



The Effect of Alternative Digital Inputs in the Workplace

An IRTI Project

a collaboration with

intel. **accenture**



The Foundation

- 3** TL;DR
- 5** Introduction
- 6** The ROI of Human Potential
- 7** The Next Generation Productivity
- 9** Reframing Disability as a Market, Workforce, and Innovating Hub

The Project

- 10** Overview of Project
- 11** Why Does This Matter?
- 12** Objectives and Goals
- 14** Participants and Demographics

The Results

- 15** Insights & Innovations
- 17** Findings for the Specific Use of Cephable
- 18** The Importance of Buy-in: Insights from Josh Newman
- 19** Additional Impact Insights
- 20** Next Steps and Levers for Change

/ TL;DR

The Cephable project, supported by the Intel RISE Technology Initiative and Accenture, focuses on revolutionizing workplace inclusivity through accessible technology. With global shifts like the pandemic and hybrid work creating new challenges, companies have a unique opportunity to enhance their work environments. Innovations such as voice-controlled interfaces, head movement tracking, and facial expression recognition are significantly improving the digital workspace for employees with disabilities, benefiting all workers.

Accessible technology is not just a social responsibility but **a strategic business advantage**, driving productivity and fostering a more inclusive culture. The white paper underscores that businesses that treat employees as valuable assets rather than costs see stronger results.

/ Key Insights

- **Accessibility and ROI:** Investing in accessible technology boosts productivity and employee satisfaction. Companies with inclusive strategies outperform their peers.
- **Emerging Trends:** The rapid adoption of AI, voice assistants, and inclusive design practices are transforming work environments.
- **Global Legislation:** Increasing regulations emphasize the importance of digital accessibility.
- **Project Outcomes:** The collaboration between Intel, Accenture, and Cephable highlights the benefits of advanced assistive technologies in enhancing workplace inclusivity and business value.
- **Future of Work:** Embracing accessible technology is essential for adapting to evolving work trends and maintaining a competitive edge.

/ Statistics

- 1 in 4 people in the US has at least one disability.
- The global assistive technology market is **projected to reach \$26.8 billion by 2024**.
- 75% of employees with disabilities do not disclose their disabilities at work.

By reimagining work processes and investing in accessible technologies, companies can create a more inclusive, innovative, and profitable business.

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We are prioritizing [Accessibility] because we see how important it is. We want to create a barrier-free zone and we're able to bring awareness as well to this initiative.

Manager, Accessibility Center, NYC, **age 34**



Companies are now having to deal with the question of how to expand their workforce without losing a whole group that has the capability and capacity to do the job but don't have the tools to do it. On top of that is how do we get that visibility towards those folks as well? So that they're aware that there are brilliant guys and gals out there that can do the job, but they may not have the resources or the confidence to step into a big corporation.

Employee with a disability, Florida, **age 48**

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/ Introduction

This white paper is part of a project

funded by the Intel RISE Technology Initiative to further explore that belief in the pivotal role accessible technology can play in shaping and reimagining how work is accomplished.

The IRTI program is a comprehensive platform designed to leverage Intel's technology, expertise, and partnerships to address global challenges across six key areas: accessibility, economic recovery, education, health and life sciences, social equity and human rights, and sustainability and climate. For Accenture, it is further evidence of their growing accessibility commitment from the company, including their accessibility centers and best-in-class accommodations search tool.

In 2024, the IRTI funded a project in collaboration with Accenture and Cephable, an assistive technology company, to collaborate with employees with disabilities to highlight the benefits of face, voice, and head controls in accomplishing common work tasks. Accessibility is an overlooked workplace imperative that guarantees technology will perform better for employees with disabilities and improve functionality and usability in yet-to-be-imagined ways. By highlighting project outcomes, user experiences, and global trends, we aim to demonstrate the tangible benefits of accessibility investments.



Disability is the fastest-growing minority population in the world

16%

of the global population are disabled



1 in 4

in the US identify as having at least one disability



/ The ROI of Human Potential

The battle for extraordinary

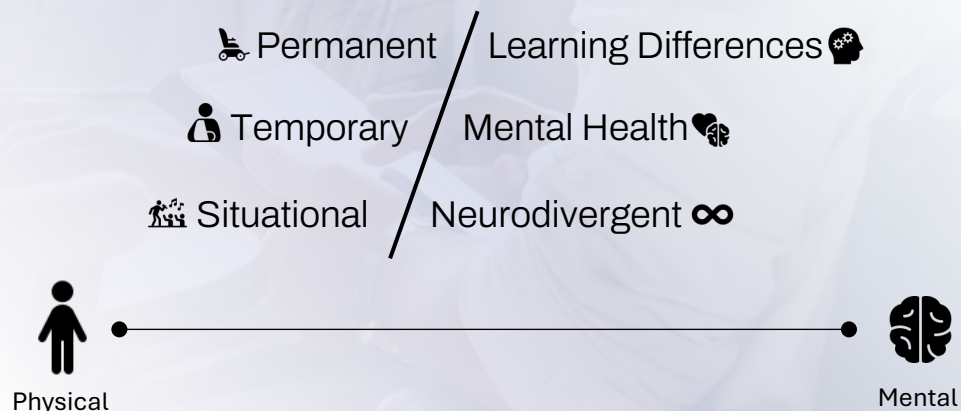
talent is never-ending and successful companies are prioritizing workplace satisfaction and human potential to meet and exceed business objectives. Accenture's 2022 Future of Work research found that only 26% of CEOs have "future workforce strategies" in place. Successful companies understand that focusing on the well-being of their employees is a strategic advantage that will drive business goals, and well-being cannot fully be realized without supplying the tools needed to be successful on the job.

Employees who feel they cannot be productive, healthy, or happy in any work location are eight times more likely to want to leave their organization. Specifically, 75% of employees with disabilities do not disclose their disabilities at work, indicating a need to reimagine the entire framework, from training to accommodations.

Research consistently shows that businesses investing in accessible technology and future workforce strategies outperform their peers. Viewing accessible technology as the necessary tools employees need to unleash productivity and address an innovation lag is crucial and should be as standard as being handed an ID badge to get into the building. How people work has outpaced the systems designed to support us, highlighting that the time is here to redesign how we work. As the workplace continues to evolve with trends like hybrid work and digital transformation, the need to reimagine work environments and tools has never been more critical.

We are at the start of a new era, and companies are at a crossroads with the ability to reimagine the workplace, both physically and virtually, and the tools needed to be productive. A paradox is also at play for enterprises claiming to be innovative while trying to force their employees to fit into stagnant strategies. By re-examining the everyday technology of business, leaders can capitalize on this moment and discover how to release greater potential within their workforce.

Modern Definition of Disability



/ Next Generation Productivity

In 2023, less than two months after the initial launch of ChatGPT, more than 100 million individual users visited the platform to try the technology, and the platform currently receives more than 10 million queries on any given day. This giant swell of curiosity into AI (Artificial Intelligence), its functionality, and its usefulness is a sea-change moment for new and innovative ways to accomplish work. Employees are actively seeking tools to bring new productivity levels into their jobs.

A recent Gallup poll (May 2024) asked its global CHRO roundtable members, whose department supports most culture transformations, how often their company's employees were using AI to do their jobs and 44% had no level of understanding about how their employees were using AI, while 43% of employees are reporting that they use AI to help complete everyday tasks.

While ChatGPT is a prime example of an outlet for finding and processing information more quickly, the modalities we use to get to that information have mainly remained untouched

(e.g., standard keyboard and mouse functions).

The AI shift is happening quickly, and companies need to be more in tune with not only how their employees are using technology, but also how technology can improve everything from productivity, efficiency, and communication and connection. This can be a moment where companies reshape and rethink the tools needed to process the information in new and efficient ways. How technology is and will be incorporated into the structure of the workday is essential to a company's productivity, agility, and the ability to remain competitive.

Accessible technology and the belief that companies should invest in inclusive digital systems are strategic choices. These investments have positive ramifications for all employees, including those with disabilities.

Accessibility is an overlooked, underutilized, and under-resourced imperative that guarantees technology will perform better for employees with disabilities and improve functionality and usability in yet-to-be-imagined ways. Accessible technology and the belief that companies investing in digital systems that are inclusive and usable for people with disabilities is a strategic choice that has positive ramifications for all employees. By highlighting project outcomes, user experiences, and global trends, we aim to demonstrate the tangible benefits of accessibility investments.

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By integrating technology with disabilities, we've achieved amazing results, impacting not only adults but also the younger generation. It's crucial to support them through challenging times and help them shine, ensuring our future workforce has something to look forward to.

Employee with a disability, Florida, age 34



It's very important to understand that any of us could face similar challenges one day. We need to empathize and see things from their perspective, recognizing the difficulties they encounter. Our goal is to improve their lives, not just in the workplace, but in everyday life. This isn't something that you deal with for just 8 hours at work; it's a lifetime commitment. How can we make it better for you?

Manager, Accessibility Center, Chicago, age 31

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/ Reframing Disability as a Market, Workforce, and Innovation Hub

Business is undergoing a transformative shift as more companies recognize the value of disability inclusion. Forward-thinking organizations are increasingly harnessing the power of disability inclusion, with an understanding that it drives innovation, enhances employee engagement, and opens new market opportunities.

It is the businesses embracing aligning inclusion strategies and culture activities that stand to gain significantly as statistics reveal the increasing prevalence of disabilities globally, underscoring the urgency of prioritizing accessibility. According to the World Health Organization, over one billion people, or approximately 16% of the world's population, live with some form of disability. This number is expected to rise due to aging populations and the increase in chronic health conditions. In the United States alone, people with disabilities control over \$695 billion (about \$2,100 per person in the US) in disposable income. These figures highlight the critical importance of making workplaces and products accessible as a strategic business decision.

Disabled consumers and employees are the extreme users of any product or service, pushing capabilities beyond initial envisioned limits, to understand what is possible. Some of the world's most common access solutions were first created as accessible additions to meet the needs of disabled users, including texting, voice enabled assistants, and automatic doors. A legitimate argument, with backing data, is that when companies design for disabled users, they build stronger products that lean further into innovation, requiring less refurbishments, and offering a greater competitive advantage.

This shift is driven by a growing awareness that disability inclusion is not merely a matter of compliance or social responsibility, but a strategic advantage that can lead to improved performance, increased customer loyalty, and a stronger brand reputation. As a result, businesses that prioritize disability inclusion are positioning themselves as leaders in a rapidly evolving marketplace, demonstrating that inclusivity and profitability can go hand in hand.

Market Drivers for Accessibility:

Thriving Employees and a Sustainable, Productive Workforce:

Inclusive workplaces foster employee engagement, satisfaction, and retention, driving productivity and innovation.

Competitive Advantage: Organizations that prioritize accessibility gain a competitive edge by tapping into new markets, attracting top talent, and enhancing brand reputation.

Compliance and Risk Management: Legal and regulatory requirements necessitate accessibility compliance, mitigating legal risks and safeguarding against reputational harm.

Digital Trust: Building trust with customers and stakeholders requires demonstrating a commitment to accessibility and inclusivity in all facets of business operations.

Use the market driver content as a side box to the text in the final design.

\$1 = \$4

every dollar invested in accessibility results in a \$4 return

Research by the Center for Inclusive Design and Environmental Access (IDeA Center) highlighting the economic benefits of inclusive design practices.

By 2025
50%



of IT groups will have an employee DX strategy, tools & team

↑ 20%

since 2023

/ Overview of the Project

In an insights-driven initiative, Intel and Accenture have collaborated with Cephable, a technology firm specializing in accessibility solutions, to launch a project focused on how head, voice, and face movements can improve digital workplace experiences for people with disabilities. This project aimed to explore and highlight innovative technologies that enable individuals with disabilities to navigate their work environments and interact with their colleagues more effectively. Cephable's software was used in a wide array of situations and paired with an equally wide variety of applications. Everything from Microsoft Mesh's immersive tech (that is part of the next wave of virtual meeting places) and avatars to everyday tasks like developing and presenting PowerPoint decks. By focusing on these specific types of activities, the project seeks to create tailored solutions that enhance accessibility and inclusivity in the workplace.

Both Intel and Accenture have thousands of employees with disabilities, who on any given day are utilizing dozens of software applications and supporting tools while incorporating accommodations across those activities. Additionally, Cephable has a user base of thousands of people with disabilities, and a curated focus group of disabled users called the "consortium" who incorporate the software at work and home to provide feedback on the product. The IRTI project used a representative sample of Intel and Accenture employees, as well as members of the consortium to test Cephable in workplace settings and provide insights on its ability to improve digital experiences.



Cephable is an assistive technology company with cutting-edge software that leverages AI, automation, and accessible UX design to redefine digital experiences. The company's patent-approved features optimize user interfaces through facial expressions, body gestures, virtual buttons, voice commands, and tilt controls, engineered to adapt to every ability. To see a demonstration of the software and to frame the use case, watch this video: cephable.com/at-a-glance

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It is that idea that assistive technology is not just for someday, it is for now. We are all going to need assistive technology of some sort, maybe permanently, maybe temporarily – but the baseline truth is that it is a universal need.

Josh Newman, *Vice President, Intel*

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/ Why does this matter?

In 2020, Accenture produced new research entitled "Enabling Change" which surveyed people from over 100 companies and across 28 countries. Survey respondents comprised over 6,000 employees with disabilities and 2,000 C-Suite executives. An alarming finding was that 76% of employees with disabilities and 80% of leaders with disabilities face fears about their disability and their needs in the workplace. This statistic is further compounded by the drastic rise in external corporate commitments advancing disability inclusion and hiring initiatives. This worrisome contradiction will likely bear out in the data over the next few years, as while companies are doing more to hire and count disabled employees, the culture and support systems are not aligning to ensure employees are productive and thriving. This tremendously impacts a company's ability to achieve objectives, reduce turnover, and capitalize on talent. In other words, it is like building a house and only giving every fourth worker a box of nails – how quickly will they finish, and how sturdy will the final product be?

/ Objectives & Goals

The project's primary objective was to understand how head, voice, and face movements can be leveraged to improve accessibility for individuals with disabilities in both traditional work activities and in newer immersed virtual workplaces. The project aimed to identify where Cephable's technology could improve those digital interactions, create wins for users as they navigated tasks, and unearth gaps in existing solutions that can be mitigated by a more customizable offering.

1. **Mapping the Movement Patterns:** Analyzing which features for head, voice, and facial movements have the strongest results with various disabilities to identify commonalities and differences.
2. **Examining the Benefits of Updated Technology:** Understanding how adaptive technologies are facilitating more accessible interactions with workplace tools and how outdated tech, currently being offered to employees, is causing needless frustration, friction, and an outsized business expense.
3. **Identifying Implementation Strategies:** Developing strategies for integrating these technologies into existing workplace infrastructures, ensuring seamless and effective adoption.
4. **Addressing Impact Assessments:** Measuring the impact of these technologies on workplace productivity, employee satisfaction, and overall accessibility.
5. **Emphasize Importance of Executive Buy-in:** Involve key leaders in the project to gain insights on opportunities and challenges.

/ Methodology

The project employs a multi-faceted feedback approach, combining qualitative and quantitative methods. Key components of the feedback methodology include:

- **Surveys and Interviews:** Conducting detailed surveys and interviews with individuals with disabilities to gather insights into their experiences and specific results from using Cephable with existing software systems.
- **User Testing:** Providing Cephable to participants in various workplace settings to understand how they adapted to integrating these movements into their workday and identify areas for improvement.
- **Data Collection and Analysis:** Collecting and analyzing data on the effectiveness of these technologies, focusing on metrics such as ease of use, efficiency, and user satisfaction.

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I like things that simplify and improve life. You can show others they have Cephable right here and Cephable right out of the box. It's very customizable already with these controls... because it's entirely built with these gestures, and everything is already set.

Employee with a disability, *NYC*, **age 31**

I really cannot emphasize enough how much of a difference Cephable made when I was injured. Now that I have the controls set up, I use them all the time even with my hands back! This is already changing lives, but it is going to have such an impact for our society.

Employee with a temporary disability, *Boston*, **age 29**

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/ Participants & Demographics

Representation Details

Disability

Over 88% of testers have a stated disability that represents a wide variety of conditions. 12% of testers do not have a stated disability.

Identity

Testers represented a variety of geographies, identities, races, and genders

Role

Testers represented over 20 unique functions across various business units presenting a wide variety of use cases for the technology

Technical Proficiency

62% felt they are tech savvy but not experts
18% felt they are novices at integrating assistive tech
19% felt they are tech experts or have a professional focus on technology

75%

People with a disability don't disclose it at work

/ Insights & Innovations

Employees at Accenture, Intel, and other disabled users agreed to blend Cephable into their work activities for a defined two-week period to examine the impact of face, voice, and head controls in completing daily tasks. The testing period was followed with interviews and surveys to collect and aggregate the impact results.

Key findings from the project highlight the development of advanced voice-controlled interfaces, head movement tracking, and facial expression recognition technologies do bring ease to most users and reduce everyday frustrations. These innovations enable individuals with disabilities to interact with digital work environments more effectively, reducing reliance on manual input and enhancing overall user experience. By integrating these technologies, businesses can unlock greater potential within their workforce, fostering a more inclusive and productive workplace.

/ Accessibility Findings

1

Assistive technology has a profound impact on users' lives, significantly aiding those with temporary injuries and demonstrating the potential for broader societal impact.

2

Assistive technology eases both physical and mental stress, enhancing users' capabilities in their job and personal life.

3

Assistive technology is particularly valuable to people with disabilities from the start, though its benefits can extend to all users over time.

4

Assistive technology offers a superior user experience compared to other tools, reducing frustration, and improving usability for individuals with disabilities, particularly those with traumatic brain injuries (TBI).

5

Assistive technology provides a valuable alternative for users – with or without disabilities - who need breaks from traditional input methods like mousing and keyboarding, promoting varied interaction methods.

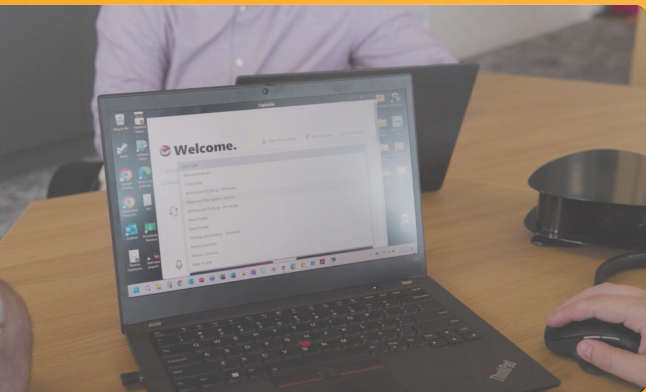
6

The simplicity and life-improving capabilities of assistive technology are highly appreciated by users, contributing to overall satisfaction.

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Cephable eases both physical and mental stress. It allows me to feel more capable in my job and personal life.

Employee with a disability, Chicago, age 26



I think Cephable is an alternative especially for those who need to have a break in mousing and keyboarding and just use other gestures to work.

Employee without a disability, Malaysia, age 48

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/ Findings for the Specific Use of Cephable

74%

Found Cephable Easy
to use

73%

Were likely to use Cephable in an
Everyday Work Setting

83%

Found Cephable Reduced
Fatigue

81%

Would use Cephable if Provided
by Their Employer

/ Unexpected Insight

An unexpected insight of the project revealed that attention to ergonomics expanded the usefulness of alternative inputs to the entire workforce, not just people with disabilities. Cephable proved instrumental in stopping warning indicators of excessive keyboard and mouse usage, demonstrating that the product is beneficial for both people with and without disabilities. This underscores the universal applicability and value of Cephable in promoting workplace health and efficiency.

/ The Importance of Executive Buy In: Insights from Josh Newman

In an interview with Josh Newman, Vice President and General Manager of Product Marketing and Management in the Client Computing Group at Intel, the critical role of executive buy-in for the success of accessible technology initiatives was underscored. Newman highlighted the collaborative efforts of various partners, software vendors, and technology companies working together to solve specific problems, leveraging the open platform of the PC. He emphasized that assistive technology is not a distant future necessity but a current imperative that will eventually benefit everyone, whether permanently or temporarily. Newman's insights reinforce the importance of executive leadership in driving innovation and adoption of accessible technology, ensuring that organizations are well-equipped to support a diverse and inclusive workforce.



Josh Newman, *Vice President*, Intel

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It is that idea that assistive technology is not just for someday, it is for now. We are all going to need assistive technology of some sort, maybe permanently, maybe temporarily – but the baseline truth is that it is a universal need.

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/ Additional Impact Insights



Over 20% of participants deleted current technology and replaced it with Cephable during the project, even without a formal roll out, because of the advantage of updated technology that included large language models.



The convergence of significant global shifts, such as the pandemic, the great resignation, and hybrid work, has transformed the workplace, providing an opportunity to reimagine work environments and tools.



Innovations in assistive technology, such as voice-controlled interfaces, head movement tracking, and facial expression recognition, are beneficial in enhancing workplace inclusivity and productivity.



Developing a roadmap for a centralized and well-communicated accommodation process is vital. By modeling Accenture's structure, which includes a central Accessibility Center of Excellence and regional Accessibility Centers, companies can streamline accommodation requests, enhance support for employees with disabilities, and foster a more inclusive work environment.



Executive buy-in is critical for driving innovation and the adoption of accessible technology, as highlighted by Josh Newman's insights on the collaborative efforts and the necessity of assistive tech for all.

/ Next Steps & Levers for Change

If we focus on the human factor—if we prioritize humans—the shifts in the workplace become much less daunting. The definition of human performance extends beyond mere productivity to encompass potential, well-being, and engagement. However, there remains a significant gap between knowing what to do and being able to act. Leaders often experience "productivity paranoia," fearing that employees are not working efficiently, while 48% of workers and 53% of managers report feeling burned out.

This burnout is a symptom of a system that fails to measure true potential and provide the needed tools to succeed on the job, focusing instead on outdated metrics of productivity. Research consistently shows that while leaders know what needs to be done to support their teams, they struggle to operationalize these insights effectively. Simultaneously, workers are acutely aware of their needs but lack confidence that these needs will be met. By seeing employees as assets rather than costs, we can bridge this gap, ensuring that both leaders and workers can thrive in an evolving work environment.

The time to act is now.



Cephable is committed to driving accessibility innovation through collaboration, research, and advocacy. Partnering with industry leaders such as Accenture and Intel, we're dedicated to creating a more inclusive future for all.

The productivity paradox can be overcome through pioneering workplace innovation fueled by accessibility. By ensuring that technology is something people with disabilities love to use, deserve to have, and can easily integrate into their lives, we can create a more equitable and prosperous future for all. For too long, people with disabilities have been paying for their own accessibility needs to fully use products and services. It's time to change that narrative and ensure the companies understand the power of the disability market.

To learn more: [Accessibility at Cephable](#)



Technology is an integral tool to help people with disabilities live independently and participate fully in all aspects of life. It is so critical it is considered a fundamental human right, according to the [United Nations Convention on the Rights of Persons with Disabilities](#). At Intel, we embrace accessibility across our business. We strive for an inclusive and accessible workplace; we practice inclusive design in product development, and we engage with industry to advance accessibility across the tech ecosystem.

Intel's accessibility operating model is comprised of a cross-organizational team that touches almost every part of the company. The group focuses on maturing accessibility across our operations - from making all campuses accessible, to working with suppliers to meet our accessibility standards, and ensuring our products comply with global accessibility requirements.

To learn more: [Intel's Accessibility Overview](#).



At Accenture, we are enabling change with a central Accessibility Center of Excellence to proactively meet the needs of our people with disabilities, along with Accessibility Centers in seven separate locations around the world. The goal of the centers is to provide a space where persons with disabilities can interact with accessible technology, demonstrating our accessible design leadership and best practices. We invested in our applications to ensure that the vast majority are accessible, and we have supplemental resources to navigate additional accessibility requirements. For example, through our Adjustment Request Tool, any employee with disabilities can easily ask for an accommodation such as assistive technology, flex work arrangements, sign language interpreters, screen readers and more. And to inspire growth, we launched Abilities Unleashed, a unique internal development program for persons with disabilities to become authentic leaders and effective role models and to explore career paths and development opportunities.

To learn more: [Accenture's Accessibility Overview](#)



To learn more about how Cephable can be made available for your employees, contact sales@cephable.com.