



**NATIONAL
SKILLS
COALITION**

Every worker. Every industry.
A strong economy.

Closing the Digital **Skill** Divide: The Payoff for Workers, Business, and the Economy

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Federal Reserve Bank
Digital Inclusion Research Forum

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Atlanta Fed

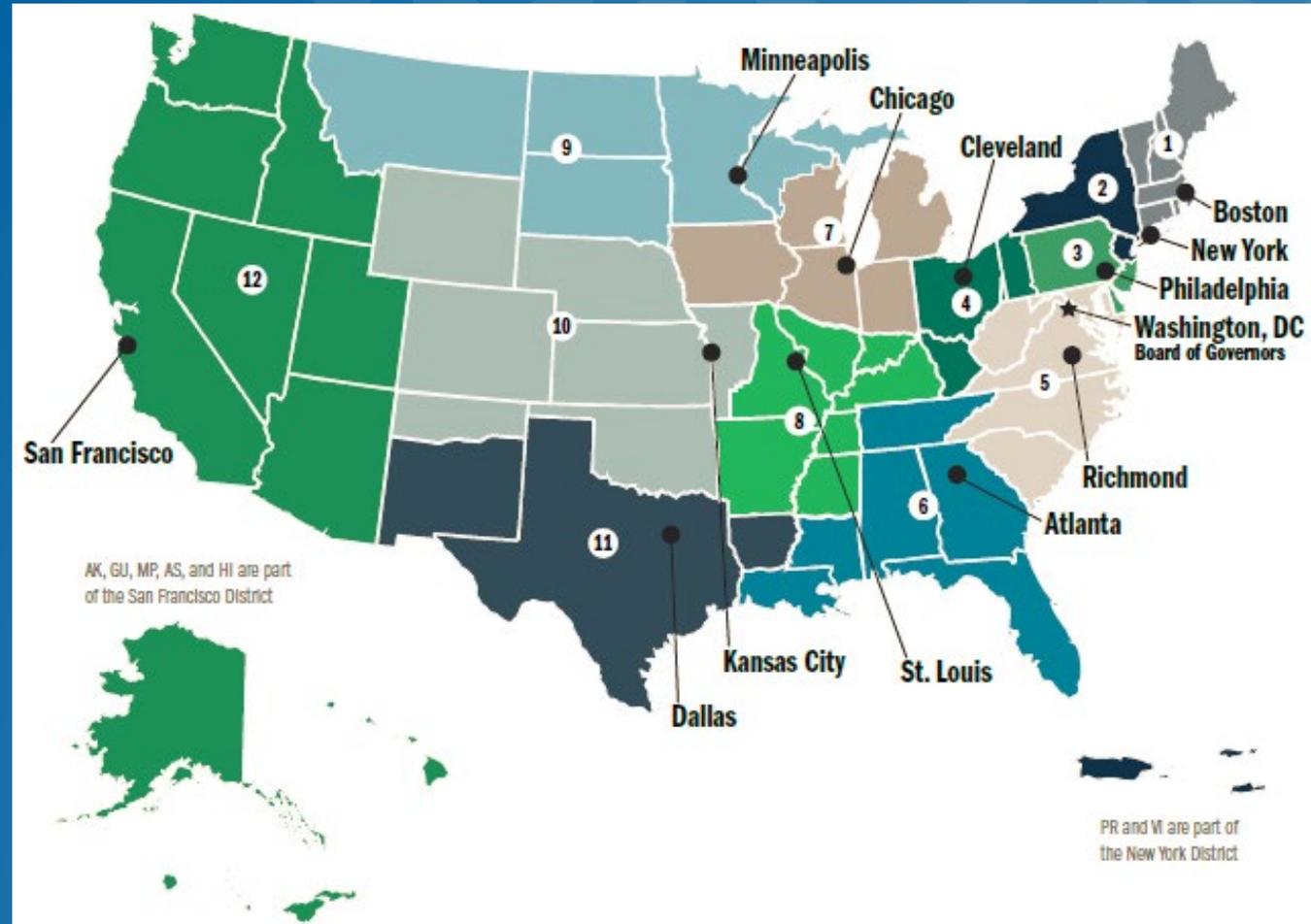
Center for Workforce &
Economic Opportunity

The Federal Reserve

Responsible for monetary policy, supervision and regulation of banks, and payment systems.

The Dual Mandate

1. Stable Prices
2. Maximum Employment
 - a. Community Development



Federal Reserve
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The **digital divide** isn't just about broadband or hardware – it's also about **skills**.





Higher digital skills are correlated with higher broadband adoption rates.

People often enroll in digital skills classes to get a job or get a better job.





**So we decided
to research
employers'
demand for
digital skills.**





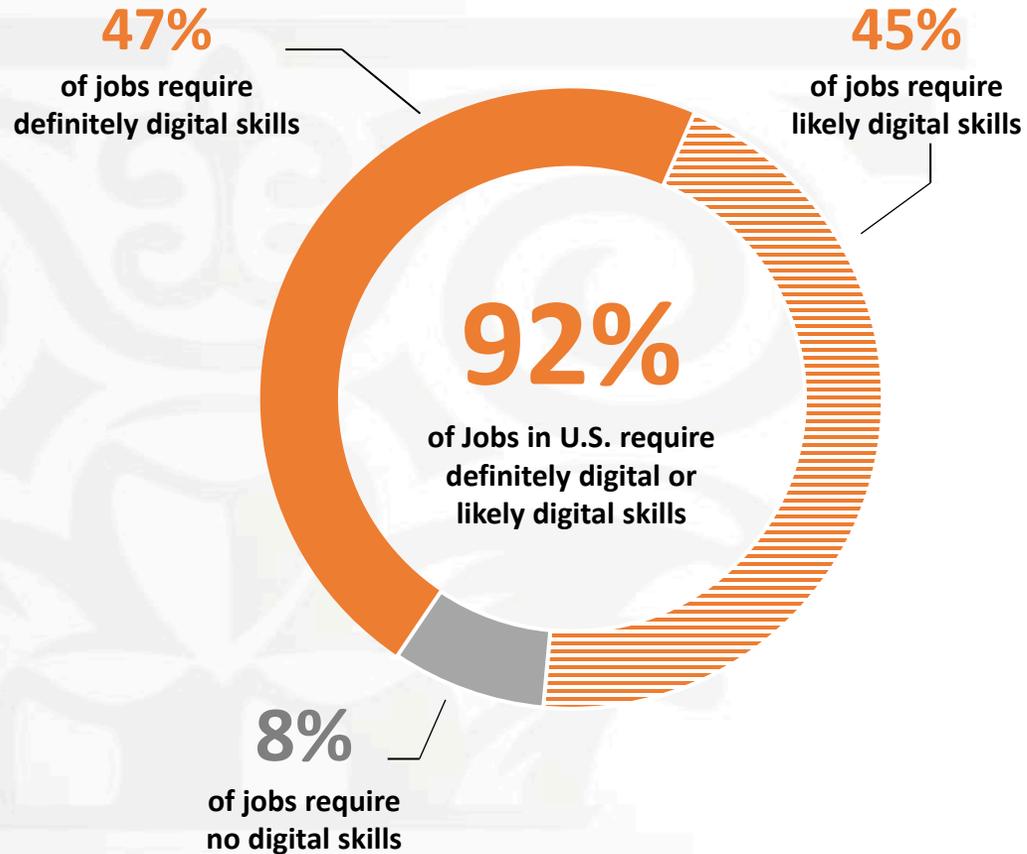
We analyzed 43 million job ads from 2021

- The average ad sought **8 skills**
- Data was initially collected and standardized by Lightcast
- Further analysis was carried out by NSC in collaboration with the Federal Reserve Bank of Atlanta



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Virtually All Jobs Require Digital Skills...



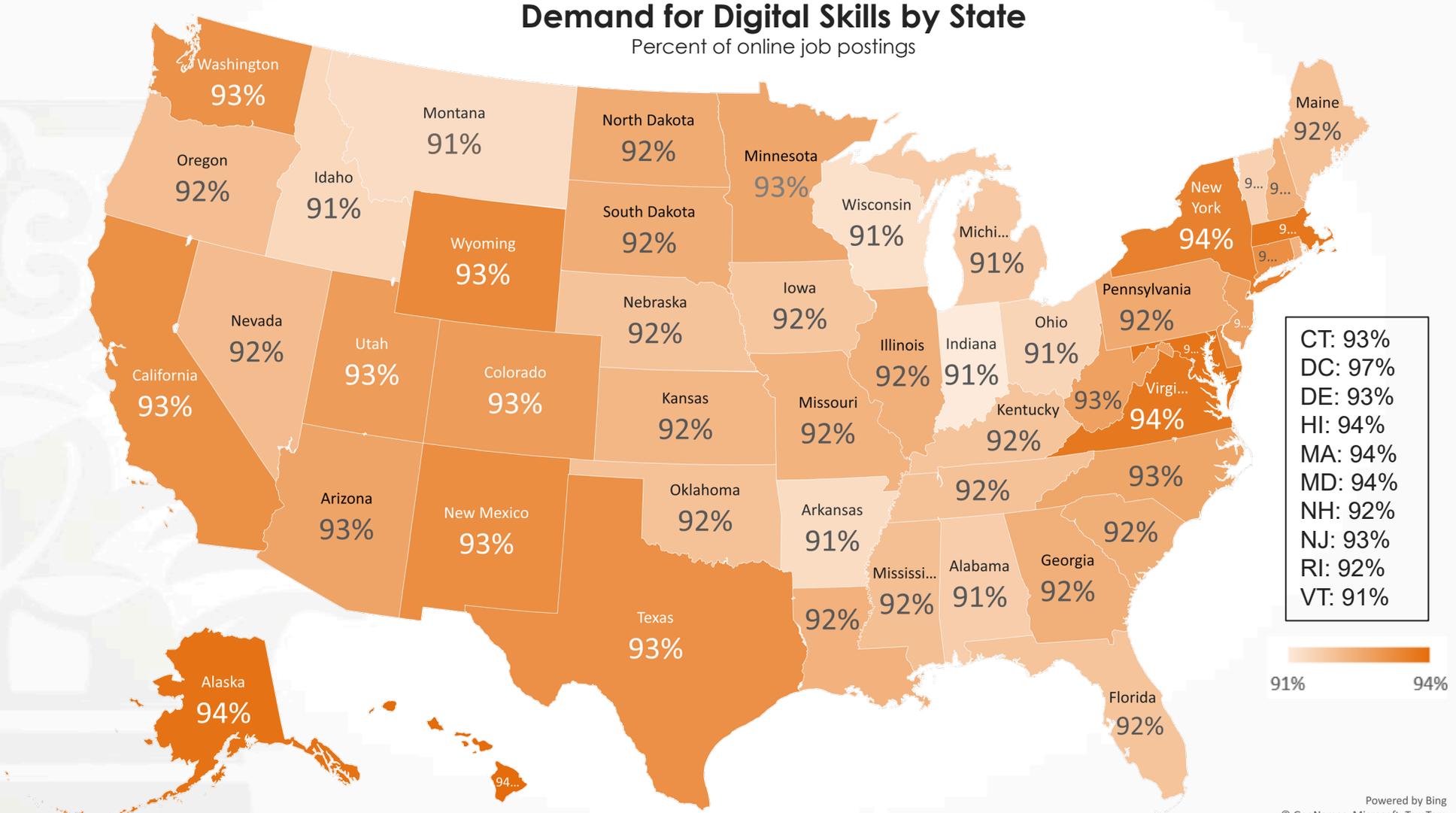
Based on analysis of 43 million online job ads from 2021 Lightcast data.

Definitely Digital	Likely Digital	Not Digital
Microsoft Office	Scheduling	Self-Starter
Computer Literacy	Teaching	Problem Solving
Salesforce	Patient Care	Creativity
Information Security	Inventory Management	Leadership
Machine Learning	Key Performance Indicators (KPIs)	Cardiopulmonary Resuscitation (CPR)

How were skills categorized?

15,000 distinct skills in the 2021 Lightcast data. Authors manually coded the top half (7,500), which accounted for 99.99% of job postings.

Demand for Digital Skills is Saturated Across U.S.



National data. For details, see full report: **Closing the Digital Skill Divide** (National Skills Coalition, 2023.)

All Industries Require Digital Skills

Demand for Digital Skills by Industry

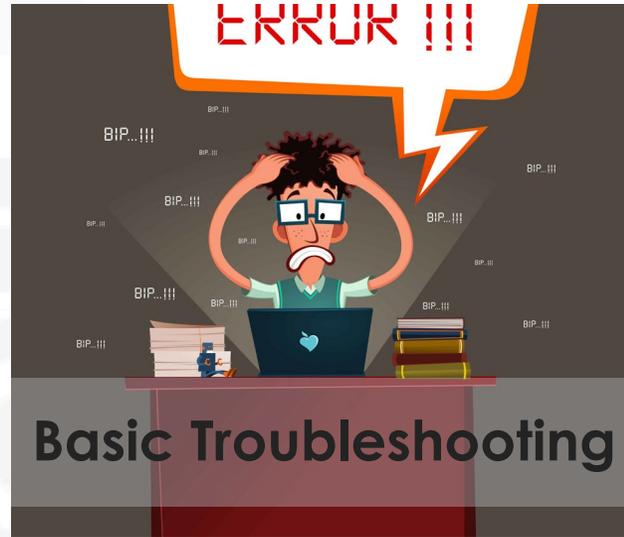
Percent of online job postings

Information 99%	Educational Services 96%	Retail Trade 95%	Real Estate and Rental and Leasing 94%	Utilities 91%	Construction 91%	Arts, Entertainment, and Recreation 90%
Finance and Insurance 99%	Public Administration 96%	Wholesale Trade 95%	Manufacturi... 93%	Administrative and Support and Waste Management and Remediation Services 89%	Other Services 86%	Accomm... and Food Services 85%
Professional, Scientific, and Technical Services 98%	Management of Companies and Enterprises 96%	Health Care and Social Assistance 95%	Mining, Quarrying, and Oil and Gas Extraction 92%	Agriculture, Forestry, Fishing and Hunting 86%	Transportation and Warehousing 77%	

National data. For details, see full report: **Closing the Digital Skill Divide** (National Skills Coalition, 2023.)

Digital Literacy is a Building Block for Job Access...

Yet 1/3 workers lack basic digital literacy

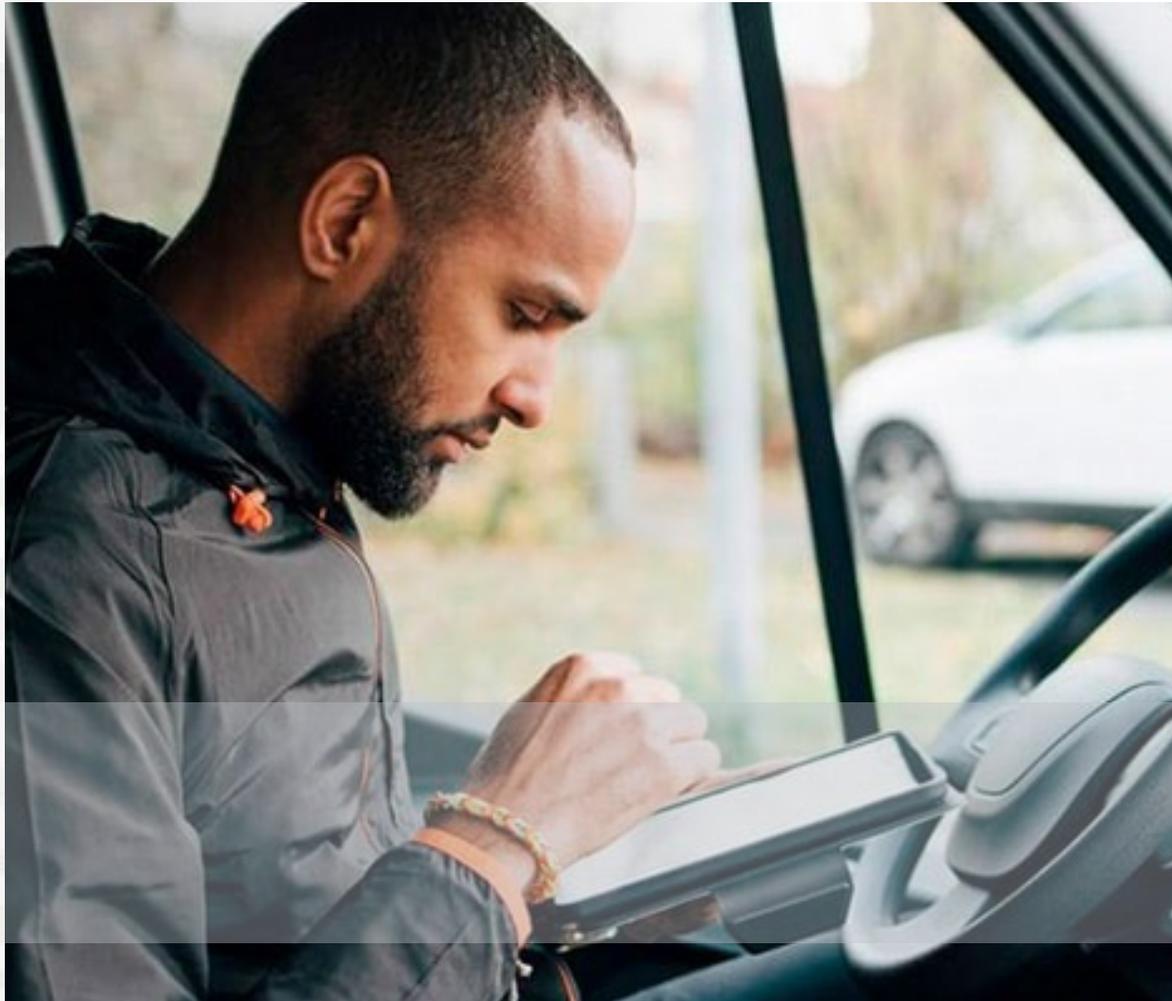


Source: *The New Landscape of Digital Literacy* (National Skills Coalition, 2020.)

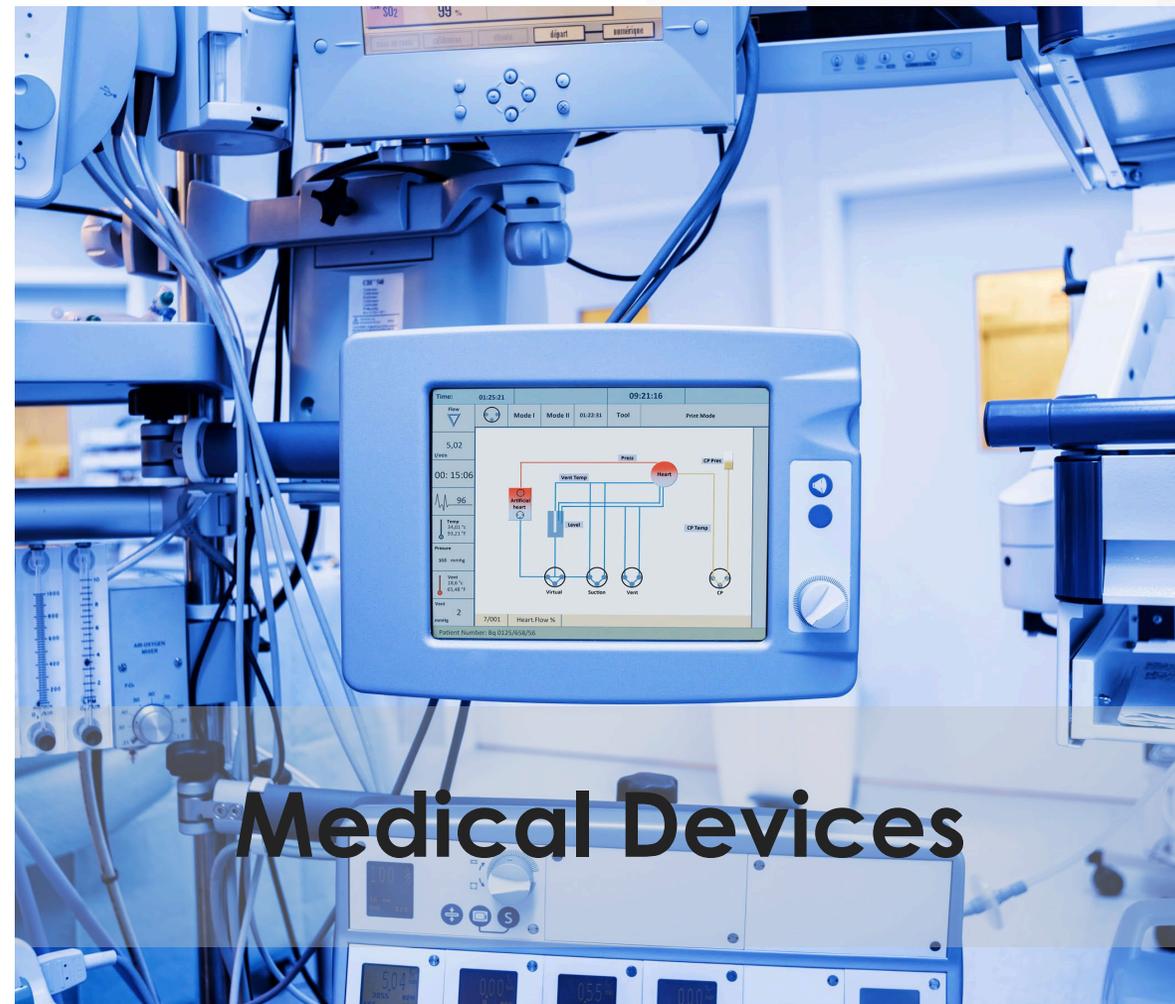
Connecting to Netflix != Digital Literacy



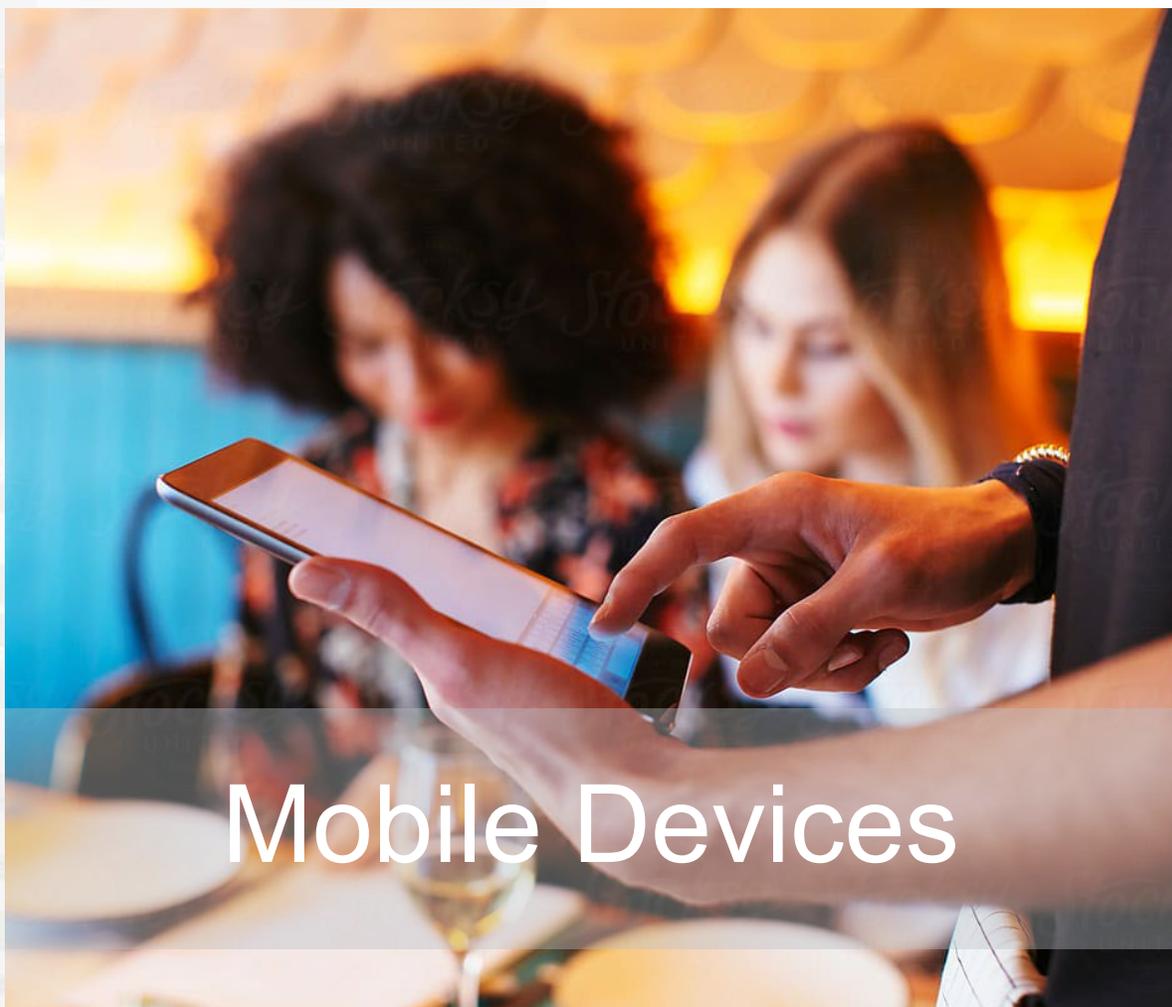
Jobs Are More Digital Than We Realize... and Digitalization is Only Increasing



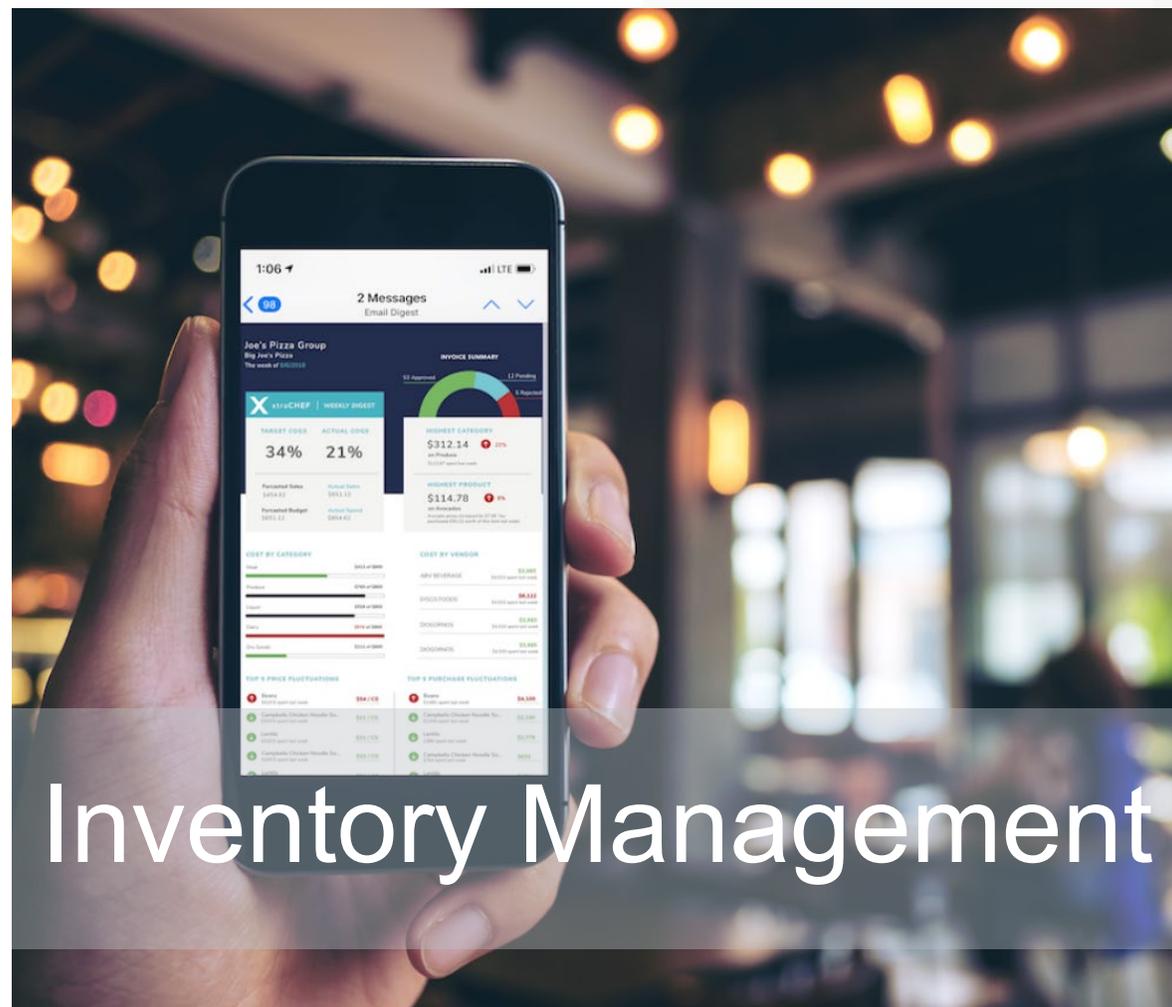
Healthcare Workers Need Digital Skills



Restaurant Staff Need Digital Skills



Mobile Devices



Inventory Management



Food processing plant workers need digital skills.

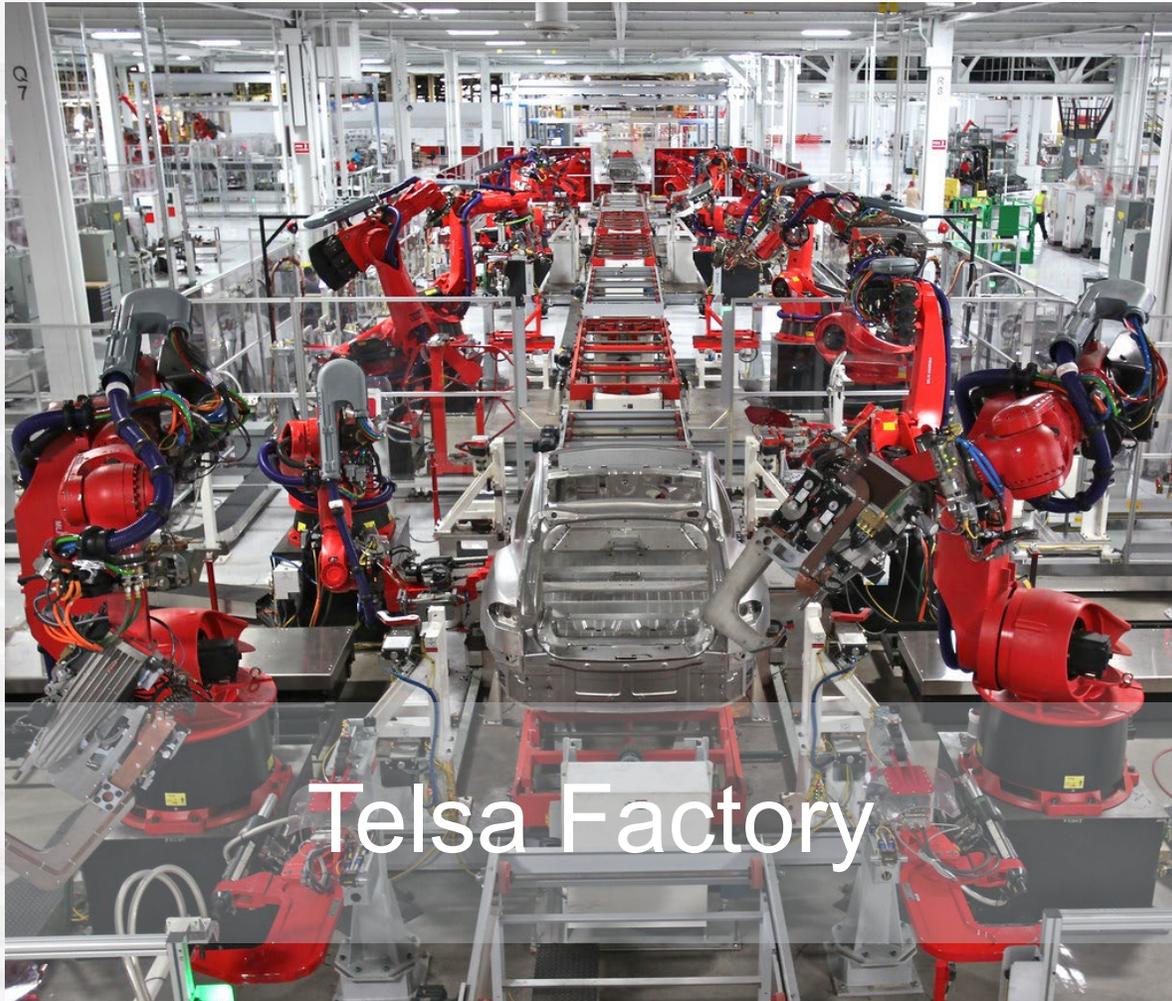


Construction workers need to use mobile apps to submit work-order changes.



Agriculture workers need to use in-cab tractor technology.

Non-Tech Workers Who Work with Robots Need Digital Skills





Aerospace workers need to use augmented reality to assemble aircraft engines.



Photo credit: Airbus



The bottom line:
Even entry-level positions now
require digital skills.





Jobs that require very little work experience still need digital skills

Amount of work experience required	Percentage of job ads requiring <u>likely</u> digital skill	Percentage of job ads requiring <u>definitely</u> digital skill
0-2 years	95%	49%
3-5 years	98%	71%
6-8 years	99%	81%
9+ years	98%	75%



Jobs that require limited education nevertheless need digital skills

Educational credential required	Percentage of job ads requiring <u>likely</u> digital skill	Percentage of job ads requiring <u>definitely</u> digital skill
High school diploma	94%	46%
Associate's degree	97%	47%
Bachelor's degree	99%	74%
Master's degree	97%	46%
Ph.D.	97%	39%

Counter-intuitive but true:

Younger workers need to develop digital skills too!



Digital Skills Pay

Workers Earn More...

When they acquire more digital skills

National Median Hourly Earnings



- ▲ **23%:** No Digital Skills to One
- ▲ **41%:** One Digital Skill to Five
- ▲ **41%:** Five Digital Skills to Nine
- ▲ **144%:** No Digital Skills to Nine



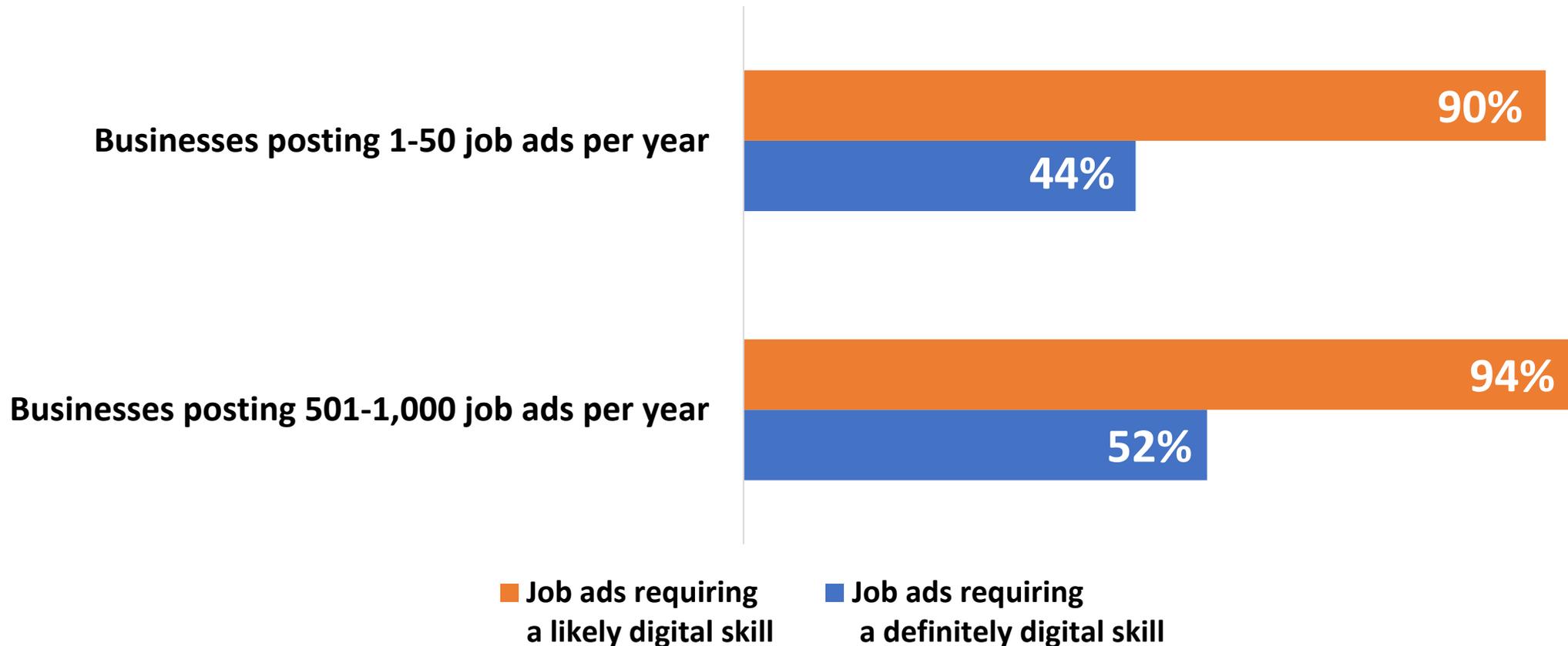
Higher pay leads to greater vitality in the broader economy

- Workers who earn higher wages by moving to a job that requires one digital skill will typically **contribute more** in federal and state tax revenue
- Depending on the household size and composition, this amount could range from **\$1,363** to **\$2,879** per year.

*Note: Example calculated via [taxsim.app: an interactive US Individual Income Tax simulator](https://taxsim.app), using Illinois and North Carolina as reference states. For full details, see **Closing the Digital Skill Divide** report (National Skills Coalition, 2023.)*



Small businesses also need workers with digital skills

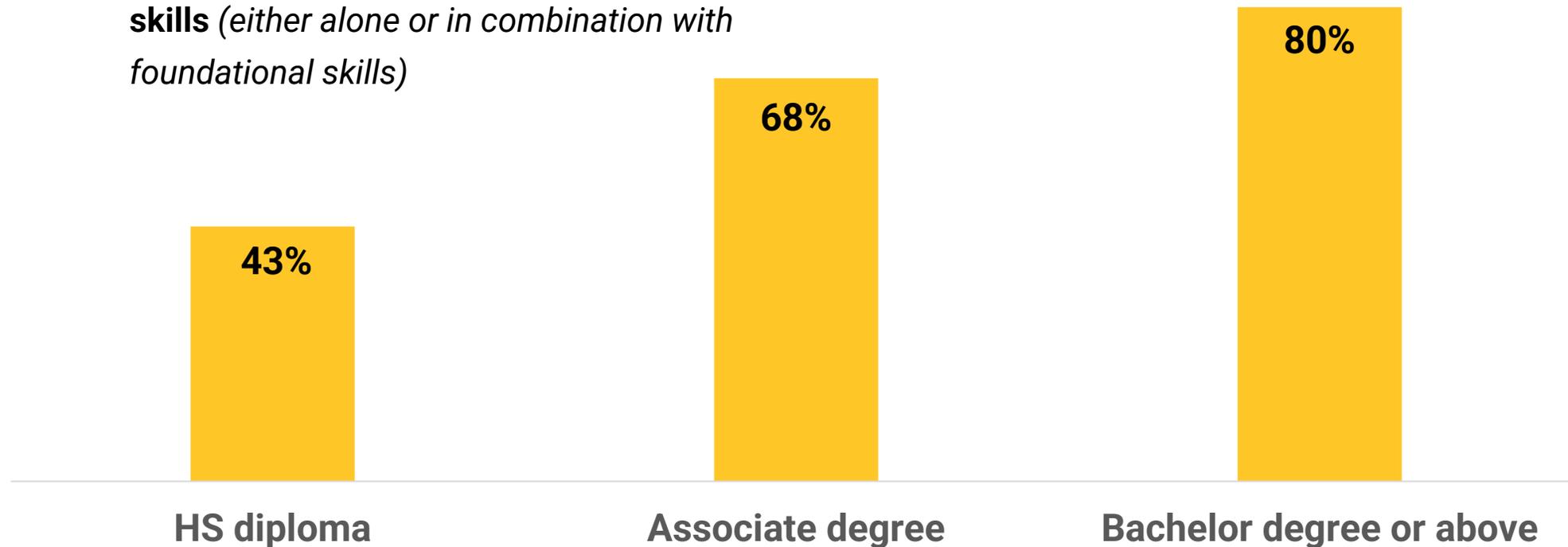


*Note: National data. For details, see full report: **Closing the Digital Skill Divide** (National Skills Coalition, 2023.) The dataset used for this analysis does not directly measure the size of a company, so we inferred firm size based on the volume of job ads posted by the company in a year.*



There is robust demand for industry-specific digital skills

■ Job ads requiring industry-specific digital skills (either alone or in combination with foundational skills)



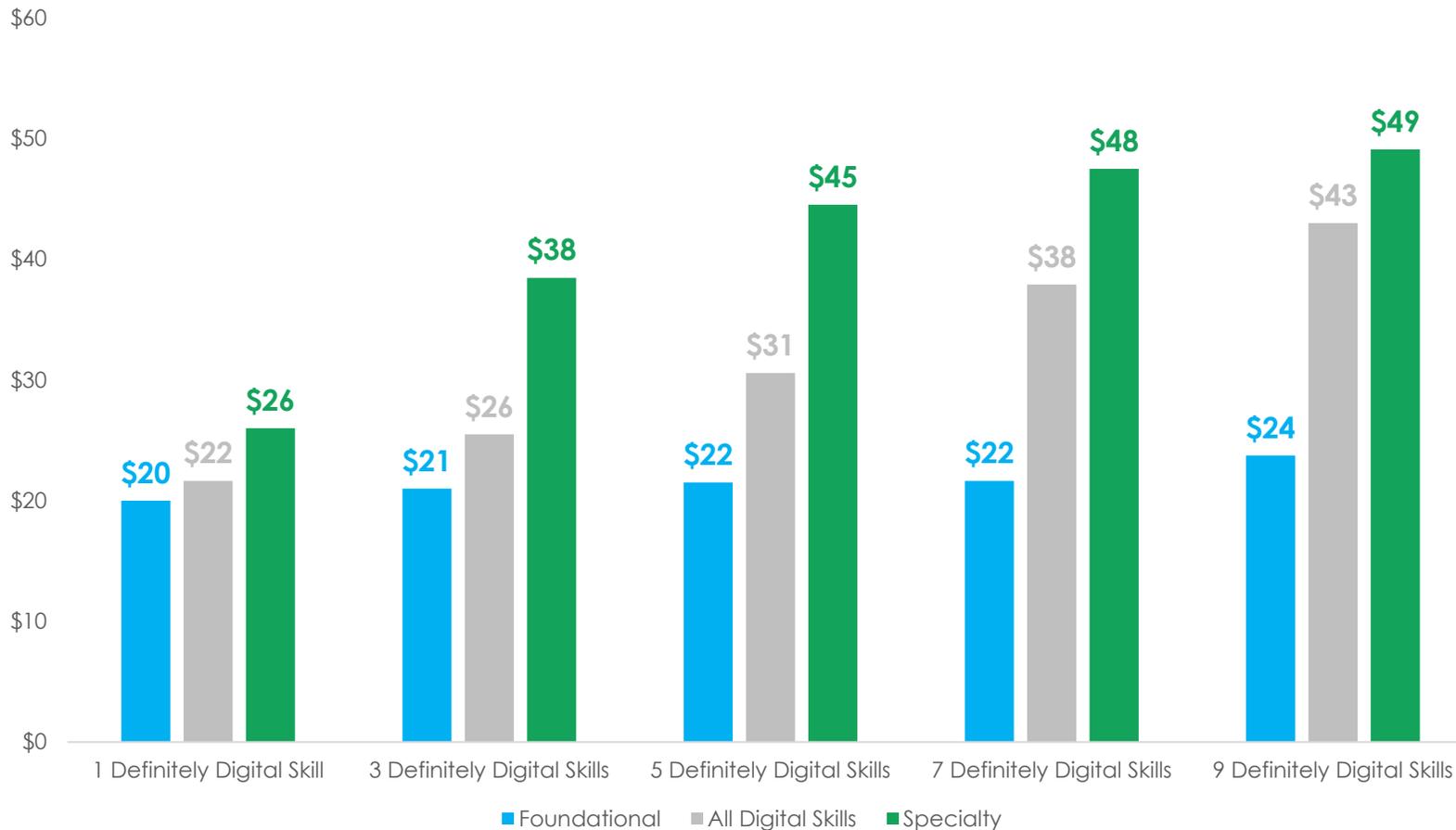
Note: Numbers reflect percentage of jobs requiring an industry-specific digital skill within the subset of jobs that require at least one definitely digital skill. Percentages would be even higher if including jobs with only *likely* digital skills.

Specialty Skills Pay Even More

Workers Earn More...

When they acquire industry/occupation specific digital skills

National Median Hourly Earnings

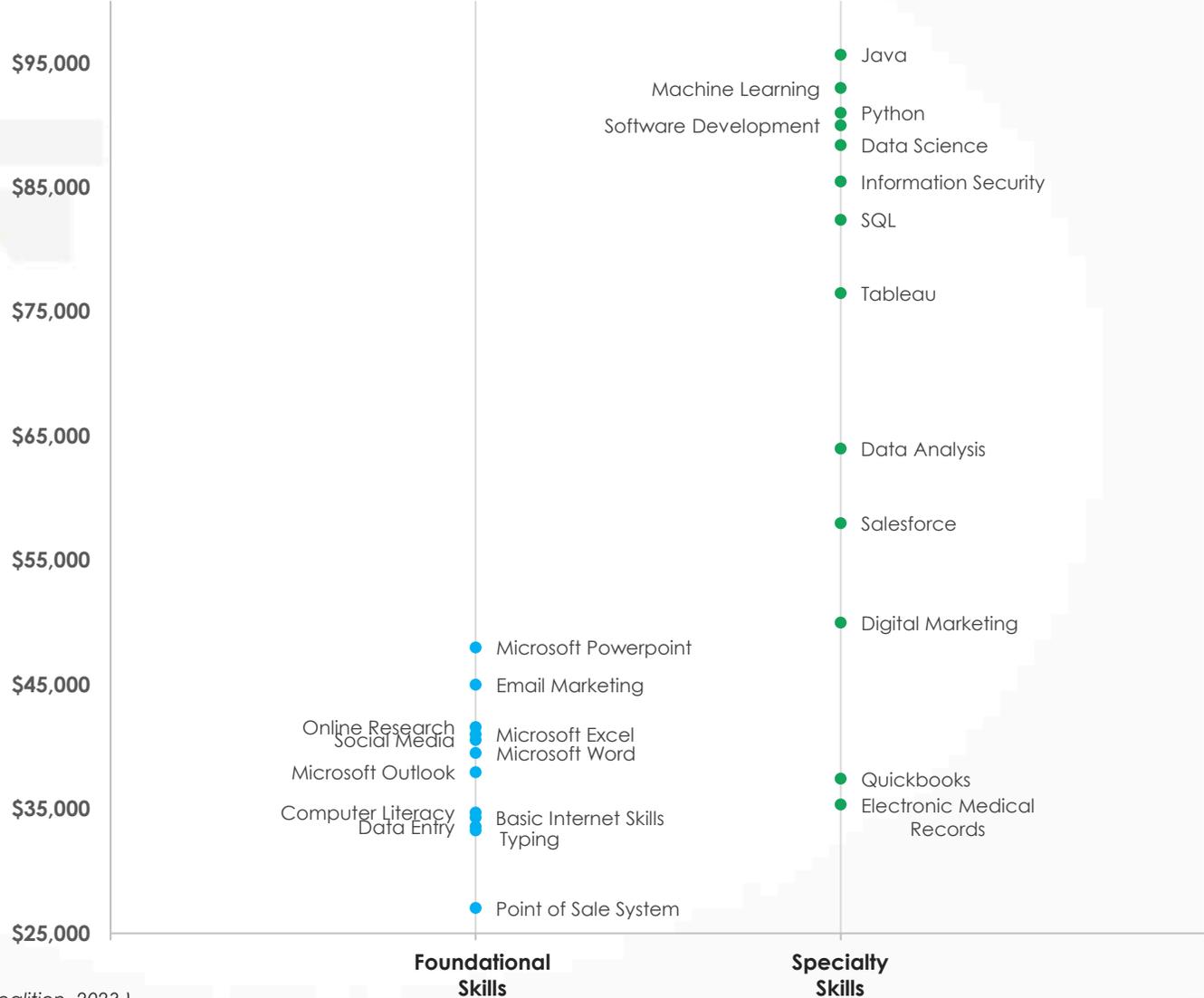


Employers Pay a Premium for Specialty Skills

Most Demanded Specialty Skills

By Skill Type and Pay

National Median Annual Earnings for Jobs Requesting Skill



National data. For details, see full report: **Closing the Digital Skill Divide** (National Skills Coalition, 2023.)

What do these findings mean for digital inclusion researchers, in light of new federal Digital Equity funds?





Researchers can use this data as a signpost to guide policy implementation and a jumping-off point for further exploration:

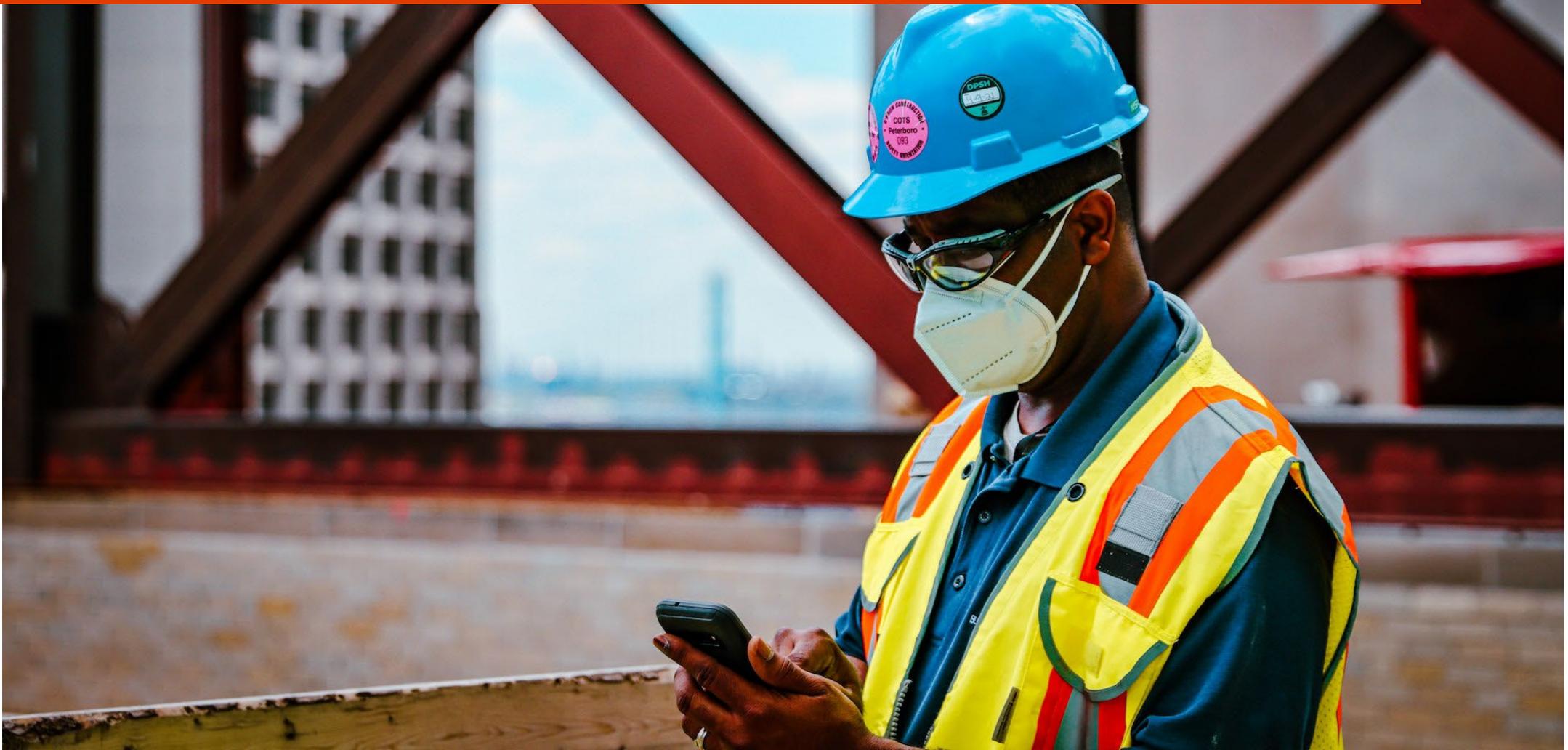


1. Conduct qualitative research to understand how workers are experiencing the demand for digital skills in their communities.



2. Combine these findings with Census data to target services and close equity gaps for covered populations.

3. Use data to inform the design of Digital Equity Act and BEAD programs in digital skills and broadband workforce development.





4. Gather additional data from employers about how better digital skills can lead to promotion and advancement.



5. Partner with higher education to document student, faculty, and staff members' digital skill assets and barriers.



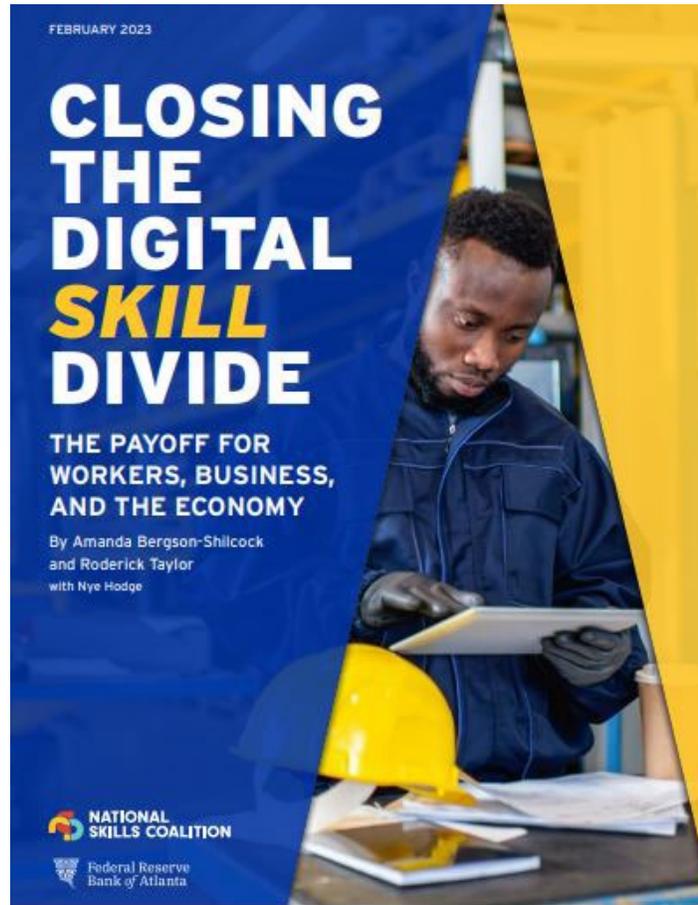
6. Explore opportunities to juxtapose digital skills data with other research to understand race and gender disparities.



**Time for your
questions!**



Full report: *Closing the Digital Skill Divide*

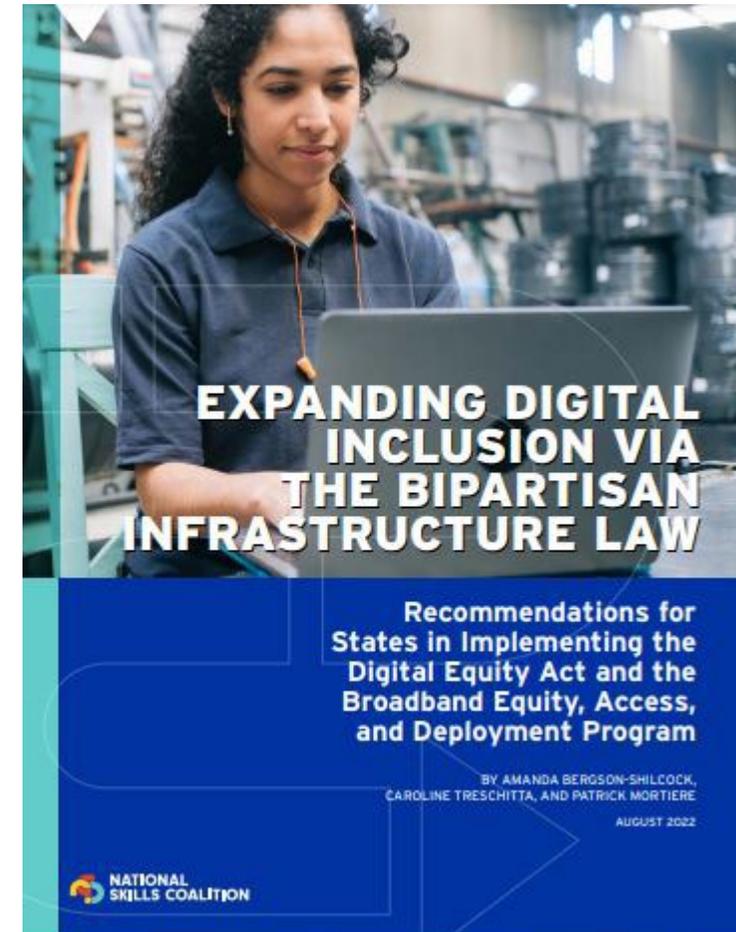


<https://tinyurl.com/DigitalSkillDivide>



Knowledge to action: Additional resources

- NSC's experienced policy staff can help researchers and digital inclusion advocates identify **policy possibilities**
- NSC's Digital Equity Act and BEAD **recommendations** (see *right*) may also be helpful





Other NSC digital skills data resources



Full report:

www.tinyurl.com/BoostingDL

- [Applying a Racial Equity Lens to Digital Literacy](#) (fact sheet)
- Digital skills fact sheets by industry:
 - [Manufacturing](#)
 - [Retail & hospitality](#)
 - [Health & social work](#)
 - [Construction, transportation & storage](#)

The New Landscape of Digital Literacy

How workers' uneven digital skills affect economic mobility and business competitiveness, and what policymakers can do about it.



Full charts and graphs in this data report:
tinyurl.com/NewLandsDL