From: [redacted]
Sent on: Monday, February 7, 2022 3:25:44 PM
To: Mobile Ecosystems <MobileEcosystems@cma.gov.uk>
Subject: Re: Response to Mobile ecosystems market study

I love the web because it isn't owned by one company, and it isn't limited to one platform. I want developers to be able to build for the web, rather than feel forced to build for Google Android and Apple iOS separately.

I want new companies to come along and be able to create innovative devices, and by giving them a web browser they hit the ground running with immediate access to a world of apps, games, and content, all via the web.

The current browser situation on Apple iOS devices gets in the way of these goals.

Between 2015 and 2018, I tried to encourage developers to make their web apps work offline. This used a technology that existed in Chrome and Firefox, but not in Safari. Developers told me they couldn't do it, because they'd have to justify the development time to their managers and clients, who were often using Apple iPhones (iPhones seem to be extremely popular among the wealthy and powerful). They couldn't justify spending time and money on a feature that simply wouldn't work on their manager or client's device. It wasn't just that the feature didn't work in Safari, it was that Safari was also the only choice on their phones.

I strongly believe this wouldn't have been an issue if other browser engines were allowed on iOS. I was a developer back in the days of Internet Explorer 6, when Microsoft had almost entirely ceased work on their browser. However, most developers, including me, built for browsers beyond IE. Microsoft's Internet Explorer may have been the default browser on Microsoft's operating system, Windows, but other browsers could be installed, and people actually did that! In fact, the experience was so much better in Firefox that it had significant usage, and not just with highly computer literate users. This made it worth creating an enhanced experience for those users.

Unfortunately the single browser nature on iOS means that the same movement isn't possible today. Due to the popularity of iPhones, what Safari on an iPhone can do becomes the baseline for what the web is capable of. That means one company, Apple, gets to set the baseline for the web.

With the current state of things, Apple has no incentive to raise this baseline. Safari will continue to be the #1 browser choice on iPhones by virtue of being the only choice.

As such, even if a particular user experience is possible in Chrome, in Firefox, and in Edge, the developer is forced to create a native app to get those same features on an iPhone. This means complying with the terms of Apple's app store, having Apple take a cut of payments, and being removed if Apple doesn't like something about what you're doing.

This issue isn't just related to exciting new features either. In May 2021 there was a regression in localStorage in Safari (https://bugs.webkit.org/show_bug.cgi?id=225344). This is a frequently used storage system in the browser. This issue also broke code developers were using to workaround other features that Safari didn't support (BroadcastChannel). Because Safari updates are almost always coupled with OS updates, users didn't get a fix until August. However, developers could work around this by using a different storage system: IndexedDB.

In June 2021, there was another serious regression in Safari. They broke IndexedDB (https://bugs.webkit.org/show_bug.cgi?id=226547). They broke the thing folks could use to work around the other thing they broke! A fix wasn't released until almost 2 months later.

Apple claim that a single browser on iOS is good for security, and as the report points out, there is no evidence for this claim. However, there is counter-evidence.

In late November 2021, a serious IndexedDB bug in Safari (a different bug to the one above) was reported to Apple. This became public knowledge in mid-January (https://fingerprintjs.com/blog/indexeddb-api-browser-vulnerability-safari-15/). The bug leaked database names across sites. Some database names don't leak much in the way of information, such as "articles" or "cart", but some database names are unique to particular sites, or only appear after particular actions on particular sites, and Safari would unintentionally pass that data around, leaking details about the user's browsing history and behaviour. Worse still, some sites create a database per user account, and the user account number ends up in the database name, meaning Safari leaked key personal user details to other sites.

Apple released a fix for this in late January. However, once again, the release was coupled with a whole operating system update, which users perform less willingly than app updates. I only have anecdotal data here, but I know many people who run old versions of phone operating systems because they feel that, in the past, installing an update has made their phone worse in some way. This is not a theoretical concern (https://www.bbc.co.uk/news/technology-51413724).

In severe cases like this, I usually recommend friends and family (temporarily) switch to a different browser, so their data is safe until the fix is released.

However, with no other browser available on iPhones and iPads, the only actionable advice was to use apps from the app store instead.

Apple sets the baseline for what the web can do. They are slow at raising that bar, they often lower the bar by introducing bugs that they're slow to fix. Without competition on their platforms, there is little incentive to raise that bar any quicker.

The Safari team care deeply about the web, but they can only do so much with the resources they have. My hope is that browser competition on iOS will cause Apple to give that team more resources, and more freedom to push the web forward.