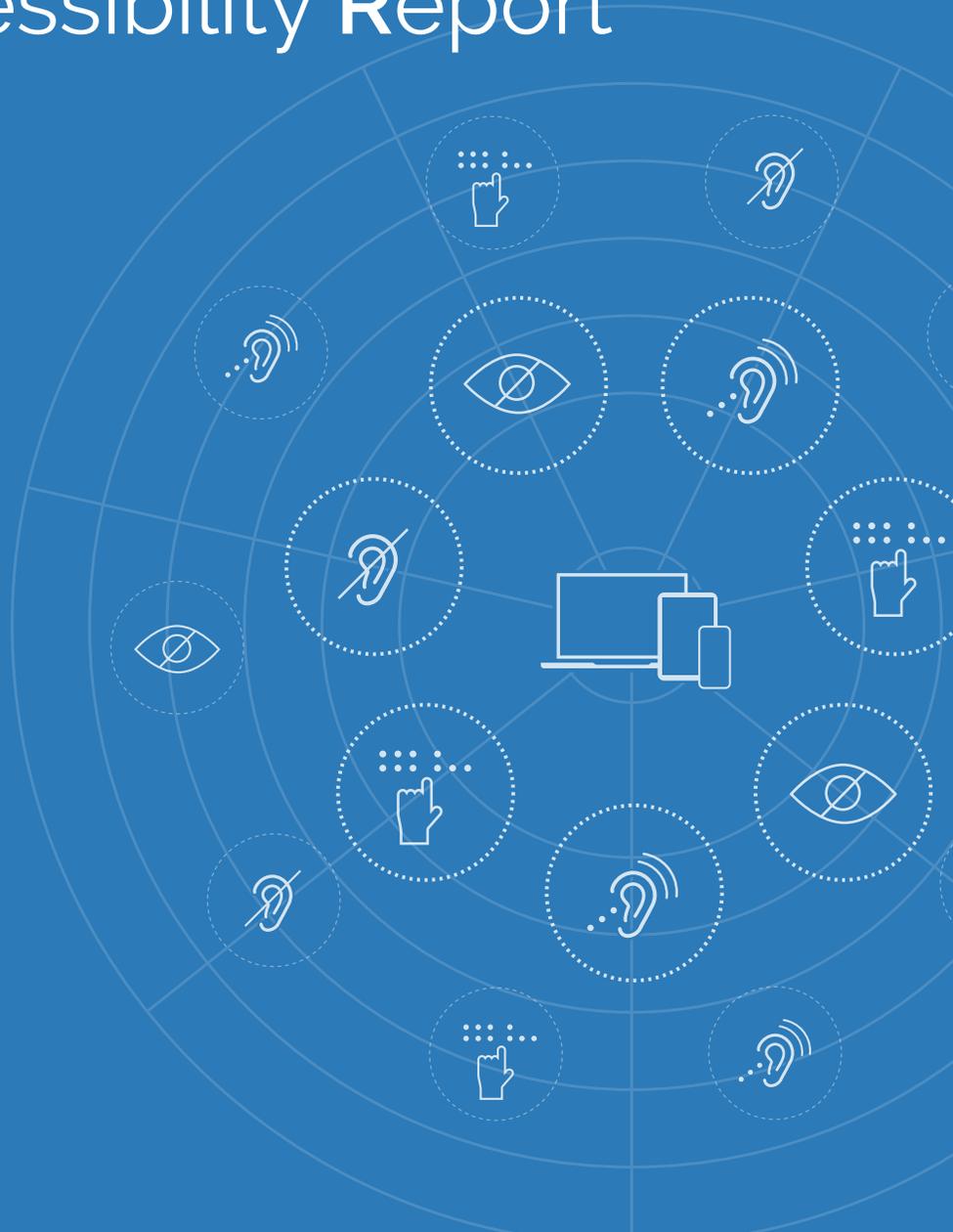


#SOAR

# Diamond's First Annual State Of Accessibility Report



Published on May 16th, 2019



# Foreword

By Joe Devon,  
CoFounder of Diamond and Global Accessibility Awareness Day

In 2011 I wrote a [post](#) on MySQLTalk.com, proposing a Global Accessibility Awareness Day (“#GAAD”). The goal was to raise awareness in the tech community to make products accessible to people with disabilities. To my shock it turned into a [viral movement](#) that sends chills down my spine every May.

Yet all it takes to come crashing down to reality is a good satire, this time in the form of a [tweet](#) by the Blind Onion:



While it stung at the time, it came from a place of pain & truth. Instead of ignoring it as advised, it prompted me to create this report. How do we know if GAAD & other accessibility initiatives are helping if we don't measure it? We planned on creating a State of Accessibility Report to determine a trackable baseline of metrics. In the meantime the [WebAIM Million](#) project came out with exactly the data we wanted. So we asked them to collaborate with a report from the perspective of GAAD & the result is in these pages. We added a report on accessibility of login/registrations at the [Alexa Top 100](#) websites and an analysis on the number of accessibility bug reports on GitHub.

I've been a community builder in the dev tech scene for over a decade and a member of the accessibility community for 8 years. It is my goal to use this unique perspective to serve as a bridge between the two communities.

I am personally excited by our first State of Accessibility Report (“#SOAR”) report, because it serves as a kind of coming out party for the brand new accessibility practice area of [Diamond](#), the Software Development shop I CoFounded.

Thank you, accessibility community, for welcoming me so warmly & turning GAAD into more than I ever imagined. I hope to be worthy of all the love I have received.

*Joe Devon*

Joe Devon  
Co-Founder of Diamond



# Executive Summary

The current state of accessibility is unacceptable. There are an average of 59.6 major accessibility errors per webpage.<sup>1</sup>

From both a civil rights and a business perspective, the 61 million Americans<sup>2</sup> and 1 billion people<sup>3</sup> with disabilities ("PwD") worldwide are under-served by today's digital products. Accessibility lawsuits are rising exponentially, which has resulted in nascent awareness that accessibility is an issue.

## Number of People with Disabilities:



In spite of the Americans with Disabilities Act ("ADA") being almost three decades old, and the [Web Content Accessibility Guidelines](#) ("WCAG") being 20 years old, we are Neanderthals as a society when it comes to accessibility and digital content. The challenge is that accessibility is actually a complicated "product" in and of itself. For that reason, to achieve widespread accessibility adoption requires a multi-phased approach to:

- Educate and lobby lawmakers to improve the laws in some countries
- Educate businesses where the law is solid, on where they are breaking the law and/or ignoring the civil rights of people with disabilities
- Inspire digital creators by teaching them the perspective of people with disabilities and showing how they are failing to serve them
- Educate creators technically on how to create digital products with accessibility always in mind

To tackle these challenges, we propose that you take the [#GAADPledge](#), a framework for taking one action a week to increase the number of people inside the accessibility community, and physically improve the accessibility of open source projects. We have created a [handy one-pager](#) with instructions.

<sup>1</sup> Web Content Accessibility Guidelines ("WCAG") errors, per the WebAIM report in these pages  
<sup>2</sup> Centers for Disease Control and Prevention, <https://www.cdc.gov/ncbddd/disabilityandhealth/infographic-disability-impacts-all.html>  
<sup>3</sup> World Health Organization, [https://www.who.int/disabilities/world\\_report/2011/en/](https://www.who.int/disabilities/world_report/2011/en/)



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\*Alexa Top 100 Websites Tested:

29%  
Accessible

28%  
Accessible  
with Difficulties

43%  
Inaccessible

# Background

## 1990: PRE-WEB DAYS

On March 12, 1990, the iconic moment of the fight for passing the Americans With Disabilities Act ("ADA") occurred on the steps of the Washington Capitol. 60 disability activists climbed out of their wheelchairs and up the 83 steps of the Capitol in a protest now known as [The Capitol Crawl of 1990](#).

Image 1: The Iconic Capital Crawl



On July 26, 1990, President George Bush signed the ADA into Law.

As Rep. Patricia Schroeder said ahead of the ADA passing, "What we did for civil rights in the '60s, we forgot to do for people with disabilities." In the 29 years since the ADA passed, physical accessibility has been transformed. Sidewalks have ramps which not only help people with wheelchairs navigate the streets, but parents with strollers and people on bicycles. Subways, airports and public buildings all have features to serve people with disabilities. Parking lots have requirements to provide handicapped parking.

In the meantime, something completely unexpected happened. The Internet boom followed by the mobile

revolution changed everyone's daily life. Although the court's have been ruling that the ADA applies to digital products, there is some uncertainty because the law has not spelled it out.

To connect the dots on why all of this is a civil rights issue, understand that if someone with a disability is required to pay taxes, there has to be an accommodation to allow her to enter the government building.

Everyone is expected to have a bank and a credit card to handle daily chores. To shop. A store that serves the public cannot exclude someone because of their gender, their race or religion. Or disability. If a person with a disability can't get in a store physically, he cannot be independent. That is a civil right.

By the same token, if an ATM is inaccessible, or a retailer's website doesn't work with a keyboard only, people with a visual impairment are locked out.

To paraphrase Rep. Schroeder, "What we did with the passing of the ADA for physical affordances, we forgot to do for digital products."

## 2011: BIRTH OF #GAAD

It is against this backdrop that [Global Accessibility Awareness Day](#) ("GAAD") was born. The goal was to reach out to the creators of digital products, be they developers, designers or product people, and inspire them to make their products accessible to people with disabilities.

***"What we did with the passing of the ADA for physical affordances, we forgot to do for digital products."***



Image 2: Joe Devon's blog post that started the GAAD movement.

## MySQLTalk.com

A blog about MySQL, PHP and The Semantic Web

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# CHALLENGE: Accessibility know-how needs to go mainstream with developers. NOW.

Posted on [November 27, 2011](#) | [67 Comments](#)

Relatively, there isn't a lot of great information about [accessibility](#) out there. You really have to seek it out. How many of you know what JAWS is? After popping up IE6/IE7/IE8 et. al. to ensure website compatibility, do you also check your content in a [screen reader](#)?



Image via  
Wikipedia

I would argue that it's more important to make a site accessible than pretty for older browsers. For some people, an accessible Internet literally makes a world of difference. Although I'm a backend programmer, I'm still ashamed at how little I know. How about you?

[Much effort is going into the semantics of HTML5](#) for the purpose of accessibility. I've been toying with this idea for a couple years, but now the time has come to ask for your help. Let's work together and fix this oversight in our knowledge. As a community, we can work together to **change the world**.

First, let's agree on a **Global Accessibility Awareness Day**. This will be a day of the year where web developers across the globe try to raise awareness and know-how on making sites accessible.

On this day, every web developer will be urged to test at least one page on their site in an accessibility tool. After fixing up the page, they are urged to blog about what they changed and inspire others to follow suit.

To plan for this day, meetup organizers, like myself, will be urged to plan an accessibility talk. If you can get someone who uses JAWS or a screen reader to attend and educate, this will be a nice bonus. Perhaps a hackathon is appropriate.

If you speak about web development, you are urged to prepare talks on this topic. You are among the most influential people in our industry.

If anyone reading this knows of organizations that would like to be involved in this effort, please help hook it together.

Let's pick a day, tentatively, May 9th. **Global Accessibility Awareness Day**.

So what can you do today?

Spread the word. Provide suggestions; e.g. what would be a good hashtag for this effort? If you're in the meetup scene, start planning. If you're not in the meetup scene, then join.



# The State of Accessibility

## THREE GOALS

The Three Goals of Our First State of Accessibility ("A11y") Report are::

- Use objective metrics that can be tracked yearly to assess the current state of web accessibility.
- Identify the societal barriers to widespread adoption of accessibility
- Come up with a plan to improve accessibility adoption over the next year

## PART I

### Web Technology Accessibility - What We Learn from the WebAIM Million

By Jared Smith, WebAIM

In February 2019, WebAIM conducted an accessibility evaluation of the home pages for the top 1,000,000 web sites. A detailed summary of the research findings and a look-up functionality for all 1 million web sites analyzed are available at <https://webaim.org/projects/million/>. This article will focus on specific technologies and how the data from the WebAIM Million research can inform substantive and wide-scale short-term web accessibility improvements for users with disabilities.

#### Overview

The WebAIM Million research used the [WAVE automated web accessibility test platform](#) to analyze one million home pages for accessibility issues. An average of 59.6 errors were detected per home page. These er-



Average Number of Errors Per Home Page

rors each result in a barrier to users with certain disabilities and reflect non-conformance with the [Web Content Accessibility Guidelines](#) (WCAG). 97.8% of home



Percent of Home Page with At Least One WCAG 2.0 Failure

pages had at least one detectable WCAG 2 failure.

The prevalence and number of detectable accessibility issues indicate that users with disabilities would expect to encounter numerous significant barriers in accessing content on nearly every home page. This pervasive inaccessibility should be of great concern to the web design and development field. Owners of inaccessible web sites are increasingly subject to lawsuits and formal complaints under the American's with Disabilities Act. Inaccessible web sites are less usable, more difficult to maintain, and less search engine compatible than those that have been built with accessibility in mind.

Despite the legal and technical concerns, the vast inaccessibility of the web demonstrates a fundamental failure of the open web platform to be a tool for engagement and communication for everyone. As [Winston Hearn observed](#), "The web industry has collectively exercised its power to state that disabled people do not belong here." Despite the bleak picture of accessibility on the modern web, the WebAIM Million does show that attention to specific accessibility issues and technologies could have a notable positive impact.

**Accessibility Issues** The vast majority of the accessibility issues and WCAG conformance failures detected by the WebAIM million analysis fall into the following 5 categories:

- Low contrast text (85% of home pages)
- Missing alternative text for images (68% of home pages)
- Empty links and buttons (63% of home pages)
- Missing form input labels (53% of home pages)
- Missing document language (33% of home pages)



**Low Contrast Text** Having insufficient brightness or luminance differences between text and the background to that text makes content difficult to read, especially for users with certain visual disabilities. The home pages analyzed averaged 36 distinct instances of text with insufficient contrast (as determined by [the Web Content Accessibility Guidelines contrast requirements](#)).

Modern design trends have increasingly and continually shifted to lower contrast text which, along with trends toward smaller text, has repeatedly been proven to decrease readability of web content. While this issue is widespread, most contrast issues on sites can be readily addressed via CSS adjustments - in many cases a few minor changes to site-wide text and/or background colors would address the vast majority of a site's contrast failures.

**Missing Alternative Text for Images** Providing [alternative text for non-text elements](#) is a foundational principle of accessibility. The analysis identified that most home pages had images lacking alternative text, with 12.3 images per page on average (over one third of all

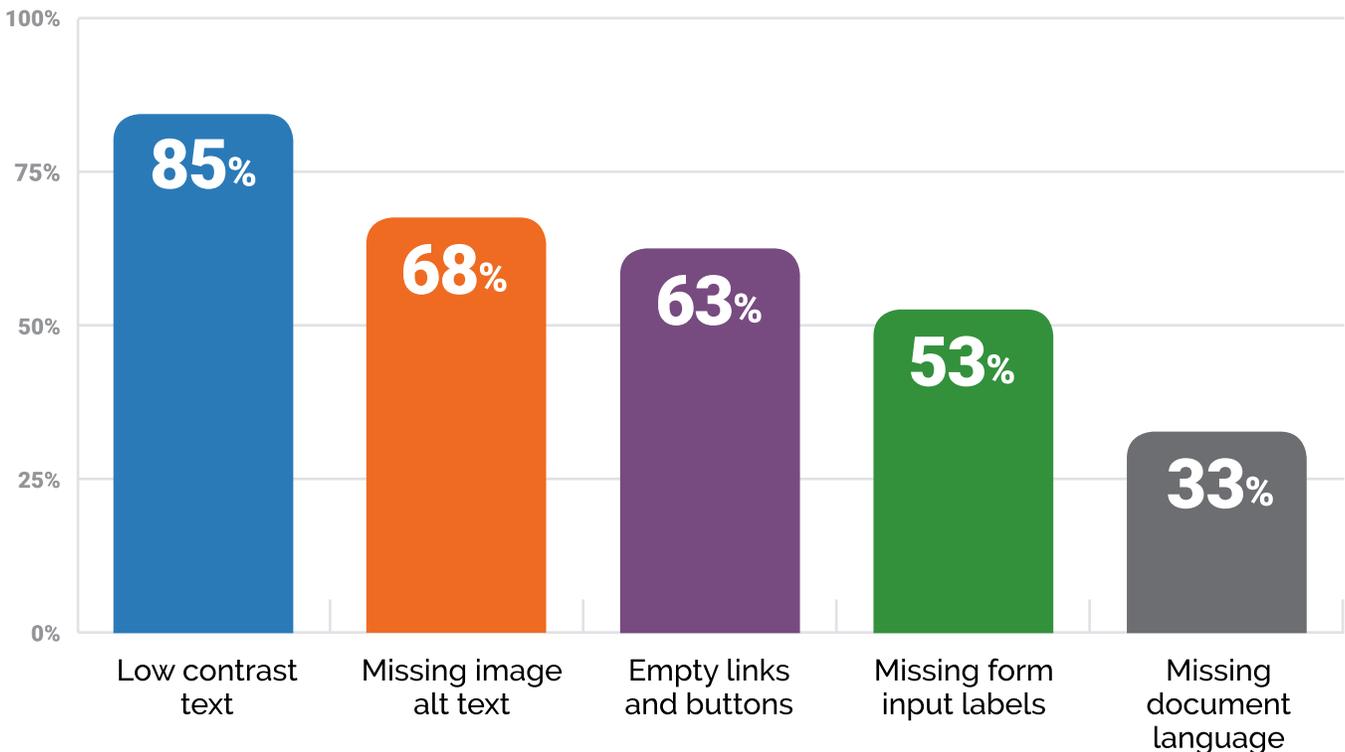
images detected) lacking these vital descriptions.

Providing alternative text for images requires effort and technology platforms that support authoring of and association of alternative text to images. But these processes are not difficult to understand or implement with reasonable effort.

**Empty Links and Buttons** When links or buttons do not present meaningful text (or alternative text) to screen reader users, they are not accessible. The user is informed of the presence of the link or button, but has no text information from which to determine the function of that link or button. In most cases these empty links and buttons contain graphical elements that do not have alternative text.

**Missing Form Input Labels** Similar to empty links and buttons, form inputs that do not have [associated descriptive label text](#) are ambiguous to many users, particularly screen reader users. 59% of all form inputs on the million analyzed home pages were unlabelled. In most cases these inputs have adjacent text that

Chart 1: Causes of Most Common Accessibility Failures (% of Home Pages)



visually describes them, but lack `<label>` markup to programmatically associate that text to the input. This type of accessibility issue can be readily addressed via basic coding techniques and by authoring tools that support form label associations.

**Missing Document Language** Ensuring that the document language is identified (e.g., `<html lang="en">` - where "en" is a two character language identifier) is vital to providing accessibility for multilingual screen reader users. It ensures that the page is read using the correct language settings and pronunciations. One third of analyzed home pages lacked this basic HTML attribute.

### Technology Considerations

In an optimal world, the issues above would (and should) be addressed by site authors, designers, and developers. This type of awareness and effort is necessary for the web to achieve high levels of accessibility and digital equity for the 10%-15% of web users with disabilities. Simply addressing the 5 categories of issues described would have a significant positive impact on the experiences of these users. These issues are all easy to address - all but contrast errors are entirely transparent to the functionality and visual design of a site because they are implemented in the page code. Addressing contrast issues certainly would improve readability for all site users.

However, it is apparent that this type of change will not occur in the short term. As such, we must focus on the areas where the most significant impact can be achieved.

For each home page analyzed, the WebAIM Million research also collected data on the technologies in place, such as the CMS, JavaScript frameworks or libraries, web frameworks, ad networks, etc. By considering the prevalence of certain technologies and the types of accessibility issues associated with those technologies, perhaps targeted efforts could achieve notable short-term improvements without significant effort. The sections below highlight a few of the most prevalent and impactful technologies in use, with recommendations on how they could be used to effect

accessibility change.

**jQuery** jQuery was by far the most common technology detected - it was present on 77.4% of all home pages. jQuery directly correlated with the highest number of detected accessibility issues. Pages with jQuery averaged 19.2 more errors than pages without jQuery. This corresponds with nearly 15 million additional accessibility issues across these pages - or almost 25% of all of the accessibility issues detected across all of the one million home pages. Addressing the accessibility issues on the 774,000+ analyzed home pages with jQuery would undoubtedly result in an improved experience for many users with disabilities.

It is important to point out that we cannot know if jQuery caused these accessibility issues, but there's no question that pages that utilize jQuery have a significantly higher likelihood of having a lot more issues present. While pages with jQuery were much more complex (844 elements on average) than other pages (605 elements on average), the increase in number of accessibility issues is much higher than the increase in page complexity. As an example, pages with jQuery had 2.4 times as many empty buttons, 3 times as many missing form labels, and 3.4 times as many empty links as non-jQuery pages.

Because these accessibility errors aren't directly attributed to jQuery (which doesn't directly create buttons, labels, or links), we must consider what it is about pages that utilize jQuery that would result in these increased errors. Certainly pages of a nature that necessitate jQuery (generally interactive and dynamic) are ones for which accessibility is presumably given less attention. Perhaps designers and developers of these pages have less accessibility knowledge? Or perhaps the design and technology requirements for these sites does not support or include accessibility testing and remediation? Or perhaps the jQuery patterns and implementations in place simply are not built to support accessibility?

A common rebuttal by jQuery aficionados to the WebAIM Million analysis has been that "jQuery is accessibility neutral." Perhaps accessibility neutrality for tools like jQuery is not sufficient. What if jQuery had accessi-



bility support and requirements built in? What if jQuery had tools to perform basic testing of jQuery-powered pages to identify these common and readily-detectable (and readily addressable) issues? A review of jQuery documentation shows that their examples typically do not model accessibility best practices. Why not? While the same can be said for most of the technologies identified via the WebAIM Million research, addressing the many millions of accessibility issues on home (and other) pages that utilize jQuery could quite possibly be the single most impactful short-term change that could positively impact the experiences for users with disabilities.

### WordPress

31.2% of home pages were detected as using the WordPress CMS. WordPress pages tended to have slightly more contrast and empty link errors, but slightly fewer alternative text, empty button, and missing input label errors. The presence of WordPress seems to make little accessibility difference. This, however, seems a significant shortcoming - there's little reason why the world's most popular CMS shouldn't result in notably improved accessibility compared to other pages. The fact that WordPress home pages average 59.9 detectable accessibility errors should be appalling.

As with jQuery, one could argue that WordPress only reflects the decisions of the site author. And indeed WordPress has done much to support better accessibility in recent years - all of WordPress core code is supposed to meet WCAG guidelines. But it seems that much potential for providing, testing, and (perhaps) enforcing accessibility has not been fully embraced.

### Bootstrap

The [Bootstrap web framework](#) was very commonly used - present on 22.3% of the top one million home pages. Pages with Bootstrap had 10.3% more detectable errors than those without. These pages were much more likely to have unlabeled form inputs and nearly twice as likely to have empty links and buttons. While Bootstrap has been updated to support improved accessibility and the Bootstrap documentation provides accessible examples, pages with Bootstrap apparently are not always using it properly, thus resulting in notable accessibility issues.

### Modernizr

The [Modernizr JavaScript library](#) was present on 20% of the top one million home pages. Modernizr's presence was associated with a 7.5% increase in detectable accessibility errors. Home pages with Modernizr present were more likely to have empty links and buttons, unlabeled form controls, and missing document language than pages without Modernizr. The feature detection functionality provided by Modernizr is generally present on more complex pages and web applications - where accessibility is often most critical.

### Advertising Networks

Perhaps one of the most surprising aspects of the WebAIM Million analysis was the detection of significantly increased accessibility errors on pages that serve external advertisements. Home pages with Google AdWords, the most popular ad network detected - present on 12.5% of home pages - corresponded with nearly twice as many accessibility errors as other pages.

Of note is that the ad content itself does not generally contribute to this increase. In other words, there is something about the nature of home pages that serve ads that caused them to have a lot more errors than other pages. Perhaps pages that have advertisements are not as well curated and designed.

### Moving Forward

The current state of accessibility on the web is not acceptable. Improvements must be made if we are to provide an equitable online experience for people with disabilities. The WebAIM Million has established a baseline of the issues and technologies present on the web. The million pages will be re-analyzed in the future to measure changes over time. Those of us that are the stewards of the web must do more to consider the needs of users with disabilities, and implement effective and immediate improvements. When specific, prevalent technologies are considered, there is much low hanging fruit that can serve as an influential starting point for bringing about this type of change.



## PART II

### Registration and Login of the Alexa Top 100

By the Diamond Team

If registration, login and logout sections of a website are inaccessible, by definition the entire site is inaccessible. For example, it is common that visually impaired users can't even register, login or logout of many popular websites. To assess the state of the top websites with regard to this metric, we have manually tested the Alexa Top 100 for accessibility, and contrasted this with the accessibility statements these sites have provided. Our methodology is identified in Appendix B.

#### Results

The results show that only 29% of the Top 100 Alexa websites have fully accessible registrations and logins. While this statistic is better than we've seen for the WebAIM Million averages, keep in mind that expectations are much higher for the very top websites, who by definition serve a much larger audience.

43% of sites are completely inaccessible. 28% are somewhat accessible. Meaning you could to some degree perform registrations and login/logout, but with difficulties.

We were pleased to see that of the 32 sites with accessibility statements, there was a strong correlation with accessible registrations and logins. This seems to indicate that once an organization was committed enough to write an accessibility statement, they did pretty well with accessibility.

#### Causes of Failure

There were varied reasons for failure. In 4 cases, inaccessible Terms of Service ("ToS") caused the problems. There were 15 inaccessible captchas. 26 problems with element focus. 6 form element problems. 17 problems with :focus states.

## PART III: DIAGNOSIS

### Why Isn't Accessibility Seeing Widespread Adoption?

As you can see, the "problem" is simply that most dig-

ital properties are not accessible. But why? It's easy to assume that the problem is that builders of software don't care. But in fact it goes much deeper than that.

The best analogy to describe the problem is to compare accessibility to a complex product. There is a popular TV Show called Shark Tank. The premise of the show is that entrepreneurs pitch their startup idea to wealthy investors who choose to invest or pass.

Periodically a product is demonstrated that the "Sharks" fall in love with. But when it comes time to invest, they bow out, one by one. Their reasoning is that products that are complicated to educate the consumer on require an enormous marketing budget. If you can't stick it on a shelf or add it to Amazon and sell in large numbers because people "get it" instantly, you have an uphill road ahead.

Not only is accessibility a complex "product", it's more like multiple complex products. There are multiple laws, multiple types of disabilities and many assistive technologies.

A similar set of "products" would be the support system of cars. Imagine cars didn't exist. How would you introduce the modern car today? By itself a car doesn't solve a lot of problems. But layer in roads. A highway system to connect cities. A network of gas stations. Manufacturers to make parts. A network of retailers that sell spare parts. A network of car repair shops. Parking lots. Traffic lights. Traffic laws. Traffic cops. Rest stations. Hotels along the highway. Now you have something. The modern car with its ecosystem took many years to develop.

Accessibility needs laws. It "rides" on top of the information superhighway. Has protocols like the accessibility tree. We've actually built a lot of the foundation already. But it won't become ubiquitous until all parts of the ecosystem are fully in place.

While this isn't going to be easy, there are many factors in our favor too:

- Accessibility is the right thing to do
- The under-served market of people with disabilities



represents \$1 trillion dollars in disposable income<sup>1</sup>

- In the era of #MeToo, diversity and inclusion are becoming a requirement for companies
- Diversity and inclusion doesn't exist if you're excluding people with disabilities
- The big tech companies are already spending a fortune in marketing accessibility, including a Super Bowl ad by Microsoft for their adaptive Xbox controller. We can use their budget as a tentpole for grassroots marketing.

Now let's break down our view of what the accessibility "products" are and how to "market" them.

### Accessibility Product 1: Legal Landscape

Looking at this globally, only some countries have laws requiring commercial entities to make their digital products accessible. The United States has the ADA for brick and mortars, and the courts have applied the law to the web and mobile apps. But the law is not as clear as it could be. Unfortunately there are some countries, like Japan, that don't even have a law like the ADA for brick and mortar outlets, leading to some [embarrassing moments](#).

We can't rest until this foundational element is in place globally. We need to lobby and educate lawmakers that it is a civil right that physical and digital properties be accessible.

In the age of social media, imagine the impact of a visual, shareable protest like a "Global Capitol WebCrawl II."

If lawmakers knew that press, protestors and twitter moments were going to hound them every single year, say on Global Accessibility Awareness Day, until that location gets a robust law in place, they might think twice about voting "no" on these policies.

That said, there is a phrase "[nothing about us without us](#)". This idea needs the guidance and consensus of the community. If you like this path, please share your ideas on social media and directly. Hopefully by the next #SOAR report, we will have a clear path forward on what form this protest should take.

<sup>1</sup> <https://www.ruhglobal.com/disability-influences-trillion-dollars-david-perez/>

**Call to Action:** Let's brainstorm on what the digital version of the Capitol Crawl is. We will be watching for call outs on the #GAADPledge hashtag.

### Accessibility Product 2: Educating the Businesses

To imbue accessibility into the culture of the digital ecosystem, businesses need to support it with top-down backing and budget. Where the law is strong, businesses need to be educated that accessibility is the law of the land. Obviously lawsuits speak to the core mission of businesses, because costly fines affect the bottom line. If it costs less to be accessible than to get fined, business will find the budget.

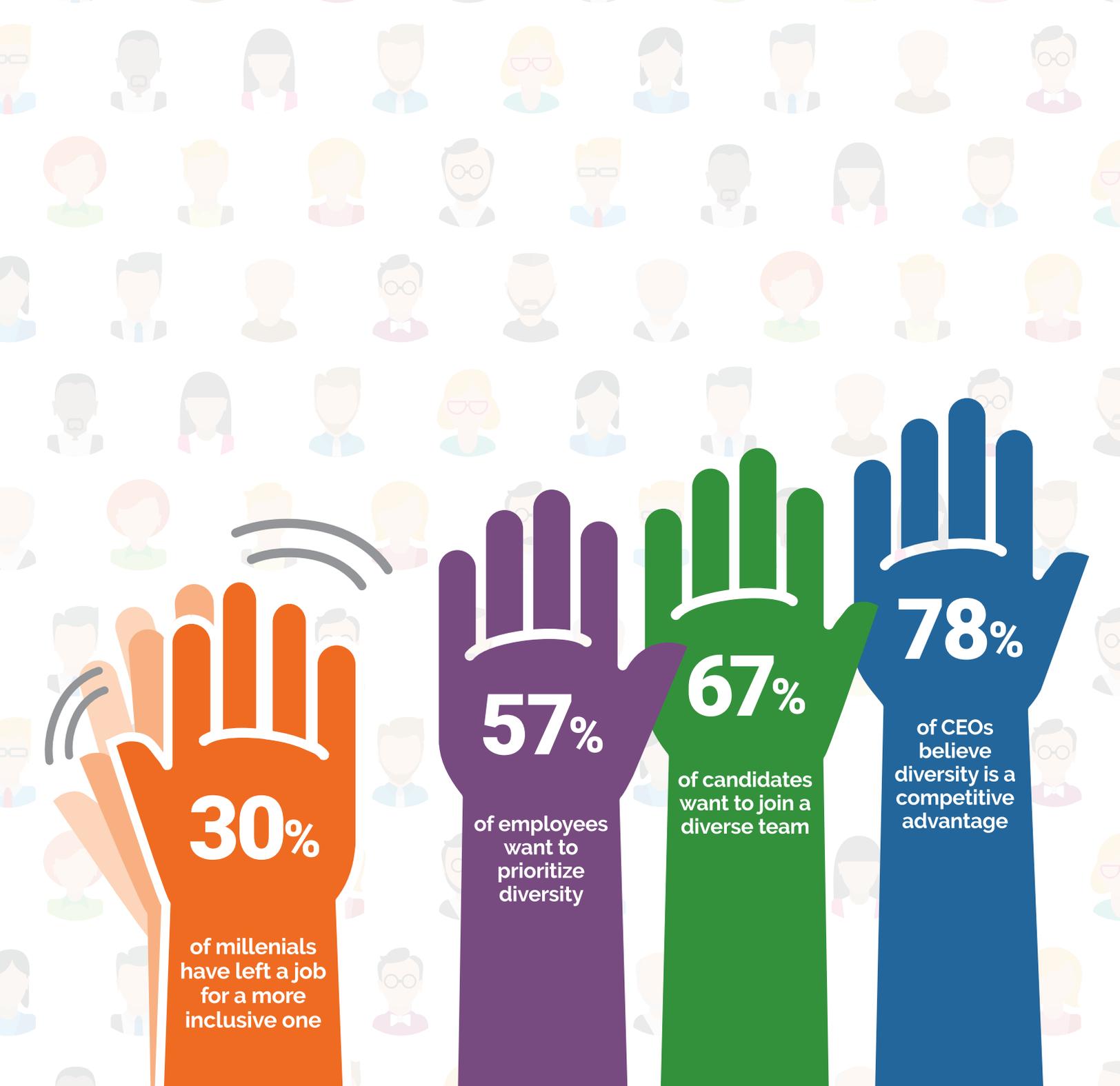
The current spate of lawsuits in the U.S. are not necessarily helpful. These are driven largely by lawyers who seized on a loophole in order to make money. Many are just trying to get settlements without a concern if the entity actually fixes their digital products.

People who go through a lawsuit, from the executives on down to the developers fixing web apps under the gun, are not inspired to care or to build a culture of accessibility. If you are considering a lawsuit, an approach that yields organizations with an accessibility culture is [Structured Negotiation](#), pioneered by lawyer and noted accessibility advocate, Lainey Feingold.

Where the laws aren't robust, the task is harder. Businesses almost always speak only the language of money. Getting them to invest hard dollars for ethical considerations is challenging unless you appeal to the bottom line. Some effective strategies in these countries would be pointing out that:

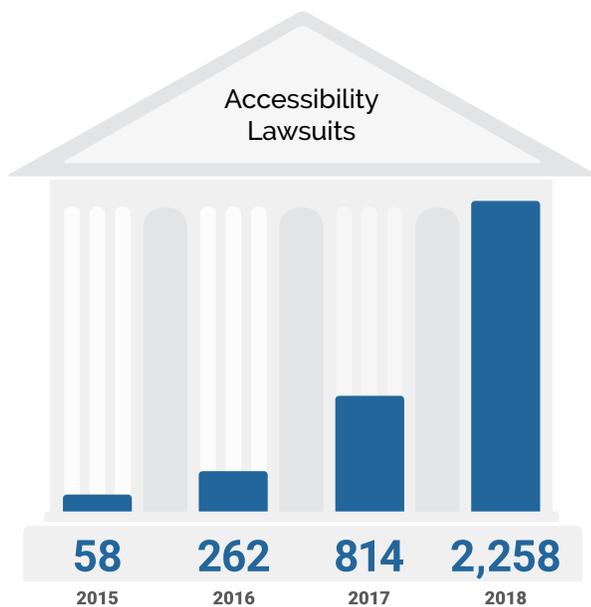
- 1 in 4 people have a disability
- The 1 billion people with disabilities have \$1 trillion in disposable income
- Consumers and employees in 2019 expect companies to strongly support diversity and inclusion
- Products that serve all users turn out to be better products





## Consumers and Employees in 2019 Expect Companies to Strongly Support Diversity and Inclusion<sup>1</sup>.

Image 3: Accessibility Lawsuits between 2015-2018<sup>2</sup>



### Accessibility Product 3: Educating Creators on Perspective

The human workers in the digital ecosystem are currently suffering a crisis of conscience. 5-10 years ago, developers loudly proclaimed that they wanted to change the world. The numbers of people impacted by code are vast. There was a sense that we were building good things for people. Newspapers and a few TV Stations controlled the distribution of content until the web. They were the gatekeepers. The web was going to democratize information and give that power to the people.

As the years rolled by, the largest tech companies became the new gatekeepers. Instead of more outlets, there are now fewer gatekeepers than there were in the days of old media. These gatekeepers are asking us to use [Dark Patterns](#) to get people [addicted to social media and digital products](#) using the human body's dopamine response. Now the humans in the digital ecosystem are just happy when they do no harm.

On the other hand, creators love when their users derive joy from the work they do. If we share the failures and successes of designing products accessibility, we can inspire people to do better. A wonderful story that resonates with developers and designers is [how](#)

<sup>2</sup> Source: Seyfarth Shaw

[accessible ridesharing apps provide independence](#) to people who are visually impaired. They just need to be exposed to those stories more often. In person, in a blog post or on social media. This will shift their perspective and inspire them to want to do better.

### Accessibility Product 4: Technical education

Once a creator has "bought in" on accessibility, they need to be educated on how to achieve it technically. This can cost them time and money. We can make this process simpler by creating and evangelizing [educational resources](#) such as the wonderful [Deque University](#) course.

Further, as [Teach Access](#) points out, accessibility is a great career. Tech companies want their current developers to have more accessibility know how. There are more accessibility jobs than skilled workers to fill them. Digital creators are unaware of these career opportunities. See the Teach Access report in Appendix A for more information.

At Diamond, as part of our hiring process everyone is offered a free Deque University license. It doesn't matter if they code or do admin work. Deque offers volume discounts. It is not expensive for any company to purchase access to Deque University courses for their employees.

Coding schools and bootcamps are still churning out students who are being taught to use [CSS Resets without understanding the implications](#) and being encouraged to use [div's and span's instead of semantic elements](#). We need to meet developers and designers where they are. [Github](#), [Stack Overflow](#), [Hacker News](#), Tech Conferences, [Twitter](#), [Meetup](#) and [Reddit](#).

## PART IV: CALL TO ACTION

### What is the Capitol Crawl of Digital?

When it comes to laws, a physical protest can be effective. For the other "Accessibility Product" sections, we propose a campaign called the [#GAADPledge](#).

### Take the #GAADPledge

Considering that the [#GAAD](#) hashtag has reached 165 Million unique Twitter users last year, let's continue



with what works. As this goes to press, [Siteimprove](#) just took a similar approach with the [#OhMyGAAD 7 Day Challenge](#). Our idea is to pledge to take one action a week for 52 weeks and share it to the [#GAADPledge](#) hashtag.

We propose the following activities which support each of the "Accessibility Products" we have mentioned earlier:

#### Advocacy:

Propose ideas for the digital version of the Capitol Crawl.

#### Education:

Create content, a blog post, video, or other content.

Introduce a University, College or coding bootcamp to [Teach Access](#) resources. There are more available jobs than trained professionals.<sup>3</sup>

**1 trained professional :  
1,000 accessibility jobs**

#### *New Creators:*

If you yourself are a new developer or designer, pick one item from the [Web Content Accessibility Guidelines](#) ("WCAG") and learn it. Then share what you learned.

#### Industry Outreach:

##### *Handling Inaccessible Digital Products:*

When you encounter an inaccessible app, try to find a developer or designer on the team who has a twitter presence. In a friendly way engage them on fixing the problem. Since [fear is a poor motivator](#), and we want to inspire them to become an accessibility advocate themselves, we would suggest [avoiding shame](#), even if the issue is frustrating. While it might seem to be tilting at windmills, if the people responsible for the offending code get a lot of feedback on the errors from multiple sources, in unison, they will wake up to the problem.

##### *Open Source Projects*

Look for the [top open source projects](#) on GitHub, par-

ticularly front end frameworks that have an outsized impact on accessibility. Try out their "Quickstarts". Create a "Hello World" style program. See if it is accessible. If not, and you have the technical expertise to do so, issue a [pull request](#) to fix it. Improve their documentation.

Find an accessibility champion in an open source project and engage with them. Call them out for praise. Or become the accessibility champion yourself.

##### *Conferences and Meetups*

Offer to speak at a developer or designer conference. Let's expand the audience of accessibility savvy developers and designers.

Whether you're a public speaker or not, particularly for front end conferences, or product or startup events, ask the event organizer if they would consider creating a track for accessibility. If they are worried about finding enough speakers, assure them that the community will come out. A simple callout to the [#GAADPledge](#) hashtag will solve that problem. We will see to that.

Go through your local meetups. If you don't see accessibility on the agenda in the last year of events, particularly for front end, product or startup meetups, ask the organizer to add it to the program. Offer to speak yourself.

##### *Coding Schools*

Reach out to a coding school/bootcamp and offer to teach a class on accessibility. Or at least ask them to pay attention to accessibility in their existing classes.

##### *Developers/Designers/Creators*

Offer a creator to demo assistive technology for them. Engineers are fascinated by cool technology. Screen readers, refreshable braille displays and all other assistive tech are flashy shiny toys for engineers. An in-person demo does wonders.

#### Examples:

For each of the action items above, tweet out what you've done and tag it with the [#GAADPledge](#) hashtag and link to our [sign up page](#). For example:

"#GAADPledge Week 1: I will be speaking at AccessU



<https://knowbility.org/programs/accessu/> this week for #GAAD. Join the pledge! [diamond.la/GAADPledge](https://diamond.la/GAADPledge)"

"#GAADPledge Week 1: This gist <https://gist.github.com/gaearon/6668a1f6g86742109c00a581ce704605> was being used by @reactjs in their "Try React" quick-start. The HTML started w/ <h2> so I asked the author to make it accessible. Join the pledge! [diamond.la/GAADPledge](https://diamond.la/GAADPledge)"



# Appendix A

## TEACH ACCESS REPORT

Technology companies dedicated to accessibility have faced the common challenge of preparing designers, engineers, and researchers to think and build inclusively. Similarly, academic programs in design, engineering, and human-computer interfaces are seeking ways to better prepare students to address the needs of diverse global populations.

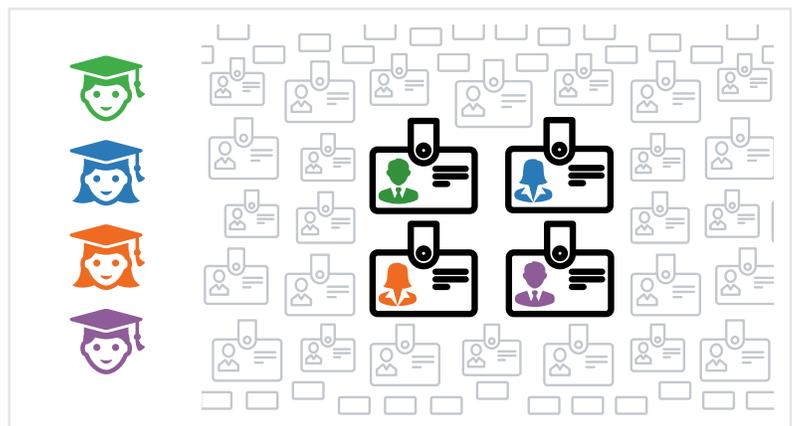
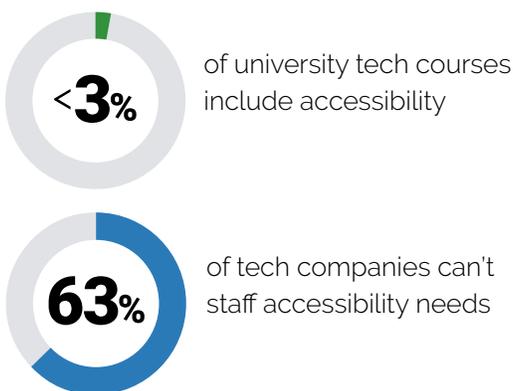
Given this shared challenge, [Teach Access](#) was formed in 2016 as a volunteer-driven collaboration among industry, academia, and advocacy groups to develop models for teaching and training students of technology how to create accessible experiences. Membership continues to grow, and the current list of members can be found on the [Supporters & Contributors](#) page of the Teach Access site.

Teach Access seeks to create widespread awareness about these issues among all future technologists. Today, a small number of tech company employees know a lot about accessible technology; Teach Access is working to ensure that a lot more future hires know at least a little. Broad, horizontal, systemic effects are the goal; not narrow, vertical ones.

The mission of Teach Access is to expand the quality and quantity of undergraduate programs that incorporate the teaching of the fundamentals of accessibility in mainstream courses at scale, across numerous disciplines. In the last year, Teach Access has:

- Worked with major engineering and design accreditation boards to incorporate these principles into their requirements.
- Created a [Study Away Silicon Valley](#) weeklong immersive learning experience for students and faculty.
- Designed an Evidence Packet that can be circulated among higher levels of leadership at universities to support the need to infuse accessibility into curricula.
- Developed [Faculty Curriculum Development Awards](#) to foster innovative ways to incorporate the teaching of accessible technology into existing courses.

These are all long-term, and essential, steps toward bringing desired changes to higher education and industry, which thereby ensure future technologies will be "born accessible".



# Appendix B

## METHODOLOGY USED IN CREATION OF "CREATION OF ALEXA TOP 100 REPORT"

### Technology Used<sup>1</sup>:

VoiceOver with Safari on MacOS Mojave  
NVDA with Firefox on Windows 10

### Testing Criterion:

Can the following processes be accessed and completed using only the keyboard and key combinations made available through the screen reading software:

- Register
- Log In
- Log Out

### Methodology:

Using the technologies listed above, screen reading software was used to access and navigate through 100 websites with the aim of registering as a user on the site, and then being able to log in and out of the site.

On occasions where the links, buttons, or forms did not receive focus at appropriate times, or were for some reason unavailable by regular means of navigation, a search was done for the appropriate element by accessing either the link or form element trees made available by the software.

On occasions where steps in the process were inaccessible, the website was engaged using a mouse to determine where the fail point was and if a workaround method could be discerned that would allow users dependent on screen reading software to complete the process.

### Registration:

The process of registering on most sites could be broken down into the following four phases (not all sites required #4).

- Find link/button to start registration
- Fill out forms
- Submit forms
- Complete a confirmation process

Most of the failures recorded for the registration process were from phase 1 or 2. If the initial option to begin registration was not available to AT<sup>2</sup>, the site was given a failing grade. Additionally, if the page contained any forms requiring a CAPTCHA that had no audio alternative, the site was given a failing grade.

<sup>1</sup> Upon a technical review of the full State of Accessibility Report, we realized too close to press-time that some of the testing we intended to perform was incomplete. We will be updating this report in the coming weeks. Consider these numbers to be the "minimum" number of inaccessible registration/logins. We apologize for any inconvenience.

<sup>2</sup> Assistive technology



If registration could not be completed, no further testing was done in most instances.

**Sign In and Sign Out:**

Upon successful registration, testing of the login and logout processes was conducted. If the requisite elements (forms and/or buttons) could not be accessed via the keyboard, the site was given a failing grade in that category.

Any login/logout processes that seemed illogical (such as triggering a login button or link and then needing to search for form elements/buttons to proceed because focus was not given to the modal) but were still completable, were considered as 'with difficulty' and a description notated.



# Appendix C

## GITHUB OPEN SOURCE PROJECTS

As the WebAIM report showed, open source frameworks, particularly front end frameworks, have an outsized impact on accessibility downstream. If [React](#) or [Wordpress](#) become more accessible by default, up to millions of websites become more accessible automatically. This can even be true of an improvement in documentation.

We have performed an analysis of accessibility bug reports on open source projects in GitHub. It turned out to be more difficult to obtain the data than expected because as soon as you try to filter on two dimensions in GitHub, at least when it comes to accessibility "issues" by technology, the data becomes unreliable. However we were able to gather total number of issues opened by year, as well as how many issues remained open and how many issues were closed.

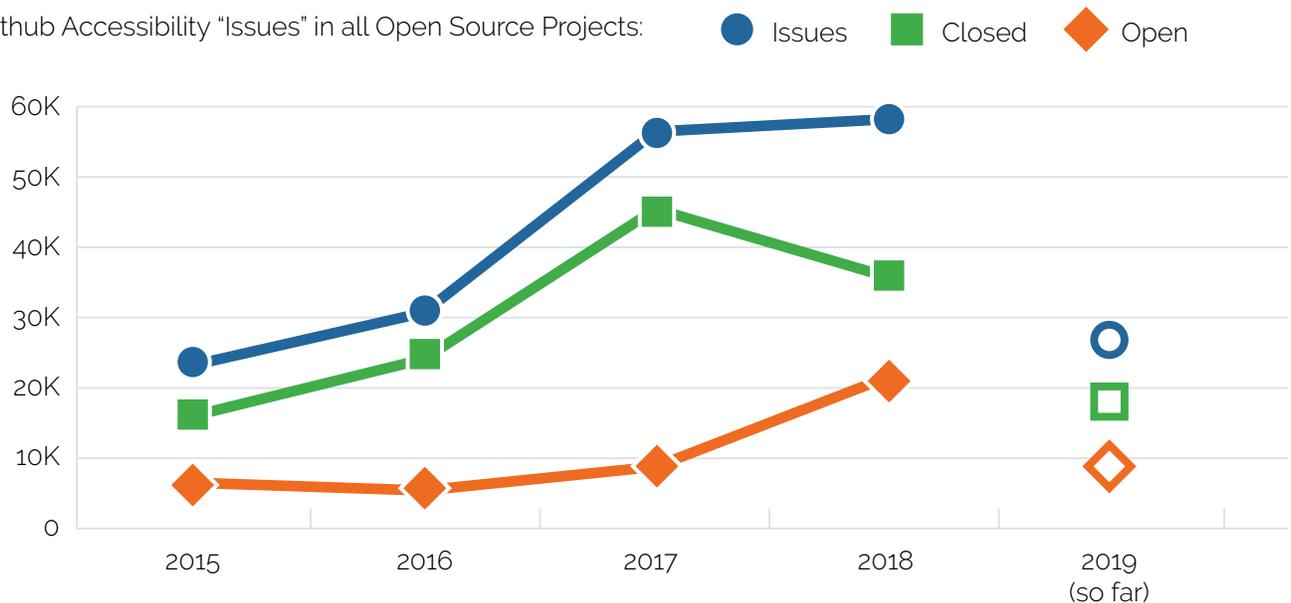
## RESULTS

As of May 1, 2019, there are 201,787 issues with the word "accessibility" in them. 151,068 have been closed. 50,718 are open. We contrasted this with other common issues. Perhaps the best comparison is with the term "injection", which would be used for "SQL injection" or other security related code injections. There are 209,361 issues opened with the word "injection. 138,365 are closed, 70,996 remain open.

The first "accessibility" issue tracked by GitHub was opened on September 23, 2002. Of the total issues, 66,781 are on projects tagged as Java. 37,981 are projects tagged as JavaScript. 14,294 are tagged as HTML projects.

If it were possible to dig deeper into these statistics, we believe there is a gold mine of useful data. However due to the limitations we felt this belongs in an Appendix. Our hope is that someone reading this will find a way to extend this research further. We're happy to collaborate.

Github Accessibility "Issues" in all Open Source Projects:



# Contributors

## ABOUT DIAMOND

### Bridging Innovation and Enterprise

Diamond was founded in 2012 by developers committed to building well-crafted systems with active attention to best practices in process, performance, security and accessibility.

Our team consists of more than 50 people and with most working directly on client projects day-to-day. Diamond maintains a large body of skilled developers and quality assurance engineers who are supported by our Project Management, DevOps, and Operations teams. Our team stays up to date on the latest languages, frameworks and infrastructure options to design innovative solutions suited to each project.

We work closely with our clients to design and build amazing apps that provide value to their customers. We're with you the whole way, from discovery to launch and maintenance. Our years of experience in design, development, quality assurance, and project management in the media and entertainment industry sets us apart from other agencies.

To Learn More Visit:

<https://globalaccessibilityawarenessday.org>

To Contact Us Email:

[a11y@diamond.la](mailto:a11y@diamond.la)

## ABOUT WEBAIM

### We Have Web Accessibility in Mind

WebAIM (Web Accessibility In Mind) has provided comprehensive web accessibility solutions since 1999. These years of experience have made WebAIM one of the leading providers of web accessibility expertise internationally. WebAIM is a non-profit organization based at the [Center for Persons with Disabilities](#) at [Utah State University](#).

## ABOUT TEACH ACCESS

### An Industry, Academic, and Advocacy Collaboration

[Teach Access](#) is a unique collaboration between academia, industry, and advocates for people with disabilities, formed to address the urgent need to enhance the skills of higher education students as they learn to design and develop mobile and desktop technologies. The goal is to ensure that future technologies are "born accessible," by proliferating fundamental skills and concepts of accessible technology design and development in mainstream design, computer science, and other related disciplines.

The project was founded in 2015 by companies including Adobe, Facebook, Google, HP, Intuit, LinkedIn, Microsoft, The Paciello Group, and Verizon Media (originally Yahoo), and universities including California State University Northridge, Michigan State University, Olin College of Engineering, Rochester Institute of Technology, Stanford University, University of Colorado, University of Michigan, and University of Washington. Tech sector membership has expanded to include Apple, Oracle, Wal-Mart, the Consumer Technology Association Foundation, and additional universities including Utah State University, Cornell University, University of Maryland, Marshall University, Indiana University Purdue University Indianapolis and more.



# #GAADPLEDGE

LET'S TAKE ONE ACTION A WEEK TO SPREAD ACCESSIBILITY AWARENESS

To Learn More Visit:

[globalaccessibilityawarenessday.org](http://globalaccessibilityawarenessday.org)

[diamond.la/SOAR](http://diamond.la/SOAR)

[diamond.la/GAADPledge](http://diamond.la/GAADPledge)

To Contact Us Email:

[a11y@diamond.la](mailto:a11y@diamond.la)