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Microsoft Corporation

House Committee on Appropriations
Subcommittee on Labor, Health and Human Services, Education, and Related Agencies
Pipeline to the Workforce
April 25, 2018

Chairman Cole, Ranking Member DeLauro, and members of the Subcommittee, thank you for inviting me to testify today. Microsoft greatly appreciates your work to expand our nation's talent pipeline, particularly in STEM fields and computer science. Improving and expanding career and technical education (CTE) and apprenticeships are a critical part of that strategy and we applaud the increased funding approved by Congress in the recent omnibus spending bill to support these and other workforce programs.

The technology industry and its innovations are responsible for a growing part of the U.S. economy. In 2017, roughly 7.5 million workers were employed in technology occupations in the United States—and millions of other jobs across a wide range of industries increasingly require digital skills. Employment in computer and information technology occupations is projected to grow 13 percent from 2016 to 2026, faster than the average for all occupations, adding nearly 626,000 new jobs.[1] Many U.S. companies, including Microsoft, face challenges in finding individuals with the right skills for these emerging technology jobs.

CTE and high-quality apprenticeships can play a critical role in addressing these skills needs. Microsoft is dedicated to developing the tech talent pipeline here in the United States, through supporting these and other paths to opportunity.

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[1] Bureau of Labor Statistics, Occupational Outlook, Computer and Information Technology, https://www.bls.gov/ooh/computer-and-information-technology/home.htm.

CTE and K-12 Computer Science. We appreciate the broad bipartisan support for CTE reform and your leadership in advancing this important issue. Microsoft supports reforms that align to the skills needs of the innovation economy and increase student participation in work-based learning opportunities, particularly opportunities in technology fields.

Because computer science is a foundational skill in today's global economy, Microsoft believes it should be a fundamental element of our education and workforce systems. Microsoft has long partnered with states to advance and modernize CTE and to help students gain technology skills as part of becoming college- and career-ready through key initiatives.

For example, Microsoft's Imagine Academy operates in all 50 states and we have created more than 20 state-wide employment skills partnerships, providing technical skills training and industry certification opportunities to students and educators in over 7,500 schools.

We also invest in the Technology Education and Literacy in Schools (TEALS) program (https://www.tealsk12.org/). TEALS helps high schools establish sustainable computer science education programs by pairing classroom teachers with technology volunteers to co-teach computer science. Now in its ninth year, TEALS is in 344 schools across 29 states and the District of Columbia, reaching 12,000 students through 1,000 volunteers representing 500 different companies. Over half of participating schools are Title I schools, 15 percent are rural schools, and, among students who provided demographic information, 33 percent of participants are women and 34 percent come from underrepresented minorities.

Finally, Microsoft advocates for state policies to expand access to K-12 computer science education for all students: today 35 states and the District of Columbia have policies to count computer science courses as credit towards high school graduation, up from nine states in 2011. Eight states now require all high schools to offer at least one computer science course, and 29

states have adopted computer science learning standards to guide curriculum and teacher professional development.

Apprenticeship. At Microsoft, we have seen firsthand the valuable role that apprenticeships can play in training individuals for jobs in growth areas, including software development, cloud computing, and cybersecurity. Microsoft was involved in Washington State's launch of one of the first information technology registered apprenticeships: a partnership program under Apprenti, an affiliate of the Washington Technology Industry Association (https://apprenticareers.org/). This program, made possible by a Department of Labor grant, provides a pipeline for under-represented groups to jobs in the tech industry. Individuals typically undergo five months of intensive, pre-apprenticeship classroom and laboratory learning, followed by 12 months of on-the-job training. Microsoft has 40 apprentices training to be software developers, and we are committed to take on at least 100 over the next few years. Sixty percent of our current apprentices represent racial minorities, and over half are between ages 25 and 34. This program complements other strategies that Microsoft uses to develop our talent pipeline, including internships, fellowships, and shorter-term training programs.

Microsoft also runs the Microsoft Software & Systems Academy (https://military.microsoft.com/programs/mssa/), which is part of a registered apprenticeship pathway to help military service members begin training for IT and STEM careers before shifting to civilian life. Of the 870-plus individuals who have completed the 18-week MSSA classroom training program, over 90 percent are employed, and 86 percent of those graduates went on to jobs in the IT sector with an average starting salary of over $70,000 per year. This year, MSSA expanded to 14 bases around the country, with the capacity to train up to 1,000 servicemembers each year.

Like many companies, Microsoft has made greater use of apprenticeships in Europe, an experience that provides some lessons for expanding apprenticeships here in the United States. Microsoft's UK apprenticeship program, launched in 2010, has placed over 15,000 apprentices with Microsoft and its customers and partners, and in January 2017 announced a goal to recruit and place an additional 30,000 digital apprentices by 2020. In this productive public-private partnership model, private companies are involved in developing government-recognized standards, and the government provides public funding to support apprenticeships.

Based upon these experiences, we recommend that the Subcommittee consider the following priorities for expanding access to training opportunities, particularly in the tech sector:

- **Target funding to drive expansion and adoption**. More can be done to target resources to support apprenticeship and training program expansion. For example, existing resources, like Pell Grants, could be expanded to support more individuals to access high-quality shorter-term certificate programs, an idea which has bipartisan support. And small businesses and emerging industries can benefit from government investment in intermediaries or other structures to support broader adoption of apprenticeship and CTE models.

- **Ensure accessibility of opportunity.** Workers need to continually acquire new skills; they should be able to access apprenticeships and other work-based learning opportunities throughout their careers. Such opportunities must also be made available to a broad range of communities (including rural and remote communities) and workers from diverse backgrounds, particularly groups under-represented in growth industries.

- **Promote quality standards.** Standards are critical to ensuring quality and consistency in apprenticeships and other technical certifications. Such standards must include input from industry, to reflect labor market needs and the rapid pace of innovation, and to allow for

customized programming to meet business needs. Rigorous national standards enable workers to readily market their skills in many labor markets and give employers certainty about the level of training and expertise conferred by a credential.

- **Encourage development of real-time information to support a dynamic skills-based labor market.** With the rapid pace of labor market change, job seekers and employers alike need centralized and transparent marketplaces that bring together information about education, training, job opportunities, and career pathways. The Department of Labor's work on a clearinghouse is an important step toward centralizing information. For greatest impact, however, information must be readily available to individuals at their points of decision. Such data must include information about job placement, salary, retention, and advancement potential. Private-sector resources (including tools like LinkedIn's Economic Graph[2]) can complement government data to identify trends in in-demand skills and better connect people to opportunities. Policies must remove barriers to using labor and education data to measure the return on education and training investments. Government and private-sector data sources should—with appropriate privacy safeguards—collaborate to provide the best information to policymakers and the public.

Across all these areas, public-private partnerships have the potential to make significant contributions. Microsoft looks forward to continuing to work with Congress and federal agencies on solutions to bridge the skills gap, diversify our talent pipeline, and create broader opportunity and ongoing prosperity in the United States.

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[2] LinkedIn is a wholly-owned subsidiary of Microsoft.