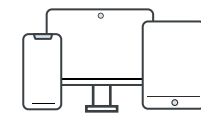


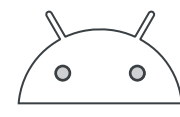
1 What is Fragmentation?

Fragmentation is the diversity of browsers, devices and platform versions in use at any given point of time.

People access the internet through...



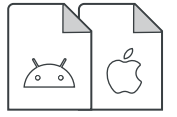
9000+ distinct devices



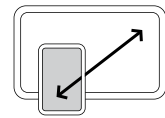
1300 android manufacturers



50+ iphone & ipad models in use



21 different operating systems



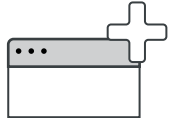
12 major screen-resolution in use



8 major browser engines



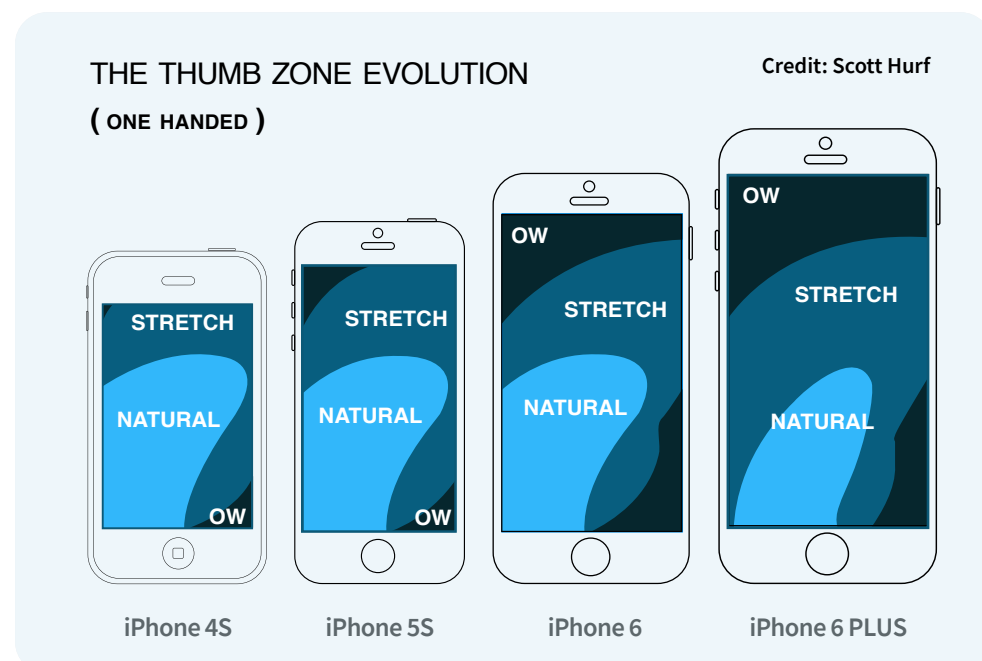
20% yoy growth in devices



20+ browsers versions added each year

2 How does it affect you?

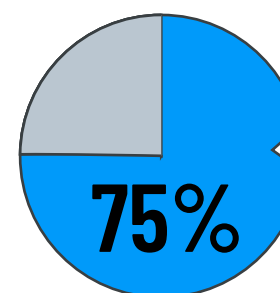
- Building responsive sites and customizing layouts for different screen sizes is no longer an option.



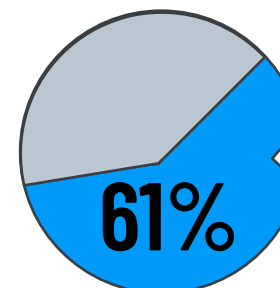
- 67%** increase in likelihood of product use, if your website is responsive.

- 57%** of internet users won't recommend businesses with a poorly designed mobile website.

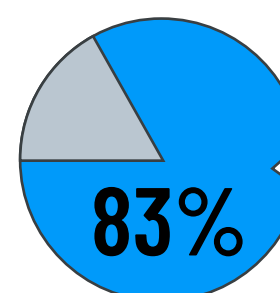
3 How does it affect your users?



of customers judge a company's credibility based on the website design.



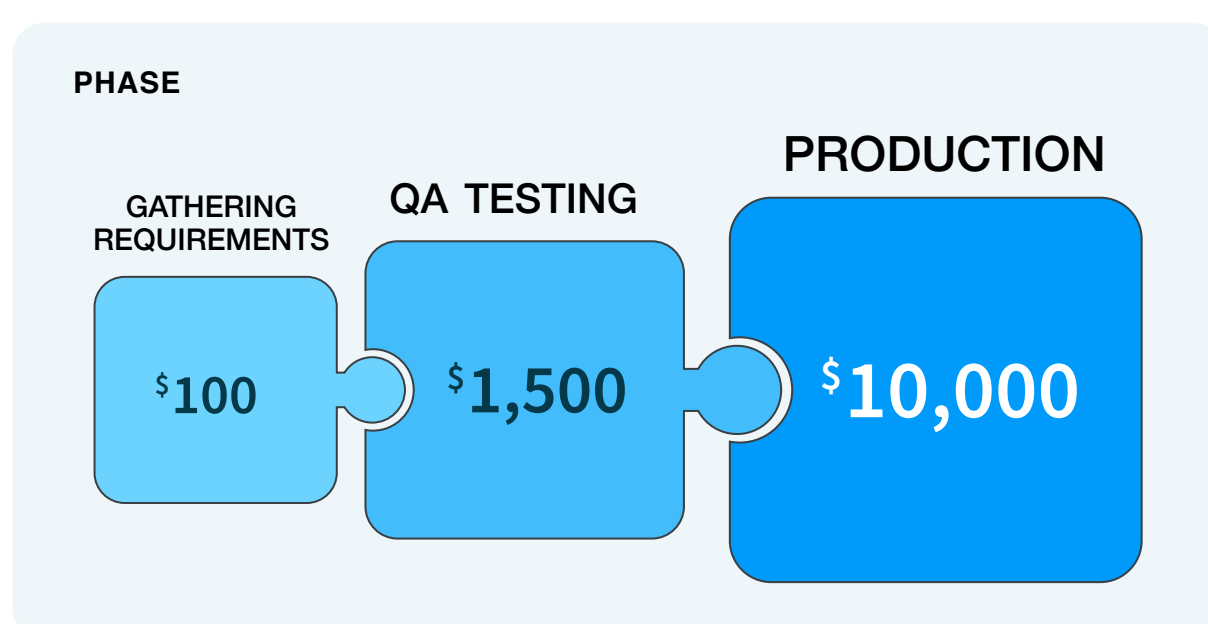
of users wouldn't return to a site if they had issues on mobile, and 40% would visit a competitor instead.



of mobile users gave high importance to a seamless experience across devices.

4 How does it affect your organization?

- Bugs are expensive to fix.



- 70%** of customers abandon their cart due to bad UX.

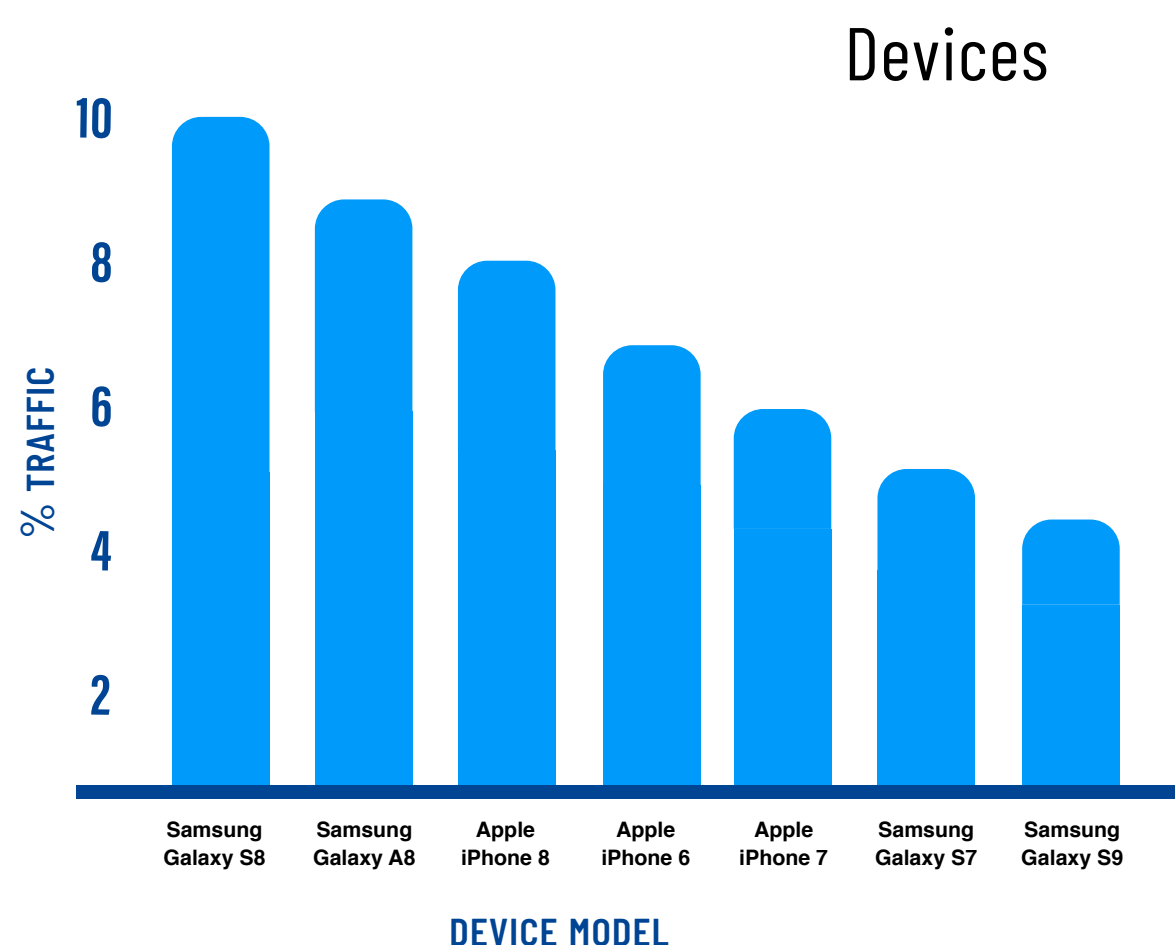
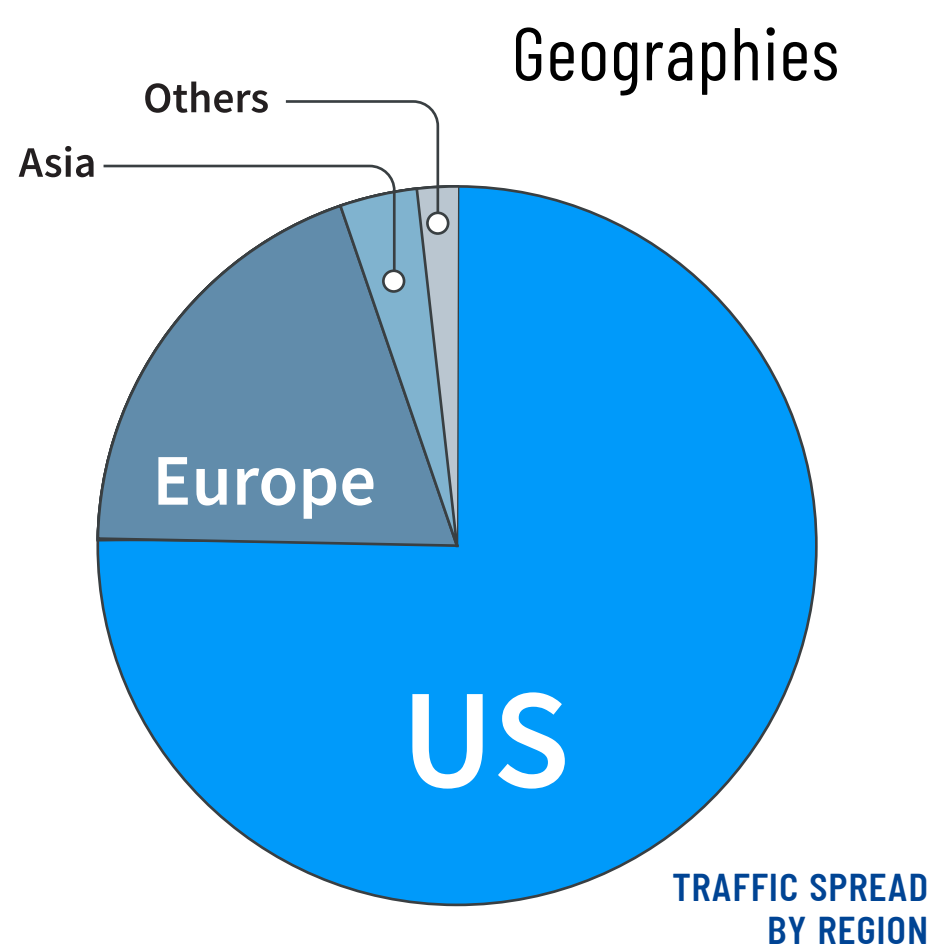
- 40%** of online transactions involve more than one device in the decision making phase.

5 How do I solve for this?

STEP 1

Identify where your users are coming from

This is what the sample data could look like



You can use the following tools to get this data



STEP 2

Prepare a list of device-browser combinations covering these aspects:

- ✓ Device-browser combinations with high test-fail rates and low conversion rates
- ✓ Relevant devices and browsers depending on the selected geographies.
- ✓ Flagship devices with high potential usage in the future.
- ✓ Type of tests to run in each device (Sanity, Regression, Integration, etc.).

STEP 3

Use these 3Rs to come up with a final set of devices to test on

REDUCE

It is never possible to test on all devices or browsers

- Reduce the number of similar devices (Apple iPhone 7 & 8)
- Remove devices with the same viewport/resolution
- Remove devices that consistently pass all your tests

REFINE

Consider aspects that might make more sense to your website

- Look at browsers with a low conversion rate
- Include devices that people will start using more in the future
- Build a test strategy that attacks the high-risk areas for your UX

RE-ADJUST

Do a cost-benefit analysis for additional testing

- Cost of additional testing (set up, execution, and delay in release)
- Revenue gains from reaching more users with a better UX
- The gain in brand equity and customer goodwill

6 Test on the right browsers and devices

To help you get started, we have prepared a list of browsers you need to test on. This list has been prepared after considering the following parameters:

X-✓

FACTORS TO CONSIDER

- Global traffic volume
- Market share and popularity
- OS and OS versions
- Screen sizes
- Usage statistics of BrowserStack customers

- Launch year
- Manufacturers
- Resolutions and Viewports
- Upcoming devices

Recommended device - browser combinations

STARTING UP

Win 10 - Chrome 79

Win 7 - Chrome 78

macOS Catalina - Safari 13

Samsung Galaxy S8 - Samsung Browser

Google Pixel 3 - Chrome

Apple iPhone 8 - Safari

GROWING BUSINESS

Everything in Starting Up

+

Win 10 - IE 11

Win 10 - Edge 18

Win 10 - Firefox 71

macOS Mojave - Safari 13

Samsung Galaxy S9 Plus - UC Browser

Huawei P20 Lite - Chrome

Apple iPhone XR - Chrome

Apple iPad 6th - Safari

ENTERPRISE

Everything in Growing

+

Win 10 - Opera 65

Win 7 - Firefox 70

Win 8.1 - Chrome 77

macOS Mojave - Chrome 78

macOS High Sierra - Firefox 71

Google Pixel 4 - UC Browser

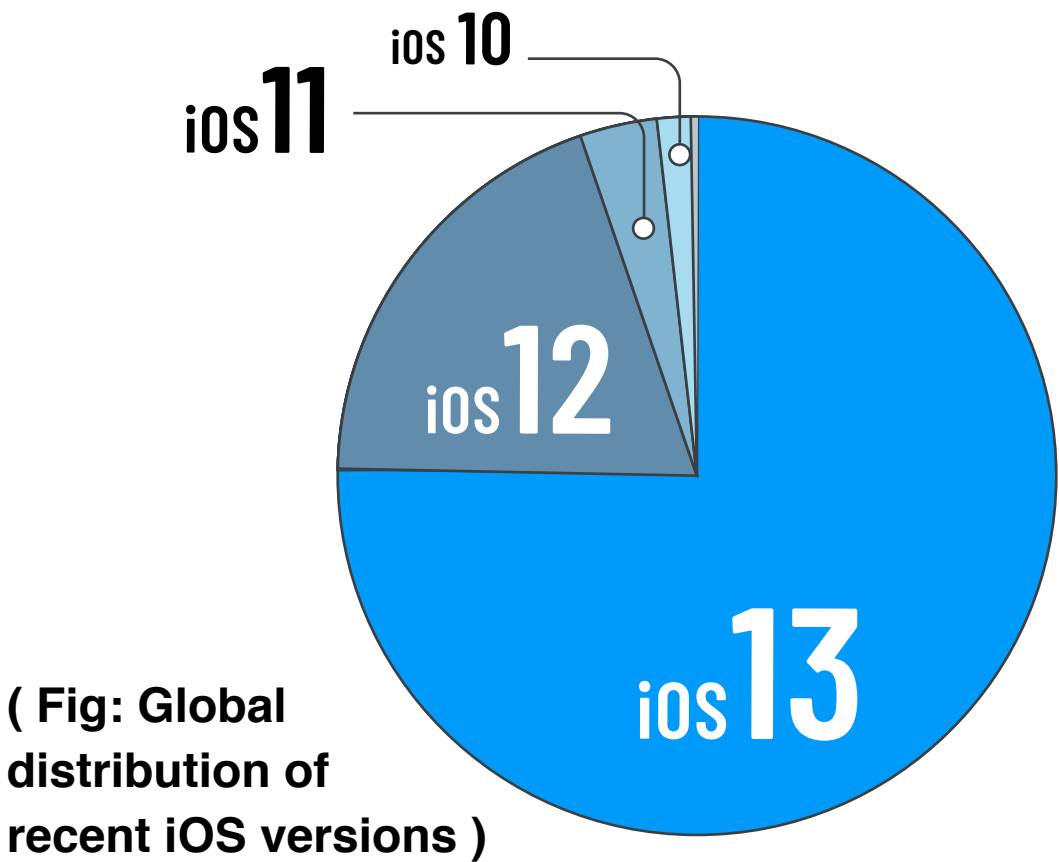
Samsung Galaxy J7 Prime - Opera

Apple iPhone 6S - Chrome

Apple iPhone 11 Pro - Safari

Countering fragmentation in Apple devices

Factors to consider



Distribution

Impact

Testing on at least 1-2 versions preceding the latest versions is important.

● **63%**
of all tablet traffic comes from iPads.

Impact

Adding a couple of iPads will give you a decent coverage.

● **40%**
of iPhone traffic in the US comes from devices that are more than 3 years old.

Impact

Testing on old iPhones such as iPhone 6, 7 and iPhone SE is critical.

Recommended devices to test on

STARTING UP

- Apple iPhone 8
- Apple iPhone XR
- Apple iPad 6th

GROWING BUSINESS

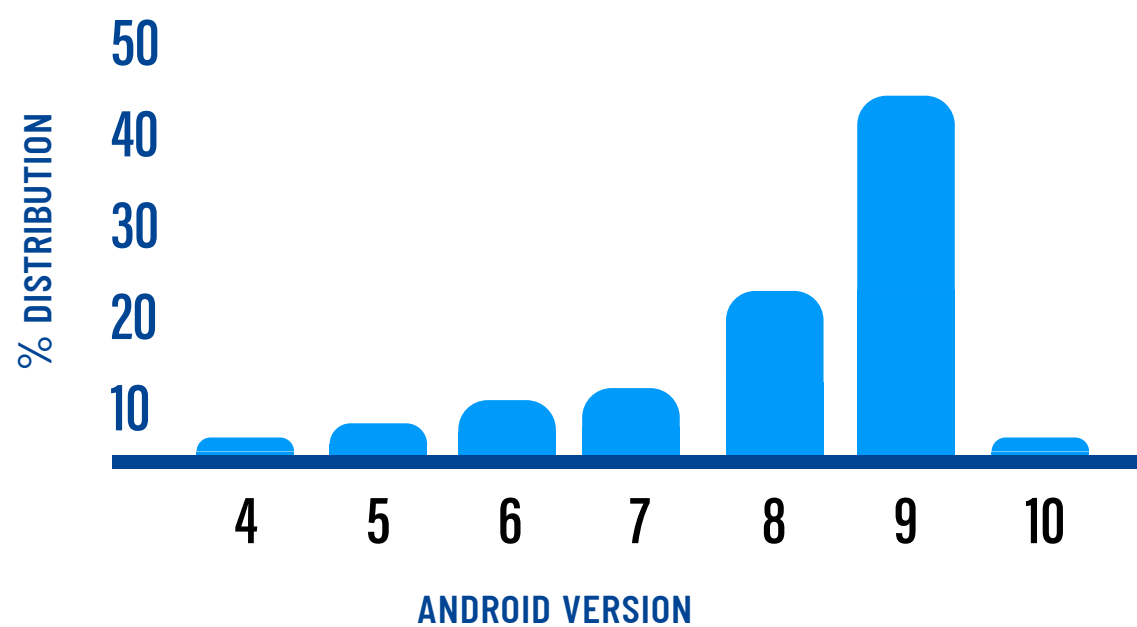
- Everything in Starting Up
- +
- Apple iPhone 8 Plus
- Apple iPhone 6S
- Apple iPhone 11 Pro

ENTERPRISE

- Everything in Growing
- +
- Apple iPhone XS
- Apple iPhone SE
- Apple iPad Air 2019

Countering fragmentation in Android devices

Factors to consider



Distribution

Impact

Testing on at least 4 different versions is critical for ensuring good coverage.

(Fig: Global distribution of popular Android versions)

● **9** major custom implementations of stock Android (One UI, Oxygen OS, MiUI, etc.)

Impact

Include custom UIs in your test suite, stock android isn't enough.

● **74.19%** of global mobile traffic comes from Android devices.

Impact

A good strategy for Android will improve the experience for a big chunk of users.

Recommended devices to test on

STARTING UP

- Samsung Galaxy S8
- Samsung Galaxy S9 Plus
- Google Pixel 3
- Huawei P20 Lite

GROWING BUSINESS

Everything in Starting Up



- Samsung Galaxy J7 Prime
- Samsung Galaxy J5 Prime
- Samsung Galaxy A8
- Google Pixel 4
- Samsung Galaxy Tab S4

ENTERPRISE

Everything in Growing



- Samsung Galaxy S6
- Xiaomi Redmi 6A
- Xiaomi Redmi Note 7
- Samsung Galaxy J2 Core
- One Plus 6T
- Samsung Galaxy A10

Countering desktop browser fragmentation

Factors to consider



(Fig: Global traffic share of the top six browsers)

Traffic share

Impact

Testing on remaining 5 browsers beyond Chrome will improve your coverage significantly.

● **94.1%**

of desktop traffic comes from either Windows or macOS.

Impact

Testing on the major Windows and macOS versions will cover most of your users.

● **44%**

of global internet traffic comes from desktops.

Impact

Desktop traffic is still significant and has much higher conversion rates.

Recommended devices to test on

STARTING UP

Win 10 - Chrome 79
Win 7 - Chrome 78
macOS Catalina - Safari 13

GROWING BUSINESS

Everything in Starting Up
+
Win 10 - IE 11
Win 10 - Edge 18
Win 10 - Firefox 71
macOS Mojave - Safari 13

ENTERPRISE

Everything in Growing
+
Win 10 - Opera 65
Win 7 - Firefox 70
Win 8.1 - Chrome 77
macOS Mojave - Chrome 78
macOS High Sierra - Firefox 71

About BrowserStack



BrowserStack is the world's largest software testing platform powering over two million tests every day across 10 global data centers. We help Microsoft, Twitter, Barclays, Expedia and over 25,000 customers deliver quality software at speed by moving testing to our Cloud. Our platform provides instant access to 2,000+ real mobile devices and browsers on a highly reliable cloud infrastructure that effortlessly scales as testing needs grow. With BrowserStack, Dev and QA teams can move fast while delivering an amazing experience for every customer.

Founded in 2011, BrowserStack is a privately held company backed by Accel with offices in San Francisco, Mumbai and Dublin.

For more information, visit <https://www.browserstack.com>

2M+

developers and QAs

135

countries

60M+

tests per month

10

data centers

NEED HELP IN BUILDING YOUR TEST STRATEGY?

Let's Talk

[Read more about Fragmentation](#)



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