



House of Representatives
COMMONWEALTH OF PENNSYLVANIA
HARRISBURG

HOUSE DEMOCRATIC POLICY COMMITTEE HEARING

Topic: Technical Education and Career Readiness

IBEW 163 JATC Training Center – Nanticoke, PA

August 23, 2018

AGENDA

- 10:00 a.m. Welcome and Opening Remarks
- 10:10 a.m. Allyson Knox
Director of Education Policy and Programs
Microsoft
- 10:40 a.m. Carrie Amann
Deputy Secretary of Policy and Planning
Office of Governor Tom Wolf
- 11:10 a.m. Jeanne Miller
Co-Lead
Carbon, Schuylkill, and Luzerne Counties STEM Ecosystem
- 11:40 a.m. Closing Remarks



Public Hearing on Technical Education and Career Readiness
IBEW 163 JATC Training Center
41 West Church Street, Nanticoke PA 18634
Thursday, August 23rd 10:00 AM

Thank you, Chairman Sturla, Representative Mullery and all the members of the House Democratic Policy Committee, for inviting me here today to testify on behalf of Microsoft. My name is Allyson Knox and I am the senior director of education policy and programs at Microsoft. I am based in Washington, DC and I advocate at the State and Federal levels to ensure that all students have access to high quality computer science education.

As you know, expanding access to computer science education is not simply about creating new and exciting education opportunities for more students, it's an economic imperative for all of Pennsylvania. Across the State, there are currently over 19,000 open computing jobs, according to Code.org, and the demand for these jobs is only expected to grow. In fact, over the next decade, it is projected that 70 percent of new jobs across Pennsylvania will require computing skills. Yet in 2015, Pennsylvania graduated less than 3,000 computer science graduates, only 20 percent of whom were female.

These jobs are not only in high-demand, but they are also many of the highest paying jobs. The average salary for a computing job in Pennsylvania is over \$85,000, which is roughly \$18,000 more than the average salary in the Commonwealth. The data is clear, and it tells us this: if Pennsylvania's students are going to be contenders for these jobs today and in the future, we must start building a strong foundation and equipping them with the skills necessary to compete, which starts in the classroom.

That is why Microsoft applauds the leadership of Governor Wolf and the Legislature in spearheading the PAsmart initiative. As you all know, PAsmart is a \$30 million investment in workforce development, with \$20 million dedicated to computer science and STEM learning. This investment is crucial in ensuring that Pennsylvania's students are prepared to meet the demands of the rapidly evolving 21st century economy.

Currently, one of the most challenging barriers facing computer science education across the country is finding qualified teachers. This shortage is just as prevalent here in Pennsylvania. According to data from Code.org, not a single computer science teacher graduated from a university across the State in 2016. To meet the current and future demand for computer science education, Pennsylvania needs to graduate new computer science teachers and invest in computer science training and supports for existing teachers in partnership with industry professionals through programs like Microsoft's Technology Education and Literacy in Schools (TEALS) program. The PAsmart initiative aims to address this problem by dedicating funding to increase computer science professional development opportunities for educators, which will go a long way in equipping schools with capable instructors.

Training computer science teachers will help address another issue PAsmart will help solve, access to high quality computer science courses. Only 206 schools in Pennsylvania offered advanced computer science classes in the 2016-17 school year. This lack of access contributes to the lack of diversity within the field of computer science. Of the over 3,000 Pennsylvania high school students who took a computer science Advanced Placement (AP) exam in 2017, 22 percent were female, and 7 percent were students of color. PAsmart plays a vital role in expanding access to and diversifying the field of computer science.

Another important aspect of PAsmart is the \$10 million investment in apprenticeships and job training. Microsoft has seen firsthand the valuable role that apprenticeships can play in individuals for jobs in non-traditional and growth industries. Microsoft is currently involved in the apprenticeship program Apprenti, which provides a pipeline for underrepresented groups to jobs in the tech industry, and runs the Microsoft Software and Systems Academy, which is part of a registered apprenticeship pathway to help military service members begin training for computer science careers before shifting to civilian life.

PAsmart is an important and exciting step towards preparing Pennsylvanians for the modern economy through computer science training for educators, expanded access to computer science courses, and computer science job training. Microsoft is looking forward to continuing to work with the Commonwealth of Pennsylvania on implementing the PAsmart initiative and preparing its students, workforce and economy for the future.

Written Testimony of Carrie Amann, Deputy Secretary of Policy and Planning

Governor's Policy Office

Before the House Democratic Policy Committee

Thursday, August 23, 2018, 10:00am

Representative Mullery and members of the House Democratic Policy Committee - thank you for the offer to testify this morning. Serving as Deputy Secretary of Policy and Planning in the Governor's Office, I appreciate the opportunity to discuss the Governor's *PASmart* initiative and the recently enacted \$30m in funding to support and supplement strategic investments in Pennsylvania's education and workforce systems.

A skilled, career ready workforce can sustain and grow a competitive economy in Pennsylvania; students and adults of any age must have access to participate and complete the necessary education, training and work experiences – regardless of their individual pathway – to attain the knowledge, competencies and abilities demanded in a 21st Century economy.

Pennsylvania's current economic climate presents challenges for jobseekers, businesses, policy makers, practitioners, executives and legislators to foster a competitive market and job quality: a tight labor market impacted by a decreasing labor force, an aging population, stagnating wage growth, a shrinking middle class, a labor surplus in over one-third of Pennsylvania counties, approximately 1.4 million Pennsylvanians with some college credits but no degree, small businesses that make up nearly 95% of business establishments, and the certainty that the K-12 student counts are not enough to meet current and projected job vacancies. Even so, Pennsylvania has a near full employment rate and its industry competitiveness in a number of sectors such as Manufacturing, Healthcare, Logistics & Transportation, and others have remained on par with or more competitive than national trends.

In 2015, Governor Wolf established a business-defined goal that 60 percent of Pennsylvania residents have some form of postsecondary education by 2025. Currently only 45 percent of Pennsylvanians have these industry-valued credentials, with the largest gains needed in two-year degrees or its equivalent. Since the start of his Administration, Governor Wolf has championed for and partnered with the General Assembly to realize significant investments in public education, fully restoring the one billion education cut made in the previous administration, that in turn support development of a career-ready workforce. In addition, agencies have

undertaken innovative and collaborative policy and programmatic approaches that leverage resources and capacity for career readiness efforts specifically within the planning, stakeholder engagement, and implementation processes for ESSA, WIOA and other federal funds and requirements.

Governor Wolf recognizes the important role that state government serves to partner with private sector business, labor, education, workforce development, and non-profits. Last year, the Governor established a bi-partisan Middle-Class Task Force to identify additional opportunities where state government can foster economic growth and competitiveness by engaging Pennsylvania students, parents, workers, businesses, and communities around two key questions:

1. *How can Pennsylvania better support its citizens and families to have the proper skills and competencies needed to succeed in getting and keeping quality jobs that Pay?*
2. *What can Pennsylvania do to support and enhance business competitiveness from a talent management and workforce development approach?*

The issues raised by these stakeholders were real and demanded a new approach to education, training, workforce development, and business engagement in Pennsylvania - the take-away: *PAsmart*.

Governor Wolf has prioritized *PAsmart* as a new direction to achieve the following objectives:

- *Demand Results* - Demonstrate outcomes and return on investment for public education and workforce development.
- *Strategy Matters* - Strategically invest state resources in transformative yet achievable systems and scalable models that promote career readiness and pathways.,
- *Best Practices* - Promote a strength-based approach: raise awareness and build upon what works, supplement and leverage federal and other matching funds, and guide investments to strategic and sustainable efforts.
- *Business Investment* - Ensure business engagement and investment are prioritized in a demand-drive approach.

Pennsylvania's public education and workforce development systems must work together and engage with businesses to provide relevant and affordable services and supports to all students and workers. Enacted in the 2018 budget with support of the General Assembly, *PAsmart* will invest \$30m to ensure Pennsylvania has the most prepared, talented and career ready workforce:

- \$20 million - Foster a Skilled Workforce by Expanding K-12 Computer Science Education and STEM

- \$7 million - Expand Registered Apprenticeships for Student-Workers of all Ages
- \$3 million – Increase Industry Partnerships to address their Talent management needs
- Improve Access and Alternatives to Career Pathways for all Students and Workers
- Promote Educator in the Workplace Experiences by leveraging Federal Funds
- Create a Public-Facing Data Dashboard to Promote Accountability for Education and Workforce System Results

The State Workforce Development Board, a business-led board that serves as a key workforce policy advisor to the Governor will provide recommendations on PAsmart grant awards. The Board members also include representatives from House & Senate majority and minority caucuses, as well as labor, community organizations, and Cabinet members from key agencies such as Education, Labor & Industry, Human Services, Community & Economic Development, Corrections, Agriculture, and Aging.

In addition to a budget proposal, *PAsmart* will also streamline on-line resources and services that currently reside on multiple websites across numerous state agencies in order to support the ability for Pennsylvanians to easily navigate available career guidance, job opportunities, training and education services, and related public benefits with the launch of a *PAsmart* website (www.pa.gov/smart).

PAsmart is a new consolidated approach that cuts bureaucracy, breaks down silos, moves away from the status quo, invests in outcomes and changes the way government works for the better. A critical component to implement the *PAsmart* initiative will be reimagining the current role of the State Workforce Development Board and ensure it serves as *the* governor's key inter-agency policy advisor on workforce development. A business-led Board that also includes representatives from labor, community-based and youth organizations, education and multiple state agencies will lead the coordination of *PAsmart* and work to align policy priorities, decision-making and investments across the Commonwealth including career readiness activities.

During his tenure, the Governor has demonstrated his commitment and ability to work collaboratively with the legislature to deliver result. *PAsmart* is a non-partisan approach and first step in transforming how the Commonwealth coordinates and invests in a career ready workforce. Thank you for the opportunity to raise awareness on *PAsmart* and I look forward to working together in the future.



Carbon Schuylkill Luzerne STEM Ecosystem

I would like to thank Representative Mullery for the invitation to speak to the Democratic Committee.

My name is Jeanne Yoho Miller, I am the Co-lead for the Carbon Schuylkill Luzerne STEM Ecosystem one of 68 designated Ecosystems in US, Canada, Mexico and Kenya in the National STEM Community of Practice. (stemecosystems.org) I am also the program developer for the SHINE (Schools and Homes in Education) TM After-school Program.

The STEM Ecosystem initiative empowers communities and brings together local partners and create systematic change to insure particularly underserved and underrepresented students develop the STEM knowledge and skills they need to learn and thrive in today's world.

The Carbon Schuylkill Luzerne (CSL Ecosystem) is one of 5 designated Ecosystems in PA.

Over 50 partners representing 3 Intermediate Units, 4 Career and Technical Schools, 13 school districts, three institutions of higher learning, health care, business/industry, 2 Workforce Development Boards, parents, 19 SHINE Centers, policy makers and community partners are dedicated to: **“Promoting STEM opportunities for ALL students and arming them with the necessary 21st Century employability skills.”** The lead agency for the CSL is Lehigh Carbon Community College.

Our Vision: All students will possess the needed STEM skills to be competitive for the 21st Century jobs in Northeastern PA. All educators and teachers are provided the training and tools to insure students are STEM literate.

Our Mission: The mission of the CSL PA STEM Ecosystem is to be the catalyst to build a strong collaborative effort among educational institutions, businesses and community members resulting in a successful workforce through intentional STEM initiatives.

To address those needs, the CSL STEM Ecosystem has made a commitment to sustain and implement the following initiatives or strategies:

#1. Linking the regular school day with SHINE an innovative after-school program with a focus on STEM learning.

The heart of the ecosystem is the SHINE (Schools and Homes in Education) TM, a nationally recognized 21st Century Community Learning Center after school program administered by Lehigh Carbon Community College. SHINE has served over 5,000 academically at-risk K-12th

grade students and their families cultivating partnerships in every facet of the community. A true community success story SHINE was developed in 2004 in Carbon County and later in Schuylkill County with the support of the late Senator James Rhoades. SHINE has served students from 8 school districts and one comprehensive Career and Technical school, spanning over 700 square miles. SHINE's comprehensive 42 week after- school/ summer program includes kindergarten home visits, 1st-4th grade STEM centers and the 5th- 8th grade Career Academy located in the Carbon CTC where academic teachers team with technical experts on 6 week career projects connecting students to real works application along with high school mentoring opportunities

Focusing on high priority occupations in STEM/CTE the program emphasizes the skills needed for the 21st Century workforce. **Young women in the program are a priority. The long-term result has been that 40% of the 9th grade class in 2017 at the Carbon Career and Technical School were SHINE students. Students enrolled in the Career Academy improved in academics, attendance, and classroom behavior.** The Career Academy has been a flagship program for SHINE. With 50% of the future STEM careers, needing career and technical skills the SHINE Career Academy has effectively created a STEM career path through its partnership with the Carbon Career and Technical School. Business and industry have provided staff & labs for STEM/workforce activities.

The success of the SHINE Afterschool Program lies in the “Whatever it takes,” philosophy adopted by SHINE instructors and administrators to help a student to achieve his/her potential

In 2016-2017:

- 80% of regularly participating students increased their knowledge of career awareness and STEM principles.
- 95% of students had exceptionally, good, or average attendance.

SHINE has been recognized in numerous research papers. Most recently, the Carbon/Schuylkill SHINE Program was one of 3 examples in the country highlighted for its high quality STEAM career/college readiness programs by the US American Youth Policy Forum in Washington D.C.

The Demographics of the SHINE K-5th grade (no income guidelines) from 2008-2018 include: 100% referred for academic support, 89% low income, 21% minorities, and 33% have IEP's.

Despite those odds, the effectiveness of the SHINE program has been documented in a longitudinal study with over 12 years of data.

Since 2007, 98% of the parents would refer the program. **2008-2017**, 99% of the students were promoted & 76% improved in academics.

100% of administrators surveyed in all participating districts strongly indicated SHINE is “having a significant positive impact on students”, and is having a positive impact on student achievement”.

The Lehigh Carbon Community College SHINE model was replicated in Luzerne County in 2016 at Wilkes University due to the bipartisan support of Senator John Yudichak and Congressman Lou Barletta. The result is in a total of 19 STEM Centers located in 13 school districts and 4 Career and Technical Schools in the CSL STEM Ecosystem.

During the 2017-2018 school year 1308 academically at-risk students were enrolled in the CSLSHINE program.

- 48,903 hot meals were served in a region with a high percentage children who have food insecurities.
- 2494 weekly home visits were made to SHINE students and their families by SHINE teachers.
- 2780 parents/family members attended monthly education nights.

#2 Promote CTE as a pathway into high growth STEM careers along with articulation agreements with our CSL community colleges/4years institutions.

The CSL is working on a parent/community toolkit that will include the following; information sheets for parents and students and how CTE can be a pathway to a successful STEM career. Informing parents on the articulation agreements and the pipeline into Community College Associate Degree. We need to change the paradigm when it comes to exposing parents, teachers and guidance counselors to the benefits of career and technical education by instituting creative strategies like the development of a “Parent in the Workplace” and expanding the “Educator in the Workplace.”

“Just as Career and Technical Education (CTE) can be an effective pathway for STEM education, efforts to bolster STEM education across the nation can advance certain CTE programs and goals” CTE Is Your STEM Strategy NASDCTEc www.careertech.org December 2013.

#3. Develop a comprehensive teacher professional development plan in STEM learning.

Administered by Lehigh Carbon Community College through the Luzerne/Schuylkill WDB, 8 School Districts, business/industry, 3 Career and Technical Schools as well as the Luzerne County Community College have begun to implement a Teacher in the Workplace Grant. The Luzerne IU will coordinate the training and which will include observations of 3 industries in advanced manufacturing/technology, utilizing Makerspace areas for teacher training and implementing STEM learning activities that relate to STEM careers and employability skills.

The model is based on the SHINE professional development plan. SHINE has been a catalyst for change by bridging the gap between formal and informal education. The effectiveness of the professional development plan is documented in yearly teacher surveys of the SHINE teachers who are also regular classroom teachers. Results from the 2018 Teacher Survey:

- 92.6% strongly agreed/agreed they increased their confidence in their ability to build positive relationships with families.
- 96.3% said they had a better understanding of STEM,
- 100% they felt that integrating STEM into the classroom through project based activities will have an impact on student academic achievement and
- 100% answered “yes” they will increase STEM in their classrooms due to their experience in SHINE.

“Being an after-school teacher has really made me love teaching again. I had been feeling like I Was in a rut, and with the challenges and opportunities provided by SHINE, I feel engaged and enriched again. My district is not at the cutting edge of STEAM, and I am being provided with the trainings to bring new and exciting materials to my students.”

“My experience as an afterschool teacher has, and continues to, expand upon my ideas of what effective instruction can and should look like. It has helped me determine strategies that contribute to best practices and develop an overall community of learners. It has also greater enhanced my understanding and appreciation of a STEAM approach to education, which I will be sure to utilize in my own classroom.”

“I believe that my experience as an after-school teacher has affected my overall personality as an educator in a very positive manner. I have more patience and understand that students have very different needs that could be met using many different techniques. Trying different behavioral techniques truly has helped myself and my students become successful learners.”

The Carbon-Schuylkill-Luzerne County STEM Ecosystem has submitted a National Science Foundation Grant to implement a comprehensive STEM professional development program for teachers and administrators of grades 1-4 based on the strategies used in the (SHINE) program to advance knowledge of the impact of linking formal and informal STEM learning environments. The Luzerne Intermediate Unit will be taking the lead on this initiative and will work with the Schuylkill and Carbon Lehigh IU's. A total of 100 teachers in ten school districts in CSL counties will participate in a training program focused on the integrated STEM curriculum and Engineering Design Practice (EDP), culminating in inquiry- and project-based learning activities in the formal classroom. A total of 30 elementary school administrators will participate in a corresponding administrative training program to ensure systemic support for district-wide reform.

#4. Registered High School Pre-Apprenticeship Pilot Project

The Lehigh SD and the Jim Thorpe School District will work with TranZed Alliance from Baltimore, the PA Labor and Industry & Highwood USA an Advanced Manufacturer in Schuylkill and Luzerne Counties to develop a registered pre-apprenticeship. Identified high school students will be provided a program on competencies and skills that will lead to a national certification and a pathway into Highwood USA workforce. If this model is effective we plan to pilot in all 3 CSL counties.

#5. Promote awareness of STEAM (STEM) in early childhood (Head Start, Early Head Start, Right and Pre-K-Counts), schools districts, the community and business/industry through participating in the National STEAM Day (November 8th)

Your support in the following would be extremely helpful:

1. Follow us on [@STEMCSL](#)
2. Highlight the CSL celebration of the National STEAM week on your website.
3. Support a CSL Proclamation for National STEAM Day by County Executives.

Members of the CSL STEM Learning Ecosystem

Marla Doddo-L/S Workforce Investment Board; Dr. Tony Grieco-Luzerne Intermediate Unit; Dr. Brian Gasper-Jim Thorpe School District; Jonathan Cleaver-Lehigh School District; David Reinbold-Carbon Career and Technical Institute (CCTI); Dr. Clem McGinley-school board member; Terri Keefe-Lehigh Carbon Community College (LCCC); Dr. Winnie Black- Project Accelerate PSAYDN; Laura Saccente-PA Statewide Afterschool Youth and Development Network (PASYDN); Bill Richards-State Senator John Yudichak office; Rachel Strucko-Carbon/Schuylkill SHINE After-School Program; Carol Nicholas-Luzerne County SHINE Program; Brad Hurley-State Senator John Yudichak office; Brian Waite-Shenandoah School District; Angie Brayford-Shenandoah School District; Brooke Wowak-Shenandoah School District; Heather Mullen-parent; Dr. Terri Wignot-Wilkes University; Kathy Henderson-CC Business/Ed Partnership; Kathy & Rick Reaman-Business/Industry; Marlon Pitts-LC SHINE; Dr. Ronald Grevera-Nanticoke Area School District; JP Evans-St. Luke's Health Network; Jamie Drake-CMP Drug and Alcohol, Rich Mackrell-Luzerne Intermediate Unit; Teri Ooms-Institute for Public Policy & Economic Development, Dr. Robert Palazzo-Panther Valley Elementary; Rick Rava-West Side CTC; Lori Herman-Hazleton CTC; Dr. Greg Koons-IU 29; Deb Kleckner-Carbon County Builders Association; Steve Toth- Tamaqua Area School District; Eric Lech-Director of Curriculum for IU 21; Heather Nelson- Office of Vocational Rehabilitation; Sue Spry-Luzerne County Community College; David Kerr-AT&T, Luzerne County Community College; Danielle Hess-COO Highwood USA; Anthony Guariglia-Wilkes-Barre CTC; Joe Sebelin-Pocono WIB, Mary Figura-Pine Grove School District; Jeanne Miller-Miller Educational Services LLC; Robin Plesniarski - Lehigh Valley Health Network; Ty Yost-IU 18; Shannon Brennan-IU 29

CTE Pathways to STEM Occupations Brief, May 12, 2104

¹Rothwell, J. (2013, June). *The hidden STEM economy*. Washington, DC: Metropolitan Policy Program at the Brookings Institution.

²National Governors Association Center for Best Practices. (2011). *Building a science, technology, engineering, and math agenda. An update of state actions*. Washington, DC: Author.

³U.S. Department of Labor. (2014, January). Fastest-growing occupations: 20 Occupations with the highest percent change of employment between 2012–2022. In *Occupational Outlook Handbook*. <http://www.bls.gov/ooh/fastest-growing.htm>

⁴BATEC National Center of Excellence in Computing & Information Technologies. (2013, December). *Sizing the middle-skill employment gap: Significant opportunities in data, information, and computing*. Boston, MA: Author.

TESTIMONY

PA HOUSE DEMOCRATIC POLICY COMMITTEE

House Bill 2204

August 24, 2018

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Thank you for accepting this written testimony. The Pennsylvania State Grange appreciates the interest by the House Democratic Policy Committee on career resources both by the hearing August 15 on House Bill 2203 (Harkins) and on House Bill 2204 sponsored by Representative Gerald Mullery.

The Pennsylvania State Grange firmly believes that career resources are critical in terms of helping students identify and utilize workforce development programs. As such, we support the intent of HB 2204 to inventory the various resources available through the Commonwealth's K-12 and higher education programs but believe it should be amended.

The bill does not include the PA Department of Agriculture. Given that Agriculture is Pennsylvania's Number One industry, it stands to reason that any inventory of existing programs include those related to agriculture, food science, integrity of the food distribution system (food safety), and logistics relative to marketing and distribution of commodities and value-added products, including exports. In addition, the PA Department of Agriculture can be a resource in identifying the career programs within The Pennsylvania State University's College of Agricultural Sciences, Delaware Valley University's Scholl of Agricultural and Environmental Sciences, University of Pennsylvania School of Veterinary Medicine, and others.

The PA Department of Agriculture should have a seat at this table. Vo-tech and agricultural education programs not only teach the science and practices of agriculture. They prepare students for careers.

Even though agricultural education falls under the Education Department's jurisdiction, there is a fear that it is often overlooked. Adding the PDA would make sure that these career resources are included in the inventory that HB 2204 seeks to achieve.

Linking other programs to the workforce development efforts in PDA meets another goal of the legislation – *“developing opportunities for business-education partnerships with the goal being to share those best practices learned with the existing entities to help improve the delivery of career-focused opportunities (quoting from Rep. Mullery’s sponsorship memo).”*

In previous testimony supporting Rep. Harkins’ House Bill 2203, the Pennsylvania State Grange stated, *“Simply put, it is vital to have the PA Department of Agriculture have a seat at the table. Given the wealth of job possibilities in PA Agriculture, PDA’s contribution will be to present job-seekers and students with an array of careers and specific position possibilities about which they have not dreamt.”*

In conclusion, the Pennsylvania State Grange sees House Bills 2203 and 2204 as partners. Amending HB 2204 to formally Incorporate the PA Department of Agriculture will enhance the overall effectiveness of Pennsylvania’s efforts to train and place our young people into PA employment positions of value.

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The Pennsylvania State Grange was formed in 1873 to advocate for rural Pennsylvanians. In addition to its agricultural origins, it also works on issues affecting rural businesses. One at the top of our list is securing universal access to Internet and cell phone service throughout the Commonwealth. Although not germane to today’s topic, we hope that the House Democratic Policy Committee will consider a future hearing on that topic as well, particularly focusing on the fine work done by Rep. Pam Snyder (Fayette/Greene/Washington) and the new Broadband Caucus which she co-chairs.