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Disability as a Qualification for Employment

Analysis of the Minimum Qualifications for In-demand Occupations that Provide a Living Wage, Career Advancement, and Remote Work Opportunities

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Massachusetts Commission for the Blind

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Executive Summary

The Massachusetts Commission for the Blind (MCB) requested assistance connecting to employers that offer **diverse employment opportunities** that will support the career interests, independence, and growth of MCB's consumers. MCB was seeking the **best possible employing partners** to assist in its mission and to identify how MCB could help address employers' staffing needs. MCB also wished to gain an **understanding of the minimum and preferred qualifications of in-demand jobs** and to explore the type and number of **employment opportunities for which having a disability, particularly blindness or vision impairment, would help make a job candidate qualified or more qualified**.

Work Without Limits, an initiative of Commonwealth Medicine, the consulting division of the University of Massachusetts Chan Medical School, has first-hand knowledge of the qualifications that individuals with disabilities bring to the employment landscape, including individuals with vision impairments. This knowledge, coupled with our expansive and deep connections with the employer and employment service provider communities, has positioned Work Without Limits as the best strategic consulting partner for MCB's Disability as a Qualification for Employment project.

Approach

Work Without Limits took a three-phase approach to this project.

Phase I: Using both quantitative and qualitative methods, we conducted **Job Market and Labor Data Research and Analysis** to identify occupations across industries and sectors that are currently and/or projected to be in high demand and do not impose heavy physical requirements, including vision requirements. Additionally, we identified occupations that can be performed remotely, thus eliminating the need to commute, which is often a barrier to employment for people with vision impairments. We also conducted in-depth research of training organizations that prepare people with vision impairments for high-demand occupations.

Phase II: We conducted an **Analysis and Text Simplification of Job Descriptions** to better understand the minimum and preferred job requirements of a selection of occupations identified in our job market research. We categorized and reorganized the content of the job descriptions and, with a focus on the entrance requirements, created plain-language versions with easy-to-understand text. Through the process of researching job postings, we identified Massachusetts (MA) employers that hire for in-demand occupations.

Phase III: We obtained **Employer Engagement and Feedback** from MA employers known to be disability-inclusive and have active job openings for in-demand occupations. We conducted a focus group and asked employers about current and projected hiring needs; remote work policies and practices; the skills they look for in new employees; supports available for employees with disabilities; and occupations expected to be in lesser demand in the future.

Key Findings

National data consistently show that **people with disabilities are not employed at the same rate as people without disabilities[1].** However, there are **a variety of occupations projected to grow over the coming years that can be performed remotely and offer a living wage and career path**; a number of these occupations could be performed by workers with vision impairments. Moreover, there are training programs that prepare workers for these occupations that are fully accessible to blind and vision-impaired individuals. Of note, for **one projected growth field --- digital accessibility --- the two primary requirements for the job are to be blind and a screen reader user**. In this report, we present findings from a unique study that sought to identify occupations where blindness or vision impairment is not a barrier to performing a job, as well as jobs for which it is a preferred qualification. We highlight our key findings below.

1. Overall, people with disabilities still fare worse in the labor market. Individuals with vision impairments tend to work in essential jobs with low pay and, in Massachusetts, are paid significantly lower than non-vision impaired peers working in similar occupations at the national level.

2. Digital accessibility specialist is a rapidly emerging occupation for which public- and private-sector employers seek to hire to ensure their digital footprint meets accessibility guidelines and standards. Two primary qualifications for this occupation are blindness and proficiency in using a screen reader. These jobs can be performed remotely, pay a living wage, and offer career advancement opportunities.

3. Training programs exist that are fully accessible to individuals who are blind and vision-impaired and prepare them for high-demand occupations, including digital accessibility.

4. A good number and variety of occupations are projected to grow over the next 10 years that provide a living wage, offer career advancement, do not require vision, and could likely be performed remotely. These occupations include market research analysts and marketing specialists, fundraisers, computer and information systems managers, marketing managers, computer systems analysts, computer network architects, editors, and compensation and benefits managers.

5. The COVID pandemic is likely to have a lasting impact on employers' recruitment strategy and their willingness to provide accommodations for employees, including remote or hybrid work arrangements. This, in turn, could offer more significant opportunities for people with disabilities to enter occupations that had not been available to them before the pandemic.

[1] 2017 Disability Statistics Annual Report: A Publication of the Rehabilitation Research and Training Center on Disability Statistics and Demographics https://disabilitycompendium.org/sites/default/files/user-uploads/2017_AnnualReport_2017_FINAL.pdf

6. As employers begin to bring their workers back on-site, it's essential to educate them on remote work as a reasonable accommodation for people with vision impairments.

7. Some people with vision impairments in MA who are currently employed might become unemployed in the next ten years. Occupations that people with vision impairments were employed in MA in 2020 and that are projected to be less in demand include retail salespersons, first-line supervisors of retail salespersons, and secretaries and administrative assistants (except those working in the legal, medical, and executive fields).

8. Through comparative analysis and text simplification, it is possible to standardize job descriptions and gain a clear understanding of the minimum qualifications and essential job duties. This process could prove to be a valuable tool for vocational rehabilitation counselors and clients alike.

9. This study is unique in that it uses national data to examine the extent to which vision is required to perform in-demand occupations and it identifies emerging occupations where blindness is a preferred qualification.

Recommendations

1. Further investigate and catalog the full spectrum of training programs and job opportunities, from entry-level to advanced, that prepare and employ blind and vision-impaired individuals in the digital accessibility field. Maximize this exciting and rare development where having a disability, specifically blindness, is an actual qualification for employment.

2. Invest in educational and occupational skills training programs that prepare individuals with vision impairments for careers in the emerging field of digital accessibility and in the other high-growth and in-demand occupations identified in our research that can likely be performed remotely and provide a living wage and career advancement opportunities.

3. Investigate what necessary training and assistance are needed for currently employed people with vision impairments in MA to help retain them in the labor market and/or transition them into emerging or in-demand occupations.

4. Educate MCB consumers on the skills needed to succeed in the workplace, including self-advocacy and the personal and professional characteristics that employers seek, including adaptability, creativity, active listening, and time management.

5. Identify and establish partnerships with disability-inclusive employers that hire in-demand and projected growth occupations. Develop and implement innovate ways to provide on-the-job support for MCB consumers and employers. Educate employers on the capabilities of individuals with vision impairments, disability etiquette, accommodations, assistive technology, and digital accessibility.

6. Further investigate employers' current and projected remote work policies and practices to determine opportunities for people with vision impairments to enter occupations that they had not been able to before the COVID-19 pandemic.

7. Invest in education for employers on remote work as a reasonable accommodation to attract, hire, and retain qualified candidates and employees with vision impairments.

8. Invest additional resources to further understand the minimum and preferred entrance requirements and essential job duties for all the top in-demand occupations identified in our research, including how a career can progress from entry-level to professional.

9. Explore ways to ensure individuals with disabilities enter competitive integrated employment rather than sub-minimum wage positions that could affect their lifetime earnings. Ensure the provision of benefits and work incentives counseling services for MCB consumers so they understand how working will affect their public benefits and how they can make informed choices about pursuing training and work.

10. Continue to sponsor studies that examine occupational trends for people with disabilities and ways to take advantage of these trends to improve the employment outlook for workers with disabilities.

Introduction

It has been well-documented over many decades that people with disabilities, including those who are blind and vision-impaired, are not employed in the labor market at the same rate as people without disabilities. The labor market research conducted in this study confirmed that, in the U.S., the employment rate for people with disabilities continues to be low at 23%, compared to 64% for people without disabilities. In MA, the rate is 23.5% for people with disabilities versus 67% for people without disabilities. The proportion of people with disabilities who are not in the labor force remains high at 73% in the U.S. and MA (Appendix A).

The purpose of this study was to assist the Massachusetts Commission for the Blind (MCB) to gain a better understanding of the career opportunities available for MCB clients that will support their areas of interest, independence, and growth. The project encompassed a three-phase approach, 1) Job Market and Labor Data Research and Analysis, 2) Analysis and Text Simplification of Job Descriptions, and 3) Employer Engagement and Feedback.

The authors aimed to provide MCB with a listing of in-demand and growth occupations and the employers that hire them, samples of simplified job descriptions to better understand the minimum qualifications of these occupations, and training programs that exist to prepare workers for in-demand occupations. We were specifically eager to learn about in-demand and growth occupations that do not require sight to perform, could likely be performed remotely, and provide a living wage and career advancement. Moreover, we sought to discover if occupations exist for which having lived experience[2] of blindness is a qualification for employment.

With the increased insight resulting from our study, we provide MCB vocational rehabilitation counselors and clients with enhanced knowledge of current and future job and career opportunities and trends, an understanding of how to analyze and simplify job descriptions to gain a clear understanding of minimum qualifications and essential job duties, and an array of training organizations and programs that prepare workers for in-demand and projected growth occupations.

[2] Lived experience refers to "representation and understanding of an individual's human experiences, choices, and options and how those factors influence one's perception of knowledge" based on one's own life. Retrieved 09/24/2022 from https://aspe.hhs.gov/lived-experience

Phase I: Job Market and Labor Data Research

Quantitative Research Method

To perform a comprehensive job market and labor data analysis, we explored multiple data sources to:

- Understand the disability prevalence in 2020 in the U.S. and MA
- Examine employment projections for the next decade to identify in-demand occupations
- Identify occupational requirements for in-demand occupations in the next decade, especially visual requirements
- Analyze current occupational patterns for people with vision impairments in MA

Research Questions

The quantitative methods focused on several research questions:

1. What is the most recent disability prevalence in the U.S. and MA?
2. What are the top occupations that hire people with disabilities?
3. What are the top 30 in-demand occupations in the U.S. and their vision requirements? Can the occupations be performed remotely?
4. What are the top occupations that will see a higher than 25% increase in job openings in the next ten years? What is the vision requirement for these occupations (if any)? What is the median annual wage for these occupations? What is the median salary for these occupations in MA, and what was the percentage of people with vision impairment hired in 2020?
5. What are the top occupations that can be performed remotely, the median annual wage at the national level and in MA, and the percentage of people with vision impairment hired in MA?
6. What were the top occupations that hired people with vision impairments in MA in 2020, and the mean annual wage for these occupations at the national and MA level? Will these occupations remain in demand in the next ten years?
7. What are the least in-demand occupations in the U.S.?

Data

To explore these questions, we used data from three sources:

1. **Occupational Employment Projections Data: Bureau of Labor Statistics (BLS)** provides projections of employment by industry and occupation, as well as projections of occupational separations. BLS creates occupational employment projections in a product called the National Employment Matrix that provides a comprehensive count of non-farm wage and salary jobs (which is different from a count of workers since a single worker may hold more than one job) and a count of self-employed workers, agricultural industry workers, and workers employed in private households. These counts are provided for a base year and a projected time of ten years

in the future. The primary sources used to develop the matrix are the Occupational Employment and Wage Statistics (OEWS) survey, the Current Employment Statistics (CES) survey, and the Current Population Survey (CPS). Employers who respond to states' requests to participate in the OEWS survey make these estimates possible. CES program is a monthly survey conducted by BLS. The survey provides employment, hours, and earnings estimates based on payroll records of business establishments. CPS is a monthly survey of households conducted by the Bureau of Census BLS. It provides a comprehensive body of data on the labor force, employment, unemployment, people not in the labor force, hours of work, earnings, and other demographic and labor force characteristics.

2. **Occupational Requirements Survey (ORS)** is a product of the BLS that provides job-related information regarding physical demands including vision requirements, environmental conditions, education, training, and experience, as well as cognitive and mental requirements for jobs in the U.S. economy.

3. **American Community Survey (ACS)** 2020 1-year experimental estimates. The Census Bureau did not release its standard 2020 ACS 1-year estimates because of the impacts of the COVID-19 pandemic. Instead, the Census Bureau released experimental estimates from the 1-year data.

Method

To answer the research questions, we started with secondary data analysis leveraging multiple national surveys administered by Census. Specifically, we linked the three surveys using Standard Occupational Classification (SOC) as crosswalks. SOC is an occupational classification system to classify workers and jobs into categories to collect, calculate, analyze, and disseminate data. The SOC covers all jobs in the national economy, including occupations in the public, private and military sectors. All federal agencies that publish occupational data for statistical purposes must use SOC to increase data comparability across federal programs.

We should point out that the employment projections survey includes 789 SOCs while ORS only identifies 390 SOCs with vision requirements and if the occupation can be performed remotely. Merging these two data sets resulted in 316 SOCs included in the analyses. Therefore, our reported results might not be the same as reported by BLS in fast-growing occupations. For instance, motion picture projectionists and wind turbine service technicians are two of the fastest-growing occupations, however, these are not available in ORS, and therefore not included in our tables. Technical details can be found in Appendix B: Technical Notes.

Key Findings

1) **The most common jobs held by people with disabilities tend to be lower pay positions with limited benefits and career pathways.**

As shown in Appendix C, the top five **occupations that employ people with disabilities tend to be lower pay positions with limited benefits or lack of career pathways**. These include cashiers, drivers, janitors and building cleaners, retail salespersons, and laborers and materials movers.

2) **There are a variety of in-demand jobs that could likely be performed remotely and provide a living wage and career advancement.**

As shown in Appendix D, we present the top in-demand jobs that will see a higher than 25% increase in job openings in the next 10 years. The first column shows occupations, and the second column shows percentage change between 2020-2030 as projected by BLS. In columns three and four, we show if the occupation requires far and/or peripheral vision. The higher percentage indicates the occupation does NOT post vision requirements. For instance, Nurse Practitioners are projected to be in high demand over the next 10 years, with an increase of nearly 53%. The median annual wage for this occupation is $120,000. More than 93% of surveyed participants reported that this position does not require far or peripheral vision. One should note that some job categories might have low response rates or a limited number of responses from individuals with vision impairment who work in this occupation.

In Appendix E, we show the top occupations that can be performed remotely. For example, over 63% of surveyed participants report that, as market research analysts, they can perform their jobs remotely. Among the same respondents, 73% of them noted that this occupation does not require far or peripheral vision. There is a projected 22% increase in this occupation in the next decade with a median annual wage of $63,000.

In Appendix F, which is a sub-set of Appendix E, we present occupations that are projected to grow over the next ten years, have a median annual wage of at least $60,000, and where at least 50% of respondents report the job can be performed remotely and does not require far or peripheral vision. These occupations include market research analysts and marketing specialists, fundraisers, computer and information system managers, marketing managers, computer systems analysts, computer network architects, editors, and compensation and benefits managers.

In Appendix G, we present the top occupations that employed people with vision impairments in MA in 2020. As shown, in 2020, 3.6% of people with vision impairments work as laborers and freight and material movers. For those working in this occupation, people with vision impairments in MA have significantly lower median wages compared to the national median, i.e., less than $3,000 in MA versus $31,000 nationally. There is not enough research to explain why people with comparable backgrounds, education, and demographics are paid differently. In this case, it is possible that the respondents of the survey are not representative of the whole population with disabilities working in this occupation.

3) **There are individuals with vision impairments in MA who are currently employed in jobs that are projected to be in lesser demand in the next decade.**

We identified occupations that are projected to be the least in-demand in the next decade, their vision requirements, and percent of individuals currently employed in these occupations with vision impairments in MA. For instance, there is a projected 16.9% drop in demand for tellers. There are about 0.11% of individuals with vision impairments who work in this occupation in MA with a median wage of $21,000 compared to about $36,000 at the national level. Although this position does not require far or peripheral vision, it is likely that there will be a lower demand or less job openings in the coming years. Additional occupations that employed people with vision impairments in MA in 2020 that are projected to be lower in demand in the next few years include retail salespersons, first line supervisors of retail

salespersons, and secretaries and administrative assistants, except those in legal, medical, and executive fields. See Appendix H for the least in-demand jobs in the U.S. in 2030 and their current employment rate in MA among people with vision impairment.

Implications

Findings from our secondary analysis highlight the following:

1. **People with disabilities still fare worse in the labor market overall. Individuals with vision impairments tend to work in essential jobs with low pay**.

2. There is a misalignment between in-demand occupations and the occupations in which people with vision impairments currently work in MA. **People with vision impairments who are currently employed might become unemployed in the next 10 years** if training or additional education services are not provided to transition them into other occupations with greater growth potential. It is important to further investigate what necessary training and assistance are needed to improve occupation alignment in the coming years.

3. **People with vision impairments in MA are paid significantly lower than peers working in similar occupations at the national level.** In a study by Yin et. al (2020), the authors uncovered similar patterns in Boston, which has a stark pay gap between people with and without disabilities. It is alarming that there is also a pay gap across all states compared to the national average[3]. We suggest that the U.S. Department of Education Rehabilitation Services Administration and/or State Vocational Rehabilitation Agencies explore ways to ensure individuals with disabilities enter competitive integrated employment rather than subminimum wage positions that could affect their lifetime labor market outcomes. According to the U.S. Department of Labor Office of Disability Employment Policy, about 20% of people with disabilities participate in the workforce, and of that group, about 3%, or approximately 195,000 workers are being paid subminimum wages.

4. Our analysis relies on national surveys. Data is limited about whether in-demand positions can be performed remotely, but it is likely that occupations that do not require vision can be performed remotely. A "silver lining" of the COVID pandemic could be that employers are now more willing to offer remote or hybrid work accommodations to employees, with or without disabilities, to improve efficiency and loyalty. **Lessons learned in remote work during the pandemic and changes in employer practices could offer greater opportunities for people with disabilities to enter occupations that they had not been able to prior to the pandemic.**

5. To our knowledge, there have not been any studies that have taken this approach to examine job requirements for people with disabilities, particularly those with vision impairments. This analysis appears to be the first to rely on publicly available BLS data to examine these questions. Our

[3] Leading the Way, or Falling Behind? What the Data Tell Us About Disability Pay Equity and Opportunity in Boston and Other Top Metropolitan Areas (iel.org) Retrieved 09/29/2022

study provides important contributions to the field regarding the occupational trends for people with disabilities and areas for improvement in the coming decade.

Qualitative Research Method

At the onset of this project, we consulted with project team member John Rochford, BS, LABB, director of INDEX, a program of The Eunice Kennedy Shriver Center at UMass Chan Medical School. INDEX provides a wide range of technical services including web accessibility compliance. An expert in web accessibility, John immediately brought our attention to **the growing demand for digital accessibility specialists** and told us of four organizations that either train and/or hire individuals into these roles including Carroll Center for the Blind, Vision-Aid, Perkins School for the Blind, and Deque Systems. He also conveyed that **being blind and proficient at using screen readers**[4] **are two primary qualifications for employment in this occupation.**

Although the quantitative labor market research conducted as part of this project did not uncover digital accessibility specialist as an in-demand or growth occupation, perhaps because it is new, we include it in our report based on the information we acquired from speaking to several experts in this field. We also include it due to the close alignment of the occupation to the clientele MCB serves and to one of MCB's major goals of this project, "to explore the type and number of employment opportunities for which having a disability would help make a job candidate qualified."

Using qualitative methods, we sought to learn more about the emerging field of digital accessibility, including the minimum qualifications for the job, the training programs that prepare people for the field, and the employers that hire them. We undertook a review of websites and collateral material of the training organizations and conducted a series of informal interviews with training organization staff. This process surfaced an additional training program that specifically trains blind and vision-impaired individuals for employment in high-demand technology-related jobs.

The qualitative approach allowed us to learn more about the emerging field of digital accessibility and the related training programs needed to ensure MCB vocational rehabilitation staff and clients are informed of and prepared for these in-demand job opportunities in the coming years.

Research Questions

We focused on the following research questions in the qualitative study:

1. What is the labor market demand for digital accessibility specialists? Are there ample and viable job opportunities in this field? Are these jobs expected to grow in the coming years?

2. What are the skills needed to perform the job of digital accessibility specialist? What are the minimum qualifications needed to qualify for this position? Is having a vision impairment a qualification for employment in this occupation?

[4] Screen reader is a piece of software that renders visual data as synthesized speech or Braille.

3. What are the training programs that prepare people for the role of digital accessibility specialist? Are these programs meeting the demands of the labor market? Are these programs accessible to individuals with vision impairments?

Data and Method

To learn more about the training organizations that prepare people for careers in high-demand occupations, we researched their websites and conducted informal interviews with training staff.

Key Findings

1) Digital accessibility is an emerging field and is expected to grow in the coming years.

In part due to the efforts of numerous public and private advocacy organizations, there is a heightened awareness by businesses and employers of the value of including people with disabilities in their workplaces as employees, customers, and vendors. This heightened awareness is reinforced by Section 508 of the Rehabilitation Act of 1973 that **requires federal agencies' electronic and information technology to be accessible to people with disabilities**, including employees and members of the public. Section 508 as a digital accessibility law does not apply to private entities unless they work under a contract with a federal agency. **Nevertheless, meeting the guidelines under Section 508 is currently considered best practice for private companies.**

In recent years new legislation has been introduced seeking the establishment of digital accessibility guidelines under the Americans with Disabilities Act (ADA), however, the proposed legislation has not yet passed in Congress. Efforts to pass legislation continue to be underway, and **it is likely that private companies will soon be held to the same standards as federal agencies**. Similar legislation in other countries include Britain's Equality Act of 2010 that requires private and public organizations to provide accessible digital resources, and the European Union's Accessibility Act and Web Accessibility Directive, both of which are based on Web Content Accessibility Guidelines (WCAG), the most widely cited international standards for digital accessibility. Content that conforms with the latest version of WCAG can demonstrate compliance with non-discrimination laws — including the ADA.

Leading U.S. and international disability-inclusive businesses and employers are seeking to ensure their digital footprint[5] meet WCAG standards and are accessible to employees, customers, and vendors who have a disability, including those who are blind and use screen readers to access electronic information. **Employers are hiring digital accessibility specialists as part of their computer and information technology teams or procuring these services through consulting firms that specialize in digital accessibility.** In turn, these consulting firms hire digital accessibility specialists to test their clients' digital footprint, make recommendations for remediation, and train their information technology staff. Last, there are websites that are specifically dedicated to job opportunities for digital accessibility specialists such as Digital A11y Jobs, Access Works and Credly.

[5] Internal, and external websites, mobile applications, and other digital creations.

2) **Having a disability, particularly blindness, is a qualification for employment.**

Often the best candidate for the position of a digital accessibility specialist is blind and proficient at using a screen reader. However, these two qualifications alone do not fully qualify someone for employment in the field. Employers are seeking individuals who have a bachelor's degree in a related field such as computer science or digital design; technology skills including Excel, PowerPoint, HTML, and JavaScript; and knowledge of the ADA, Section 508 of the Rehabilitation Act, WCAG Guidelines, and PDF Accessibility Checker.

3) **Training programs for in-demand occupations exist and they are fully accessible for persons with are blind and vision-impaired.**

We identified three **training programs that are fully accessible to individuals who are blind and vision-impaired and are responding to the needs of businesses and employers by preparing individuals for high-demand occupations.** Below we provide a synopsis of the three training programs that we identified --- two for digital accessibility specialists and one for Salesforce administrators. In Appendix I, we provide more detailed information on each of these programs and in Appendix J we provide a side-by-side comparison of all three programs.

Digital Accessibility Training Programs

As mentioned previously, digital accessibility is an emerging field. Job training organizations have taken notice as federal and international legislation begins to require websites, mobile applications, software, and other digital content to be accessible to all users, including people with all types of disabilities. Job training organizations realize the potential career opportunities in this field, especially for individuals with vision impairments who have lived experience and the desire to learn new skills and advance their careers.

We describe two organizations that train digital accessibility specialists — Carroll Center for the Blind and Vision-Aid.

Carroll Center for the Blind: Screen Reader User Tester Training Program

In 2021, the Carroll Center for the Blind, located in Newton, MA, created the Screen Reader User Tester Training Program (SRUTT) that trains adults with vision impairments for employment in digital accessibility. Since the onset of the program, 10 individuals have graduated, seven are slated to start the next class in the fall of 2022, and 30 people are on a waiting list. It is presumed that people who enter SRUTT are non-visual or functionally blind. They may have some or no vision but are functioning as non-sighted.

A critical component of the SRUTT program is that students must apply for a job or internship. The job can be either full- or part-time, contract, or a paid internship. Of the 10 graduates, 75% had been placed in a job or internship within two months of completing the program.

Vision-Aid, Inc: Digital Accessibility Testing & Training Center

Vision-Aid, Inc. is a nonprofit organization with locations in India and Lexington, MA. Currently, Vision-Aid offers Digital Accessibility Testing (DAT) training for individuals with vision impairments in India. They also express interest in piloting a similar program in MA. Launched in 2020, 75 vision-impaired students have enrolled in DAT training with 63 students (84%) graduating successfully. All classes are conducted remotely and are taught by senior IT industry professionals --- all volunteers.

Selected DAT students receive an internship at Vision-Aid where they work on internal and client projects. Fifty five percent of DAT graduates obtained jobs in the technical field as accessibility testers, quality analysts, accessibility consultants, and software developers. Sixteen percent obtained jobs in fields such as teaching or working for a nonprofit organization.

Technology-Related Training Program

Blind Institute of Technology: Salesforce Training

The Blind Institute of Technology (BIT) based in Colorado provides blind and vision-impaired individuals technology-related education and training, including but not limited to, training on the customer relationship management (CRM) software, Salesforce.[6] Many jobs in the workforce use Salesforce, including marketing, human resources, and customer service. Research conducted by Salesforce[7] shows a 400% annual growth rate for Salesforce administrators with an average U.S. starting salary of $79,000.

Included in BIT's various job training programs are Salesforce Administrator and Salesforce Developer, which are primarily independent study programs allowing students to complete work on their own schedule with additional group and one-on-one learning sessions led by instructors. The BIT Salesforce Administrator course is delivered virtually and is fully accessible to individuals who are blind and vision impaired. It prepares students to take the Salesforce administrator certification exam. Most recent data show that since 2017, 95% of BIT students have passed the exam, and 85% have passed on the first attempt.

Implications

Findings from our research highlight the following:

1. **It is reasonable to expect that job opportunities in the field of digital accessibility will grow rapidly in the years to come.** This is in part due to pending U.S. legislation, and similar laws already passed in other countries such as Britain's Equity Act of 2010. According to John Rochford of INDEX, this field is "exploding" due to increasing lawsuits being filed.[8]

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[6] Salesforce is a Customer Relationship Management (CRM) platform that is used worldwide by more than 150,000 companies. Retrieved 8/29/2020 What is Salesforce? - What does Salesforce do? - Salesforce.com

[7] https://trailhead.salesforce.com/en/career-path/admin Retrieved 8/30/2022

[8] Digital accessibility lawsuits continued to increase throughout 2020, making ADA compliance an even bigger necessity as the pandemic has caused many services to move online. Digital accessibility lawsuits are civil cases filed against operators of websites, mobile apps, or any digital properties that claim inaccessibility to users with disabilities, such as those that use screen readers or keyboard-only navigation. Retrieved 9/9/2022 2020 Digital Accessibility Lawsuit Trends | Accessible360

2. **Two of the primary qualifications for jobs in the field of digital accessibility are blindness and proficiency using screen readers.** This is truly "disability as a qualification for employment" and an incredible opportunity for MCB to support their clients to pursue a career for which their lived experience qualifies them.

3. **Training programs exist that are accessible to people who are blind or vision-impaired, and that are preparing them for in-demand occupations.** Further research in this area may be warranted as the project's work did not have the capacity to determine if enough training programs exist to meet the demands of the growing labor markets. See Appendix K for an initial list of additional digital accessibility training resources and programs that could be investigated further.

Phase II: Analysis and Text Simplification of Job Descriptions

Online Search of Job Descriptions for In-demand Occupations

Often, professionally written job descriptions are full of industry-specific jargon and terminology that is not easily understood by potential applicants or vocational rehabilitation counselors and employment specialists. One of the goals of this project was to provide MCB with a clear understanding of the minimum qualifications for high-demand occupations.

Data and Method

To achieve this goal, we conducted an online search of job descriptions reflective of the in-demand occupations identified in our research. We then analyzed and re-categorized the job descriptions into a standard format. Last, we reduced the complexity of the language by simplifying the vocabulary and rewriting the job descriptions, so they are easier to comprehend.

When conducting the online search of job descriptions, we focused on job openings for digital accessibility specialists and the in-demand occupations that were identified in the quantitative labor market research that:

- Were projected to grow over the next ten years
- At least 50% of survey respondents indicated far or peripheral vision is not required to perform the job
- At least 50% of survey respondents indicated the job could be performed remotely
- Provided a living wage (at least $60,000 mean annual wage in the U.S.)

We focused our online search on the jobs that met the above criteria. These jobs include:

- Marketing Research Analysts and Marketing Specialists
- Fundraisers
- Computer and Information Systems Managers
- Marketing Managers
- Computer Systems Analysts
- Computer Network Architects
- Editors
- Compensation and Benefits Managers

We conducted online searches for job posting of these occupations using the key search words of the specific occupation such as "marketing research analyst" or "fundraiser," "Massachusetts" and "remote." When salary information was not provided by the company job posting, we used Indeed.com[9] for industry prevailing wage information and salary ranges.

[9] Indeed is the #1 job site in the world[1] with over 250M unique visitors every month. Retrieved 8/30/2022 About (indeed.com)

We downloaded a total of 46 job postings from 37 different employers.

Of the 46 job postings:

- 39 (85%) indicated the job was remote
- 3 were hybrid
- 2 were in-office
- 2 did not indicate

Of the 37 employers, 31 (86%) had locations in MA. Of the six employers that did not have locations in MA, all were advertising remote positions.

In the process of searching job postings/descriptions, we identified 13 hiring employers that are members of the Work Without Limits Business Network, a consortium of public and private employers committed to the inclusion of people with disabilities as employees, customers, and vendors. Seven of these employers provided feedback in Phase III of this project.

Text Simplification of Job Descriptions

For the text simplification process, we focused on the following in-demand occupations that were identified in our research:

1. Digital Accessibility Specialist
2. Benefits and Compensation Managers
3. Computer and Information Systems Analysts and Managers

We selected three job descriptions for each occupation for a total of six job descriptions. We first copied and pasted each set of three job descriptions side-by-side into an Excel spreadsheet inclusive of the following categories of information:

- Company name
- Company description
- Job title
- Remote or office
- Working conditions and physical effort
- Salary
- Education and qualifications
- Skills and competencies
- Job duties and essential functions

Next, we simplified the text of each job description using the following process:

- Reviewed original job descriptions with a focus on the minimum and preferred requirements and desired skills.

- Paired related requirements and desired skills within each set of similar jobs.
- Replaced complex words and phrases with simpler words and phrases.
- Removed words that were not needed to get meanings across.
    - Example: Replaced "on a monthly basis" with "monthly"
- Removed adjectives that were not needed to convey actual meanings.
- Replaced "passive voice" with "active voice."
- Put multiple items in bulleted lists to increase readability.
- Used simpler synonyms for complex high grade level words.
    - Example: Replaced "collaborate" (grade level 20.2) with "work with" (grade level 1.0)
- Used online Thesaurus and other tools to verify choices.
- Used simpler words that convey the same meaning.
    - Example: Replaced "Evaluates potential solutions that meet business needs" (12.4 grade level) with "Looks for answers that meet business needs" (2.3 grade level)
    - Example: Replaced "Ensures timely and accurate resolution of all issues" (11.1 grade level) with "Solves problems accurately and on time "(5.1 grade level)
- Broke long sentences down into shorter sentences.
    - Example: Replaced "Lead business requests, within one or multiple departments, impacting one or more platforms (10.4 grade level) with "Lead business requests. Work with one or more departments. Use one or more platforms" (3.1 grade level)
- Tested accessibility with JAWS screen reader user.

We then conducted an analysis across each set of three job descriptions with a focus on the minimum and preferred qualifications. Through this analysis, we identified commonalities across the descriptions and reorganized the job descriptions into a standard format.

Digital Accessibility Specialists, and Benefits and Compensation Managers

For the first two occupations (i.e., digital accessibility and benefits and compensation) we looked at job postings that were of similar grade and had similar entrance requirements. We created plain-language job descriptions that clearly state the minimum qualifications of the roles. The digital accessibility job descriptions represented employers from IT, health care services, and human services. The job descriptions for benefits and compensation represented employers in human services, health insurance, and data access. In the Appendix, we include two text-simplified job descriptions we developed for the digital accessibility (Appendix L) and benefits and compensation (Appendix M) occupations.

Computer and Information Systems Analysts and Managers

For the third occupation (i.e., computer and information systems), we took a slightly different approach. Instead of analyzing job postings of similar grades, we analyzed job postings that show how a career could progress within that field. Specifically, we examined three different job descriptions, each one requiring a more advanced college degree, an increase in the number of years of experience, and an

increased skill set and knowledge base. Symbiotically, salary and title for each job description increased as well. The three job descriptions represented the health care, health insurance, and food and beverage industries. In Appendix N, we include the text-simplified computer and information systems job descriptions that demonstrate a potential career path.

Phase III: Employer Focus Group and Feedback

The purpose of the focus group was to review what we learned in the research and to obtain first-hand, real-time information from disability-inclusive employers that have current or projected job openings for in-demand jobs and growth occupations.

Research Questions

During the focus group, we asked participating employers the following questions:

1. What are your organization's top current or projected needs for filling job vacancies?
2. What training organizations do you recruit from to fill job vacancies?
3. What skills do you require of new employees entering your workforce? What skills will you train new employees in?
4. What are your current and projected remote and hybrid work policies and practices? How do your remote workers get technical support?
5. What occupations within your organization or industry are likely to be in lower demand or have fewer job openings in the coming years?
6. How does your company currently support employees who have self-identified as having a disability? On a scale of 1 to 10, what is the awareness, comfort, and skill levels of employees and managers when it comes to disability in the workplace?
7. What has your organization done to ensure your internal systems and tools are accessible for your employees with disabilities? Is your procurement department/staff aware of the importance of accessibility and know what steps to take to ensure products/platforms purchased are accessible/compatible with screen readers?

Method

The criteria used to select employers for the focus group included organizations that were known to be disability-inclusive and had current job openings for at least one of the in-demand or growth occupations identified in our research.

Focus group participants were recruited from Work Without Limits network of businesses and community partners, which represent varying industries. Ten organizations were invited to participate via an electronic invitation and registration link; seven representatives from six companies registered. Six employers participated in the focus group, and one submitted answers to the questions in writing.

Five of the seven participants held human resources roles with job titles of Manager of People and Culture, Director of Workforce Integration, Workforce Manager, Assistant Director of Talent and Talent Engagement, and Diverse Recruiting Program Manager. Two participants held business roles within their organization coupled with leadership roles on their disability Employee Resource Group (ERG)[9]. Focus

group participants were from higher education, retail banking, financial services, information technology, and health care.

The project team created a Data Collection Fact Sheet and Frequently Asked Questions document that was sent to participants prior to the focus group and described the purpose and goals of the project. In addition, a Focus Group Guide and Interview Questionnaire were developed to ensure smooth and efficient facilitation of the focus group. The focus group was conducted via Zoom, and participants' answers were captured via handwritten notes. With verbal consent from all participants, the focus group was also recorded using Zoom functionality.

After the focus group, the audio recording was sent to a professional service for transcription. Once completed and returned, the transcription was uploaded into Dedoose, a software application used for analyzing qualitative data. Two members of the project team independently coded the transcription, one person in Excel and one person in Dedoose. Content analysis was used to identify emerging themes from the focus group.

Key Findings

1) Information technology and operations are the top current or projected job vacancies.

Focus group participants categorized the top current or projected needs for filling vacancies in two major job categories, Informational Technology (IT) and Operations.

Participants cited a wide range of IT positions as their organization's top in-demand jobs. As in our research, many of these positions do not require sight and can be performed remotely. Remote jobs identified by focus group participants include Data Scientists, Data Analysts, Cybersecurity Analysts, Network Engineers, Software Engineers, and Full Stack Developers. Additional in-demand jobs, though not specifically identified as remote positions, included Product Owners, Product Managers, UI/UX Designers, and Site Reliability Engineers. A brief definition of each of these occupations can be found in Appendix O.

In-demand jobs identified by focus group participants that align within the job category of Operations include Customer Service and Call Center Representatives, both of which are often performed remotely. On-premises positions include those in retail such as pharmacy technicians, cashiers, and management positions ranging from entry-level to district directors. Other on-premises positions include food services, patient care technicians, nurses' aides, medical assistants, housekeeping, and nurses.

Focus group participants agreed that many positions can be performed remotely, however, two participants indicated that whether a job can be performed remotely is, at times, at the discretion of the department manager. One participant indicated that their company is advocating that managers be more flexible in this regard, and therefore, more inclusive of people with disabilities and others who could benefit from remote or hybrid work arrangements.

2) Jobs with repetitive tasks are at risk of being replaced by technology.

A less robust discussion took place when we asked participants about jobs that will be in less demand in the future. Only a few participants responded, while the others indicated they did not have an answer

for the question. One participant noted that the jobs to be in lesser demand are those that contain repeatable tasks that technology will eventually replace.

On the other hand, rather than jobs being eliminated and people losing employment, one participant touted how his company is upskilling their employees. This retention strategy allows for internal mobility and gives employees the opportunity to move up within the company rather than worry that they may be out of a job in a few years.

3) **Partnerships with training programs to build career pipelines could benefit from more engagement with hiring managers and Human Resource departments.**

Participants discussed the need to educate their Human Resources (HR) departments on the benefits of partnering with organizations to build a pipeline of qualified candidates. One participant discussed making a connection with one training organization whose program can funnel qualified candidates with disabilities into their jobs, however, HR was "not as excited" as he was about the partnership. This participant did note, however, that their company is offering a series of disability inclusion trainings soon for their HR department, so "progress is being made." He went on to say, **"There is a lot of work to be done...to make people realize that the playing field is not equal and that we need to create inroads."**

According to another participant, breaking down barriers within one's own company is crucial to letting hiring managers see the value in employing candidates with disabilities who complete programs with training organizations. It is important to inform hiring leaders and other staff of all the resources and accommodations available to candidates with disabilities, so they can be productive and successful in their careers. With this knowledge, hiring managers can become more comfortable hiring candidates from training programs.

All but one company indicated it partners with one or more training organizations to recruit candidates with disabilities. One participant indicated that, although they do partner with a few organizations, this is an area they were striving to improve and make more connections. Two companies noted that they are also connected to training organizations in nearby states, including New Hampshire and Rhode Island. The training organizations ranged from state agencies to staffing firms, nonprofit organizations, and "bootcamps." One participant proclaimed, "We partner with everybody!" Below we list the training organizations identified by focus group participants including hyperlinks to their websites.

- Massachusetts Rehabilitation Commission
- Perkins School for the Blind – Career Launch
- MGH Aspire
- UMass Boston
- MassHire Downtown Boston Career Center
- Riverside Community Care
- Work Without Limits
- Prepare Rhode Island
- 2U, Inc-Powered Boot Camp
- Flatiron Boot camp
- MassHIre Metro North Career Center
- New Hampshire Bureau of Vocational Rehabilitation
- Jewish Vocational Service

One participant noted that, her company typically looks to hire individuals with work experience, therefore, training programs that offer real-life experiences through training and on-the-job support, such as boot camps, are the most beneficial to them. Two boot camps identified were 2U, Inc. and Flatiron, though not specifically for individuals with disabilities. Both boot camps have courses in fields that align with our research including Coding, Software Engineering, Cybersecurity, and Data Analytics. According to this participant, some boot camps partner with employers to take on recent college graduates for a three- to six-month contract position, which can turn into a permanent position if the candidate performs well.

4) **Employers offer multiple ways to support their remote workers and their employees with disabilities.**

We asked participants how their companies support employees with disabilities and remote workers to ensure they are successful, engaged, and have a pathway to advance in their careers. Two participants mentioned many accommodations and/or modifications offered to ensure employees have the needed equipment to perform their job duties, as well as ensuring that on-site offices and meeting spaces are accessible, including doorknobs, seating, and audio in conference rooms.

Another participant enthusiastically indicated that his company offers a "suite of services" accessible to all employees and anyone who decides to identify themselves as a person with a disability. He also noted that there can be a few barriers to obtaining such services. For instance, managers must be aware of the suite of services so they can provide their employees with the resources available to them. Employees also need to know how to access the resources and understand that requesting such services will not jeopardize their employment. **He states, "...it hasn't been...easy to be able to say, "I need this," especially when you're trying to come in new and show that you could be at the same level as everyone else."**

Prior to the pandemic, many companies embraced the value of work-life balance; the pandemic has brought this value even more to the forefront of companies. During the pandemic, it became apparent that companies needed to do more and/or different things to ensure they are engaging their remote workforce with or without disabilities. All the participants indicated that their companies offer support and services to all remote, hybrid, and on-site employees. The services range from Employee Assistance Programs (EAP), health and wellness programs, gym memberships, Employees Resource Groups (ERG), educational forums, and Lunch and Learns. The topics for the forums and Lunch and Learns include disability awareness, autism awareness, mental health, growth mindset, Black History, Lesbian, Gay, Bisexual, Transgender, Intersex, Asexual, and more. To be as inclusive as possible, one company shared that since the pandemic, they have extended these types of sessions beyond just their employees, to also include their consultants and contractors.

A few participants noted that their companies wanted to create community for employees while working remotely. One participant noted the open forums they have where employees can come together to share and be vulnerable in a “safe space”. Another participant indicated that their employer has a platform where staff can say what they want and ask questions, letting their voices be heard. Knowing

that going remote may have caused some employees to feel isolated from their peers, participants discussed keeping employees engaged by starting virtual book clubs, happy hours, and game nights.

As expected, mental health was "top of mind" for supporting employees within their companies. Participants noted that their companies are offering services and programs through their EAPs and/or ERGs to raise awareness and reduce stigma around mental health in the workplace. One company allows employees to block off the first Friday afternoon of each month, to focus on personal and professional development, which can include time set aside for mental health.

5) **More education for employers is needed regarding the importance of ensuring business tools and systems are accessible to people with disabilities.**

It is clear from focus group participants that there is uncertainty regarding what their companies are doing to ensure their business tools and systems are accessible to employees with disabilities, particularly those with vision impairments. Only two of the focus group participants were able to provide answers for this question.

One participant touched upon the technical side of accessibility. The company has been conscientious in their effort to keep all users in mind when designing their website, building color contrasts on pages, and using larger fonts and icons. This same company reached out to one of the training organizations for consultation regarding their website.

For the other company, ensuring systems accessibility involves making employees aware of the vast set of online tools and services that is available to them. However, simply promoting the services is not enough. The company must also educate and encourage employees to take full advantage of the services without fear of reprisal.

6) **Employers look for new employees to have soft skills – the rest "can be taught."**

When asked about which skills companies look for new employees to have and which the companies will train them on, a strong theme emerged around soft skills --- personal characteristics that enable someone to interact effectively and harmoniously with other people. Resounding terms we heard included innovation, adaptability, creativity, active listening, time management, and a can-do attitude. It's especially important in a remote environment to ensure all employees are representing the company in a professional and courteous manner. As one participant noted, "Everything else can be taught; everything else you can learn on the job." However, two companies did note that certain jobs such as IT, project management, and customer service do require a specific skillset for new employees, which aligns with our findings.

Implications from Focus Group Findings

1. **There are a variety of occupations, technical and non-technical, that are in demand and/or projected to grow**, that could satisfy the varied interests and skills sets of MCB clients. Many jobs can be performed remotely while some do require an in-person presence.

2. There are employer "champions" who advocate to their companies to hire and retain employees with disabilities. **There is an appetite for community partnerships to provide services around**

candidate recruitment and retention, and manager education. Opportunities are available for MCB staff and vendors to create strong partnerships with businesses and employers on behalf of MCB's job seeking clients.

3. Although focus group participants cited that they had partnerships with training organizations to recruit talent, they also clearly expressed that they could and want to do better. **Educating HR personnel and hiring managers is a vital component to the success of these partnerships.** There are plenty of opportunities for MCB staff and vendors to engage in virtual educational forums that companies sponsor for their employees around various topics of interest.

4. **Employers need further education regarding disability inclusion.** For example, employers are beginning to bring their employees back into the office, which presents an opportune time to educate them on remote work as a reasonable accommodation and strategy to recruit and retain qualified employees, particularly individuals with vision impairments.

5. It is not standard practice for companies to evaluate products and platforms for accessibility prior to purchase, and most companies lack awareness that this is a good practice. Procurement departments are simply not aware of the importance of ensuring intended software will be accessible for all users, and that not doing so will require additional time and resources to fix on the backend. **Educating employers about best practices and soon-to-be legislation for creating accessible digital content could empower companies to create digital accessibility testers on their IT teams.** Such efforts will put companies ahead of the curve for disability inclusion and create job opportunities for MCB consumers.

6. **Job candidates with good personal and professional characteristics are in demand by employers.** Companies realize that skills using various software and tools can be taught on the job. Therefore, educating MCB's job seeking candidates on the value of time management skills, flexibility and adaptability, accountability, and a can-do attitude, can make them a great return on investment for the employer.

7. Employers are offering their employees many opportunities to engage in services and supports, if they so wish, especially with many workers working remotely. Employees must search or ask for these services or advocate for themselves to find out what is available to them. **It is important that MCB consumers bring these types of self-advocacy skills into the workforce, confident that this will be seen as a strength versus a weakness.**

Conclusion

Our study confirms the rapidly emerging occupation of digital accessibility specialist for which blindness and proficiency using screen readers are qualifications for employment. This is an exciting development and opportunity for MCB to identify and prepare MCB clients for careers in the field of digital accessibility, for which having lived experience with blindness is a preferred qualification for employment. Through our research, we discovered nine training programs that prepare workers for this field. We conducted in-depth research on two of these programs and found that they are **fully accessible** to people who are blind and vision impaired. We also identified job posting websites exclusively dedicated to advertising job opportunities in the field of digital accessibility. We recommend MCB support further research on the remaining training programs and job posting websites to better understand the training programs, job requirements, and employers. Anticipated amendments to the ADA or other U.S. legislation will soon require employers' digital footprints to be accessible; current leading employers are already doing so as a best practice. Accordingly, we expect to see this field continue to grow in the years to come affording a unique opportunity for individuals with vision impairments to prepare for and enter a viable career that leverages their lived experience.

In addition to digital accessibility, **our study revealed a number and variety of in-demand and projected growth occupations that do not require sight to perform, could likely be performed remotely, and offer a living wage and career advancement opportunities.** We uncovered one training program that is **fully accessible** to blind and vision-impaired individuals, preparing workers for the in-demand occupations of Salesforce administrators and developers. Both our labor market research and employer feedback reveal that jobs in IT and operations (such as call center and customer service representatives) are in high demand and could be good matches for people who are blind or vision-impaired for several reasons. For example, these roles do not rely heavily on vision to perform, and they can be performed remotely. We recommend additional research on these roles to further identify the educational and other requirements for the jobs, as well as essential job duties, the training programs available to prepare workers, and the employers who hire them.

Last, there is evidence that **people with vision impairments in MA are working in jobs projected to be in lesser demand in the next decade**. We recommend that MCB consider investigating the types of support and/or training they may need to remain in the labor force.

This study provides MCB insight into the hiring and education needs of employers, and a clear understanding of the minimum qualifications of sample occupations, as well as guidance on how MCB can analyze and simplify job descriptions for their clients in the future. We also deliver to MCB in-depth information on in-demand and growth occupations, including one exciting, emerging occupation where blindness is a preferred qualification, as well as fully accessible training programs that exist to prepare workers for in-demand occupations.

Appendices

Appendix A: Disability prevalence statistics in the U.S. and Massachusetts

	U.S.	MA
Any disability	13%	12.5%
No disability	87%	87.5%
Total	100%	100%

Type of disability	U.S.	MA
Self-care	20%	22%
Hearing	27%	26%
Vision	18%	15%
Independent living	37%	39%
Ambulatory	49%	46.5%
Cognitive	40%	44.5%
Any disability	100%	100%

	U.S.	U.S.	MA	MA
	disability	no-disability	disability	no-disability
Civilian employed (both at work and not at work)	23%	64%	23.5%	67%
Unemployed	3%	4%	4%	5%
Not in labor force	73%	31%	73%	28%

Data Source: American Community Survey (ACS) 2020

Appendix B: Technical Notes

In this section, we present data and methods used in the Job Market and Labor Data Research and Analysis in more detail.

Survey description and sources

We used three surveys in this analysis:

1. Occupational Requirements Survey (ORS): ORS is an establishment-based survey conducted by the Bureau of Labor Statistics (BLS). The ORS provides job-related information regarding physical demands; environmental conditions; education, training, and experience and cognitive and mental requirements for jobs in the U.S. economy. The goal of ORS is to collect and publish information about specific work-related requirements that will be available to the public and used by the Social Security Administration (SSA) to help make accurate decisions in their disability programs. For more information about the Occupational Requirements Survey, please see https://www.bls.gov/ors.

   The data that was used in this report was from the preliminary second wave - reference year 2021 complete dataset (Accessed on 4/26/2022). The estimates are from three of five samples; therefore, it is considered preliminary. The datasets are available in https://www.bls.gov/ors/data.htm.

   The estimates in ORS data set are produced from a probability sample of 28,900 establishments. There were 14,500 private industry and 3,000 state and local government responding establishments that provided approximately 84,800 occupational observations. The 2021 estimates represent 135,979,200 civilian workers.

   There are total of 18 data fields from the data set. The following data fields were used in this report. 1) "Category" was used to identify the group of estimates that we were interested in such as "vision" and "telework"; 2) "Estimate text" was used to identify the datatype and specific requirement such as "Percent of workers, far vision is not required," "Percent of workers, near vision is not required," "Percent of workers, peripheral vision is not required" or "Percent of workers, with telework available"; 3) "Estimates" was used to obtain the estimated value of each requitement and 4) "SOC 2018 code" which is a 6-digit occupation code as defined in the 2018 Standard Occupational Classification (SOC) system that was used to link BLS employment projection data.

2. BLS Employment Projection data for 2020-2030: The Employment Projections (EP) program publishes 10-year projections of national employment by industry and occupation based on analysis of historical and current economic data for the labor market, the macroeconomy and industrial activity. The main objective of the EP program is to provide estimated employment and occupational trends over a 10-year projection period. The employment projections are developed in a series of six steps that examine: the labor force, aggregate economic growth, commodity final demand, input-output data, industry output and employment, and finally occupational employment and openings. Each step is based on separate procedures, models

and related assumptions. Together, the six components provide the analytical framework used to develop the detailed employment projections. For more information, please see https://www.bls.gov/opub/hom/emp/home.htm

EP data for 2020-2030 was used in this report. The data is available in https://data.bls.gov/projections/occupationProj

There are total of 14 data fields from the data set. The following data fields were used in this report. 1) "Employment Percent Change, 2020-2030" was used to obtain the projected percent employment changes within 10 years; 2) "Median Annual Wage 2021" is the US median annual income for each occupation type and 3) "Occupation Code" which is a 6-digit occupation code used to link ORS data and American Community Survey (ACS) data.

3. American Community Survey (ACS) 2020 1-year experimental estimates: ACS is a nationwide survey that collects and produces information on social, economic, housing, and demographic characteristics about our nation's population every year. Every year, the U.S. Census Bureau contacts over 3.5 million households across the country to participate in the ACS. For more information, please see https://www.census.gov/programs-surveys/acs

   In this report, 2020 1- year ACS Public Use Microdata Sample (PUMS) file was used. The ACS PUMS files are a set of records from individual people or housing units, with disclosure protection enabled so that individuals or housing units cannot be identified.

   Please note that the Census Bureau did not release its standard 2020 ACS 1-year PUMS data because of the impacts of the COVID-19 pandemic. The PUMS data have been released with experimental weights and replicate weights. The data is available in https://www.census.gov/programs-surveys/acs/data/experimental-data/2020-1-year-pums.html

   The PUMS files include variables for nearly every question on the ACS survey. There are two types of PUMS files, one for Person records and one for Housing Unit records. For our purpose, we used Person records only. Each record in the person file represents a single person.

   There are more than 200 data fields in PUMS Person records file. The following data fields were used in this report: 1) all fields that related to disability type and status such as DIS (Disability recode, a disability indicator), DDRS (Self-care difficulty indicator), DEAR (Hearing difficulty indicator), DEYE (vision difficulty indicator), DOUT (Independent living difficulty), DPHY (Ambulatory difficulty indicator), DREM (Cognitive difficulty indicator) was used to calculate the disability prevalence statistics in the U.S. and MA; 2) "WAGP" (Wages or salary income past 12 months) was used to calculate the median annual income for each occupation type in Mass and 3) "SOCP" which is a 6-digit occupation code that was used to link ORS data.

4. Merge rate from the three data sets that were used in this report: EP data has 789 SOC and ORS only represent 390 SOC with vision requirements and if the occupation can be performed remotely. Merging these two data sets leads to 316 SOC (81% of SOC from ORS matched with

EP). There is 515 SOC in ACS data and 352 SOC were found in disabled group. While merging with the ORS, there were 46.8% of SOC (n=148) from disabled group matched with ORS.

5. Analytical notes:

    a. Please note that many estimates generated with PUMS may be different from estimates for the same characteristics published on data.census.gov. These differences are because the PUMS microdata is a sample of the full ACS microdata and includes only about two-thirds of the records that were used to produce ACS estimates. Additional edits appropriate for PUMS were also made for confidentiality reasons.

    b. Note on Standard Occupational Classification codes (SOCP) in ACS: In cases where the SOCP codes end in X(s) or Y(s), two or more SOC occupation codes were aggregated to correspond to a specific PUMS SOCP code. In these cases, the PUMS occupation description is used for the SOC occupation title. Also, there are some pseudo-codes developed by the Census Bureau and are not official occupation codes such as "999920" is "Unemployed, With No Work Experience in the last 5 years or earlier or never worked". More information please see: https://www2.census.gov/programs-urveys/acs/experimental/2020/documentation/pums/ACS2020_PUMS_README.pdf

Appendix C: Top occupations that people with disabilities in the U.S. were employed in 2020.

OCCUPATION	Percentage of People with Disabilities in the U.S. Employed in these Occupations
Cashiers	0.26%
Drivers/Sales Workers and Truck Drivers	0.24%
Janitors and Building Cleaners	0.24%
Retail Salespersons	0.20%
Laborers and Freight, Stock and Material Movers, Hand	0.20%
Miscellaneous Managers, including Funeral Service Managers and Postmasters and Mail Superintendents	0.18%
Customer Service Representatives	0.17%
Cooks	0.16%
Personal Care Aides	0.15%
First-line Supervisors of Retail Sales Workers	0.14%
Secretaries and Administrative Assistants, except legal, medical, and executive	0.13%
Stockers and Order Fillers	0.13%
Registered Nurses	0.11%
Maids and Housekeeping Cleaners	0.11%
Waiters and Waitresses	0.11%
Elementary and Middle School Teachers	0.10%
Construction Laborers	0.10%
Production Workers	0.09%
Nursing Assistants	0.09%

Data Source: American Community Survey (ACS) 2020 1-year experimental estimates

Appendix D: Top projected in-demand occupations in the U.S. by 2030.

OCCUPATION	Employment Percent Change 2020-2030	Far Vision Not Required	Peripheral Vision Not Required	2021 Median Annual Wage in U.S.	2020 Median Annual Wage for Vision Impaired in MA	% Vision Impaired Employed in MA in 2020
Ushers, Lobby Attendants, and Ticket Takers	62%	78%	96%	$24,440	n/a[10]	0.49%
Nurse Practitioners	52%	94%	93%	$120,680	n/a	n/a
Cooks, restaurant	49%	n/a	97%	$30,010	n/a	n/a
Exercise Trainers and Group Fitness Instructors	39%	84%	84%	$40,700	n/a	n/a
Physical Therapist Assistants	35%	59%	62%	$61,180	n/a	n/a
Animal Caretakers	34%	83%	91%	$28,600	$25,000	0.28%
Information Security Analysts	33%	96%	96%	$102,600	n/a	n/a
Bartenders	33%	89%	n/a	$26,350	$4,000	0.29%
Amusement and Recreation Attendants	32%	57%	65%	$24,500	n/a	n/a
Physician Assistants	31%	100%	n/a	$121,530	n/a	n/a
Epidemiologists	30%	58%	58%	$78,830	n/a	n/a
Logisticians	30%	93%	93%	$77,030	n/a	n/a
Speech-language Pathologists	29%	68%	69%	$79,060	n/a	n/a
Computer Numerically Controlled Tool Programmers	27%	79%	79%	n/a	n/a	n/a

[10] Not available

Dining Room and Cafeteria Attendants and Bartender Helpers	27%	95%	n/a	$27,170	n/a	n/a
Audio and Video Technicians	26%	63%	65%	$48,820	n/a	n/a
Coaches and Scouts	26%	21%	27%	$38,970	n/a	n/a
Physical Therapist Aides	25%	93%	93%	$29,200	n/a	n/a
Chefs and Head Cooks	25%	94%	95%	$50,160	$25,000	0.58%
Hosts and Hostesses, restaurant, lounge, and coffee shop	25%	96%	100%	$24,600	$5,177	0.56%

Data Source: Columns 2 (Employment Percent Change) and 5 (2021 U.S. Median Wage) are from Occupational Projections Data; Columns 3 and 4 (Far and Peripheral Vision) are from 2021 Occupational Requirements Survey Estimates; and Columns 6 and 7 (Median Wage MA and Vision Impaired Employed in MA) are from American Community Survey (ACS).

Appendix E: Top occupations in the U.S. that can be performed remotely.

OCCUPATION	% Report Job can be Performed Remotely	Far Vision Not Required	Peripheral Vision Not Required	Employment % Change 2020-2030	2021 Median Annual Wage in U.S.	2020 Median Annual Wage for Vision Impaired in MA	% Vision Impaired Employed in MA in 2020
Sales Representatives wholesale manufacturing, technical and scientific products	84%	27%	27%	6%	$94,840	n/a	n/a
Market Research Analysts and Marketing Specialists	64%	74%	74%	22%	$63,920	n/a	n/a
Computer Network Architects	62%	98%	98%	6%	$120,520	$120,000	0.29%
Lawyers	61%	41%	41%	9%	$127,990	n/a	n/a
Fundraisers	61%	54%	55%	16%	$60,660	$12,000	0.22%
Computer Programmers	60%	n/a	n/a	-10%	$93,000	$7,222	0.33%
Computer and Information Systems Managers	59%	82%	82%	11%	$159,010	n/a	n/a
Sales Managers	56%	37%	37%	7%	$127,490	n/a	n/a
Computer Systems Analysts	55%	97%	97%	7%	$99,270	$41,535	0.32%
Marketing Managers	53%	59%	59%	10%	$135,030	n/a	n/a

Criminal Justice and Law Enforcement, Teachers, Postsecondary	53%	n/a	n/a	11%	$64,600	n/a	n/a
Advertising Sales Agents	51%	32%	32%	3%	$52,340	n/a	n/a
Editors	50%	94%	94%	5%	$63,350	n/a	n/a
Compensation and Benefits Managers	50%	91%	91%	4%	$127,530	n/a	n/a
Claims Adjusters, Examiners, and Investigators	50%	72%	72%	-3%	$65,080	n/a	n/a
News Analysts, Reporters, and Journalists	45%	11%	11%	6%	$48,370	n/a	n/a
Human Resources Managers	45%	71%	72%	9%	$126,230	$84,000	0.20%
Economics Teachers, Postsecondary	43%	n/a	n/a	9%	$104,940	n/a	n/a
Accountants and Auditors	42%	86%	86%	7%	$77,250	$43,045	0.27%
Loan Officers	40%	65%	65%	1%	$63,380	n/a	n/a
Physicists	40%	n/a	n/a	9%	$152,430	n/a	n/a
Human Resources Specialists	39%	88%	88%	10%	$62,290	n/a	n/a
Public Relations Specialists	37%	78%	79%	11%	$62,800	n/a	n/a
Curators	37%	57%	62%	22%	$60,110	n/a	n/a

Architectural and Engineering Managers	37%	84%	84%	4%	$152,350	$250,000 [11]	0.17%

Data Source: Columns 2, 3 and 4 (Performed Remotely, Far and Peripheral Vision) are from 2021 Occupational Requirements Survey (ORS) Estimates; Columns 5 and 6 (Employment Percent Change and 2021 U.S. Median Wage) are from Occupational Projections Data; and Columns 7 and 8 (Median Wage MA and Vision Impaired Employed in MA) are from American Community Survey (ACS).

[11] ACS data sometimes combines two or more occupational codes into one code, therefore, ACS job category is not an exact match to the ORS data. More detailed explanation can be found in Technical Notes in the Appendix of this report.

Appendix F: Occupations that show positive employment change, can be performed remotely, do not require vision, and offer a living wage.

OCCUPATION	Employment Percent Change 2020-2030	% Report Job Can Be Performed Remotely	Far Vision Not Required	Peripheral Vision Not Required	2020 Median Annual Wage in U.S.
Market Research Analysts and Marketing Specialists	22%	64%	74%	74%	$63,920
Fundraisers	16%	61%	54%	55%	$60,660
Computer and Information Systems Managers	11%	59%	82%	82%	$159,010
Marketing Managers	10%	53%	59%	59%	$135,030
Computer Systems Analysts	7%	55%	97%	97%	$99,270
Computer Network Architects	6%	62%	98%	98%	$120,520
Editors	5%	50%	94%	94%	$63,350
Compensation and Benefits Managers	4%	50%	91%	91%	$127,530

Data Source: Column 1 (Employment Percent Change) is from Occupational Projections Data; Columns 3, 4 and 5 (Performed Remotely, Far and Peripheral Vision) are from 2021 Occupational Requirements Survey (ORS) Estimates; and Column 6 (Median Wage in MA) is from American Community Survey (ACS).

Appendix G: Most common occupations that employed people with vision impairments in MA in 2020.

OCCUPATION	% Vision Impaired Employed in MA in 2020	Employment Percent Change 2020-2030	2021 Median Annual Wage in U.S.	2020 Median Annual Wage for Vision Impaired In MA	Far Vision Not Required	Peripheral Vision Not Required
Laborers and Freight, Stock, and Material Movers, Hand	4%	9%	$31,230	$2,679	52%	60%
Cooks	3%	n/a	n/a	n/a	n/a	n/a
Cashiers	3%	n/a	n/a	$13,025	n/a	n/a
Retail Salespersons	2%	-1%	$29,120	$476	81%	87%
Maids and Housekeeping Cleaners	2%	11%	$28,780	$3,971	88%	88%
First-line Supervisors of Retail Sales Workers	2%	-7%	$39,230	$20,237	68%	72%
Construction Laborers	2%	8%	$37,770	n/a	55%	57%
New Accounts Clerks	2%	n/a	n/a	$75,000	n/a	n/a
Driver/Sales Workers and Truck Drivers	2%	n/a	n/a	$10,096	n/a	n/a
Landscaping and Groundskeeping Workers	2%	8%	$34,430	$561	19%	19%
Personal Care Aides	2%	n/a	n/a	$3,244	43%	43%
Elementary and Middle School Teachers	2%	n/a	n/a	$28,704	n/a	n/a
Nursing Assistants	2%	8%	$30,310	$27,398	81%	92%
Secondary School Teachers	2%	n/a	n/a	$78,530	n/a	n/a

Education and Childcare Administrators	2%	n/a	n/a	$1,653	n/a	n/a
Secretaries and Administrative Assistants, except legal, medical, and executive	1%	-8%	$37,880	$5,475	88%	88%
First-line Supervisors of Construction Trades and Extraction Workers	1%	6%	$72,010	n/a	10%	12%
Sales Representatives, Wholesale and Manufacturing	1%	n/a	n/a	n/a	n/a	n/a

Data Source: Columns 2 (Vision Impaired Employed in MA) and 5 (2020 Median Wage MA) are from American Community Survey (ACS); Columns 3 (Employment Percent Change) and 4 (2021 Median Wage U.S.) are from Occupational Projections Data; and Columns 6 and 7 (Far and Peripheral Vision) are from 2021 Occupational Requirements Survey (ORS) Estimates.

Appendix H: Projected least in-demand jobs in the U.S. by 2030.

OCCUPATION	Employment Percent Change 2020-2030	Far Vision Not Required	Peripheral Vision Not Required	% Remote Available	2021 Median Annual Wage in U.S.	% of Vision Impaired Employed in MA	2020 Median Wage for Vision Impaired In MA
Switchboard Operators including Answering Service	-23%	100%	100%	n/a	$30,150	n/a	n/a
Executive Secretaries and Administrative Assistants	-19%	89%	89%	18%	$62,060	n/a	n/a
Tellers	-17%	87%	96%	n/a	$36,310	0.11%	$21,000
Drilling and Boring Machine Tool Setters, Operators and Tenders, Metal and Plastic	-16%	85%	87%	n/a	$38,580	n/a	n/a
Milling and Planing Machine Setters, Operators and Tenders, Metal and Plastic	-15%	57%	n/a	n/a	$46,850	n/a	n/a
Sewing Machine Operators	-14%	100%	100%	n/a	$29,690	0.21%	n/a
Payroll and Timekeeping Clerks	-13%	96%	96%	14%	$47,610	n/a	n/a
File Clerks	-13%	93%	94%	n/a	$36,360	0.28%	n/a
Inspectors, Testers, Sorters, Samplers and Weighers	-12%	95%	96%	n/a	$38,580	0.20%	$46,000
Cashiers	-10%	96%	99%	n/a	$27,260	n/a	n/a

Computer Programmers	-10%	n/a	n/a	60%	$93,000	0.33%	$7,222
Bill and Account Collectors	-9%	92%	92%	n/a	$37,700	n/a	n/a
Secretaries and Administrative Assistants, except legal, medical, and executive	-8%	88%	88%	5%	$37,880	1.38%	$5,475
Correctional Officers and Jailers	-7%	5%	5%	n/a	$47,920	0.72%	n/a
Interviewers, except eligibility and loan	-7%	78%	78%	n/a	$37,220	n/a	n/a
First-line Supervisors of Retail Sales Workers	-7%	68%	72%	n/a	$39,230	2.09%	$20,237
Molding, Coremaking and Casting Machine Setters, Operators and Tenders, Metal and Plastic	-6%	69%	78%	n/a	$36,370	n/a	n/a
Chief Executives	-6%	56%	56%	34%	$179,520	n/a	n/a
Shipping, Receiving and Inventory Clerks	-6%	65%	66%	n/a	$36,890	0.39%	n/a
Butchers and Meat Cutters	-5%	100%	100%	n/a	$36,050	n/a	n/a
Procurement Clerks	-5%	94%	94%	n/a	$45,150	n/a	n/a
Pourers and Casters, Metal	-5%	75%	85%	n/a	$45,850	n/a	n/a

First-line Supervisors of Non-retail Sales Workers	-5%	45%	47%	20%	$79,680	n/a	n/a

Data Source: Columns 2 (Employment Percent Change) and 6 (2021 Median Wage U.S.) are from Occupational Projections Data; Columns 3, 4 and 5 (Far and Peripheral Vision, Remote Available) are from 2021 Occupational Requirements Survey (ORS) Estimates; and Columns 7 (Vision Impaired Employed in MA) and 8 (2020 Median Wage MA) are from American Community Survey (ACS).

Appendix I: Detailed Descriptions of Accessible Training Programs

Carroll Center for the Blind: Screen Reader User Tester Training Program

In 2021, the Carroll Center for the Blind (CCB), located in Newton, Mass., created the Screen Reader User Tester Training Program (SRUTT) that trains adults with vision impairments for employment in digital accessibility. Since the onset of the program, 10 individuals have graduated, seven are slated to start the next class in September/October 2022, and 30 people are on a waiting list. The program boasts a 70% placement rate.

SRUTT is an intensive 7-week virtual program that runs between 6-7 ½ hours per day Monday through Friday. It is currently offered two times per year, once in the fall and once in the spring. The program teaches and develops individuals with vision impairments to professionally explore, test and report findings regarding the accessibility of websites, mobile applications, and PDF documents. Throughout the course, individuals build upon the skills they have already acquired through lived experience and/or formal education and training and gain a solid background in digital accessibility. A CCB staff person that we interviewed states, *"Our graduates are better than sighted employees. Companies need someone with both technical experience and life experience."*

It is presumed that people who enter SRUTT are non-visual or functionally blind. That is, they may have some or no vision but are functioning as non-sighted. Pre-qualifications to enter the program include:

- Associate degree or higher
- Ability to type 30-40 words per minute with 95% accuracy
- At least 3 years of experience using a screen reader
- Proficiency with email
- Experience navigating PDF and Excel documents
- Ability to think creatively when navigating digital products
- Effective communication and presentation skills
- Confidence

Applicants to SRUTT must pass three levels of assessments including a screening questionnaire; submission of a resume and cover letter explaining why they are a viable candidate for the program; and a task-based interview, i.e., demonstration of their ability to navigate computer files and folders, MS Word, a web browser, and a Smartphone, all using a screen reader.

Topics in the training include:

- Digital accessibility, disability types and various technologies
- Overview of accessible web development components including HTML, CSS, JavaScript, ARIA
- Comprehension of which WCAG 2.1 Success Criteria are detectible and measurable while using screen readers for user testing the accessibility of websites and mobile applications
- Evaluation of the functional accessibility of web pages, PDFs, and mobile apps
- Creation of screen reader user tester reports and communicating those findings to stakeholders

In addition to the technical skills, students gain other valuable skills such as:

- Enhanced written and verbal skills
- Professional skill presentations with technical findings and recommendations
- Job preparation skills, i.e., development of professional resumes, LinkedIn profiles, references, an elevator pitch, and interview skills

A requirement of the program is that students must apply for a job or internship, that can be either full- or part-time or contract. Companies in which students have been placed include Staples, Pega Systems, UKG Group, Wayfair, My Blind Spot in New York as well as companies in Idaho, Texas, and Vermont. All jobs have been remote. Of the ten graduates, 70% had been placed in a job or internship within two months of completing the program. To date, four have obtained or retained full-time jobs, three have obtained paid internships, and three are not presently working due to personal reasons.

Carroll Center representatives stressed the importance for employers to support the continued training, education, and certification of their employees. The field of technology is constantly changing, and staff need to keep up to date. Additionally, Carroll Center staff shared that there is upward mobility in the field of disability accessibility. Individuals who complete SRUTT may eventually find themselves wanting to take next steps on their career path, which may include certifications from the International Association of Accessibility Professionals (IAAP) and/or a management track.

Vision-Aid: Digital Accessibility Tester Training

Vision-Aid, Inc. is a nonprofit organization with locations in India and Lexington, Mass. Vision-Aid India conducts digital accessibility training for individuals with vision impairments in India. They are also eager to pilot a training program in Mass. According to Vision-Aid, they offer a professionally structured, state-of-the-art training program for visually impaired individuals who aspire to become world-class digital accessibility testers, and their training program is among the best in India. The DAT program began in 2020. Four cohorts of visually impaired students have completed with a total enrollment of 75 students and 63 students graduating successfully.

DAT training is an 18-week course. The class meets one time per week for two hours, usually on the weekend. Using Zoom, the classes are held remotely and can be either in the morning or evening depending on class preference. Students undergo a rigorous program to earn recognized certifications including WCAG 2.1. Classes are taught by senior IT industry professionals—all of whom are volunteers—and include testing actual projects, industry-accepted reporting standards, the latest assistive testing tools, and exposure to HTML5 concepts and practices.

Vision-Aid follows a structured curriculum for all its training programs which includes assignments, homework, and periodic assessments. Only those students who maintain a minimum prescribed attendance, who are prompt in completing the assignments, and score above a minimum in assessments are eligible to receive a course completion certificate.

Selected DAT students receive an internship at Vision-Aid where they work on internal projects as well as client projects. Most of the DAT graduates find meaningful jobs post-graduation --- 55% obtained jobs in the technical field as accessibility testers, quality analysts, accessibility consultants, and software developers. Graduates were placed at companies such as Goldman Sachs, CitiBank, Infosys, HCL, Deque

Systems, Barrier Breaks, Tech Mahindra, Cognizant, and Amnet Systems. Graduates also obtained jobs in other fields such as teaching or working for a nonprofit organization.

The comprehensive training course is designed to help a substantial number of visually impaired students acquire deep-seated skills in accessibility testing, enter advanced training and earn certifications from other leading organizations such as Deque Systems, and obtain jobs in the field of digital accessibility testing.

Blind Institute of Technology: Salesforce Training

The Blind Institute of Technology (BIT), located in Colorado, supports individuals with disabilities to secure employment through professional staffing, recruiting, training, and development. BIT has a learning academy that has a fully accessible training program to help candidates improve their professional skills in digital technology with a focus on the Salesforce platform. Three courses developed by BIT --- in partnership with Salesforce's Office of Accessibility --- are Salesforce Administrator, Salesforce Developer and Salesforce Platform App Builder. The two latter courses are a continuum of the Salesforce Administrator course and specialize in their respective areas. For this report, we focused on the Salesforce Administrator course that prepares students to obtain the Salesforce Administrator certification.

Research conducted by Salesforce[12] shows a 400% annual growth rate for Salesforce Administrators with an average U.S. starting salary of $79,000. The BIT Salesforce Administrator course is fully accessible and can be performed remotely, therefore we see this as a viable career path for individuals with vision impairments.

The BIT Salesforce Administrator course is a 20-week, primarily independent study program allowing students to complete work on their own schedule with additional instructor-led, group and one-on-one learning sessions held remotely. BIT strives to be accommodating to students by offering alternative office hours, a flexible attendance policy, and distributing instructor notes to students at the conclusion of group sessions.

During this high-level course, students learn skills including data architect, user set-up, organization set-up, security, automation, sales and marketing, services and support applications, and data management. After completing the program, participants are encouraged to take the Salesforce Administrator certification exam. Ninety-five percent of BIT students pass the exam, and 85% pass on the first attempt. Not everyone chooses to take the exam and they are still able to get jobs without the certification. For some participants, once they complete the course, they take advantage of BIT's two-year registered apprenticeship program that gives them additional hands-on company experience. Some of the companies that participants have been placed in include Salesforce, CVS Health, BIT, Prudential, and Ball Aerospace.

[12] https://trailhead.salesforce.com/en/career-path/admin Retrieved 8/30/2022

Appendix J: Side-by-Side Comparison of Accessible Training Programs

Name of Organization	Carrol Center for the Blind	Vision-Aid, Inc.	Blind Institute of Technology
Name of Training Program	Screen Reader User Tester Training (SRUTT)	Digital Accessibility Tester (DAT) Training	Salesforce Administrator Training
Brief Description of Training Program	Learn to be a digital accessibility tester to help employers with their accessibility compliance.	Learn to be a digital accessibility tester to help employers with their accessibility compliance.	Learn to be Salesforce Administrator of the Customer Relationship Management platform.
Year Launched	2021	2020	2017 (2-year hiatus 2018 - 2019)
Cost Per Student	$12,200	$1,000[13]	$5,400
Payment Arrangements	State VR Agencies, Self-pay, Employer-sponsored	Not Available	State VR Agencies, Other funding where possible, never a cost to students themselves
Remote	Yes	Yes	Yes
Instructor-led	Yes	Yes	Primarily online and self-paced
Length of Course	7 weeks	18 weeks	20 weeks
Days and times of instructor-led class	Monday, Wednesday, and Friday (9-3pm), Tuesday and Thursday (9-4:30pm)	2 hours on the weekend	1 day per week for 3 hours (group learning sessions); Plus, one 1:1 session weekly
Total instructor-led hours	231	36	~80
Online self-paced learning hours	Not applicable	Not applicable	400-500

[13] This is the cost per student if Vision-Aid were to pilot a program in MA.

Disability Type	Blind and Vision Impaired	Blind and Vision Impaired	All types of disabilities including Blind and Vision-Impaired
Maximum Class size	10	20	100+
Number of individuals enrolled in program to date	10	75	195
Completion rate	100%	84%	49%
Placement rate (job, internship, or apprenticeship)	70%	71%	40%[14]
Pre-requisites	Yes	Yes	Yes
Pre-assessments	Yes	Yes	Yes
Jobs, apprenticeships, internships included in program	Yes	Yes	Yes
Preparation to take certification exam	No	No	Yes

[14] According to BIT, forty-five (45) individuals just completed the program and are currently seeking employment therefore this placement rate is lower than it typically is.

Appendix K: List of Additional Digital Accessibility Training Resources

Organization	Training Program	Description
Department of Homeland Security	Trusted Tester Program	Provides a path to earn Trusted Tester certification for the web on Windows platform. Students learn about the Section 508 Standards applicable to the web, how to install and use web accessibility test tools, and how to apply the Trusted Tester process for testing websites and web applications for conformance to the Revised Section 508 standards released in January 2017.
Deque University	Web Accessibility Training and Courses	Self-paced online classes to deepen accessibility knowledge in the fundamentals, web accessibility, testing techniques, document accessibility, mobile app accessibility, and accessibility management. Includes International Association of Accessibility Professionals (IAAP) preparation courses.
UDACITY	Web Accessibility by Google: Developing with Empathy	Hands-on experience making web applications accessible. Understanding of when and why users need accessibility. Comprehend how to make a page work properly with screen readers and manage input focus (the highlight you see when tabbing through a form). Understanding what "semantics" and "semantic markup" mean for web pages and adding ARIA markup to enable navigating the interface with a range of assistive devices. Knowledge of styling techniques that help users with partial vision navigate pages easily and reliably.
Fable	Fable Pathways	A skill development program for people with disabilities interested in working in the tech sector.
INDEX	PDF Remediation for Accessibility	A step-by-step course covering the tools and techniques used to make PDF documents as accessible as they can be, especially for those using screen readers and other accessibility technologies.
INDEX	Accessibility 101	An introductory course in web accessibility for all members of an organization. It covers the basics of what it means for technology to be accessible for people with disabilities.
INDEX	WordPress Accessibility	As an open-source content management system, WordPress is a practical and popular

		platform to manage organizations' digital presence or promote organizations' goals. While it has many accessible features out-of-the-box, many changes can happen in design, development, and content entry that hinder, rather than help with accessibility.
INDEX	WordPress for Content Authors	Many organizations rely on WordPress to manage their digital presence. It is critical that your presence be accessible to people of all abilities. Content authors are critical to creating content that is accessible to all.
W3C Web Accessibility Initiative (WAI)	Introduction to Web Accessibility	Provides the foundation you need to make your digital technology accessible, so that it works well for people with disabilities, meets international standards, enhances the user experience for everyone, and achieves goals. Accessibility is essential to create high-quality apps, websites, and other digital content that don't exclude people from using your products and services.
WebAIM	Accessible Documents	Learn key accessibility principles and processes for Microsoft Word, PowerPoint, and Adobe Acrobat Professional.

Appendix L: Sample I Job Description - Digital Accessibility

Job Titles:	• 508 Compliance Tester • Accessibility Trainer • Digital Accessibility Consultant
Remote or Office:	• Remote
Working Conditions and Physical Effort:	• Keyboard and phone use • Work is performed in seated position
Annual Salary:	• $35,000-$167,000
Education:	• Bachelor's Degree in a related field such as Computer Science or Digital Design • Equal work experience or user experience may count towards a degree

Qualifications:	• 3+ years of experience with the ADA (Americans with Disabilities Act) and Section 508 of the Rehabilitation Act
	• 3+ years of experience editing and testing with different types of AT (assistive technologies)
	• Uses assistive technologies like screen readers (JAWS, NVDA, VoiceOver)
	• Knows WCAG (Web Content Accessibility Guidelines)
	• Knows PAC (PDF Accessibility Checker)
	• Knows digital accessibility and how to test for accessibility in websites, apps, and digital products
	• Knows how to fix compliance issues
	• Skilled using:
	  ○ Excel
	  ○ PowerPoint
	  ○ HTML
	  ○ CSS
	  ○ WAI-ARIA
	  ○ JavaScript
	• Able to simplify complex ideas
	• Able to use audio descriptions and video captioning
	• Excellent writing and speaking skills
	• Able to work as part of a team
	• Able to work alone
	• Shares skills and knowledge
	• Does quality work

Appendix M: Sample II Job Description - Benefits and Compensation

Job Titles:	• Benefits Administrator • Benefits Coordinator • Compensation and Benefits Analyst
Remote or Office:	• Remote • Possibly in-office or hybrid
Working Conditions and Physical Effort:	• Keyboard and phone use • Work is performed in seated position
Annual Salary:	• $50,000-$80,000
Education:	• Bachelor's Degree in Business, Finance, Communications, or related field is preferred • May be able to substitute Associates Degree in Health Science Administration, Business, or Healthcare related field with 3 years of experience in a related role

Qualifications:	• Knows and has worked with employee benefits
	• Knows State and Federal healthcare regulations and laws such as:
	  ○ Family Medical Leave Act (FMLA)
	  ○ Leaves of Absence
	  ○ Americans with Disabilities Act (ADA)
	• Above average technical skills in:
	  ○ Word
	  ○ PowerPoint
	  ○ SharePoint
	  ○ Excel/Google sheets
	• Strong organizational, research, and analytical skills
	• Able to work on many projects, set priorities, and meet deadlines
	• Excellent writing and speaking skills including technical writing
	• Able to work as part of a team
	• Able to handle changes

Appendix N: Sample III Job Description - IT Career Progression

Job Titles:	• Data Quality Analyst I	• Information Systems Business Analyst	• Lead Director Digital Architecture
Remote/Office:	• Remote	• Remote	• Remote
Working Conditions and Physical Effort:	• Keyboard & phone use • Work is performed in seated position	• Keyboard & phone use • Work is performed in seated position	• Keyboard & phone use • Work is performed in seated position
Annual Salary:	• $54,000-$68,000	• $70,000-$112,000	• $120,000-$265,000
Education:	• Minimum Associates Degree • Co-op or internship experience can count as part of a degree • BA/BS preferred	• B.S./B.A. Degree • Advanced degree preferred	• B.S./B.A. Degree • Master's Degree preferred

Qualifications:	• 1+ years of experience as Data Analyst or Auditor
	• Uses Power BI, Excel, and other tools
	• Uses SQL, Python or R programs
	• Can use sales reporting tools
	• Has strong speaking and writing skills
	• Able to work well with customers and vendors
	• Has good people skills
	• Can solve problems and check results
	• High level of data quality work
		• 3-5 years of experience
		• Works well with Microsoft Office Suite:
		  ○ Word
		  ○ PPT (PowerPoint)
		  ○ Visio
		  ○ Excel
		  ○ Project
		  ○ Access
		• At least 3 years working with Software Development Life Cycle (SDLC), Agile and Customer Relationship Management (CRM)
		• Good oral and written skills
		• Works with customers
		• Shows good people skills
		• Knows and uses brainstorming tools
		• Solves problems accurately and on time
		• Knows and uses business collection methods
			• 15+ years of software design and development
			• Able to work with many kinds of software architectures
			• Uses Micro Frontend/Microservice
			• Uses Agile development
			• Has great speaking, writing, and teaching skills
			• Strong skills in working with partners and team members
			• Coaching and team building skills
			• Systems problem solver with strong skills
			• Can break big problems into small steps
			• High level tech knowledge and problem solving

Appendix O: Definition of Information Technology Job Titles

Data Scientist	Data scientists are IT professionals responsible for interpreting large amounts of raw data. They are an invaluable part of organizations, often found in commerce, government, technical, scientific services. Data scientists often work in teams with other technology professionals. As they get more experience, they may qualify for senior data scientist roles.
Data Analyst	Data analysts collect and organize data and use it to reach meaningful conclusions. They use computer systems and calculation applications to determine specific factors. They are responsible for digesting the data and creating a report to explain findings that help to identify various inefficiencies and other business problems that may exist.
Cybersecurity Analyst	Cybersecurity analysts are tasked with protecting companies' hardware, software, and networks from theft, loss, or unauthorized access. At a small company, one might perform a variety of cybersecurity tasks. At larger organizations, one might specialize as one part of a larger security team.
Network Engineer	Network engineers, also called network and computer systems administrator, implements and maintains the computer network of an organization. These professionals usually work in offices and monitor networks, assess network issues, and develop solutions. In this role, one would report to a systems engineer and work with network technicians.
Software Engineer	Software engineers are responsible for developing software programs or systems that align with user needs. Their duties include meeting with clients or business professionals to strategize ideas for beneficial software, coordinating with other IT professionals to design software and running tests to catch coding errors.
Full Stack Developer	Full stack developers develop and deploy front-end and back-end elements of a website, web application or computer program. Usually, a full-stack developer works with UI/UX designers and web designers.
Product Manager	Product managers lead the development team to turn a concept into a product ready for market. Product managers provide expertise needed when a company is making strategic decisions on products to develop. They also research their target consumer market and competitors' products to develop a unique product vision that gives value to customers.
Product Owner	Product owners are the team leads responsible for maximizing the value of the products created by a development team. They're able to do this by dividing their attention between a few different subject roles, including business strategist, product designer, market analyst, customer service representative and project manager.
UI/UX Designer	User Experience (UX) Designers work with every aspect of a digital product to ensure a seamless user experience, including the look of the product, its functionality and the branding associated with the program. These savvy professionals often work in an office and work closely with the individuals responsible for each part of the product. Another title often seen is User Interface (UI) Designer; this title is mostly used to describe those who specialize in the graphic design components of a program.
Site Reliability Engineer	Site reliability engineers (SRE) combine software engineering and IT systems management, to bridge development and operations. They apply software engineering methodologies to system administration processes and collaborate with product developers and release engineers, to optimize system performance, stability, reliability.

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