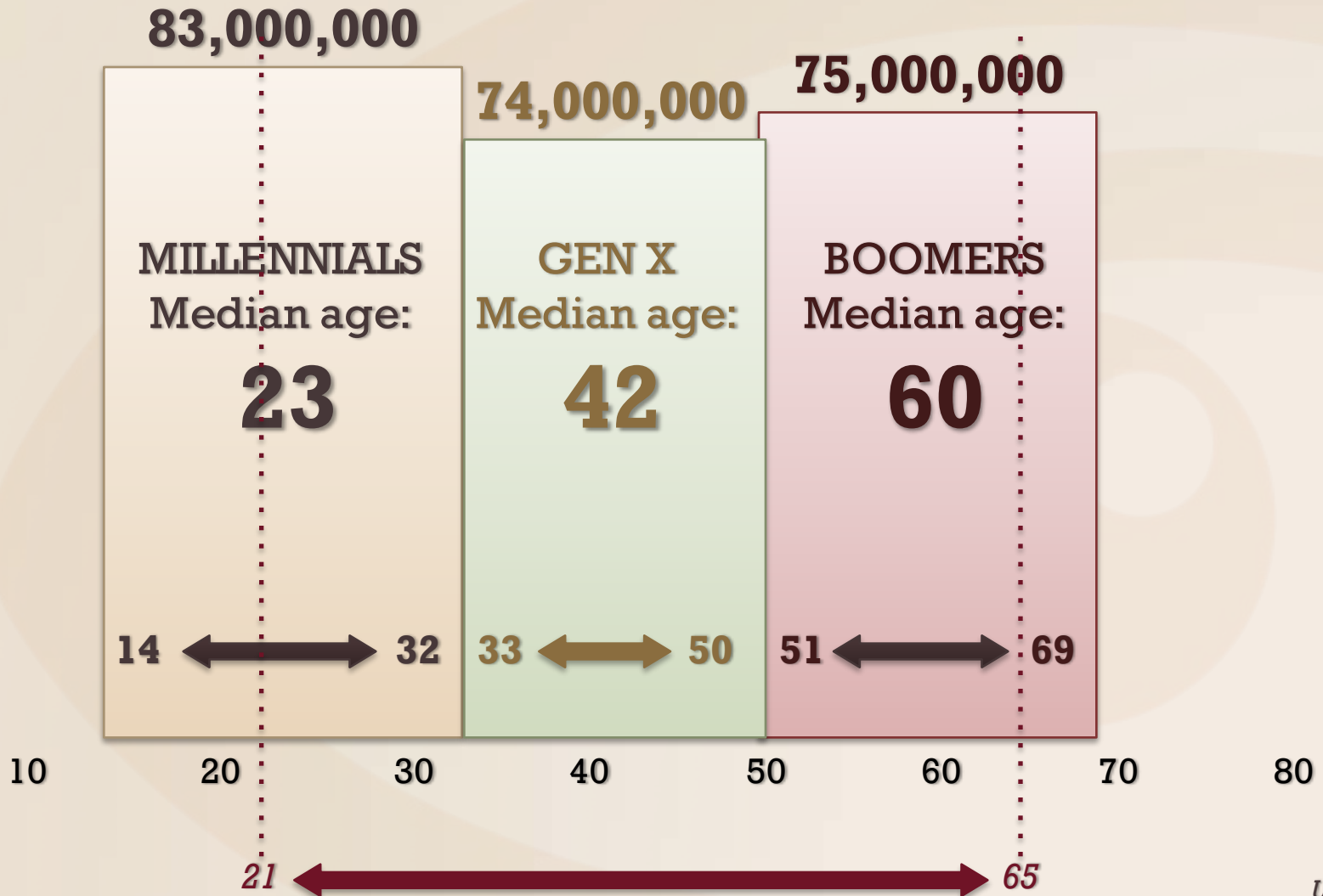
23

A young Black woman with her hair pulled back is smiling broadly, looking towards the camera. She is wearing a light blue top and a necklace. In the background, other people are visible but out of focus, suggesting a meeting or office environment.

**MILLENNIALS**  
**will shape**  
**CULTURE &**  
**SOCIETY**  
**starting now...**

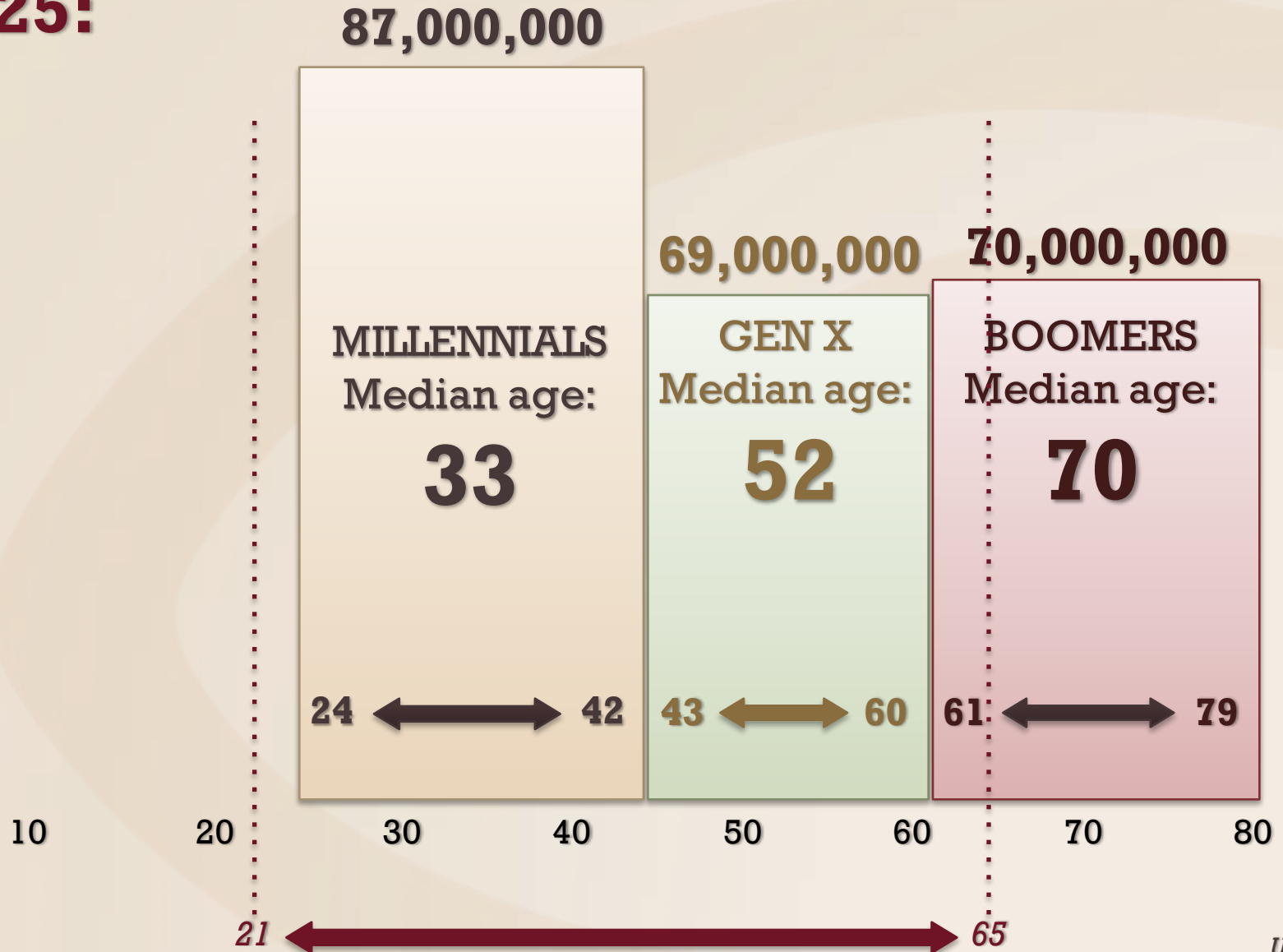
# It's their world now...

**TODAY:**



# It's their world now...

**2025:**



They are **“WIRED”** together



# The "Collective Self" Dominates



# The Wisdom of the Crowd?

**facebook.**



**WIKIPEDIA**  
The Free Encyclopedia

**amazon.com**<sup>®</sup>

The Amazon logo, consisting of the word "amazon.com" in a bold, black, sans-serif font, with a curved orange arrow underneath the word "amazon" pointing from the letter 'a' to the letter 'z'.



**THE WISDOM OF  
MANY**

**IS BETTER THAN  
THE THOUGHTS OF  
FEW**



**They feel they  
are groomed  
to create a  
BETTER FUTURE**

**MILLENNIAL  
“WE”  
MENTALITY**



**BOOMER  
“ME”  
MENTALITY**

# Next Up: PARENTHOOD



# The Next Target: **PUBLIC EDUCATION**



# Ready for them at Parent's Night?



# What this means for local leaders?

**You have about 10 years to “fix” your public education system or Millennials will abandon your community.**

# What this means for local leaders?

You won't have to do it alone.







# U.S. COMPETITIVENESS

[EVENTS](#) [PARTNERS](#) [FAQ](#)

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[FACULTY](#)

[FORUM](#)

[MEDIA COVERAGE](#)

Harvard Business School → U.S. Competitiveness → [Research](#) → PK-12 Education

# RESEARCH

## PK-12 Education

Harvard Business School, together with the Bill & Melinda Gates Foundation and The Boston Consulting Group, is bringing business and education leaders together to better understand how they can collaborate to transform America's PK-12 education system.

The research partnership has produced three major reports:

- [The Brink of Renewal: A Business Leader's Guide to Progress in America's Schools](#)
- [Lasting Impact: A Business Leader's Playbook for Supporting America's Schools](#)
- [Partial Credit: How America's School Superintendents See Business as a Partner](#)

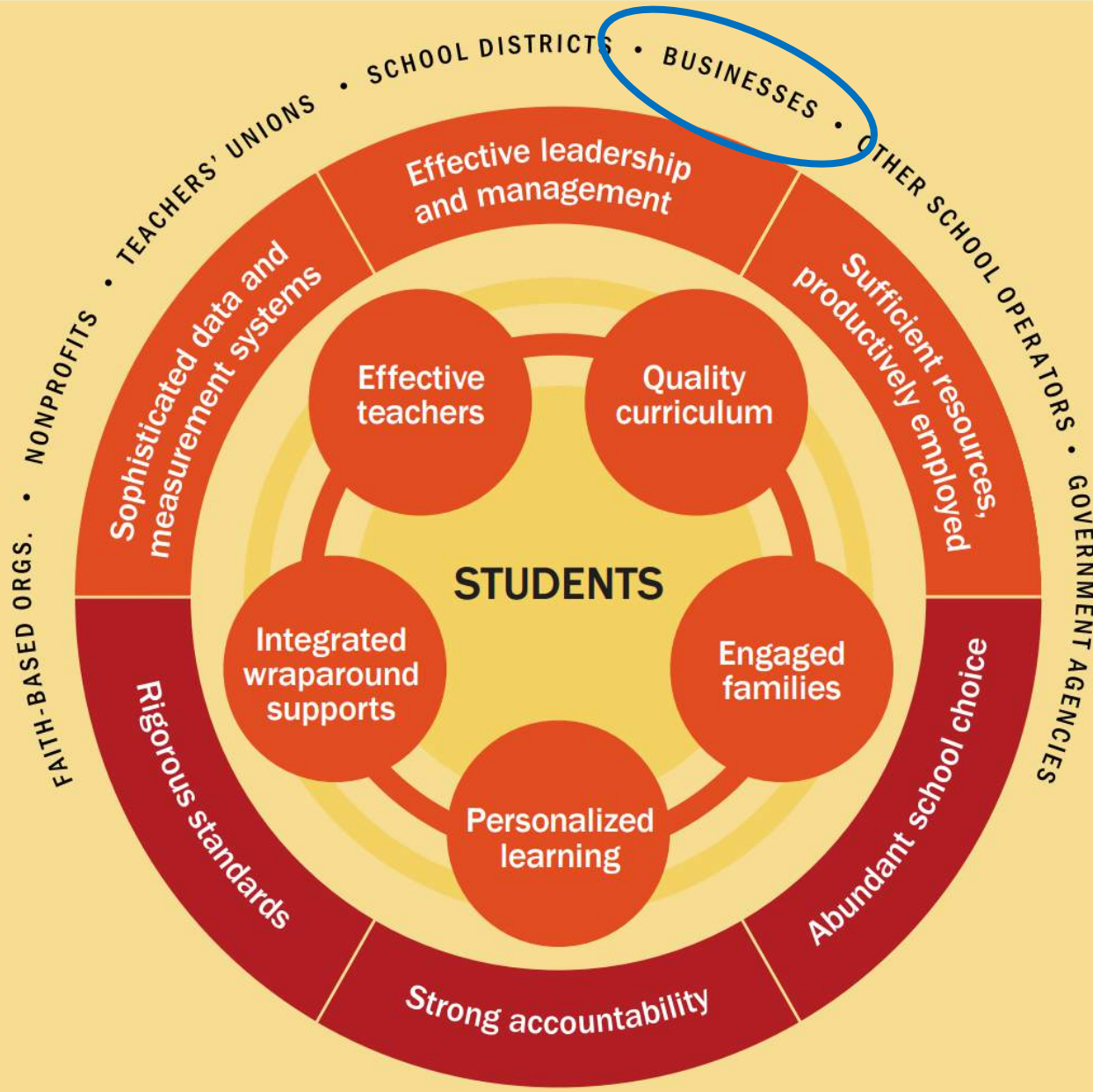
In the current climate, global standards for education are rising, and America must be able at least to keep pace, if not to lead. While the past three decades have shown a gradual improvement in many indicators of average U.S. student performance, the time has come to push for transformative progress. A number of trends are now converging that make it easier than ever

# 86%

of business engagements in schools have not been measured or evaluated

→ [More from "Partial Credit"](#)

### IN THE NEWS



**Key drivers:**  
most directly affect student outcomes



**Enabling elements:**  
create right context for change

# Good Resources:

**The Brink of Renewal:**  
A Business Leader's Guide to Progress  
in America's Schools



**Lasting Impact:**  
A Business Leader's  
Playbook  
for Supporting  
America's Schools

**Partial Credit:**  
How America's School Superintendents  
See Business as a Partner



<http://www.hbs.edu/competitiveness/research/Pages/pk-12-education.aspx>

## **From** *The Brink of Renewal*

“Education leaders cannot do it alone. They need the support and partnership of leaders throughout the community. Among civic leaders, **business-people are uniquely positioned to play a major role in this educational transformation.** Many business leaders are accustomed to innovating and taking a long-term perspective. Many know how to think systemically. Many have long experience in operational best practices that can help educators manage large systems. And, as employers, they often wield considerable influence at the local level.”

# Early Successes

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# Worcester Technical High School

## August 28, 2006

- 👁️ 94.8% attendance
- 👁️ Under 1% drop out rate
- 👁️ 96.8% graduation rate



# A New Model

Harvard Graduate School of Education  
“Pathways to Prosperity” (Feb. 2011)

**The new model is a diversified approach with multiple paths better designed to meet the interests of young people and the needs of employers and their 21<sup>st</sup> century workforce.**



EDUCATIONAL OPPORTUNITY AND SCHOLARSHIP  
**Transforming Secondary Education**

- Overview >
- Grant Making
- Team
- For Grant Seekers



## Overview



*The goal of this work is to transform secondary education through innovative programs that address dropout rates and hold education leaders accountable, making it possible for all young people in China to complete high school.*

### THE CHALLENGE

China has 300 million school-aged children, the largest number in the

### REGIONS



### TEAM



2011 New York City Mayor Michael Bloomberg worked with IBM in Brooklyn's Crown Heights neighborhood



+

New York City  
and  
City University of  
New York

=

**P-TECH**  
Concept

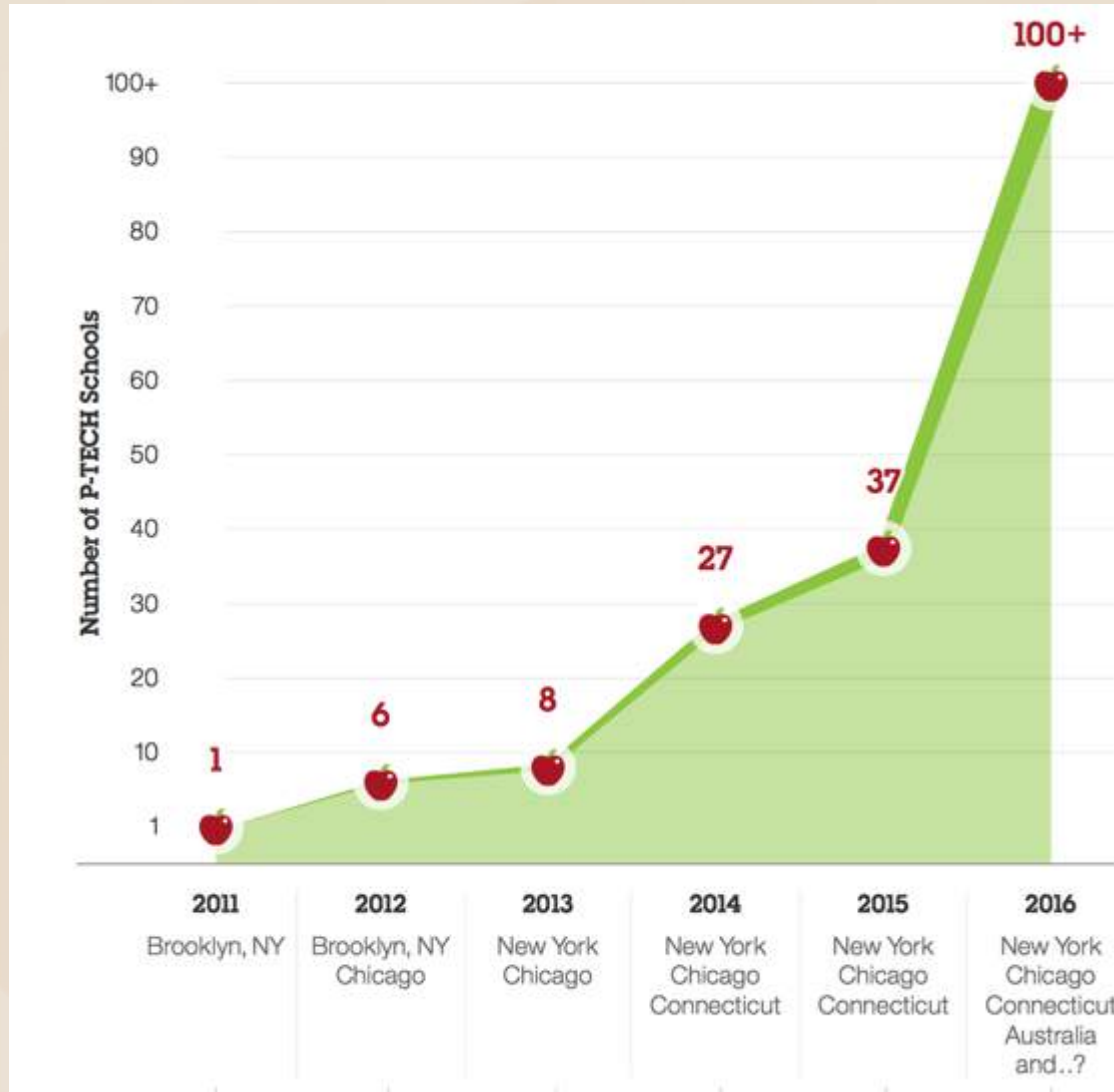
**The Pathways in Technology  
Early College High School**

# The P-Tech Model

- 👁️ Merges high school and college
- 👁️ Graduates students in six years or less
- 👁️ Employers are involved
- 👁️ High school diploma plus an associate's degree
- 👁️ Students earn the associate's degree for free, thanks to a community partnerships
- 👁️ Students graduate with a job offer


# P-Tech 9-to-14

## Schools are gaining momentum



# P-Tech has received a great deal of national media coverage

### Featured Story




**The Reinvention of the American High School**  
National Journal - Aug 28, 2014

The reinvention of the American high school advanced another step on Wednesday at the new Norwalk Early College Academy.

[Read More >>](#)

### Featured Video

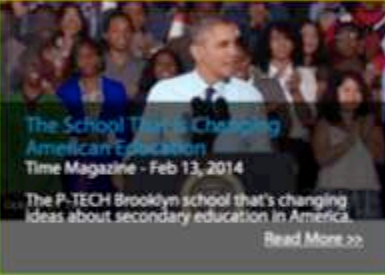


**Why Six Years for High School is Catching On**  
PBS NewsHour - Apr 9, 2014

In early 2014, PBS NewsHour visited the Pathways in Technology Early College High School, known as P-TECH, in Brooklyn.

[Read More >>](#)

### Featured Story



**The School That's Changing American Education**  
Time Magazine - Feb 13, 2014

The P-TECH Brooklyn school that's changing ideas about secondary education in America.

[Read More >>](#)

Filter by:  Sort by:

Page: [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [Next](#) [Last](#) >

**Guest Commentary Reaching the true potential of Colorado's workforce**  
The Denver Post - Jun 21, 2015

Colorado is a great place to live and work, but there are some disturbing trends that, if not addressed, could make us less competitive and hobble our resurgent economy.

[Read More >>](#)

**From High School Calculus Straight To A Job At IBM: Meet The First Graduates Of P-TECH**  
Fast Company - Jun 18, 2015

Meet the first graduates of P-TECH, a model that merges high school and college with the goal of graduating students in six years or less with a high school diploma, an associate's degree in computer systems or electromechanical engineering, and a job offer.

[Read More >>](#)

**P-TECH producing results, attracting global attention for Newburgh**  
Mid Hudson News - Jun 9, 2015

Lieutenant Governor Kathy Hochul visited Excelsior on Monday, meeting with school officials and with Stanley Litow, vice president of Corporate Citizenship & Corporate Affairs at IBM, and president of the IBM International Foundation.

[Read More >>](#)

**Hochul touts Newburgh's 'Incubator'**  
Times Herald-Record - Jun 8, 2015

Newburgh's P-TECH high school is more than a fancy name; it's a ticket to the future.

[Read More >>](#)

**Six Students Graduate Early With High School, College Diplomas from Experimental School**  
NY1 News - Jun 3, 2015

A new concept in higher education is already producing some high achievers.

**P-TECH: Tackling Youth Unemployment One Student At A Time**  
Forbes - Jun 3, 2015

As the litany of complaints about the quality of education and its relevance to the

Educating technologists

# Business high school

Companies struggling to find talent are looking to teenagers

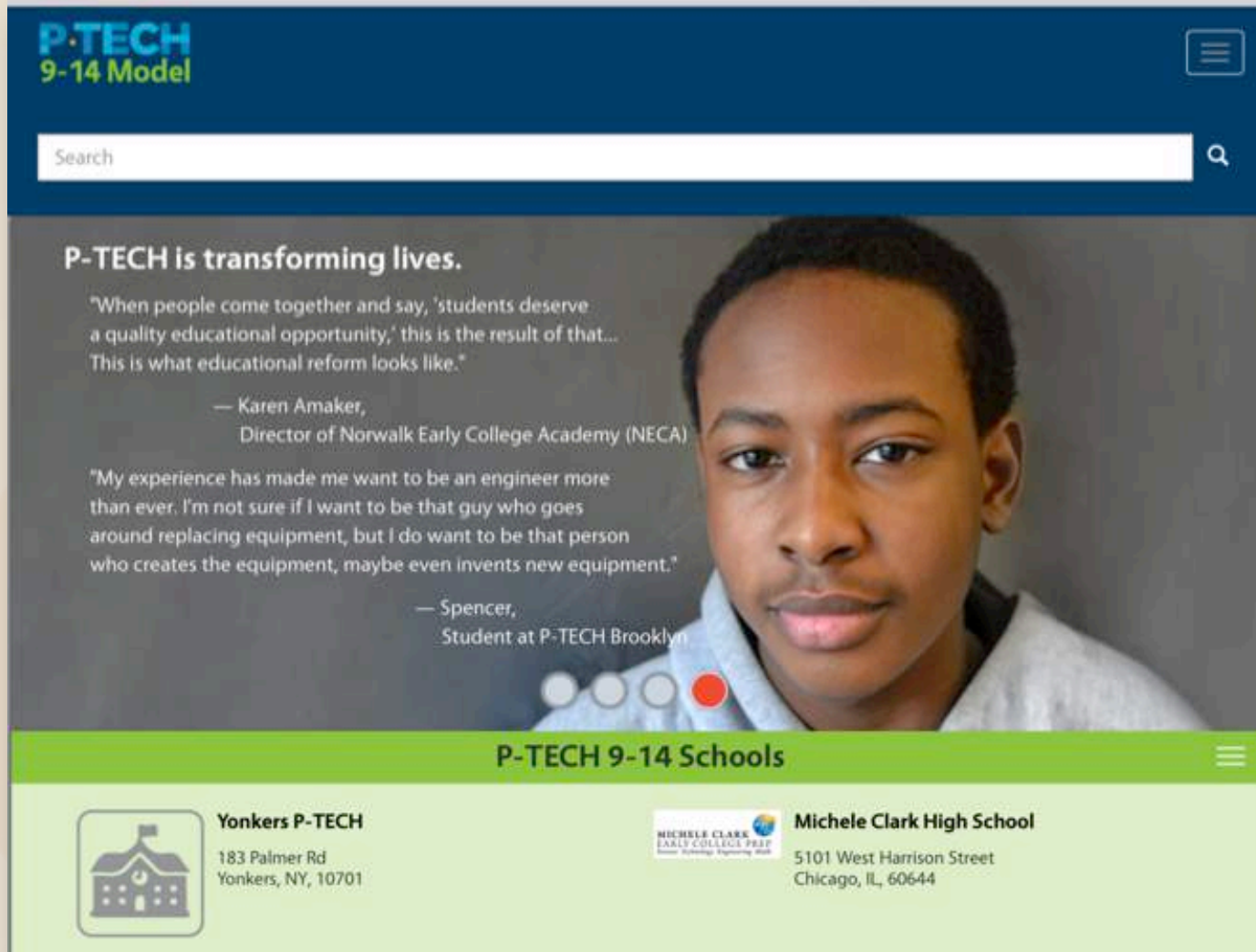
Jul 18th 2015 | NEWBURGH, NEW YORK | From the print edition

Timekeeper Like 514 Tweet 196


RADCLIFFE SADDLER began working at IBM, where he analyses market trends, on July 13th. He applies his programming and technical skills to a digital platform that provides market research to his colleagues. It is a good job: he makes \$50,000 a year, has a health-care package and a pension plan. Mr Saddler is 18 years old. He earned his high-school diploma last month. A few weeks before finishing school, he also received an associate degree in computer systems technology.

Mr Saddler was a pupil at P-Tech (Pathways in Technology Early College High School), an unusual school in the Crown Heights neighbourhood of Brooklyn





**P-TECH**  
9-14 Model

Search 

### P-TECH is transforming lives.



"When people come together and say, 'students deserve a quality educational opportunity,' this is the result of that... This is what educational reform looks like."

— Karen Amaker,  
Director of Norwalk Early College Academy (NECA)

"My experience has made me want to be an engineer more than ever. I'm not sure if I want to be that guy who goes around replacing equipment, but I do want to be that person who creates the equipment, maybe even invents new equipment."

— Spencer,  
Student at P-TECH Brooklyn

**P-TECH 9-14 Schools**

 <p><b>Yonkers P-TECH</b> 183 Palmer Rd Yonkers, NY, 10701</p>	 <p><b>Michele Clark High School</b> 5101 West Harrison Street Chicago, IL, 60644</p>
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# P-Tech detailed plans & toolkits

The Model		
<p>Why Develop a P-TECH School? Who Creates a P-TECH School? Supporting and Funding P-TECH Schools</p>	<p><b>Tools</b></p> <ul style="list-style-type: none"> <li><a href="#">Overview of the P-TECH 9-14 Model Planning Process</a></li> <li><a href="#">P-TECH 9-14 Model Results</a></li> <li><a href="#">How to Assess Partners' Readiness to Develop a P-TECH 9-14 School Partnership Sample Memorandum of Understanding</a></li> <li><a href="#">New York State P-TECH Overview</a></li> </ul>	<p><b>Case Studies</b></p> <ul style="list-style-type: none"> <li><a href="#">Setting the Foundation: The Launch of NECA's Steering Committee A Partnership in the Making</a></li> </ul>
Key Elements		
<p><b>Focus on Careers</b></p> <ul style="list-style-type: none"> <li>Workplace Learning</li> <li>Career Foundation Coursework</li> <li>Mentoring</li> <li>Service Learning</li> <li>Skills-based, Paid Internships</li> <li>Who is Involved?</li> </ul>	<p><b>Tools</b></p> <ul style="list-style-type: none"> <li><a href="#">Skills Mapping Process Guide</a></li> <li><a href="#">Sample Skills Map</a></li> <li><a href="#">Overview of Mentoring Programs</a></li> <li><a href="#">How to Develop a Mentoring Program</a></li> <li><a href="#">Mentoring Recruitment Letter</a></li> <li><a href="#">How to Develop an Internship Program</a></li> <li><a href="#">Sample Internship Employer Information Sheet</a></li> <li><a href="#">Sample Internship Descriptions</a></li> <li><a href="#">Training for Internship Supervisors &amp; Employers</a></li> <li><a href="#">Industry Liaison Job Description</a></li> <li><a href="#">Workplace Learning Coordinator Job Description</a></li> <li><a href="#">Advisory Board Roles &amp; Responsibilities</a></li> </ul>	<p><b>Case Studies</b></p> <ul style="list-style-type: none"> <li><a href="#">Identifying Skills that Industry Needs</a></li> <li><a href="#">Preparing Students at Excelsior Academy for Careers</a></li> <li><a href="#">Charting the BTECH Course</a></li> <li><a href="#">Mentoring for Career Readiness</a></li> <li><a href="#">Stepping Stone to Real Careers</a></li> </ul>



**The real secret to  
this new model?**

# Technology Companies



# Healthcare Companies & Centers



# Companies across many categories

**LOCKHEED MARTIN**



## 3 Primary Reasons:

There's a **crisis with high school graduates today**

Your region's economy faces even greater **workforce challenges in the future**

Employers in your area face **mounting workforce challenges today**



# **1. Historically many high school graduates face a dead end**

**High schools are mostly wired to drive people to higher education. Yet, only 30 percent of high school students actually go on to college.**

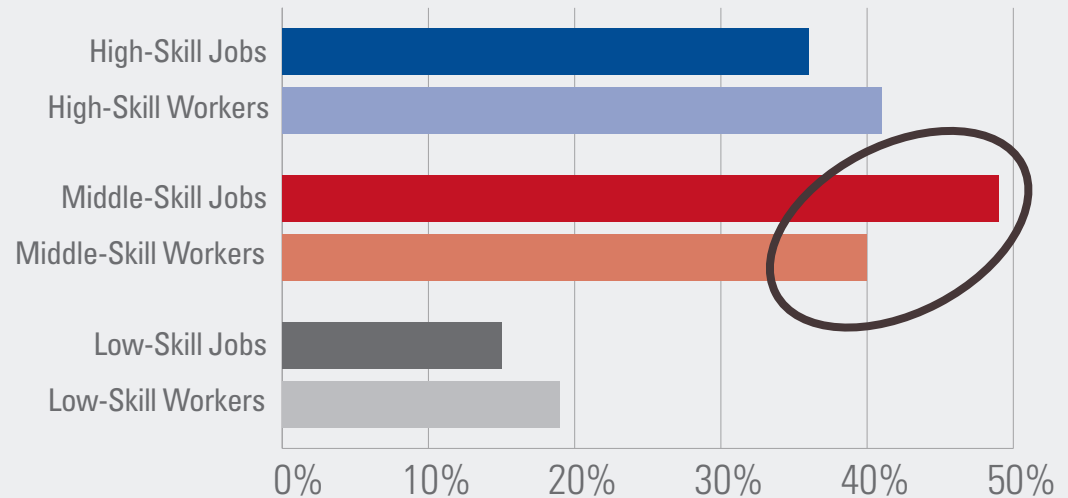


**2. Employers across Virginia are looking for qualified workers today**

# There is a “Middle Skills” gap

***Middle-skill jobs account for 49 percent of Virginia’s labor market, but only 40 percent of the state’s workers are trained to the middle-skill level.***

Jobs and Workers by Skill Level, Virginia, 2012



Source: NSC analysis of Bureau of Labor Statistics Occupational Employment Statistics by State, May 2012 and American Community Survey data, 2012.





**Nearly 60% of the fastest growing occupations in the region typically require less than a 4-year degree.**

**Source: Opportunity, Inc. 2012  
"Driving Hampton Roads' Competitiveness"**

# Norfolk Naval Shipyard

**“Trying to find skilled trades workers has become very challenging - the port of Hampton Roads is home to so many ship-repair facilities.”**

**Jeff Cunningham  
Spokesperson  
Norfolk Naval Shipyard**

Source: The Virginian-Pilot -December 20, 2014



**3.**  
**Your region's  
economy  
faces even  
greater  
workforce  
challenges  
in the future**

**“In less than a decade, Virginia will need skilled workers for nearly 1.5 million jobs. Fifty to 65 percent of them will be as ‘middle skills’ technicians, with good wages and career progression that require certifications, licenses, apprenticeships or community college certificates.”**

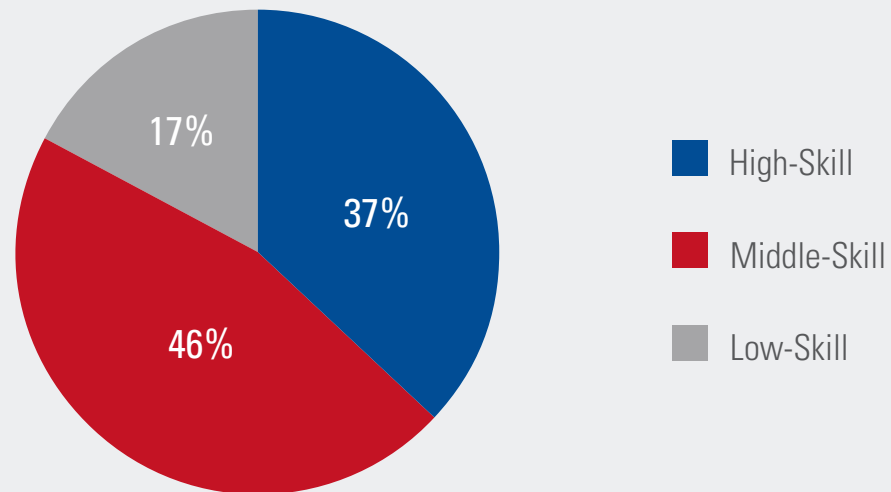
Maurice A. Jones  
Secretary of Commerce and Trade  
Commonwealth of Virginia

Source: New York Times, March 19, 2015

# There's Opportunity in the Middle

*Between 2010-20,*  
**46%**  
*of job openings*  
*will be*  
*middle-skill.*

Job Openings by Skill Level, Virginia, 2010-20



*Source: NSC analysis of long-term occupational projections from state labor/employment agency.*

# FUTURE HIGH SCHOOLS

## Three-Part Integrated Curriculum

### **CAREER EDUCATION**

Expose students to multiple job pathways and experiences – teach what each job does and what it pays.

### **ACADEMIC INSTRUCTION**

Teach core academic subjects to ensure students can handle 21<sup>st</sup> technology while connecting the dots.

### **TECHNICAL EDUCATION**

Teach the technical skills and certify students for specific jobs.

# Encourage multiple pathways



**Specific  
technical  
job**



**Community  
College or  
other resources  
for additional  
technical  
training or  
education**



**Associate,  
bachelor and  
advanced  
degrees**

# Focus on your region's defining industries

## Retail Industry

### Specific Industries:

**Tech/Manufacturing/Shipbuilding**

**Healthcare & Health Sciences**

**Light Manufacturing**

**Tourism and Hospitality**



# Focus on Measurable Outcomes

## **School Output**

### **Market Recognized**

-  Credentials
-  Certifications
-  Competencies

## **School Outcome**

**Employed Student  
and  
Satisfied  
Stakeholders**

*Focus on what happens after graduation  
– people with skills for specific good-  
paying jobs in the community.*



**The future of  
education in Virginia:  
It takes a village**

# Today's Agenda

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- 👁️ **The future of PK-12 Education for Virginia's 324 Places**
- 👁️ **New models for cities, towns, and counties**
- 👁️ **Participant discussion**



# Thank You

Next Session:  
**Transportation & Mobility**  
Tuesday, September 22, 2015  
Time: TBD