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A Brief History of Time:
The App Stores

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Introduction:

Since its inception, the app ecosystem has grown exponentially alongside the rise of the smartphone and other smart technologies. The app economy is driven by app developers and innovators who rely on platforms like Apple's App Store and the Google Play store to reach consumers around the globe. On the other hand, the app stores depend on developers to put innovative products on their platforms to attract customers.

App stores, in their brief history, revolutionised software distribution and the economy at large and established a symbiotic relationship between software developers and platforms. And in the years since the app stores went online, both developers and platform companies contributed to the overall success of the app economy. Although it is a brief history in the grand scheme of things, the speed, level of innovation, and constant change in the app stores are remarkable. The chart below documents how the two largest app stores evolved, innovated and interacted with each other since their inception.

2008:

	iOS/Apple	Android/Google
July	💡 The Apple App Store goes live with 500 applications and tabs, including "Featured," "Categories," "Top 25" (paid and free), "Search," and "updates."[1] Of these apps, 25 per cent are free.	
September	Apple hits 100,000,000 downloads and 3,000 apps.[2]	
October		💡 Google releases Android 1.0 and the Android Market.[3] Right away, 50 free applications are available.[4]

2009:

	iOS/Apple	Android/Google
February		Google introduces support for paid applications in the United States and the United Kingdom.[5]
March		2,300 apps are available on Android Market.[6]
April	Apple hit 35,000 available apps and 1 billion downloads total over 77 countries.[7]	💡 Google released Android 1.5 (Cupcake), introducing support for widgets on the home screen.[8]
June	💡 Apple releases iOS 3, introducing in-app purchases for paid apps only. The native app SDK now includes 1,000 new APIs.[9] Apple introduces subscriptions for publications.	

July	App Store features 65,000 available apps from 100,000 developers and reaches 1.5 billion downloads total.[10]	
September	Apple hits 85,000 apps available by 125,000 developers and 2 billion total downloads.[11] Apple introduces Genius recommendations and allows gift card balances and iTunes score credit as payment.[12]	With the introduction of Android 1.6, Android Market allows users to choose among "Apps," "Games," and "Downloads." Within categories, users can sort apps by "Top paid," "Top free," and "Just in." Developers can submit screenshots of their apps to Android Market and can now include their content in Android's Quick Search Box results. This Android update features multi-lingual speech synthesis, allowing apps to "speak" strings of text.[13]
October	💡 Apple expands in-app purchases to free apps.[14]	
December		Android Market reaches 16,000 available applications.[15]

2010:

	iOS/Apple	Android/Google
January	Apple's App Store hits 3 billion downloads.[16]	
May		The public release of Android 2.2. (Froyo) improves app speed and launch, enables push notifications and updates Android Market with batch and automatic update features.[17]
June	The iPad App Store reaches 10,000 available apps.[18] Apple releases iOS 4, which includes "multitasking" that lets apps run in the background, iBooks, and Game Center.[19] Apple announces $1 billion total revenue paid out to developers to date.[20]	
July	Apple releases iAd, which lets developers use ads managed by Apple in their applications (retired in 2016). [21]	Android Market reaches 70,000 apps available.[22]
September	💡 Apple publishes the official App Store Review Guidelines for developers.[23]	Google expands support for paid apps to 29 more countries.[24] Android Market reaches 80,000 available apps.[25]

December		Google raises the allowed app size from 25 to 50 MB and adds a feature graphic for every app.[26]
		Google releases Android 2.3 (Gingerbread) with enhanced audio, graphical, and developer input for games. Gingerbread supports video playback, improves support for native code development, and supports SIP VoIP internet phones.[27]
		Android Market adds content filtering features.[28]

2011:

	iOS/Apple	Android/Google
January	The App Store hits 10 billion downloads.[29]	
February	💡 The App Store starts supporting subscriptions for all publishers of content-based apps.[30]	Google introduces the Android Market Webstore.[31]
		Google releases the first tablet-only update of Android (Honeycomb/Android 3.0).[32]
March		Google introduces its in-app purchasing system on Android Market.
April		Android Market reaches 3 billion downloads.[33]
May		Google adds new application lists to Android Market: "Top Paid," "Top Free," "Editor's Choice," "Top Grossing," "Top Developers," and "Trending."[34]
July	The App Store reaches 425,000 apps available, 100,000 native iPad apps, and 15 billion downloads total.[35]	Google introduces an Android Market interface with a focus on featured content, more search features, book sales, and movie rentals.[36]
October	Apple releases iOS 5, introducing updates and support for iCloud, native Twitter sharing, the Notification Centre, Siri, iMessage, and push notifications for developers of Newsstand apps.[37]	Google releases Android 4.0 (Ice Cream Sandwich). It introduces the ability to access apps from the lock screen and shutting down apps with a swipe from the recent apps list, as well as new APIs for developers including resizable widgets.[38]
December		Android Market reaches 10 billion downloads.[39]

2012:

	iOS/Apple	Android/Google
February		Google introduces a new automated antivirus system, Google Bouncer, to scan both new and existing apps for malware (e.g., spyware or trojan horses).[40]
March	The App Store reaches 550,000 apps available and 25 billion downloads total.[41]	Android Market, Google Music, and the eBook store become Google Play.[42] The allowed app size increases to include two expansion files with max. 2GB.[43]
May	💡 Apple introduces the "Free App of the Week" and Editor's Choice promotions.[44]	Google rolls out carrier-billing for purchases[45] and introduces subscriptions.[46]
June	Apple reaches 30 billion downloads and announces $5 billion paid out to developers to date.[47] The App Store search ranking algorithm changes to include user reviews and keywords in the app's name.[48]	Google allows top developers to respond to user reviews.[49] The new Android 4.1 (Jellybean) enhances accessibility and introduces expandable notifications and the ability to turn off notifications from apps.[50] Google Play reaches 20 billion downloads and 600,000 apps available.[51]
August		Google Play rolls out gift cards.[52] Google decouples certain aspects of the Android operating system so they can update through the Google Play store independent of the operating system.[53] Google Play implements stricter rules for app titles and icons, payments, privacy, ads, and spam.[54]
September	iOS 6 introduces new information domains for Siri, Passbook (wallet), improvements across iOS' bundled apps, and Apple Maps.[55] The new App Store makes app pages more vibrant and includes a share button to make it easy to tell a friend about an app. Apple adds smart app banners to make it easier for developers to promote their apps in iOS 6. These banners let a user quickly jump into the App Store from a developer's website. [56]	

October		Google revamps the Play Developers Console with an update to the publishing process, the ability to publish apps in 49 languages and to auto-translate into different languages.[57]

2013:

	iOS/Apple	Android/Google
March	Apple informs developers they can use "appstore.com" for links to their apps.[58]	Google begins pulling ad-blocking apps from Google Play.[59]
April	The App Store reaches 45 billion downloads, and Apple announces $9 billion paid out in revenue to developers to this date.[60]	
July		One million apps are now available on Google Play and it reaches 50 billion downloads.[61] With Android 4.3, Google introduces Google Play Games.[62] The update additionally introduces developer logging and analysing enhancements, support for five more languages, digital rights management (DRM) APIs, addition of "app ops," support for geo-fencing, and Wi-Fi scanning APIs.[63]
August	The App Store algorithm changes to consider ratings, app updates, and user engagement in search rankings.[64]	
September	iOS 7 re-introduces the vertical lists on the App Store, removes Genius and replaces it with a "Near Me" tab. iOS 7 adds a section just for kids' apps on the App Store and introduces the automatic installation of app updates. This iOS update also includes a new multitasking system that allows all apps to run in the background. iOS 7 introduces the Control Centre, CarPlay, and AirDrop.[65]	Google releases Android 4.4. (KitKat). It introduces the ability for applications to trigger translucency in the navigation and status bar, and the ability for applications to use "immersive mode" to keep the navigation and status bars hidden while maintaining user interaction. KitKat also includes a public API for developing and managing text messaging clients and a "Storage Access Framework," an API allowing apps to retrieve files in a consistent manner.[66]
November		Google introduces Newsstand, combining Google Play Magazines and Google Currents.[67]

2014:

	iOS/Apple	Android/Google
June	The App Store reaches 1.2 million apps available and 75 billion downloads.[68]	
May		The Google Play store introduces PayPal payment support.[69]
July		Google Play adds Books/Movies sections. Additionally, it launches a new information screen offering a list featuring the latest available version of an app, its installed size and content rating. This list also simplified the app permissions prompt into overview categories.[70] Google announces Android KitKat for Android Wear devices (smartwatches) at Google I/O 2014.
September	Apple releases iOS 8 in which it added support for app bundles, screenshots, and previews (which gave developers more ways to reach their audience), and a list of trending search terms on the search page. A new "explore" replaces the "near me" section. Apps can now become features available in other apps, which means users can perform actions with interactive notifications, quickly view content in widgets, and move content between apps with the share sheet. iOS 8 also introduces iCloud Family Sharing.[71]	All developers on Google Play are now required to feature a physical address on the app's page in Google Play.
November		Android 5.0 (Lollipop) features a redesigned user interface and improvements to notifications that could be accessed from the lock screen and displayed within applications as banners. Google adds support for 15 more languages. While the lock screen does not support widgets anymore, it now provides shortcuts to apps and notifications.[72]

2015:

	iOS/Apple	Android/Google
March		💡 Google launches "Google Store," replacing the devices section in Google Play.[73] Google begins using a combination of automated tools and human reviewers to check apps for malware and terms of service violations before publishing in Google Play.[74] At the same time, it begins rolling out a new age-based rating system for apps and games, based on a given region's official ratings authority.[75]
May		Google Play introduces A/B test experiments for developers.[76] It also launches content ratings, and age and interest filters.[77]
July	The App Store reaches 1.5 million apps available and 100 billion downloads total. [78]	Google AdWords goes live on Google Play and ads appear on Google Play, Search, YouTube, and the Google Display network.[79]
September	Apple releases iOS 9, bringing a new multitasking paradigm to iPad, and launching Apple News, a new Notes app, and Apple Music. iOS 9 allows developers to expose app content to the search function.[80] (Google did this in September 2009)	
October		Google introduces Android 6.0 (Marshmallow). It includes contextual search from keywords within apps, an app standby feature, an app search bar and favourites, fingerprint reader support, app linking, 4k display mode for apps, support for actions by third-party apps in the text selection menu, and performance reports on Google Play Developer console.[81] A Google Play redesign now organises content information into sections and introduces "highlights".[82]
November	Apple introduces a new "Shopping" app category,[83] and changes the algorithm so that search rankings become a mix of contextual app keywords, including partial keyword matches.[84]	

2016:

	iOS/Apple	Android/Google
April		Google Play starts labelling apps that contain ads.[85] Google announces the Google Play Awards.[86] transparency
May		💡 Google Play introduces new beta testing, analytics, and pre-launch tools for developers.[87] Google introduces in-app subscriptions.[88]
June	Apple announces the shutdown of the iAd platform.[89] The App store reaches 2 million apps available, 130 billion downloads, and Apple announces $50 billion paid out to developers to this date.[90] The App Store's subscription model changes from the established 70/30 revenue split between developers and Apple to a new 85/15 revenue split if a user stays subscribed to the developer's app for a year. The policy change also opens the possibility of subscriptions to all apps, not just to select categories.[91]	💡 Following Apple's announcement of a change in the subscription model, Google Play reportedly also announces an 85/15 revenue split. However, this change applies immediately not after one year of a subscription, like Apple's.[92]
July		Google Play introduces new app categories including "Dating," "Parenting," "Auto," and more.[93]
September	Apple releases iOS 10. iMessage now includes apps, for which Apple models a new app store after the watchOS app store (introduced in 2015). [94] "Categories" returns to the App Store layout. iOS 10 also includes Siri App Suggestions, a feature that surfaces apps iOS assumed users may want at a specific time or a specific location.[95] Apple introduces App Store Search Ads. Developers can run ads against keywords and insert them at the top of search results. The App Store expands subscription support to all 25 of its categories.	Google Play, including all Android apps, come to Chrome OS. Android 7.0 (Nougat) introduces support for file-based encryption, the ability to display colour calibration, zoom in the screen, a VR interface, a new data save mode, and a new JIT compiler.

	iOS/Apple	Android/Google
October	Apple Search Ads goes live. Apple rolls out the ability for developers to purchase advertising spots in the App Store to business users in the United States.[96]	Google Play begins monitoring fraudulent methods like fake installs, fake reviews, and incentivised ratings through a new detection and filtering system.[97] Android 7.1. introduces support for circular app icons, keyboard image insertion, a fingerprint sensor gesture to open/close apps, a manual storage manager intent for apps, improved VR thread scheduling and app shortcuts, which launch actions on apps by long-pressing the app icon.[98]
November	Apple removes 50,000 outdated and abandoned apps from the App Store.[99]	

2017:

	iOS/Apple	Android/Google
February		The Google Play Store algorithm changes so that search rankings now consider engagement.[100] Google announces that it will let developers set sales for their apps with the original price struck out and a banner underneath informing users when the sale ends.[101]
March	Apple allows developers to respond to app store reviews.[102] (Google did this in 2012).	💡 Google Play adds a "Free App of the Week" section (Apple did this in 2012).[103] Google releases lists of the best-selling apps, games, movies, music, and books over the past five years.[104]
May	Apple expands its search ads to the United Kingdom, Australia and New Zealand, along with more configurable advertising settings for developers.[105]	Google Play Console gets new features. Google introduces Android vitals with app data before and after an app launch and Google Play Ads appear on the homepage and app listing pages.[106] Google rebrands the Bouncer feature and other safety measures within the Android platform under the umbrella name Google Play Protect, a system that regularly scans apps for threats.[107]

July	Apple announces over $70 billion in App Store-generated revenue for developers since its 2008 launch.[108]	Google Play expands the "Editors' Choice" section and introduces "Android Excellence" collections with editorial content.[109] Google launches a new security effort called "peer grouping," which groups together apps that perform similar functionalities, such as calculator apps, and compares their attributes.[110]
September	Apple releases iOS 11. It limits app names from 50 to 30 characters, adds new fields, subtitles, and promos for apps, and increases visibility for ratings, reviews, top charts, rankings, editorial content, daily featured apps, and games. The all-new App Store has five sections, including "Today**",** a collection of stories and features updated every day, "Games", "Apps", "Updates" and "Search" sections.[111] iOS 11 also improves Siri and introduces the AR-Kit 1.0. Overnight iOS becomes the biggest AR platform in the world.[112] From iOS 11 on, developers can no longer use custom prompts for encouraging users to leave reviews for their apps per a change in the Review Guidelines.[113] Developers can now choose whether to keep current app reviews when updating their apps or to reset them.[114] privacy	
October	Apple expands search ads to Canada, Mexico, and Switzerland.[115]	💡 Google launches "Play Instant" (also named Google Instant Apps), allowing the use of an app or game without installing it first.[116] (This seems like the App Clips Apple launched in 2020.)

| December | Apple updates its search ads program to offer two distinctive versions. "Search Ads Basic" is a pay-per-install program aimed at smaller developers, in which they only pay when users physically install their app.[117]

Developers can now offer applications for pre-order, allowing them to make apps visible in the store between two and 90 days ahead of release.[118]

The number of apps on the App Store shrinks for the first time in 2017 as Apple removes older apps that do not comply with current guidelines and technologies.[119]

An update of the App Store guidelines allows Apple to ban apps using templates or commercial app services if the provider of the app's content does not directly submit it.[120] | Android 8 (Oreo) introduces a neural networks API and a shared memory API. It restricts apps' background execution and limits, supports automatic light and dark themes and app-specific unknown sources, as well as improves notifications and adaptive icons.[121] |

2018:

	iOS/Apple	Android/Google
January	Apple waives the developer fee for governments and non-profits and educational organisations.[122]	For any subscribers that developers retain after 12 paid months, the transaction fee for subscription products decreases to 15 per cent.[123] Despite earlier reporting indicating otherwise,[124] Google started using the same model as Apple for in-app subscriptions on Google Play.[125]
August	Apple retires the iTunes affiliate program.[126]	Android 9 (Pie) introduces new transitions for switching between apps or activities within apps. It enables richer messaging notifications where a full conversation could be seen within a notification, full-scale images and smart replies. It also includes a redesigned multitask app switcher with the Google search bar and app drawer built-in, the Android Dashboard, which tells the user how much time they are spending on their device and in apps and allows the user to set time limits on apps.[127] (Apple introduces screen time and app limits with iOS 12.)

	iOS/Apple	Android/Google
September	iOS 12 introduces the AR-Kit 2.0, Create ML, and prediction batching as well as grouped notification alerts for the same app and interactions on the lock screen. It also launches Siri shortcuts, which enable users to trigger actions in-app using Siri, and Health Records, which allows users to share clinical history with health apps. Developers can now share authentication logins between Safari and apps. Other new key security and privacy features include a built-in password manager, easy two-factor authentication, and a Password AutoFill API. CarPlay now functions with navigation apps. A new Natural Language framework enables on-device natural language processing and supports language recognition, tokenisation, and tagging. iOS 12 also introduces screen time and app limit features.[128]	

2019:

	iOS/Apple	Android/Google
April		💡 Google announces it will take several days to review app submissions from new and less-established developers.[129] Later Google clarifies that, in exceptional cases, certain apps may be subject to an expanded review process.[130]
September	Apple releases iOS 13. It introduces tools for dark mode across iOS 13, including apps. Other tools include faster app launches and smaller app downloads/update sizes, the sign-in with Apple SSO option and a SwiftUI framework that lets developers build new innovative user interfaces. iPad apps can now be exported as macOS apps, and iOS 13 restricts the PushKit API for encryption/decryption to VoIP calls. The new "PencilKit" framework allows developers to integrate drawing environments for hand-drawn content, and the on-Device Speech Recognition enables developers to do offline transcriptions and speech analysis. A document scanning system becomes available to use in a new micro-framework called VisionKit, and custom app fonts are introduced.[131] Siri can now play music from Spotify and other radio/podcast stations, and the AR-Kit 3.0 released.[132] Apple also launches Apple Arcade (a subscription service for video games within the app store).[133]	Google releases Android 10. Background apps can no longer jump into the foreground, and a floating settings panel now allows changing system settings directly from apps. Android 10 also includes new safeguards for user privacy, a native MIDI API allowing interaction with music controllers, and better support for biometric authentication in apps. Android 10 additionally improves support for notification bubbles and a system-wide dark theme/mode.[134] Google launches its Google Play Pass games and apps subscription service in the United States.[135]

2020:

	iOS/Apple	Android/Google
January	As of 2020, the App Store features around 1.8 million apps, and Apple announces developer revenue increased to $155 billion total since 2008.[136]	As of 2020, Google Play features around 2.7 million apps,[137] and Google announces developer revenue increased to $80 billion since 2008.[138]
April		Google Play introduces a new "Teacher Approved" category.[139]
September	iOS 14 launches App Clips (a lightweight version of an app offering some of this functionality, discoverable the moment it's needed), widgets on the home screen in multiple sizes, customisations with interactive features, and content updates, the AR-Kit 4.0, and introduced the App Tracking Transparency Framework (developers have to ask users to agree to share their usage data and unique ad identifiers are no longer available), and family sharing for in-app purchases.[140]	Android 11 introduces chat bubbles, screen recording, notification history, an API distinction between stand-alone 5G and non-standalone 5G, and new permission controls.[141]
December	Enrolment for the App Store Small Business program opens.[142] The program features a reduced commission rate of 15 per cent on paid apps and IAP for new developers and businesses who made up to $1 million in proceeds in 2020 for all their apps.[143] App privacy labels go live on the App Store. The labels are displayed on each app's product page and allow users to learn about data types the app may collect and how that data is used.[144]	

2021:

	iOS/Apple	Android/Google
January	Apple announces $200 billion total paid out to developers since the App Store launched in 2008.[145]	As of January 2021, Google Play features over 3 million apps[146]. Google Play Store launches new icons to show trending apps. This feature lets developers, publishers and users see a new rank change icon in its top app lists.[147]
March		💡 Google announces it will lower its commission fees for in-app digital goods and services for developers around the world. Beginning in July 2021, the service fee for the first $1 million of revenue will drop to 15%. Beyond the first $1 million in revenue, Google will charge 30% for every dollar generated through the Play Store.[148]

Conclusion:

The remarkable evolution of the app economy happened in tandem with the development of app stores and smartphone operating systems. The by-now well-established, centralised platforms continue to innovate and thereby help to drive the app ecosystem's dynamic growth and unrivalled success. While the app stores serve as a foundation and database for apps, they also compete to be the most attractive for developers to expand the growing uses of apps across industries and enterprises and to attract more consumers onto their platforms. As this timeline has demonstrated, the app ecosystem is highly interconnected, and the app stores are an important part of it. They interact and respond to each other to remain competitive and attractive for developers.

Endnotes and Sources

1. https://appleinsider.com/articles/08/07/10/apples_app_store_launches_with_more_than_500_apps
2. https://www.apple.com/newsroom/2008/09/09App-Store-Downloads-Top-100-Million-Worldwide/
3. https://android-developers.googleblog.com/2008/10/android-market-now-available-for-users.html
4. https://venturebeat.com/2008/10/22/google-releases-details-on-android-market-launch/
5. https://android-developers.googleblog.com/2009/02/android-market-update-support-for.html
6. https://www.pcworld.com/article/161410/article.html
7. https://www.apple.com/newsroom/2009/04/24Apples-Revolutionary-App-Store-Downloads-Top-One-Billion-in-Just-Nine-Months/
8. https://www.talkandroid.com/930-android-widgets/
9. https://www.apple.com/newsroom/2009/06/08Apple-Announces-the-New-iPhone-3GS-The-Fastest-Most-Powerful-iPhone-Yet/
10. https://www.apple.com/newsroom/2009/07/14Apples-App-Store-Downloads-Top-1-5-Billion-in-First-Year/
11. https://www.apple.com/newsroom/2009/09/28Apples-App-Store-Downloads-Top-Two-Billion/
12. https://www.macworld.com/article/1142702/iphone_31_update.html
13. https://stuff.mit.edu/afs/sipb/project/android/docs/about/versions/android-1.6-highlights.html
14. https://techcrunch.com/2009/10/15/apple-announces-in-app-purchases-for-free-iphone-applications/
15. https://techcrunch.com/2009/12/16/google-android-market/
16. https://www.apple.com/newsroom/2010/01/05Apples-App-Store-Downloads-Top-Three-Billion/
17. https://android-developers.googleblog.com/2010/05/android-22-and-developers-goodies.html
18. https://techcrunch.com/2010/06/11/10000-ipad-apps/
19. https://techcrunch.com/2010/06/07/ipad-ibooks-app-store-stats/
20. https://www.apple.com/newsroom/2010/06/07Apple-to-Debut-iAds-on-July-1/
21. http://www.androidcentral.com/android-market-now-officially-has-more-70000-applications
22. https://www.apple.com/newsroom/2010/09/09Statement-by-Apple-on-App-Store-Review-Guidelines/
23. https://android-developers.googleblog.com/2010/09/more-countries-more-sellers-more-buyers.html
24. https://www.androidcentral.com/googles-andy-rubin-says-over-80k-apps-now-android-market
25. https://www.zdnet.com/article/big-changes-in-store-for-android-market/
26. https://android-developers.googleblog.com/2010/12/android-23-platform-and-updated-sdk.html
27. https://www.zdnet.com/article/big-changes-in-store-for-android-market/
28. https://www.engadget.com/2011-01-22-apples-app-store-hits-10-billion-downloads.html
29. https://www.macworld.com/article/1157927/app_store_subscriptions.html
30. https://www.engadget.com/2011-02-02-android-market-gets-a-web-store.html
31. http://googlemobile.blogspot.com/2011/01/sneak-peak-of-android-30-honeycomb.html
32. https://android-developers.googleblog.com/2011/03/in-app-billing-on-android-market-ready.html
33. https://techcrunch.com/2011/04/14/google-3-billion-android-apps-installed-up-50-percent-from-last-quarter/
34. https://www.techspot.com/news/43756-google-adds-five-app-finding-features-to-android-market.html
35. https://www.apple.com/newsroom/2011/07/07Apples-App-Store-Downloads-Top-15-Billion/
36. http://googlemobile.blogspot.com/2011/07/new-android-market-for-phones-with.html
37. https://www.engadget.com/2011-06-06-apples-ios-5-all-the-details.html
38. https://developer.android.com/about/versions/android-4.0-highlights#DeveloperApis
39. https://www.wired.com/2011/12/android-market-downloads/
40. https://uk.pcmag.com/mobile-apps/66697/google-bouncer-now-scanning-android-market-for-malware
41. https://www.apple.com/newsroom/2012/03/05Apples-App-Store-Downloads-Top-25-Billion/
42. https://googleblog.blogspot.com/2012/03/introducing-google-play-all-your.html
43. https://www.androidauthority.com/google-increases-app-size-limit-4gb-60314/
44. https://www.theverge.com/2012/5/24/3042074/apple-editors-picks-free-app-of-the-week-itunes
45. https://www.engadget.com/2012-05-02-google-play-adds-carrier-billing-for-music-movies-and-books.html
46. https://www.wired.com/2012/05/android-in-app-subscriptions/

47. https://techcrunch.com/2012/06/11/apples-app-store-hits-30-billion-downloaded-apps-paid-out-5-billion-to-developers/
48. https://techcrunch.com/2012/06/23/apple-app-store-relevancy/
49. https://android-developers.googleblog.com/2012/06/replying-to-user-reviews-on-google-play.html
50. https://developer.android.com/about/versions/jelly-bean.html#media
51. https://www.engadget.com/2012-06-27-google-play-hits-600000-apps.html
52. https://www.zdnet.com/article/google-rolls-out-google-play-gift-cards/
53. https://arstechnica.com/gadgets/2013/09/balky-carriers-and-slow-oems-step-aside-google-is-defragging-android/
54. https://techcrunch.com/2012/08/01/google-tightens-up-app-policy-gets-stricter-on-namingicon-payments-privacy-ads-and-spam-rules-developer-letter/
55. https://support.apple.com/kb/dl1578?locale=en_US
56. https://techcrunch.com/2012/09/29/five-big-changes-in-the-ios-6-app-store-and-what-developers-should-do/
57. https://techcrunch.com/2012/10/15/google-rolls-out-new-developers-console-for-play/
58. https://developer.apple.com/news/?id=212013a
59. https://techcrunch.com/2013/03/13/google-pulls-ad-blocking-apps-from-play-store-for-violating-developer-distribu-tion-agreement/
60. https://www.engadget.com/2013-04-24-apple-has-paid-out-9-billion-to-developers-app-store-downloads.html
61. http://mashable.com/2013/07/24/google-play-1-million/
62. https://www.theverge.com/2013/7/24/4553190/google-play-games-app-for-android-will-be-available-today
63. https://developer.android.com/about/versions/jelly-bean.html
64. https://techcrunch.com/2013/08/23/apples-app-store-rankings-algorithm-changed-to-favor-ratings-and-possibly-en-gagement/
65. https://www.apple.com/newsroom/2013/06/10Apple-Unveils-iOS-7/
66. https://developer.android.com/about/versions/kitkat.html
67. https://www.engadget.com/2013-11-20-google-play-newstand.html
68. https://techcrunch.com/2014/06/02/itunes-app-store-now-has-1-2-million-apps-has-seen-75-billion-downloads-to-date/
69. https://www.theverge.com/2014/5/15/5721192/google-play-store-android-paypal-integration
70. https://www.androidpolice.com/2014/07/15/google-rolling-out-play-store-v4-8-19-with-paypal-support-simplified-app-permissions-bigger-buttons-and-more-apk-download/
71. https://support.apple.com/en-us/HT208000#8
72. https://developer.android.com/about/versions/lollipop
73. https://googleblog.blogspot.no/2015/03/meet-updated-chromebook-pixel-and-new.html
74. https://www.theverge.com/2015/3/17/8231125/android-apps-now-reviewed-by-google
75. https://venturebeat.com/2015/03/17/google-play-launches-a-global-age-based-app-rating-system/
76. https://sensortower.com/blog/new-experiments-functionality-now-live-for-google-play
77. https://techcrunch.com/2015/05/28/google-play-gets-more-family-friendly-with-content-ratings-filtering-by-age-and-in-terest/
78. https://techcrunch.com/2015/06/08/itunes-app-store-passes-1-5m-apps-100b-downloads-30b-paid-to-developers/
79. https://techcrunch.com/2015/07/29/search-ads-go-live-on-google-play-universal-ads-that-run-across-google-proper-ties-to-soon-follow/
80. https://www.apple.com/au/ios/ios9-preview/
81. https://android.googleblog.com/2015/10/get-ready-for-sweet-taste-of-android-60.html
82. https://www.theverge.com/2015/10/22/9597760/google-play-redesign-now-available
83. https://techcrunch.com/2015/11/06/apple-debuts-a-new-shopping-category-on-the-app-store/
84. https://techcrunch.com/2015/11/13/app-store-search-just-got-smarter/
85. https://venturebeat.com/2016/04/28/google-play-now-labels-android-apps-containing-ads/
86. https://techcrunch.com/2016/04/22/google-showcases-the-best-android-apps-for-its-first-ever-google-play-awards/
87. https://techcrunch.com/2016/05/18/android-developers-get-new-beta-testing-analytics-and-pre-launch-tools-in-google-play/
88. https://techcrunch.com/2016/05/18/android-developers-get-new-beta-testing-analytics-and-pre-launch-tools-in-google-play/

89. https://venturebeat.com/2016/01/15/apple-is-shutting-down-its-iad-app-network-on-june-30/
90. https://techcrunch.com/2016/06/13/apples-app-store-hits-2m-apps-130b-downloads-50b-paid-to-developers/
91. https://appleinsider.com/articles/16/06/08/apple-announces-it-will-offer-app-store-subscriptions-take-smaller-15-cut
92. https://www.vox.com/2016/6/8/11889298/google-apple-subscription-app-revenue-share
93. https://android-developers.googleblog.com/2016/07/introducing-new-app-categories-from-art.html
94. https://support.apple.com/en-us/HT208011#10
95. https://www.macstories.net/stories/ios-10-the-macstories-review/
96. https://9to5mac.com/2016/09/28/app-store-search-ads/
97. https://www.zdnet.com/article/google-starts-filtering-fraudulent-app-reviews-from-play-store/
98. https://developer.android.com/about/versions/nougat/android-7.1
99. https://9to5mac.com/2016/11/15/app-store-purge-ios-app-removals/
100. https://techcrunch.com/2017/02/28/google-play-now-considers-user-engagement-not-just-downloads-in-ranking-games/
101. https://www.androidpolice.com/2017/02/27/google-makes-play-store-sales-including-free-offers-paid-apps-games-official/
102. https://techcrunch.com/2017/01/24/apple-will-finally-let-developers-respond-to-app-store-reviews/
103. https://venturebeat.com/2017/03/26/google-play-gets-a-free-app-of-the-week-section/
104. https://www.theverge.com/2017/3/6/14829514/google-play-store-top-selling-content-fifth-anniversary
105. https://9to5mac.com/2017/04/19/app-store-search-ads-expand-internationally-with-new-campaign-tools/
106. https://android-developers.googleblog.com/2017/05/whats-new-in-google-play-at-io-2017.html
107. https://www.engadget.com/2017-05-17-google-play-protect.html
108. https://www.apple.com/newsroom/2017/06/developer-earnings-from-the-app-store-top-70-billion/
109. https://www.theverge.com/2017/6/13/15794786/google-play-android-excellence-collections
110. https://android-developers.googleblog.com/2017/07/identifying-intrusive-mobile-apps-using.html
111. https://www.apple.com/newsroom/2017/06/ios-11-brings-new-features-to-iphone-and-ipad-this-fall/
112. https://9to5mac.com/2017/06/05/apple-announces-arkit-for-ios-11/
113. https://www.theverge.com/2017/6/9/15768196/apple-ending-annoying-app-store-review-prompts
114. https://www.theverge.com/2017/6/9/15768196/apple-ending-annoying-app-store-review-prompts
115. https://9to5mac.com/2017/10/10/search-ads-app-store/
116. https://techcrunch.com/2017/10/19/google-play-adds-android-instant-apps-via-a-try-it-now-button-among-other-changes/
117. https://techcrunch.com/2017/12/05/apple-introduces-a-new-pay-per-install-ad-product-called-search-ads-basic/
118. https://9to5mac.com/2017/12/11/app-store-pre-order-support/
119. https://www.theverge.com/2018/4/5/17204074/apple-number-app-store-record-low-2017-developers-ios
120. https://techcrunch.com/2017/12/20/apple-revises-its-controversial-guidelines-on-template-based-apps/
121. https://android-developers.googleblog.com/2017/12/welcoming-android-81-oreo-and-android.html
122. https://techcrunch.com/2018/01/03/apple-developer-program-fee-waivers-are-now-available-for-nonprofits-schools-and-government
123. https://support.google.com/googleplay/android-developer/answer/112622?hl=en
124. https://www.vox.com/2016/6/8/11889298/google-apple-subscription-app-revenue-share
125. https://support.google.com/googleplay/android-developer/answer/112622?hl=en
126. https://9to5mac.com/2018/08/01/apple-app-store-affiliate-removal/
127. https://www.theverge.com/2018/8/16/17697648/google-android-9-pie-review-gestures-ai-notifications
128. https://www.macrumors.com/roundup/ios-12/
129. https://en.wikipedia.org/wiki/Google_Play
130. https://www.xda-developers.com/google-play-store-approval-new-apps-time/
131. https://support.apple.com/en-us/HT210393#13
132. https://www.theverge.com/2019/9/27/20886783/spotify-siri-integration-support-ios-13-beta-launch-airpods
133. https://www.apple.com/newsroom/2019/09/apple-arcade-its-time-to-play/
134. https://developer.android.com/about/versions/10
135. https://techcrunch.com/2019/09/23/google-play-pass-launches-with-350-premium-apps-and-games-initially-for-1-

99-per-month/

136. https://www.cnbc.com/2020/01/07/apple-app-store-had-estimated-gross-sales-of-50-billion-in-2019.htm

137. https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores

138. https://9to5google.com/2020/02/04/google-has-now-paid-out-over-80-billion-to-play-store-developers/

139. https://techcrunch.com/2020/04/15/google-play-adds-a-teacher-approved-section-to-its-app-store/

140. https://venturebeat.com/2020/09/13/ios-14-what-developers-need-to-know/

141. https://android-developers.googleblog.com/2020/06/unwrapping-android-11-beta-plus-more.htm

142. https://android-developers.googleblog.com/2020/06/unwrapping-android-11-beta-plus-more.htm

143. https://developer.apple.com/app-store/small-business-program/

144. https://developer.apple.com/news/?id=3wann9gh

145. https://www.apple.com/newsroom/2021/01/apple-services-entertain-inform-and-connect-the-world-in-unprece-dented-year/

146. https://www.appbrain.com/stats/number-of-android-apps

147. https://in.mashable.com/tech/19666/google-play-store-now-has-a-new-icon-that-shows-you-app-download-trends

148. https://techcrunch.com/2021/03/16/google-play-drops-commissions-to-15-from-30-following-apples-move-last-year/