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

Webinar for the Virginia Departments of Education (VDOE) and Aging & Rehabilitative Services (DARS)

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Amanda Bergson-Shilcock
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Today’s conversation

- **What we learned** about the demand for digital skills
- **What our findings mean** for Virginia Career Pathways advocates, educators, and other stakeholders
- **Your questions!**
Jobs that require skills training are the backbone of our economy.

National Skills Coalition fights for a national commitment to inclusive, high-quality skills training so that more people have access to a better life, and more local businesses see sustained growth.
The digital divide isn’t just about broadband or hardware – it’s also about 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

The opinions expressed in this report reflect those of the authors and do not necessarily reflect those of the Federal Reserve System or the Federal Reserve Bank of Atlanta.
Virtually all of today’s jobs require digital skills

- **Definitely** digital: Microsoft Excel; Python language
- **Likely** digital: Bookkeeping; survey design
- **Not** digital: Ironing; changing diapers
Virginia employers are more likely than average to require *definitely* digital skills.
We’re about to throw a lot of data at you

➢ But before we do, let’s talk about what *digital skills* look like

*Also referred to in our report as *technology skills.*
Agriculture worker using in-cab tractor technology (e.g., AutoTrac) for efficient tractor operation.
Food processing plant workers using inventory control technologies
Wind turbine service technicians using industrial control software.
Restaurant workers using online ordering and delivery software
Welders using collaborative robots ("cobots") in advanced manufacturing

Photo credit: Smooth Robotics
Realtors using Canva software to market properties
The bottom line:
Even entry-level positions now require digital skills.
Jobs that require very little work experience still need digital skills

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

National data. For details, see full report: Closing the Digital Skill Divide (National Skills Coalition, 2023.)
Jobs that require limited education nevertheless need digital skills

<table>
<thead>
<tr>
<th>Educational credential required</th>
<th>Percentage of job ads requiring <strong>likely</strong> digital skill</th>
<th>Percentage of job ads requiring <strong>definitely</strong> digital skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school diploma</td>
<td>94%</td>
<td>46%</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>97%</td>
<td>47%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>99%</td>
<td>74%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>97%</td>
<td>46%</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>97%</td>
<td>39%</td>
</tr>
</tbody>
</table>

National data. For details, see full report: *Closing the Digital Skill Divide* (National Skills Coalition, 2023.)
Counter-intuitive but true: Younger workers need to develop digital skills too!
Jobs that require digital skills pay more

<table>
<thead>
<tr>
<th>Job requires NO digital skills</th>
<th>Job requires ONE definitely digital skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>$17.62</td>
<td>$21.64</td>
</tr>
</tbody>
</table>

23% increase

Note: Numbers shown are median hourly wages. People who qualify for jobs that require even one digital skill can earn an average of 23 percent more than those working in jobs requiring no digital skills — an increase of $8,000 per year for an individual full-time worker. Data shown are national data. For details, see full report: *Closing the Digital Skill Divide* (National Skills Coalition, 2023.)
Higher pay leads to greater economic vitality for Virginia

• 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 $2,043 to $4,085 per year.

Note: Example calculated via taxsim.app: an interactive US Individual Income Tax simulator, using Virginia as the reference state.
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.
Every industry needs digital skills

- Nationally, the percent of job ads requiring digital skills ranges from 77% to 99% depending on industry sector.

- This includes industries that are a priority for Virginia, such as manufacturing (93%), utilities (91%), transportation and warehousing (77%) and healthcare (95%).

National data. For details, see full report: Closing the Digital Skill Divide (National Skills Coalition, 2023.)
Virginia workers need both foundational and industry-specific skills

- **Job ads requiring industry-specific digital skills** (either alone or in combination with foundational skills)
  - HS diploma: 43%
  - Associate degree: 68%
  - Bachelor degree or above: 80%

Note: National data. 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. For details, see Closing the Digital Skill Divide report.
Let’s zero in on Virginia’s demand for digital skills
Virginia businesses want workers with a strong base of foundational digital skills....
Virginia’s most in-demand foundational digital skills

- Microsoft Office suite
- Social media
- Data entry
- Computer literacy
- Typing

Not in rank order. Virginia-specific data from unpublished NSC analysis conducted as part of Closing the Digital Skill Divide report.
Select *industry-specific* skills with strong demand in Virginia:

- **Healthcare**: Electronic medical record software
- **Manufacturing**: SAP; Computer Numerical Control (CNC)
- **Retail**: Robotics; SAS statistical software
- **Real estate and rental & leasing**: Yardi software
- **Finance and insurance**: Nationwide Mortgage Licensing System

Virginia-specific data from unpublished NSC analysis conducted as part of *Closing the Digital Skill Divide* report.
Some occupations have especially high demand for digital skills in Virginia

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Percent of job postings requiring definitely digital skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network / Systems Administrator</td>
<td>100%</td>
</tr>
<tr>
<td>Software Developer / Engineer</td>
<td>95%</td>
</tr>
<tr>
<td>Computer Support Specialist</td>
<td>95%</td>
</tr>
<tr>
<td>Cyber / Information Security Engineer / Analyst</td>
<td>93%</td>
</tr>
<tr>
<td>Bookkeeper / Accounting Clerk</td>
<td>90%</td>
</tr>
<tr>
<td>Office / Administrative Assistant</td>
<td>87%</td>
</tr>
<tr>
<td>Human Resources / Labor Relations Specialist</td>
<td>81%</td>
</tr>
<tr>
<td>Personal Banker / Banking Sales Staff</td>
<td>80%</td>
</tr>
<tr>
<td>Scheduler / Operations Coordinator</td>
<td>80%</td>
</tr>
<tr>
<td>Recruiter</td>
<td>80%</td>
</tr>
<tr>
<td><strong>All occupations (Virginia)</strong></td>
<td><strong>53%</strong></td>
</tr>
</tbody>
</table>

Virginia-specific data from unpublished NSC analysis conducted as part of Closing the Digital Skill Divide report.
What can Virginia leaders do with this data?
Virginia educators and policymakers can use these findings to ensure that new federal investments pay off for workers and learners:
1. Use Digital Equity Act and BEAD funding to expand digital skills training.
2. Combine these findings with Census data to target services and close equity gaps for covered populations.
3. Explicitly embed digital skills throughout industry-specific career pathways programs.
4. Ensure that career pathways equip workers with the supportive services they need to succeed.
5. Invest in industry sector partnerships that bring employers together with education and training providers to create career pathways programs.
6. Collaborate with trusted community organizations to develop inclusive broadband workforce career pathways.
7. Expand financial aid for high-quality short-term upskilling programs.
Time for your questions!
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Full report: Closing the Digital Skill Divide

https://tinyurl.com/DigitalSkillDivide
Knowledge to action: Additional resources

- NSC’s experienced policy staff can help Virginia leaders identify other specific administrative or legislative policy possibilities

- NSC’s previously-published Digital Equity Act and BEAD recommendations (see right) may also be helpful
Other NSC digital skills data resources

- **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

Full report: www.tinyurl.com/BoostingDL
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
Additional digital skills data resources

The US Department of Education is currently funding the Digital Resilience in the American Workforce (DRAW) research project, which has produced several great resources:

- This blog post, with an excellent synopsis of the various Digital Skills frameworks.
- Another blog post for educators and other direct-service practitioners. It provides links to the incredibly useful Digital Skills Library of 2,000 free resources for learning digital skills.
- A lengthy landscape scan for the project, covering a huge range of important findings related to digital skills and resilience.