JFF Request for Proposals

Strategies to Expand Inclusive Pathways into Public Sector Digital Jobs: Planning Grant

Funded by Google.org

Deadline to Submit: 5 p.m. PT on Friday, June 10, 2022

Opportunity at a Glance: With funding from Google.org, Jobs for the Future (JFF) is soliciting proposals for public sector entities in various regions to receive planning grants that support the expansion of inclusive pathways into public sector digital jobs, including integrating industry-recognized digital job credentials into hiring requirements in lieu of degree requirements. Through this project, three selected agencies/organizations will work to build more inclusive pathways to digital jobs and identify opportunities to leverage short-term and industry-recognized credentials (including but not limited to the Google Career Certificates) to help support onramps to high-quality digital jobs in the public sector.

Eligibility: This funding opportunity is available to federal, state, and/or local government agencies. Quasi-governmental organizations or applications from public-private partnerships may also be considered; please contact the JFF team (bmoniz@jff.org) to confirm eligibility before submitting your proposal in these instances.

Grant and Proposal Details: This is a six-month planning grant in the amount of $50,000 administered by JFF. Please submit any questions regarding the RFP or application process **and** express your intent to apply using this link **by 5 p.m. PT on May 27, 2022**. JFF will compile written responses to frequently asked questions no later than June 3, 2022. Completed proposal forms and materials must be submitted electronically via the JFF Public Sector Digital Jobs Planning Grant RFP submission link **by 5 p.m. PT on June 10, 2022.** JFF anticipates awards being announced in July of 2022. All grant activity must be completed within six months of receiving the award. Contact bmoniz@jff.org with any questions about the submission process.

About JFF

Jobs for the Future (JFF) drives transformation of the American workforce and education systems to achieve equitable economic advancement for all. www.jff.org

About JFF's Language Choices

JFF is committed to using language that promotes equity and human dignity, rooted in the strengths of the people and communities we serve. We develop our content with the awareness that language can perpetuate privilege but also can educate, empower, and drive positive change to create a more equitable society. We will continually reevaluate our efforts as language usage continues to evolve.

Google.org

Google.org brings the best of Google to help solve some of humanity's biggest challenges—combining funding, innovation, and technical expertise to support underserved communities and provide opportunity for everyone. Learn more at www.google.org.

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Introduction

Through generous funding from Google.org, JFF is pleased to solicit proposals for planning grants to engage in the coordination of a localized digital jobs strategy, focusing on the expansion of inclusive IT career pathways into public sector digital jobs.

For the purposes of this planning grant, digital jobs are defined as those that provide information technology (IT) expertise for consumers and businesses to help them establish, maintain, or upgrade their computer systems, networks, or software with an emphasis on cloud computing, the collection and storage of big data, and cybersecurity.[1] Similarly, the public sector is defined as being the segment of the economy that is comprised of employment positions at the federal, state, and/or the local government agency level.[2] Appendix B provides several examples of digital jobs; however, applicants have the flexibility to identify other digital jobs that are represented within the public sector. Digital jobs strategies designed in the planning phase should demonstrate a clear approach to building inclusive pathways into public sector digital jobs. Each applicant's approach should focus on the following scope of work:

- Assessing digital job and skill demand as well as opportunities for work-based learning experiences and employment within public sector agencies;
- Conducting research to understand: 1) how federal/state/and/or local government agencies can support pathways to public-sector digital jobs; and 2) specific recommendations and considerations for building a more robust digital jobs ecosystem within the public sector;
- Identifying opportunities to leverage short-term and industry-recognized credentials (including but not limited to the Google Career Certificates ("**Certificates**") to help support onramps to high quality digital jobs in the public sector;
- Outlining potential challenges/barriers within the public sector for creating high quality digital job career pathways, examples to consider may include: formal promotion processes, fiscal constraints, government salary freezes, as well as collective bargaining and union regulations for employees/employers;
- Developing targeted recruitment strategies that aim to increase the number of Black, Indigenous, Latinx, women, LGBTQIA, or other populations underrepresented within the IT industry; and
- Identifying essential wrap around supports and community partners to assist in the provision of these services, as well as promote participant persistence and success from enrollment to graduation, job placement, and retention.

This initiative focuses on identifying in-demand public sector career opportunities that are accessible through nontraditional training pathways in different regions throughout the United States. The lead applicant representing each public sector organization will serve as the grantee and spearhead this collaborative work at a local level and coordinate local stakeholders within its respective region. Public sector organizations selected to lead planning efforts will receive a six-month grant in the amount of $50,000 to complete the following activities during the planning period:

- Identify a hypothesis to support inclusive on-ramps to digital jobs in your community, focused specifically on roles within the public sector. Adapt or refine the hypothesis based upon findings from the needs assessment and planning grant work.
- Conduct a needs assessment (template provided by JFF) to validate hypothesis and map current programs and credentials focused on digital jobs that are aligned with public sector demand.
- Develop a strategy and timeline for creating localized career pathway(s) that support entry into public sector digital skill jobs, especially for populations currently underrepresented in tech (see specific examples of priority populations above).
- Identify public sector employer champions who can help support and advance career pathway design and development.
- Examine the ecosystem of support available to participants in digital job training program(s) and any gaps in supportive service offerings. Develop a plan to establish a mentorship or digital jobs navigator role to support individuals as they move across the public sector. This includes the conditions necessary to support such a role, how the position would be funded, and recommendations on how this person can be effectively embedded in the respective local tech ecosystem.
- Examine the need and opportunities for new work-based learning experiences and other short-term training programs to meet local demand and incorporate findings into planning their local digital jobs strategy.

Through this initiative, public sector entities will test a new approach to building more robust and inclusive onramps to digital jobs within the public sector and support alignment with local stakeholders, such as nonprofit partners and training providers. This initiative will invest in three regions designing and planning a digital jobs strategy that connects jobseekers with low incomes to high-demand careers within the public sector, with an emphasis on underrepresented populations. JFF will provide design support, subject matter expertise, and peer learning opportunities to organizations selected for participation. Findings and completed work products from these planning grants will highlight the gaps, opportunities, and needs of

the tech sector. JFF will collate these findings to help inform several short publications that highlight learnings from this initiative.

Organizations are expected to spend approximately 5 hours per week on grant-related activities. In addition, organizations should plan to devote approximately 10 hours on each of the technical assistance assignments that are required for each participating site.

Overview

This overview is based on national research on a range of IT initiatives and studies. The information is provided to contextualize the timeliness and relevancy of this work, as well as to encourage applicants to gather similar information regarding IT careers and training programs within their local context.

Digital Jobs and the Public Sector

The ongoing COVID-19 pandemic has highlighted the need for important government system updates, as well as the rapidly growing role of technology and its ability to reach citizens to continue essential services. During the pandemic, traditional in-person services such as applying for government benefits, attending court appointments, as well as making payments were all transitioned online. Despite this rapid transition of virtual services, the public sector has struggled to acquire individuals with digital skills who can continue to support this critical work.

According to a 2020 report published by McKinsey & Company, the public sector as a whole struggles to competitively recruit many roles of increasing importance—including full-stack developers, UX designers, AI engineers, analytic translators, and data scientists. Not only is the government struggling to acquire emerging digital talent, but it is also on the cusp of losing decades of institutional knowledge, expertise, and experience to civil service retirements. As of 2018, approximately 4.5 times as many civil servants in IT roles were over age 60 than under age 30—a gap that has more than doubled in the past decade.[3] This trend is unlikely to reverse, as the very people the public sector needs are also in high demand within the private sector. As a result, the time is now to seize the opportunity and reconstruct the civil service as a more agile workforce with a shift toward training, sourcing, and hiring of digital talent, ensuring a robust public sector workforce prepared for the future.

Creating a More Equitable IT Sector

Despite widespread pandemic job losses, demand for skilled workers in IT occupations has remained relatively stable. IT occupations are projected to grow 11 percent nationwide through 2029 and add a total of 4.4 million jobs through 2030.Over the last 12 months, there were over 84,000 job postings for digital jobs in the public sector.[4] On average, individuals with IT skills earn 600 percent, or roughly $4.4 million, more over the course of their lifetime than a worker receiving minimum wage without IT skills.[5] IT positions have a median annual wage that ranges from $50,000 to more than $140,000. Moreover, 82 percent of middle-skill jobs require digital skills and digitally intensive middle-skill jobs pay more than non-digital middle-skill jobs: $20 per hour for middle-skill jobs that demand digital skills and $28 per hour or more for jobs that require advanced digital skills such as IT networking or CRM software, placing them in the top quartile of all earners.[6] Digital skills provide a career pathway into middle- and high-skill jobs; however, 80 percent of roles within the IT profession require a four-year degree for employment.[7] This degree requirement within the IT sector is a barrier to inclusion as individuals who identify as Black, Latinx, and Indigenous are less likely to hold a degree as compared to white applicants.

Examining Diversity Across the IT Industry

- Female, Black, Latinx, and Indigenous professionals are vastly underrepresented in all occupations within the technology sector, in comparison to both the United States population and to the private sector as a whole.
- Women make up 50 percent of the U.S. population and only 25 percent of the tech workforce; Black or Latinx adults combined make up 30 percent of the nation's population but just 15 percent of the tech workforce.
- Among the top revenue-grossing technology companies (like Apple, Google, and Facebook), Black and Latinx employees combined represent only 3 to 5 percent of all employees.[1]

[1] *Allison Scott, Freada Kapor Klein, and Uriridiakoghene Onovakpuri, Tech Leavers Study: A First-of-Its-Kind Analysis of Why People Voluntarily Left Jobs in Tech (Oakland, CA: Kapor Center for Social Impact, April 2017),* www.kaporcenter.org/tech-leavers/.

Despite this barrier, there are opportunities for individuals without a bachelor's degree to enter the field through three primary pathways: computer programming, IT support, and cybersecurity. According to labor market information from Burning Glass Technologies, the entry-level jobs in each of these fields generally have strong projected growth, offer median earnings of at least $25 per hour, and can serve as a launching point for other roles in the IT field.[8]

Connecting IT Training to Local Labor Markets

Competency and skill-based training is an effective strategy to support entry and advancement of underrepresented or excluded populations and those who lack a postsecondary credential or prior work experience into high-wage, high-demand roles within the IT sector and IT-adjacent industries. In the IT field, there is a vast ecosystem of industry-recognized certifications that allow jobseekers with either a high school diploma or an associate's degree to learn discrete, in-demand skills and to advance at rates comparable to those with a bachelor's degree but no certification.[9]

In general, the IT industry has high career advancement potential, with approximately 20 percent of workers moving up within five years. More specifically, advancement within five years is twice as high among computer support specialists and network support specialists with a CCNA certification (43 percent) compared with those with no certification (22 percent).[10] IT also demonstrates strong career stability, with 60 percent of user support specialists and more than 70 percent of network support specialists and network administrators remaining in the IT sector throughout their career. This stability is higher and more consistent among workers who have earned industry-recognized certifications than those who have not.[11]

As the number of IT training programs and industry-recognized credentials continues to diversify, aligning these programs to local demand for skilled workers within and outside of traditional tech industries is critical. In 2019, Burning Glass Technologies and Oracle Academies reported that 90 percent of all IT job openings are within non-tech industries, and recent growth in job openings for IT occupations is more than 50 percent greater in non-tech industries than in tech industries.

The increased opportunities for entry-level IT workers and individuals without a bachelor's degree in the non-tech economy illustrates the value in developing localized digital jobs strategies and locally relevant career pathways for workers in the public sector to align their skills and competencies with the IT needs within their region.

Opportunity to Develop More Robust IT Career Pathway Models

Intensive career pathway training models that embed employer input, local industry alignment, and robust academic and wraparound services into the program design, development, and execution are more successful in providing durable employment and growth opportunities for individuals to enter into digital jobs. Participants are also more likely to persist and complete these training programs.[12]

Selected grantees will have the opportunity to identify and address gaps in current training offerings that will enhance the effectiveness of their IT career pathways, supplement entry-level training with work-based learning and more comprehensive wraparound supports and bolster their regional economic growth by helping jobseekers move into quality public sector roles with career advancement potential. The collaboration between Google.org, JFF, and organizations that receive a planning grant presents an opportunity to aggregate lessons learned and promising approaches to build more robust pathways into digital jobs within the public sector, which could have significant implications for the design, implementation, and scale of digital jobs strategies for agencies across the country, as well as for funders and policymakers supporting similar efforts. Insights from participating regions' experience conceptualizing a locally relevant digital jobs strategy will inform materials and resources that JFF will create for the broader field.

Key Responsibilities and Conditions for Award

Grantees selected for this opportunity will be required to:

- Submit all RFP application materials on time and in accordance with provided instructions.
- Designate a primary point of contact for grant management and coordination with JFF staff.
- Complete the outlined planning activities as detailed in the Introduction section (Page 5), these include: identifying a hypothesis, conducting a local needs assessment, developing a strategy & timeline for creating localized career pathways, identifying public sector employer champions, as well as examining the ecosystem of support available to digital jobs program participants. Applicants should plan to spend at least 5 hours per week working on these activities, it is estimated that each of the outlined activities will require a commitment of approximately 10 hours in total to complete
- Participate in monthly coaching and TA discussions with JFF to assess progress of planning activities, address areas of concern and questions, as well as provide insight into their research and approach. This will also include activities such as focus groups and technical assistance conversations to capture recommendations and insights learned, as we attempt to understand and further expand this scope of work.
- Participate in two convenings: one virtual convening at kickoff and one potentially in person convening around the conclusion of the grant (with travel funded by JFF via the Google.org grant) to gather with peer organizations to learn from one another and collaborate around research findings and implementation approaches.

Submission Process

Interested applicants should download this proposal form and address each of the questions and/or criteria to the best of their ability. JFF recommends that applicants paste responses into the online application form **after** completing the responses to facilitate the application process. This process should take at least two to three hours, and we recommend incorporating feedback from local partners and engaging relevant stakeholders in your community.

Key Steps and Dates for Application Process:

- Please submit any questions regarding the RFP or application process and express your intent to apply using this link by **5 p.m. PT on May 27, 2022**.
- JFF will compile responses to frequently asked questions and share with interested applicants no later than **June 3, 2022.**
- Completed proposal forms and materials must be submitted electronically via the JFF Public Sector Digital Jobs Planning Grant RFP submission link by **5 p.m. PT on June 10, 2022.**

Proposal Questions

Questions included within this application form are provided below **strictly for reference**. **Applicants must download this form separately** and complete all questions to the best of their ability prior to submission. The proposal form is available for download here.

Part I: Basic Information

1. **Name of Organization:**
2. **Mailing Address:**
3. **Type of Public Sector Organization (please select only one):**
    a. Federal Agency
    b. State Agency
    c. Local or Municipal Government Agency
    d. Other (Please describe, including connection to the public sector)
4. **Are you applying for this opportunity as the lead of a consortium of agencies or organizations or as the backbone of a collective impact initiative?** (Yes/No)
    a. **Important:** If yes, please, **include letters of support** from all partner organizations as part of your submission materials.
5. **Indicate which of the following best describes the region to be served as part of this initiative. You may select more than one.**

   a. Urban
   b. Suburban
   c. Rural
6. **Describe the proposed region that will be the focus of this initiative. Please list all of the counties and corresponding state(s) you anticipate serving through this initiative.**
7. **Primary Point of Contact Information:**
   a. **Full Name:**
   b. **Title:**
   c. **Email Address:**
   d. **Phone Number:**

Part II: Organizational Expertise

Please provide responses for each item, responding to all questions within each item as thoroughly and succinctly as possible. You will be provided with 1,000 characters for each response (including spaces). If responding for a consortium, please respond for your organization while also referencing how a consortium approach strengthens your ability to succeed in this effort.

1. **Organizational Mission/Impact/Priority Demographics:** Describe the mission, key programs/initiatives, and evidence of impact of your organization. Describe the characteristics of individuals typically served through your organization, including demographics, education and employment barriers, and supportive service needs. How is your organization working to reduce systemic inequities in your community?

2. **Organizational Capacity:** If awarded this planning grant, does your current organization have the staffing capacity to commit at least 5 hours per week towards this work? (Yes/No). Please describe why your organization is well positioned to lead this effort in your agency and briefly describe the staffing, resources, expertise, partnerships, and staff capacity you would dedicate to this effort to ensure a smooth planning process.

3. **Serving Priority Populations:** Describe your organization's experience serving the populations being prioritized for this planning grant. What supportive services and/or resources does your organization offer to support learner success, and why do you feel these are important? If none are currently offered, describe the wraparound services and/or resources your organization would like to offer and the partners or tools you would you need to make that happen.

Part III: IT Employment and Training Landscape

1. **Vision for Digital Jobs:** If awarded the planning grant, what hypothesis related to digital jobs in the public sector would your organization choose to focus on as part of this initiative? How do you envision this planning grant will help you better understand and advance the public sector digital jobs landscape in your agency? Please specify one to three goals your organization hopes to accomplish through this initiative.

2. **Relevant Programming:** Describe how individuals typically enter and advance within digital jobs in your organization, including the key state of IT training programs and/or industry-recognized credentials your organization seeks. Why were those programs selected, and what opportunities or gaps remain in the local training ecosystem?

3. **Relationships:** Describe the ways in which your agency currently hires or collaborates with public sector agencies to hire IT professionals. What is your plan for engaging these hiring partners in this digital jobs strategy planning process to ensure industry alignment and quality jobs for those who complete training programs?

   Inclusive Hiring Practices: What specific opportunity do you see in your agency to diversify digital jobs? To what extent do you hire people without postsecondary education credentials? Which, if any, practices are in place to support the hiring of workers who are Black, Indigenous, Latinx, female, LGBTQIA, or others who are currently underrepresented within the IT industry?

4. **Participant Supports:** Which of the following are you interested in focusing on or supporting through your planning grant? Please check all that apply:

   a. [Y/N] Creating a digital jobs navigator role to help individuals explore potential IT careers in the public sector and access training providers.
   b. [Y/N] Expanding opportunities for work-based learning for digital jobs.
   c. [Y/N] Supporting more robust job placement and retention support for participants to enter the public sector.
   d. [Check box] Other (please specify)

Part IV: Community Influence and Partnerships

1. **Community Partnerships:** Describe the community partnerships, either already in existence or yet to be established, that will be critical to your public sector digital jobs strategy planning effort. Be as specific as possible and include the role of each partner and why the partner's involvement will be necessary for success.

2. How will this initiative enable your agency to spur innovation in onramps to public sector digital jobs?

3. **Optional:** Is there any other information about your organization, consortium, or proposed approach that you would like to share with the application review team?

Part V: Budget Template

Please use the template provided within the application form to indicate how the $50,000 in planning grant funds will be allocated. Feel free to estimate costs to the best of your ability. This budget is nonbinding, and your organization will have an opportunity to make changes to this if you are selected to receive the planning grant.

Inquiries: Please submit any questions regarding the RFP or application process and express your intent to apply using this link by **5 p.m. PT on May 27, 2022**. JFF will compile written responses to frequently asked questions no later than June 3, 2022.

Appendix A – RFP Scoring Rubric

JFF will make awards to the most competitive applicants based upon proposal submissions. Proposals will be scored for quality, agency/organizational readiness, and planned activities based on the criteria listed below. A team of subject matter experts from JFF will be assembled to review each proposal submission. After all submissions are reviewed, the proposals with the highest cumulative score across all criteria will move forward for final consideration by JFF and Google.org. Only organizations deemed eligible for this grant will be scored, using the criteria below.

Proposal Scoring Criteria
Basic Eligibility: The applicant meets all basic eligibility requirements based on the responses provided. ***Application Section: Part I: Basic Information***
Integrity: The applicant provides credible evidence of its ability to organize and influence community partners given its status as a trusted institution and respected leader within its community. ***Application Section: Part IV: Community Influence and Partnerships***
Organizational Capacity: The applicant demonstrates the capacity to serve in a leadership role coordinating the planning of a localized digital jobs strategy and locally relevant career pathways for in-demand IT occupations within the public sector. Applicant provides evidence

of its ability to engage and disseminate information across key stakeholders. The applicant is committed to the creation and sustainability of a digital jobs navigator as part of this initiative.

Application Section: Part II: Organizational Expertise

Organizational Focus: The applicant has relevant experience designing and/or implementing related programs and initiatives and proposes a clear and compelling approach for addressing all required aspects of the planning phase including:

- Completion of the needs assessment, overall strategy, and implementation timeline
- Identification of employer champions and key community partners
- Creation of a digital jobs navigator
- Incorporation of work-based learning experiences

Application Section: Part III: IT Employment and Training Landscape

Ability to Reach Priority Demographics and Address Inequity: The applicant demonstrates an established track record of (or strong commitment and approach to) recruiting and supporting populations underrepresented in the tech sector, aligning supports with the needs of the diverse populations throughout its community, and designing programs and services based on lived experiences.

Application Section: Part II: Organizational Expertise

Connection to Regional Public Sector Employers: Applicant demonstrates clear understanding of the needs of local public sector employers across multiple industries and/or presents a strong approach to discovering these needs as part of the needs assessment and planning process. The applicant provides strong evidence of established relationships with local employers and/or regional partners and a commitment to engaging these critical partners in the planning and implementation of a public sector digital jobs strategy and design of IT career pathways.

Application Section: Part III: IT Employment and Training Landscape

Quality and Feasibility of Participant Supports: The applicant provides evidence that the organization recognizes the importance of participant supports and is well positioned to identify the supports that are needed to advance a regional digital jobs strategy such as but not limited to:

- Career coaching and navigation
- Job placement assistance and support services
- Wraparound supports (non-academic)

Applicant demonstrates commitment and ability to support participants in overcoming these common barriers to employment and advancement in the IT sector and incorporating these essential services into the planning process.

Applicant outlined clear goals and a plan to achieve outlined goals at the end of six months.

Application Section: Part II: Organizational Expertise

Application Section: Part III: IT Employment and Training Landscape

Additional Considerations: JFF will award additional points to applicants that can demonstrate any of the following:

- Strong diversity of organizations/partners engaged in the planning and implementation process.
- Strong geographic diversity within the city or region the organization serves.
- Intention to incorporate a flexible and broad set of models and approaches to support participants.
- Intention to connect to or incorporate youth or registered apprenticeship experiences for learners.
- Evidence of access to potential resources and supplemental funding that support long-term sustainability of this effort.

Appendix B – Examples of Digital Jobs

The following list includes *examples* of digital jobs. This is by no means an exhaustive list, and JFF encourages regions to explore demand and training opportunities for additional occupations that may be considered a digital job within the context of their labor market.

Job Title	Job Description	2021 Median Pay
Computer Network Architects	Computer network architects design and build data communication networks, including local-area networks (LANs), wide-area networks (WANs), and intranets.	$116,770
Computer Programmers	Computer programmers write and test code that allows computer applications and software programs to function properly.	$89,190
Computer User Support Specialists	Computer support specialists provide help and advice to computer users and organizations.	$52,690

Computer Systems Analysts	Computer systems analysts study an organization's current computer systems and find a solution that is more efficient and effective.	$93,720
Database Administrators	Database administrators (DBAs) use specialized software to store and organize data.	$98,860
Information Security Analysts	Information security analysts plan and carry out security measures to protect an organization's computer networks and systems.	$103,580
Network and Computer Systems Administrators	Network and computer systems administrators are responsible for the day-to-day operation of computer networks.	$84,800
Software Developer, Quality Assurance Analyst, and Tester	Software developers design computer applications or programs. Software quality assurance analysts and testers identify problems with applications or programs and report defects.	$110,140
Web Developer and Digital Designer	Web developers create and maintain websites. Digital designers develop, create, and test website or interface layout, functions, and navigation for usability.	$77,200[13]

Endnotes

[1] Lauren Csorny, "Careers in the Growing Field of Information Technology Services," *Beyond the Numbers: Employment & Unemployment* 2, no. 9 (Washington DC: U.S. Bureau of Labor Statistics, April 2013), www.bls.gov/opub/btn/volume-2/careers-in-growing-field-of-information-technology-services.htm.

[2] Indeed Editorial Team, *Public vs. Private Sectors: Definitions, Examples and Differences*, Indeed Career Guide, (February 22, 2021), 18, 2017), https://www.indeed.com/career-advice/finding-a-job/public-vs-private-sector

[3] Danny Clark, Marcy Jacobs, Megan McConnell and Sarah Tucker-Ray, *Transforming the US government's approach to hiring digital talent* (McKinsey & Company, 2020), https://www.mckinsey.com/industries/public-and-social-sector/our-insights/transforming-the-us-governments-approach-to-hiring-digital-talent.

[4] Job posting data is from Burning Glass Technologies Labor Insight. Education level is based upon nationwide IT job postings for the one-year period from June 2019 to May 2020. Data extracted by S. Lamback in May 2020.

[5] Burning Glass Technologies, *Beyond Tech: The Rising Demand for IT Skills in Non-Tech Industries* (Boston, MA: Burning Glass Technologies, August 2019), www.burningglass.com/research-project/beyond-tech/.

[6] Burning Glass Technologies, "Digital Skills Gap: Research on Digital Skills, Digital Literacy, and the Future of Work" (Boston, MA: Burning Glass Technologies, 2021), www.burning-glass.com/research-project/digital-skills-gap/.

[7] Wage data is drawn from Emsi 2020.2 Class of Worker data. Extracted by S. Lamback in May 2020. Job posting data is from Burning Glass Technologies Labor Insight. Education level based

upon nationwide IT job postings for the one-year period from June 2019 to May 2020. Data extracted by S. Lamback in May 2020.

[8] Vanessa Bennett and Sara Lamback, *Transforming IT Training Programs Into Successful Career On-Ramps* (Boston, MA: Jobs for the Future, July 2020), www.jff.org/resources/transforming-it-programs-successful-career-ramps/.

[9] Sara Lamback, Carol Gerwin, and Dan Restuccia, *When Is a Job Just a Job—and When Can It Launch a Career? The Real Economic Opportunities of Middle-Skill Work* (Boston, MA: Jobs for the Future, 2018), www.jff.org/resources/when-job-just-joband-when-can-it-launch-career/.

[10] Sara Lamback, *When Is a Job Just a Job,* www.jff.org/resources/when-job-just-joband-when-can-it-launch-career/.

[11] Sara Lamback, *When Is a Job Just a Job,* www.jff.org/resources/when-job-just-joband-when-can-it-launch-career/.

[12] National Skills Coalition staff, *Investing in Postsecondary Career Pathways* (Washington, D.C.: National Skills Coalition, September 18, 2017), www.nationalskillscoalition.org/resource/publications/investing-in-postsecondary-career-pathways/.

[13] Wage data is drawn from Emsi 2022.1 Class of Worker data. Extracted by R. Barbosa in April 2022.