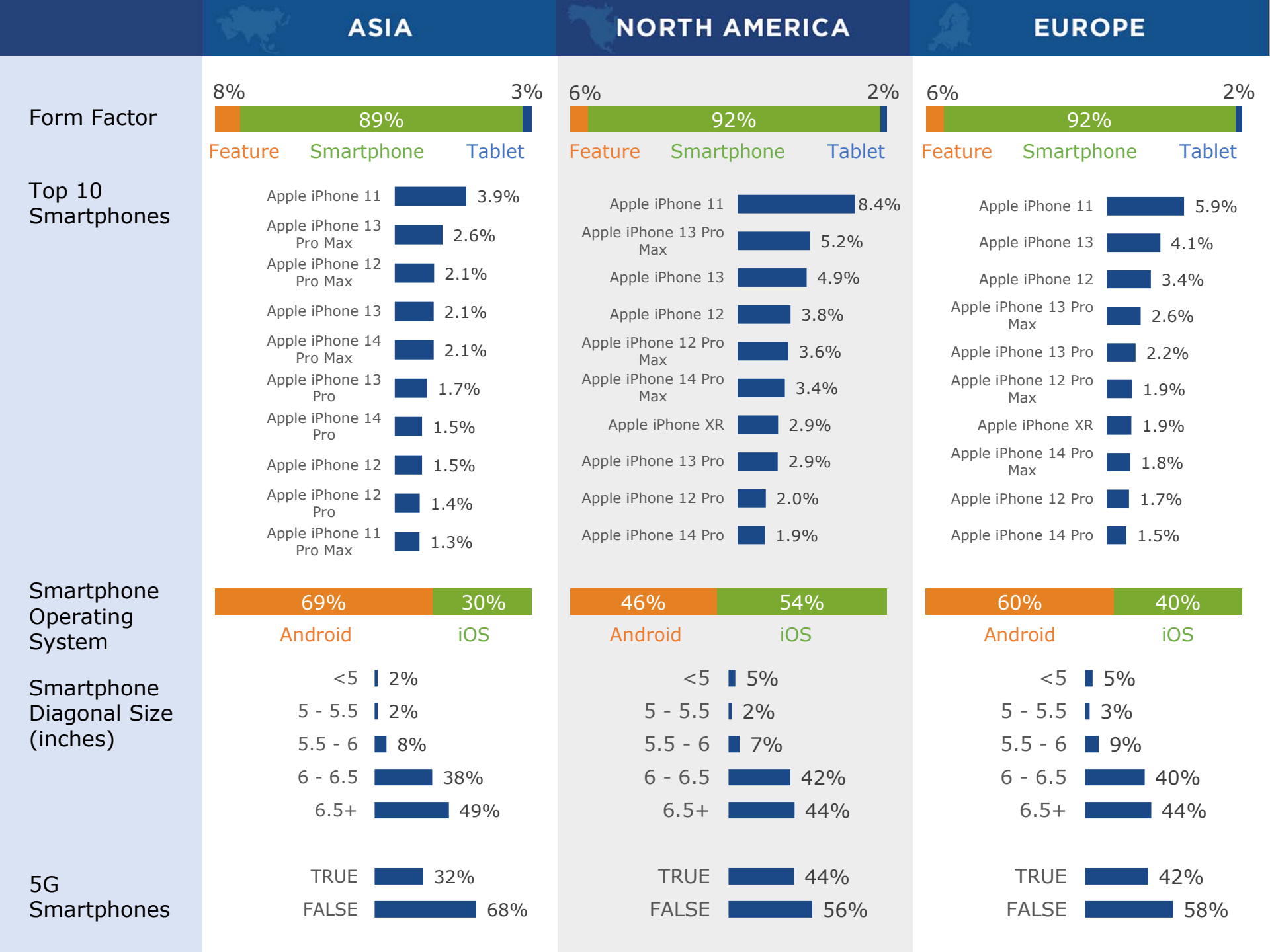
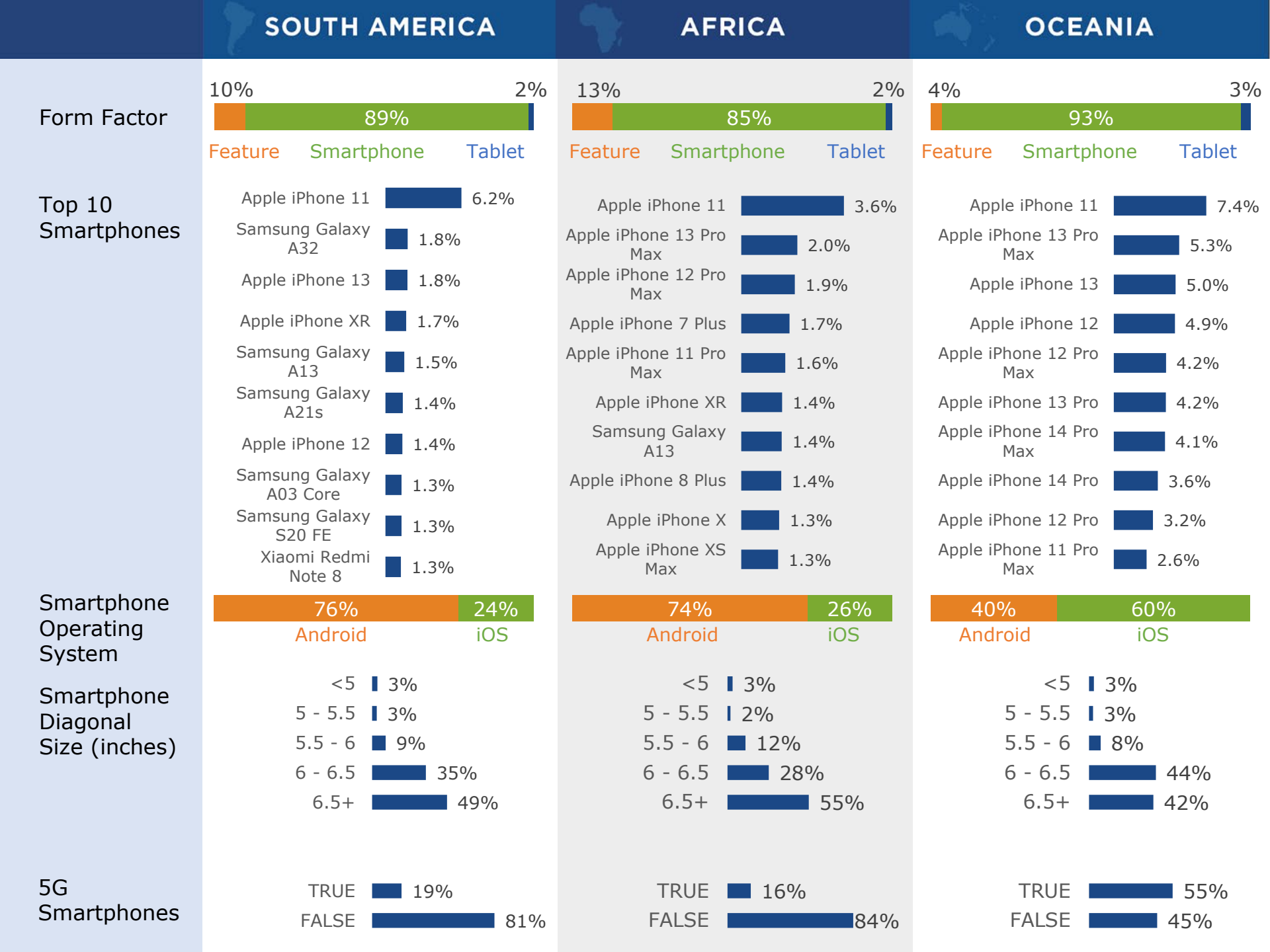
MOVR

Mobile Overview Report

APR - JUN 2023


ASIA
NORTH AMERICA
EUROPE
Form Factor
8%
3%
89%
Feature
Smartphone
Tablet
6%
2%
92%
Feature
Smartphone
Tablet
6%
2%
92%
Feature
Smartphone
Tablet
Top 10 Smartphones
Apple iPhone 11 3.9%
Apple iPhone 13 Pro Max 2.6%
Apple iPhone 12 Pro Max 2.1%
Apple iPhone 13 2.1%
Apple iPhone 14 Pro Max 2.1%
Apple iPhone 13 Pro 1.7%
Apple iPhone 14 Pro 1.5%
Apple iPhone 12 1.5%
Apple iPhone 12 Pro 1.4%
Apple iPhone 11 Pro Max 1.3%
Apple iPhone 11 8.4%
Apple iPhone 13 Pro Max 5.2%
Apple iPhone 13 4.9%
Apple iPhone 12 3.8%
Apple iPhone 12 Pro Max 3.6%
Apple iPhone 14 Pro Max 3.4%
Apple iPhone XR 2.9%
Apple iPhone 13 Pro 2.9%
Apple iPhone 12 Pro 2.0%
Apple iPhone 14 Pro 1.9%
Apple iPhone 11 5.9%
Apple iPhone 13 4.1%
Apple iPhone 12 3.4%
Apple iPhone 13 Pro Max 2.6%
Apple iPhone 13 Pro 2.2%
Apple iPhone 12 Pro Max 1.9%
Apple iPhone XR 1.9%
Apple iPhone 14 Pro Max 1.8%
Apple iPhone 12 Pro 1.7%
Apple iPhone 14 Pro 1.5%
Smartphone Operating System
69%
30%
Android
iOS
46%
54%
Android
iOS
60%
40%
Android
iOS
Smartphone Diagonal Size (inches)
<5 2%
5 - 5.5 2%
5.5 - 6 8%
6 - 6.5 38%
6.5+ 49%
<5 5%
5 - 5.5 2%
5.5 - 6 7%
6 - 6.5 42%
6.5+ 44%
<5 5%
5 - 5.5 3%
5.5 - 6 9%
6 - 6.5 40%
6.5+ 44%
5G Smartphones
TRUE 32%
FALSE 68%
TRUE 44%
FALSE 56%
TRUE 42%
FALSE 58%


SOUTH AMERICA
AFRICA
OCEANIA
Form Factor
10%
89%
2%
Feature
Smartphone
Tablet
13%
85%
2%
Feature
Smartphone
Tablet
4%
93%
3%
Feature
Smartphone
Tablet
Top 10 Smartphones
Apple iPhone 11 6.2%
Samsung Galaxy A32 1.8%
Apple iPhone 13 1.8%
Apple iPhone XR 1.7%
Samsung Galaxy A13 1.5%
Samsung Galaxy A21s 1.4%
Apple iPhone 12 1.4%
Samsung Galaxy A03 Core 1.3%
Samsung Galaxy S20 FE 1.3%
Xiaomi Redmi Note 8 1.3%
Apple iPhone 11 3.6%
Apple iPhone 13 Pro Max 2.0%
Apple iPhone 12 Pro Max 1.9%
Apple iPhone 7 Plus 1.7%
Apple iPhone 11 Pro Max 1.6%
Apple iPhone XR 1.4%
Samsung Galaxy A13 1.4%
Apple iPhone 8 Plus 1.4%
Apple iPhone X 1.3%
Apple iPhone XS Max 1.3%
Apple iPhone 11 7.4%
Apple iPhone 13 Pro Max 5.3%
Apple iPhone 13 5.0%
Apple iPhone 12 4.9%
Apple iPhone 12 Pro Max 4.2%
Apple iPhone 13 Pro 4.2%
Apple iPhone 14 Pro Max 4.1%
Apple iPhone 14 Pro 3.6%
Apple iPhone 12 Pro 3.2%
Apple iPhone 11 Pro Max 2.6%
Smartphone Operating System
76%
24%
Android
iOS
74%
26%
Android
iOS
40%
60%
Android
iOS
Smartphone Diagonal Size (inches)
<5 3%
5 - 5.5 3%
5.5 - 6 9%
6 - 6.5 35%
6.5+ 49%
<5 3%
5 - 5.5 2%
5.5 - 6 12%
6 - 6.5 28%
6.5+ 55%
<5 3%
5 - 5.5 3%
5.5 - 6 8%
6 - 6.5 44%
6.5+ 42%
5G Smartphones
TRUE 19%
FALSE 81%
TRUE 16%
FALSE 84%
TRUE 55%
FALSE 45%

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Q1 2023 to Q2 2023 Comparisons

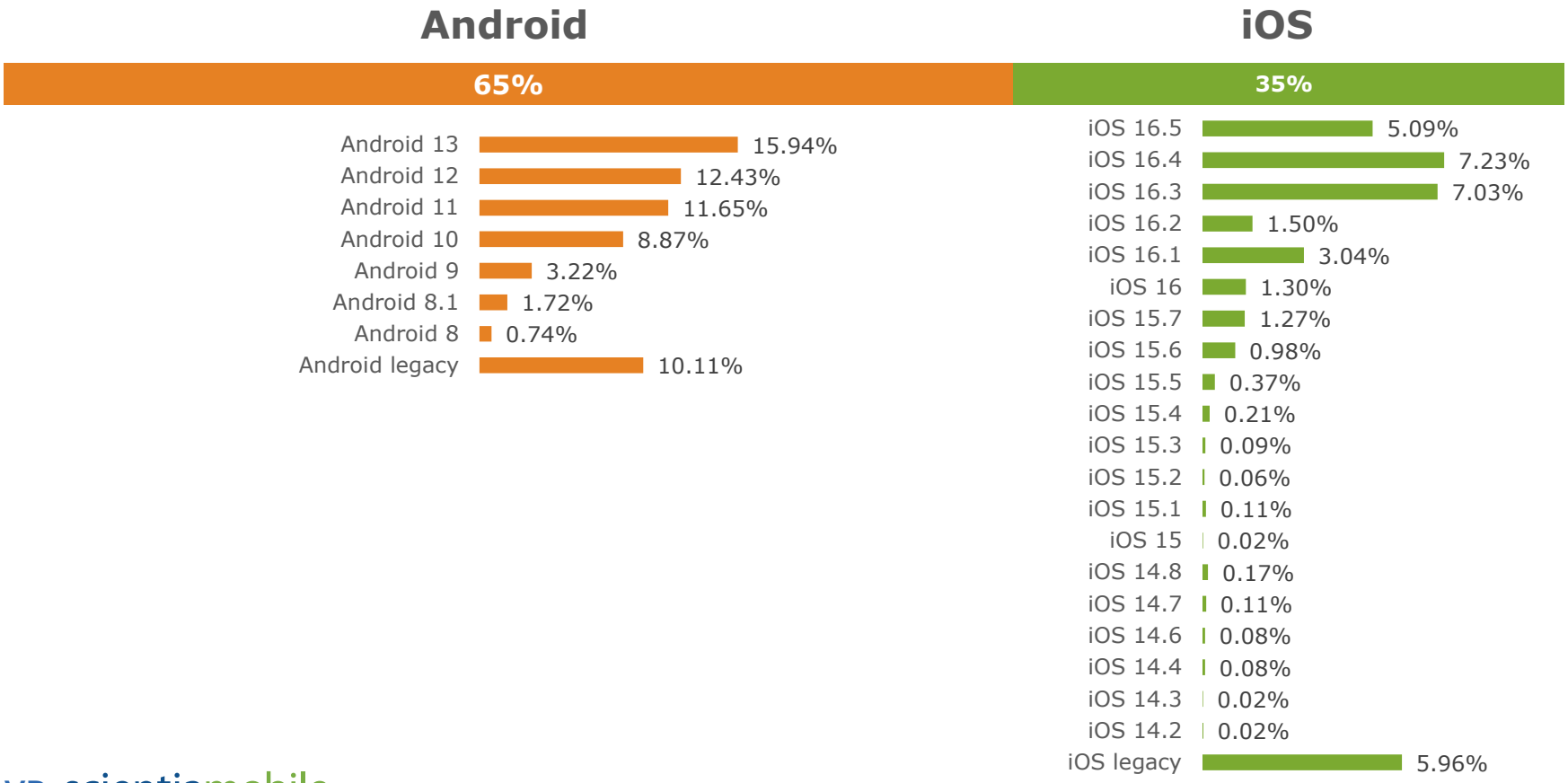
Top Smartphones, 2023 Q2

Top Smartphones	Africa	Asia	Europe	N. Americ	Oceania	S. Americ	Global
Apple iPhone 11	3.62%	3.87%	5.92%	8.37%	7.44%	6.23%	4.88%
Apple iPhone 11 Pro Max	1.55%	1.34%	1.24%	1.72%	2.64%	0.69%	1.24%
Apple iPhone 12	0.96%	1.48%	3.37%	3.78%	4.93%	1.38%	2.37%
Apple iPhone 12 Pro	0.69%	1.35%	1.69%	2.00%	3.15%	0.50%	1.38%
Apple iPhone 12 Pro Max	1.89%	2.13%	1.93%	3.60%	4.21%	0.80%	2.14%
Apple iPhone 13	1.29%	2.10%	4.09%	4.92%	4.97%	1.80%	3.01%
Apple iPhone 13 Pro	0.65%	1.74%	2.20%	2.86%	4.20%	0.70%	1.92%
Apple iPhone 13 Pro Max	1.98%	2.58%	2.59%	5.15%	5.26%	1.11%	2.90%
Apple iPhone 14 Pro	0.25%	1.48%	1.48%	1.94%	3.55%	0.38%	1.44%
Apple iPhone 14 Pro Max	0.76%	2.10%	1.78%	3.37%	4.12%	0.59%	2.25%
Apple iPhone 7 Plus	1.70%	1.07%	0.44%	0.57%	0.39%	0.73%	0.71%
Apple iPhone 8 Plus	1.41%	0.96%	0.66%	1.20%	0.91%	1.04%	0.83%
Apple iPhone X	1.34%	0.83%	0.88%	0.79%	0.84%	0.55%	0.73%
Apple iPhone XR	1.44%	0.95%	1.87%	2.88%	2.25%	1.69%	1.70%
Apple iPhone XS Max	1.30%	0.92%	0.61%	0.74%	1.02%	0.40%	0.71%
Samsung Galaxy A03 Core	1.05%	0.14%	0.10%	0.27%	0.09%	1.32%	0.36%
Samsung Galaxy A13	1.43%	0.48%	1.11%	0.50%	0.56%	1.54%	0.88%
Samsung Galaxy A21s	0.87%	0.34%	0.59%	0.42%	0.31%	1.42%	0.61%
Samsung Galaxy A32	0.62%	0.43%	0.57%	0.53%	0.40%	1.82%	0.72%
Samsung Galaxy S20 FE	0.22%	0.12%	0.84%	0.23%	0.71%	1.31%	0.59%
Xiaomi Redmi Note 8	0.26%	0.49%	0.22%	0.40%	0.05%	1.27%	0.48%
Others	**74.73%**	**73.09%**	**65.81%**	**53.72%**	**48.02%**	**72.74%**	**68.16%**

- iPhone 11 continues as the most popular smartphone, with 4.887% globally. This is down slightly from 2023 Q1. The iPhone 13 is in second place with 3.01% globally.
- iPhones account for the top 15 the top 21 smartphones globally.
- Budget phones from Samsung and Xiaomi are the only exceptions to the iPhone's dominance, and these only break into the top 10 in S. America, and Africa.

Global Smartphone OS Versions

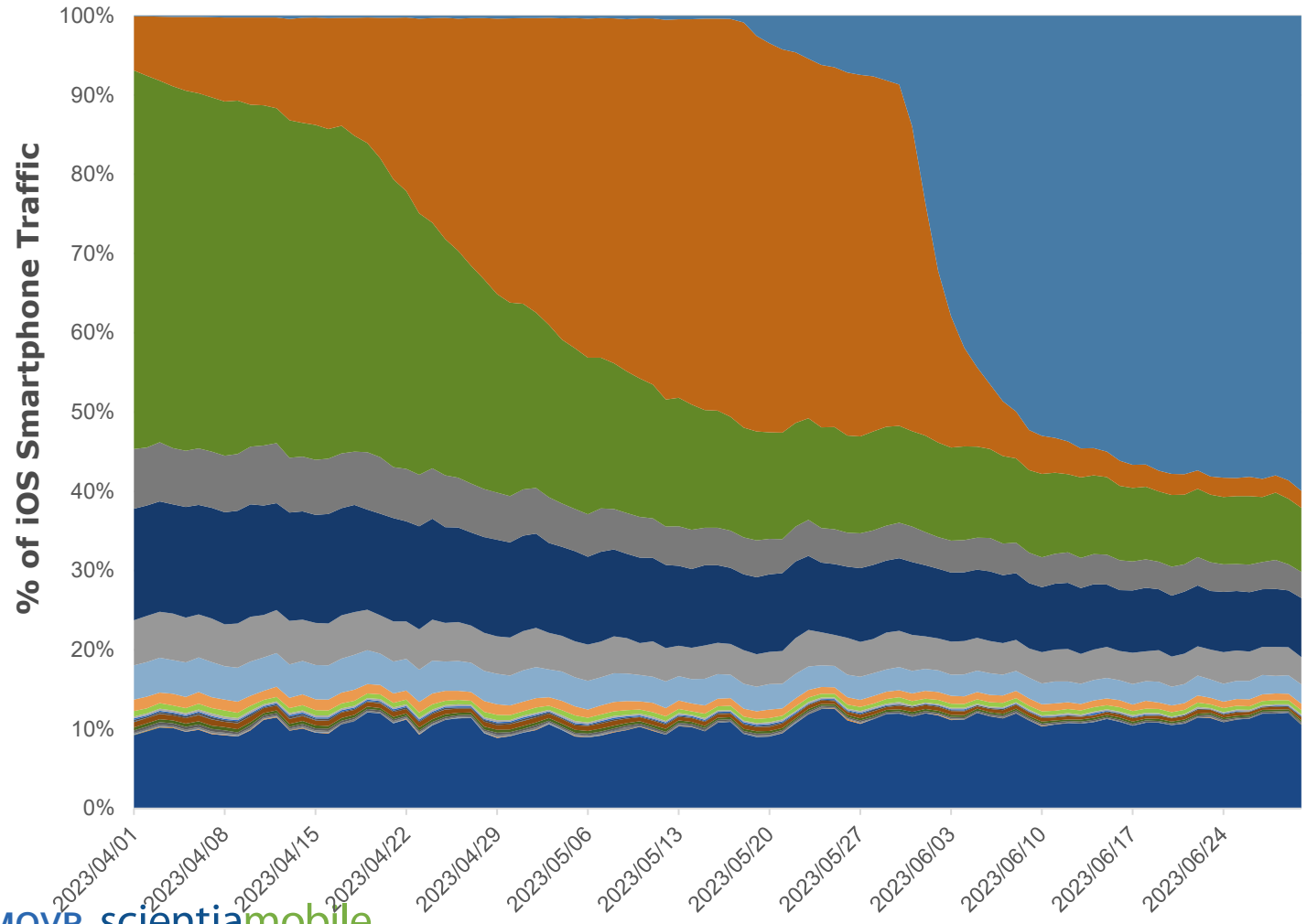
- Android has 65% of operating system share among smartphones globally.
- Android 13 is the most popular version, with 15.94% of global market share.
- iOS has 35% of OS share.
- iOS 16.4 is the most popular version with 7.23% globally.



Legacy Definition: iOS before 14, Android before 8

iOS Smartphone Operating System Trends

- iOS 16.5 ended 2023 Q2 as the most popular iOS operating system with 59.94%.
- New iOS 16 (versions 16.0 to 16.5) released in September 2022 has 84.35%.



Version	End of Q2
16.5	59.94%
16.4	2.13%
16.3	8.10%
16.2	3.28%
16.1	7.45%
16.0	3.43%
15.6	2.46%
15.5	0.81%
15.4	0.52%
15.3	0.16%
15.2	0.07%
15.1	0.10%
15	0.00%
14.8	0.42%
14.7	0.22%
14.6	0.14%
14.5	0.00%
14.4	0.14%
14.3	0.00%
14.2	0.00%
14.1	0.00%
14	0.00%
iOS legacy	10.59%

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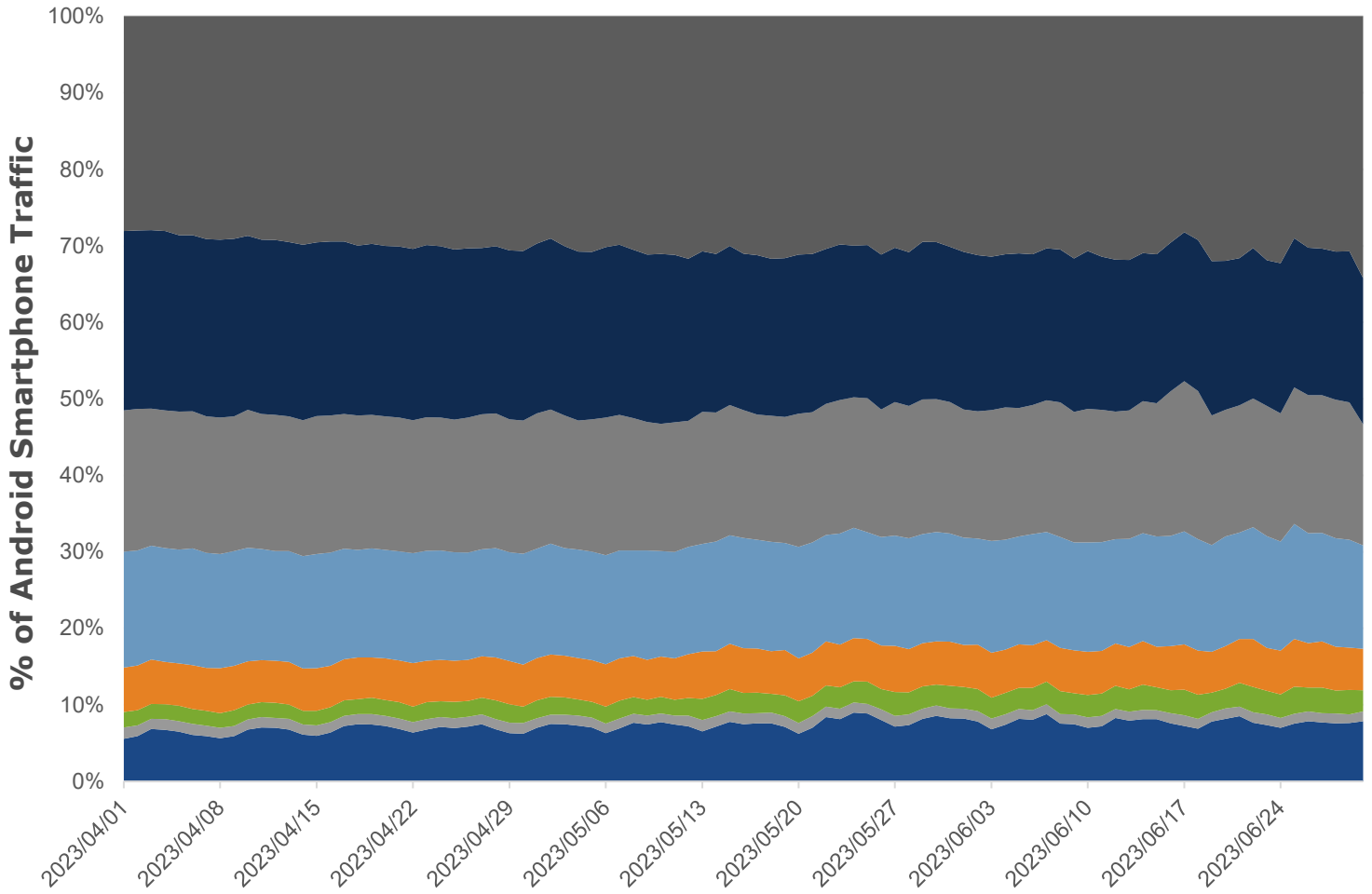
Legacy Definition: before iOS 14

Android Smartphone Operating System Trends

- By the end of 2023 Q2, Android 13 had surpassed prior versions with 34.23% of Android OS smartphones.



Version	End of Q1
13	34.23%
12	19.13%
11	15.80%
10	13.50%
9	5.41%
8.1	2.78%
8.0	1.30%
legacy	7.85%

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Legacy Definition: before Android 8

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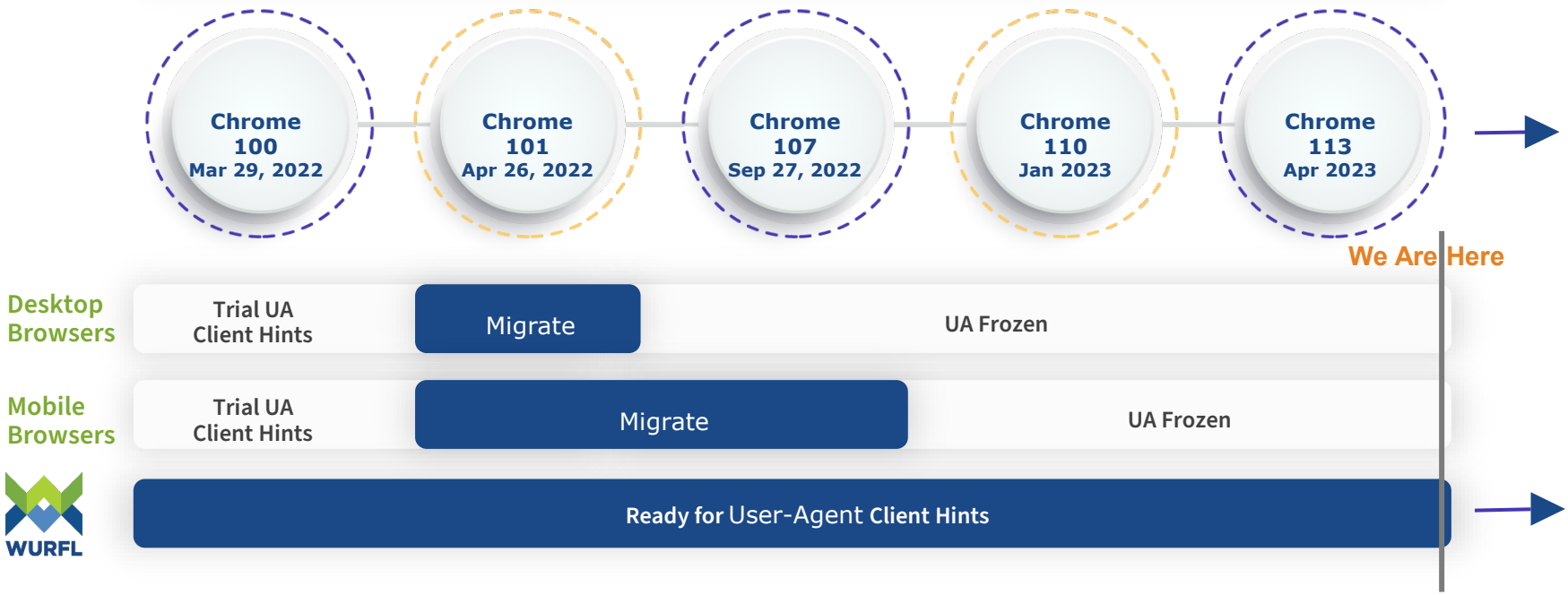
Chrome/Chromium Updates, Frozen User Agents, and Client Hints

Timeline for Freezing User Agents, Migration to User-Agent Client Hints

- In 2022 Q2, Google started to migrate to user-agent client hints for desktop.
- In 2022 Q3, mobile devices started migrating.
- **In 2023 Q2,** mobile device user-agent strings started to freeze in significant percentages.
- According to Chromium.org, Phase 6 rollout enabled 100% of Android clients on version M110 and above as of May 11th, 2023.
- **Learn more** about keeping device detection accurate with WURFL.

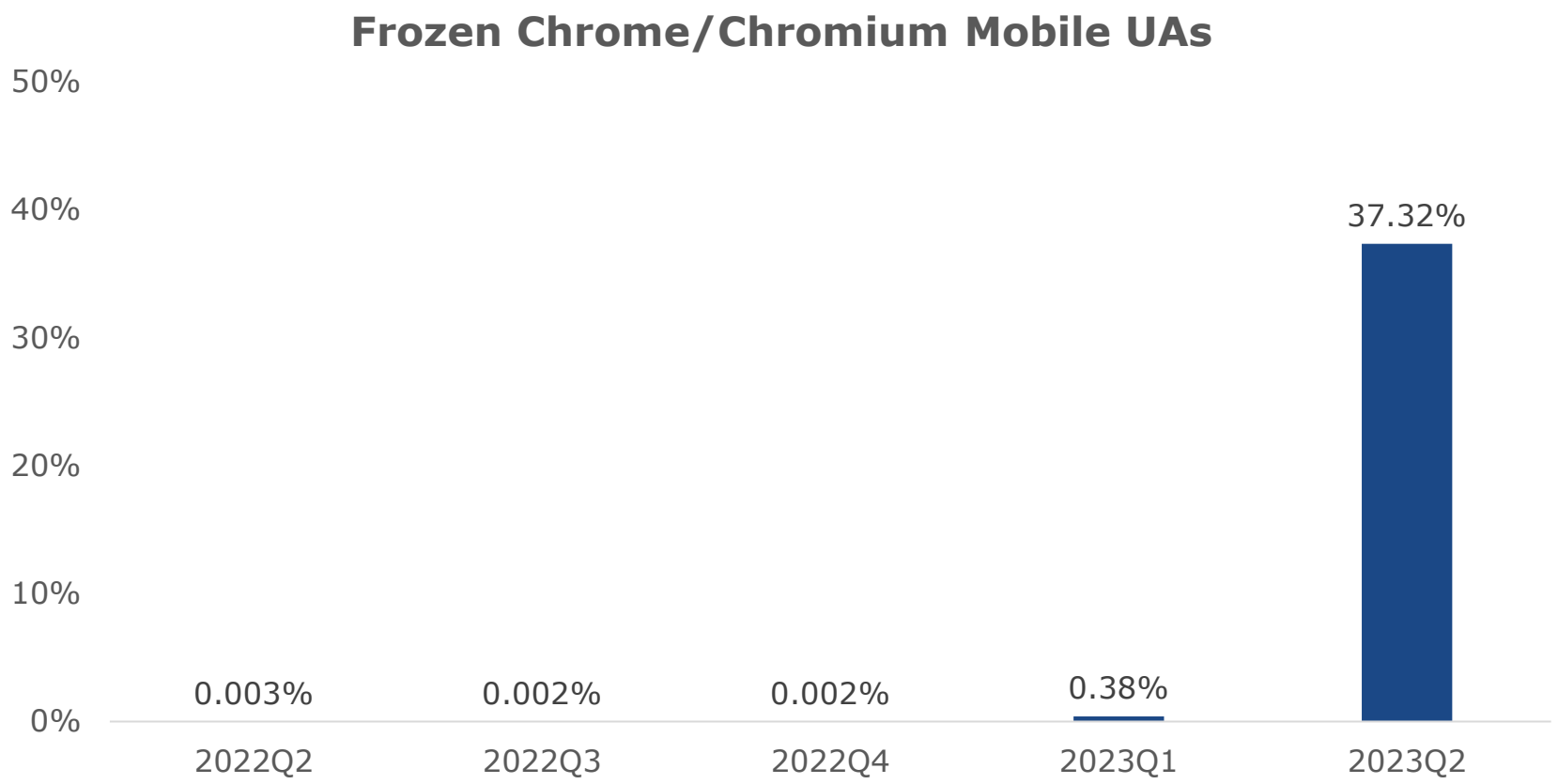


WURFL API Update (1.12.5.0, released in March 2022) accepts User-Agent Client Hints and reconciles them with User-Agents Strings.

https://www.chromium.org/updates/ua-reduction/#TOC-Proposed-Rollout-Plan

Frozen Mobile User Agent Strings

- In 2023 Q2, ScientiaMobile detects a significant proportion of Chrome/Chromium mobile user agent strings frozen, reaching 37.32%.



Turn On User-Agent Client Hints Now!!

- Google Chrome is freezing both desktop and mobile browser user agent strings.
- Be prepared for frozen user agent strings. Configure your application and HTTP servers to request additional Client Hints headers.
- Example:

```
Accept-CH: sec-ch-ua-platform-version,sec-ch-ua-full-version,sec-ch-ua-full-version-list,sec-ch-ua-model,sec-ch-ua-arch,sec-ch-ua-bitness,sec-ch-ua-wow64
```

Learn more here:
https://www.scientiamobile.com/add-support-for-user-agent-client-hints-now/

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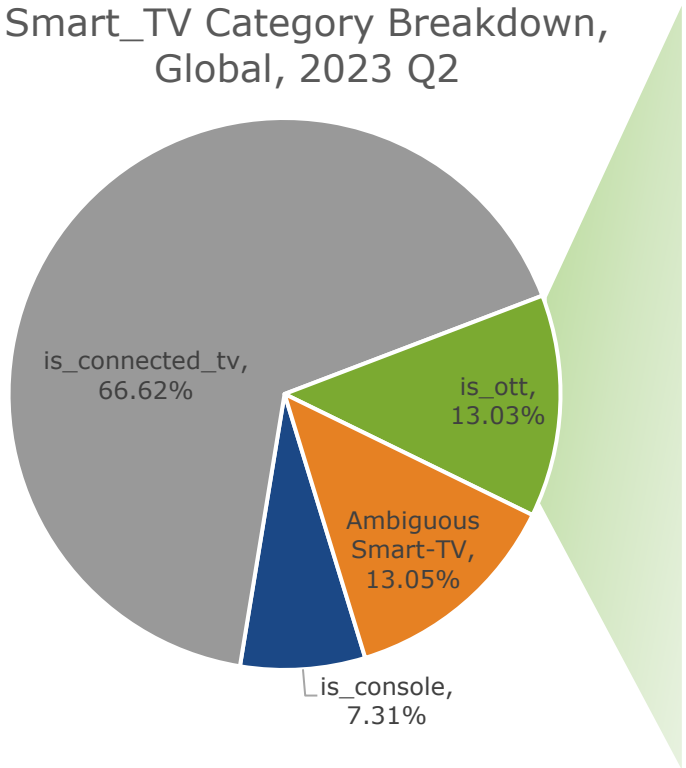
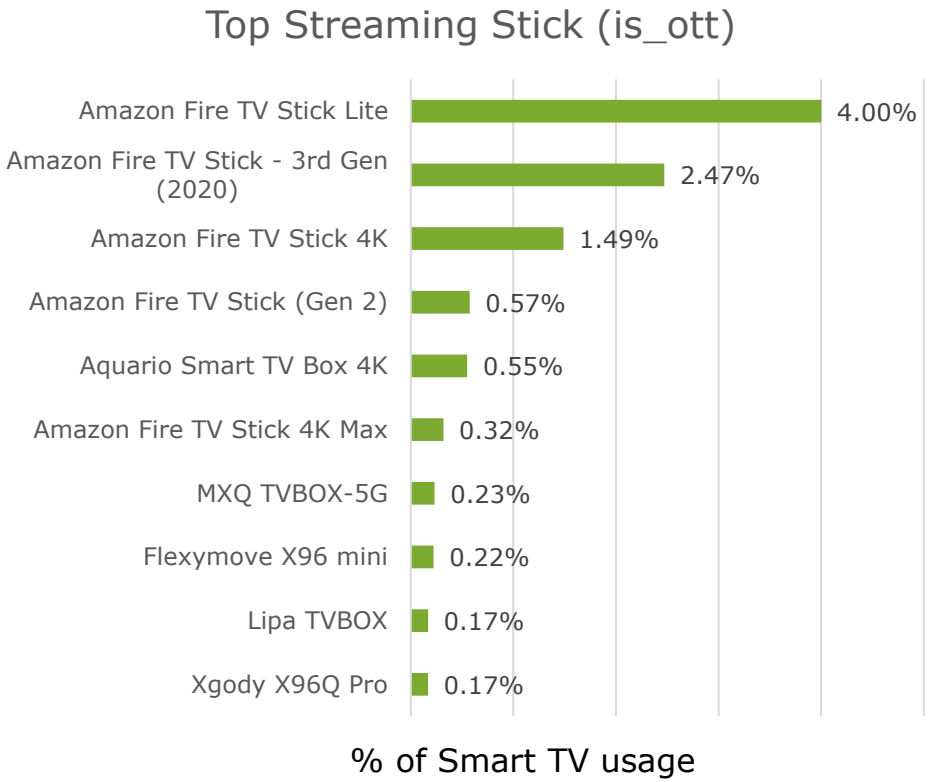
Top Streaming Sticks 2023 Q2

Top Streaming Sticks

- The Smart TV form factor category is growing in importance as more OTT and streaming video expands.
- Connected TVs represents the largest sub-category of smart TVs, with 66.62%.

- ScientiaMobile's is_ott category includes set-top boxes that are capable of OTT video delivery.
- These days, that OTT video can be delivered via a small streaming stick.
- Amazon's Fire TV sticks dominate this sub-category.





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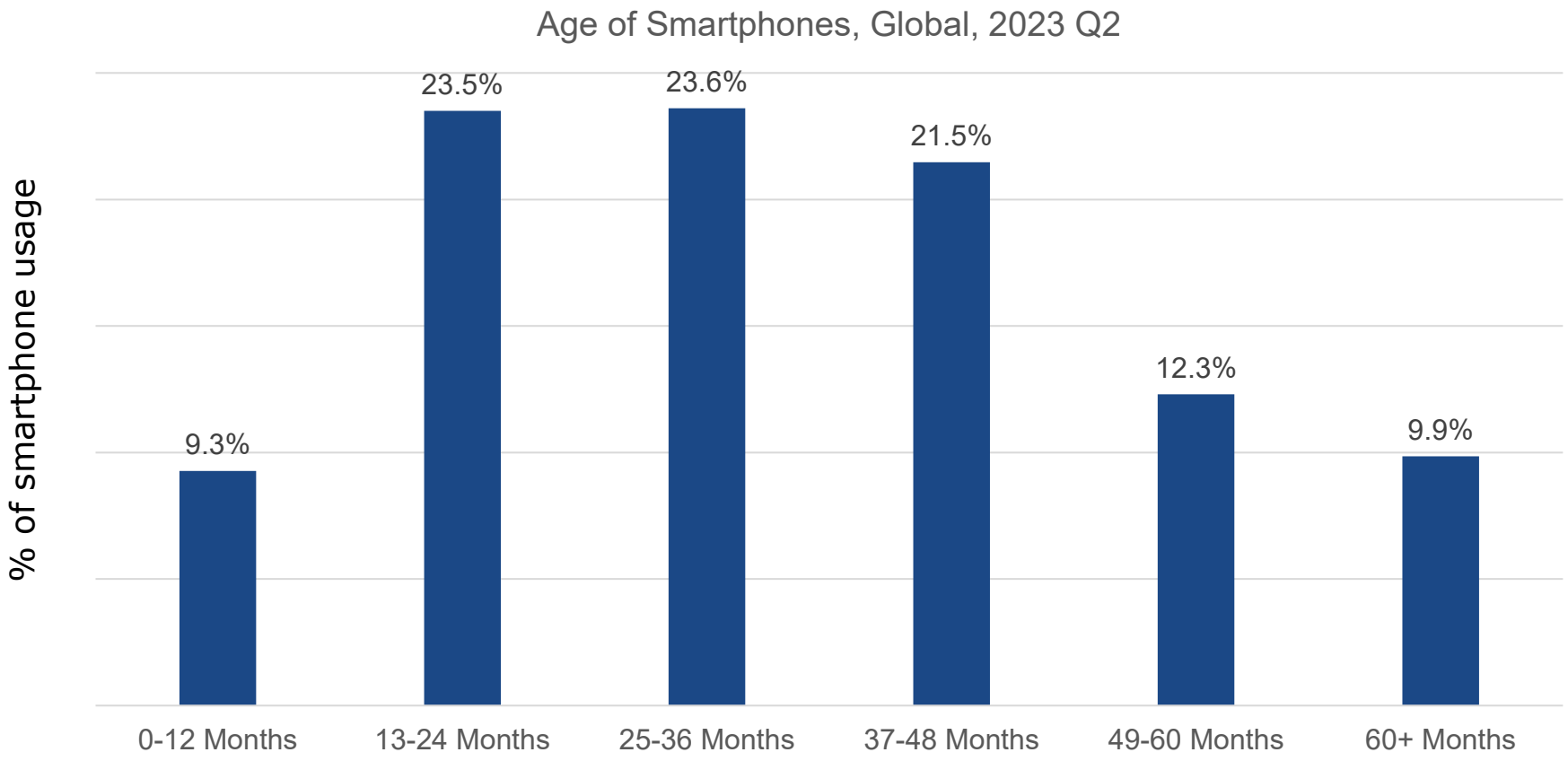
Age of Smartphones 2023 Q2

Age of Smartphones, Global

- The median age of smartphones is beyond 24 months in 2023 Q2. The median falls is in the 25-26 months bucket.
- Likewise, this 25-36 months bucket is the largest, with 23.6% of smartphone usage.
- The last two buckets, 49-60 months, and 60+ months account for more than 22% of the usage.



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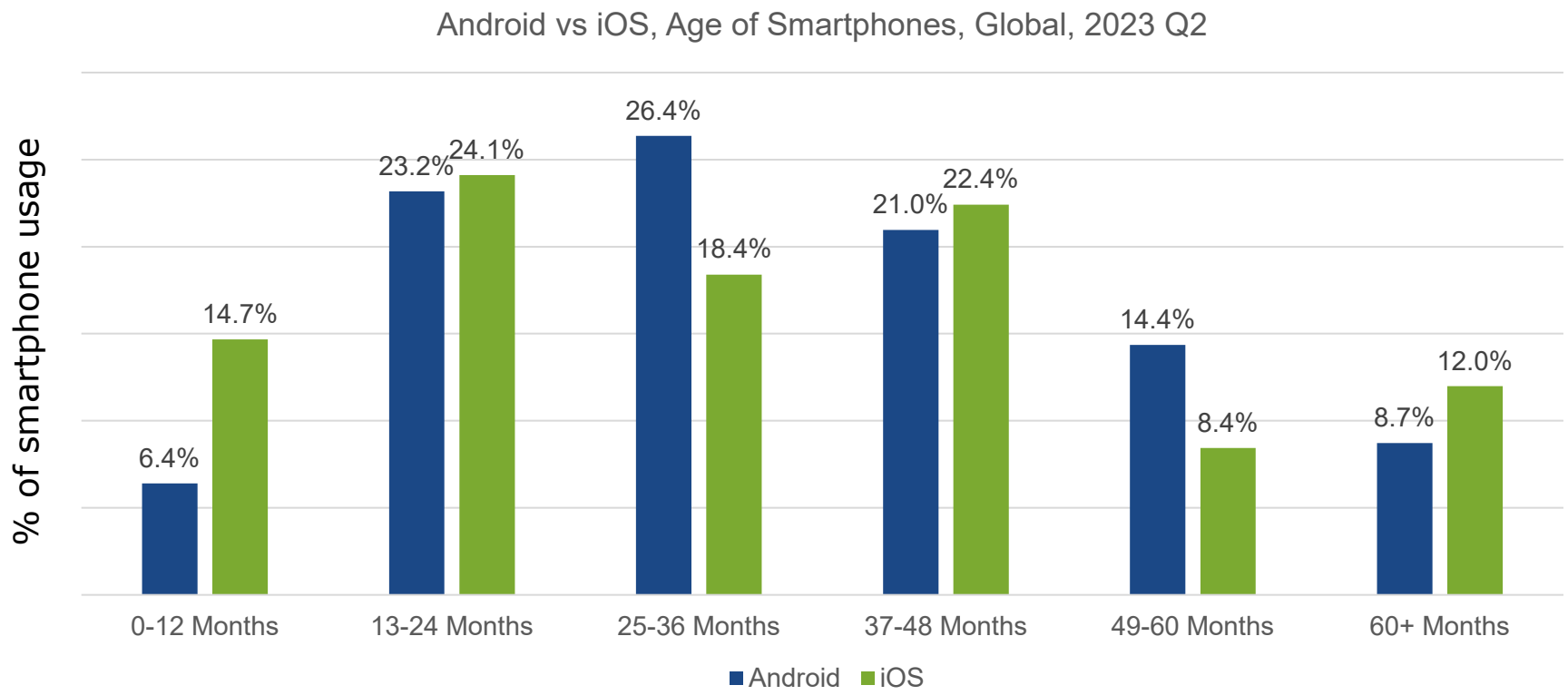
Android vs iOS Age, Global

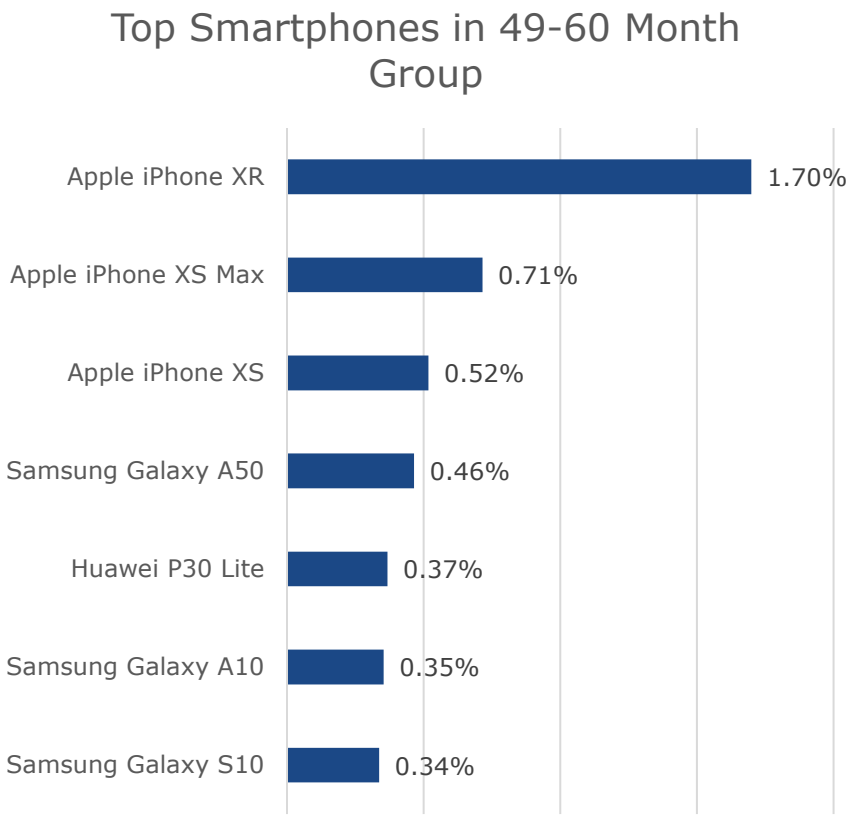
- iPhone adoption/retention differs from Androids in interesting ways.
- Some iPhone users are early-adopters, opting for the newest iPhone more than Android users. For example, in the 0-12 month bucket, iPhones are at 14.7%, more than double Android.
- Conversely, some iPhone users also hang on to their smartphones to the bitter end. In the 60+ month bucket, iPhones represent 12%, also higher than 8.7% of Android.
- This large size of iPhones in 60+ month may also indicate the strong secondary market for iPhones.

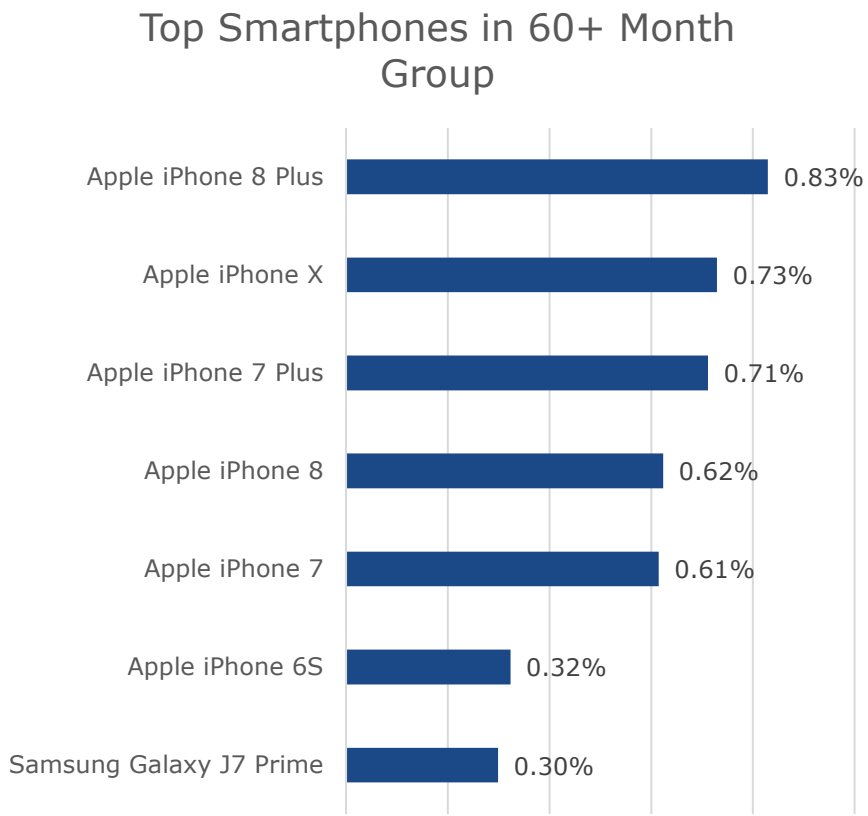


Older Smartphones

- In the 49-60 months bucket, iPhone XR is the top smartphone.
- Samsung and Huawei also have several devices in this group of older devices.

- The oldest group, 60+ months, is dominated by older iPhones.
- iPhone 8Plus is the most popular with 0.83%
- The Samsung Galaxy J7 Prime is the only non-Apple device that appears here.





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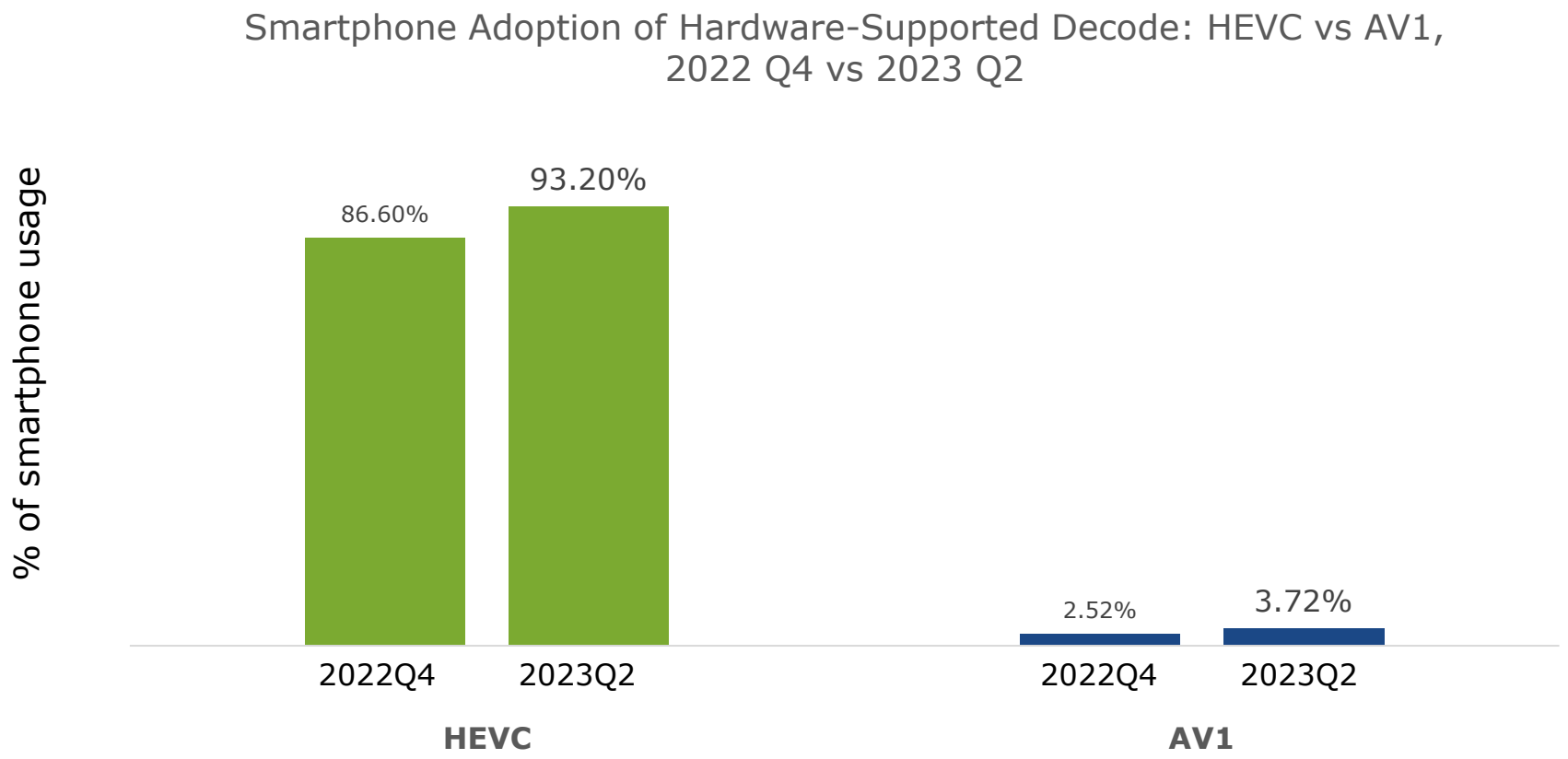
HEVC and AV1 Adoption

HEVC vs AV1 Video Decode Hardware Support

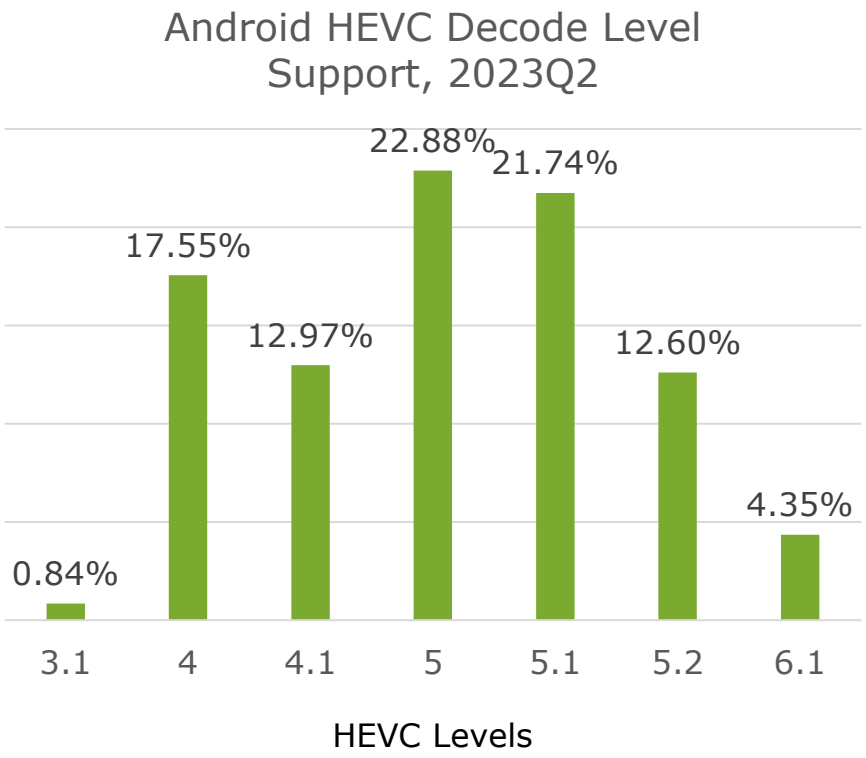
- HEVC hardware-support for decode broke the 90% mark, with 93.2% of smartphones in use supporting HEVC.
- HEVC support increased considerably since 2022 Q4, where support was 86.6%.
- AV1 decode hardware support grew significantly from 2022 Q4 and now reaches 3.72% of smartphone usage.

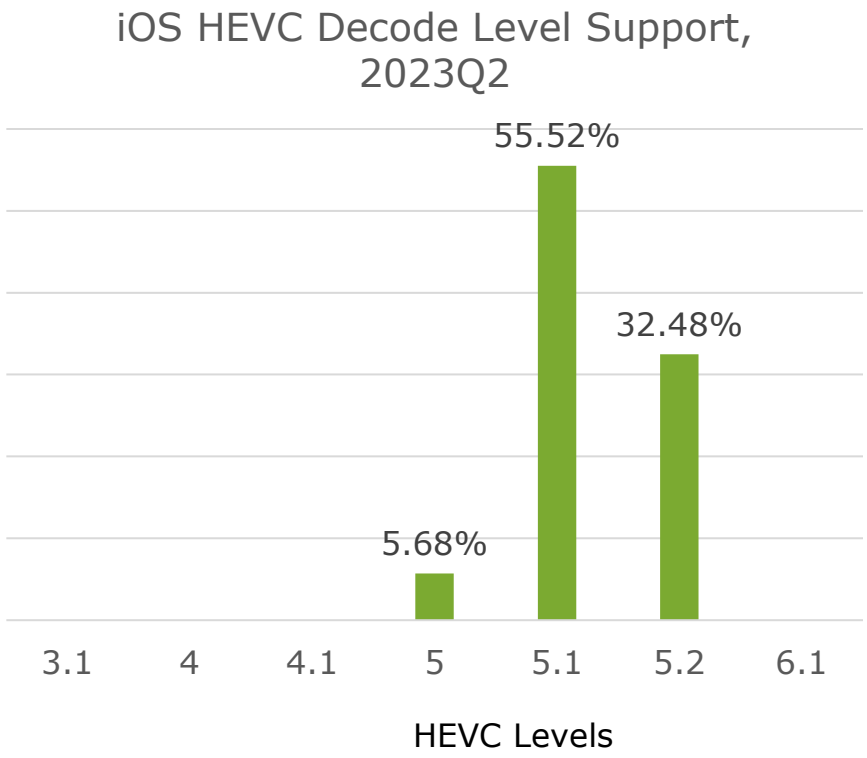


Android vs. iOS, HEVC Decode Level Hardware Support

- Android's HEVC Decode hardware support ranges considerably in its level. Over 30% of devices only support below Level 5.
- Level 5 is where support 4K video begins.
- Level 5 is the most common level of support with 22.88%.

- In contrast, Apple devices are all above Level 5.
- Level 5.1 is the most common Level of support on iOS with 55.52%.





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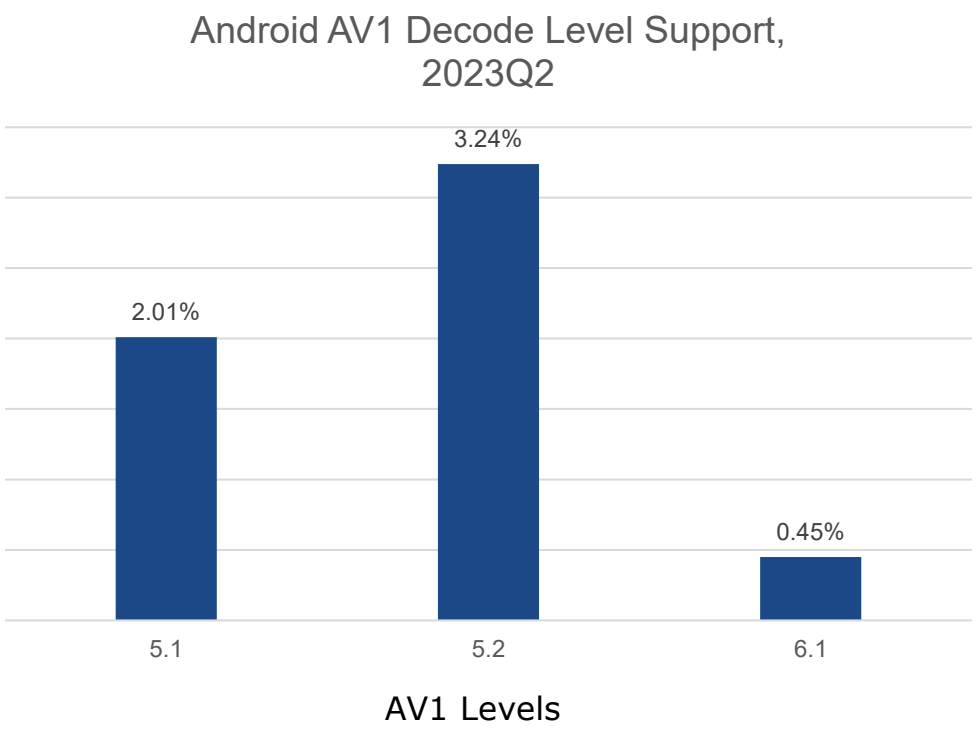
https://en.wikipedia.org/wiki/High_Efficiency_Video_Coding_tiers_and_levels#Levels

Android vs. iOS, AV1 Decode Level Hardware Support

- AV1 hardware support is still in development, with only 3.74% of devices in use including hardware to decode.
- So far, Android's most common decode support is level 5.2 at 3.24%

- Currently, Apple has yet to support AV1 on its phones, so no level information is available.



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https://en.wikipedia.org/wiki/AV1#Levels

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Get a Custom MOVR

Get Customized Mobile Data Reports

- **Geography**: select global, continents, or over 40 countries from developed of emerging markets
- **Device Capabilities**: select from over 500 device capabilities including form factor, OS, browsers, apps, display & resolution, chipsets, video, and economic information.
- **Time Frame**: analyze trend and make comparisons by selecting the time frame of the report
- **Delivery Frequency**: select how often the MOVR data delivered, including annual, quarterly, monthly, weekly, or daily

- Contact: sales@scientiamobile.com

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https://www.scientiamobile.com/products/mobile-data-reports/

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- Integrate with Google Analytics
- Over 20 of WURFL's most popular capabilities
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- Helpdesk support

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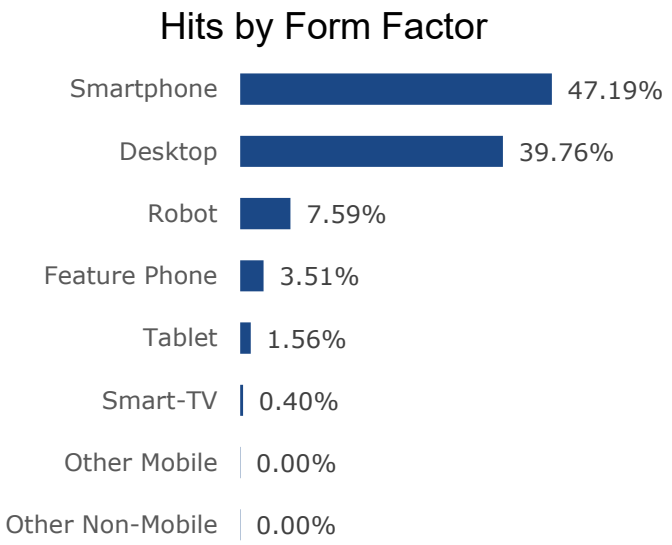
About this Report & Resources

Report Specifications

- Purpose of Report
  - ScientiaMobile publishes MOVR to provide the mobile Web community with timely information on mobile Web device usage.
  - Our goal is to stimulate interest in mobile device trends, device capabilities, and tools for analyzing and managing device fragmentation.
- Sources of Data and Filtering
  - The information in this report is based on a representative sample of a larger data set. The sample size is more than 227 billion requests from April 2014 to end of March 2023.
  - MOVR focuses on mobile devices, consisting of smartphones, tablets, and feature phones.
  - While the data set includes desktops, laptops, smart TVs, game consoles, apps, and robots, we have excluded them, unless otherwise noted.
  - We have used an Equivalent Weighted Sites (EWS) methodology that indexes the traffic at each site and assigns an equal weight to each site.
  - Samples sizes for Africa and Oceania are small enough that we have a low level of confidence that these figures are representative. However, the source data from these continents continues to grow. Over time, we will improve the quality of these figures. In the meantime, we feel that more information is better than less for people looking for insights in these continents.
  - To download the data files supporting MOVR, or subscribe to future publications of MOVR, please visit us at www.scientiamobile.com/movr



Definitions

- *What is a "hit"?* Each time a user visits a Web page and a user agent (UA) is generated and tested by WURFL (through a number of mechanisms), a "hit" is recorded in the ScientiaMobile dataset. All data reported in MOVR reflects hits, not the count of physical devices generating the hit.
- *What is a smartphone?* A smartphone must meet several criteria: it must be a wireless device, have a touch screen with horizontal resolution greater than or equal to 540px, run either Android 8.0 or iOS 12 or later, and not be considered a tablet.
- *What is a tablet?* Criteria for a tablet include: a wireless device, be marketed as a tablet, and running a mobile or tablet OS. One exception is that a full version of Windows running on a tablet is considered to be a laptop.

Definitions (continued)

- *What is a feature phone?* It is a wireless device that falls into one of the three categories: classic feature phones, modern feature phones, and old smartphones.
  - **Classic feature phone:** Typically a bar, slide, or clamshell form factor with limited possibilities to install apps and a proprietary OS. Other criteria include a physical keyboard and a low price range. Examples are Nokia Series 30 and 40 or Motorola Razr devices.
  - **Modern feature phone:** These phones also have a low price range. They are "smartphone-like", but targeted at the classic feature phone market. They may have a smartphone OS. They borrow features from classic feature phones, such as size or screen size. Examples are Nokia Asha series or Samsung Galaxy Pocket.
  - **Old smartphones:** These smartphones are older. Classic Blackberry devices and Symbian-based devices fall into this category. More recent devices with a touch screen, but with older hardware or older versions of Android, iOS or Windows Phone also fall into this category.
- *What is MNO Traffic?* Traffic originating from Mobile Network Operators (MNO). It is defined, in our research method, as the connection type provided by the browser navigator.connection API.

About WURFL

- ScientiaMobile uses its WURFL solution to collect and analyze the device intelligence contained in the MOVR report. WURFL is a Device Description Repository (DDR) that integrates an API and XML to provide an always-updated source for detecting devices and their capabilities. For more than 10 years, WURFL has been the industry standard for device detection. Today, ScientiaMobile offers a number of WURFL products to match a range of needs, from small developers to large enterprises.
- WURFL OnSite and WURFL InFuze provide businesses with high performance server-side device detection solutions.
- WURFL.js provides front-end developers with access to device detection through JavaScript snippets.
- WURFL InSight provides business intelligence analysts with a table-based device detection tool that will integrate easily with data analysis tools.
- ImageEngine combines mobile device detection with image resizing, image file optimization, and Content Delivery Network (CDN)-type delivery. It provides significantly faster downloads, especially on mobile devices.

About ScientiaMobile

- ScientiaMobile provides the industry's most accurate and flexible device detection solution, helping customers deliver great web experiences and manage the increasingly fragmented mobile device ecosystem. ScientiaMobile sells WURFL, a constantly-updated repository that catalogues thousands of devices and their capabilities and provides access to them via range of API languages. The WURFL framework enables many organizations, including Fortune 500 companies, to effectively design and analyze web experiences for an ever-growing range of smartphones, tablets, smart TVs, and game consoles.
- For more information about ScientiaMobile and its commercial products, please visit us at: www.scientiamobile.com
- WURFL.io offers a number of free tools for device detection and image optimization.
- To subscribe to MOVR, please visit us at https://www.scientiamobile.com/movr-mobile-overview-report/
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