

# Pathways to digital skills development for Latino workers

What employers say about their skill development needs and what workforce organizations are doing to help



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**UpSkillAmerica**  
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# Introduction

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The past decade saw unprecedented technological developments and innovations that triggered what many analysts have designated a fourth industrial revolution “characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres” (Schwab 2016). This technological revolution has reshaped almost every industry, increasing productivity, reducing costs, and disrupting labor markets. Many traditional jobs, some of which had been around for decades, if not centuries, are becoming increasingly automated and digitized, while new positions and roles emerge, requiring a different skill set from frontline workers and business leaders.

The outbreak of the COVID-19 pandemic accelerated this transition and permanently changed our everyday life: the way we work, the way we shop, and the way we socialize and communicate. Business owners, organizations, and employees have made drastic shifts to accommodate their constituents in this new reality. Theresa Paucar, owner of Supermercado Martin’s, a supermarket chain with three stores in a prominent Latino neighborhood in Chicago, is but one example. The pandemic forced her to consider introducing new technology to remain competitive in her industry, with customers increasingly leaning toward placing online orders and getting groceries delivered. Theresa faced a conundrum: Her employees were uncomfortable with new technology, and she did not have the resources or tools to provide digital skills training. Theresa is not an outlier: For millions of Latino and other minority business owners, this is a daily struggle, an increasingly urgent one. As digital tools and

platforms become increasingly central in our economy and society, it is essential to provide digital skills training to the emerging and incumbent workforce and meet the demands of the changing labor market. Particularly concerning is the fact that Latino adult workers face the highest rates of potential job displacement due to automation and digitalization (Lund et al. 2019).

Against this backdrop, the UpSkill America initiative by the Economic Opportunities Program and the Latinos and Society Program at the Aspen Institute, with support from Google.org, launched the Digital Skills and the Latino Workforce research project to better understand the challenges and opportunities that Latino workers and Latino business owners face to succeed in the digital economy. The project also identified promising business practices and ecosystem approaches to developing the digital skills of the Latino workforce.

The research team engaged with organizations providing education, training, and workforce development services, including local Hispanic Chambers of Commerce, community colleges, training funds, and community-based organizations. The project also addressed employers in industries with a large share of Latino workers, including the retail, construction, hospitality, agriculture, and manufacturing sectors. Through two rounds of in-depth interviews with 30 business and workforce organization leaders as well as a nationwide survey with more than 200 respondents, the research team sought to identify these aspects:

- How employers feel about the digital skill needs of their companies
- The type of resources employers and workforce development organizations need to support digital skills development for the Latino workforce, with a particular focus on non-native-English-speaking immigrant and first-generation workers
- The types of programs employers and education and training providers are investing in to develop the digital skills of the Latino workforce, with a particular focus on non-native English-speaking immigrants and first-generation workers

The report is structured as follows:

Section 1 presents an overview of the current situation of Latino communities and workers in terms of access to digital opportunity.

Section 2 provides a summary of the main ways in which the COVID-19 pandemic has influenced the demand for digital skills in the workplace.

Section 3 presents the main takeaways from a nationwide survey and interviews of employers and workforce development organizations conducted by the authors.

Section 4 introduces the profiles of workforce organizations and companies that are currently addressing the issue.

Section 5 provides a series of recommendations to various types of stakeholders.

Section 6 discusses the Digital Equity Act and the opportunities it presents for workforce organizations and employers.

Section 7 lists resources available to workers, employers, and workforce organizations with an interest in the topic.

# 1. Background

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Starting businesses at a faster rate than all other demographic groups<sup>1</sup> (Orozco et al. 2022) and projected to be nearly a fifth of the American workforce by 2024 (Toossi 2015), Latinos are an essential part of the US economic dynamism.

Latinos are also the youngest among the major racial and ethnic groups in the United States: Nearly 6 in 10 Hispanics are millennials or younger, and nearly half of US-born Latinos are younger than 18 years old (Patten 2016). As baby boomers reach retirement age, Latino workers play an increasingly crucial role in keeping the dynamism of the US labor market, confirmed by estimations that they will account for 78% of net new workers between 2020 and 2030 (Dubina 2021). In states such as California, Texas, New Mexico, Arizona, Nevada, and Florida, Latino representation in the workforce is already well above 25% (Bureau of Labor Statistics 2021).

Latino frontline workers were central in keeping the American economy on its feet throughout the COVID-19 pandemic. According to a 2020 report by the Urban Institute, more than half of all Black, Native American, and Latino workers have essential or nonessential jobs that must be done in person and close to others, compared with 41% of white workers (Dubay et al. 2020). Furthermore, the Economic Policy Institute estimates that only 15% of Hispanic employees were able to telework during the pandemic, compared with 26% of white non-Hispanic employees (Gould and Kandra 2021).

Correspondingly, Black, Latino, and Native American adults experienced substantially higher rates of COVID-19 infection and mortality during 2020 than whites and Asian adults did (Hill 2022).

Still, COVID-19 is not the only threat that Latino frontline workers have had to face in recent years. According to a 2019 report by McKinsey Global Institute, the job displacement rate due to automation and digitalization in the workplace among Latino workers amounts to 25.5%, compared with 23% for the average US worker (Lund et al. 2019). Some of the occupations with an overrepresentation of Latino workers are highly vulnerable to displacement by new technologies, including industries such as office support, food service, production work, customer service, and retail sales. Just in California, Texas, Florida, Arizona, Illinois, and New York, over 7.1 million Latino adults, representing nearly 40% of the Latino workforce in those six states, are at high risk of being displaced by automation (Gonzalez et al. 2020).

A 2017 Brookings Institution report found that while in 2002 56% of US occupations assessed required only low levels of digital skills, by 2016 the proportion had nearly halved (30%). Meanwhile, the number of occupations requiring high levels of digital skills grew nearly fivefold from 4.8% to 23%, and the share of occupations requiring medium-level digital skills increased from 40% to 48% (Muro et al. 2017).

<sup>1</sup> The number of Latino-owned businesses increased 44% in the last 10 years compared to just 4% for non-Latinos.

As in previous industrial revolutions, technological innovation will also lead to the creation of new jobs and industries: The World Economic Forum's Future of Jobs Report 2020 estimated a net addition of 12 million jobs (World Economic Forum 2020). Almost two-thirds of new US jobs created from 2010 to 2016 required medium to high levels of digital skills. US occupations requiring high levels of digital skills on average pay 2.5 times as much as jobs requiring only low levels of digital skills, while medium-level jobs paid 1.5 times as much (Muro et al. 2017). However, for Latino frontline workers to fully benefit from these new economic opportunities, it is key to ensure they have access to and use of information and communication technologies.

As of March 29, 2022, the definition of digital inclusion listed on the National Digital Inclusion Alliance (NDIA) website included the following requirements:

- Affordable, robust broadband internet service
- Internet-enabled devices that meet users' needs
- Access to digital literacy training
- Quality technical support
- Applications and online content that enable and encourage self-sufficiency, participation, and collaboration

The US is characterized by striking inequalities in access to broadband connectivity, digital devices, and digital skills development, which further affect Latinos' access to essential services and economic opportunities. According to a 2020 report by the Digital US Coalition (2020), 18 million American households did not have internet access, including 14 million low-income households in urban areas and 4 million in rural areas. Furthermore, 32 million Americans didn't feel comfortable using a computer, and half of Americans weren't comfortable using technology to learn.

When disaggregating statistics related to digital opportunity by race and ethnicity, the gaps become even more prominent. According to data from the 2018 American Community Survey, 82.3% of Latino households had broadband subscription, contrasting with a US average of 85.1%. In terms of access to digital devices, 67.9% Latino households had a desktop computer or laptop, while the US average was 77.5% (Martin 2021). Nonetheless, the shift to remote schooling and work during the pandemic made it evident that a single internet-enabled device for households with multiple members is a low standard for measuring true digital access.

While Latinos lag in computer ownership, they were early adopters of smartphones and have similar levels of smartphone ownership as Blacks and whites. According to Pew Research Center (2017), Latinos had the highest rate of smartphone dependency among major racial and ethnic groups; 25% of Latino adults did not use broadband at home but owned smartphones in 2021, contrasting with 17% of Black Americans and 12% of white Americans.

The digital divide is even more pronounced in terms of digital skills: A National Skills Coalition report (2020) based on results from the Organization for Economic Co-operation and Development's Survey of Adult Skills 2012-14<sup>2</sup> found that 57% of Latinos aged 16 to 64 had low or no digital skills, compared to a US average of 31%.

As Latino workers become an increasing proportion of the American workforce, ensuring equitable access to broadband services, digital devices, and digital skills remains a crucial pending task. Failure to better support Latino workers will affect American economic dynamism and resilience. Conversely, supporting Latino workers to become not just consumers, but also active creators of technology across different industries can enhance innovation and alignment of products and services with the needs of Latino communities around the country (Deleersnyder et al. 2021).

Quoting the National Digital Inclusion Alliance<sup>3</sup> again, "Digital Inclusion must evolve as technology advances. Digital Inclusion requires intentional

strategies and investments to reduce and eliminate historical, institutional and structural barriers to access and use technology." Relevant stakeholders need to permanently adjust their strategies to ensure that the tools and supports provided to Latino frontline workers are up to date and context relevant.

Thus, it is important to bear in mind that the US Latino community is highly heterogeneous, representing diverse generations, national origins, races, levels of educational attainment, and language proficiency. For instance, English proficiency has steadily increased among Latinos in the past few decades, primarily driven by US-born Latinos. In 2019, 72% of Latinos ages five and older spoke English proficiently, up from 59% in 2000 (Krogstad and Noe-Bustamante 2021). Still, English as a second language training remains relevant for a large proportion of foreign-born Latinos, something that employers and organizations should bear in mind when providing support and resources to Latino frontline workers.

<sup>2</sup> The Survey is part of the Program for the International Assessment of Adult Competencies (PIAAC)

<sup>3</sup> "Definitions," National Digital Inclusion Alliance, accessed March 29, 2022, <https://www.digitalinclusion.org/definitions/>

## 2. The Impact of COVID-19 Study: 10 things we learned about digital skills during the pandemic that helped shape this study

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UpSkill America, an initiative of the Aspen Institute Economic Opportunities program, is an employer-led movement that promotes training and advancement practices to help workers progress in their careers and attain better-paying jobs. It places a heavy emphasis on the need to assist frontline and entry-level workers, who are disproportionately women and people of color.

In 2020, UpSkill America began a 12-month, three-phase study to learn how the pandemic and heightened attention on racial inequities were influencing companies' employment plans for the months and years ahead and how the pandemic was influencing employers' education and training programs. The study looked at questions such as these:

- In today's rapidly changing business environment and economy, what are the workforce skill needs that are increasingly important?
- In what ways are these skill needs affecting a range of employment practices, including education and training programs for frontline workers?
- How has the current context—the pandemic and heightened attention on racial inequities—influenced businesses' workplace hiring practices as well as plans to support career advancement for frontline workers?

- What types of employee concerns have surfaced regarding what they are facing in the workplace and at home? What are the ways that businesses are helping to support employees' needs?

All videos, decks and resources produced as part of the study are at [www.aspeninstitute.org/of-interest/how-2020-affected-businesses-skills-and-equity-at-work](http://www.aspeninstitute.org/of-interest/how-2020-affected-businesses-skills-and-equity-at-work). The study was supported by Strada Education Network and Walmart.org.

What we heard and learned from employers laid a tremendous foundation for our work with the Latinos and Society program and this study. Here are 10 things we learned from our Impact of COVID-19 study that helped shape this Digital Skills and the Latino Workforce Project:

**1. Due in part to digital transformation during the pandemic, having digital skills is a necessity for much of the population to participate in basic job search and workplace processes as well as many basic life and civic activities.**

During the pandemic, employers improved many processes by moving them online. Employers told us how the difficult circumstances had forced them to question longstanding assumptions and processes and find new and better ways to do things. In many cases, the new and better ways of doing business included moving paper or in-person processes to a digital format. A similar transformation was happening in government services as well.

Examples of Human Resources and related processes and policies that companies listed as having been improved during the pandemic include the following:

- Workflow
- Collecting employee feedback
- Candidate screening
- Hiring
- Interviewing
- Onboarding
- Workplace flexibility
- Internal communications

Many companies that mentioned improved policies and processes believe these changes are permanent. Across sectors, employers reported that, for the foreseeable future, there will be some element of remote work, especially for office staff who aren't workplace dependent. There is a need for reliable, high-speed internet and the tools to access it. Continuing remote work requires a strong digital skill set, including mastering new technology platforms for communication and collaboration. Given the existing gaps in terms of digital skills and access to broadband connectivity and digital devices that affect many Latino households and communities, it is crucial to embed strategies that support digital equity to avoid leaving these workers behind.

For the second phase of the study, UpSkill America partnered with Training Industry Inc. to field a national survey in January 2021. Respondents comprised 340 business representatives. The following are the main takeaways from the survey that were relevant to the Digital Skills and the Latino Workforce project:

## **2. The need for digital skills increased during the pandemic.**

In response to questions about the impact of COVID-19, 77.1% of respondents said the need for digital skills increased either a lot or a moderate amount during 2020. For respondents with more than half of their workforce composed of frontline workers, this number was 78.8%. Of the respondents, 68.9% said that "skills to use technology in the workplace" were affected by recent events either a lot or a moderate amount. Employers further reported this increased need for digital skills included the need for skills to interact with and manage increased automation, to use basic office software, to communicate in a digital environment, and to use technology in the workplace.

## **3. Employers who responded to our survey believed investments in digital skills training would be most useful in helping frontline workers grow within their company.**

Finally, employers responded that, from a national perspective, investments in digital skills training would be most important to help frontline workers grow within their company.

Figure 1. Employer respondents identified the investments that would be most beneficial to supporting frontline workers

## Looking Ahead

From a national policy perspective, survey respondents identified that the following investments would be the most helpful to help frontline workers grow within their company:



For the third phase of this research, additional employers were interviewed and asked the following:

- How businesses were adopting technology in the workplace
- If COVID-19 accelerated these efforts
- How digital transformation is impacting skill needs for frontline workers
- What approaches businesses are taking to support development of digital skills for frontline workers

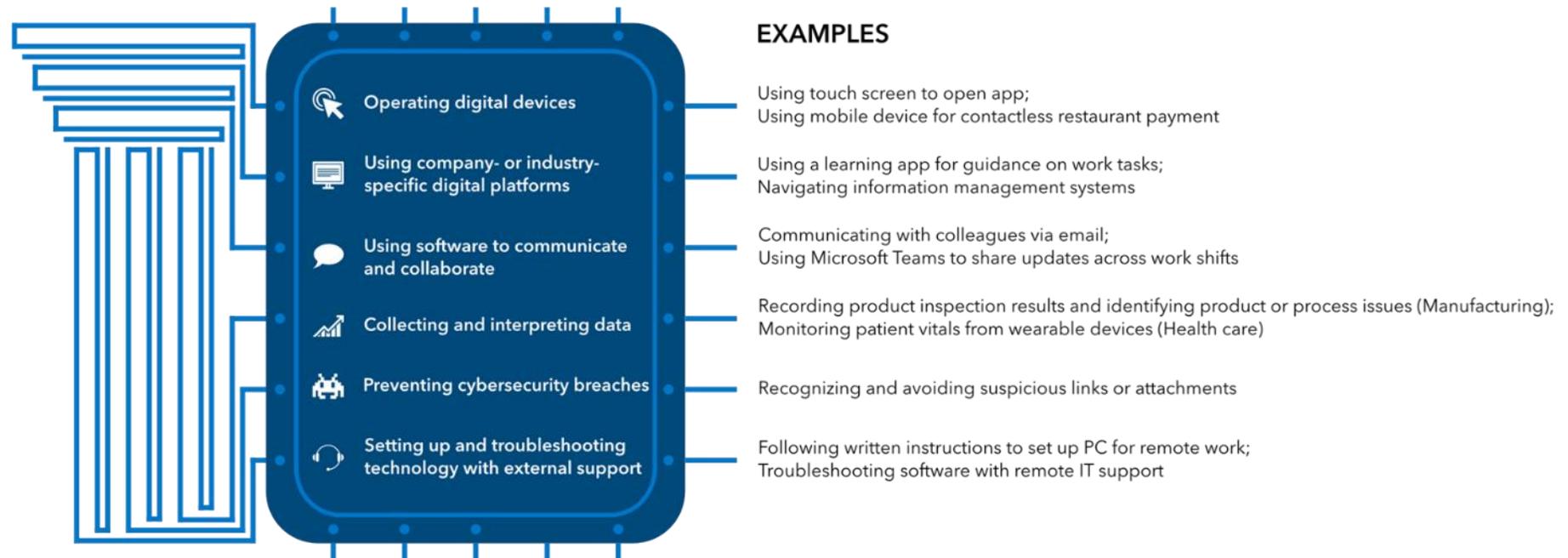
**4. Regardless of where on the digital continuum businesses were before the pandemic, almost all employers interviewed in this phase (16) said the pandemic accelerated digital transformation within their company. Employers also noted plans to sustain or build on digital changes adopted during the pandemic.**

**5. Employers listed a substantial number of examples of how workers are now being asked to use digital skills in the workplace.**

Examples employers gave of foundational digital skills workers need included the following:

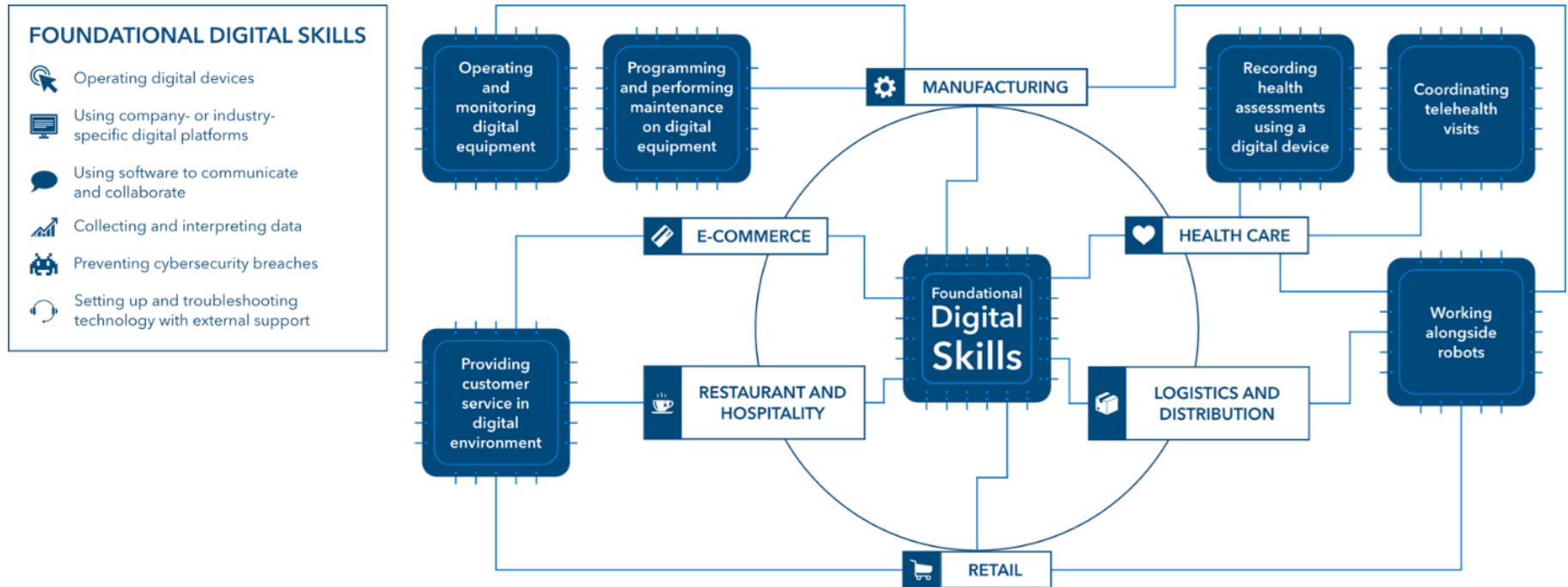
Figure 2. Foundational digital skills

## FOUNDATIONAL DIGITAL SKILLS



When examined according to industry, these skills were included:

Figure 3. Foundational digital skills by industry



### 6. Employers said they wanted workers with “digital resilience.”

Employers described the importance of worker attributes such as flexibility and adaptability as technology changes. Some employers used the language of digital resilience, which Digital US defines as “having the awareness, skills, agility, and confidence to be empowered users of new technologies and adapt to changing digital skill demands.”

### 7. Employers reported that they were investing in a range of training strategies to develop the digital skills of their workers.

Employers reported several internal training approaches to develop the digital skills of their workers, including these:

- Providing ongoing training for frontline staff
- Providing occupation-specific training (e.g., apprenticeship programs)

- Using on-site simulation centers to introduce new technologies
- Deploying managers and high performers to provide individual and small-group training
- Integrating digital skills training with ESL instruction
- Aligning training with individualized staff development and promotion plans

### **8. Employers are partnering with a variety of organizations for their digital skills training programs.**

For these initiatives, employers reported using partners including community colleges and universities, community-based education and training providers, online education and training providers, and industry experts.

### **9. Employers also reported making investments in technology and internet service to help their workers be successful.**

To help workers have access to digital technology, employers described purchasing computers or mobile devices for frontline staff, providing onsite access to computers or mobile devices, providing discounts on broadband subscriptions (for remote workers), and developing detailed instructions for hardware setup and troubleshooting (for remote workers).

### **10. Employers spoke to the importance of seeing digital transformation in terms of change management.**

Finally, employers spoke at length about the importance of managing digital transformation:

- Communicating changes to workers with honesty and empathy:
  - How changes will improve work processes
  - How changes will affect workers
- Expanding management positions and management training:
  - To support workers in adapting to change
  - To provide individualized support to workers in developing new skills

All videos, decks and resources produced as part of the Impact of COVID-19 study are at [www.aspeninstitute.org/of-interest/how-2020-affected-businesses-skills-and-equity-at-work](http://www.aspeninstitute.org/of-interest/how-2020-affected-businesses-skills-and-equity-at-work).

These learnings from the Impact of COVID-19 Study, as well as others related to the importance of equity in the workplace, raised numerous issues about how employers might want to ensure certain populations have equal access to and support for the learning opportunities they provide employees as well as opportunities they provide in their communities through partnerships with local and regional organizations.

## 3. Survey results

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As noted earlier in this report, Latino workers have been identified as the group most at risk of job displacement due to digitization and automation of economic activities in the US, and the pandemic has highlighted even more the precarity of employment situations for Latino workers. With generous support from the Google.org Foundation, the Aspen Institute Latinos and Society Program (AILAS) and the UpSkill America initiative within the Aspen Institute Economic Opportunities Program (EOP) launched the Digital Skills and the Latino Workforce Project Survey in October 2021. Administered amid the pandemic, the goal of the survey was to learn more about how digitization and automation of work are affecting the Latino frontline workforce and uncover findings that may help shape digital education and training strategies for this group of workers. Specifically, the survey aimed to provide more information on these aspects:

- Digital skills needed by Latino frontline workers and Latino business owners
- Resources needed to support digital skills development
- Promising approaches to digital skills development for the Latino frontline workforce

We use the term “frontline workers” throughout discussion of the survey results. For the purposes of this research, we define frontline workers as either hourly or salaried employees who work in production or customer-facing roles and earn less than \$40,000 per year.

### Methods

The Digital Skills and the Latino Workforce Project Survey was launched by the Aspen Institute in October 2021. The survey was designed in SurveyMonkey and distributed via the AILAS and EOP newsletters and social media channels to reach companies that are Latino owned or employ Latino workers, and workforce organizations (WFOs) that provide services to frontline Latino workers or to companies that employ Latino workers. For the purposes of our analysis, the respondents were grouped into two categories: companies and WFOs. A total of 685 individuals responded. After excluding cases that did not meet the survey criteria, the final sample included a total of 220 individuals, 49% WFOs, and 51% companies. Companies were individuals who work at a business that employs Latino workers or individuals who work at a Latino-owned business. WFOs included the individuals who work at an organization providing services to workers or companies (as described previously).

Across companies and WFOs, respondents were primarily executive or senior leaders, held positions that involved training and development or held positions in recruitment and hiring. Surveyed WFOs primarily provided training directly to Latino workers rather than to businesses that employ or are owned by individuals who are Latino. The majority of surveyed WFOs are state, regional or national-level nonprofit organizations, local community-based organizations, and community colleges. Most companies are Latino owned, employ Latino workers and have workforces that are largely composed of frontline workers. A third of the companies we surveyed have a majority Latino workforce.

In the following sections, we report on findings from our descriptive analyses of the survey data that identify the need and prioritization of digital skills among the Latino frontline workforce, resources to support digital upskilling among the Latino workforce, and approaches to digital upskilling for the Latino workforce. Charts that support survey results can be found in the appendix: [Digital Skills and the Latino Workforce Project: Quantitative Data Highlights](#).

## Findings

### **Need for and prioritization of digital skills.**

Survey respondents were asked to identify the extent to which technology adoption is a priority for companies, as well as how important digital skills are for companies' frontline workforces. WFOs and companies themselves say that technology adoption is a high priority for employers. WFOs overwhelmingly indicated (80%) that the majority of the businesses with whom they work have prioritized technology adoption, and more than half of companies identified technology adoption as a priority. Skills needed to meet this

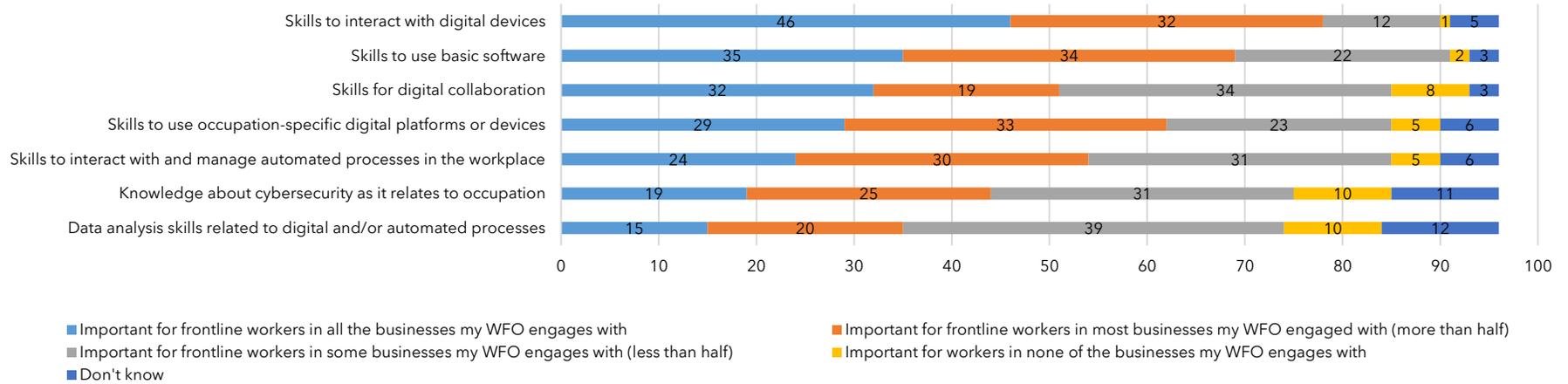
priority appear to be more basic and less occupation specific. For instance, some employers indicated that as their HR processes became increasingly digital, workers needed to use technology to access their paystubs, submit leaves of absence or apply to new job opportunities within the company.

Digital skills to interact with digital devices and skills to use basic software are among the most important types of digital skills for frontline workers, according to both WFOs and companies (see Figures 4 and 5). However, nearly 82% of companies reported experiencing minor or major challenges with identifying the skills workers need to operate digital tools and technology.

Relevant digital devices for frontline workers vary across industries, ranging from computers and tablets to scanners and cash registers. Some interviewees and survey respondents stated that as cell phones are broadly used among their Latino frontline workforce, mobile-friendly strategies for their digital skills training programming and content were preferred.

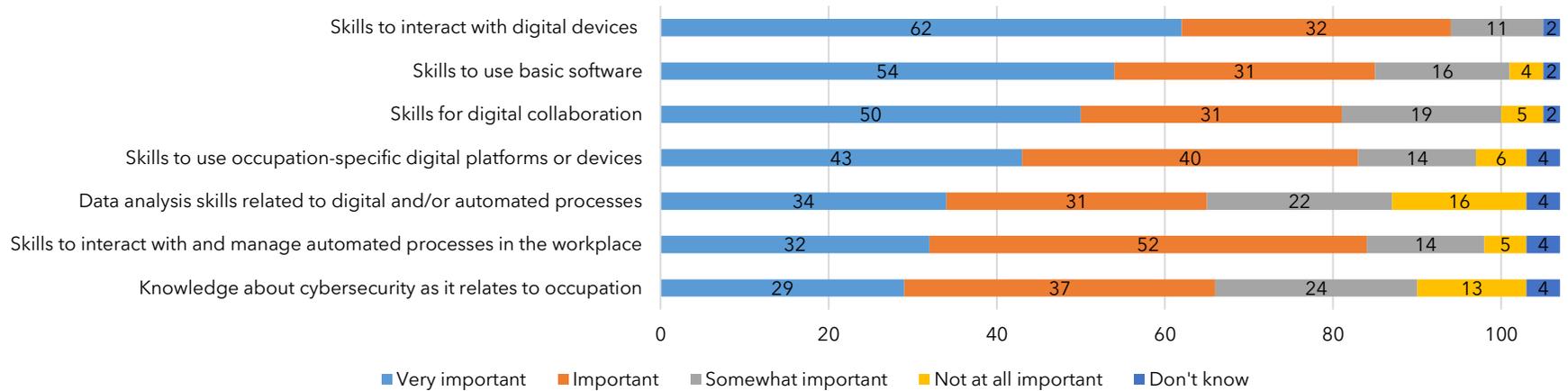
**Figure 4. Types of digital skills important for frontline workers as reported by WFOs**

To what extent are the following digital skills important for frontline workers in the businesses you engage with? (n = 111)



**Figure 5. Types of digital skills important for frontline workers as reported by companies**

To what extent are the following digital skills important for your frontline workers to perform their jobs? (n = 111)



### **Resources to support digital skill building.**

Funding, partnerships, informational tools, reports, or other materials can be important resources for helping WFOs and companies provide effective digital skills education and training. We asked both groups to identify among multiple types of resources how they fund digital skills training services, the types of partners they engage, and what additional supports would be helpful for developing the digital skills of companies' Latino workforce.

Private and public funding for WFOs and external partners for companies appear to be important for providing digital skill building opportunities. Among those WFOs who shared information about their program funding sources, nearly two-thirds fund digital skills training services with private grants or donations. Public funding was the second most common funding source: 44% of WFOs use public funds to support digital skills training.

To develop the digital skills of their frontline workforce, most company respondents work with some type of external partner. Among the 79 companies that work with a partner, more than a third work with an online-only education or training provider, and 30% work with a local community-based organization. It is important to note that the survey was conducted during the COVID-19 pandemic, when online activities were preferred by

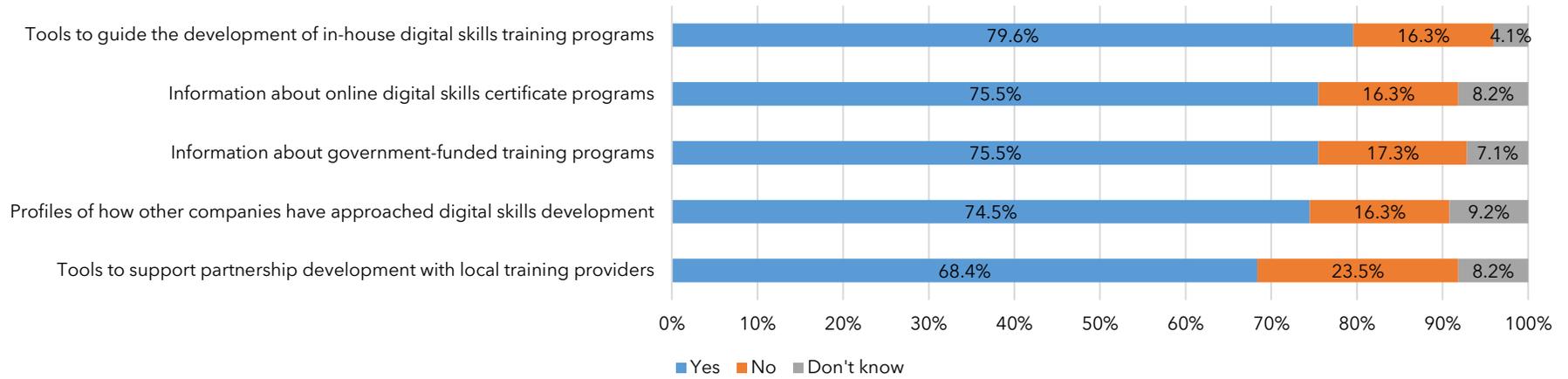
many over in-person activities, which could also explain this trend.

In terms of partnerships, some interviewees and survey respondents indicated that during the COVID-19 pandemic, they started to work with educational institutions and experts based in Latin America to provide digital skills training in Spanish to workers and small business owners in the Latino community.

When asked about specific resources that would help companies to develop the digital skills of their Latino frontline workforce, all companies said a variety of supports would be helpful (see Figure 6), but some differences did emerge among those already providing training in languages other than English or with ESL instruction. Among companies already providing digital skills training in languages other than English, profiles showing how other companies have approached digital skills development (92%) and tools to guide the development of in-house digital skills training programs (90%) were most often identified as resources that would be helpful (see Figure 7). For companies that already integrated digital skills training with ESL instruction, the same resources rose to the top, but tools to guide training development were prioritized slightly less often (86%) (see Figure 8).

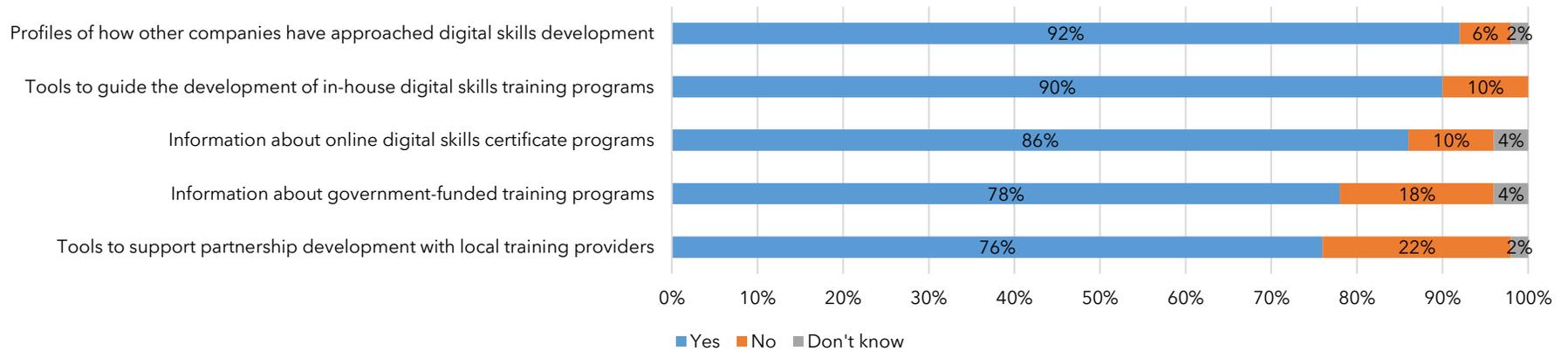
**Figure 6. Resources to help all company respondents develop their Latino frontline workforce.**

Would any of the following help your company to develop the digital skills of your Latino frontline workforce? (n = 98)



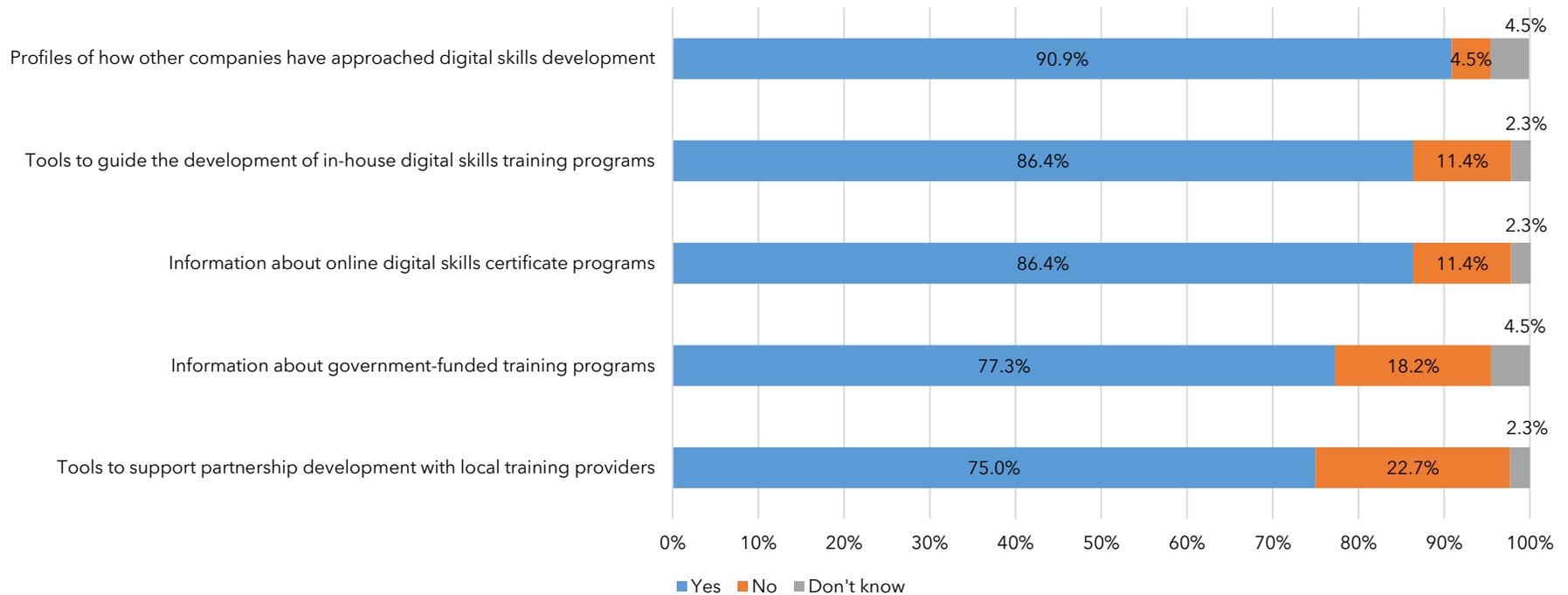
**Figure 7. Resources to help companies offering training in languages other than English develop their Latino frontline workforce**

Would any of the following help your company to develop the digital skills of your Hispanic/Latino frontline workforce? (n = 50)



**Figure 8. Resources to help companies integrating ESL instruction into training to develop Latino frontline workforce**

Would any of the following help your company to develop the digital skills of your Latino frontline workforce? (n = 44)



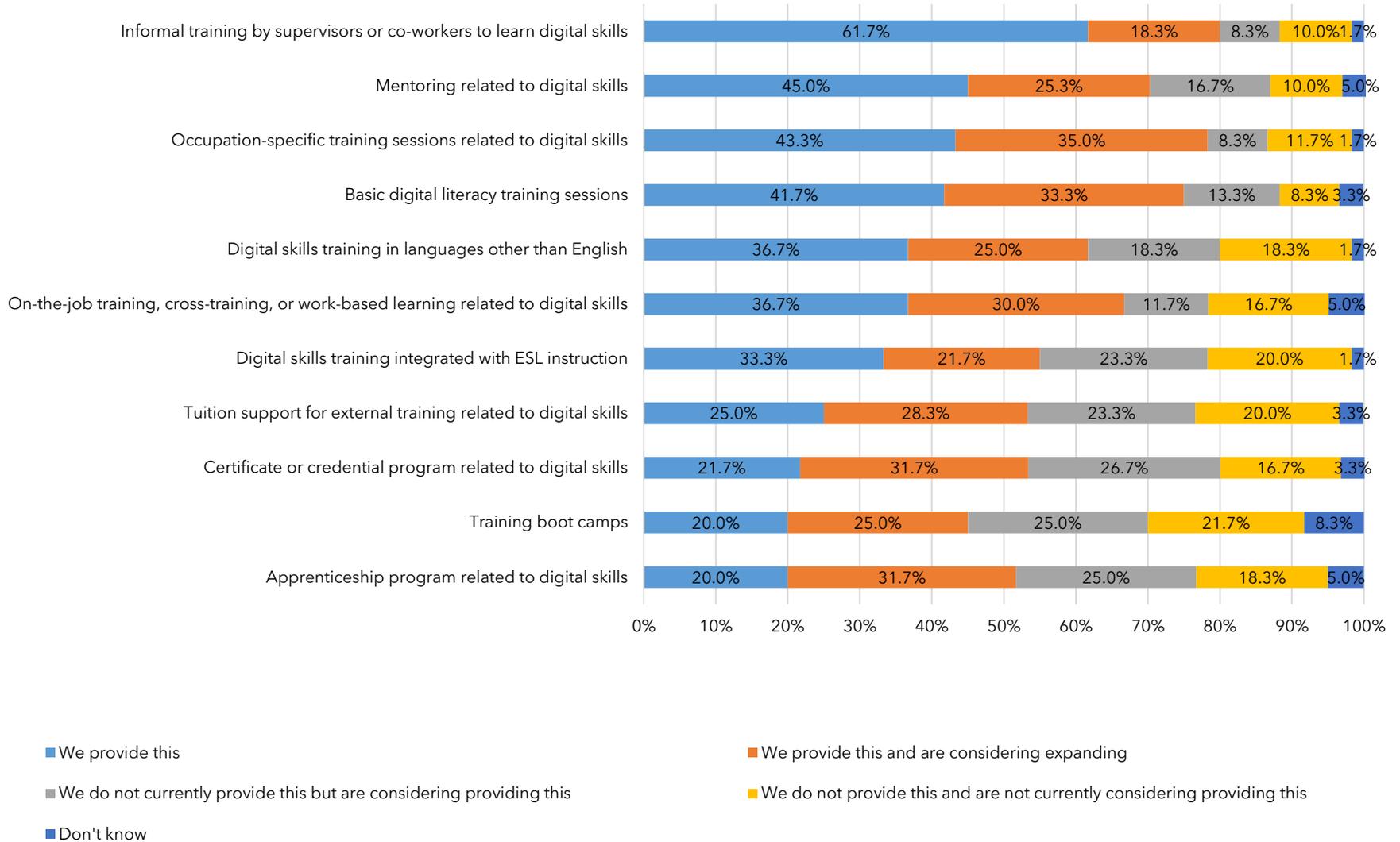
**Approaches to digital skill building for the Latino workforce.** As noted earlier, WFOs who participated in the survey provide digital skills training or education services to businesses, directly to frontline workers, or both. Interestingly, the primary audience for WFOs’ digital skills training was individuals looking for jobs (55%), not those frontline workers already in jobs. This may speak to the importance of WFOs’ capacity to connect workers with local hiring businesses as well as the digital skill needs of job seekers. It appears that, from some of our interviews, some WFOs offer digital skills training services that are in direct response to the types of skills those companies say workers

need. Relatedly, basic digital literacy training (81%) and occupation-specific digital skills training (70%) are among the common types of programming offered.

When companies did provide digital skills training, they tended to offer more in-house training programming compared to externally offered options. And among those companies providing digital skills training, Latino-owned companies appear to provide more on-the-job, interpersonal digital skill-building programming to frontline workers than other companies do (see Figures 9 and 10).

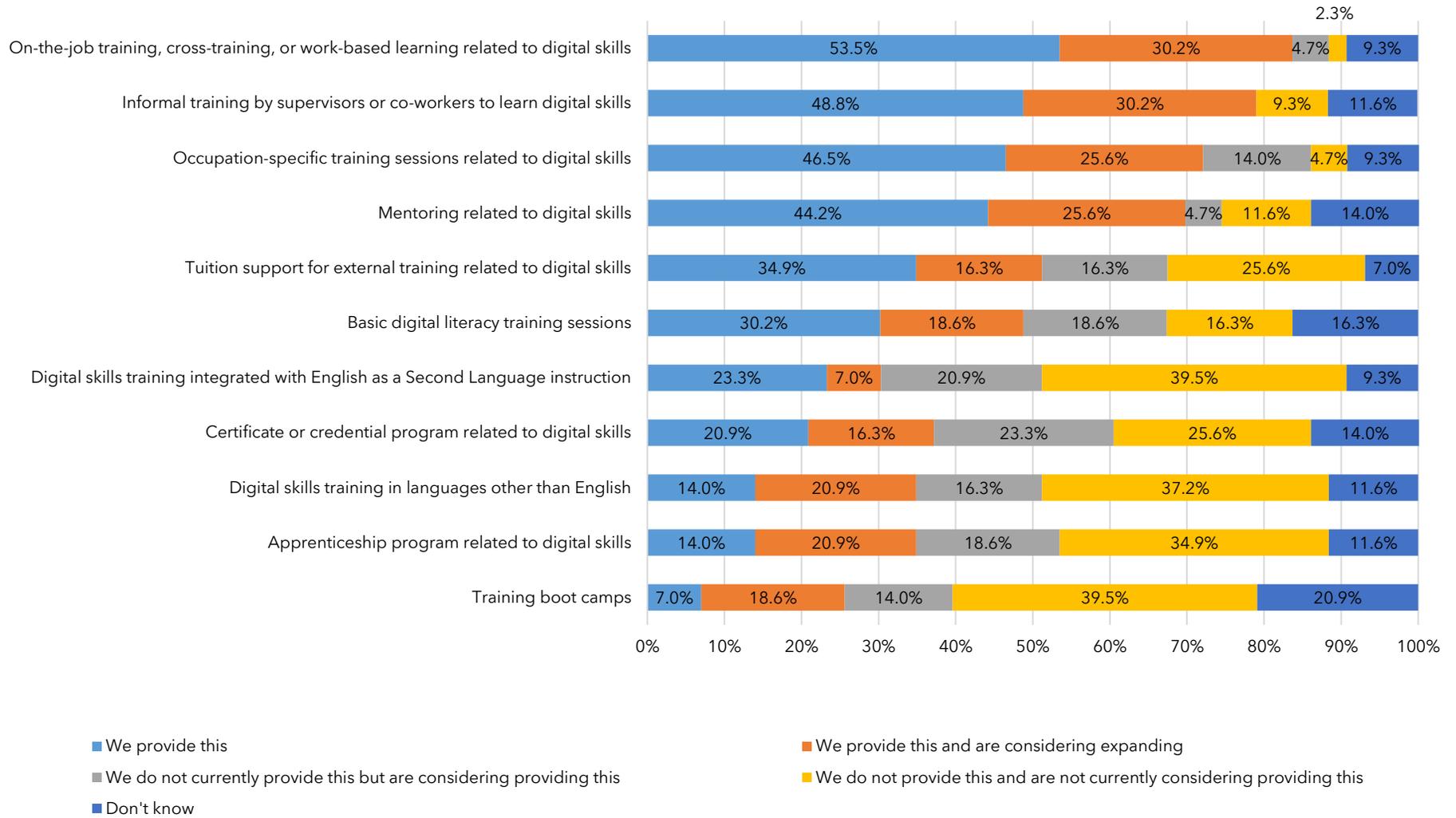
**Figure 9. Latino-owned companies' digital skill-building programming**

Is your company currently providing or considering providing any of the following types of programs to support the development of digital skills for your frontline workers? (n = 60)



**Figure 10. Non-Latino-owned companies' digital skill-building programming**

Is your company currently providing or considering providing any of the following types of programs to support the development of digital skills for your frontline workers? (n = 43)



This trend was further confirmed by the interviews conducted by the team, as many Latino small business owners shared an informal approach to digital skills development in the workplace. This approach consisted of leveraging their younger, digitally native, often bilingual Latino workforce as

mentors of their senior co-workers, many of whom struggled with new technology and platforms. Conversely, the senior employees provide mentoring around soft skills, trade expertise, and institutional knowledge, thus creating a win-win situation for both parties.

A similar intergenerational collaboration is at the core of [Digital Nest](#), a nonprofit organization in California's Central Valley. Their [Bizznest](#) program provides a bridge between digitally upskilled local youth and community small businesses in need of digital services (most of them Latino-owned). Young members between 16 and 24 years old who join Digital Nest receive digital skills training and eventually become digital transformation advisors, getting on-the-job experience while helping to support Latino small business owners to develop their digital presence and branding. In 2021, they had a portfolio of 31 projects, with \$53,000 in revenue and 15 active member consultants. To supplement these efforts, Digital Nest recently launched [@831](#), an initiative that aims at providing microsites for small businesses, enabling them to access e-commerce training and development.



## 4. Workforce organization and employer profiles

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One of the goals of the research project was to identify promising approaches to digital skills development targeting Latino frontline workers or business owners. In this section, we explore some

of the initiatives that workforce organizations and employers are implementing around the country to address the challenge.

### Austin Community College: Digital fluency for today's jobs initiative

[Austin Community College \(ACC\)](#) is a nationally recognized college serving Central Texas as a gateway to higher education, providing open-door access to education for students who want to earn a degree, learn a marketable skill, or advance their careers. Founded in 1973, ACC has grown to 11 campuses and nearly 76,000 students. Among other achievements, ACC was listed as one of the top 25 community colleges for Hispanics. They also earned the Seal of Excelencia certification.

Austin Community College District is addressing the digital skills challenge through its [Digital Fluency for Today's Jobs initiative](#). The initiative originated through ACC's involvement in the BACK TO WORK 50+ grant awarded by [AARP Foundation](#) through the [Social Innovation Fund](#). The grant helped people over 50 years old get jobs. A significant proportion of the participants were Latinas who did not have the confidence to apply for a job due to lack of digital skills. Considering that Austin is a high-tech industry hub and that 75% of local job postings require advanced digital skills, there was an urgent need to address the skills mismatch. The digital blind spot, however, was not exclusive to the 50+ age population but was also true for [approximately half of the Black workforce and 57% of the Latino workforce](#).

ACC's childcare and development program attracted an overrepresentation of Latinas, who were taking six or more years to complete degrees. For many of them, graduating was an incredibly arduous process; they were stretched too thin by working several jobs in addition to maintaining caretaking responsibilities. Even more disheartening, their education resulted in low-paying childcare jobs averaging \$8 an hour in a city with soaring housing costs. As a result, ACC administrators identified a unique opportunity and are in the process of embedding digital skills programming into their childcare and development curriculum to open career pathways leading to better-paid positions, such as management positions in daycare centers.

To enhance participants' confidence and adapt to their evolving needs, ACC decided to transition from third-party platforms to developing their own competency-based, user-friendly, and self-paced platform. Based on research identifying [skills most in demand to get an entry-level job](#), ACC integrated training addressing soft skills such as communication and organizational skills with digital fluency in software such as Microsoft, Google, and Apple suites. Other sought-after digital skills included data analytics, HTML and CSS for website design, Photoshop, and social media marketing.

Digital fluency<sup>4</sup> rather than digital literacy<sup>5</sup> was the guiding principle for ACC's curriculum design. ACC recognized that the empowerment of new digital users required adaptability and a fluid approach to lifelong learning to succeed in a changing technological landscape. The programming was structured into four courses aligned with specific competencies required by employers:

1. Computer Skills for Job Readiness (Microsoft Office, Google, Apple Suites)
2. Internet & Web Page Development (Analytics, HTML and CSS, web builders, Photoshop)
3. Presentation Graphics Software (Advanced PowerPoint, Analytics, social media, video design)
4. Capstone Course (covering the previously mentioned digital fluency skills plus professional competencies such as communication, collaboration, organizational skills and problem-solving)

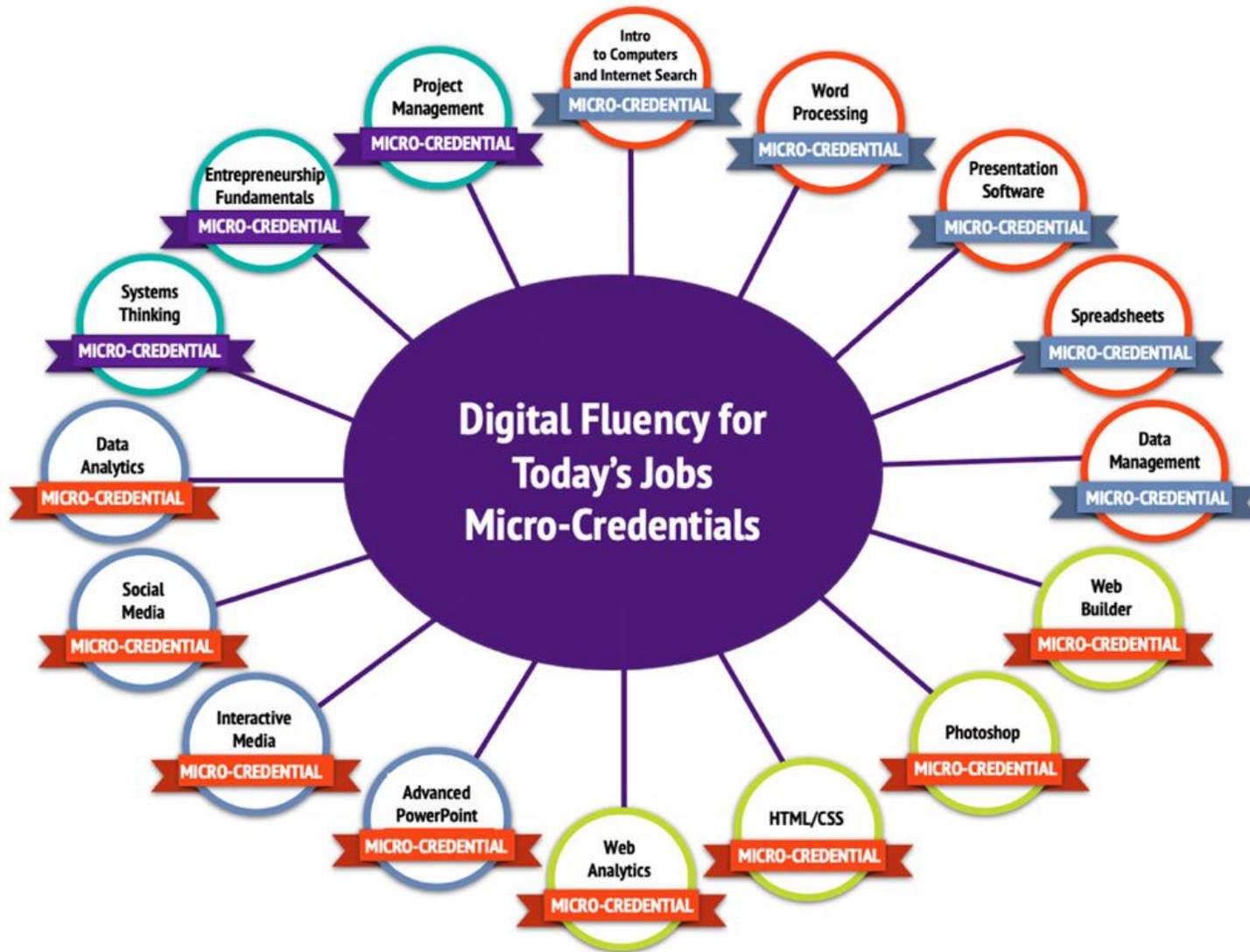
The first course was fully developed and tested in summer 2021, with positive feedback, and will be offered to the public in summer 2022. Funding from a [Texas Reskilling and Upskilling through Education grant](#) via the [Governor's Emergency Education Relief fund](#) has enabled the development of the three remaining courses; these will be offered in the summer and fall of 2022. The programming concludes with an additional free four-week course in digital job search skills titled Strategies for Today's Jobs. All four courses lead to an occupational skills award that stacks into two credit-bearing certificates, then on to a two-year degree and, ultimately on to ACC's new four-year degree in software development.

However, ACC's administration found a need to offer digital fluency not just to some students but to all students. As a result, the four courses are now in the process of being built and offered as smaller, noncredit micro-credentials aligned with professional core competencies. These micro-credentials will serve as [ACC's Quality Enhancement Plan](#) for reaccreditation purposes through the Southern Association of Colleges and Schools Commission on Colleges.

<sup>4</sup> ACC adopts the following definition of [digital fluency](#): "the ability to use one's knowledge of modern digital tools to communicate, gather, analyze, and manipulate data to address a problem or convey an idea to diverse audiences in meaningful and ethical ways. The digitally fluent also embrace curiosity, critical thinking, collaboration, and lifelong learning."

<sup>5</sup> According to the [American Library Association](#), digital literacy is defined as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills."

Figure 11. Digital Fluency for Today's Jobs: Micro-Credentials



Source: Austin Community College District.

ACC identified the need to build a sense of community that can feel like a safe space for students to ask for help and faculty to support accordingly, which can be challenging in virtual environments. The key to this effort will be the incorporation of a system of floating tutors, or “digital navigators,” into the programming that can meet students’ unique learning needs. Faculty and staff training is also critical to keeping pace with high-demand digital workforce skills, which can be met with this competency-based education model. Supportive reinforcement tools that have proved effective include artificial intelligence-driven messaging with positive, customized feedback. Micro-badges will serve as incentives to engage students and increase completion rates. The ACC team is also considering hiring Spanish-speaking tutors and translating materials into Spanish to address the needs of their Spanish-speaking student body and community members, many of whom are small business owners requiring digital upskilling.

Finally, there is no progress if digital devices, access to broadband, and basic computer skills continue to be out of reach for many. Although ACC campuses are equipped with computer labs called [ACCelerators](#) offering PC and Apple computers, access to broadband internet, and staff providing tech support, one critical pain point surfaced: A training module on basics such as how to open the computer or how to access the hard drive was sorely missing.

As ACC moves forward and launches its pilots later this year, others are taking notice. The City of Austin utility company has shown interest in exploring the digital upskilling of its signs and markings employees within the Austin Transportation Department to open career pathways in management for some of their frontline workers, many of whom are Latinos. If successful, the ACC case can inspire other Hispanic-serving institutions working to advance digital equity and economic opportunity in their communities.



## 32BJ Training Fund: Digital skills development for building workers

The [32BJ Service Employees International Union](#) (often shortened to 32BJ) is a branch of Service Employees International Union headquartered in New York City, which represents mainly building workers (maintenance, custodial, janitorial, window cleaners) and has approximately 175,000 members in 10 northeastern states, Washington, DC, Florida, and other parts of the US.

The [32BJ Training Fund](#) is a joint-labor management, nonprofit organization that provides education and vocational training to eligible 32BJ members. The Training Fund's office is in New York City, with satellite offices in Boston, New Jersey, Philadelphia, Pittsburgh, and Washington, DC. The Training Fund offers free courses and seminars ranging from English as a Second Language to

Green Buildings at more than 55 locations. Most participants in the locations outside of New York are Hispanic or Latino.

The 32BJ Training Fund first started to focus on addressing the digital divide about 20 years ago through computer purchase programs and providing computers and basic digital skills training for members and their families. Currently, their basic computer skills training focuses on meeting participants where they are, including using a mouse, navigating the internet, using social media, and mastering the Microsoft Office suite. Members who sign up for a computer class go through a self-assessment to determine their starting level.

Figure 11. 32BJ Training Fund's computer lab.



Source: 32BJ Training Fund.

Some of the advanced digital skills programming focuses on more specialized industry-specific software, platforms, and tools. One course, *Running a Building with a Computer*, centers on managing tenant and vendor communication along with automated processes in buildings through tools such as [BuildingLink](#), [Building Engines](#), and [LogCheck](#). This scenario-based training enables participants to test-drive various platforms and get hands-on experience. Developed in partnership with New York State Energy Research and Development Authority, the 32BJ Training Fund also offers a year-long *Building Management Systems* course featuring virtual buildings to provide hands-on interaction with building-wide heating, ventilation, and air conditioning systems. Basic computer skills are a prerequisite for this course. The 32BJ Training Fund also provides training in other highly sought-after digital skills in the industry such as the US Environmental Protection Agency's [ENERGY STAR Portfolio Manager](#), a software that facilitates establishing a benchmark for a building's energy use. This skill is becoming increasingly critical as more US cities introduce the requirement for buildings to report their energy use. Finally, the 32BJ Training Fund also offers a hardware course that teaches members how to perform basic computer repairs, including tasks such as cleaning the hard drive or upgrading the memory.

Most of the basic digital skills programming takes place in person. The 32BJ Training Fund center in New York City has its own computer classrooms and a lab that members are allowed to use beyond

class time. In other states, they partner with community colleges and their continuing education services to get a space and instructor for their programming. In the first few months of the COVID-19 pandemic, the 32BJ Training Fund transitioned their programming to a remote format. However, they soon realized that this was not feasible for most computer classes. Some of the obstacles identified involved most of their participants' lacking consistent access to computers or to broadband connectivity for the training. For instance, they had cases of many participants logging in on a single smartphone. Additionally, troubleshooting became extremely complex, including dealing with different operating systems or devices, which was not an issue in the computer lab. The only computer programming that worked well remotely were the advanced classes such as the *Building Management System* courses and *Running a Building with a Computer*, as its participants were required to already be proficient in digital skills.

In terms of future steps, the 32BJ Training Fund envisions developing a digital device-lending library for members to improve access to devices, one of the key barriers they identified through the pandemic. Currently, all the programming they provide, except for Citizenship, safety and compliance courses and Spanish Language High School Equivalency, is in English; English as a Second Language is a prerequisite for non-English speakers to join any other courses. Nonetheless, they are currently reevaluating this approach.

## Instituto del Progreso Latino: A community-based approach to computer literacy training

[Instituto del Progreso Latino](#) is a community-based organization founded in 1977 in Chicago, Illinois. Its mission is to contribute to the fullest development of Latino immigrants and their families through education, training, and employment that foster full participation in the changing U.S. society while preserving cultural identity and dignity. Its education pathways are built so that all people, regardless of skill level, can access them. Instituto reaches immigrants who are eager to learn English, single mothers who wish to launch fulfilling careers, and young people who have been pushed out or dropped out of high school. A feature that distinguishes Instituto from other community-based organizations is that it owns two high schools with approximately 800 students and a college of nursing, one of its most successful initiatives. Students constitute a central piece in its community outreach, as they help to disseminate information on Instituto's programming with their parents, relatives, and friends.

Instituto is one of the organizations that received support from the [Latino Digital Accelerator Program](#), an initiative by [Hispanic Federation](#) funded by [Google.org](#) to strengthen institutions serving the Latino community with workforce development and digital training programs in both English and Spanish. The college of nursing saw the creation of its inaugural computer literacy class

under the umbrella of the Latino digital accelerator program. This class focuses on mastering Advanced Testing Instruments (ATI), a platform used in the health care industry. It also provides additional training on keyboarding skills, which is required for entering patients' information into the system.

Instituto also implemented computer fluency training in its high schools, providing a customized, remote program outside school hours. Some of the skills covered include introduction to various types of devices, introduction to Windows 10 operating system, files management, introduction to the internet, skills related to both Google Suite and Microsoft Suite, and business letter writing.

In 2021, Instituto launched a five-week digital literacy camp for the general audience, taking place from 6 to 9 p.m., three days a week, totaling 45 hours of computer instruction available in both English and Spanish. The course was advertised mainly through social media, which proved to be an effective tool, as Facebook is particularly widespread in the community. Additionally, flyers are usually shared with community partners, such as the City College of Chicago. At first, the communication campaign was in English only, without the expected response. Eventually, communication materials were translated to Spanish, with better results (see Figure 12).

Figure 12. Bilingual flyers promoting Instituto's digital literacy camp

## FALL 2021 DIGITAL LITERACY CAMP

*Via Zoom*



## CLASES DE COMPUTACIÓN BÁSICA EN ESPAÑOL

*En línea - Via Zoom*





**THE PROGRAM INCLUDES**

- WEEK 1: Getting Started with Excel
- WEEK 2: Formatting Excel Worksheets
- WEEK 3: Formulas & Functions
- WEEK 4: Tips for Printing Excel Spreadsheets
- WEEK 5: Getting Started with Word
- WEEK 6: Formatting Word Documents
- WEEK 7: Internet Basics & Email Etiquette
- WEEK 8: Developing your Resume



**EL CONTENIDO DEL PROGRAMA INCLUYE:**

- Funcionamiento básico del programa Excel.
- Formateo de hojas de trabajo Excel.
- Formulas & Funciones.
- Cómo imprimir hojas de trabajo Excel.
- Funcionamiento básico del programa Word.
- Formateo de documentos en Word.
- Funcionamiento básico de internet & cómo enviar correspondencia electrónica y la etiqueta de comunicación por email.
- Cómo crear un curriculum de trabajo.

CLASSES TAUGHT BY A MICROSOFT OFFICE SPECIALIST (MOS), MASTER INSTRUCTOR

**Course Schedule:**  
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A \$50.00 Enrollment Fee is required to secure your seat. The Enrollment Fee will be refunded after completion of the Digital Literacy Program.

EL ESPACIO ES LIMITADO.

Para más información comunicarse con  
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Email: l.antonino@idpl.org

FECHA DE INICIO DE CLASES

Enero 24, 2022 - Febrero 17, 2022

DIAS DE CLASE:

lunes, martes, y jueves  
6pm - 9pm

Source: Instituto del Progreso Latino.

Instituto has a customized approach to each of its students, meeting them where they are, with participants taking a self-assessment survey upon registration to identify their skill levels and needs. The ages of participants vary widely, starting at 24 years old, including the “abuelitos” and “abuelitas” (grandpas and grandmas) who are interested in learning how to use a smartphone. Classes are taught remotely via Zoom. The instructor has pre-class hours and after-class hours for troubleshooting and assistance and is also available at other times by appointment.

If participants don't have consistent access to digital devices for the course, Instituto can lend them laptops that Instituto was able to purchase through the Hispanic Federation's Latino Digital Accelerator Program. In this sense, experience shows that the right question to ask participants is not whether they have a computer at home, but whether there is a learning device per member of the household. Regarding internet connection, Instituto partnered with Comcast to facilitate economical internet access in the community. Prior to the pandemic, hotspots were installed around Instituto's facilities for community members to

freely use. Some of the students were loaned mobile phones with access to a hotspot to gain stable internet connectivity at home.

Instituto's approach to their work with the community is holistic, including critical wraparound services to facilitate the successful completion of the program. Every student or community member who engages in any of the programming goes through an assessment process covering academics, income support, employment, and financial areas to determine the participant's needs and barriers at program entry and provide the supportive services needed to successfully complete their training of choice and find gainful employment.

In terms of next steps, Instituto representatives interviewed for this project expressed that the curriculum of their computer fluency class focuses on basic skills, which can support students only into entry-level positions. With more funding and resources, they envision the development and implementation of more advanced digital skills training with stackable and customizable content, thus building pathways to better opportunities.



## Western Association of Food Chains: Supporting digital skills development in the food industry

The [Western Association of Food Chains \(WAFC\)](#) was founded in 1921 by a group of Los Angeles grocers. In those early years, it was acknowledged that successful food industry companies would need people with higher levels of education to compete effectively. Today, the WAFC remains committed to advancing the food industry through education and leadership. While not entirely constrained geographically, these efforts remain rooted in the 14 western states. The core educational programs supported by the WAFC are the USC Food Industry Management Program, the USC Food Industry Management Executive Program, and the community college [Retail Management Certificate Program](#). The WAFC's vision is to be the recognized leader in identifying and facilitating food industry-related educational programming that helps food industry associates become leaders in the industry.

Currently, only about 30% of workers in the industry have an associate's degree or higher. The Retail Management Certificate Program supports career advancement for underserved populations working in the grocery segment of the retail industry. To create the program, an industrial psychologist was hired to identify the critical competencies that a worker needs for promotion to the store manager position. The program is 100% online, so it can be accessed by anyone, anywhere, without having to worry about childcare or transportation. However, with the pandemic, it became apparent that many participants did not have the required digital skills, access to digital devices, or broadband services to successfully complete the program. Additionally, approximately 30% of the industry workforce are non-native English speakers. Since the Retail Management Certificate course is implemented in partnership with community colleges, current policies require the content to be delivered in

English. This has been pointed out as an additional obstacle to advancing the careers of non-English speakers in the industry. However, bilingual instructors can help people with low or intermediate English skills when they face difficulties.

For this segment of the population, Founding Director of the Retail Management Certificate Program Cherie Phipps found that digital literacy and English literacy were highly correlated, becoming a double challenge to many workers. As a result, WAFC started piloting a variant of the on-ramp [English at Work](#), created by the National Immigration Forum. WAFC is currently piloting a variant of English at Work specifically designed for the grocery industry and implemented in 10 companies in California and Arizona. The pilot includes many wraparound supports, exceeding the scope of a traditional English as a Second Language program.

In parallel, to address the digital divide among workers in the industry, WAFC is developing a partnership with [Human-i-t](#), a California-based nonprofit organization that works with underserved populations around three pillars:

- Collecting and repurposing old technology (cash registers, laptops, computers)
- Distributing the refurbished technology among low-income populations
- Improving digital access through the provision of hotspots and internet connectivity as well as helping community members to prove their low-income status to access Emergency Broadband Benefit

Human-i-t created an eight-hour computer literacy course (free to California residents) covering basic skills such as what a mouse is and how to use it, how to send emails, and how to navigate the internet safely. When participants sign up for the computer literacy course, they need to fill out a form (either in Spanish or in English) on their eligibility for additional support in accessing digital devices or hotspots. The form facilitates the data collection process to understand participants' needs.

Until now, Human-i-t has been working one on one with individuals who access its website and get support in determining their eligibility for public benefits. WAFC wants to test this concept in bulk with affiliated employers by offering the programming to large groups of workers. Since WAFC's constituency are the employers in the industry, the dissemination and advertising of the programming take place through the affiliated firms.

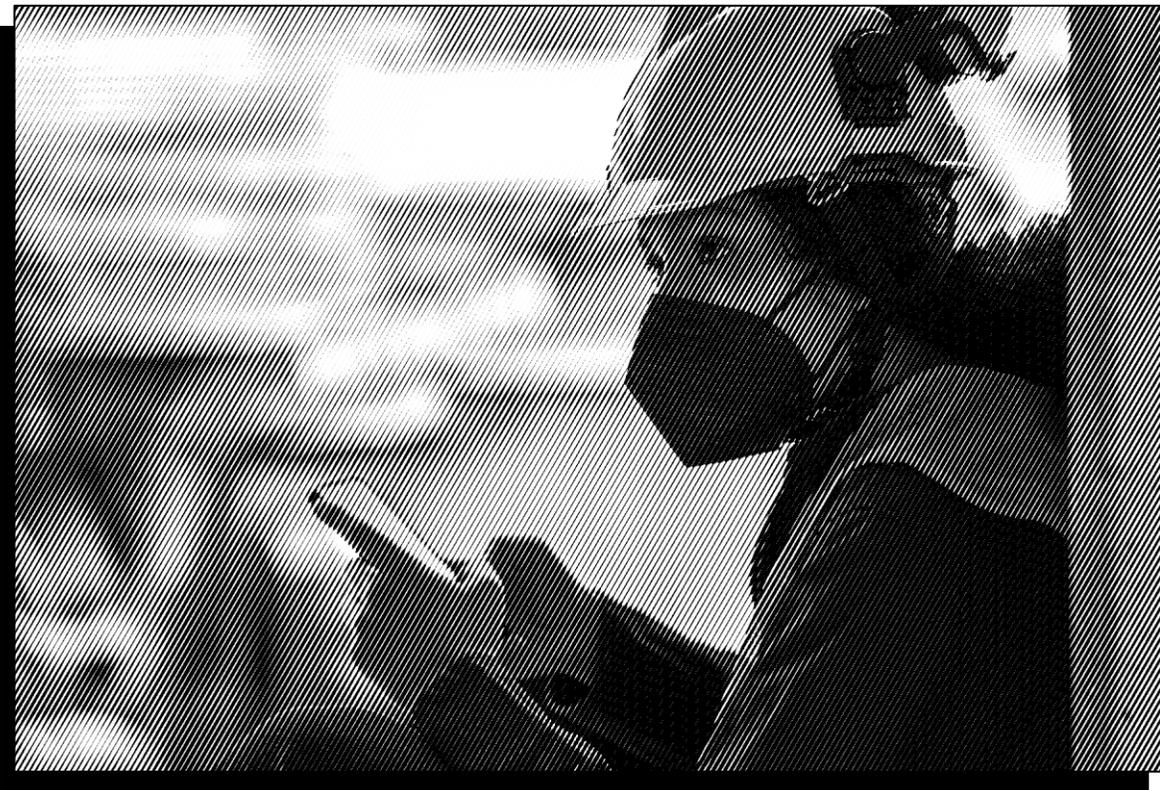


Figure 13. Bilingual flyers promoting WAFC and Human-i-t's computer fluency courses



Source: WAFC.

By the time of this publication (March 2022), a group of employers had recently been onboarded to participate in the pilot experience. The following months will be critical in assessing the initiative's results and

identifying whether the model can be further adopted by other employers in the industry beyond the western states.

## Nashville Area Hispanic Chamber of Commerce: Digital skills for small business owners and solopreneurs

While Latinos are the leading demographic in terms of business creation, they also tend to start small and remain small: 34% of Latino-owned employer firms are microenterprises, or firms with \$100,000 or less in annual revenues, compared to just 17% among white-owned employer firms (Kramer Mills et al. 2018). Latinos are also more likely to be sole proprietors: 92.5 % of Latino-owned businesses are single-person firms, versus a US average of 83.1% (Perez et al. 2021). For this segment, digital skills training also represents an opportunity to become more competitive, increase income, and enhance resilience.

The [Nashville Area Hispanic Chamber of Commerce](#) is a 501(c)(6) nonprofit member-based organization founded in 2000. The Chamber's mission includes the following:

- To provide the leadership that will create the best possible environment in which Hispanics can operate a business while enhancing the region, making it a desirable place to live and work as well as visit
- To serve as a bridge between the Hispanic business community and the general business community
- To promote and support the domestic and international economic development of Hispanic businesses and individuals

The Chamber recently launched a 15-week digital skills training program focused on business tools

for small businesses. The Digital Empowerment and Acceleration for the Latin@ Entrepreneur program had the first cohort of 40 Latino business owners, most of them Latinas, who graduated in December 2021. While engaging with an already overwhelmed segment of the market is always challenging, the fact that the classes were virtual, free of charge, in Spanish, and after business hours for most of the participants (8 to 10 p.m.) contributed to a successful experience; 66% of participants stated that they had overcome their fear of using technology.

One of the platforms covered in the program was [Quickbooks](#), which is in high demand among small business owners and solopreneurs. It empowers them to take on bookkeeping tasks without the need to hire an accountant. To the many small business owners who would not be able to afford accounting services otherwise, this software can mean a breakthrough in applying for credit and expanding operations. Some of the small business owners interviewed for this project also pointed to Quickbooks as one of the digital tools they have recently implemented in their operations.

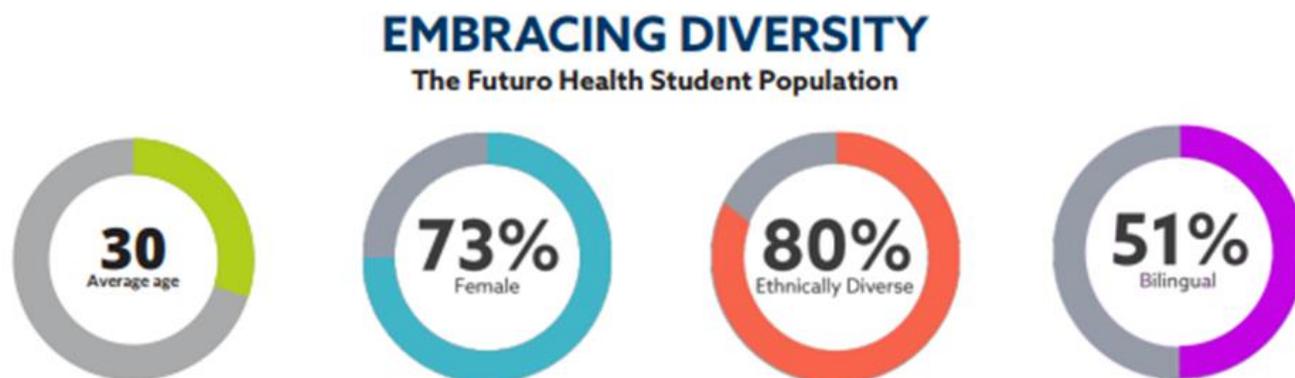
The program implemented by the Nashville Area Hispanic Chamber of Commerce also addressed the importance of businesses developing an online presence: a critical content, considering that 93% of Latino-owned employer businesses have no e-commerce sales, compared with 89% for white-owned employer businesses, a disadvantage in an increasingly digital world (Perez et al. 2021).

## Futuro Health: Transitioning into telehealth

[Futuro Health](#)'s nonprofit mission is to improve the health and wealth of communities by growing the largest network of credentialed allied health workers in the nation, starting in California. Futuro

Health makes education journeys into allied health careers possible by growing the talent that employers need and creating a path to opportunity that workers want.

Figure 14. Demographics of Futuro Health students



Source: Futuro Health.

Futuro Health is on track to graduate 10,000 students by 2024 to help fill the nation's critical demand for health care workers. Allied health workers comprise 60% of the nation's health care workforce. California alone is estimated to need approximately 500,000 new allied health care workers by 2024. Since its launch in 2020, Futuro Health already has supported over 5,000 diverse adults, 80% of whom are ethnically diverse and 51% bilingual, in their educational journey.

"There are millions of open jobs and millions of unemployed or under-employed adults in the US," said Van Ton-Quinlivan, CEO of Futuro Health. "Allied health credentials open up opportunities into in-demand health care roles."

Futuro Health's solutions activate best practices in workforce development:

- Consulting employers on their needs
- Offering generous tuition scholarships and student supports to invite diversity
- Curating and commissioning of education programs at scale
- Focusing attention on both interpersonal and technical skills
- Providing adult-friendly on-ramps and a live support system that leads to student success
- Empowering students' education-to-work transition
- Employing data science to continuously improve the student journey

Futuro Health's catalog offers programs that lead to in-demand health care careers:

- Medical assistant
- Phlebotomist
- Patient care representative
- Community health worker with behavioral health emphasis
- Sterile processing technician
- Health care data analyst

[Kaiser Permanente](#) and [Service Employees International Union-United Healthcare Workers West](#) provided the initial funding to establish Futuro Health in order to grow the next generation of health care workers. Futuro Health has since cultivated a workforce ecosystem to deliver scale, diversity, and agility.

During the pandemic, Futuro Health played a critical role to employers in training allied health workers. The first few COVID-19 surges prompted shelter-in-place requirements and meant that patients could no longer walk into public health clinics. This resulted in lost revenues to Federally Qualified Healthcare Clinics (FQHCs), many of which were already struggling with limited resources. These clinics recognized the need to cut over to telehealth services but doing so challenged the skill sets of their staff. Futuro Health heard the workforce concerns of FQHC leaders and sourced the University of Delaware to offer a fully online, self-paced curriculum to equip clinic staff responsible for making the operational transition to telehealth. Over 227 individuals enrolled in the 15-week program in clinics throughout California. Futuro Health navigators supported students with coaching, leading to a completion rate of 92%.

For more information about Futuro Health, the courses it offers, and its network of employers, visit [www.futurohealth.org](http://www.futurohealth.org).

## 5. Program design and operations recommendations

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Through the survey and interviews conducted as part of this study, employers and workforce organizations shared several practices they believe are important to the success of digital skill

development for the Latino workforce. Based on the information they shared, we offer the following recommendations related to the design and operation of these programs.

### General education and training recommendations

The field of learning and development is established far beyond what can be covered in this report. However, we offer the following general recommendations that have surfaced through UpSkill America's work with employers to study and share learning about education and training programs and strategies to help frontline and entry-level workers advance in their careers.

- Create a culture of learning. Companies that want workers to be lifelong learners who learn and grow with the company need to create cultures where learning opportunities are adequately provided, promoted, tracked, and rewarded. For help creating a culture of learning, see the UpSkill America [Strategic Guide to Creating a Culture of Learning](#).
- Design learning programs that are accessible, coordinated, and structured. Before implementing programs, employers should review their program goals and needs and make sure programs are accessible, coordinated, and structured. For more information on the company policy decisions that should be considered in the program design process, see [Tuition Assistance Policy Discussion: Roadmap to a Skilled and Educated Workforce](#).
- Be generous with learning opportunities. Make learning available to as many workers as possible, as early as possible, as often as possible, and as flexible as possible. Consider these options:
  - Make learning opportunities available to all workers, including full- and part-time and frontline and entry-level workers.
  - Let employees start learning from day one.
  - Create personal learning plans with each employee at hire and review them often.
  - Build learning opportunities into work schedules.
  - Make learning flexible by offering anytime, anywhere options.
  - Pay directly (not via reimbursement) for outside programs so cost isn't a barrier (see [Key Elements of Successful Tuition Assistance Programs: A New Model for Workforce Development and From Tuition Reimbursement to Tuition Disbursement: Key Components and Considerations](#)).

- Provide both formal learning (certificate and degree programs) and informal learning (mentoring and coaching) opportunities.
- Use a broad range of short-term learning program structures to expose individuals to new opportunities (i.e., internships, fellowships, limited time assignments, [rotational programs](#), sabbaticals).
- Recognize learning. Making the time, effort, and sometimes financial investment required to complete education and training programs often comes at a sacrifice to the individual participants and their families. Reward this effort by recognizing learning, even when the gains are small and incremental.
- Track learning and tie it to advancement. Track the learning (both employer-funded and individually paid) of your employees and have clear career advancement pathways articulated within your company so workers know what advancement opportunities are potentially available to them after program completion.
- Reward managers for developing employees. Companies that want to see employees learning and growing with the company need to have a system in place whereby managers are rewarded for developing those they supervise.



## Recommendations for designing comprehensive programs

The process of designing education and training programs requires several decisions about what services and practices should be included in or excluded from the program. The following is a list of training program components that workforce organizations and businesses have incorporated into their digital skills training programs to better ensure program completion, skill attainment, and job placement and advancement.

This list was compiled from interviews the Aspen Institute's Latinos and Society program and the UpSkill America initiative of the Economic Opportunities Program conducted with workforce organizations and businesses as part of the Digital Skills and the Latino Workforce project and augmented with additional information from employer interviews of the [Lasting Impact of 2020: How 2020 Transformed Businesses, Skills, and Equity at Work](#) project UpSkill America conducted in 2020-2021.

Those designing new programs or evaluating existing programs should ask these questions to ensure the program being designed is as comprehensive as possible to better ensure program completion and to maximize impact for participants.

### Pre-enrollment

Prior to enrolling individuals in the program, check the following:

- Does the prospective student have a clear interest in the content area and in the work that graduates will perform?
- Does the prospective student have a clear understanding of what is required of them to complete the program, how long it might take, how much it might cost, and any additional requirements such as

licensure or certification that might be required beyond the program?

- Does the prospective student have a clear understanding of the career options that might await program graduates?

### Preprogram

Prior to the program beginning, assess participant's readiness in the following areas and provide adequate support where needed:

- Does the student have access to adequate internet service for the course?
- Does the student have adequate hardware and software to do the work required in the course?
- Does the student have access to adequate technical support to help them troubleshoot any technology issues that might arise during the course? (Technical support in the student's native language is recommended.)
- Does the student have adequate financial support to complete the program? (If not, what resources such as paid training time or stipends can be made available?)
- Does the student have adequate childcare or elder care to allow them to complete the course?
- Does the student have adequate transportation to meet any place-based requirements for the course?
- What is the student's skill level prior to the program beginning? (Baseline assessments are used to measure skill attainment.)

## Program

Ensure your program includes these elements to increase participants' learning and likelihood of success:

- Does the program include career counseling to help participants understand, track, and land career advancement opportunities available to them upon graduation?
- Does the program include program success coaching to help advise and encourage participants through challenges during the course and to persevere through to graduation?
- Does the program include mentoring so participants can learn informally from those more advanced in their careers who can share lessons and learning? (Be sure to offer mentoring in the student's native language.)
- Does the program include tutoring so students who get stuck can receive the help they need? (Be sure to offer tutoring in the student's native language.)
- Does the program include digital skills training to help participants navigate the technology that is likely to be used in the workplace upon graduation?
- Does the program include foundational skill development so participants have the skills they need to succeed in the workplace?
- Does the program include life skill development based on individual needs, which might include such things as ESL, financial coaching, and cyber security and safety?
- Does the program include recognition for learning to encourage participants to persevere and give them tangible rewards

for having gained knowledge?

(Recognition can come in the form of pins, a letter from the CEO, badges to be sewn on work uniforms, etc.)

- Does the program include network-building opportunities so students can develop their social capital and have a network of associates who can help them secure a job upon graduation?
- Does the program include work experience so students can complete programs with a credential as well as work experience?
- Does the program include processes for soliciting, receiving, and incorporating feedback from a broad range of stakeholders including participants, instructors, and employers (including HR leaders and supervising managers of program graduates)?

## Post-program

Does each program graduate receive the following?

- A post-program skill assessment to measure learning
- A credential in the form of a degree, certification, certificate, or badge
- Employment placement assistance to ensure career advancement including wage gains

Does the program collect and analyze the following?

- Participant program evaluations on the curriculum, instructors, program structure, and requirements
- Participant outcomes data by race, gender, location, etc.

## Recommendations to support Latino learners

Building on the main takeaways from more than 30 interviews conducted by the research team, together with previous research projects conducted by the Aspen Latinos & Society Program, including [Latino Inclusion in the Digital Economy](#) (Hicks 2021), and joint publication with Aspen Digital, [A Roadmap to Empowerment. The Future of Latinos in a Digital Economy](#) (Barzinji et al. 2021), the following policy recommendations represent an action-oriented agenda that various stakeholders can implement to further support access to digital opportunities for Latino communities in general and Latino frontline workers in particular:

### General Guidelines

- **The US Latino community is highly heterogeneous, making any one-size-fits-all approach inadvisable.** An assessment of the needs and realities of the local Latino community or workforce should always be the first step.
- **Awareness** of how critical digital skills have become in accessing essential services and high-quality jobs is a central component to ensuring high engagement and participation among Latino workers. Targeted communications campaigns can be a relevant tool for any stakeholder with a responsibility in the issue.

- **Ecosystem building** and close collaboration among trusted stakeholders can increase the effectiveness and reduce the cost of initiatives targeting gaps in digital opportunities.

### What policy makers can do

- **Wraparound supports** are critical to ensuring that frontline job seekers and workers can actively participate in digital skills training and educational programming. Providing adequate funding for services such as childcare is essential in addressing some of the inequalities that limit educational and economic opportunities to frontline workers.
- **Closer collaboration between federal, state, and local governments and partnerships with companies and community-based organizations** around broadband connectivity infrastructure investments and digital devices purchase programs can play a key role in meeting underserved households where they are. The [Affordable Connectivity Benefit](#) recently introduced by the Federal Communications Commission, and the culturally competent [EBB para mí](#) campaign by the Hispanic Technology & Telecommunications Partnership are examples of these types of programs.

### What employers can do

- **On-the-job learning opportunities** represent a key tool to facilitate digital skill development for Latino frontline workers, allowing employees to develop essential skills while continuing to earn an income to support their families. These programs can range from formal, structured programs such as apprenticeships to more informal programs such as mentoring and coaching.
- **Partnerships with trusted community-based organizations and Hispanic-serving institutions** can be an effective way of ensuring that training programs are culturally competent and meet Latino workers where they are in terms of their strengths and needs in digital skills.

### What educational institutions and training providers can do

- **Flexible scheduling** is crucial for allowing students with competing responsibilities to access courses on their own schedules.
- **Frequent feedback loops involving local employers in high-growth industries** should inform curriculum design to ensure that the programming is relevant to the demands of the local labor market.

[Rapid prototyping](#) is a flexible approach for both workforce organizations and employers interested in developing digital skills training programs. As a concept, it originated in the technology and design fields, meaning to “build an experimental model – a prototype – of an idea to enable it to be tested out before investing resources in developing a full-blown product” (Bergson-Shilcock 2021).

Rapid prototyping consists of introducing a rough program model and adjusting it in response to performance indicators and feedback from participants, instructors, and other relevant stakeholders. Through an iterative process, the program is continuously improved, facilitating the identification of the most effective methods and contents for each specific case. Given the dynamic nature of technology and the skills required to use it, rapid prototyping also allows for swiftly pivoting contents and methods as needs evolve.

Some of the advantages of this approach include the speed, flexibility, and relatively lower cost to start the implementation of a training program. It can be a helpful approach for organizations or employers with incomplete information in terms of a given workforce’s skills needs, as well as facilitate breaking the status quo.

## 6. Digital Equity Act: A call to action

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Each state and territory is about to get a significant federal investment for digital inclusion, but your voice is needed to ensure these funds have the greatest impact.

In 2021, the 117th Congress passed the [Digital Equity Act](#), which commits \$2.75 billion for digital inclusion initiatives. Of that, \$1.5 billion will go to states through two grant programs and \$1.25 billion (\$250 million per year for five years) will go to other organizations through a competitive grant program. These programs will be administered by the [US Department of Commerce's National Telecommunications and Information Administration](#) (NTIA).

The first round of funding is \$60 million, which will go to states and territories for planning grants to develop digital equity plans. States must submit an application in response to the NTIA's publication of a notice of funding opportunity and designate a plan administrator. The application must include a commitment to developing the state digital equity plan within one year after being awarded the funding.

State digital equity plans must explain things such as the following:

- The barriers that keep covered populations from experiencing digital equity
- Digitally inclusive activities and how they will be documented and promoted
- How this program will interact with and affect state plans on other issue areas
- A plan to collaborate with other key stakeholders

Populations to be served by the funding include groups such as these:

- Households earning less than 1.5 times the poverty level
- Those with language barriers
- Members of a racial or ethnic minority group

Note that each State Digital Equity Capacity Grant Application must include a description of the State's plan to collaborate with key stakeholders and a list of organizations States collaborated with on developing and implementing the plan. **If you are reading this report and care about digital inclusion and the Latino workforce, the States will need your voice and your expertise on digital inclusion needs and strategies for closing the digital divide.**

States that complete their plans may then apply for a capacity grant to carry out the work of the plan. These grants, a total of \$1.44 billion, will be given to eligible administering entities by formula.

Additionally, another \$1.25 billion in Digital Equity Competitive Grants will be given out over five years to states and organizations for five eligible activities:

- Digital inclusion activities for covered populations
- Adoption of broadband to provide educational and employment opportunities to covered populations
- Training programs that cover varying levels of digital skills training from basic to advanced
- Making equipment available
- Improving public access computing centers

Here is what you should do:

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|--|---|
| <ol style="list-style-type: none"><li>1. Watch for the Digital Equity Act Notice of Funding Opportunity for the state planning grants at <a href="http://www.ntia.doc.gov">www.ntia.doc.gov</a> or <a href="http://grants.gov">grants.gov</a>. Only states and territories can apply.</li><li>2. Track to see whom your state or territory names as its plan administrator for its digital equity plan. This is the entity that will be charged with developing the plan for your state and territory so they may receive a State Capacity Grant to carry out the work in the plan.</li><li>3. Strategize now about the most important information this plan administrator should know about the digital equity needs and solutions in your sphere of influence.</li><li>4. Watch for public hearings and public comment opportunities to share your expertise in this field. It is important for businesses to share their digital skill needs and for workforce organizations to share what they have learned about digital skills development.</li><li>5. Work with your plan administrator to establish your role in carrying out the state plan funded through the State Capacity Grants.</li></ol> | <ol style="list-style-type: none"><li>1. Watch for the Notice of Funding Opportunity for the Digital Equity Competitive Grant Program at <a href="http://www.ntia.doc.gov">www.ntia.doc.gov</a> or <a href="http://grants.gov">grants.gov</a>.</li><li>2. Eligible entities should submit a grant application for a Digital Equity Competitive Grant at such time as they become available.</li></ol> |
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This is a unique opportunity to prioritize proven programs and to receive much-needed funding to support effective digital inclusion activities and programs. Please don't let this opportunity pass.<sup>6</sup>

<sup>6</sup> We would like to acknowledge the National Skills Coalition and their briefing materials on the Digital Equity Act, upon which some of this information is based. For more information, see: <https://nationalskillscoalition.org/blog/digital-equity/8628/>.

## 7. Additional resources

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For additional information on digital skills and Latino workers, see these resources:

### [Aspen Institute Latinos and Society](#) Resources

- [Expanding the Latinx Talent Pipeline](#)
- [A Roadmap to Empowerment](#)
- [Latino Inclusion in the Digital Economy](#)

### [UpSkill America](#) Resources

- [Impact of COVID-19 on Digital Skill Needs](#)
- [Digital Skills Discussion Guide](#)
- [Employer Network Advancing Digital Skills and Equity](#)
- [Accessing the Network of Local Upskilling and Related Resources Available to Support Your Business](#)

### Other Resources

- [A Description of U.S. Adults Who Are Not Digitally Literate](#), by [National Center for Education Statistics](#)
- [Closing the Digital Skills Gap Report: Trends and Insights; Perspectives on the Supply and Demand of Digital Skills and Degree of Digitalization](#), by [Asia Pacific Economic Cooperation](#)
- [Community Reskilling: How Public-Private Partnerships Are Creating New Pathways to Economic Mobility](#), by [General Assembly](#)
- [Digital Blindspot: How Digital Literacy Can Create A More Resilient American Workforce](#), by [Markle Foundation](#)
- [Digital Equity Act](#), by 117th Congress
- [Digital Equity Act Implementation](#), by [National Skills Coalition](#)
- [Digital Equity for an Inclusive Economic Recovery](#), by [National Skills Coalition](#)
- [Digital Equity Scorecard](#), by [Microsoft](#), [National Digital Inclusion Alliance](#), [National Skills Coalition](#)
- [Digital Navigator Resources](#), by [Digital US](#)
- [Digital Readiness Gaps](#), by [Pew Research Center](#)
- [Digital Skills Library](#), by the [DRAW](#) project by [EdTech Center](#) at [World Education](#)
- [Empowering Workers Through Digital Skills Building](#), by [Markle Foundation](#)
- [Global Digital Skills Index: In-Depth Insights from 23,000 Workers](#), by [Salesforce](#)
- [Glossary of Digital Equity Terms](#), by [National Digital Inclusion Alliance](#)

- [Grow with Google](#), by [Google](#)
- [Growing Fairly: How to Build Opportunity and Equity in Workforce Development](#), by [Strada Education Network](#)
- [Immigration and the Future of the Workforce](#), by [EnGen](#)
- [Northstar Digital Literacy Tests](#), by [Literacy Minnesota](#)
- [Online Digital Skills Training](#), by [Goodwill Community Foundation](#)
- [Reskilling Revolution: Preparing Your Workforce For A New Digital Era](#), by [ETU](#)
- [The Digital Skills Gap: What Workers Need for the Jobs of the Future](#), by [Rand](#)
- [The Job Skills of 2022: The Fastest-Growing Job Skills for Institutions](#), by [Coursera](#)



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## About the Study

The Digital Skills and the Latino Workforce project is a partnership between the Latinos and Society Program and the UpSkill America Initiative at the Aspen Institute. The goal of the project is to learn how digitalization and automation of work impact Latino frontline workers and Latino-owned businesses across sectors.

## About the Aspen Institute Latinos and Society Program

The mission of the [Aspen Latinos and Society Program \(AILAS\)](#) is to empower and promote long-term economic growth and resilience in Latino communities throughout the US. Founded in 2015, AILAS leverages its deep networks of leaders from the public, private, nonprofit and philanthropic sectors in order to advance needed public and corporate policy that maximizes the economic potential of Latino communities. With a focus on equity and entrepreneurial ecosystem building, AILAS sources solutions that are data-driven, community-informed and culturally relevant.

## About UpSkill America

[UpSkill America](#) is an employer-led movement to expand opportunity for America's workers and allow our economy and communities to thrive. The movement promotes training and advancement practices to help workers progress in their careers and move into better-paying jobs. Led by a leadership team of employer organizations, UpSkill America has the mission to recognize employers that invest in their frontline workers; promote the adoption of policies and practices used by employers to educate, train and develop frontline workers; and highlight effective local and regional workforce development partnerships and how they educate, train and develop individuals for success in the workplace. UpSkill America is an initiative of the [Economic Opportunities Program](#).

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# Bibliography

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Barzinji, Zaki, Pamela De La Rosa, Diego Deleersnyder, and Kristine Gloria. *A Roadmap to Empowerment: The Future of Latinos in a Digital Economy*. Washington DC: The Aspen Institute, October 2021.

[https://www.aspeninstitute.org/wp-content/uploads/2021/10/Roadmap-to-Empowerment\\_Aspen-Institute\\_10.13.21.pdf](https://www.aspeninstitute.org/wp-content/uploads/2021/10/Roadmap-to-Empowerment_Aspen-Institute_10.13.21.pdf)

Bergson-Shilcock, Amanda. "What is rapid prototyping, and how does it help workers develop occupational digital literacy?" National Skills Coalition's Skills Blog. January 14, 2021.

<https://nationalskillscoalition.org/blog/future-of-work/what-is-rapid-prototyping-and-how-does-it-help-workers-develop-occupational-digital-literacy/>

Bureau of Labor Statistics, US Department of Labor. "Hispanics or Latinos made up over one-fourth of the labor force in six states in 2020." *The Economics Daily*. October 6, 2021.

<https://www.bls.gov/opub/ted/2021/hispanics-or-latinos-made-up-over-one-fourth-of-the-labor-force-in-six-states-in-2020.htm>

Deleersnyder, Diego, Sonia Koshy, Domenika Lynch, Lili Gangas. *Expanding the Latinx Talent Pipeline: the Time for Action is Now*. Washington DC: Aspen Latinos & Society Program, Kapur Center, October 2021.

<https://www.aspeninstitute.org/wp-content/uploads/2021/10/EXPANDING-THE-LATINX-TECH-PIPELINE.pdf>

Digital US Coalition. *Building a Digitally Resilient Workforce: Creating On-Ramps to Opportunity*. N. p.: Digital US, May 2020. <https://digitalus.org/wp-content/uploads/2020/06/DigitalUS-Report-pages-20200602.pdf>

Dubay, Lisa, Joshua Aarons, Steven Brown, and Genevieve M. Kenney. *How Risk of Exposure to the Coronavirus at Work Varies by Race and Ethnicity and How to Protect the Health and Well-Being of Workers and Their Families*. Washington DC: The Urban Institute, December 2020.

<https://www.urban.org/sites/default/files/publication/103278/how-risk-of-exposure-to-the-coronavirus-at-work-varies.pdf>

Dubina, Kevin. "Hispanics in the Labor Force: 5 Facts". U.S. Department of Labor Blog. September 15, 2021.

<https://blog.dol.gov/2021/09/15/hispanics-in-the-labor-force-5-facts>

Gonzalez, Nick, Diana Garcia, Rodriguez Dominguez-Villegas, and Arturo Vargas Bustamante. *Latino Workers and Digitalization*. Los Angeles: UCLA Latino Policy & Politics Initiative, September 2020.

<https://latino.ucla.edu/wp-content/uploads/2020/09/Digital-Upskilling-Report.pdf>

Gould, Elise, and Jori Kandra. "Only One in Five Workers Are Working From Home Due to COVID." *Economic Policy Institute's Working Economics Blog*. June 2, 2021. <https://www.epi.org/blog/only-one-in-five-workers-are-working-from-home-due-to-covid-black-and-hispanic-workers-are-less-likely-to-be-able-to-telework/>

Hicks, Gwyn. *Latino Inclusion in the Digital Economy*. Washington DC: Aspen Latinos & Society Program, May 2021.

<https://www.aspeninstitute.org/wp-content/uploads/2021/05/Latino-Inclusion-in-the-Digital-Economy.pdf>

Hill, Latoya, and Samantha Artiga. "COVID-19 Cases and Deaths by Race/Ethnicity: Current Data and Changes Over Time." Kaiser Family Foundation. February 22, 2022. <https://www.kff.org/coronavirus-covid-19/issue-brief/covid-19-cases-and-deaths-by-race-ethnicity-current-data-and-changes-over-time/>

Kramer Mills, Claire, Jessica Battisto, Scott Lieberman, Marlene Orozco, Iliana Perez, and Nancy S. Lee. *Latino-Owned Businesses: Shining a Light on National Trends*. New York City: Federal Reserve Bank of NY, Stanford Latino Entrepreneurship Initiative, Interise, November 2018. <https://www.newyorkfed.org/medialibrary/media/smallbusiness/2017/Report-on-Latino-Owned-Small-Businesses.pdf>

Krogstad, Jens Manuel, and Luis Noe-Bustamante. "Key Facts about U.S. Latinos for National Hispanic Heritage Month." Pew Research Center. September 9, 2021. <https://www.pewresearch.org/fact-tank/2021/09/09/key-facts-about-u-s-latinos-for-national-hispanic-heritage-month/>

Lund, Susan, James Manyika, Liz Hilton Segel, André Dua, Bryan Hancock, Scott Rutherford, and Brent Macon. *The Future of Work in America*. Washington DC: McKinsey Global Institute, July 2019). <https://www.mckinsey.com/featured-insights/future-of-work/the-future-of-work-in-america-people-and-places-today-and-tomorrow>

Martin, Michael. *Computer and Internet Use in the United States: 2018*. Washington DC: US Census Bureau's American Community Survey Reports, April 2021. <https://www.census.gov/content/dam/Census/library/publications/2021/acs/acs-49.pdf>

Muro, Mark, Sifan Liu, Jacob Whiton, and Siddharth Kulkarni. "[Digitalization and the American Workforce](#)." Washington DC: The Brookings Institution. November 2017. <https://www.brookings.edu/research/digitalization-and-the-american-workforce/>

Myers, Dowell, Stephen Levy, and John Pitkin. *The Contributions of Immigrants and Their Children to the American Workforce and Jobs of the Future*. Washington DC: Center for American Progress, June 19, 2013. <https://cdn.americanprogress.org/wp-content/uploads/2013/06/OurFutureTogetherUpdated.pdf>

National Digital Inclusion Alliance. "Definitions". Accessed March 29, 2022. <https://www.digitalinclusion.org/definitions/>

National Skills Coalition. "Applying a Racial Equity Lens to Digital Literacy." National Skills Coalition Digital Skills Series. March 2020. <https://nationalskillscoalition.org/wp-content/uploads/2020/12/Digital-Skills-Racial-Equity-Final.pdf>

Orozco, Marlene., Jonathan Furszyfer, Paul Oyer, and Jerry. I. Porras. *2021 Research Report: State of Latino Entrepreneurship*. Stanford, CA: Stanford Latino Entrepreneurship Initiative, 2022. <https://www.gsb.stanford.edu/sites/default/files/publication/pdfs/report-2021-state-of-latino-entrepreneurship.pdf>

Patten, Eileen. "[The Nation's Latino Population Is Defined by Its Youth](#)." Washington DC: Pew Research Center, April 20, 2016. <https://www.pewresearch.org/hispanic/2016/04/20/the-nations-latino-population-is-defined-by-its-youth/>

Perez, Lucy, Bernardo Sichel, Michael Chui, and Ana Paula Calvo. *The Economic State of Latinos in America: the American Dream Deferred*. McKinsey & Company, December 2021. <https://www.mckinsey.com/featured-insights/sustainable-inclusive-growth/the-economic-state-of-latinos-in-america-the-american-dream-deferred>

Pew Research Center. "Smartphone dependency by race." January 11, 2017. <https://www.pewresearch.org/internet/chart/smartphone-dependency-by-race/>

Schwab, Klaus. *The Fourth Industrial Revolution: What It Means, How to Respond*. Geneva: World Economic Forum, January 14, 2016. <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>

Toossi, Mitra. "Labor Force Projections to 2024: The Labor Force Is Growing, But Slowly." US Bureau of Labor Statistics' Monthly Labor Review. December 2015. <https://www.bls.gov/opub/mlr/2015/article/labor-force-projections-to-2024.htm>

World Economic Forum. *The Future of Jobs Report 2020*. Geneva: World Economic Forum, October 2020. <https://www.weforum.org/reports/the-future-of-jobs-report-2020>

