Public Interest Technology Workforce Survey Findings

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beeckcenter
social impact + innovation

ABOUT THE SURVEY

The Beeck Center defines public interest technology as making the most of technology's promise to improve all people's lives and make society more equitable, inclusive, and just. We also consider public interest technology very broadly—we know the ecosystem includes people in the public sector as well as people in civil society, and also the private sector and vendor community who work in the public interest.

As part of our Public Interest Technology Field Building portfolio, the Beeck Center has been looking at ways to increase diversity and inclusion in the field, enable individuals and teams to be successful, build an entry-level pipeline for students to enter the field, and foster learning, training, and community building to ultimately improve outcomes and solutions for the public. We conducted a survey of U.S. Public Interest Technology workers in late 2020 to understand how best to support the individuals who make up this growing field. Anyone who identified as working in this field was encouraged to participate in this survey, including practitioners, policy makers, students, volunteers, and researchers.

We surveyed nearly 200 public interest technologists to capture the background, experiences, and demographics of the people who are doing this work. To develop the survey, we consulted quantitative researchers and tested and iterated with various representative samples of individuals in the field. While we hoped to gather as large a dataset as possible, we recognize that the responses may not be representative of the entire public interest technology field. It is also important to note that the data is self-reported and therefore subject to biases and limitations.

This report summarizes key findings and recommendations based on our analysis of the data we gathered. We hope that the information we share can help guide the conversation around opportunities to prioritize in terms of diversity, equity, and inclusion for public interest technology professionals.

CONTENTS

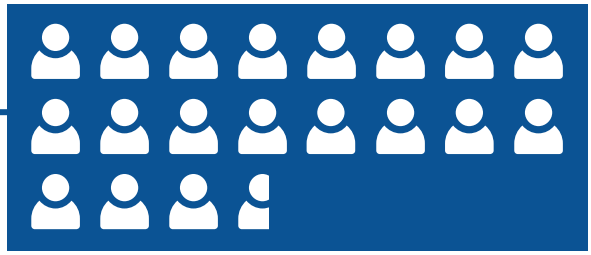
“The pipeline for training tech workers needs to be overhauled. [...] We need to invest in training for people [...] who want to become programmers, designers, or data scientists but who have been unable to obtain those roles.

Part of this transformation involves understanding how university technology education ought to serve our workforce, and whether it is achieving those goals through the typical computer science curriculum.”

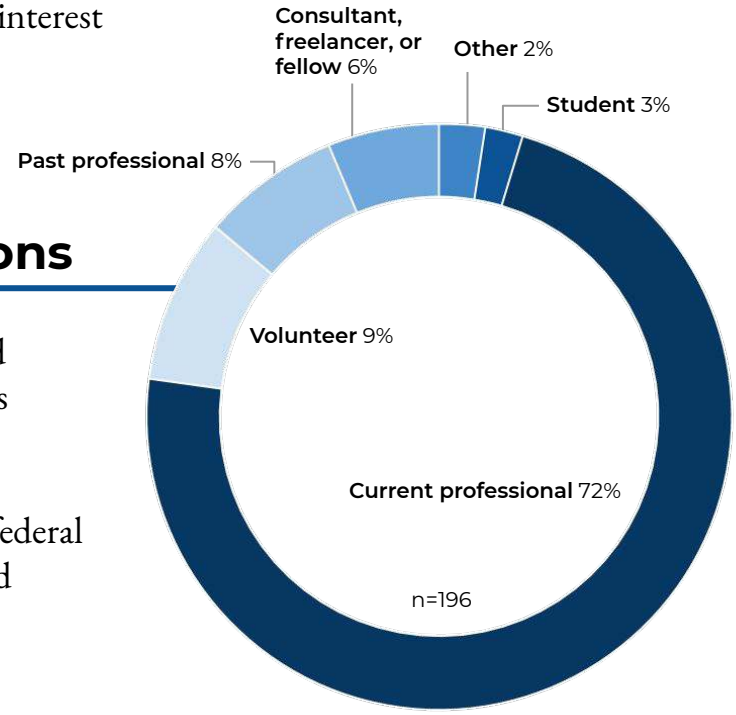
—Senior civic technologist working in the federal government

RESULTS OVERVIEW

196 respondents

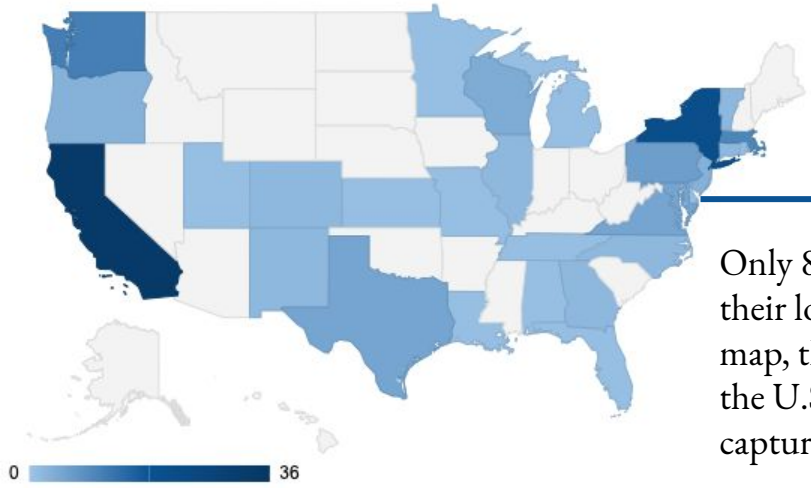


Individual respondents have varying degrees of work experience—from students to executives—and different reasons for identifying as public interest technologists.



90+ organizations

Respondents are employed and/or volunteer in various public and private sector organizations, including start-ups, local, state, and federal government, academia, and non-profit organizations.



29 states + DC

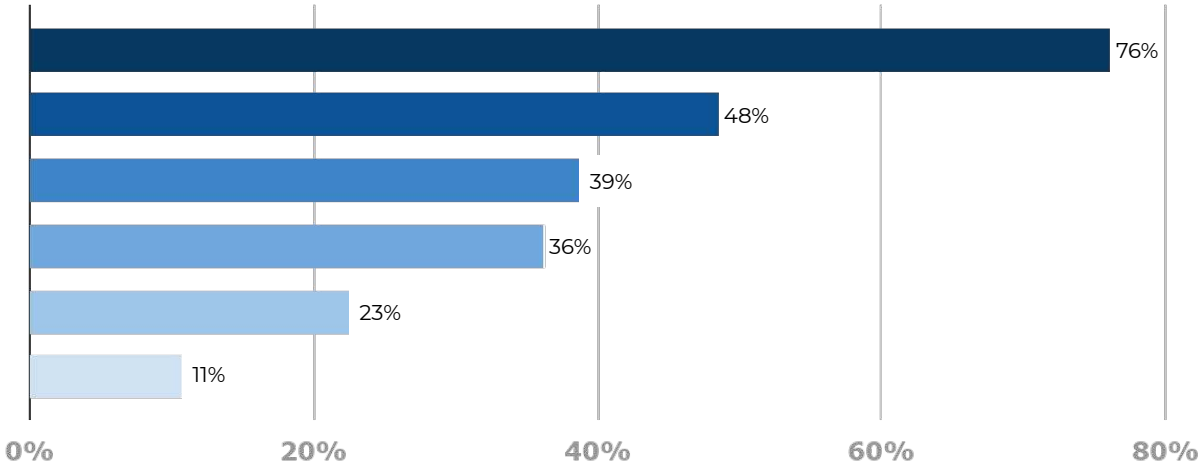
Only 86% of respondents indicated their locations. As shown on the map, there were several regions of the U.S. that the survey did not capture.

EXPERIENCES AND BACKGROUNDS

Role Description(s) / Identity

n=196

Respondents were asked to select one or more statement(s) to indicate the ways in which they identify as a public interest technologist:



76% I design and/or build tools meant to implement policy or improve government service delivery

48% I advocate for the inclusion of public voice and engagement within government

39% I work in government in a technical role

> *"I care about designing services and systems for the people who need them most in our country."*

36% I measure whether existing policies are providing their intended outcome and/or meeting the needs of the populations they serve

23% I design policy with those whom the policy serves using human-centered methods

11% Other, responses included:

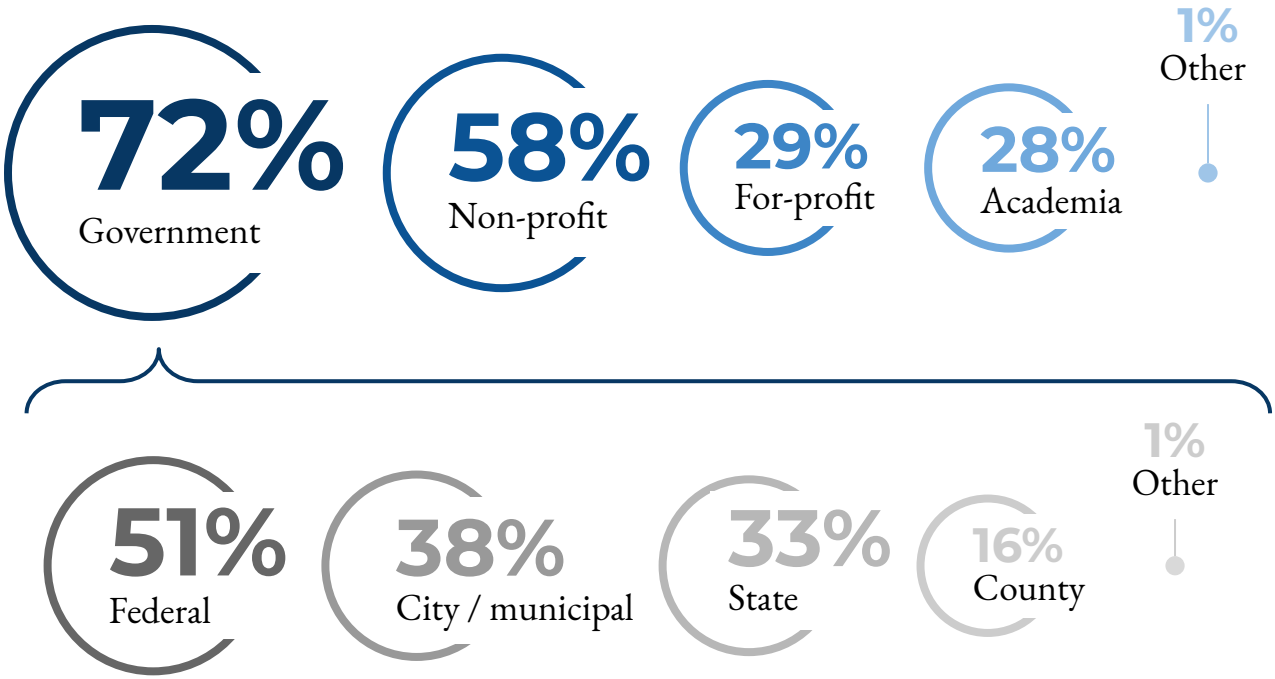
- Support / recruit technologists (3%)
- Procure technology (1%)

EXPERIENCES AND BACKGROUNDS

Organization Types

n=196

The majority of respondents (72%) indicated that they had public interest technology experience within government. Of the 72% of respondents who had worked within government, 51% of respondents had experience working at the federal level, followed by 38% at the city or municipal level, 33% at the state level, and 16% at the county level. More than half of the respondents (58%) indicated that they had experience with public interest technology working in the non-profit sector, followed by 29% with public interest technology experience in the for-profit sector and 28% in academia.

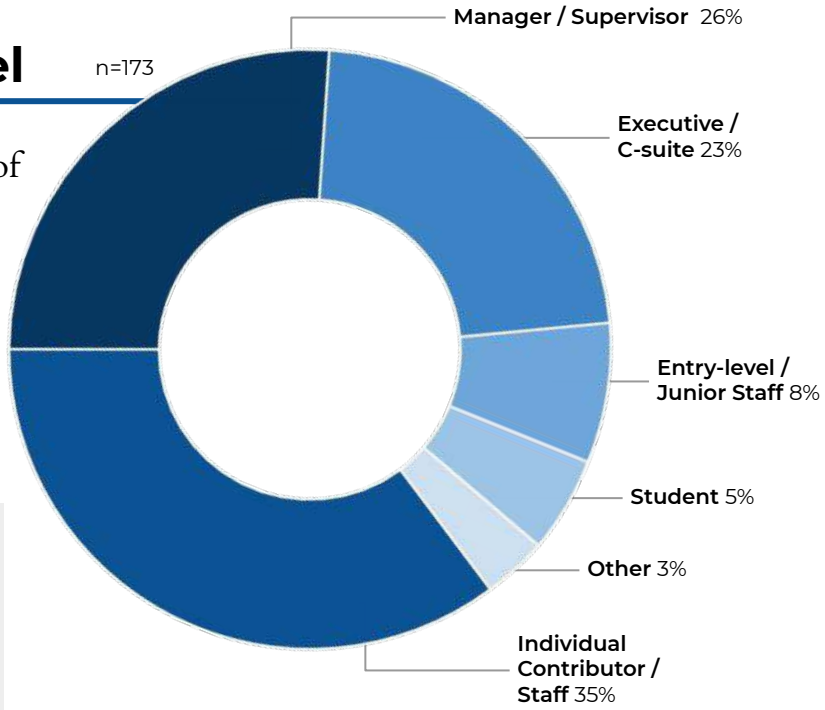


> ***"One of the toughest things [...] in the state/local sector is getting connected with governments outside our local area. It would be exciting if there were more people/organizations looking to facilitate those connections."***

EXPERIENCES AND BACKGROUNDS

Experience Level

n=173

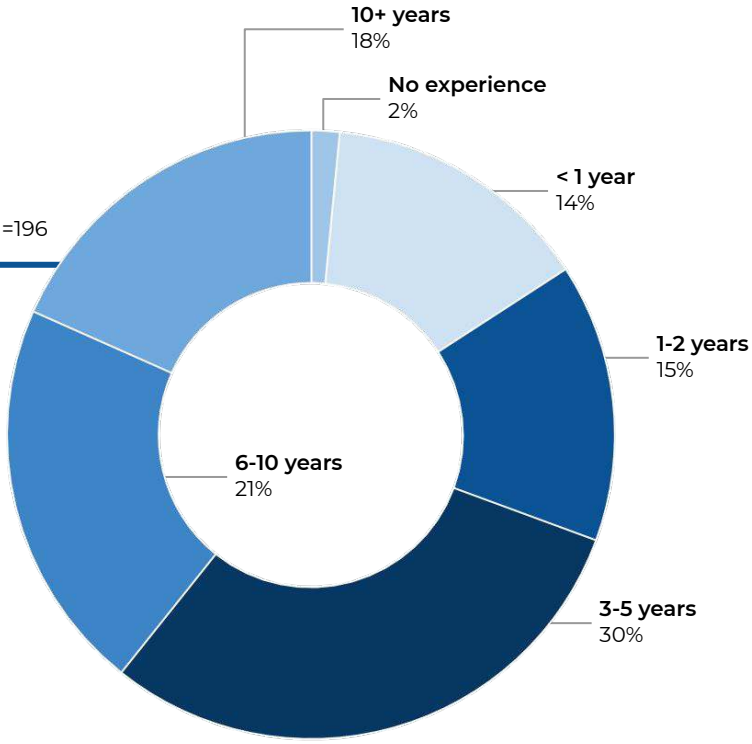


More than one-third (35%) of respondents reported their experience in public interest technology was as an individual contributor or as a staff member.

> *"We need more entry-level roles in public interest tech."*

Years of Public Interest Tech Experience

n=196



About one-third (30%) of respondents have been working and/or volunteering in the public interest technology field for three to five years. Based on the distribution of responses, 69% of respondents have a total of three or more years of experience in the field.

EXPERIENCES AND BACKGROUNDS

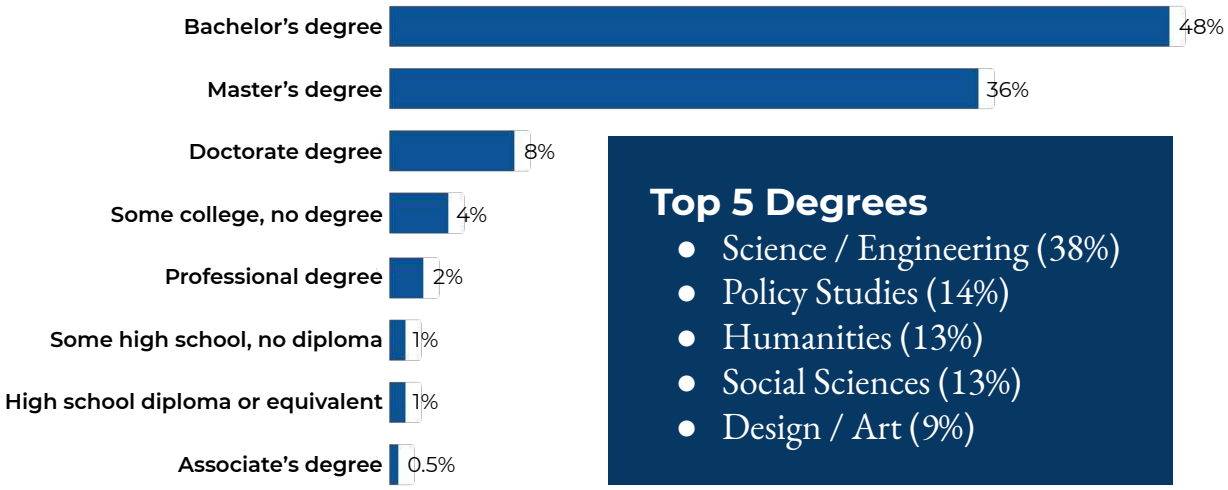
Job Titles

There are 81 distinct job titles that respondents used to describe their roles.

Education Levels & Degrees

n=196

Respondents are mostly college-educated with either a bachelor's (48%), master's (36%), or doctorate (8%) degree, with 10% of respondents holding more than one degree. Of the respondents who have a degree, 19% identify as first-generation college graduates.

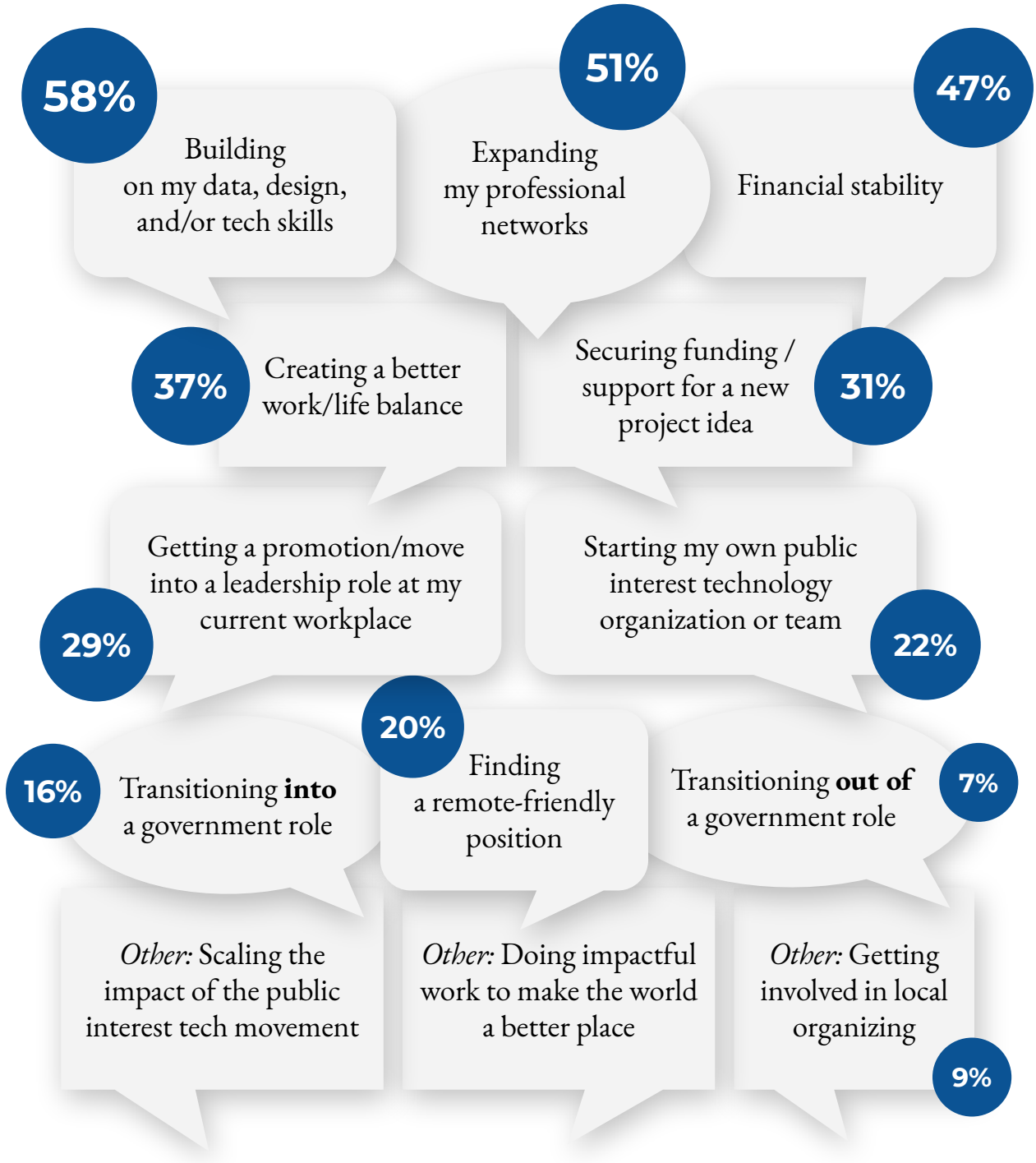


Top 5 Degrees

- Science / Engineering (38%)
- Policy Studies (14%)
- Humanities (13%)
- Social Sciences (13%)
- Design / Art (9%)

TOP CAREER GOALS

Respondents were asked to identify their top career goals for the next few years:

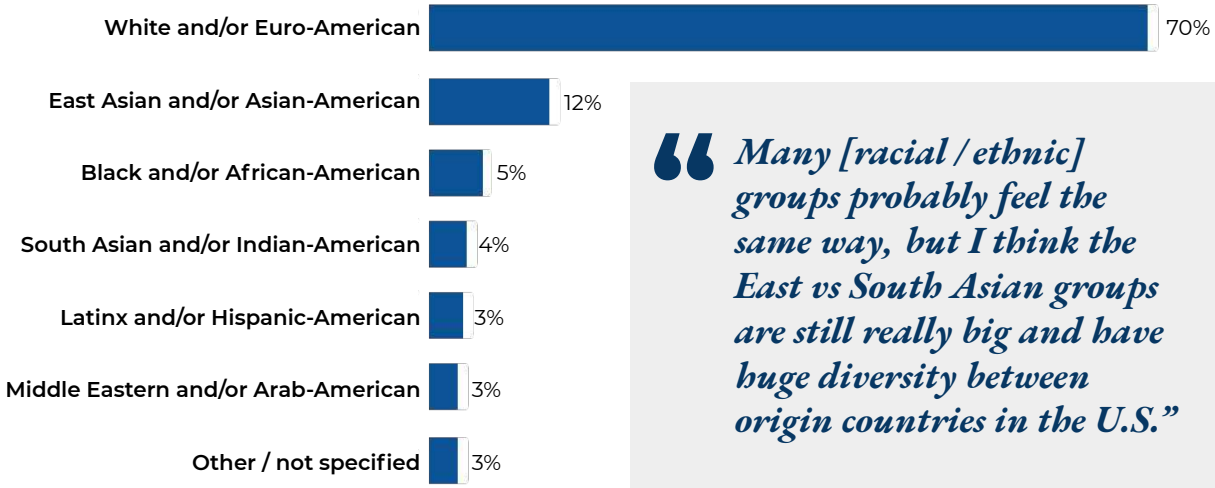


DEMOGRAPHIC INFORMATION

Race / Ethnicity

n=196

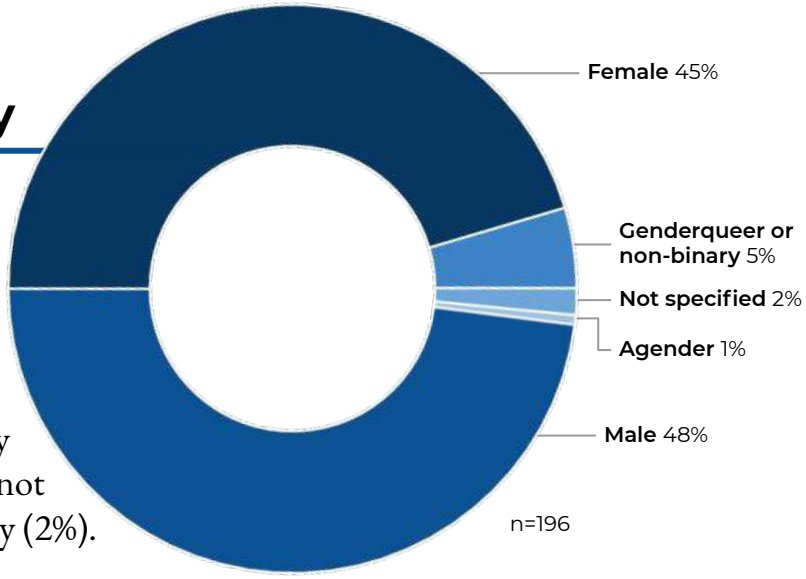
The majority (70%) of survey respondents identify as White.



> *"Many [racial / ethnic] groups probably feel the same way, but I think the East vs South Asian groups are still really big and have huge diversity between origin countries in the U.S."*

Gender Identity

There were slightly more male (48%) respondents than female (45%). A minority (8%) of respondents identified as genderqueer or non-binary (5%), agender (1%), or did not specify their gender identity (2%).

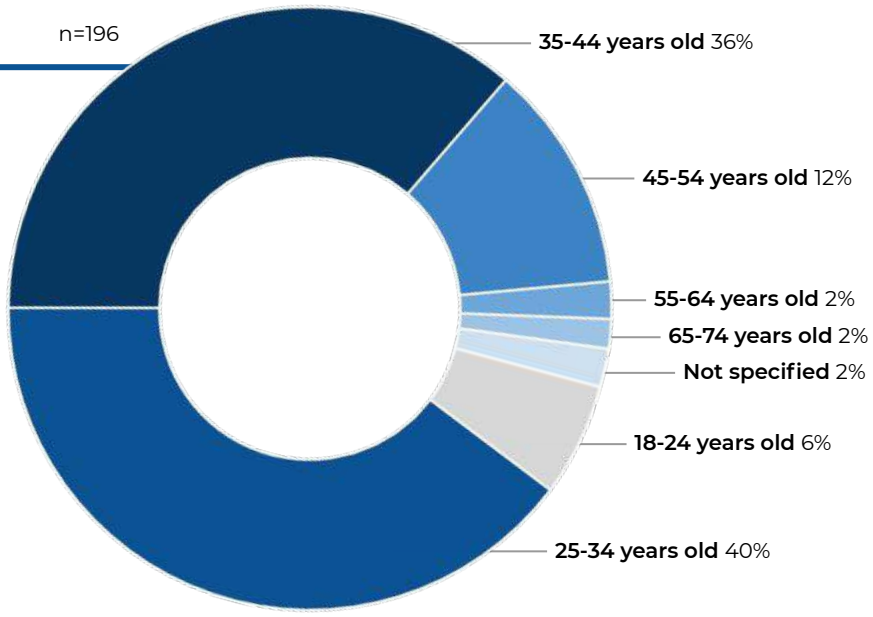


DEMOGRAPHIC INFORMATION

Age

n=196

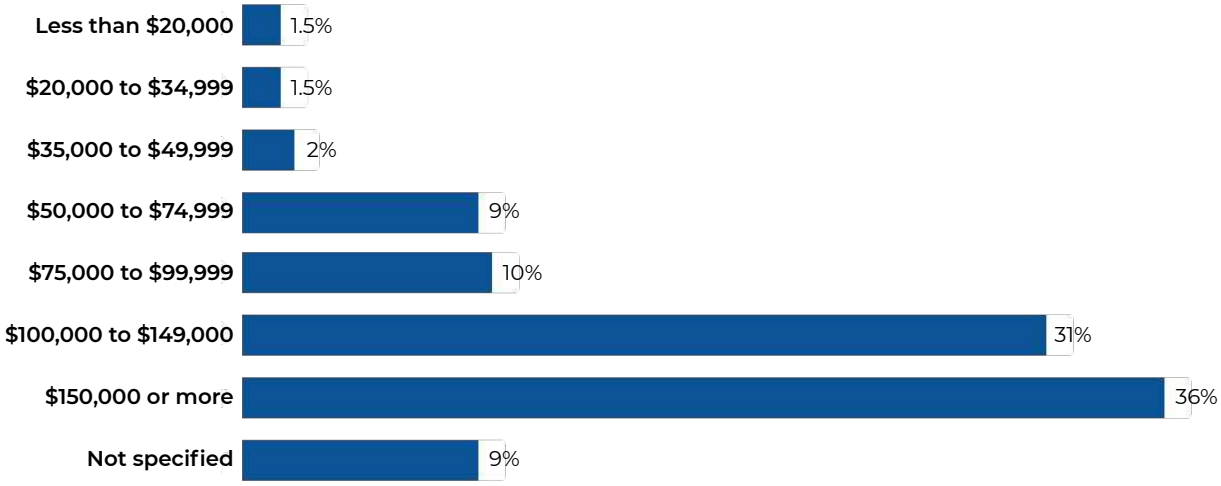
The majority (76%) of respondents are between 25-44 years old.



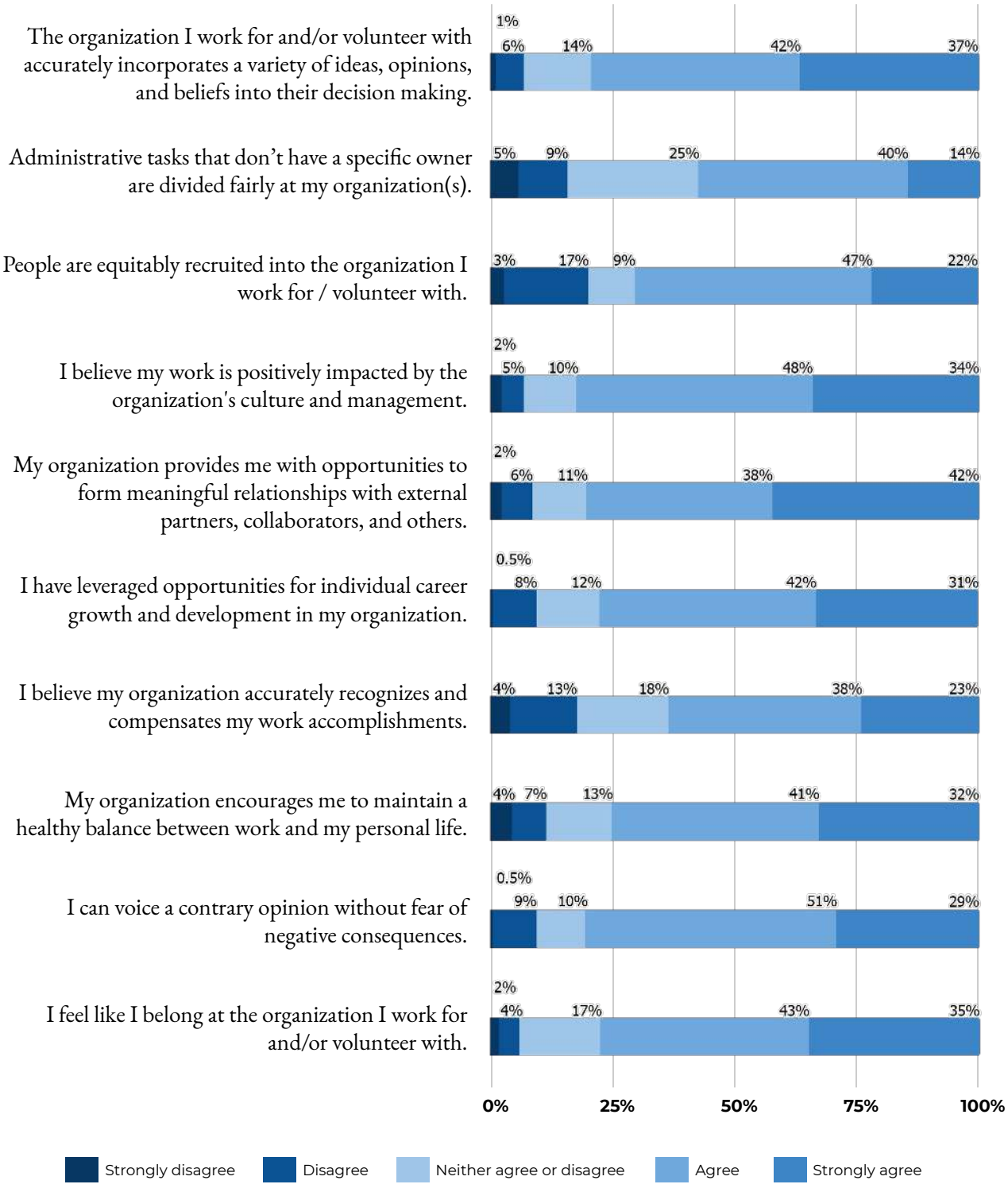
Income

n=196

More than half (67%) of respondents earn $100,000 or more annually. The experiences and job titles of the high-earner respondents include those with senior-level roles at the Manager / Supervisor and the Executive / C-Suite levels.



EQUITY AND INCLUSION STATEMENTS



“The problem is that policy makers don’t understand the technology needs, and those who understand the technology don’t understand the policy needs.

[People] trained in public policy [...] have zero idea how [...] to improve the data systems being used to support policy making decisions. [On the other hand,] people with training in information systems and data science end up finding jobs in tech, and not government.”

—Data scientist working in state government

TRENDS AND FINDINGS

Half of respondents (50%) found out about the public interest technology field through friends or word of mouth.

Most respondents (81%) had three or more years of work experience prior to entering the public interest technology field.

Three equity and inclusion statements had 15% or more "disagree" or "strongly disagree" responses:

- People are equitably recruited into the organization I work for / volunteer with.
- I believe my organization accurately recognizes and compensates my work accomplishments.
- Administrative tasks that don't have a specific owner are divided fairly at my organization(s).

WORD OF MOUTH IS THE MAIN WAY RESPONDENTS FOUND OUT ABOUT THE PUBLIC INTEREST TECH FIELD

50%

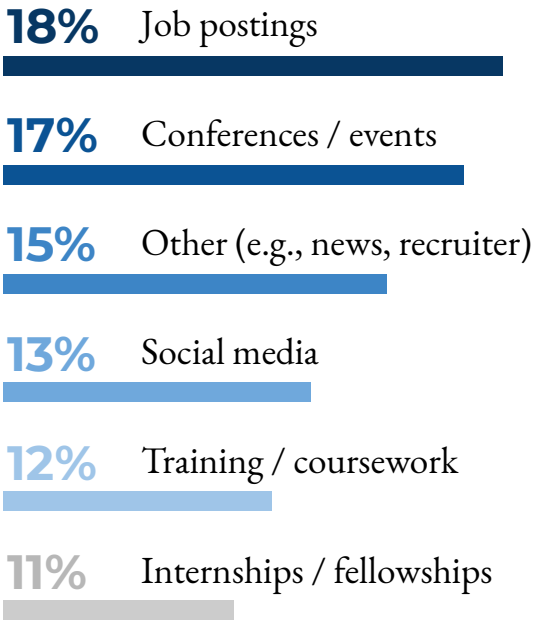
OF RESPONDENTS HEARD ABOUT THIS FIELD THROUGH FRIENDS / WORD OF MOUTH

The 2015 Global Talent Trends Report from LinkedIn found that online job boards (60%), social professional networks (56%), and word of mouth (50%) were the most popular channels job seekers look for opportunities. So while the statistics found through this survey are on par with industry standards, *there are still additional opportunities to go beyond word of mouth when recruiting qualified technologists into public interest technology.*

CONSIDERATIONS

While research has shown that word of mouth and referral hires tend to have a more realistic idea of what the job entails, be more productive, and stay at an organization longer, it also has a major drawback to diversity.[1] Employees are more likely to refer candidates that have the same gender and ethnic background as them, resulting in homogeneity of the workforce.[2] This creates a monoculture that can impact the benefits of having a diverse workforce: bringing in various perspectives and ideas, increasing creativity and innovation, and resulting in better organization performance overall.[3]

Other ways people find out about public interest tech:



MOST RESPONDENTS HAD 3+ YEARS OF EXPERIENCE BEFORE ENTERING THE PUBLIC INTEREST TECH FIELD

81%

OF RESPONDENTS HAD 3+ YEARS OF WORK EXPERIENCE PRIOR TO THEIR PUBLIC INTEREST TECH ROLE

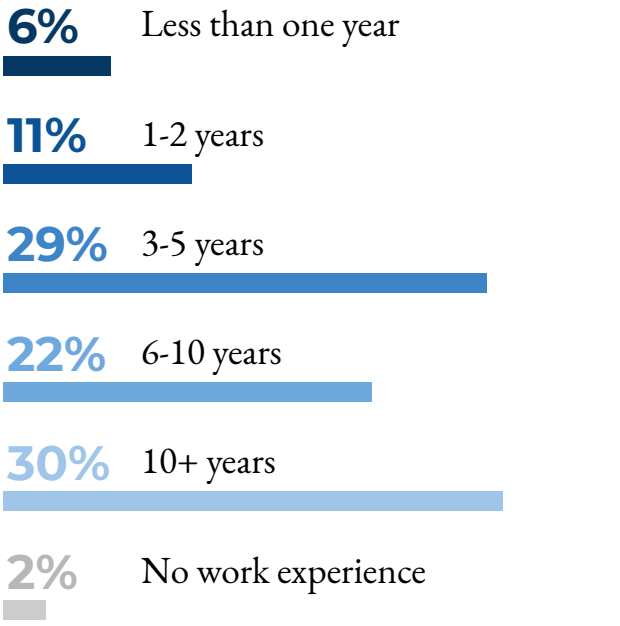
The survey captured the career experiences and backgrounds that contributed to making the field what it is today. The majority (81%) of respondents had three or more years of work experience prior to their public interest tech role, indicating that the field is made up of mostly experienced, mid-career level professionals. Given that the field is still growing, these findings show that *early-career technologists are a useful, untapped resource.*

CONSIDERATIONS

Looking at federal hiring data from the Office of Personnel Management from June to September 2020, 9% of the hiring was for entry-level (GS-5, 7, and 9) STEM Occupational Series-related roles at cabinet level agencies.[4,5] This can mean a few things for early-career technologists:

- There are not a lot of junior roles available to recent graduates.
- The public interest technology field does not have the resources to train entry-level employees.
- Students and recent graduates are not aware of technology positions available to them in government.

Prior to public interest technology, respondents had been working for:



EQUITY AND INCLUSION STATEMENTS: RECRUITMENT, RECOGNITION, AND RESPONSIBILITIES

15+%

OF RESPONDENTS DISAGREED WITH THREE EQUITY AND INCLUSION STATEMENTS

The equity and inclusion statements in the survey were intended to measure the respondents' perspectives on diversity, equity, and inclusion in the public interest technology field. Overall, respondents rated their organizations well across all categories, with at least 50% answering affirmatively for each statement. However, *it is important to acknowledge the key areas of opportunity for equity and inclusion in the field.*

CONSIDERATIONS

The survey results showed that respondents disagreed with these three statements the most, out of the 10 total that were included in the survey. This held true even when drilling down into these statements and looking at them by race, gender, years of experience, etc. While more than half of respondents agreed with these statements, there are still opportunities and room for improvement around recruitment, recognition, and responsibilities in the field.

RECOMMENDATIONS

The public interest technology field has always been focused on delivering outcomes and solutions equitably to the people who need them the most. The need for better technology solutions is clear. To get there, the Beeck Center is focusing on supporting the people who make up the field, building the culture of public interest tech organizations outside of government, and creating opportunities for the next generation of public interest technologists.

Our vision for the future of this field is one where the workforce is productive and effective, helps others, and represents the people that we all serve. We hope that the field can one day become a model for other disciplines and eventually reshape the tech industry overall. Now is the time to make the needed changes to enable this field to grow and flourish even further. We believe the following nine recommendations based on our survey results and research in this space will enable success for public interest technology organizations, stakeholders, and practitioners.

At a high level, our survey findings reinforced many of the commonly held beliefs around representation, diversity, and inclusion already widely known in this field, but also shows opportunities and priorities for the field to target efforts, specifically around recruiting, entry-level jobs, recognition, and job responsibilities. Similar to the demographics within the private sector tech industry, our survey respondents are predominantly White or Asian, and reside in the major cities along the coast. On the other hand, compared to computing-related jobs where only 25% of roles are held by women, our results showed that the public interest technology field is fairly evenly split between male (48%) and female (45%) respondents. We had 5% of our respondents identify as genderqueer, non-binary, or agender.[7] These statistics highlight the need to ensure recruiting pipelines are expanded and that organizations have inclusive cultures.

As Edgar Schein's model on organizational culture illustrates, to start creating inclusive cultures, organizations need to tackle the basic assumptions that exist within their organizations.[8] These assumptions impact the organization's norms and values and the visible artifacts that represent the organization. There are small adjustments that can be made, which make up our recommendations, that can lead to big changes and can start to address the larger systemic issues we see in workplaces.

RECOMMENDATIONS

For people leading public interest technology organizations:

1. **Conduct your own diversity and inclusion surveys.** Be sure to measure how candidates and your employees find out about your organization, get a sense of how many of your hires have been from referrals, and ensure that your referral program has not adversely impacted diversity initiatives at your organization.[9] If so, expand your recruiting mechanisms to reach outside of your bubble, ensuring that you are hiring via different channels and are not dependent on referrals.

2. **Assess referred candidates fairly.** Referrals should be assessed in a manner that is consistent with how you currently assess candidates who apply or find out about your organization via other channels.[10]

3. **Distribute work in an equitable manner.** "Office housework" is often administrative tasks, such as taking notes, cleaning up after meetings, or getting snacks, that go unassigned. In addition to our survey findings, a workplace experience survey found that, in engineering, women of all races were 29% more likely than white men to report doing more "office housework" than their colleagues.[11] This unfair distribution of work can be addressed by ensuring that "office housework" responsibilities are equally assigned to all individuals.

4. **Create a roadmap for hiring entry-level roles.** Hiring entry-level employees is not going to start overnight if you aren't currently doing it. Analyze your existing hiring needs, onboarding program, and projects to find opportunities where entry-level roles make sense.[12]

5. **Examine your pay practices.** Consider conducting a pay equity audit to identify any potential disparities.[13] Pay equity is one way to ensure fair compensation and recognition. Other than compensation and monetary awards, there are also recognition methods that organizations can employ to increase employee satisfaction.[14] The top three indicators for employee motivation (satisfaction, engagement, and commitment) were not influenced by salary.[15] Positive recognition from managers and peers has been shown to be the most effective way to foster belonging.[16] Additionally, consider paid time off, written or verbal praise, and recognition on events or milestones such as birthdays and work anniversaries.

RECOMMENDATIONS

For people in the public interest technology field:

6. **Refer people with diverse backgrounds from your network.** Teams with a diversity of backgrounds and experiences have shown to produce better outcomes, decisions, and solutions compared to teams with a monoculture.[17, 18] Be aware of how referrals can perpetuate a monoculture, and refer people with a diversity of backgrounds and experience from your network into your organizations.

7. **Push your organization to publicly share diversity and inclusion statistics.** Transparency of diversity and inclusion numbers will help the field be accountable for employing individuals who are representative of the people we serve.[19]

> ***"[We need to] look at the implications of unpaid labor on our industry and who is able to access it. We are getting better at racial and ethnic diversity but the jobs in our industry are either too senior (GS 14-15) or too poorly paid (CfA fellow, USDR) for the majority of people to access."***

For individuals interested in public interest technology roles:

We recognize that the field has systemic barriers that need to change. These two recommendations are meant to offer a glimpse into how to get into the field given the current reality of the industry.

8. **Connect with people currently in the field.** Given that most respondents entered this field via word of mouth, build connections with people currently in the field to find out about opportunities.[20] One way to do so is by volunteering in the civic tech space.

9. **Continue to grow your skills.** Public interest tech projects are often very complex and impact thousands, if not millions, of people. While keeping an eye on opportunities in this field, it is important to continue learning and growing your own skills to increase your chances for qualifying for these positions.

“The field needs those willing to think outside the box and push the envelope on innovation, to truly use technology to provide services parallel to the private sector. [It also needs] an investment in technology / infrastructure upgrades and better use of data to forecast needs.”

—Digital director working in city government

LOOKING FORWARD

Lessons Learned

Although relatively new, the public interest technology field includes people working across the U.S. in all levels of government and beyond. Given the responses, we recognize that the reach of this survey was limited. For future survey efforts, we will improve our recruitment mechanisms to find and reach more survey participants, ensuring a wider audience that includes greater demographic and geographic representation. Additionally, 485 respondents began the survey but only 209 respondents submitted their responses. (Only 196 survey responses were counted; the rest were either non-U.S. responses or duplicates from participants who completed the survey twice.) A majority (75%) of people completed the survey on a desktop computer and took an average of 58 minutes to complete. Respondents who completed the survey on a mobile device (24%) took an average of eight minutes to complete. The average completion times, along with comments we received regarding survey fatigue, signaled that we should consider incentivizing respondents for their time and/or shortening the survey, which contained 44 questions.

Next Steps

We hope that others are able to take our dataset, find additional trends, and build and expand upon our work. Future surveys should consider capturing information related to public interest technology workers around retention, career advancement, and remote work. Additionally, as the field matures and grows, it may be worth capturing longer year horizons (for example, some questions capped the year horizons at 10+, and it may make sense to break down the fidelity through to 30+ years). Finally, we recognize that numerous organizations conduct their own workforce survey(s) and encourage those organizations to be transparent and share their findings, even if only in the aggregate. We believe that getting further insight into the public interest technology workforce, while the field is still maturing, can help ensure that we are holding organizations accountable and building a field that is diverse and inclusive for everyone.

> ***"Consider not just the hiring of BIPOC, LGBTQ, disabled and other underrepresented groups, but retention [as well]."***

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AUTHORS / RESEARCHERS

Jenn Noinaj, Lead Author and Researcher

Jenn is a social impact strategist, researcher, and designer passionate about using human-centered design to solve society's most pressing challenges. She's currently leading the Public Interest Technology Workforce project at the Beeck Center where she works on creating solutions to make the public interest technology field more inclusive. Prior to this role, she worked in the federal government at the U.S. Digital Service where she partnered with various agencies to transform digital services across government, building capacity in technology and design and championing a user-centric culture. Jenn also serves as the president of Technologists for the Public Good, a professional association for public interest technologists that she helped to launch in 2021. You can find more about her on her website and can follow her on LinkedIn and Twitter.

Vandhana Ravi, Associate Researcher

From 2018-21, Vandhana worked as the Program Associate for the Beeck Center and contributed to the Public Interest Technology Field Building portfolio. She is a graduate of Brown University where she honed her interest in social impact and justice, studying sociology and poetry with a concentration on digital justice. She worked with the Rhode Island Office of Innovation, Providence CityArts, and the Urban Design Collective to help communities leverage technology to empower themselves. She also interned at UNICEF's Innovation Lab where she helped research and design wearable technology to improve maternal and child healthcare systems in rural India.

Sofia Chen Ma, Research Analyst

Sofia is passionate about driving technology and innovation to be more equitable and inclusive. In 2020-21, she worked as a Student Analyst at the Beeck Center, supporting the Public Interest Technology Workforce project. Her focus as an undergraduate in the McDonough School of Business at Georgetown University is on social impact, entrepreneurship, and technology. Sofia serves as a Board Member for Georgetown Scholars Program (GSP) and as the Chief Financial Officer for Hoyas for Immigrant Rights. You can connect with her on LinkedIn.

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