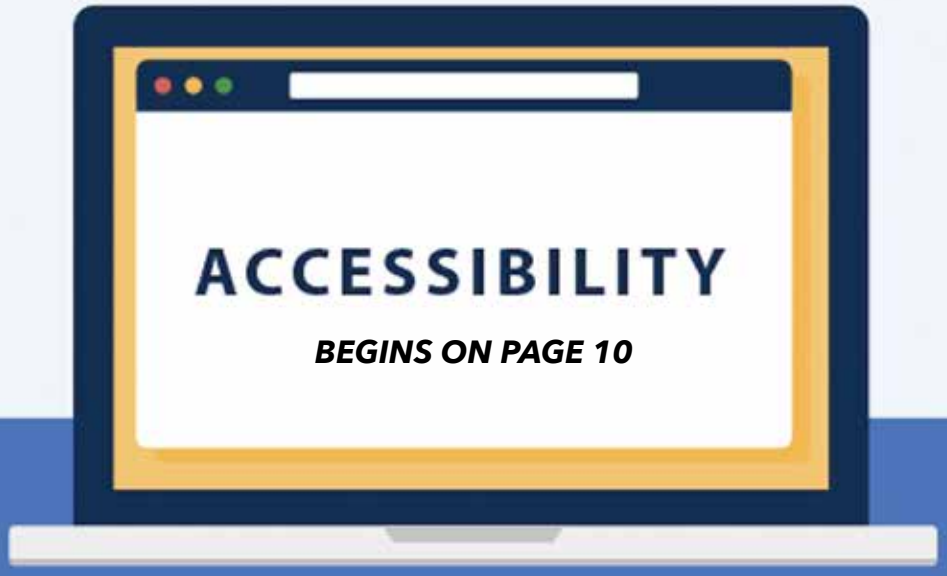
VOLUME 51, NO. 1

TDI WORLD

Technology News and Commentary for Deaf and Hard of Hearing People



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ALSO INSIDE:

Telecommunications for the Deaf and Hard of Hearing, Inc. (TDI)
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WHAT WE DO

"TDI shapes America's public policy in telecommunications, media, and information technology to advance the interests of all people who are deaf, hard of hearing, late-deafened, deafblind, and deaf+."

FEATURE STORIES

REGULAR COLUMNS

TDI WORLD

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Editor-in-Chief: Claude Stout
Managing Editor: Eric Kaika
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TDI
940 Thayer Ave #8009
Silver Spring, Maryland 20910
www.TDIforAccess.org

TELEPHONE:
Phone (Voice/Video): 301-563-9112
To subscribe to ***TDI eNotes***,
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Shaping An Accessible World

Board Views

JAN WITHERS
TDI President and Board Member, Southwest Region

"When the concept and application of human-centered design are universally understood and embraced, the battle for full accessibility in products could be considered largely won."

The ARKE (Awareness, Receptivity, Knowledge, Engagement) Model

In my previous Board Views article, I noted that one of the digital divides that most concern me is the failure of so many innovators, entrepreneurs, and corporations, collectively called "industry," to routinely consider accessibility in the design or upgrade of their devices, platforms, and services. I also noted, "Federal accessibility laws are inadequate simply because so many of them are unaware of their legal obligations until after their products have been released and complaints filed. You can't bake good blueberry muffins when you have to add the blueberries after the mix has come out of the oven."

I have given a great deal of thought to what it takes to get us to the point where blueberries are routinely mixed in with the batter before it goes into the oven. As Claude Stout, TDI's outgoing Executive Director, so clearly illustrates in his article for this TDI World issue, it takes a strategic, multipronged approach in partnership with a network of allies combined with an abundance of patience, perspicacity and persistence to move the needle in getting industry to make accessibility front and center in their designs. Given the enormous scope and complexity of industry and the need to maintain a clear focus throughout the advocacy process, it behooves us to try to distill this process in such a way that it could serve as a model for our systems advocacy efforts.

I submit the ARKE (Awareness, Receptiveness, Knowledge, Engagement) model which provides an excellent distillation of and guide for our systems advocacy process.

- We must first create in our target audience (in this case, the industry) AWARENESS that poor design could create barriers for millions of their customers and that there are federal accessibility laws requiring them to incorporate accessibility features in their designs.
- Our target audience must then be RECEPTIVE to making accessibility a routine consideration in their design endeavors. Unfortunately, we have seen too often that awareness of federal accessibility laws is not sufficient for achieving the constructive action we wish to see. We still may need to sell them on the benefits of fully accessible products. For example, studies show that more and more people who are hearing have come to rely on and even prefer captions on their TV sets. Yet another example may be the potentially positive impact on a business's bottom line. We must convince them that accessibility could be sexy.
- Then our target audience must attain the KNOWLEDGE, such as resources and techniques, to make their products accessible. Once they are aware and receptive, we must then provide them what they need in order to spur them to action. There are so many ways for industry to obtain the knowledge they need to build into their product designs accessibility features; they would not need to reinvent the wheel as there is a

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BOARD VIEWS Continued from page 2

wealth of information already out there. We just need to point them in the right direction.

- Once they have the knowledge, they are more likely to ENGAGE in the activities that result in fully accessible products.

I remain hopeful we will continue to move the needle in having industry put accessibility front and center in their product designs. See how far we have come since 1987 when we were first introduced to the character of Geordi La Forge in Star Trek: The Next Generation and his sexy-looking VISOR, a device to artificially provide him with a sense of sight. When his character first appeared, it was considered revolutionary. Nowadays, we see Deaf, Hard of Hearing, and DeafBlind people everywhere in entertainment and news and social media and presented in positive and exciting ways.

In addition, the concept of incorporating accessibility in design has evolved and improved over time. Previously, this concept was called "universal design." This term, however, is not so much in use anymore due to the recognition that too many people interpret this term to mean "one size fits all," which of course doesn't work. Instead, we have a more accurate and apt term: "human-centered design." This term recognizes the wide diversity in how human beings function and that design should reflect this recognition. Ultimately, the increased awareness by the general public of Deaf, Hard of Hearing, and DeafBlind people coupled with our ongoing collective application of the ARKE model in our systems advocacy endeavors certainly should be cause for hope.

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Capitol Commentary

BY CLAUDE STOUT
TDI Executive Director

"... just don't give us access to new, emerging technologies, make them interactive and empowering for us."

If There is A Will, There is A Way.

In the middle 1870's, when Alexander Graham Bell invented the telephone, it was first intended to support his wife and mother (both deaf) with communication with the rest of his family. At first, it seemed to be a technological benefit for everyone beyond his inner circle. Ironically, many of us who were deaf and hard of hearing could not use the telephone until the middle 1960's. We were then able to finally use the telephone with an acoustic coupler and a teletypewriter.

Unfortunately for many years, and continuing today, our access needs have been considered as an afterthought, not upfront when a lab scientist/ engineer goes over a list of factors when coming up with a new product or service. The U.S. Congress passed at least three different key legislative packages, then were signed into law - the Americans with Disabilities Act of 1990, the Telecommunications Act of 1996 which was the amendment to the Communications Act of 1934, and the 21st Century Communication and Video Accessibility Act of 2010. These acts have helped address the need for collaboration between industry/ academia, government, and the deaf and hard of hearing community.

The Americans with Disabilities Act of 1990 (ADA) is a civil rights law that prohibits discrimination based on disability. It affords similar protections against discrimination to Americans with disabilities. In addition, the ADA also requires covered employers to provide reasonable accommodations to employees with disabilities, and imposes accessibility requirements on public accommodations. [1]

FCC rules under Section 255 of the Communications Act (of 1934) require telecommunications equipment manufacturers and service providers to make their products and services

Mr. Ron Mace, founder and director of Center for Universal Design at NC State University

accessible to people with disabilities, if such access is readily achievable.[2]

The Twenty-First Century Communications and Video Accessibility Act (CVAA) was an update of federal communications law to increase the access of persons with disabilities to the 21st Century technologies, including new digital, broadband, and mobile innovations. The CVAA has two broad titles or sections. Title I addresses communications access to make products and services using broadband fully accessible to people with disabilities. This includes text messaging, e-mail, instant messaging, and video communications. Title II breaks new ground to make it easier for people with disabilities to view video programming on television and the Internet. For example, programs shown on television with captioning will be required to include the captioning when they are re-shown on the Internet. Both titles include provisions to ensure that people with disabilities have access to emergency information.[3]

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CAPITOL COMMENTARY Continued from page 4

Mr. Ron Mace, NC State University in Raleigh, NC conceived the idea of "Universal Design." Universal Design means planning to build physical, learning and work environments so that they are usable by a wide range of people, regardless of age, size or disability status. While universal design promotes access for individuals with disabilities, it also benefits others.[4] Mr. Mace said in 1998, "I do believe it is critical for all of us—designers, educators, researchers, advocates—to really understand this relationship between barrier-free, universal, and assistive technology in order to develop and implement truly universally usable designs."[5]

Over the last thirty years, we recognize and salute a number of companies that have supported the principles of Universal Design by engaging in a number of activities to make their products and services accessible to people who are deaf or hard of hearing. When we celebrated TDI's 50th Anniversary in fall 2018, in the 152-page commemorative edition of our quarterly newsmagazine, TDI World, we spotlighted with 16 pages on the accessibility initiatives of industry and academia. Check the TDI website for the TDI World Volume 49-2 issue, pages 105 through 120.[6]

These role model companies and a few in academia have conducted the following activities to fulfill their ongoing commitment for accessibility of their products and services. These include, but are not limited to the following:

a) Advisory Board Meetings

b) Research and Development

1) Needs Assessment
2) Focus Groups
3) Beta Testing

c) Marketing/Sales of Products/Services

d) Customer Service

e) Topics on Accessibility at Conferences/Seminars

Thanks to the participating industry and academia with TDI and other sister consumer groups, we have achieved such a record of accomplishments in disability access, to mention a few as follows:

a) Currently, we have relay services with features benefitting our individual needs/preferences on a 24-hour, 7 days a week schedule. We started off with TTY-voice relay but now we have Internet Protocol Relay, Video Relay Service, IP-Captioned Telephone Service, and etc. Our hearing contacts do not have to buy specialized equipment to make/receive relay calls with us.

b) After a four-year ramp-up schedule, which ended in the year 2006, we now have nearly 100 percent closed captioning of video programs on TV. Closed captions have been proven to also benefit hearing people in spas and bars, and those who speak English as a second language.

c) We migrated from using TTYs to pagers and now smart phones. Today, the smart phones give us the TTY functionality via a Qwerty keyboard. They are more portable and with apps like VRS, IP-CTS, Instant Messaging, Waze, Google Maps, Gmail, and FaceTime/Skype, we can use them anytime, anywhere. We can order lunch or dinner from using online menu with some restaurants. Even in Washington, DC, we can check an app to decide which restaurant to attend, by checking on how high the noise level this dining place has re: the number of decibels.

d) For some of us who use sign language, we find getting interpreters is more available for community based settings or via Video Relay Service. When we need to order for a pizza or call a doctor, we take action on our own. As appropriate, hospitals/doctors' clinics provide on-site interpreters and/or Video Remote Interpreting for our medical needs.

e) For us who do not use sign language, we find that having Communication Assisted Real Time (CART) transcription service comes as equally accessible for us in conferences, group meetings, city and county council meetings, and etc. This group finds using IP-CTS empowering to communicate on the phone with our relatives, friends, businesses, and employers/employees.

f) Some businesses (i.e. wireless carriers, Apple, and others) have staff competent in sign language with their customers who are deaf and hard of hearing.

g) We have a number of streaming platforms (Netflix, Amazon, Roku, Hulu, Apple, etc.) to choose any of their video programming offerings to watch with captions on our TVs or computers/smart phones,

h) Some gaming system companies (i.e. Sony Interactive Entertainment and Warner Brothers Games) are making their software offerings fully accessible on TV, smart phones, computers, or consoles for the deaf and hard of hearing. They (including Facebook) are now venturing to make Virtual Reality as accessible for us, too.

i) TDI works with HLAA, other sister consumer groups, the wireless carriers, original equipment manufacturers, and hearing aid manufacturers to produce smart phones as 85% to 100% hearing aid compatible by mid-2020's.

j) When companies come out with accessible products and services, we encourage them to feature deaf and hard of hearing people in their public relations and marketing campaigns. For example, Comcast just had an ad on TV featuring one of its installers using sign language to introduce its xFinity offerings. Apple visited a few schools for the deaf a few years ago, and introduced its "Everyone Can Code" curricula so that students and staff can learn and use the code using the Swift programming language.[7]

There are many other companies and service providers across America that we would like to see picking up the slack. We encourage our partnering

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trade groups like CTIA, CTA, ESA, NAB, and NENA to work with some of their member companies/contacts to improve accessibility of their products and services for their customers, including those who are deaf and hard of hearing. Let us remember that those who are without a disability may be temporarily able- bodied. One of these days as we get older or as a result of an accident/event, we will then experience having a hearing loss or another disability.

We can identify a number of challenges here, especially during the COVID-19 crisis this month that the deaf and hard of hearing Americans have encountered in their communities. Here they are:

a) For some of us, data caps and throttling measures in wireless service have hampered our ability to communicate at ease during this time of physical distancing and self-isolation. Too often, deaf and hard of hearing persons have just one provider in their area and have no choice but to accept the pricing and other policies of that one provider.[8]

b) We continue to experience difficulties in access to live programming, particularly news conferences on TV. For example, there have been instances where broadcasters have failed to provide captions for news conferences; captions have been provided in the live television broadcast version of the program but not in live Internet version of the program; cameras have failed to keep the ASL interpreter in the frame when an ASL interpreter is even provided; and deafblind individuals with no sight at all often have no access to these news conferences because transcripts are not readily available, if at all.[9]

c) Many of us now use smart phones, video phones, and/or captioned telephones, not TTYs to make/receive emergency calls. However, many of the 911 centers across the nation have not converted their TTY-based operations to Next Generation 911 to support today's Internet-based technologies, including Real-Time Text and Text-to-911. Based on the Commission's most recent list, approximately 2239 out of over 6,800 (or 32 percent of) primary public safety answering points (PSAPs) have implemented Text-to-911.[10] [11]

d) We have informed the FCC recently that the Universal Registration Database (URD), which is used by deaf and hard of hearing consumers to obtain a relay service account, appears to be inaccessible to deafblind people when an initial registration is rejected and proof-of-residency documentation is required. Currently, deafblind individuals are forced to get help from others to submit such documentation, this kind of support is not always available, and it compromises their rights to privacy.[12]

e) Deaf and hard of hearing persons that also have a mobility disability, find that most telecommunications devices, such as smartphones, do not meet their unique needs. They need a full-functional smartphone in a bigger size, like a tablet, for the device to be functional, along with a cellular capability; easier for them to focus on the screen with body/hands and eye-contact and to type on.[13]

f) As needed, relay services should be included in the gaming systems to allow deaf and hard of hearing gamers to be included in this form of social interaction. In addition, virtual reality and other augmented reality products and services are more frequently part of, and integrated in, certain products and services, which makes them inaccessible for the deaf and hard of hearing.[14]

g) While we transition toward using advanced communication services, many do not come with sufficient accessible alerting features. This results in missed calls and other messages. For instance, video conferencing services, particularly on smartphones, often do not include accessible alert functions such as vibration and/or flashing lights.[15]

h) Video conferencing services have become an invaluable tool for consumers and businesses to communicate with friends, family, colleagues and customers in a virtually in-person manner. However, some of these services are not completely accessible and usable by deaf and hard of hearing people as follows:

- Relay services are not accessible through video conferencing services because they are tethered to ten-digit telephone numbers;
- Video conferencing services,

CAPITOL COMMENTARY Continued on page 7

1 https://adata.org/factsheet/ADA-overview
2 https://fcc.gov/consumers/guides/telecommunications-access-people-disabilities
3 https://fcc.gov/consumers/guides/21st-century-communications-and-video-accessibility-act -cvaa
4 http://buffalo.edu/access/help-and-support/topic3.html
5 https://projects.ncsu.edu/ncsu/design/cud/about_us/usronmacespeech.htm
6 https://tdiforaccess.org/tdiworld/
7 https://apple.com/newsroom/2018/05/apple-brings-everyone-can-code-to-schools-serving-blind-and-deaf-students/
8 https://ecfsapi.fcc.gov/file/10415049237300/Comments%20for%202020%20CVAA%20Biennial%20Report.pdf
9 https://ecfsapi.fcc.gov/file/10415049237300/Comments%20for%202020%20CVAA%20Biennial%20Report.pdf
10 https://fcc.gov/files/text-911-master-psap-registryxlsx
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16 https://ecfsapi.fcc.gov/file/10415049237300/Comments%20for%202020%20CVAA%20Biennial%20Report.pdf

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including off-the-shelf services, need to be interoperable with videophones provided by Video Relay Service (VRS) providers.

- Video conferencing services need to be interoperable with each other, and
- Video conferencing services need to allow users to prioritize specific functions so that they best support the communications needs of the deaf and hard of hearing user.16

TDI stands ready to work with all interested companies and academia that seek to make their products and services accessible to Americans who are deaf, hard of hearing, late-deafened, deafblind, and/or have a second disability like mobility. We would be pleased to provide guidance or advice on how best a company or a research entity can do a reliable/valid needs assessment. We have contacts from the community that make excellent participants for those that want to engage in focus groups. We welcome opportunities to give input when companies want to test their "prototypes" with our community. If we cannot thoroughly give a certain technical perspective, we can make a referral for you to work with some of the research and technology programs like Gallaudet, NTID/RIT, Univ. of Maryland, and Georgia Tech. Equally important, we must emphasize in no clearer terms on how crucial we have colleges and universities with their schools of engineering instill in their students the importance of making their future "marvels" as universally designed for those with disabilities as well as the rest of the general mainstream. The benefits far outweigh the cost of making this happen. We must also have trade groups project the same message to thousands and thousands of app developers. Last but not least, just don't give us access to new, emerging technologies, make them interactive and empowering for us. In partnership, together we will build a better world.

Our Quest for Access

BY ERIC KAIKA
Managing Editor

"...these major companies that brought forth these technological advancements are embracing accessibility, making statements of inclusion and diversity."

Technological Accessibility Barriers Then, Now, and Tomorrow

Reading through the articles in this edition of TDI World, I'm not only amazed at the level of technological access we have today, but I can also remember the story of its advancement as well. Anyone born prior to 1985 remembers the awakening of digital technology and the remarkable impact it had on our lives.

I can still recall my old home entertainment system- a Cathode Ray Tube (CRT) television and a Telecaptioner box (the red glow confirming captioning on, but maybe not available.) I also had a videocassette recorder (VCR), a cable box, and an Atari console. Then came the clunky three-part personal computer hooked up to dial-up modem (that you had to disconnect when someone called on the TTY). Today you can fit all those features in a one inch thick flat screen tv you can hang on the wall.

Twenty years ago, I witnessed the expansion of telecommunications technology that increased our access to the world tenfold. Video Relay Service (VRS) and Captioned Telephone were becoming a mainstream access tool. We could now call people directly, using sign language (video relay) or using speech (captioning phone relay.) All digital televisions were being outfitted with the captioning decoder circuit. FCC mandated that all new, non-exempt, English-language television programming must be closed captioned.

It was also twenty years ago when AT&T restructured and broke-up its business into four companies. Comcast acquired AT&T Broadband and became the largest cable television company almost overnight. Verizon was created and launched the first 3G network. Google was only two years old. Facebook hadn't been started. Apple released the first iPod. Bill Gates stepped down as CEO of Microsoft. Amazon just started to sell more than just books. And Sprint built the first nationwide personal communications service (PCS) network [a wireless phone service]. The T-Mobile brand appeared when Duetsche Telecom acquired Voicestream.

Today we have smartphones that allow us to be mobile while making relay calls. Online ordering with same-day shipping. A 5G network that can transmit 10 gigabytes per second. And perhaps best of all, these major companies that brought forth these technological advancements are embracing accessibility, making statements of inclusion and diversity.

Now let's cast ourselves twenty years later. Will the year 2040 finally be the year where every person, regardless of their disability, has the access to technology that allows them to navigate freely and independently in this country? To not have to worry about transportation barriers, job restrictions, and missing out on everyday conversations, news and entertainment? Will we see people with disabilities having a seat at high level decision-making tables? I'm confident the technological tide will continue to rise and new ideas will decrease exclusions for disabilities. I'm excited to see what new barriers can be broken with innovation in Telecommunications. I'm honored to be a part of this organization shaping this new and futuristic accessible world.

Novel Coronavirus (COVID-19) Resources and Guidance

for the Deaf and Hard of Hearing Community, as well as Medical Providers working with Deaf and Hard of Hearing Patients:

CSD

https://www.csd.org/coronavirus

National Association of the Deaf

https://www.nad.org/coronavirus

National Deaf Center

https://www.nationaldeafcenter.org/covid-19-information

TDI

https://tdiforaccess.org/covid-19

A commitment to accessibility and inclusion

Peter Korn
Amazon Director of Accessibility

Amazon's vision is to be Earth's most customer-centric company, and we're working hard to make it easier for customers with disabilities to enjoy everything Amazon has to offer across our devices, services, and more.

Amazon offers several paths to accessibility. You can learn more about our accessibility features at: amazon.com/b?ie=UTF8&node=15701038011

A snapshot of some of our paths to hearing accessibility are:

Personalization / Productivity

Change audio settings from stereo to mono:

If you are using a single earbud or have hearing loss in one ear, simply switch the stereo audio setting to mono on Fire tablets to direct the audio into a specific earbud.

Alexa can help you do more:

Alexa Captioning lets you see captions for Alexa's responses on Echo Show devices.

Connecting

Connect with friends and family with Alexa: Real Time Text (RTT) allows you to type text that displays on the screen, character by character, during an Alexa call or Drop In.

Entertainment

Enable and customize closed captioning: Prime Video, Fire TV, and Fire tablets offer subtitles and captions during playback of supported titles.

Personalize your closed captions for text color, size, opacity, font style, and background color under Settings → Accessibility on your Amazon device. For smart TVs do so at Amazon.com/cc

Nyle DiMarco and Tim Cook, Apple CEO (with two interpreters).

Technology is most powerful when it empowers everyone

Apple is committed to accessibility and privacy. With powerful assistive technology built in, Apple devices are designed to be accessible to everyone.

Discover accessibility features that work for you in a 'Today at Apple' session. Every Apple Store offers in-person Today at Apple sessions to teach the basics of using the assistive technologies built into our products.

Some of our existing technologies are:

Display Accommodations -- If you have color blindness or other vision challenges, you can adjust the view on your Mac, iPad, iPhone, Apple Watch, and Apple TV so it works better for you. Choose from a range of color filters or fine-tune them. And turn on Invert Colors on all your devices to instantly change the values and create more contrast.

Magnifier, which works like a digital magnifying glass. It uses the camera on your iPad or iPhone to increase the size of anything you point it at, so you can see the details more clearly.

Activating **Larger Dynamic Type** on iPhone, iPad, or Apple Watch, makes the text inside apps like Mail, Messages, and Settings is converted to a larger, easier-to-read size.

FaceTime allows you to Catch every sign, gesture, and facial expression using high-quality video and a fast frame rate.

FaceTime is a great way for people who use sign language to communicate easily. And because Mac, iPhone, iPad, and iPod touch all come equipped with FaceTime, you can talk to iOS, iPadOS, and macOS users across the street or across the globe.

Sarah Herrlinger
Apple Head of Accessibility

Captioning. There's a lot more to closed captioning than just reading dialogue. You can also use it to display the music and sound effects while you watch movies and TV shows on any Apple device. So everyone can enjoy a true cinematic experience.

The Noise App helps track your hearing health by measuring decibel levels of the ambient sounds around you, helping you identify when the levels could negatively impact your hearing. The information is stored in the Health app so you can refer to your data whenever you need it.

If you have trouble using standard gestures, like pinch, you can use A**ssistiveTouch** to change them. Customize gestures and make other features accessible with just a touch from the AssistiveTouch menu.

To learn more about Apple's accessibility features, visit: https://www.apple.com/accessibility/

Suzanne Montgomery
AT&T Chief Accessibility Officer

AT&T commits to using Universal Design principles in the design and development of new and redesigned physical and digital environments.

AT&T understands that accessibility is about making sure that everyone can partake in what the world has to offer. It's ensuring that the things people depend on throughout their daily lives are usable regardless of whether a person has a disability. It's about all of us.

The AT&T Chief Accessibility Officer leads our accessibility efforts, responsible for retaining and growing a culture within AT&T that advocates accessibility for our customers and our employees. In fulfilling that mission, the Chief Accessibility Officer engages with the disability community and helps ensure that AT&T understands and is responsive to the community's issues and recommendations.

Our commitment to inclusive design begins with our employees. Our Accessibility and Inclusion (A&I) Initiative consists of multiple volunteer teams that evaluate and improve accessibility for AT&T employees and prospective employees. The effort aims to implement changes that will further ingrain accessibility as part of the AT&T culture, provide better tools for AT&T employees and make it easier for all individuals, including those with disabilities, to pursue employment and career advancement at AT&T. In 2019, the A&I program included implementing major accessibility improvements to AT&T's internet meeting platform, refreshing our public-facing accessibility website and enhancing our job accommodations process.

We also have an "Accessibility in Action Award" to recognize employees who go above and beyond to promote accessibility and inclusion. This award is a way to inspire employees to think differently when working on solutions for consumers and each other. In 2019, we introduced the "Accessibility in Action Award" to AT&T Latin America and WarnerMedia.

We also operate dedicated customer care centers to assist our customers with disabilities. The AT&T National Center for Customers with Disabilities provides specialized customer service for AT&T wireless customers with disabilities. In addition, our Disability and Aging call center provides specialized wireline customer service for older customers and those with disabilities. Among other things, these centers can arrange for customers to receive bills in an alternate format, such as braille or large print, and can advise customers with hearing, vision, cognitive, mobility and/or speech disabilities about equipment, accessories, features and calling plans.

Learn more at about.att.com/sites/accessibility/support

AT&T maintains att.com/accessibility, which is designed to provide accessibility education, help customers find AT&T resources and identify products, services, features and applications that help meet their needs, including:

- **AT&T Wireless Accessibility plans**
- **Real-time text**
- **Closed captioning**
- **Braille billing**
- **Text-to-speech apps**
- **Amplification apps**

Through innovation, Comcast is committed to further enriching the customer experience for all people with disabilities

In 2013, Comcast unveiled its new Accessibility Center of Excellence — a dedicated support team of agents specially trained on things related to Comcast accessibility, as well as general support items. The team has expertise in the areas that are especially important to people with disabilities, such as closed-captioning, video description, accessible billing services, and operating web and mobile interfaces with screen reader software.

Tom Wlodkowski
Comcast Vice President of Accessibility and Multicultural

Comcast also created an official Accessibility Lab, based on Comcast's Philadelphia headquarters. Co-located with Comcast Labs in Philadelphia, the space brings together cutting-edge solutions, such as cable TV's first talking program guide (launched 2014).

The Accessibility Lab is also used for focus groups and usability testing with the disability community to learn more about how customers can use its services as well as to help educate Comcast's employees about accessibility.

Other initiatives from the Accessibility Lab include use of our mobile and web applications with assistive technologies, access to programming with video description and closed captions, and exploration of new solutions to enhance usability of Xfinity Home and other products by customers with disabilities.

Comcast offers a number of accessibility features in its platform including:

Closed Captioning,
Video Description,
Voice Guidance, and more

For more information on how to take advantage of these features, visit: xfinity.com/support/accessibility

In late 2019, Comcast launched customer support via American Sign Language (ASL) for Internet Essentials, Xfinity Internet, and general Xfinity billing questions, called ASL Now. Comcast has partnered with Connect Direct, a subsidiary of Communication Service for the Deaf (CSD) to address the digital divide for Americans with disabilities by ensuring that members of the deaf community can get connected to the Internet at home without barriers.

Xfinity Customers who rely on ASL can directly access a dedicated customer support team through our ASL Support Center. To learn more about Comcast's ASL Now, or contact a representative, visit: xfinity.com/support/articles/asl-help-videos

Our partner Facebook is committed to creating a great experience for all people

Facebook is continually developing features and technologies that enable all people to participate in the communities and conversations on Facebook. To make sure everyone can access Facebook, the company offers a number of accessibility features, including: auto-generated and user-uploaded closed captions, Navigation Assistant, keyboard shortcuts, support for screen readers, adjustable text size, high color contrast, and text chat via Messenger.

Mike Shebanek
Facebook Head of Accessibility

Here's a closer look at a few of these accessibility features. Facebook enables custom captions in any language to be uploaded along with videos using SubRip (.srt) caption files and for people using Facebook Live streaming to incorporate real-time captioning. More recently, Facebook introduced captions that are automatically generated for Facebook Live, Workplace Live, and Instagram TV.

Facebook invented Automatic Alt Text for photos which uses artificial intelligence to identify and describe the contents of an image. You also have the option to customize the alt text by modifying the description that's automatically generated. To let people know when friends appear in photos, the Automatic Alt Text tool incorporates facial recognition. If a Facebook friend you are connected to has enabled face recognition in their Facebook settings, the tool can identify the friend in the alt text description even if they're not tagged in the photo.

Enabling those who are deaf-blind, earlier this year, Facebook introduced a new desktop version with features that make it easier and faster for people using screen readers to understand what's on a page. The redesigned Facebook.com offers better descriptions for more on-screen elements, such as buttons and checkboxes. Heading Tags, which organize the content on a page, were also revamped to provide more meaning and speed up navigation.

Facebook is continuously improving and updating its accessibility tools and features. You can keep track of their latest accessibility news and updates at: facebook.com/accessibility and follow them on Twitter: @FBaccess.

Building for Everyone:
Google's commitment to Accessibility

Google's mission is "to organize the world's information and make it universally accessible and useful." We are committed to building great products that work for everyone. Which means incorporating accessibility and the experiences of people with disabilities from the very beginning. Technology has the power to connect people and level the playing field in a world that can often be inaccessible. Across Google, there are people with and without disabilities who are working daily to create products that can accomplish these goals. From software engineers, to product and program managers and user experience designers, there are teams of people working to make our products more helpful and accessible.

Eve Andersson
Google Director
of Accessibility

Captioning for more than a billion YouTube videos. A suite of accessibility tools for Android. Dedicated ASL support for people using Google products. These are only a few of Google's many initiatives designed to be more helpful to the deaf and hard of hearing community.

Dimitri Kanevesky, a research scientist at Google, has worked on speech recognition and communications technology for over 30 years. Deaf since early childhood, Dimitri uses CART, the real-time captioning service, to get through his work day. Chet Gnegy, one of his teammates, noticed that each meeting required a lot of preparation and Dimitri often had to carry around multiple devices. Most importantly, Dimitri couldn't easily use CART for the everyday conversations he would have in the hall or at dinner with his colleagues. This inspired Chet to work with Dimitri and people across the company to develop a tool that could be particularly helpful in those situations.

As a result, in 2019 we launched Live Transcribe, an app that provides free, real-time, speech-to-text captions in over 70 languages to enable everyday conversations. Today, Live Transcribe can be used by anyone with an Android device and has become a helpful tool for Dimitri to use every day. He can use it to have conversations, teach lectures, or know if someone is clapping or whistling around him. Dimitri's story showcases the ways that we build new, innovative and helpful tools for and with people with disabilities. At the same time, Google launched Sound Amplifier, an Android application that allows you to filter, augment and amplify sounds in your environment using wired headphones.

Google also worked with the Deaf and hard of hearing community to launch Live Caption, a built-in Android feature that automatically captions video and spoken audio on your device (except phone and video calls). These captions are completely on-device, so they work even without cell data or Wi-Fi, and they always stay private, never leaving your phone.

Dedicated researchers, testers and experts work with teams to improve the accessibility of their products. A key part of making products accessible is connecting and working directly with communities and organizations to better understand how usable products, like Live Caption and Live Transcribe, are and what changes would improve them. In the end, building with accessibility in mind means creating better, more helpful products for everyone.

To learn more about Google's commitment to Accessibility visit google.com/accessibility and android.com/accessibility. Reach out to Google's Disability Support Team with any questions about using Google products at support.google.com/accessibility.

Below is a list of new products Google has launched for people who are Deaf or Hard of hearing:

LIVE TRANSCRIBE – a speech-to-text feature on Android that turns conversations around you into text by using the phone's microphone. To develop the feature, the product and accessibility teams worked closely with Gallaudet University. It is available in more than 70 languages and dialects. It also enables two-way conversation via a type-back keyboard for users who can't or don't want to speak, and connects with external microphones to improve transcription accuracy.

LIVE CAPTION – automatically captions video and audio on your phone, except for music, phone calls and VOIP. Currently available on Pixel devices and new Samsung phones.

SOUND AMPLIFIER – an Android application that allows you to filter, augment and amplify sounds in your environment. The app, which works with wired headphones, increases quiet sounds without over-boosting loud sounds. It gives users more control over noise reduction and sound enhancement settings.

ASL SUPPORT – people can go to Google Disability Support (http://support.google.com/accessibility) and get help over video chat with a specialist in American Sign Language (ASL). The service is provided with help from Connect Direct through TELUS International.

YOUTUBE CAPTIONS – a feature built into the platform that provides automatic captioning of all videos posted by users around the world in several languages. Google first launched video captions in 2006 and three years later launched automated captions. Today, as the technology continues to improve, the number of videos with automatic captions exceeds one billion. People watch video with automatic captions more than 15 million times a day according to product manager Liat Kaver.

Microsoft is committed to building a more accessible world

At Microsoft, our mission is to empower every person and organization on the planet to achieve more. This mission connects in fundamental ways with how we as a company operate, how we design and develop technology and how we work with others to serve people with disabilities.

EMBRACE INNOVATION

When governments try to solve complex challenges with obsolete technologies, people with disabilities can be left behind. Governments should adopt policies that support the use of leading-edge technology like Artificial Intelligence to solve accessibility challenges and create innovative, accessible solutions for citizens.

ADOPT GLOBAL STANDARDS

Innovation can outpace legislation. Standards like ETSI EN 301 549 are up to date and preferable to laws that require or exclude particular features. Adopting policies based on global standards and requiring accessible technology from suppliers creates incentives for more innovative accessible products.

DISABILITY HIRING TOOLKIT

Our Global Talent Acquisition team maintains a Disability Hiring Toolkit for recruiters and HR. The toolkit provides resources such as disability education and etiquette awareness, interview accommodation guidance, and hiring team preparation for candidates with disabilities. As a company we strive to ensure every candidate has a world class recruiting experience. This toolkit is leveraged to help us deliver on that experience for candidates with disabilities.

COMMUNITY ENGAGEMENT

People with disabilities make Microsoft products, services, websites, and company culture better for everyone. It is critical for us to actively engage with the disability community as our subject matter expertise. Through partnerships, events, feedback channels, and communications, Microsoft works closely with NGOs, government agencies, non-profits, and disability- focused businesses across the disability community.

Navigate to Microsoft Accessibility page at microsoft.com/accessibility and you will find a plethora of categories, stories, events, and products for accessibility. Each with its own page, which translates to hundreds of pages on tools, tips, and related content for creating accessible content when using Microsoft.

Jenny Lay-Flurrie
Microsoft Chief
Accessibility Officer

"Technology can empower people to achieve more, help strengthen education opportunities, and make the workplace more inviting and inclusive for people with disabilities. And with more than one billion people with disabilities in the world, Microsoft believes accessibility and inclusion are essential to delivering on our mission to empower every person and every organization on the planet to achieve more. We are on a journey and continue to learn and grow as we move forward. We hope by sharing what we've learned, other organizations can build out and accelerate their disability inclusion programs, hire great talent, and reduce the unemployment rate for people with disabilities. Game on!"

Sprint Accessibility is celebrating 30 years!

For the past 30 years, we have provided an exciting array of products and services making telecommunications more accessible than ever.

Michael Ellis
Sprint Global Vice President of Accessibility

Sprint is now part of T-Mobile and continues to offer the Accessibility portfolio. Both the Sprint and T-Mobile brands will continue to exist and over time everything will evolve to T-Mobile. Sprint customers will see the brands represented as a combined company. Sprint Accessibility is the largest Telecommunications Relay Service (TRS) provider in the United States. We are proud to serve 37 states (including Puerto Rico and the U.S. Virgin Islands), New Zealand, and the U.S. federal government.

We offer a wide range of communication products and services to eliminate communication barriers for customers who are Deaf, DeafBlind, have a hearing or vision loss, and cognitive, speech or mobility disabilities. Through innovation and a desire to make communication access available to all people, we have expanded our accessibility solutions to include each of the following and we are not stopping there, we work to anticipate the future needs of our customers and have already begun working on next generation solutions today – Sprint Accessibility has communication solutions for today, tomorrow, and the future.

Accessibility services are available at no charge and include the following:

TRS is a telecommunications option for someone who is Deaf, DeafBlind, Hard of Hearing or have a speech disability to use a text telephone (TTY) to type his/her conversation to a relay operator who reads the conversation to a hearing person. The operator relays the hearing person's spoken words by typing them back to the TTY user. (www.sprintrelay.com/services/sprint-national-relay-services). To find your state relay service (711), go to: https://www.sprintrelay.com/services/state-relay-services

CAPTIONED TELEPHONE (CAPTEL) makes it easy for people who have hearing loss to stay in touch with friends and family. A Sprint CapTel phone displays real-time captions of every word the other person says throughout the telephone conversation. CapTel users hear what they can and read what they miss. (www.sprintcaptel.com)

SPRINT IP RELAY uses an Internet connection, a computer or mobile device, and a relay operator. The user types a comment to an operator. The operator relays the message to the caller and types their response back to the user. Sprint is the only IP Relay provider in the industry. Sprint IP Relay (web) and Sprint IP Relay mobile app (Android and iOS) are available in the U.S. and its territories. Registration is required. (www.sprintip.com)

Speech-to-Speech (STS) is a communication option for people whose speech may not be understood over the phone. STS allows people with a speech disability to voice their conversation and a specially trained operator assists the caller by repeating the conversation when unclear or requested. Special equipment is not required to use this service. (www.sprintsts.com)

SPRINT TELECONFERENCE CAPTIONING (STC) provides live, real-time online captioning for teleconference calls. A fully customizable transcript window allows the user to follow the meeting comment-by-comment. STC requires a computer, laptop, or tablet with an Internet connection. STC service is available for business-to-business customers and states with Sprint purchase/contract agreements. (www.sprintrelay.com/stc)

FEDERAL RELAY SERVICE is the contracted Federal Government TRS through the General Services Administration (GSA) for Federal employees who are Deaf, Hard of Hearing, DeafBlind, blind and low vision or have speech disabilities so they can conduct their official duties. The general public can also conduct business with the Federal Government and its agencies using this service. (www.federalrelay.us)

SPRINT RELAY STORE (SRS) is a specialized store for the Deaf, Hard of Hearing, and speech disabled communities. Services include Data-Only plans while on the Sprint network and Video Customer Service (VCS) in American Sign Language (ASL) over Live Chat. VCS is exclusively provided by Sprint and provides technical assistance, handles

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verizon

Margaux Joffe
Verizon Corporate Social Responsibility - Accessibility

Technology has the power to connect and enhance the lives of all people, including the deaf, hard-of-hearing and deaf-plus communities. That's why Verizon is committed to advancing Accessibility in our products, workplace and in society.

Accessibility considerations are integral to the design, use and customer support features available for our products and services. We continually test the accessibility of our products, using the same assistive technology as our users. As part of our annual Accessibility Bug Bash, our teams work to resolve issues across our products. We run Accessibility Labs in New York and Sunnyvale to support this effort.

Verizon is also committed to fostering an inclusive culture in our workplace. For the fifth year in a row, we were named one of the Best Places to Work for Disability Inclusion, earning a score of 100 on the Disability Equality Index (DEI). We also received Mental Health America's 2020 Mental Health Corporate Excellence Award, recognizing our programs, accommodations, and training to support mental health wellness in the workplace.

To advance greater access in society, Verizon develops partnerships to address unmet needs. Because people with disabilities are underrepresented in media, Verizon Media partnered with the National Disability Leadership Alliance and Getty Images to create the Disability Collection, providing stock images breaking stereotypes and authentically portraying people with disabilities in everyday life.

We're also tackling the accessibility skills gap. Many businesses lack the workforce to execute accessible design and development. We co-founded Teach Access, a coalition of top tech companies, major universities and leading advocacy organizations with a mission to infuse accessibility concepts and skills into higher education. Together, we empower students of design, computer science and human computer interaction with the tools necessary to create a more inclusive and accessible world.

We are proud of these efforts to make our products, workplace, and society more inclusive and accessible, but as a company, we know there is still more work to be done. Through our valued partnership with TDI we continue to listen and learn from the deaf and hard-of-hearing community to ensure we build an equitable future where everyone has the opportunity to thrive.

For more information, please visit Verizon.com/Accessibility

Verizon provides a range of wireless and FiOS TV products and services for people with disabilities, including:

- **Hearing aid-compatible phones**
- **Free 411 search**
- **Directory assistance exemption**
- **Real time text (RTT) support**
- **Disability-inclusive customer service support**

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billing questions, and service issues. Sprint also works with equipment manufacturers and provides hearing aid compatible, cochlear implant compatible, and TTY accessible phones. (www.sprintrelaystore.com)

SPRINT VISION is a specialized group serving the Blind and Low Vision communities. Sprint Vision works with phone manufacturers to deliver user-friendly, accessible wireless devices. The Sprint Vision website is designed with customers with vision loss in mind. (www.sprint.com/vision)

We have been providing accessible services to customers with hearing or speech loss for over 30 years and have received the Top Score on the Disability Equality Index Awards for the fifth consecutive year. The Disability Equality Index (DEI) has recognized Sprint as one of the "Best Places to Work for Disability Inclusion" – earning a top score of 100 for fostering an inclusive, welcoming work environment for people affected by disabilities.

For more information about Sprint Accessibility, go to www.sprint.com/accessibility

Sprint Accessibility is also active on social media so be sure to follow our Facebook (@sprintaccessibility), Instagram (@sprintaccessibilty), and Twitter (@sprintaccess) handles to get the most up-to-date information about products, services, promotions, press releases and more.

TDI In Action December 2019 – February 2020

Telecommunications Relay Services

Comments - In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities • Structure and Practice of the Video Relay Service Program • CG Dockets No. 03-123 and No. 10-51

■ (December 4) TDI, NAD, AADB, and CPADO submitted comments on Sorenson

Communications' request for clarification, or in the alternative for waiver, of certain Video Relay Service and direct video calling rules. Consumer Groups agree that enterprise and public videophones should be excluded from the removal rule for lack of use in a one year period and that point-to-point calls should be excluded from the ACQ requirement. Public videophones are a resource to certain segments of the VRS user population including children, the elderly, ASL users traveling in the U.S. from abroad, those with cognitive disabilities and users that may not be TRS URD-eligible because they do not have broadband. Consumer Groups support Sorenson's request for FCC clarification that point-to-point calls are not be subject to ACQ. Point-to-point calls are not compensable and as a result, there is no need to validate such calls. They also agree that the FCC should provide guidance for choosing between a DVC and VRS call to a unified number and for transferring a call to a unified number from a DVC provider to a VRS provider when a consumer so chooses. Such guidance will help the industry meet one of the goals of the FCC's Accessible Communications for Everyone (ACE) initiative announced several years ago. Part of ACE involved the FCC working with a contractor to develop open source code to enable DVC in customer service call centers, give consumers choice, and enable businesses and government entities to communicate directly with their customers. Consumer Groups have no objection to Sorenson's suggested menu asking for a selection between DVS and VRS in the first instance. Consumer Groups suggest the menu show all of the VRS providers' numbers when using the unified number of the DVC center. They also suggest being given the option of choosing between all VRS providers when transferring a DVC call to a VRS call. The transfer option is necessary because some consumers may determine that a DVC call is awkward or not as well managed and prefer to switch to using VRS to complete the phone call.

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[redacted]

■ (December 23) TDI, NAD, ALDA, and CPADO submitted comments to provide brief comments in response to Sorenson Communications, LLC's Petition for Stay of RUE Profile and VATRP Compliance Obligations. Consumer Groups support a limited stay of the April 29, 2020 compliance deadline for VRS providers to ensure that their VRS access technologies and video communication service platforms are interoperable with the VATRP in accordance with the RUE Profile. As noted in the Stay Petition, Consumer Groups are "not opposed to pausing development of the VATRP App and the RUE Profile." Consumer Groups have asserted "in the strongest terms that the VATRP App and the RUE Specification should continue, once concerns about process and direction have been addressed." Consumer Groups urge the Commission to limit any stay to a specific amount of time that may be extended, if necessary, and suggest 12 months. Consumer Groups agree that more than five months is needed to complete the RUE Profile revision by the Internet Engineering Task Force, the Consumer and Governmental Affairs Bureau's evaluation via notice and comment, the VATRP update by the Commission's contractor, and VRS providers' implementation of compliance with the final RUE Profile and modified VATRP. On the other hand, without a specified deadline, Consumer Groups are not confident that the VATRP App and RUE Profile will be completed in a timely manner. The VATRP App and RUE Profile "hold great, but untapped promise toward fulfilling the goals" in the TRS Policy Statement and are the "only avenue through which key consumer and research stakeholder concerns can be addressed in an equitable manner." Accordingly, it is imperative that the Commission continue to press forward with completing the VATRP App and RUE Profile and limit any stay of the upcoming April 29, 2020 compliance deadline to a specified duration such as 12 months. Consumer Groups also reiterate that consumer input should be sought in the development of the VATRP App and RUE Profile. As stated in the March 2019 Letter, an appropriate inclusive body of governance is needed for the VATRP App and RUE Profile such as a collaborative consortium. A collaborative consortium "constitutes the best approach for equitable representation of all stakeholder concerns…and [will] ensure that the VATRP App and RUE Specification are finally able to meet its promise."

[redacted]

Reply Comments - In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities • CG Docket No. 03-123

■ (February 13) TDI, NAD, ALDA, AADB, and CPADO submitted reply comments in response to the Federal Communication Commission's FNPRM, released on September 20, 2019 and comments filed by Hamilton Relay, Inc. The fact that no commenter has opposed the Commission's proposed relief from the equal access and billing options requirements or the proposal to eliminate publication of state certification applications in the Federal Register demonstrates that these rules are no longer necessary for the public interest. Consumer Groups agree that the TRS equal access generally is no longer needed in order for TRS users to have parity with voice telephone users and that costs and burdens associated with retaining this rule outweigh any of the rule's remaining benefits. Consumer Groups also support the proposal to repeal the billing options requirement. Input from the public, in particular those consumers most likely to use services offered pursuant to state certification, is critically important to assisting the Commission in making determinations as to whether state certification applications meet the standards outlined in the TRS rules. However, Consumer Groups agree that the Commission should eliminate Federal Register publication of public notices of applications for certification of state TRS programs.

[redacted]

Ex Parte - In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities • Misuse of Internet Protocol (IP) Captioned Telephone Service • CG Dockets No. 03-123 and No. 13-24

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■ (December 19) HLAA, TDI, NAD, ALDA, CPADO, AADB, DHH-RERC, IT-RERC, and NTID submitted an exparte to respond to the reply comments of VTCSecure, MachineGenius, and Clarity to our comments on their Applications for Certification as Providers of ASR-based IP CTS and related filings. As a general matter, the Commission should deny the Applications unless further information is disclosed by the applicants. The public versions of each of the Applications leaves out critical data demonstrating the quality of the applicants' offerings, details of their consumer and vendor privacy agreements, and details of the offerings' 911 connectivity. Our comments sought more information on each of these points. However, none of the applicants' reply comments addressed them in sufficient detail, though some of the applicants provided more information than others:

- VTCSecure does not include substantial new information about caption quality, consumer privacy, or 911 connectivity, though in subsequent conversations with representatives of the Groups and Researchers VTCSecure committed to providing more information on these points in a future filing.
- MachineGenius discusses 911 connectivity but does not provide caption quality testing results or information about its privacy policies or those of its vendors. MachineGenius also states that "MachineGenius does not seek to provide functional equivalence to ALL users, and the Company acknowledges that some users, and classes of users, will prefer other service providers."
- Clarity similarly does not provide publicly available caption quality testing results, privacy policies, and 911 limitations. Clarity correctly observes that new standards must be developed for IP CTS, and the Commission must mandate that testing results be made public. Clarity likewise acknowledges that there are numerous privacy concerns with ASR software that should be publicly disclosed to consumers. As they stand, none of the three Applications and associated filings provide sufficient publicly accessible information to alleviate the concerns raised in our prior comments.

Quality - Consumers and the Commission need to know what kind of testing each applicant has conducted on the accuracy of their captioning offering. Testing results must be relevant to the specific ASR offerings of each applicant, not just ASR software generically. Without results, consumers and the Commission have no way to objectively evaluate the quality of each applicant's ASR offering.

Privacy - Consumers need to know what the consumer privacy policies of each applicant and the applicant's ASR vendor(s) are. Without being able to evaluate these policies, consumers will have no way of knowing what kinds of personal information is being collected and what is being done with it. None of the applicants included any public information about privacy.

911 - Consumers and the Commission need to know the limitations of each applicant's system for handling 911 connectivity. Because 911 connectivity is a matter of life and death, the Commission should require each applicant to provide substantial evidence that their offering will be able to handle connecting users to emergency services in a variety of real world situations. Unfortunately, none of the three applicants' reply comments offer any evidence that can be independently evaluated about the potential 911 limitations.

[redacted]

■ (January 17) On January 17, 2020, HLAA, TDI, NAD, and Gallaudet TAP, along with TDI's counsel Blake Reid and his student attorneys from Samuelson-Glushko Technology Law & Policy Clinic at Colorado Law met with Diane Burstein, Eliot Greenwald, Bob Aldrich, Michael Scott, and Debra Patkin of the Consumer and Governmental Affairs Bureau, Susan Lee and Virginia Metallo of the Office of Economics and Analytics, and David Schmidt of the Office of the Managing Director. We discussed the use of automatic speech recognition (ASR) for Internet Protocol Captioned Telephone Service (IP CTS) and the pending applications for certification of MachineGenius, VTCSecure, and Clarity for ASR-based IP CTS service. We reiterated the Consumer Groups' perspective that ASR holds significant promise for the provision of IP CTS as well as our concerns that the pending applications lack sufficient information about the applicants' proposed services on dimensions of quality, privacy and 911 connectivity. We reiterated several points raised by deaf and hard of hearing consumer groups and accessibility researchers in our filings on the docket:

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We underscored the importance of the Commission setting and ensuring adherence to technology-neutral minimum standards for quality, privacy, and 911 connectivity across the board for all IP CTS providers.

- We noted that the unique challenges that ASR presents for quality, privacy, and 911 connectivity are not fully addressed by the Commission's existing minimum standards, many of which presume the presence of a Communications Assistant (CA).
- We urged the Commission to require the pending ASR applicants to provide additional evidentiary support on the record for their quality, privacy, and 911 connectivity practices and commitments.
- We noted that harms to consumers may result if the applications are granted prematurely without sufficient information being made available to the public, including harms to consumer privacy and the likelihood of competitive distortions to the IP CTS marketplace.

Consistent with our requests for more information from the pending ASR applicants, we discussed the possibility of increasing consumer education efforts around the availability and attributes of the range of IP CTS services and providers. We also discussed the prospect of gathering data about the user experience on different services to inform the Commission's future development of policy to ensure the functional equivalence of IP CTS services and ensure that consumers can make informed decisions when choosing IP CTS providers.

Closed Captioning

Comments - In the Matter of - Closed Captioning of Internet Protocol-Delivered Video Programming: Implementation of the Twenty-First Century Communications and Video Accessibility Act of 2010 • MB Docket No. 11-154

■ (February 21) TDI, DHHCAN, HLAA, NASADHH, DSA, DHH-RERC, NAD, ALDA, CPADO, AADB, and

- IT-RERC submitted comments to oppose Pluto's petition for waiver of the Federal Communication Commission's closed captioning rules for video programming delivered over Internet Protocol. Pluto's petition generally fails to provide sufficient information for the Commission or the public to evaluate its merits. Publicly available information undermines some of the information that Pluto does provide. Pluto fails to show that providing closed captioning would be an economic burden or that there is good cause to grant its petition. As a result, the Commission should reject Pluto's petition. The Commission should not grant Pluto's petition under the economic burden standard. Pluto fails to provide sufficient information to show the IP Requirements would be economically burdensome. First, Pluto does not provide any information about the labor or equipment costs for providing closed captioning. Pluto asserts confidentiality instead of providing the required documentation of the costs of providing closed captioning. Second, Pluto provides no concrete documentation about its financial resources and could seek a sponsorship from its parent company, Viacom. The Commission should not grant Pluto's petition under the good cause standard. Pluto fails to provide sufficient information to show good cause supports its waiver petition. Pluto must show that its waiver petition is in the public interest and warranted by special circumstances. Pluto's petition is not in the public interest because it denies deaf and hard of hearing people full, equal access to Pluto's content. A majority of the platforms for which Pluto seeks waiver are completely inaccessible to deaf and hard of hearing people because the platforms provide no basic captions. An estimated 1.8 million Pluto users cannot access compliant captions. Moreover, Pluto has been out of compliance with the IP Requirements for over five years. Pluto also fails to show special circumstances warrant a good cause waiver. By providing insufficient financial information, Pluto fails to show its financial situation justifies a good cause waiver. Pluto also fails to satisfy the special circumstances requirement because: Pluto provides insufficient information about its technical challenges; publicly available information undermines Pluto's factual claims about three platforms; and Pluto's ignorance of the IP Requirements for over five years contributed to its technical challenges.

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Ex Parte on the Petition for Declaratory Ruling and/or Rulemaking on Live Closed Captioning Quality Metrics and the Use of Automatic Speech Recognition Technologies - In the Matter of: Closed Captioning of Video Programming Telecommunications for the Deaf and Hard of Hearing, Inc. Petition for Rulemaking • CG Docket No. 05-231 • MB Docket No. RM-11065 • Docket No. RM-11848

(December 19) TDI, NAD, HLAA, ALDA, CPADO, AADB, DSA, CCASDHH, DHH-RERC, Captioning DRRP, and IT-RERC submitted an ex parte to respond to the reply comments of the NCTA—The Internet & Television Association, the National Association of Broadcasters (NAB), and the Radio Television Digital News Association (RTDNA) regarding the Consumer Groups and Accessibility Researchers' Petition for Declaratory Ruling and/or Rulemaking on Live Closed Caption Quality Metrics and the use of Automatic Speech Recognition Technologies. While there are a number of outstanding issues raised by the reply comments, this filing narrowly aims to clarify one in particular: an apparent misunderstanding about the distinctions between the two requests in the Live Caption Quality Petition. The Petition includes two separate requests for action from the Commission: 1) A short-term request for guidance on whether and how automatic speech recognition (ASR) can comport with the Commission's existing human- and ENT-centric best practices, and 2) A long-term request for a rulemaking to improve caption quality by replacing best practices with objective, technology- and methodologyneutral quality metrics. While the long-term request to improve caption quality through the development of objective quality metrics is meant to replace the best practices approach over time, the short-term request for guidance on ASR is meant to seek clarity on where and how ASR stands within the current best practices regime. The industry commenters potentially misunderstand that the two requests are separate and distinct. The industry groups appear to be conflating the long-term request for new objective quality metrics to replace best practices for all caption methodologies with the short-term request for guidance on how ASR fits into the existing best practices regime. The industry groups appear to view the request for guidance as call to ban ASR, impose new standards upon it, or to hinder its development. However, the request in the Petition seeks only guidance on how to evaluate ASR under the human- and ENT-specific best practices that already exist under the Commission's rules. The industry commenters' reply comments do not address how the use of ASR can satisfy the human-and-ENT-centric best practices, which appears to be the heart of the misunderstanding. As the Petition explains, the current best practices are human focused, with provisions focusing on oversight and training for captioners, for captioners to complete self-evaluations of their performance, for captioners to keep up with current events, and other human-centric standards whose application to the use of ASR is not clear. The Petition notes that these practices are specifically tailored to human-and ENT-centric captioning, and the Commission has to date provided no guidance on how ASR could comply with the practices. This apparent incompatibility between the best practices and ASR's ability (or lack thereof) to comport with the best practices motivate the Petition's request for guidance.

■ (January 17) TDI, HLAA, NAD, and Gallaudet TAP, along with TDI's counsel Blake Reid and his student attorneys from the Samuleson-Glushko Technology Law and Policy Clinic at Colorado Law met with Diane Burstein, Suzy Rosen Singleton, Eliot Greenwald, and Debra Patkin of the Consumer and Governmental Affairs Bureau to discuss the Petition for Declaratory Ruling and/or Rulemaking on Live Closed Caption Quality Metrics and the use of Automatic Speech Recognition Technologies in the above-referenced proceedings. We discussed the two main requests in the Petition: 1) A short-term request for guidance on whether and how automatic speech recognition (ASR) can comport with the Commission's existing quality standards and human- and ENT-centric best practices; and 2) A long-term request for a rulemaking to improve caption quality by replacing best practices with objective, technology- and methodologyneutral quality metrics.

While we expressed interest in the potential of ASR to play a role in improving the quality of the quality of live caption programming, we expressed concern that ASR is currently being implemented by providers across the country in markets both inside and outside the top 25 without public oversight by the Commission or guidance on how ASR fits

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within the Commission's quality standards. Indeed, there is no obvious way for stations deploying ASR to comply with the best practices for live human captioners and for the use of the Electronic Newsroom Technique. These practices include oversight and training for captioners, for captioners to complete self-evaluations of their performance, for captioners to keep up with current events, and other human-centric standards whose application to the use of ASR does not appear possible. Instead, providers that cannot comply with the relevant best practices for their market must certify that and how they are otherwise meeting their standing obligations under the Commission's quality standards in Rule 79.1(j)(2), or cease the use of ASR. We have long supported the Commission's exercise of oversight to ensure that stations are delivering equal access to video programming regardless of the underlying captioning methodology, and strongly support the Commission continuing to do so as the deployment of new captioning methodologies such as ASR yields unpredictable and often problematic results for consumers who rely on captioning to access local news programming. However, we urged the Commission to publicly express guidance about how it is applying its quality standards in the context of those investigations to make clear to stations that they must continue to meet the Commission's quality standards when switching to ASR-based solutions. In advance of the development of objective, technology-neutral metrics, it is critical for stations and consumers to understand both that the Commission is continuing to enforce a high bar of quality for ASR deployments and to better understand the mechanics of the Commission's application of the quality standards to ASR. We also noted that there are large differences in accuracy across ASR vendors for video programming. We reiterated our request in the Petition for the Commission to issue a declaratory ruling or other publicly available statement making clear the Commission's approach to the deployment of ASR. We also discussed the prevalence of quality problems demonstrated in the record in response to the Petition and the dynamics of consumer complaints. We expressed our support for the Commission's ongoing efforts to overhaul and improve its complaint process to better facilitate consumers securing relief for captioning problems from the Commission. Finally, we discussed the timeline and goals of the Captioning Disability and Rehabilitation Research Project (DRRP) of Dr. Vogler and his colleagues. The DRRP is a five-year project and will assess various metrics to measure caption quality and make evidence-based suggestions for which metric should be applied as the uniform standard for video programming. The DRRP is currently considering four different methods of measurement: word error rate, NER, ACE, and NCAM. Additionally, we emphasized the value of a record of the caption quality assessment measures that vendors currently use internally, and urge the Commission to build this record. We look forward to working with the Commission and our industry colleagues to discuss the progress of the DRRP's work and for the Commission to undertake further proceedings to begin the development of metrics based on the results.

Miscellanea

Comments - In the Matter of the National Suicide Hotline Improvement Act of 2018 • CG Docket No. 18-336

■ (February 14) TDI, NAD, DHHCAN, ALDA, CPADO, AADB, HLAA, DSA, NASADHH, DHH-RERC, IT-RERC, and NTID submitted comments in response to the Notice of Proposed Rulemaking issued by the Federal Communications Commission. The Consumer Groups support the Commission's recommendation to adopt 988 as the three-digit dialing code for reaching the National Suicide Prevention Lifeline but also urge the Commission to ensure that such code is available to deaf, hard-of-hearing, late-deafened, DeafBlind, speech-disabled and deaf and mobile-disabled callers, consistent with Section 255 of the Communications Act and the Commission's rules implementing Section 225. The Consumer Groups urge the Commission to mandate the ability to reach the Hotline through sending text messages to 988, including real-time text (RTT). In 2014, the FCC opened a direct, hotline for consumers who are deaf and hard of hearing to communicate with the Commission in their primary language, American Sign Language (ASL). The Commission should take a similar step with respect to the Hotline.

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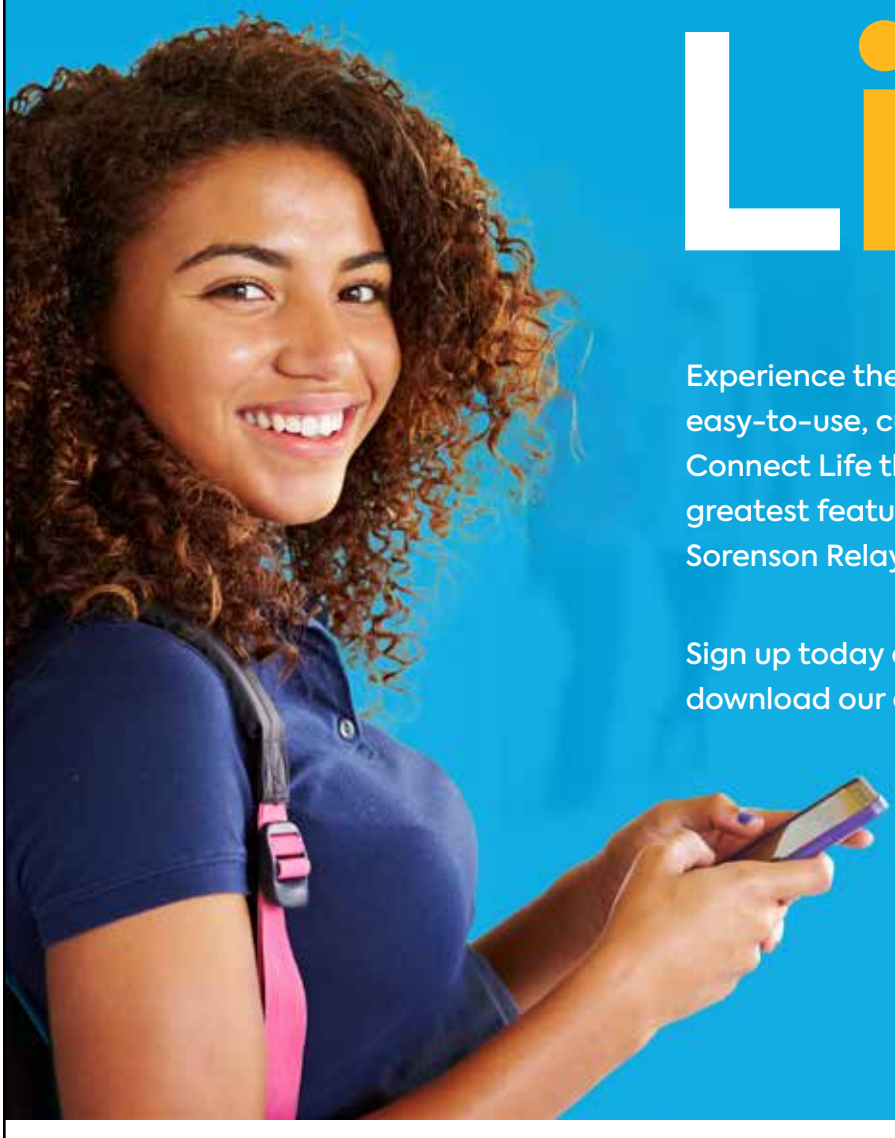

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