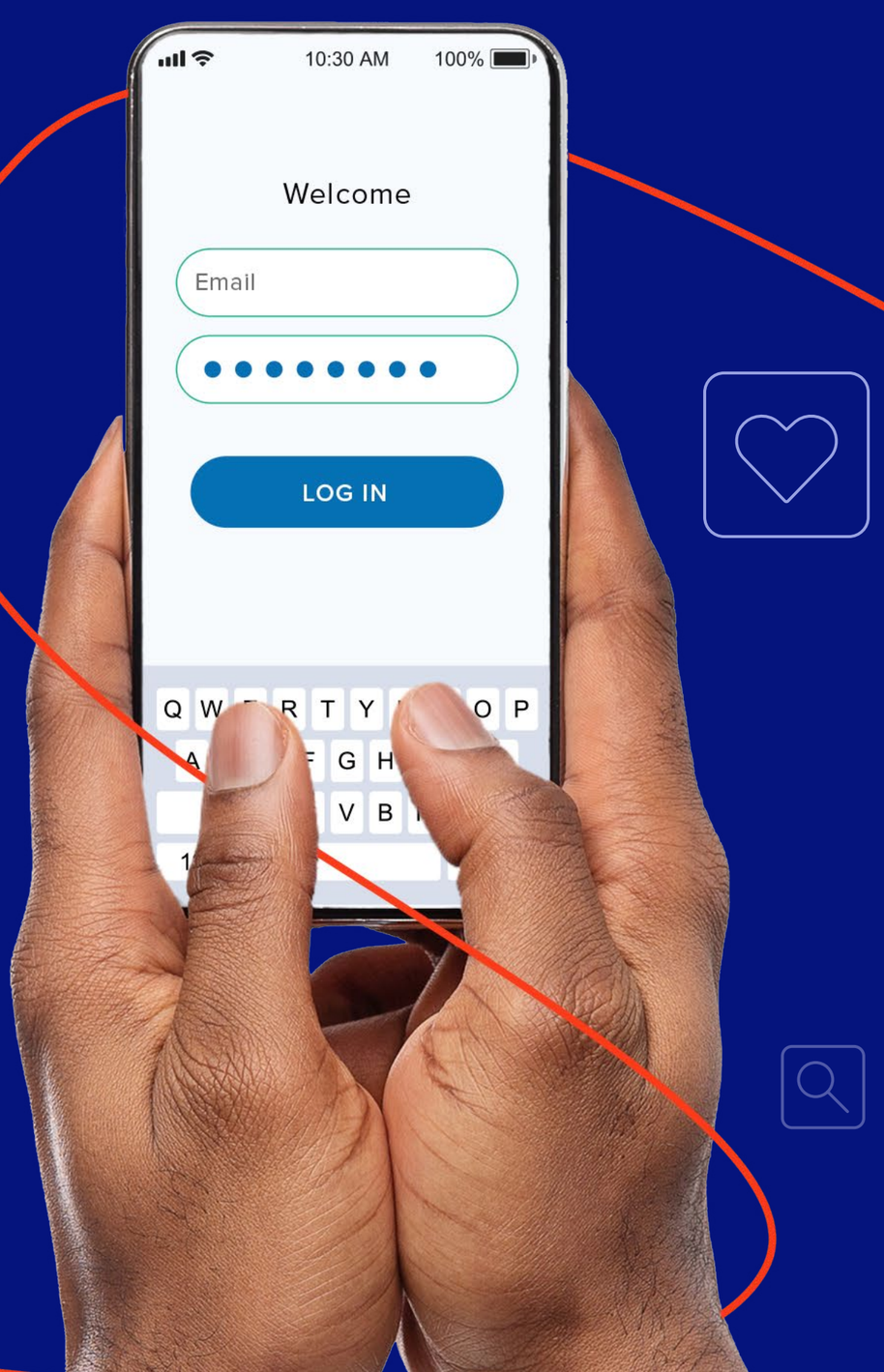
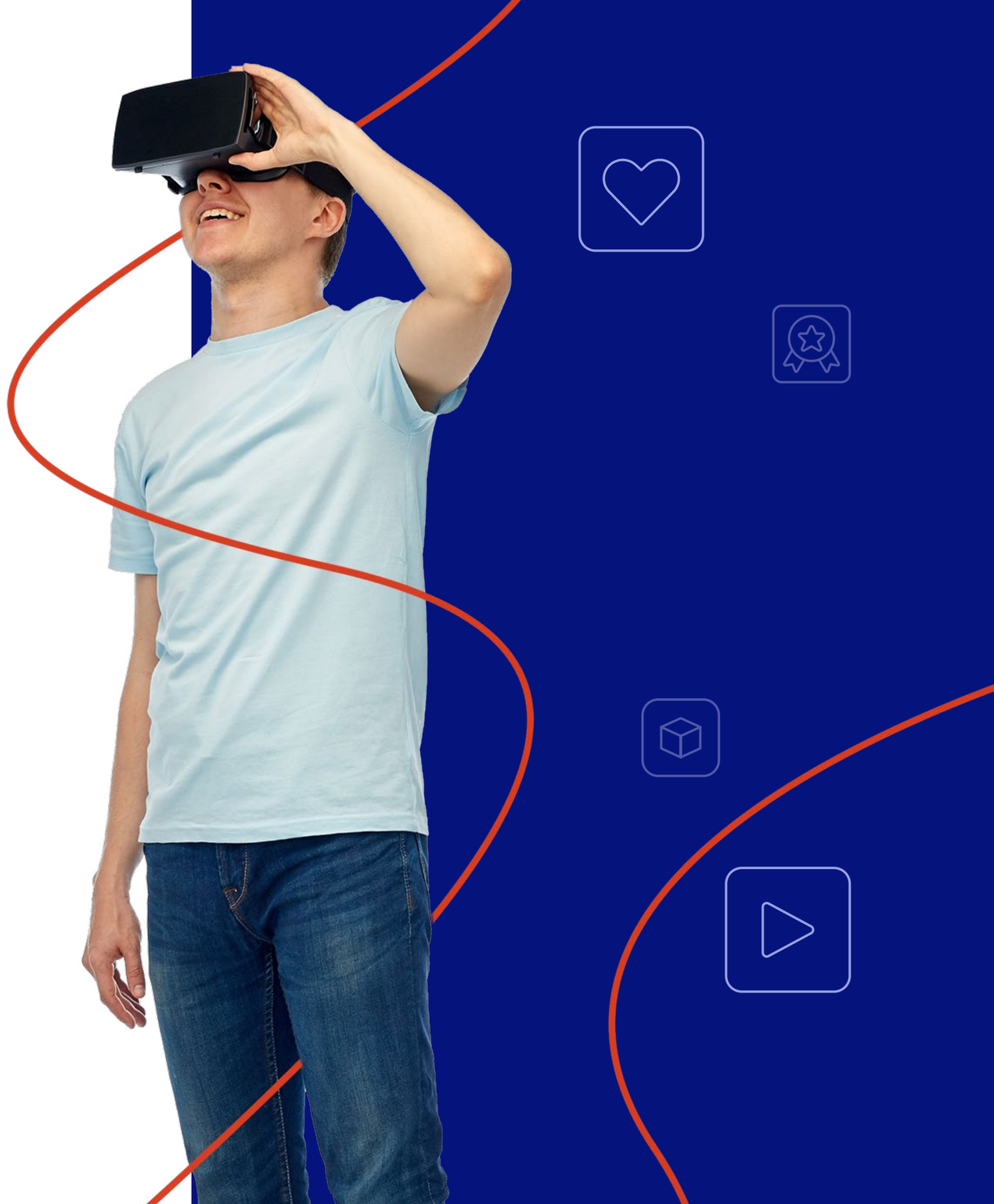
APPLAUSE

State of Digital Quality

2022



Contents



Good enough isn't good enough if you want to win in the digital world.

Brands that consistently lead the market, earn rave reviews and capture customers' hearts — and wallets — relentlessly pursue excellence. But what does that mean? The best digital experiences deliver:

- an intuitive interface
- seamless experiences across devices and channels
- features and functionality that users value

Who decides whether your product really delivers? It's not your brand — it's the end users. Users spent over $133 billion USD with mobile apps in 2021 — a 20% increase over 2020.[1] It's no secret that better app ratings drive more downloads and more revenue. But merely getting someone to download your app or buy your product isn't enough. We live in a world where 35.5% of users abandon an app after a single use, 30-day app retention rates across all verticals average less than 10%, and 63% of consumers leave a brand due to poor customer experience.[2,3,4]

Maintaining strong customer relationships and engagement requires an unwavering commitment to quality… which may seem like an insurmountable task as new platforms, devices, payment methods and technologies explode onto the market. Brands need to test experiences across complex new dimensions, including the metaverse, as cryptocurrency, artificial intelligence (AI), virtual and augmented reality become more entrenched in the digital realm.

Brands that see quality as an opportunity for constant evolution, rather than a box to check with each release, win consistently. Organizations that invest in innovation, intuitive user experiences and seamless customer journeys capture serious returns in a matter of months. These companies report increased market share, faster time to market, better customer retention and satisfaction, higher average sales and a host of other benefits that tie back to revenue.

Lofty customer expectations and fierce competition across all industries mean companies can't afford even the smallest mistakes — customers simply won't tolerate anything less than ideal. To succeed, brands must examine user experiences holistically. Digital strategies need to encompass the big picture AND recognize that even the smallest details matter. Bugs eat away at the foundation of product excellence. Every error, crash and flawed user experience diminishes customer delight, eventually eroding your business' bottom line. So where do you start the journey to better digital quality?

[1] "Users spend $133 billion with apps in 2021; App Store has higher revenue than Google Play." Filipe Esposito, 9to5Mac, December 7, 2021.
[2] "3 App Retention Strategies: The Ultimate Guide to App User Retention." Criteo. 2020.
[3] "Mobile App Trends 2021: A global benchmark of app performance." Adjust. 2021.
[4] "86 Percent of Consumers Will Leave a Brand They Trusted After Only Two Poor Customer Experiences." Business Wire, February 2, 2022.

Applause, the worldwide leader in enabling digital quality, analyzed a representative sample of our testing data to identify the most common flaws in digital experiences and map out how companies can prevent them from making their way into production. We looked at experiences across more than 13,000 individual mobile devices, 1,000 unique desktops and 500 OS versions to evaluate endless combinations of networks, browsers, payment instruments and integrations worldwide. Over the last 15 years, Applause has had a front-row seat to the seismic shifts in digital quality. Working with companies across industries, regions, languages, application types and technological maturity levels, along with the depth and breadth of our platform data, uniquely positions us to evaluate the state of digital quality.

Here's what we learned.

Highlights

Faster releases. More intuitive user experiences. Greater innovation. Higher revenue. As organizations focus on shifting left and embracing quality throughout the software development lifecycle, rather than framing it as a final gate to pass through before release, these goals become more attainable. Improving quality consistently pays off in cost savings, faster releases, and increased customer satisfaction and retention.

Every digital experience requires comprehensive functional testing.
Maintaining quality without sacrificing speed and coverage continues to challenge many organizations. Creating consistently great digital experiences calls for relentless attention to detail and a thorough testing plan centered around your customers' wants, needs and preferences. All too often, there's a gap between what companies develop and what customers really desire, require and enjoy. Test automation, manual functional testing, structured test cases and exploratory testing all play crucial roles in elevating the digital experience. Teams that rely on limited modes of testing cannot ensure quality experiences.

Accessibility is more than a legal checkbox.
Inclusivity is becoming a critical differentiator for leading companies. Instead of just auditing for accessibility prior to release, the world's technology leaders are shifting left to focus on inclusive design. Savvy organizations recognize that accessible experiences add value for companies by better serving all customers, and are working to level up.

Localization goes beyond translation.
High-quality localization offers personalized, culturally relevant experiences. Organizations that focus on creating localized digital experiences that resonate with their target communities pave the way for successful — and profitable — launches.

Customer journeys must track seamlessly across devices and locations.
Understanding the end-to-end user experience matters more than ever. Seeking out and eliminating sources of friction in the customer journey requires skills many software development and QA teams simply don't have in-house, particularly as journeys often blend digital and physical components.

Testing with real, live payment instruments is the only way to ensure every customer can transact successfully.
New alternative payment methods, digital wallets, cryptocurrency and trends like buy now, pay later (BNPL) add complexity to the payment landscape. Real-world testing with real payment instruments is the only definitive way to validate your payment experiences work smoothly for your customers and your business, every time.

Methodology

We analyzed results from a representative sample of closed test cycles created between January 1, 2021 and December 31, 2021. A test cycle is how Applause defines each unique set of tests: a client sends us details around what to test — including builds, scope, coverage, etc. — and we create a test cycle that includes the specific test cases and scenarios to be tested. Once tests have concluded and a triaged list of issues has gone back to the client, the cycle is complete.

We analyzed data across industries, testing categories and regions spanning more than 340,000 bugs, tens of thousands of devices and thousands of device/OS/browser combinations. Testing includes websites, apps, IoT devices, mobile web and mobile apps in real-world scenarios.

Device Coverage

Despite developers' best efforts, apps and websites don't always behave consistently across devices, networks and operating systems. Small variations in the way different devices, OSes and browsers work can add up to big differences in performance and functionality, so it's critical to test across your customers' most common devices and configurations. As different types of experiences and transactions draw on an increasing number of digital touchpoints, the right coverage becomes a critical variable in your testing strategy.

The figures in this report reflect tests across the following scope worldwide:

Device Configuration	Number
Mobile makes	195
Mobile models	2,288
Mobile OSes	20
Mobile OS versions	325
Mobile web browsers	31
Mobile carriers	566
Desktop web browsers	36
Desktop OSes	9
Desktop OS versions	166
Set-top/streaming devices	118

Device Configuration	Number
Gaming consoles	25
Smart TVs	1,116
TV providers	57
ISPs	137
Credit/debit cards	1,443
EWallets	30
Mobile wallets	57
Alternate payments	58
Smart home devices	53

Functional Testing

Functional testing is the backbone of digital quality — a crucial and ongoing effort in creating exceptional experiences.

It's no wonder companies that produce the most popular and highest-ranking apps across all categories invest in thorough functional testing. To spark loyalty and prevent customer churn, companies must hunt down defects before they reach end users. Testing is crucial for every conceivable digital experience, from AI-powered appliances and wearables to telehealth consults, online shopping, financial planning and streaming media services.

As the state of the art in digital quality evolves, successful brands across all industries focus on functional testing to help them stay ahead of the curve and make sure digital experiences work smoothly and consistently in the real-world settings where users live and work. It's clear that functional bugs are still a major concern, and stopping them before they reach production is crucial.

The Data Set

A representative sample of functional tests.

39,192
test cycles

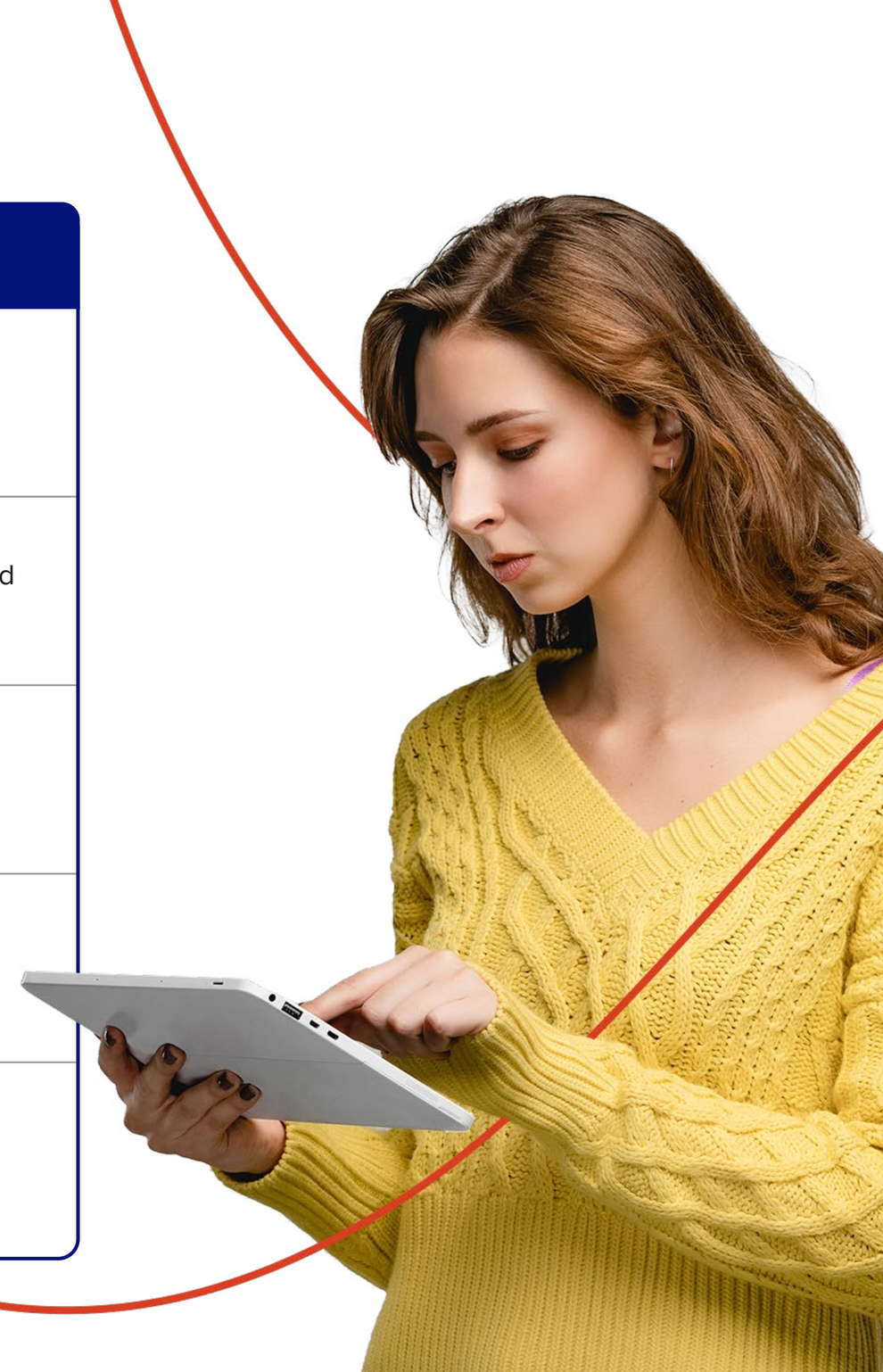
70+
industries

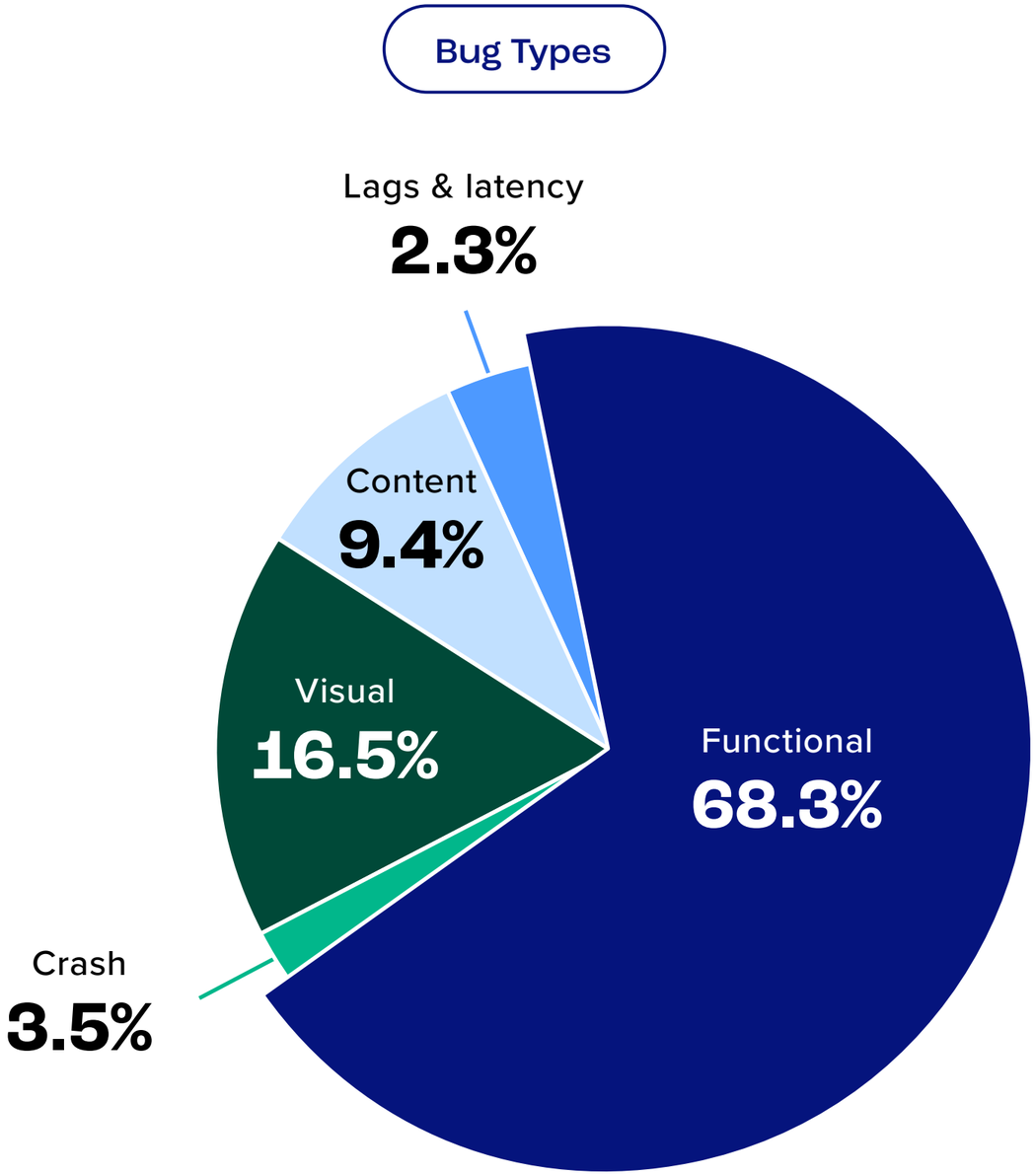
159
countries

305,400
bugs

Functional Testing Bug Type Definitions

Bug Type	User Experience	Example
Content	“This doesn’t read right” Typos, grammatical issues	The item description is missing words
Crash	“The app shut down” App closes or quits unexpectedly	The app crashed when I tried to update my email address
Functional (workflow errors)	“This doesn’t work right” Buttons don’t respond when clicked, searches return incorrect results	Unable to add item to cart
Lags & latency	“This is taking too long” Sluggish performance, freezes	It took over five minutes to load the video my family wants to watch
Visual	“This doesn’t look right” Misaligned content or page elements, content doesn’t fit area	Part of the flight schedule isn’t visible on the page





The Big Problem

Workflow errors were consistently the most common flaw our testers discovered. These bugs prevent users from completing their desired tasks. Whether your customer is opening an account, switching to a different device to stream media, or searching for the perfect gift, they expect to be able to accomplish their mission. If they can't? Response to an app that doesn't work can run the gamut from a moment's annoyance to permanently abandoning your brand. Reviews from unhappy customers can drag down app store ratings and persuade other potential users to choose a competitor's solution. In addition, poor user experience can increase churn and raise customer acquisition costs.

Bug Value

Applause customers rate each bug based on its potential business impact. The most valuable bugs result in:

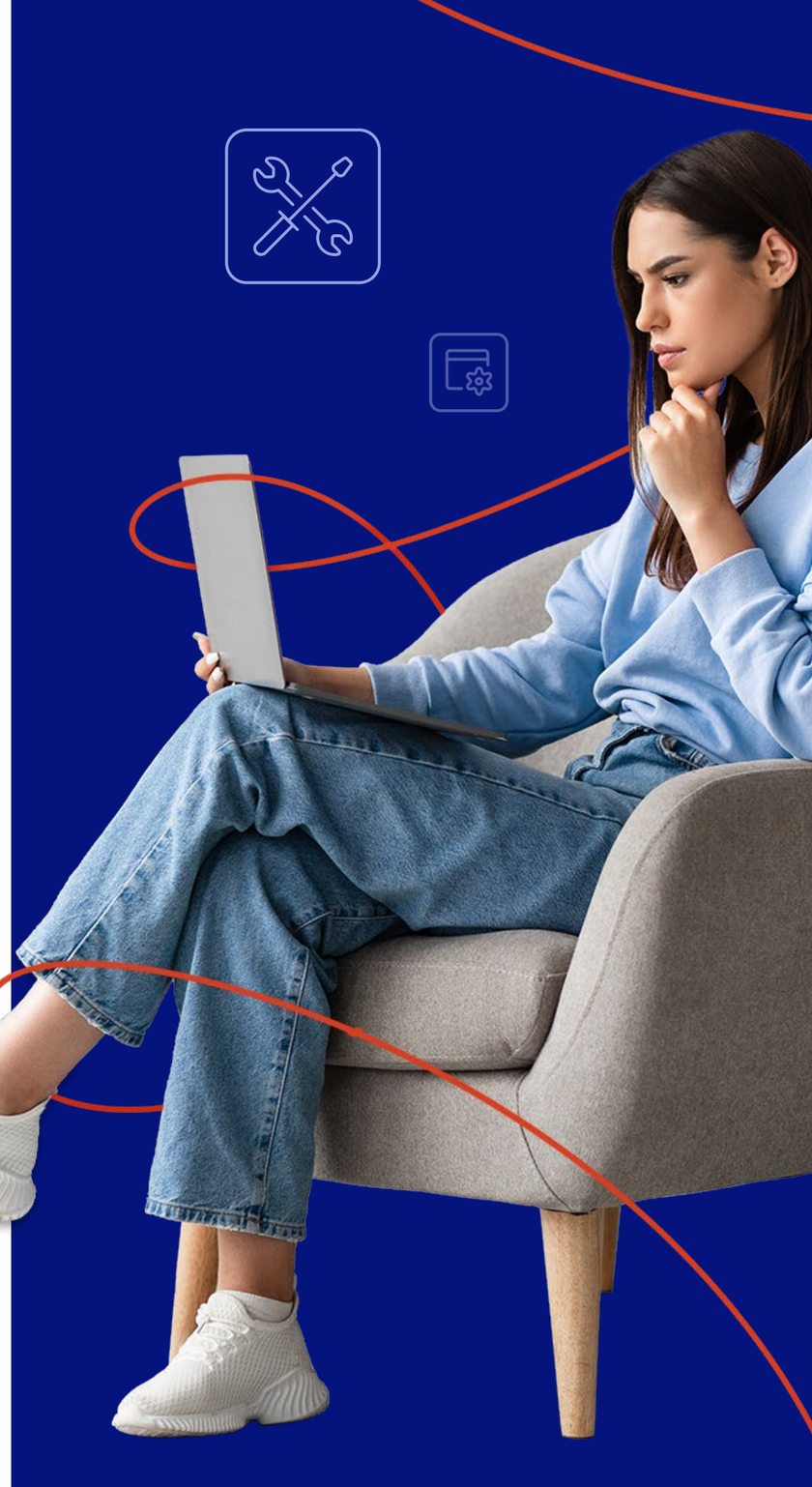
1. Crashes
2. Lags and latency
3. Functional issues/workflow errors

Recommendations

Let data guide your coverage strategy. Determine which devices, networks and operating systems your customers use most and prioritize those. Recognize that these may vary across regions and markets — for example, multinational companies doing business across Europe and Asia must deal with greater device fragmentation than those operating in a single country or smaller region. A media company that focuses solely on children's programming may have far different device coverage requirements than one that serves a broader audience. Luxury brands serving tech-savvy clientele may need to ensure their tests cover the latest devices and operating systems as soon as they're available, as their end users might be more likely to quickly upgrade. Do your research and develop test plans accordingly.

Understand the limitations of device labs. While device labs are useful for certain things, they don't offer insight into real-world experiences. For example, a device lab won't show you how easy it is for a user to add a new payment instrument to a mobile wallet, or whether someone can smoothly connect to a streaming media service on a train. Beyond that, it's impossible for businesses that operate globally to maintain a lab that mirrors the full breadth of devices, networks and operating systems their customers use daily.

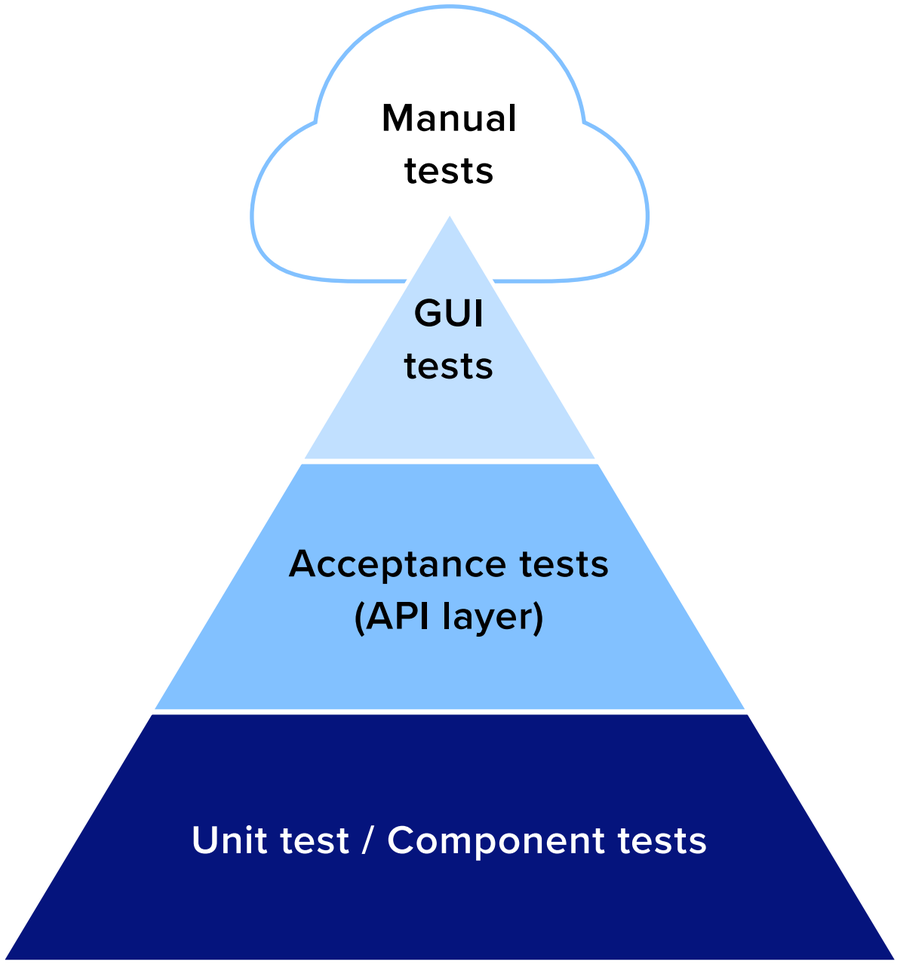
Go beyond internal teams and dogfooding. While your employees can play a valuable role in testing, they are familiar with your products — they're more likely than an independent user to follow the happy path. Approaching the product with a vastly different perspective, internal staff members may be hesitant to call out what they see as minor glitches, willing to overlook things that a customer would not. Impartial feedback is the best way to ensure a great user experience.



Use test automation to stay on top of the basics.
Test automation can help increase code coverage and reduce testing times, freeing QA resources up for more strategic tasks or testing that can't be automated. Mike McKethan, Applause's Director of Quality Engineering and Automation, suggests starting automation strategies from the bottom. He recommends the Agile test automation pyramid, introduced by Mike Cohn in his book *Succeeding with Agile*, as a model. "At Applause, we believe that a proper automation strategy is built from foundational functional building blocks that start small and build up. You must have and maintain a focus on the desired end game; without this, most clients end up in an automation anti-pattern focused on end-to-end automated test cases that are constantly under maintenance and lead to little ROI," McKethan said.

"A proper automation strategy is built from foundational functional building blocks that start small and build up."

The Agile Test Automation Pyramid

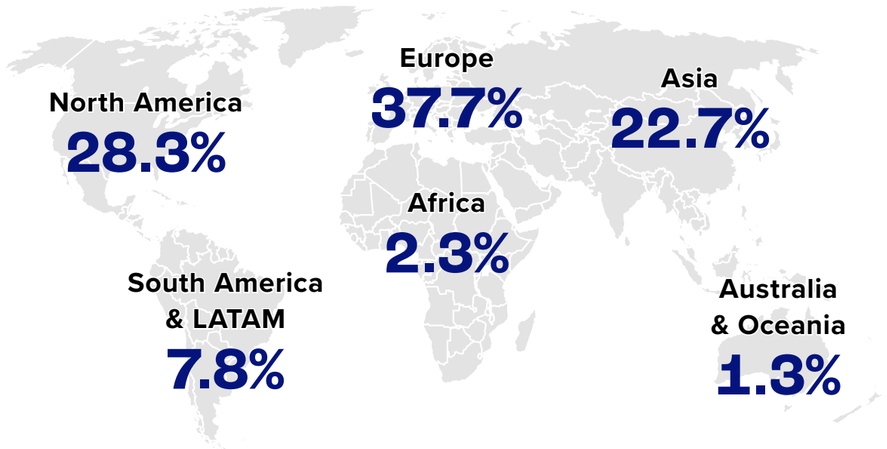


Comparison Across Regions

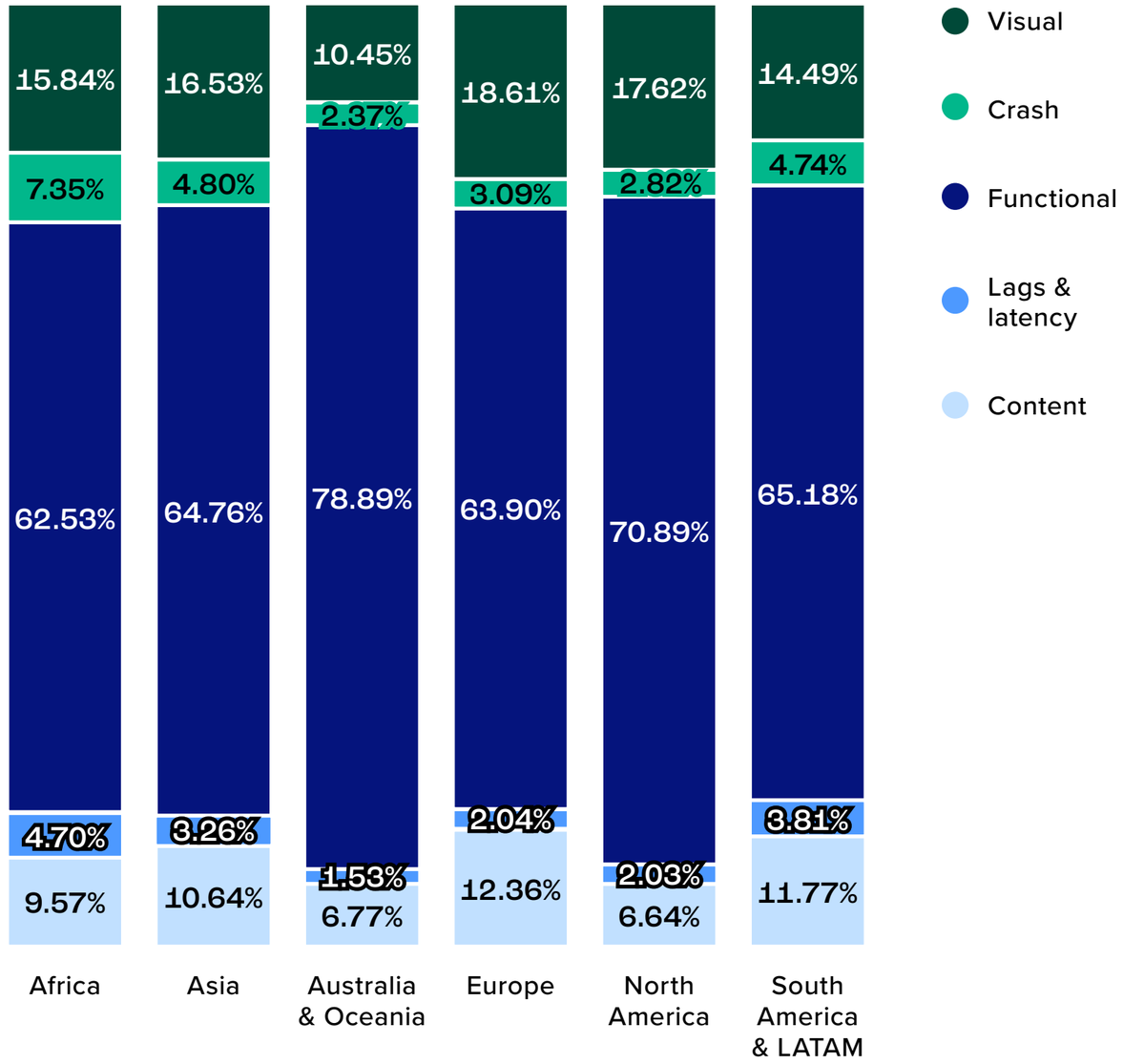
Local, in-market testing is crucial for ensuring digital experiences work consistently for customers in those markets, on the devices and networks they use most. Real-world assessments are vital for all digital experiences: everything from using a rideshare app or attending a telehealth session to searching a website or validating ads for streaming media services. See the regions where testing occurred and how many bugs came from each region.

While functional issues were the most common flaws, and lags and latency were the least common across all regions, some regions had almost double the rate of crashes and content errors than others.

Bug Distribution Across Regions



Bug Composition By Region



Device Coverage Comparison Across Regions

Certain device makes and models were common across all regions, including multiple Apple iPhones and iPads and various Samsung Galaxy devices. Beyond that, however, there are significant regional variations in the most popular device makes and models.

Testing across the most popular devices in the markets where you do business — and the devices most popular among your customers, even if these don't completely overlap — ensures your digital experiences work properly. For example, one beauty and skincare company found that the majority of its customers were using older devices rather than the latest models, so they ensured their apps continued to work on the older devices their customers favored.

	Worldwide	Africa	Asia	Australia & Oceania	Europe	North America	S. America & LATAM
Mobile makes	195	58	109	25	95	71	60
Mobile models	2,288	747	1,407	275	1,278	905	801
Mobile OSes	20	10	17	7	11	13	11
Mobile OS versions	325	146	257	130	272	258	200
Mobile browsers	31	27	31	15	31	31	19
Mobile carriers	566	79	186	18	240	103	97
Desktop web browsers	36	23	29	22	36	34	28
Desktop OSes versions	9	6	7	5	8	9	9
Desktop OS versions	166	82	127	75	142	139	107

The Role of Exploratory/ Unstructured Testing

When you understand your target customers, you can create effective structured test cases that support their setup and use of the product. Structured test cases deliver on key business and software requirements. Furthermore, structured tests give QA professionals clear direction that keeps them on track and productive, which is especially important to keep up with the pace of development.

But structured tests don't account for everything. While there's a variety of helpful structured test techniques, there will always be gaps in test coverage. You might never eliminate all defects in an app, so you can't plan for that outcome.

Unstructured testing, or exploratory testing, can expand test coverage to improve quality in areas that stray from the happy path — uses of an application that don't encounter errors. By thinking outside the confines of structured testing, development teams can better understand error conditions, edge cases and other areas of friction that users experience. Identifying the different — and often unanticipated — ways customers interact with apps and websites is a crucial effort that allows brands to deliver the best possible experience.

After the organization executes structured tests, QA professionals can exert their creativity and skills via exploratory testing — either technical knowledge or expertise specific to the type of app, region or market. In this approach, the tester takes a break from what can be a monotonous structured test process to attempt to experience the app the way a user would. Thus, exploratory testing is useful in uncovering defects in complex user actions that require multiple steps, which structured test cases might miss.

The specific tactics the tester will deploy depend on the individual, but might include:

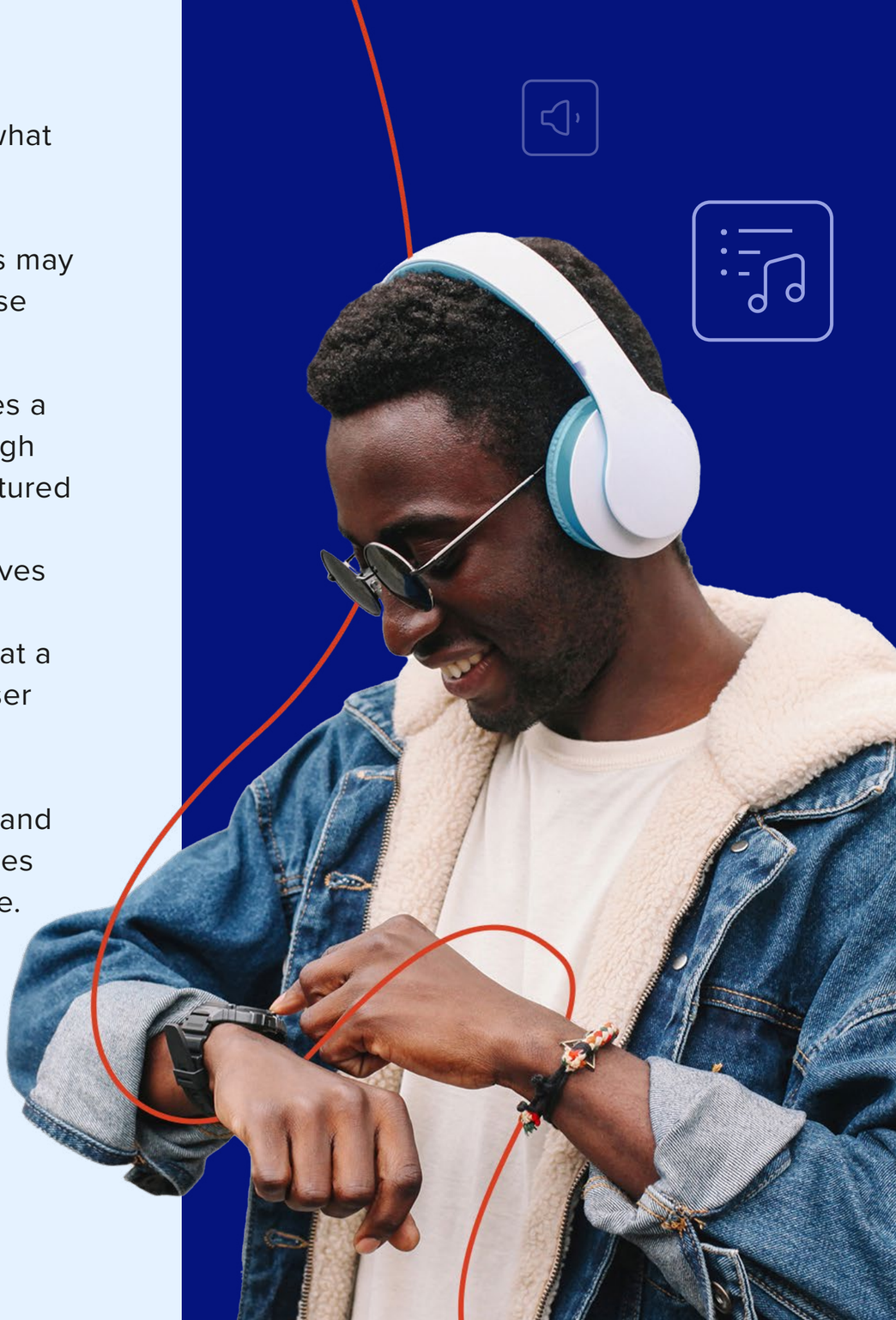
- Brainstorming test ideas, perhaps with a mind map
- Clicking outside the margins of buttons
- Determining how network disconnects affect functionality
- Entering invalid characters or information on a form submission
- Validating complicated or uncommon user flows
- Checking whether past defects continue to occur in unexpected ways

To gain the most value from unstructured testing, companies and testers must approach it with some planning and strategy.

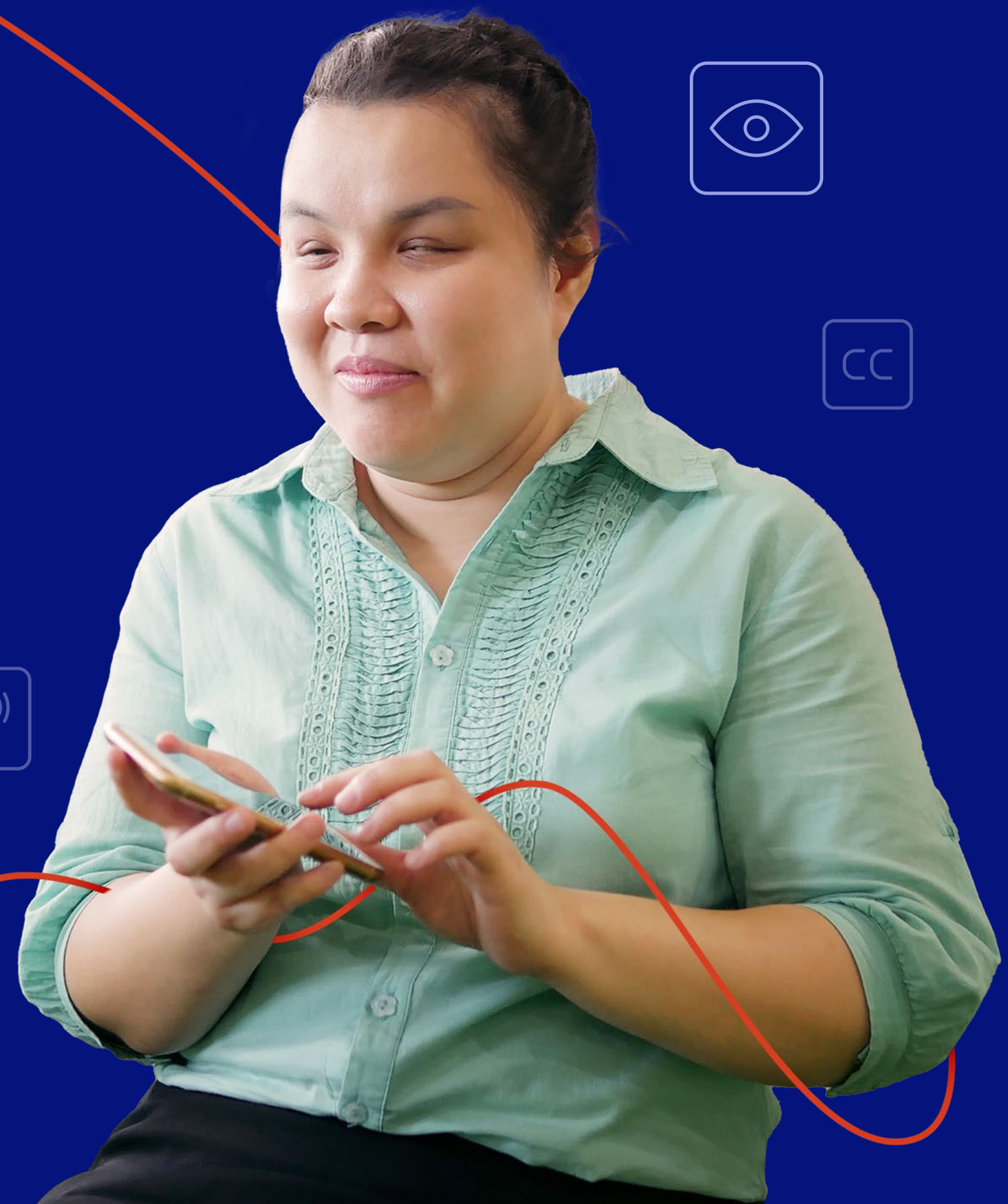
Identify which features or scenarios must undergo exploratory testing before the work begins. Testers must classify and prioritize defects as they discover them, and document them on the fly so developers can easily reproduce the issue. The tester should also incorporate feedback on past defects to inform the strategy. It can also help to timebox exploratory testing, such as an isolated two-hour period with no distractions, so that testers have the time they need without sinking too much of it into chasing concealed defects.

Many organizations don't recognize that documentation is an important part of exploratory testing. Exploratory notes are a best practice. Unlike scripted test cases, where the details and steps are created prior to the testing, with exploratory notes, the tester shares an overview of what they tested after they are finished to provide insights into what they covered. Valid exploratory defects may become part of structured test case suites for future coverage.

In all, unstructured testing provides a perfect complement to the thorough documentation and effort of structured testing. When companies assess quality from a variety of perspectives and with diverse techniques, they can go beyond simply ensuring that a product will meet business and user requirements. Exploratory testing allows brands to gain a deeper understanding of their customers and deliver seamless digital experiences that earn loyalty and drive revenue.



Accessibility Testing



Digital accessibility is a major consideration for all businesses today.

The World Health Organization estimates that over 1 billion people, or about 15% of the world's population, live with some form of disability — and that number is increasing.[5] Building accessible digital experiences has farther-reaching benefits than simply making sure you're not losing potential revenue from people with disabilities (PwD).

While many organizations recognize that neglecting accessibility (A11y) can put the business at risk, full digital accessibility has many benefits beyond risk mitigation. While the back-end coding that supports accessible design can boost SEO and make it easier for businesses to automate testing, digital experiences developed with accessibility in mind can improve the UX for all customers. Companies that overlook digital accessibility miss an opportunity in product design and development, given that many features that benefit PwD hold appeal for a wide range of other customers. For example, voice functionality that serves people with limited mobility may also prove valuable for a user with their hands full, while closed captions on a video may be helpful for viewers learning to read as well as for the hearing-impaired.

At a minimum, organizations should conform to Web Content Accessibility Guidelines (WCAG), in addition to complying with all local and regional accessibility laws. More and more lawsuits are targeting digital services that have a nexus to a physical place of public accommodation, as well as digital services without any connection to a physical location. As a best practice, companies should go beyond the minimum and prioritize inclusive design, gathering input from PwD early on to create seamless experiences for all users.

[5] "Disability and health." World Health Organization, November 24, 2021.

The Data Set

A representative sample of accessibility tests.

1,083
test cycles

20
industries

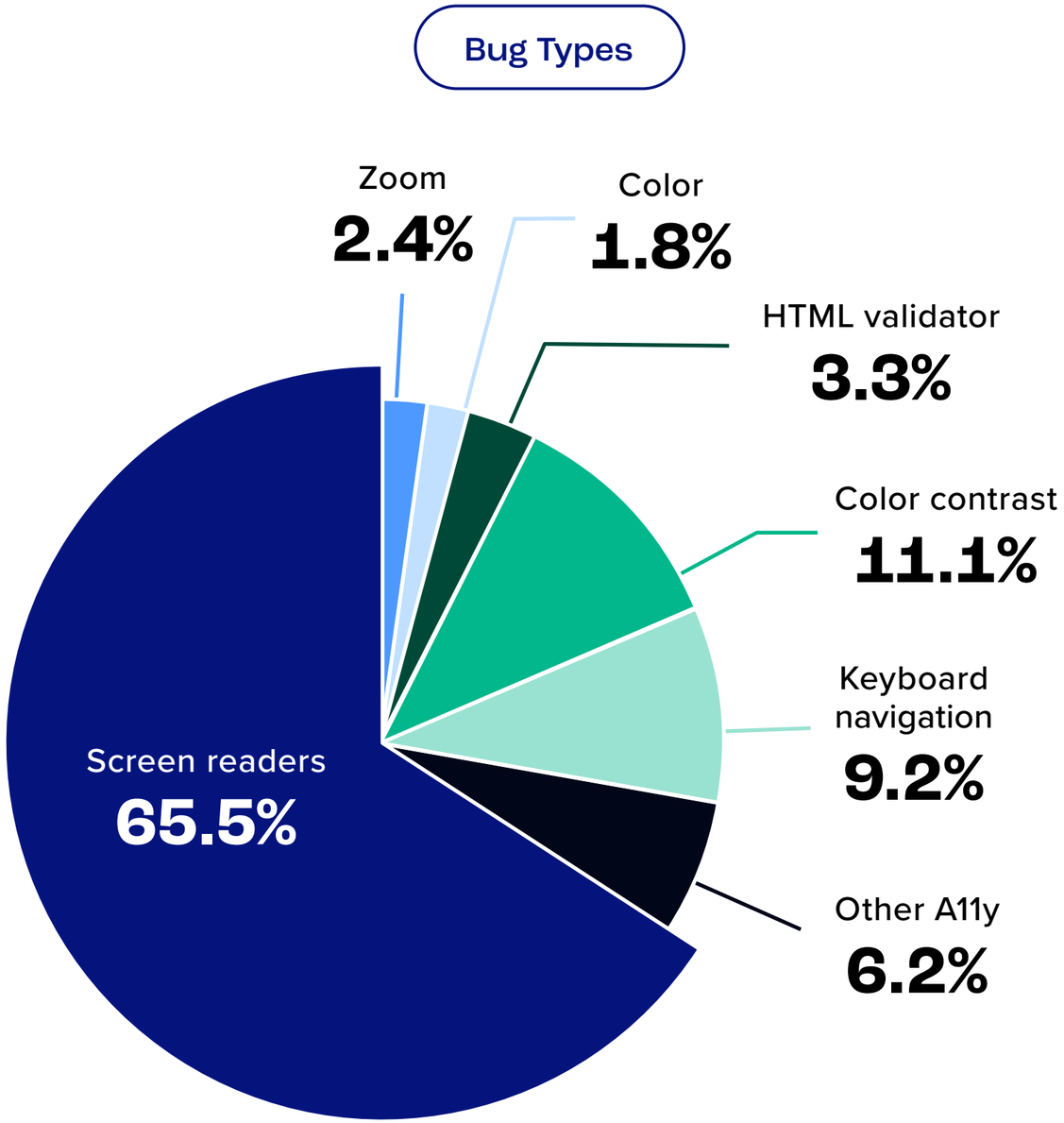
18
countries

32,950
bugs

Accessibility Testing Bug Type Definitions

Bug Type	User Experience	Example
Animation	“I don’t know what’s happening on the screen”	A user can’t see content that moves, such as animation telling users to perform an action
Color	“This doesn’t make sense”	Users can’t identify information communicated only through color, such as required form fields that appear in red
Color contrast	“This all looks the same”	Insufficient color contrast ratio: Different shades of the same color are used in a chart detailing different levels of service or pricing packages
HTML validator	“This page seems like something is missing”	Issues in HTML code that do not impact the keyboard navigation and screen reader behavior from an accessibility perspective; syntax errors that prevent web pages from rendering as the creator intended, such as missing tags

Bug Type	User Experience	Example
Keyboard navigation	“I can’t use my keyboard to navigate”	People using alternative keyboards or speech input devices as keyboard emulators cannot navigate a page
Screen readers	“My screen reader isn’t working”	Without readable text for screen readers, users can’t navigate or discern what’s on the page
Other A11y	“This isn’t working for me”	Poor user experience for PwD
Video	“I can’t tell what’s going on in this video”	Missing closed captions or audio descriptions
Zoom	“I can’t see what I need to”	Text gets cut off when a user zooms in beyond a certain point; problems with resizing and reflow



Animation & video bugs < .25% each

The Big Problem

Screen readers comprise 66% of all A11y bugs. The next most common bug types, keyboard navigation issues and insufficient color contrast, each make up less than 12% of all accessibility bugs.

While missing labels for screen readers are easily rectified, they are crucial for many people with disabilities. If a developer hasn't assigned a name, role or value to an interactive element, the screen reader will simply say "button," leaving the user no idea what to do. Filling out forms and changing passwords can also be very difficult for visually impaired users. For example, when a blind user enters a wrong value on a form, it may create an error message that a sighted user can see, but a screen reader will not describe the error, leaving the blind user no way to proceed.

Bug Value

Customers rank more than 70% of all types of A11y bugs as exceptionally or very valuable, possibly because of legal/compliance issues. As companies prioritize accessibility and inclusion, these bugs remain highly valuable.

Recommendations

Don’t wait for a lawsuit to focus on accessibility.
Companies are becoming increasingly proactive. While some organizations view accessibility compliance as a tedious chore, in reality, organizations that focus on creating fully inclusive experiences open up a new world of opportunity — millions of potential missed customers with billions in potential spending power. Increasingly, technology leaders are beginning to treat digital accessibility like privacy or security, building it into the software rather than trying to tack it on at the end.

Consider a variety of testing approaches: by URL, app screen or scenario.
For example, test a URL on a browser using Chrome and the JAWS screen reader, then test the same page on iOS and Android. Testing the same HTML may reveal horizontal/vertical scrolling issues or something specific to the screen reader in iOS/Android. Testing a scenario assesses each stage in a process, such as “Search for a product, pick one on the list, go to your cart, select this type of shipping, then check out.” While this includes multiple URLs or app screens, it’s the best way to make sure that someone can complete a specific task.

Test using people with disabilities.
Some sites and apps may be WCAG compliant but still block a user from completing a task or make it very difficult for them. One organization wanted to use inclusivity as a product differentiator, and set up an inclusivity/accessibility training bringing in a blind tester. She reviewed an app the company was developing and found five issues that made it impossible or difficult for her to perform certain tasks. When the engineers and designers witnessed firsthand how a person experienced difficulties with their apps, it made the issue real for them. Now, designers do accessibility annotations to aid in design hand-off to engineers. The company has shifted left, involving PwD persona representatives early in the inclusive design process, not as an afterthought.

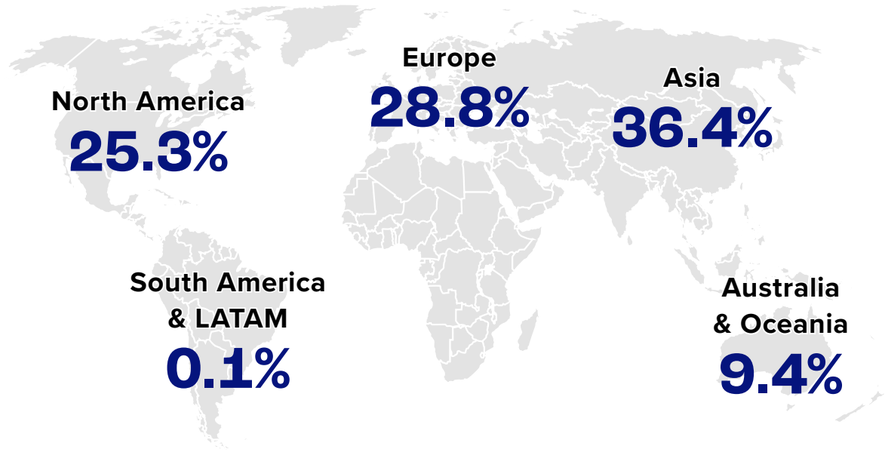
New Devices, New Opportunities

While WCAG has focused on traditional web and mobile experiences, testing on OTT devices, such as Roku, Apple TV, FireTV and Chromecast, presents an opportunity for media and entertainment companies dedicated to providing accessible experiences.

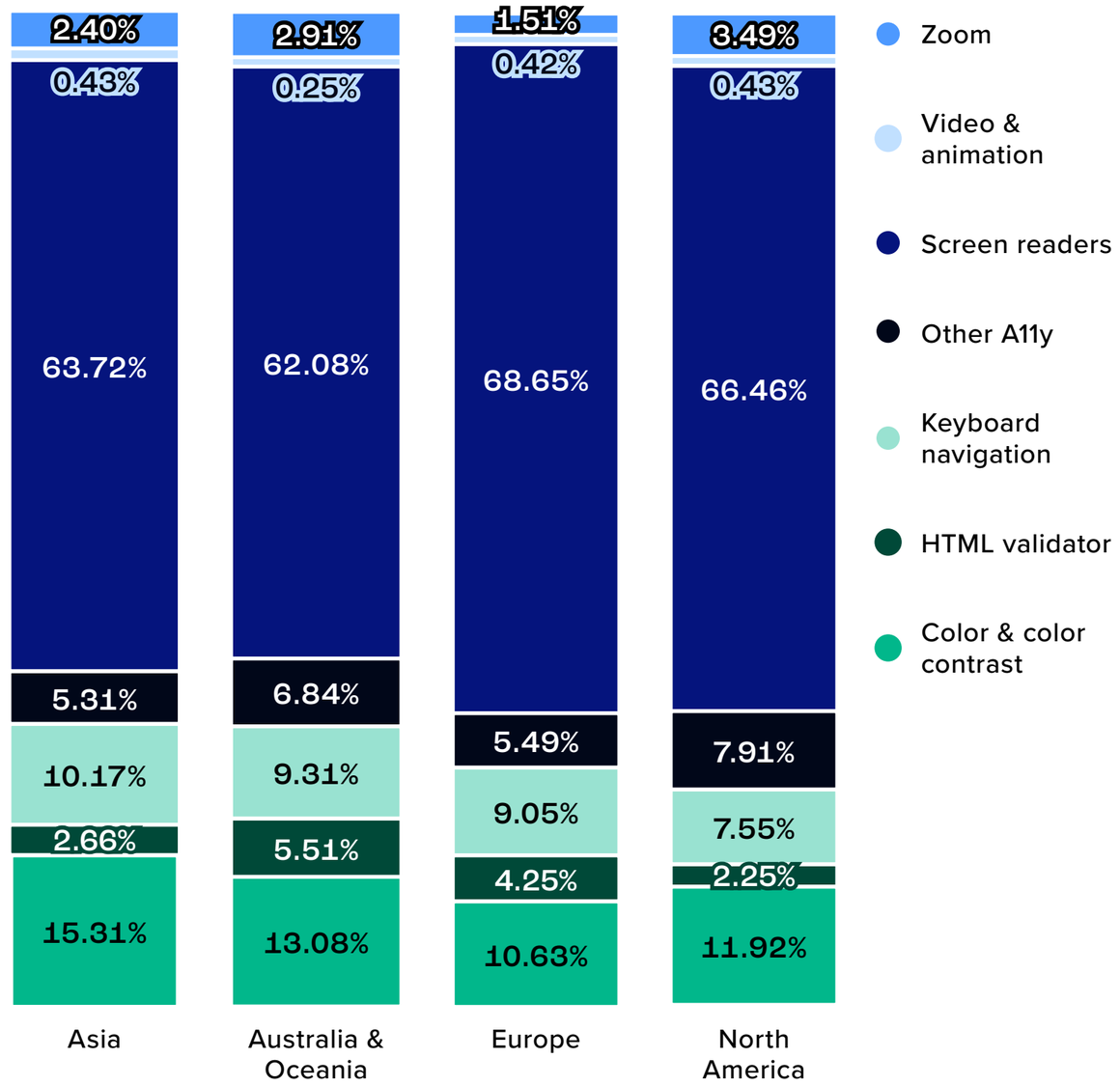
Comparison Across Regions

The following charts depict where testing occurred and how many bugs came from each region. See how the prevalence of different types of bugs varied between the regions where testing took place.

Bug Distribution Across Regions



Bug Composition By Region



	Worldwide	Asia	Australia & Oceania	Europe	North America	S. America & LATAM
Mobile makes	15	12	3	8	7	2
Mobile models	120	52	7	41	60	2
Mobile OSes	4	2	3	4	4	2
Mobile OS versions	84	39	10	42	53	3
Mobile browsers	6	4	2	3	6	2
Mobile carriers	38	11	4	12	14	2
Desktop web browsers	9	7	4	6	7	3
Desktop OSes	2	2	2	2	2	2
Desktop OS versions	50	27	7	25	26	4

Device Coverage

As companies work to comply with local regulations and conform to industry- and region-specific requirements, in-market testing on the most common devices, browsers and networks is a crucial component in delivering fully accessible experiences for all users.

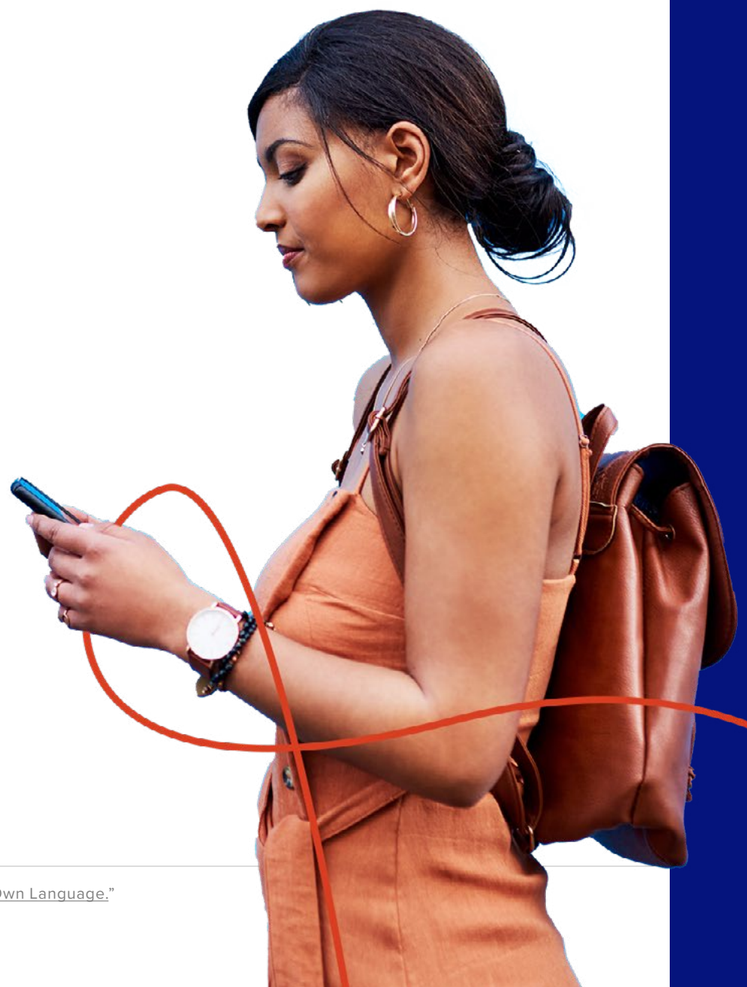
Localization Testing

Done properly, localization offers businesses tremendous potential to connect with new markets and grow.

A poorly localized experience, however, can cost your business its reputation.

One survey of more than 8,000 consumers across 29 countries found that 76% of online shoppers prefer to buy products with information in their native language, while 40% stated they will never buy from websites in other languages.[6]

As brands expand to new markets, it's key for products to reflect the local language and social norms to build credibility. Digital experiences that demonstrate cultural sensitivity and attention to local preferences allow brands to foster trust and speed customer adoption.



[6]"Survey of 8,709 Consumers in 29 Countries Finds that 76% Prefer Purchasing Products with Information in their Own Language." CSA Research, Jul 7, 2020.

The Data Set

A representative sample of tests evaluating localization.

345
test cycles

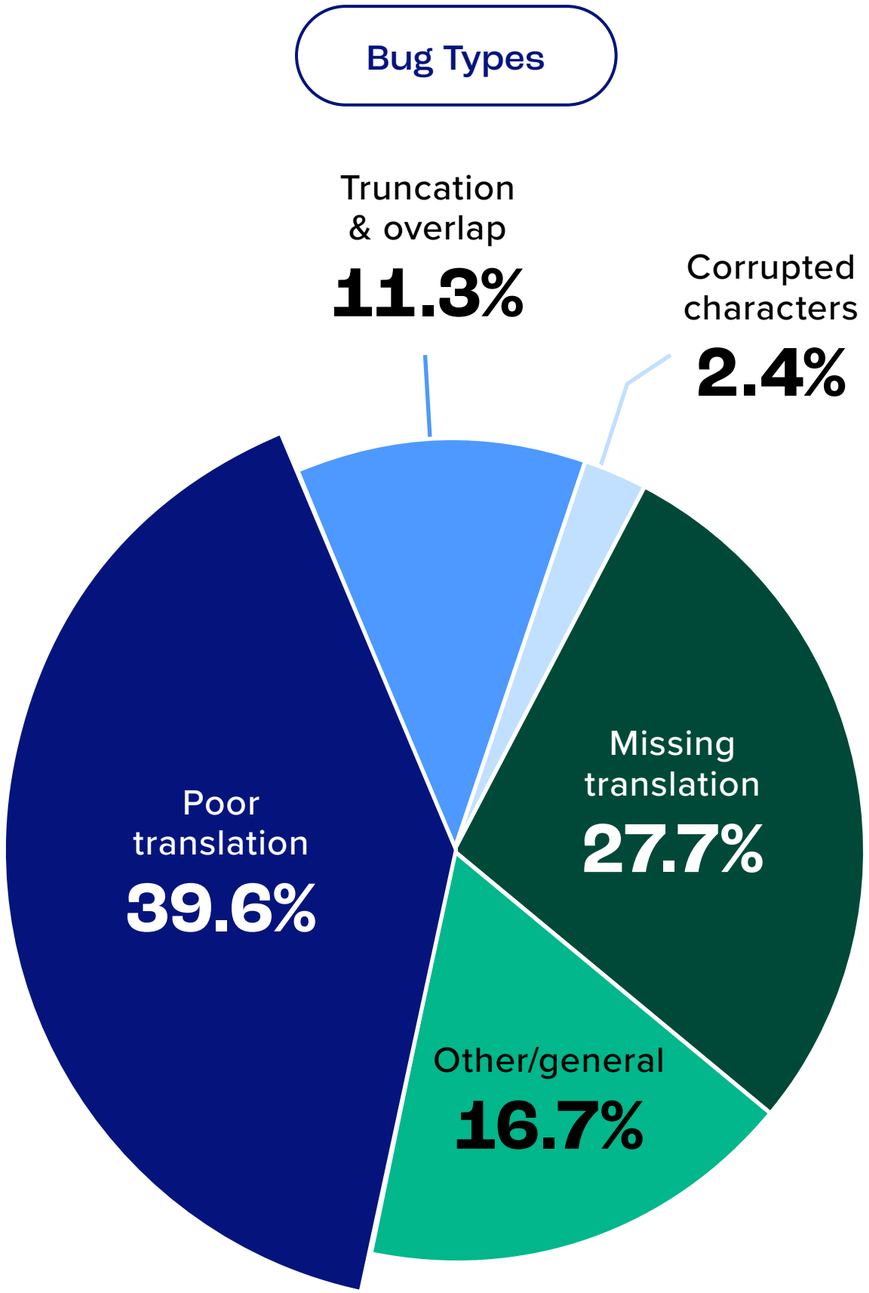
11
industries

87
countries

8,120
bugs

Localization Testing Bug Type Definitions

Bug Type	User Experience	Example
Corrupted characters	“This doesn’t look right”	Missing accent marks
Currency and number format	“That price seems wrong”	Commas versus periods in prices, incorrect date formats: 4/9/2021 would be read as September 4 in EU markets but April 9 in North America
Missing translation	“I’m not sure what this says”	Text appears untranslated, in original language
Other/general	“This brand doesn’t understand me”	Culturally insensitive photos
Poor translation	“I don’t think that’s what this should say”	Awkward word choice or poor grammar
Truncation & overlap	“The text on this button is cut off”	Character counts for the translation do not fit in allotted space



The Big Problem

Poor and missing translations topped the list of localization bugs, together accounting for 67% of all issues. Buttons and form field names are often overlooked. Without accurate translation, users simply don't know how to proceed and may abandon the task at hand. Rather than struggling to figure out the intended meaning on their own, most customers will turn to a competitor who offers a more personalized, culturally relevant experience.

Bug Value

Customers saw problems with currency and number formatting as the most valuable bugs, ranking 47% of these bugs as exceptionally or very valuable. These errors can have a tangible impact on the bottom line, so it's no wonder customers prioritize them.

Recommendations

Go beyond research to understand regional and cultural nuances.
Invest in local testing to surface insufficiencies or inaccuracies. For example, a word or phrase may have an undesirable connotation or slang meaning in a specific market — or even lead to sites being blocked, which happened to a hotel chain that had incorrectly listed Taiwan as a country and suddenly found its sites shut down in China. Subtle details in an image may stand out as problematic for users in a certain culture. Insight into these nuances helps brands avoid costly missteps.

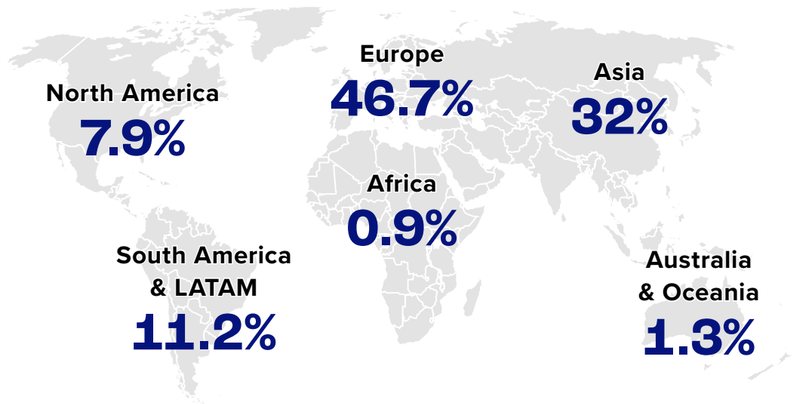
Recognize that processes may need to change.
In highly regulated industries, requirements may change from one locale to another, such as documentation for account verification in banking or healthcare apps. Delivery options, application forms, checkout processes and other variables may need to adjust to meet consumer expectations and regulatory standards in a new market. Payment flows in emerging markets are a prime example. A user might be asked to link their bank account or their credit card to an application. But if the designed flow isn't what the user expects, there's a good chance the customer will abandon that payment. Getting input from local users during the design process to learn how they would typically perform a task like adding payment information to an application can ensure companies create experiences that align with local customs and expectations.

Validate translations in context, with in-market speakers.
Applause Solutions Consultant Maria Mondragon points out that the same object can have different names in different regions. Spanish speakers in Spain and those in Latin America reverse the names for lemons and limes, while the word "straw" has different translations across Latin American countries, including "pajilla" in Honduras, "popote" in Mexico and "pajita" in Colombia and Venezuela. "You need testers that reside in-country in order to know what the word is and also know the meaning of that word in that specific region," said Mondragon. Context also plays an important role in selecting the right word and providing a smooth experience. Companies that validate localization in context can avoid costly missteps.

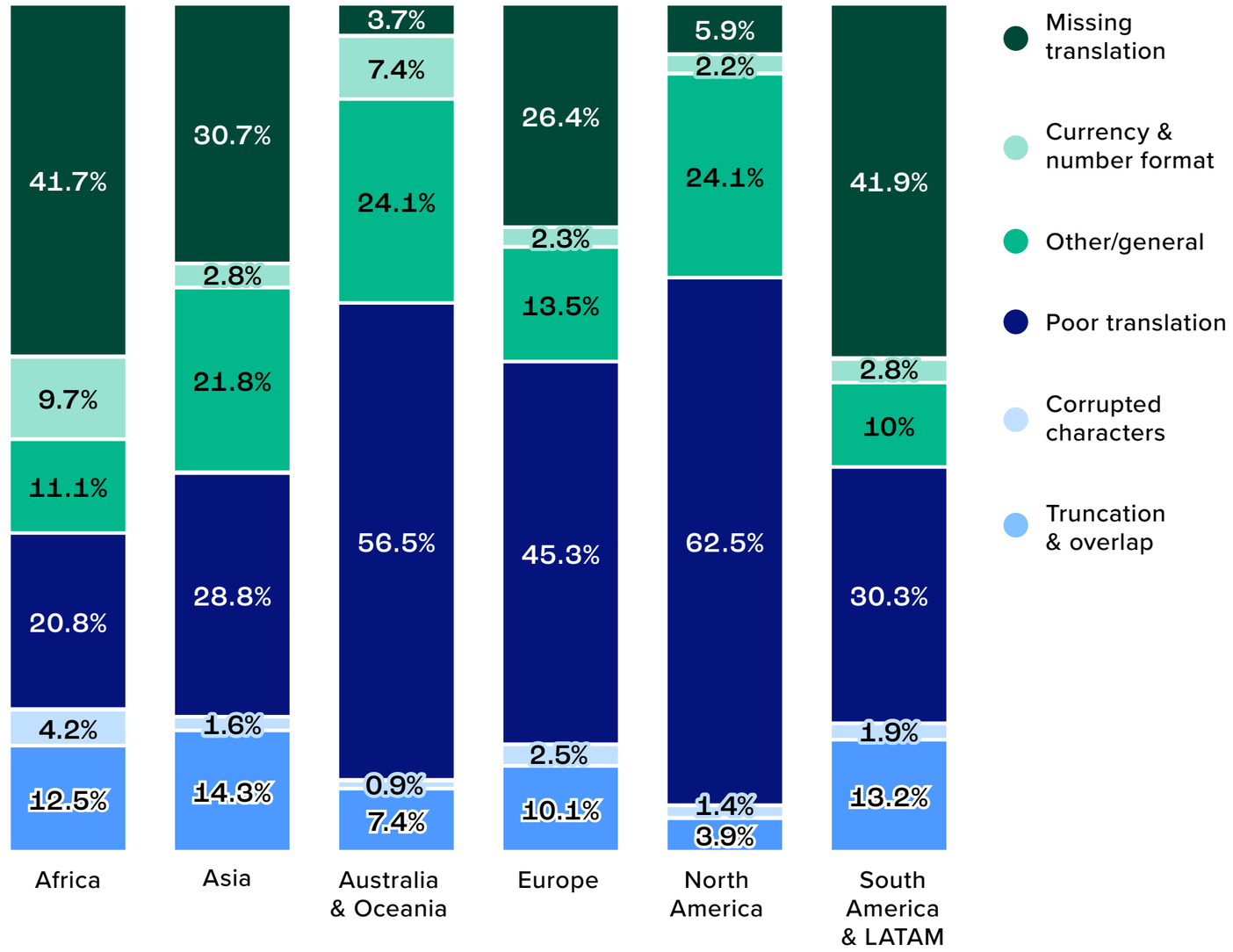
Comparison Across Regions

The following charts depict where testing occurred and how many bugs came from each region. Though poor and missing translations were the most common bugs, some regions had more frequent occurrences of truncation and overlap, as well as corrupted characters and problems with number and currency formats.

Bug Distribution Across Regions



Bug Composition By Region



	Worldwide	Africa	Asia	Australia & Oceania	Europe	North America	S. America & LATAM
Mobile makes	59	13	37	12	37	12	26
Mobile models	727	70	383	39	542	81	268
Mobile OSes	6	3	4	4	6	3	4
Mobile OS versions	144	32	99	26	126	47	63
Mobile browsers	13	1	5	3	13	3	5
Mobile carriers	276	22	79	5	136	25	52
Desktop web browsers	14	2	8	6	13	6	10
Desktop OSes	3	1	2	2	3	2	2
Desktop OS versions	52	2	28	6	46	20	17
Set-top/streaming devices	6	0	1	0	6	2	2
Smart TVs	14	0	0	0	2	0	2
TV providers	15	0	4	0	15	0	7

Device Coverage

When companies move into new markets, they may suddenly find customers accessing their websites and apps on devices and networks that haven't previously been part of the organization's testing plans. Let data guide decisions on what coverage is needed to ensure your organization provides seamless digital experiences in new locales.

Success Story: Global Payment Provider

Localization testing has particular challenges, as it requires in-market native speakers that understand the language fluently. Each language can have many dialects that need to be tested, so it's imperative to source testers with device and payment instruments that are specific to a given market, and can ensure content accuracy and quality. In addition to language, localization must meet specific legal requirements and cultural sentiment.

When a leading payment provider wanted to redesign its platform, the brand knew success would require a comprehensive testing plan that evaluated the full experience: functional testing, UX, payments and localization. The company needed to ensure that existing apps maintained an excellent user experience while development focused its efforts on the new platform. The team turned to Applause for support.

In addition to testing existing apps, Applause testers performed functional, localization and payment testing on the new platform in key foreign markets, and provided high-quality qualitative feedback the payment provider used to refine the user experience. With Applause test teams across 53 countries performing exploratory testing, test case execution and bug fix verification, both online and in-store, the company was able to rapidly scale beta testing to ensure the new platform met with success, confident that it was fully functional and properly localized.

With Applause testers on standby, the company's development team was able to focus purely on redesign by quickly discovering and fixing issues in its production environment. The payment provider introduced its redesigned apps to 145 global markets and saw a 12% increase in app downloads after its first week in production.

Customer Journey Testing

Blending digital and physical experiences: Customer journey testing and payment testing

Across industries, the lines between online and offline experiences are blurring — and every interaction shapes a customer's perception of your brand. Digital quality is part of the equation; to deliver exceptional experiences, great digital must couple with high-quality physical interactions.

A January 2022 Applause survey of more than 4,298 global respondents found that nearly two-thirds of consumers had abandoned an online purchase or account because the set-up process was too difficult. Of the 2,795 respondents who had attempted to open a new online account or make a new purchase in the previous month, more than 15% reported the process was somewhat or extremely difficult.

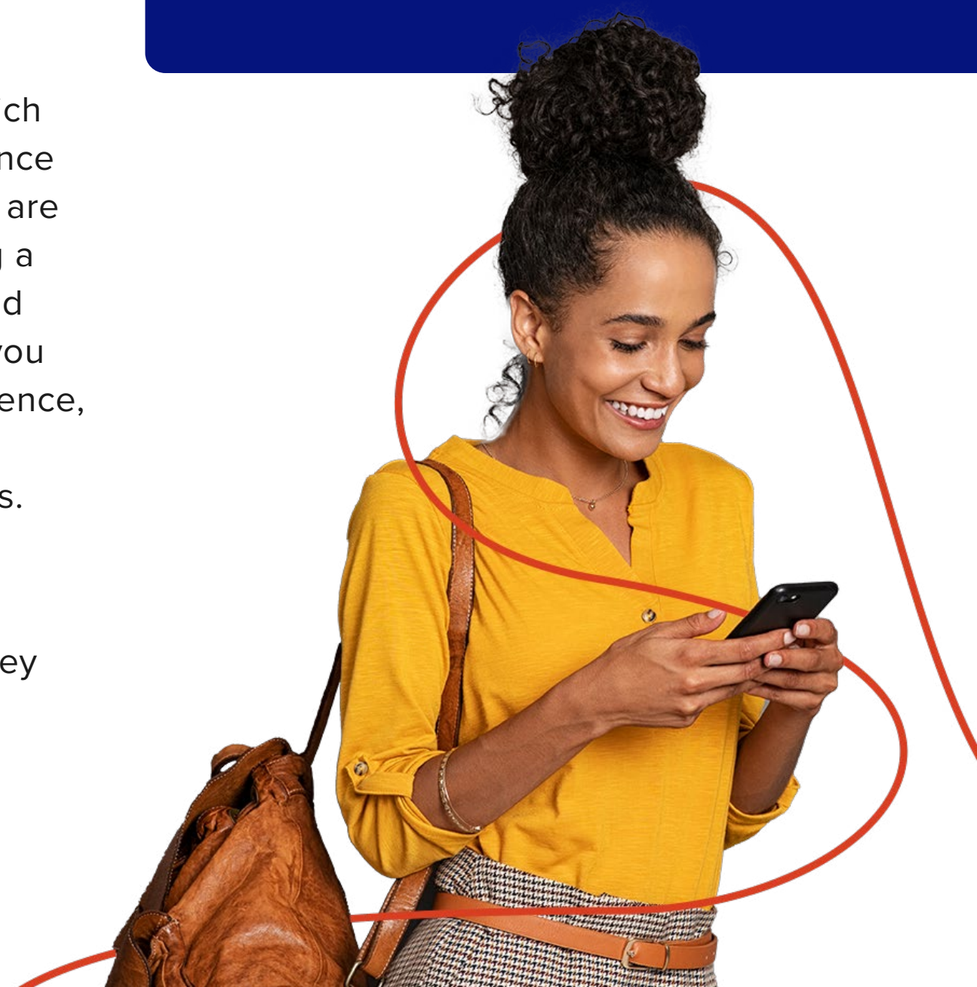
The top causes of friction:

- Too many steps/took too long
- Process was unclear
- Something didn't work right
- Account activation issues
- Hard to enter the information requested (unclear what data or format a form requires)

Customers have ever-shrinking limits to their digital patience. This raises the stakes that every brand must exceed in delivering engaging digital quality. Every customer journey is unique, which makes testing each customer experience increasingly more complicated. There are so many different friction points along a journey that combines the physical and digital world. If you don't get it right, you can not only hurt the customer experience, but also do even greater long-term damage to the brand and the business.

In addition to testing websites and apps, Applause's community can help companies assess the customer journey across various channels and identify opportunities to remove friction.

Nearly two-thirds of consumers have abandoned an online purchase or account because the setup process was too difficult.



Recommendations

For exceptional omnichannel experiences, focus on creating consistency and efficiencies.
Using digital channels to describe what to expect only works if the description and instructions align with what customers actually encounter. Whether boarding a flight, picking up a purchase curbside or setting up a connected device, users get frustrated when online messages contradict their in-person experiences. Make sure emails, websites and apps set realistic expectations to avoid breakdowns in the customer journey.

Provide clear communication so customers know what to expect.
Focus on letting customers know exactly what they need to do at every step of the process. Everything from simple form labels and tooltips to guide customers through online interactions to detailed product descriptions and set-up instructions can improve the customer experience. Applause Principal Solutions Engineer Carlton Retland said, "Even if everything in your app works as designed, customers may still get frustrated if it doesn't operate in the ways they anticipate. Poor communication and failure to set expectations about timelines, requirements and next steps can all cause serious problems." Some of the most common communication breakdowns come after customers apply for a new account or place an order… and then wait for status updates that don't arrive within the anticipated time frame. Unclear requirements can also create friction. For example, if your IoT device has specific network or security requirements, state those up front so customers can determine whether the purchase they're considering fits into their existing set-up or will require an upgrade.

Look at the end-to-end experiences for your organization's most common (or valuable) customer journeys.
Consider functionality, UX, payments and operational readiness to identify where you can remove friction and create a better experience. For example, a beauty company that goes to market through a network of independent sellers may want to test the journey for a new associate setting up a sales portal and creating marketing materials. A restaurant offering curbside pickup may learn the wait times customers get via the app don't match actual order prep times, so they can reduce complaints about long waits. Determine which journeys matter most to your organization and start testing there.

"Poor communication and failure to set expectations about timelines, requirements and next steps can all cause serious problems."

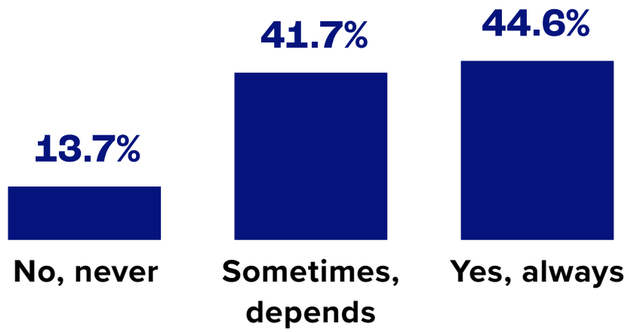
Evolving Customer Journeys: Incorporating AI and Voice

As companies work to provide more efficient and cost-effective support along with personalized experiences, customers increasingly expect to find AI and voice in their interactions with brands. Omnichannel is evolving, and AI and voice are becoming more important at various points in the journey, whether they're routing customer service inquiries via chatbots and IVR or recommending related content to improve stickiness. Market leaders are quickly adopting these technologies and innovating with them, raising the bar for everyone.

In February 2022, Applause surveyed community members to gain insight into perceptions around the use of AI in the form of voice applications such as chatbots, interactive voice response (IVR) and other conversational assistants. Consumers increasingly expect businesses to have automated chatbots and automated voice systems.

Surprisingly, survey respondents expect in-app voice assistants and search features almost as often as they expect brands to have chatbot or IVR functionality:

Do you expect mobile apps to have voice assistants or voice search features?



Organizations that want to keep customers happy must consider ways to effectively leverage voice and AI to create seamless experiences. Beyond simply deploying chat, voice and IVR, companies must invest in training and testing the AI properly to ensure these tools truly enable efficient customer service. For example, voice applications must be able to accurately respond to users with different dialects, such as a Parisian French speaker versus a Canadian one. Large, unbiased data sets are key in training and validating AI models; without these, most AI projects fail to deliver the value companies hope to gain from their investments.

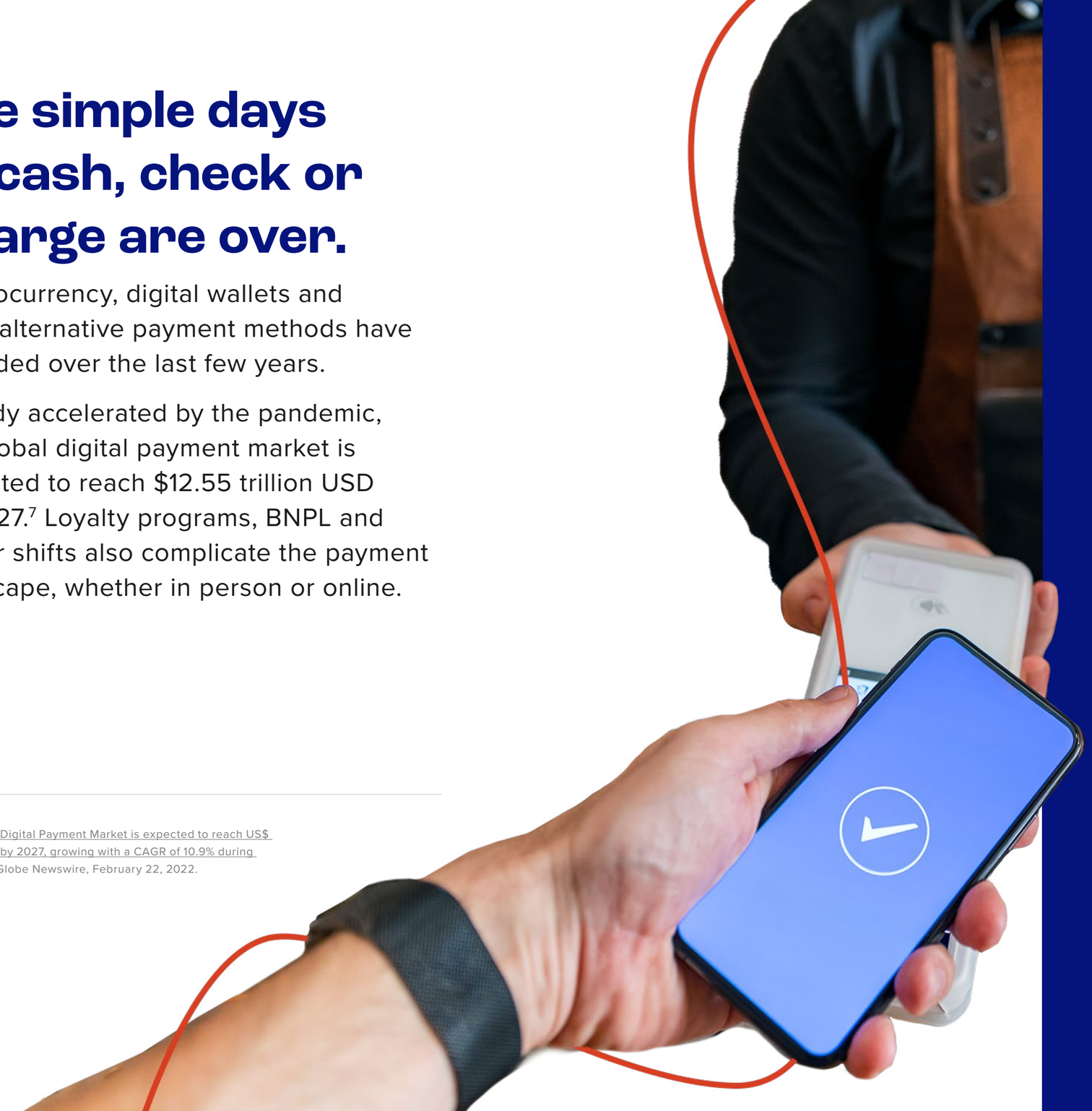
Learn more in the recent whitepaper Building a Global ML/AI Data Collection & Quality Program.

Payment Testing

The simple days of cash, check or charge are over.

Cryptocurrency, digital wallets and other alternative payment methods have exploded over the last few years.

Already accelerated by the pandemic, the global digital payment market is expected to reach $12.55 trillion USD by 2027.[7] Loyalty programs, BNPL and similar shifts also complicate the payment landscape, whether in person or online.



[7] "The Global Digital Payment Market is expected to reach US$ 12.55 Trillion by 2027, growing with a CAGR of 10.9% during 2021-2027." Globe Newswire, February 22, 2022.

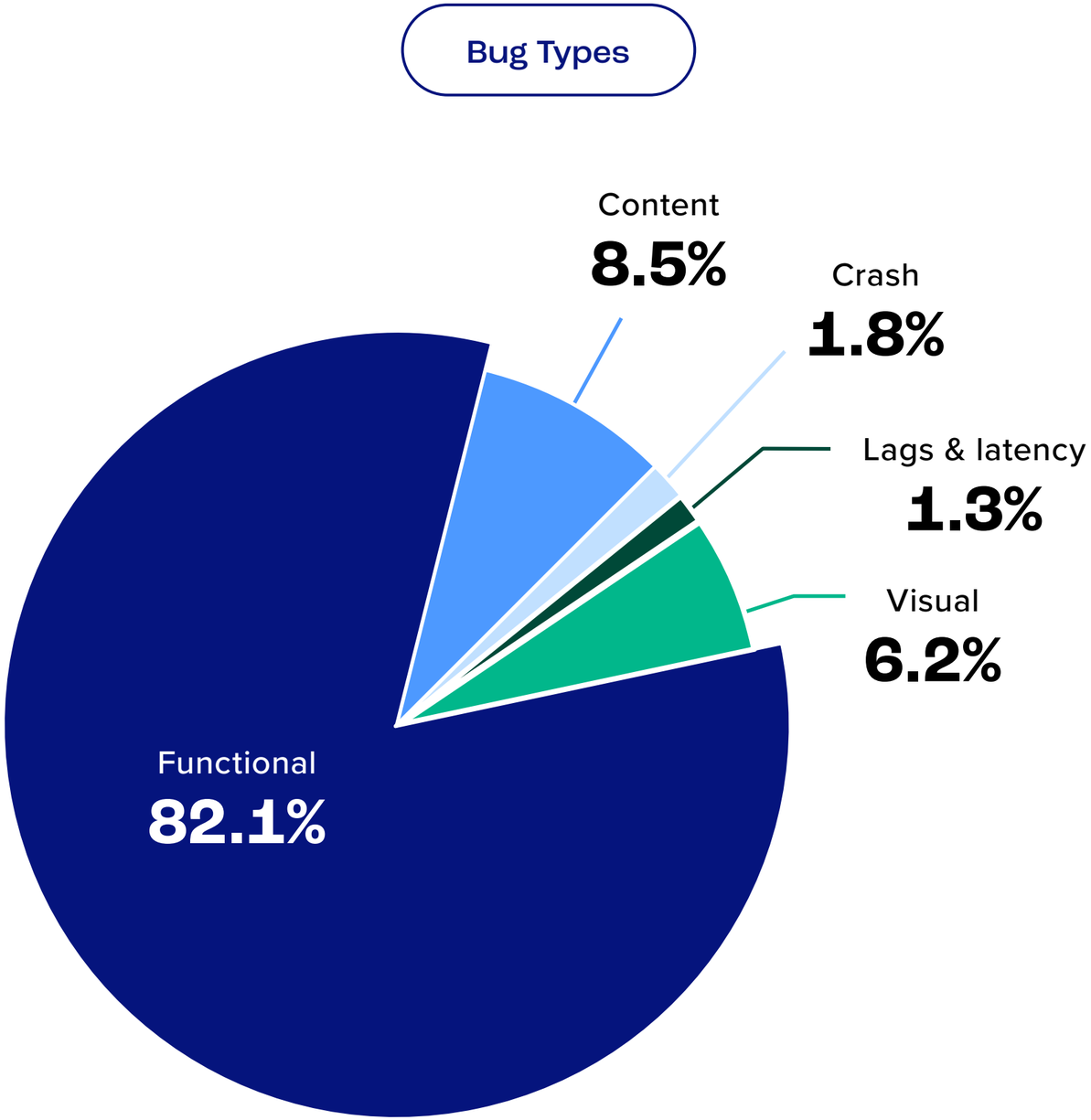
The Data Set

A representative sample of Applause's payment testing data for digital payment methods.

2,441
test cycles

100+
countries

5,847
bugs



The Big Problem

Functional/workflow errors were the most common payment bugs… meaning orders and payments didn't go through. Often, this is tied to problems with a particular payment instrument, merchant or capture device.

Bug Value

Interestingly, there's a significant discrepancy between the value customers and testers assigned to payment bugs, reflecting a far greater difference in rankings for other types of bugs. Though you'd expect companies to value payment bugs that could directly impact the bottom line, testers saw these bugs as a greater challenge than brands. Companies ranked 75% of crashes, 53% of lag and latency issues, and 61% of functional bugs as exceptionally or very valuable, while testers ranked 89% of crashes, 77% of lag and latency bugs, and 70% of functional bugs as critical or highly severe. This suggests that companies may underestimate the impact of payment friction in user experience and customer perceptions.

Recommendations

Focus on the payment instruments that matter most to your customers.
While some customers may be content to use a credit or debit card, others may want auto-draft from a bank account for recurring subscriptions, contactless payment for their morning coffee or weekend ride service, and cryptocurrency for ecommerce purchases. Know your customers' preferred payment methods — and make sure you can accept them.

Include returns, refunds, installment plans, subscription renewals, order cancellations and payouts as part of your overall payment testing plan.
While testing these transactions can take more time, they're a crucial part of the payment process – and your customer experience. What happens if the card a customer has on file for automatic renewals expires before their subscription renews? What if someone requests a refund, but no longer has the account they used to make the initial purchase? Can customers selling goods on marketplaces use their preferred accounts for payouts? It's imperative to get these transactions right to keep your customers happy.

Ensure promotional offers, loyalty points, rebates, coupons, account credits and other discounts work as intended.
Points, perks and promotions are designed to boost customer loyalty – and lifetime value. But when they don't work properly, these programs can have the opposite effect, irritating customers who may take their business elsewhere… or overwhelm your customer support systems.

As an example, one company offered triple rewards points for ordering food with a popular credit card. However, when customers ordered through a meal delivery service they encountered problems. Applause Director of Solutions Consulting Hamish Sherlock explained, "People didn't get the right points because the meal delivery services were categorized as transportation companies… and people who had ordered wanted their points." Applause helped the credit card company identify the issue early on, before it impacted tens of thousands of customers looking for point adjustments.

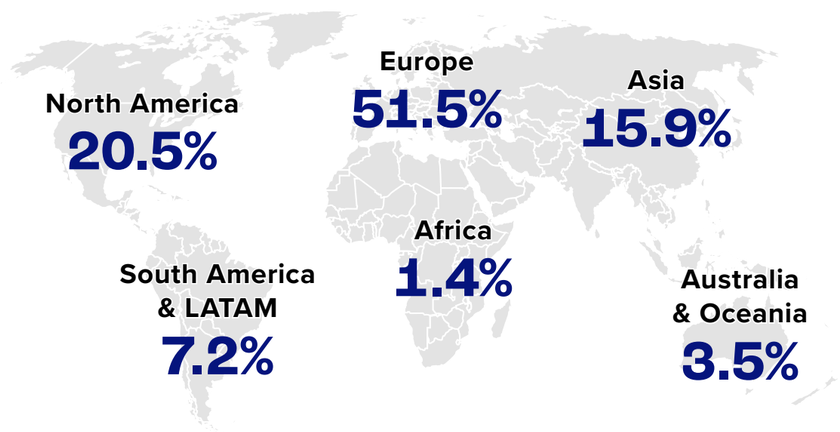
Payments and Accessibility

Companies often overlook the accessibility component in confirmation that payments have gone through. Make sure users with disabilities understand when payments are successful, and how to rectify errors.

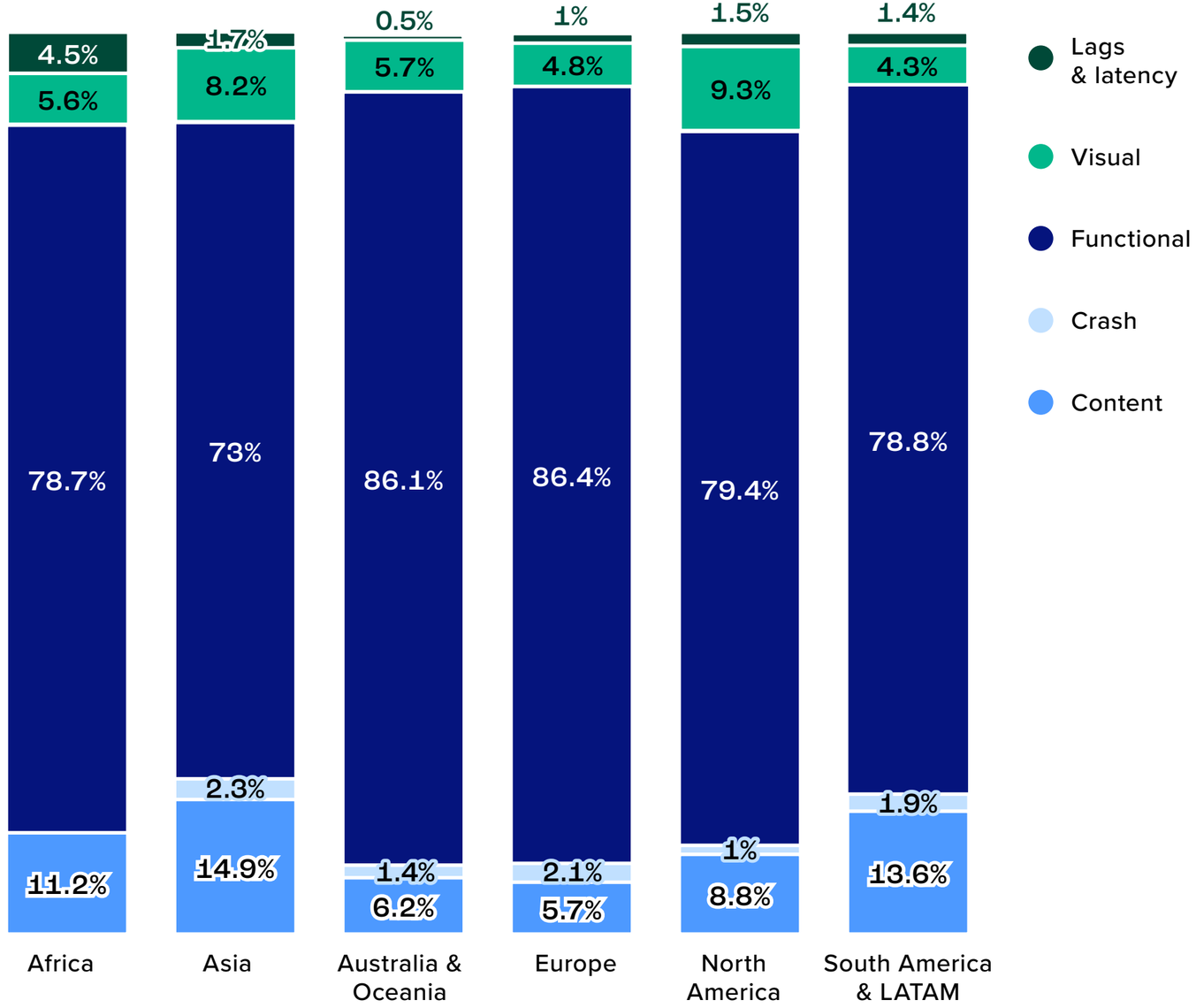
Comparison Across Regions

The image below depicts regions where testing occurred and how many bugs came from each region. Functional problems are most common across all locales, running the gamut from transaction failures and inability to link payment methods to missing checkout buttons and faulty verification processes.

Bug Distribution Across Regions



Bug Composition By Region



	Worldwide	Africa	Asia	Australia & Oceania	Europe	North America	S. America & LATAM
Mobile makes	50	14	30	9	33	24	18
Mobile models	704	89	317	71	387	235	192
Mobile OSes	8	4	6	4	7	6	5
Mobile OS versions	169	31	97	49	136	96	64
Mobile browsers	20	8	15	4	11	12	8
Mobile carriers	300	27	88	11	124	47	38
Desktop web browsers	27	10	21	18	16	17	24
Desktop OSes	9	6	6	2	5	3	8
Desktop OS versions	108	23	74	26	76	62	74
Cards	2,820	381	1,374	467	1,517	1,000	1,157
EWallets	27	6	22	5	14	13	13
Mobile wallet	44	9	25	5	23	16	20
Alternate payments	41	7	29	3	17	17	9

Device Coverage

Variations in payment instruments and integrations with different hardware components add another layer of complexity to payment testing. There are a number of hand-offs between disparate systems where things can go wrong; it's crucial to be able to quickly identify problems with specific devices, OSes or payment instruments.

What's next in digital quality?

Software development and testing are only going to get more complex and more crucial in the coming years as digital transformation accelerates across all industries. The metaverse is already changing the way companies view the customer journey and digital experience. In this new world, customers expect different technologies to blend seamlessly across all channels and touchpoints to create more personal and integrated exchanges. Customer experiences with one brand influence expectations with others across all industries, and the standards for minimum viable products must shift to keep pace. Digital-first brands require unparalleled speed, scale and flexibility to maintain a competitive advantage and future-proof their digital products, properties and experiences… exerting greater pressure than ever on laggards to catch up.

Use this report as a benchmark to see how your brand compares and identify ways to improve your digital quality, regardless of your company's maturity level. Some questions to consider:

- How does your organization conduct the comprehensive testing necessary to deliver satisfying digital experiences, to every customer, every time?
- Have you landed on the blend of test automation, manual functional testing, structured test cases and exploratory testing that delivers the most value for your business — and your customers?
- Where can you create more inclusive experiences that appeal to the broadest possible audience?
- How do you foster a culture of quality that delivers far-reaching benefits?

You will never regret improving the quality of your organization's digital experiences. Wishing you many happy returns.

How do your company's digital experiences compare?

What role does quality play throughout the SDLC at your organization? Please share your own stories of creating digital quality for your customers, and tell us what you'd like to see covered in next year's report. We look forward to hearing from you.

View our companion reports.

Contact us at feedback@stateofdigitalquality.com.

Acknowledgments

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