

Agile Accessibility in Development: The Ultimate Playbook



Contents	
Introduction	3
Managing a shift to agile	4
Use cases for agile accessibility	5
Remediating a live digital experience	6
Adding new features or capabilities to an existing digital experience	14
<u>Creating a new digital experience</u>	
Applying agile accessibility to different development methodologies	24
Applying agile accessibility to agile scrum	
Applying agile accessibility to waterfall development	
Educating your team	31
Additional resources	33
About Level Access	34

Introduction

Development teams are often held responsible for the accessibility of digital experiences. After all, they write the code that makes experiences accessible—or not. When accessibility issues arise, developers are on the front lines to fix them. And this reactive remediation work can be time-consuming, diverting valuable hours away from innovation.

Thankfully, accessibility doesn't have to drain teams' resources. By taking an <u>agile approach to accessibility</u>—that is, integrating accessibility throughout the software development life cycle (SDLC), and continually iterating on progress-development teams can build and maintain inclusive digital experiences efficiently and effectively.

This guide provides practical advice to help development leaders and practitioners adopt agile accessibility, streamlining remediation and accelerating the creation of new, inclusive products and features.

"Only when accessibility is incorporated into existing, typically agile, development processes is success sustainable. To achieve lasting results, materially reduce cost, and effectively manage risk, organizations must adopt an agile approach to accessibility."



Tim Springer, CEO and Founder, Level Access

Managing a shift to agile

Agile accessibility may be a departure from your organization's current approach to accessibility in development. But rather than overhauling existing processes entirely, development leaders can begin by implementing agile accessibility within a single team, and then scaling it across the broader development function. Alternatively, leaders can start by weaving accessibility testing into one operational workflow—for example, the continuous integration / continuous development (CI/CD) pipeline. Every small step toward agility will meaningfully improve the accessibility of your digital experiences, and their impact will compound as your program scales.

Use cases for agile accessibility

Broadly speaking, developers need to solve for accessibility in three types of scenarios:

- ► Remediating live digital experiences
- Adding new features or capabilities to an existing experience
- Creating new experiences that are built to be accessible by default

We'll explore how to apply agile accessibility to each scenario.

Remediating a live digital experience

If your team has been tasked with fixing accessibility barriers in a digital experience that's already live, you might feel overwhelmed. When they first commit to digital accessibility, many organizations request an audit of their entire digital property, which yields hundreds—if not thousands—of issues for remediation. Developers then believe they need to fix every identified issue, with little direction on what to tackle first.

Here's the good news: you don't need to eliminate every issue immediately. The power of agile accessibility is in focusing your digital accessibility efforts on the highest-impact areas for improvement first. Instead of slogging through a never-ending laundry list of audit results, use this process to streamline your remediation work:





Focus on key user flows



Start by <u>assessing the most critical user flows</u> in your experience. Work with product or marketing managers to understand the value that user flows provide to your operations and key metrics, like revenue, monthly active users (MAU), or lead generation. Focusing on critical user flows delivers fast results, since testing is constrained to a limited but highly valuable set of interactions. Additionally, this focus helps you maximize your impact, since you're prioritizing experiences that have the greatest importance to users and to your organization. For more information about key user flows, access our complete guide: <u>The New Accessibility Audit: A User-First Approach</u>.

What is a user flow?

A user flow is a set of steps that a user takes in a digital experience to accomplish a goal. It's typically 10 steps or fewer. Examples of high-priority user flows include the checkout process on an e-commerce site, or the sign-up process for an app. If you're unsure which user flows are your most critical, product managers or marketing stakeholders might be able to help.

Organizations generally prioritize user flows that are:

- Most visited, like home and product pages
- On the critical path to user success, like sign-up or log-in screens for apps or services and add-to-cart or check-out sequences for commerce
- Connected to a user's perception of a brand or experience, such as product return sequences and career pages on a website



Complete evaluations

Complete an accessibility evaluation of your most important user flows. Evaluations typically involve automated scanning, manual testing by accessibility experts, and use case testing by an assistive technology user.

Automated scanning: Automated scanning and testing tools are an invaluable part of the accessibility process for developers. These tools use algorithms and heuristics to identify accessibility barriers by validating code against the <u>Web Content Accessibility Guidelines (WCAG)</u>. Free automated scanning tools for websites are widely available, and most major accessibility vendors offer tools for scanning both websites and mobile apps. Automated scanning can typically identify 50-80% of accessibility issues in a digital experience.

Manual evaluation:

In manual evaluations, digital accessibility experts review user flows with assistive technologies and custom testing tools to verify that all WCAG success criteria are met. Manual evaluations are a critical complement to automatic scanning as they cover the types of accessibility issues that automated tools can't.

Use case testing: In use case testing, an assistive technology user, typically a native screen-reader user, will attempt to complete a user flow as a user. In other words, instead of testing against the standard, the tester aims to successfully check out, create an account, or finish another core task. Use case testing will provide your team with qualitative feedback about how easy or challenging each step in a user flow is to accomplish. This information helps teams ensure that all fixes implemented work together to support a seamless user experience.



Remediate issues in order of priority

Align with product managers or other business stakeholders on an order for resolving accessibility issues in key user flows. Most organizations prioritize fixes based on their severity and complexity, while accounting for resources and planning. You'll likely want to immediately address critical, low-complexity items as these can make a quick but significant impact.

While software tools like the Level Access Platform can help teams quickly prioritize findings for remediation, it's also possible to perform this work manually. One approach is to sort findings from tests of key user flows by severity and complexity in a spreadsheet. To maximize the impact of remediation efforts, product teams can start by grouping findings by severity, with critical issues first, and informational (info) findings last. Then, within each severity grouping, sort by complexity, with low-complexity findings first and high-complexity findings last.



Issue severity

Issue severity refers to the extent to which an accessibility issue negatively impacts a user. It's generally indicated with one of four classifications:

- Critical: A finding that blocks a user with a disability from accessing content or completing a task
- **High:** A finding that makes it difficult for a user with a disability to access content or complete a task (for example, they need to take several more steps than users without disabilities, or find a workaround)
- Low: A finding that introduces some difficulty for a user with a disability, or does not introduce difficulty for users but is in violation of WCAG standards
- Informational (info): A finding that does not violate WCAG standards, but does not align with accessibility best practices

Issue complexity

Issue complexity, also called functional impact, refers to how technically complex an issue is, and how much time and effort will be required to fix it. For example, accessibility issues with components, which might require design changes, are more challenging to fix than instances of missing alternative (alt) text. In general, issue complexity is determined based on three factors:

- > The methods required to fix the issue (such as updates to design or code)
- > The level of technical skill required to fix the issue
- > The amount of testing needed to validate that a fix has been implemented successfully



Fix and validate issues (with support)

When it comes to fixing issues, developers new to digital accessibility may not have enough expertise to perform remediation alone. That's why many organizations enlist a third-party expert to provide technical guidance and support and invest in <u>role-specific accessibility training</u> to build teams' knowledge and skills.

Tooling also plays an instrumental role in effective remediation. For example, the Level Access Platform provides actionable details on each test finding, including the specific lines of code developers need to change. Additionally, some accessibility software platforms, including Level Access, integrate with project management tools like Jira and Azure DevOps, eliminating the need for manually exporting and importing spreadsheets of findings between two sources of truth.

Once a fix is in place, it's crucial to validate that the accessibility issue has been resolved by retesting to ensure that it aligns with WCAG standards. At Level Access, validating fixes is included in our user flow testing services, and our browser extension can be used for individual spot-checks of key user journeys.



Implement monitoring



5

If your experience is static and will not be updated, the remediation process can come to an end when accessibility barriers are resolved. However, most digital experiences are updated on an ongoing basis, meaning that new accessibility barriers can be introduced, and old ones can re-emerge.

Monitoring software will allow your organization to track the volume and severity of accessibility issues across your digital experience over time, quickly identifying barriers to fix before they impact a significant number of users. When evaluating solution providers, search for tools that unify monitoring results with testing results for comprehensive coverage, and that simplify prioritization by providing information like issue severity.

Monitoring in the Level Access Platform

The Level Access Platform provides always-on accessibility monitoring and analytics for every page of a digital experience in one unified dashboard, with the option to sort, flag, and prioritize important pages (such as pages in key user flows). Reporting dashboards allow you to track remediation progress over time, and you can set up alerts to stay on top of new issues.





Push issues and fixes upstream

The power of agile accessibility is addressing digital accessibility at the point of maximum leverage. When remediating existing digital experiences, you're working with the least leverage, addressing accessibility issues in production when time and resources are most constrained. However, most accessibility issues can be caught in development and quality assurance (QA), or, even better, prevented in the design-to-development pipeline.

So, as your team is remediating existing issues, it's crucial to provide insight and education to teams involved in initial phases of experience creation to help push the identification and management of digital accessibility earlier in the process whenever possible.

One benefit of structuring your work around user flows is that the team responsible for making a specific user flow (such as a check-out process) accessible is often the same team that performs standard maintenance on it. If so, that team will be learning about accessibility and issue prevention as they remediate the experience. If that's not the case in your organization, provide feedback to other developers, as well as product managers, designers, and testers, on the issues discovered, the remediation that has taken place, and recommendations for correction in future iterations. This feedback could include:

- Alerting user experience (UX) and user interface (UI) designers about accessibility issues that originate in design
- Orienting other developers to the most common types of critical issues, so they can check for them in future builds
- Encouraging QA professionals to implement regression testing to catch identified issues

The following sections of this guide provide more detail on how to proactively embed accessibility into your build process and collaborate with other teams for impactful, sustainable results.

Adding new features or capabilities to an existing digital experience

When expanding a live digital experience with new features and capabilities, you're working within an existing design framework. And if this framework wasn't created with accessibility in mind, you may feel like you're building on a faulty foundation. But, developers can still ensure these updates are barrier-free by taking the following actions.

Collaborate with UX and UI teams on solutions to critical design issues

Don't hesitate to bring critical design issues to the attention of UX and UI teams. Because accessibility is often assumed to be the sole responsibility of developers, designers may be unaware that they're contributing to problems that are limiting your product or experience's success. Collaborating with UX and UI professionals on solutions to these issues will be more effective than simply asking them to hand off revised designs. Accessibility issues that need to be flagged to designers might include:

- Insufficient color contrast between text and background elements, and between other crucial elements on a page. While developers can adjust the color of these elements, design input is needed to ensure that color choices align with brand guidelines and / or UI best practices.
- Video and audio content without the full set of controls needed to interact with it. Controls for stopping, pausing, and playing content, enabling closed captioning, seeking, entering full-screen mode, and changing playback speed not only provide convenience for users, but may also be required for accessibility. The controls themselves need to be accessible to users of assistive technology.
- Form accessibility problems stemming from the structure of form design. These may include the placement of error messages or the location and visibility of form field labels.
- Problems with keyboard and screen reader navigability. Designers can help address issues like keyboard traps (situations in which keyboard users become "trapped" in a cyclical sequence of actions and are unable to progress) or missing skip links (links that allow screen reader users to skip past content that may be redundant, like the text in a menu bar).

Agile Accessibility in Development: The Ultimate Playbook

"The key to successfully delivering accessible solutions is to reduce the separation between roles and foster a culture of communication between teams. Work to increase the touch points between designers and developers. Not only will each be able to share their opinions and collaborate on solutions, but a regular cadence of touch points also keeps everyone in the loop as to what they will be expected to work on in the coming weeks and months, preparing them to execute efficiently."



Karen Hawkins, Principal of Accessible Design, Level Access

Secure buy-in from product managers for larger-scale UX changes

Developers may not have the authority to hold up a release because of accessibility issues with existing designs. In this case, they should clearly articulate the costs and benefits of addressing these problems to product managers. For example, if the template a developer is working with is inaccessible, they could estimate exactly how much time and effort it will take to fix—and compare these figures with the estimated time and effort that shifting to an accessible template will save in the future.

Accessibility debt

You're probably familiar with the concept of technical debtthe anticipated cost of future rework needed when teams prioritize quick fixes over more sustainable solutions. When teams create inaccessible digital experiences, they accrue accessibility debt-technical debt specific to the rework needed to fix accessibility issues. Accessibility debt may be a useful concept to reference when making the case for larger-scale UX changes to product managers.

Embed accessibility checks in your build process

By checking for accessibility throughout your build process, you can ensure your team's code is free of accessibility issues. Whether or not you're able to resolve pre-existing design problems, this practice will help you avoid introducing any new barriers in development. It's key to escaping the all-too-common <u>break/fix cycle</u> in which developers finish remediating an existing digital property only to find that new issues have emerged with the latest update.

Accessibility checks during the "build" phase should include the following tools and processes.

SDKs for assistive technology

By incorporating accessibility-specific software development kits (SDKs) into their integrated development environment (IDE), developers can easily catch—and fix—errors that will impact their code's compatibility with screen readers and other forms of assistive technology. An accessibility SDK should understand Accessible Rich Internet Applications (ARIA), the Worldwide Web Consortium's (W3C) technical specifications for creating digital interfaces that are accessible to users of assistive technology.

Browser extensions to check accessibility on locally deployed projects

Consider implementing an accessibility-specific browser extension that developers can use to check coded elements in preproduction environments. Like accessibility SDKs, browser extensions allow individual developers to take accountability for accessibility by working to eliminate accessibility barriers as much as possible before an experience is live. This proactive approach is especially important for interactive and dynamic user flows, such as e-commerce checkouts, online booking forms, and surveys.

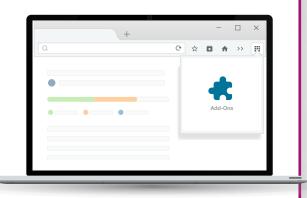
Beyond helping individual developers catch basic accessibility issues (such as areas where alternative text may be missing for images, where heading structures are being used improperly, or where insufficient color contrast is being applied), the right browser extension will allow a developer to:

- Quickly test specific user flows
- Bundle findings into a single data set

Sync those findings to a digital accessibility platform that provides a shared system of record for their team

The Level Access browser extension

Our browser extension allows developers to rapidly test the accessibility of code in any environment—including pre-production, staging, and live—and conduct guided manual tests of key user flows. Teams can access and prioritize findings from testing performed through the Level Access browser extension, along with other testing and monitoring findings, in the Level Access Platform.



Accessibility-inclusive automated and functional testing

If your organization is already running automated unit testing on code before it's merged into the branch, and available for quality assurance (QA) to test, you can easily integrate accessibility code libraries into your unit testing framework. This ensures that developed code across an entire team is meeting set accessibility standards in a consistent way, rather than solely relying on developers' individual spot checks of their own work.

While developers can count on <u>automated accessibility testing</u> to identify the most common accessibility bugs, these tools may not understand all the intricacies of your specific product or be able to point out how it should be made more accessible. Product teams can bridge this gap by writing and running their own functional tests for accessibility, to ensure that all users can perform important tasks in a specific digital experience. Functional testing may involve developers or QA engineers or both, depending on how your team workflow is structured.



Accessibility code libraries

Many free code libraries for accessibility testing are available on the internet. These libraries are designed to easily integrate into existing testing frameworks, and automatically scan the user interface (UI) of a digital experience for a generic set of accessibility issues, like missing alt text, improper heading structure, and missing ARIA attributes. Specific code libraries are available for web experiences, mobile experiences, and software applications, and for different testing frameworks.

Functional accessibility testing

Functional accessibility testing is the practice of checking your code against specific functional accessibility requirements for your product. For example, developers for an e-commerce website might write and run functional tests to ensure that when the check-out form is navigated via keyboard commands, the appropriate focus indicators appear for different form fields. Because accessibility code libraries only catch a limited number of common accessibility issues, functional testing is critical to ensuring the usability of your key user flows. Importantly, functional accessibility testing is not a replacement for use case testing by native users of assistive technologies, which can be performed after functional testing to ensure that your digital experience meets non-functional accessibility requirements.

Creating a new digital experience

When creating a new product, development teams have the opportunity to ensure that accessibility is woven into the experience from day one, eliminating the need for reactive, time-consuming remediation down the road. Proactively tackling accessibility involves working with product managers and designers to address accessibility well before the "build" phase. In the following section, we'll outline three best practices for addressing accessibility during the creation of new digital experiences.

"Our engineers now focus on best practices in the early stages, with accessibility being a centerpiece. We now have this mindset to think about building better products that are not just functional, but that also deliver a pleasant experience for all users."

Che-Bin Liu, Director of Software Engineering, Socure



The benefits of considering accessibility from the beginning

- Reduced accessibility debt
- Greater alignment between product, design, and development teams
- Fewer accessibility issues in live digital experiences
- More predictability in the product roadmap

Faster development cycles

Embed accessibility into the requirements for a new digital experience

Ensure that ease of use for people with disabilities is embedded in the requirements for the experience. Beyond accounting for diverse user needs in the functional requirements for specific features, make accessibility a non-functional requirement for your product. That means committing not only to building something that's usable for people with disabilities, but also to providing equitable experiences for all users.

Development leaders should assign a senior engineer or technical architect to work directly with product managers and designers as they are writing design requirements to confirm that the appropriate level of detail is provided for accessibility considerations in design. These considerations are the same accessible design best practices that you should hold designers accountable for when expanding an existing digital experience—such as keyboard interactions, compatibility with assistive technologies, and form accessibility. But by ensuring these are included in the requirements for an experience from day one, you can avoid having to make the case for time-consuming rework to "final" designs.

Actively collaborate with UX and UI teams during design

During design, it's important that developers maintain an open line of communication with UX and UI teams. Sharing basic technical information, like what UI framework your team is working with, will help designers understand exactly what is feasible from an accessibility standpoint.

Additionally, developers should actively participate in design reviews or demos and take the initiative to explore solutions for designs that cannot be built accessibly with available resources. For example, if making an interactive chart compatible with assistive technologies requires a level of technical accessibility expertise that your team can't support, encourage designers to provide an alternative means of displaying data that can be more easily made accessible to all users.

Utilize accessibility checks while building

When it's time to build, developers can utilize the same accessibility checks that they would when creating a new feature or capability in an existing experience: SDKs, browser extensions, and embedding accessibility into automated and functional testing.

Expert support for designers

Chances are, not every designer at your organization is well-versed in accessibility best practices. For this reason, it's wise to enlist a third-party accessibility expert to review new designs for potential accessibility barriers before they're handed off to developers. With Level Access's Design Evaluations offering, designers can submit their work for review by experienced accessible design professionals and receive detailed feedback directly in the Level Access Platform.

Applying agile accessibility to different development methodologies

Whether you're fixing a live experience or building a new product or feature, it's clear that taking an agile approach to accessibility will save your team time and money. Now that you understand the benefits of this framework, and how to apply it in different circumstances, you might be wondering how it fits into your existing development methodology.

Agile accessibility draws on principles of agile methodologies—but it's useful for all teams, regardless of how their processes are structured. In this section, we'll cover how development teams can incorporate agile accessibility into two of the most popular methodologies: agile scrum and waterfall.

Applying agile accessibility to agile scrum

Agile scrum teams are used to working collaboratively and iteratively, making them well-equipped to adopt an agile approach to accessibility. And by adhering to the following best practices, scrum teams can make addressing accessibility efficient and intuitive, whether they're building new features and experiences or remediating live digital properties.

Building new features and experiences in agile scrum

When creating new digital experiences, or adding features to existing experiences, developers should adhere to the following process to ensure accessibility:

- Work with product teams to ensure that the Definition of Done (DoD) for individual user stories includes keyboard accessibility and compatibility with assistive technologies and confirm that accessibility considerations are written into test cases.
- Proactively communicate with UX and UI teams to ensure that designs meet accessibility requirements and are technically feasible.

- 3 Take advantage of tooling to incorporate accessibility checks (detailed in the previous section) into the "build" phase.
- Scale accessibility across your development processes by advocating for including accessibility requirements in the DoD for all new products and features. You'll likely need to align with product and QA leaders to accomplish this, but it's the simplest, most impactful way to ensure that no new digital experiences go live without meeting accessibility standards.

Accessibility retros

Finding alignment between design and development with regard to accessibility can be challenging. Developers are frequently required to alter designs and structures to accommodate accessibility, which can cause friction with designers, who wonder why their designs aren't being implemented correctly. Likewise, developers can become frustrated by receiving designs that aren't accessible, even if the developer has remediated the live issues before. Introducing accessibility-specific retrospective meetings (retros), or adding accessibility into your existing retro process, can help close the feedback loop of remediation-todesign, reducing friction and decreasing the need to adjust designs in development.

Agile accessibility and CI/CD

Whether or not your organization uses CI/CD will inform how, and when, you test for accessibility during development. If your organization has adopted CI/CD, developers can use SDKs, testing APIs, and plug-ins to incorporate accessibility testing into the unit and integration testing that they're already conducting on code in the CI/CD pipeline.

Importantly, though, this testing shouldn't be the first time that scrum teams bring accessibility into the SDLC. If developers aren't proactively checking their own code with SDKs and browser extensions, simply integrating testing into the CI/CD pipeline can create a bottleneck.

If your organization doesn't use CI/CD, development teams can embed accessibility testing into unit and integration testing in any environment (for example, locally, in a scripting framework, or in staging).

Approaching remediation in agile scrum

One key advantage of agile accessibility is that because remediation starts with key user flows, teams don't have to tackle every bug at once. And addressing large-scale projects in manageable, bite-sized pieces should come naturally to agile scrum teams. Scrum teams can integrate remediation into their day-to-day by prioritizing critical, low-complexity issues in upcoming sprints, while adding less severe and more complex items to the backlog.

Applying agile accessibility to waterfall development

Relative to scrum and other agile methodologies, the waterfall methodology often lends itself to siloed work. To embrace agile accessibility, developers at organizations that use a waterfall development model need to be especially proactive about engaging with other product teams throughout the SDLC. Even if your team hasn't previously been involved in early milestones like requirements and design, developers' active participation during these phases is key to embedding accessibility into a project from its inception—and doing so in a feasible way.

Building new features and experiences in waterfall development

For teams creating new features and experiences using the waterfall methodology, taking an agile approach means incorporating accessibility into the criteria for completing every milestone. While developers may not be positioned to accomplish this individually, they can collaborate with the teams responsible for each milestone to ensure that accessibility is consistently prioritized. This process mirrors that applied in an agile methodology—the difference is in the scale and frequency of the work performed at each stage. Key moments to address accessibility during waterfall development include:

Requirements:

When requirements for a new project are being set, developers should work with program managers or product owners to confirm that accessibility considerations are outlined in the scope of the project.

Design:

In design, developers can engage with project managers and designers to validate that designs meet previously determined accessibility requirements and can be built accessibly with available technical resources.

> Implementation and testing: During implementation, checking for accessibility issues early and often is key to an efficient build. Automated and functional accessibility testing should be conducted when projects are in a staging environment, but developers can significantly cut down the number of issues caught in testing by using SDKs and browser extensions to proactively identify issues with their own code.

Approaching remediation in waterfall development

Even if your organization uses a waterfall methodology for developing new products and features, you can save time and resources by approaching remediation in an agile, iterative manner, rather than treating it as a one-and-done project. To maximize impact, focus on key user flows, and strategically prioritize fixes based on severity and complexity.

Education is key to effective collaboration

Development teams are in a strong position to lead the shift to agile accessibility at their organizations. But development leaders and practitioners can't manage a sustainable digital accessibility practice alone. Collaboration is key to agile accessibility, and everyone on a product team has a part to play in creating and maintaining inclusive digital experiences.

To work together effectively, it's important for developers, designers, product managers, and QA professionals to all understand the benefits of accessibility, and how to embed it in their day-to-day processes. <u>Training and education</u> are critical to this understanding—so development leaders should invest in role-specific training for team members and encourage other managers within the product organization to do the same.



"Level Access helps us proactively address accessibility, beginning in the design concept phase and continuing through engineering, QA, and ongoing monitoring. It's been a very valuable partnership!"

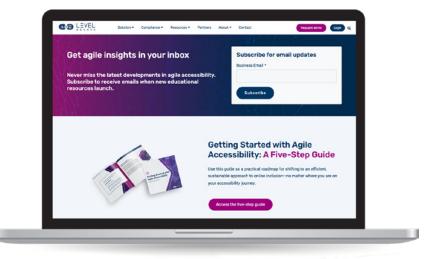
Robertson Odom, Principal Software Engineer, CarMax





Additional resources for agile accessibility

- Getting Started with Agile Accessibility: A Five-Step Guide
- Using Agile Principles to Accelerate Digital Accessibility: Agile Accessibility Explained
- Why the Break/Fix Approach to Accessibility is Broken
- The New Accessibility Audit: A User-First Approach







Streamline accessibility in development with integrated tooling and expert support

As the market-leading provider of digital accessibility solutions, Level Access equips development teams with the technology and expertise required to embed accessibility throughout the SDLC. Our robust suite of <u>developer tools</u>, which includes CI/CD plugins and a browser extension, enables teams to test the accessibility of code in any environment. Integrations with project management platforms like Jira and Azure DevOps make it easy to weave accessibility into existing workflows. And with access to expert-managed services like role-specific training, technical guidance, and support with issue prioritization, developers have all the resources they need to approach digital accessibility efficiently and sustainably.

Engage with our team today

www.levelaccess.com

info@levelaccess.com



