Metropolitan Policy Program
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Digital technology is disrupting the American workforce, but in vastly uneven ways, says new Brookings report

Washington, D.C. — New analysis by the Brookings Metropolitan Policy Program of more than 500 occupations reveals the rapid pace of their "digitalization" since 2001, suggesting the acquisition of digital skills is now a prerequisite for economic success for American workers, industries, and metropolitan areas.

The report, "Digitalization and the American workforce," provides a detailed analysis of changes in the digital content of 545 occupations representing 90 percent of the workforce in all industries since 2001, rating each occupation on a digital content scale of 0-100. While the digital content of virtually all jobs has been increasing (the average digital score across all occupations rose 57 percent from 2002 to 2016) occupations in the middle and lower end of the digital skill spectrum have increased digital scores most dramatically.

Workers, industries, and metropolitan areas benefit from increased digital skills via enhanced wage growth, higher productivity and pay, and a reduced risk of automation, but adaptive policies are still needed. The report offers recommendations for improving digital education and training while mitigating its potentially harmful effects, such as worker pay disparities and the divergence of metropolitan area economic outcomes.

Mark Muro, a senior fellow at Brookings and the report's author, said, "We definitely need more coders and high-end IT professionals, but it's just as important that many more people learn the basic tech skills that are needed in virtually every job. That's the kind of digital inclusion we need. In that respect, not everybody needs to go to a coding boot camp but they probably do need to know Excel and basic office productivity software and enterprise platforms."

Key findings of the report:

- **Wages:** The mean annual wage for workers in high-level digital occupations reached $72,896 in 2016, registering a 0.8 percent annual wage growth since 2010, whereas workers in middle-level digital jobs earned $48,274 on average (0.3 percent annual wage growth since 2010), and workers in low-level digital occupations earned $30,393 on average (0.2 percent annual wage decline since 2010).

- **Job growth:** Digitalization is contributing to a hollowing out of the workforce: while job growth has been rapid in high- and low-digital level occupations, middle-digital occupations, such as office-administrative and education jobs have seen much slower job growth.

- **Automation:** Digital workforce trends are contributing to anxiety regarding socioeconomic disparities: nearly 60 percent of tasks performed in low-digital occupations appear susceptible to automation, compared to only around 30 percent of tasks in highly digital occupations.

- **Gender:** Women, with slightly higher aggregate digital scores (48) than men (45), represent about three-quarters of the workforce in many of the largest medium-digital occupational groups, such as health care, office administration, and education. Men continue to dominate the highest-level digital occupations, as well as lower-digital occupations such as transportation, construction, natural resources, and building and grounds occupations.

- **Race/ethnicity:** Whites and Asians remain overrepresented in high-level digital occupations such as engineering, management and math professions; blacks are overrepresented in medium-digital occupations such as office and administrative support, community and social service, as well as low-level digital jobs; and Hispanics are significantly underrepresented in high-level digital technical, business and finance occupational groups.

- **Regional disparities:** Digitalization is happening everywhere and helping to improve pay for many people and places while contributing to a widening of the economic divide between the leading cities and the laggards. The most digitalized metros include Washington, Seattle, San Francisco and Boston, fast followers such as Austin and Denver, and university towns such as Madison and Raleigh. Locations with low digital scores include Las Vegas and several metros in California, including Riverside, Fresno, Stockton and Bakersfield.

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