

DELISTED APPS



H1.2021

Compliance Risks || Data Privacy || Brand Safety

*An analysis of apps delisted from the official
Google & Apple app stores in H1 2021*

pixalate

TABLE OF CONTENTS

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Key stats.....	3-7
App country of registry.....	8-13
Dangerous permissions.....	14-20
No privacy policy.....	21-23
Android apps.....	24-27
iOS apps.....	28-31
Developers.....	32-37
Methodology, limitations, disclaimer.....	38-42

A NOTE ABOUT APP DELISTINGS

Apps can be delisted for a variety of reasons, spanning from relatively nefarious (e.g., app store policy breaches) to benign (e.g., developer withdrawal). Pixalate is neither asserting nor assigning a reason for any delisting action. Additionally, the initiator of the delisting is not generally publicly-available information, so it is often not possible to know whether the removal was triggered by the app store or the developer.

Pixalate is sharing this data not to impugn the standing or reputation of any person, entity or app, but, instead, to report facts as they pertain to delisted Android and iOS apps.

H1 2021 APP DELISTINGS: KEY TAKEAWAYS



Over **813,000 apps** were delisted across iOS and Android in H1 2021



66% of delisted Android apps had at least one **dangerous permission**



25% of delisted Android apps and **59%** of delisted iOS apps had **no privacy policy**



27% of delisted Android apps had access to **GPS data**; **19%** could **access camera**



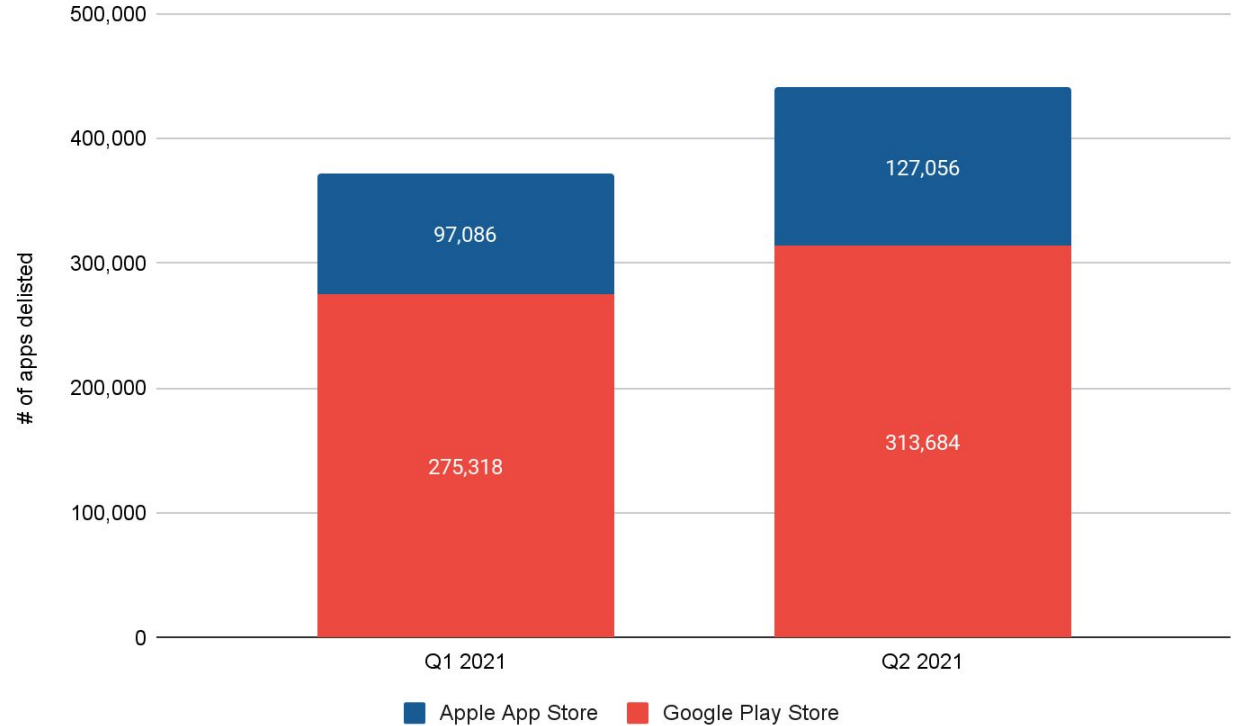
Over **86%** of delisted apps **targeted children** aged 12 and under



Top apps prior to delisting were from **Taiwan** (on Android) and **China** (on iOS)

800K+ APPS DELISTED IN H1 2021

H1 2021; iOS AND ANDROID COMBINED



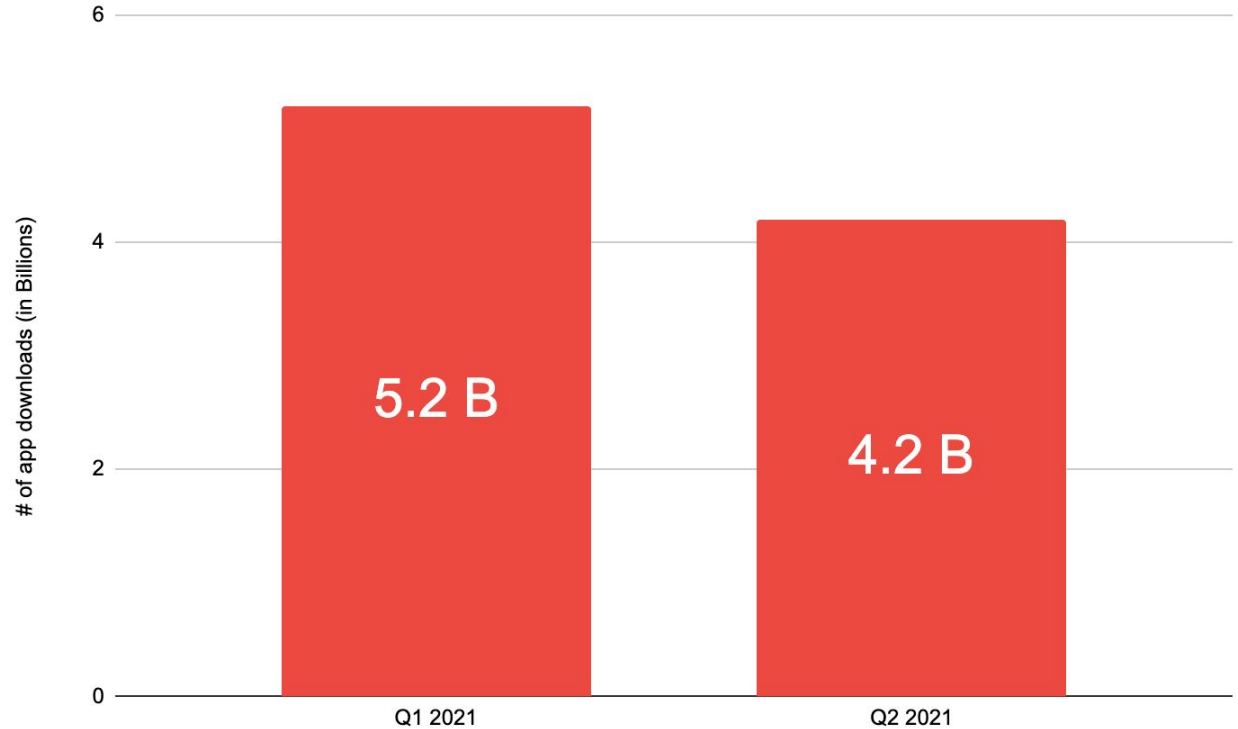
813K

apps delisted
across the Google
Play Store & Apple
App Store in H1
2021



DELISTED ANDROID APPS HAD 9B+ DOWNLOADS

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE



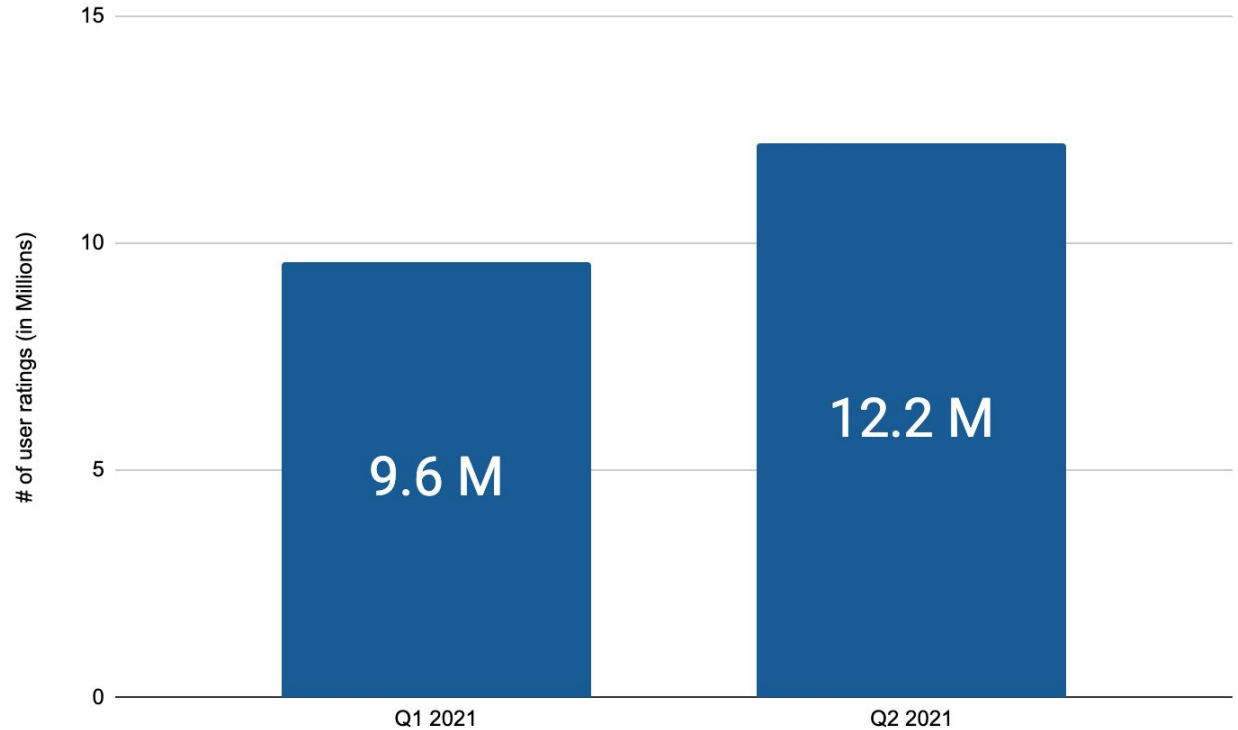
9.3B

total downloads
(pre-delisting) of
the apps removed
from the Google
Play Store in
H1 2021



DELISTED iOS APPS HAD 20M+ USER RATINGS

H1 2021; APPS DELISTED FROM THE APPLE APP STORE



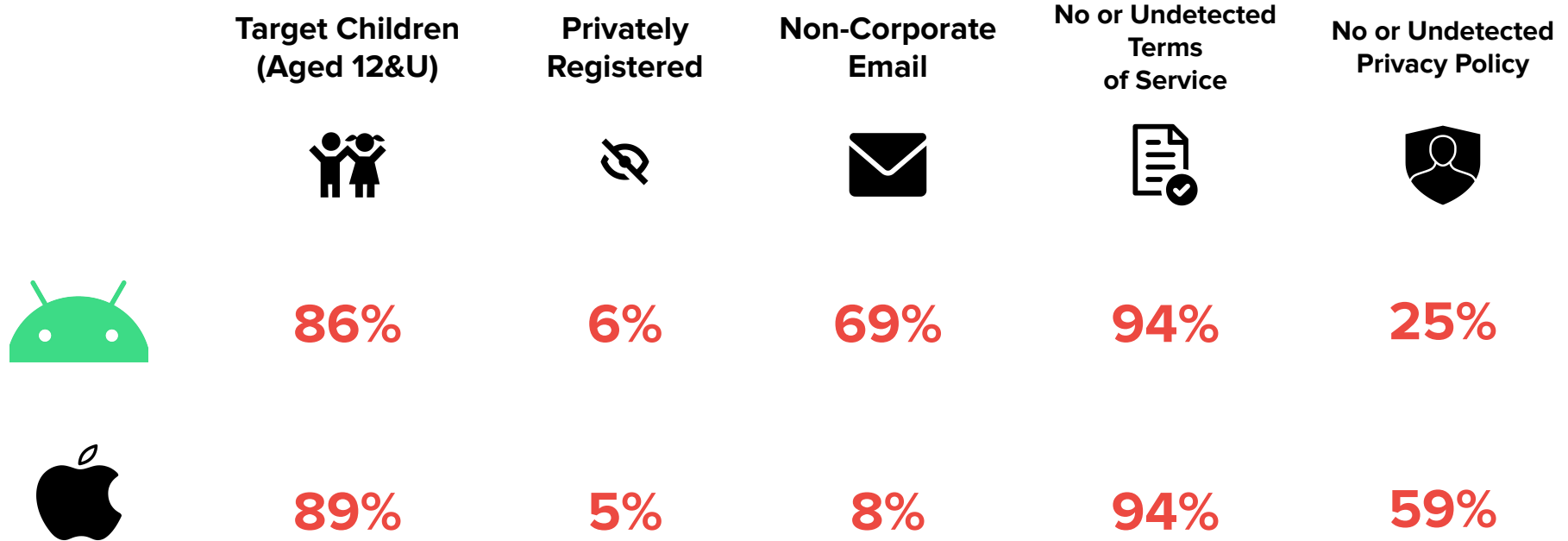
21.8M

total user ratings
(pre-delisting) of
the apps removed
from the Apple App
Store in H1 2021



25% (ANDROID) & 59% (iOS) OF DELISTED APPS HAD NO PRIVACY POLICY

H1 2021; DEPICTS CERTAIN PRIVACY AND COMPLIANCE RISK FACTORS AMONG APPS DELISTED FROM THE GOOGLE PLAY STORE AND APPLE APP STORE

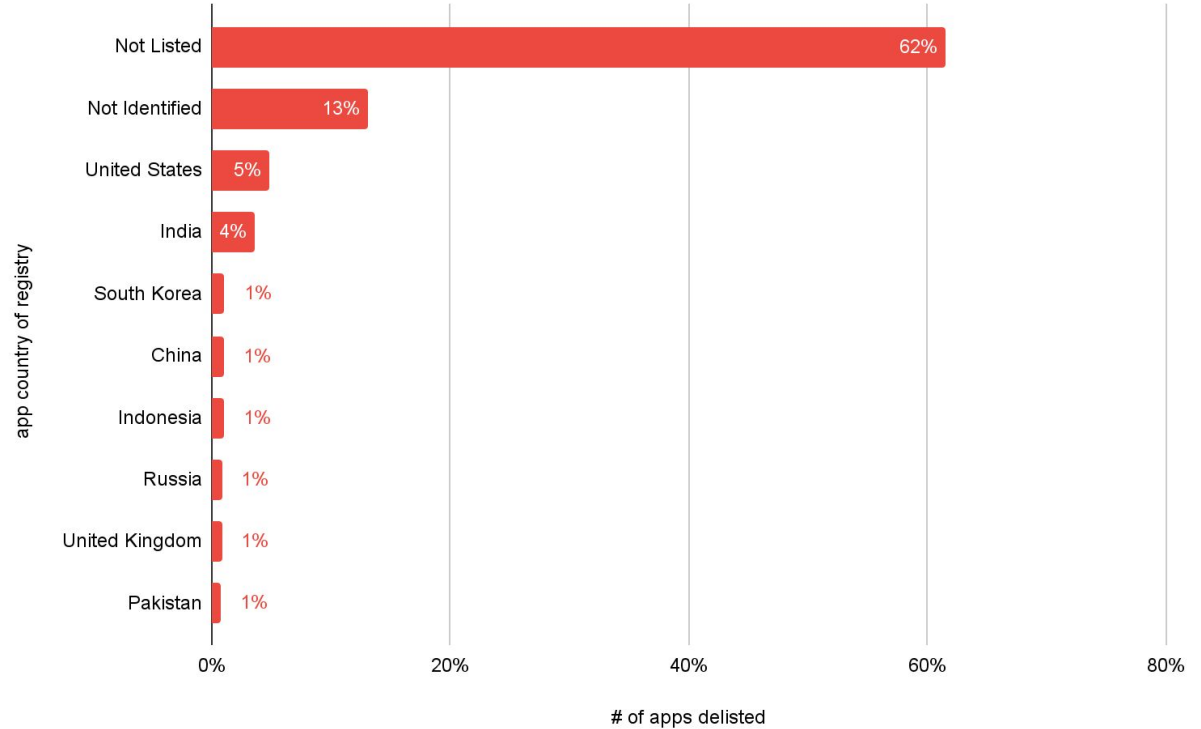


COUNTRY OF REGISTRY (ANDROID)

Where were the delisted apps registered?

ANDROID: 62% OF DELISTED APPS HAD NO ADDRESS

H1 2021



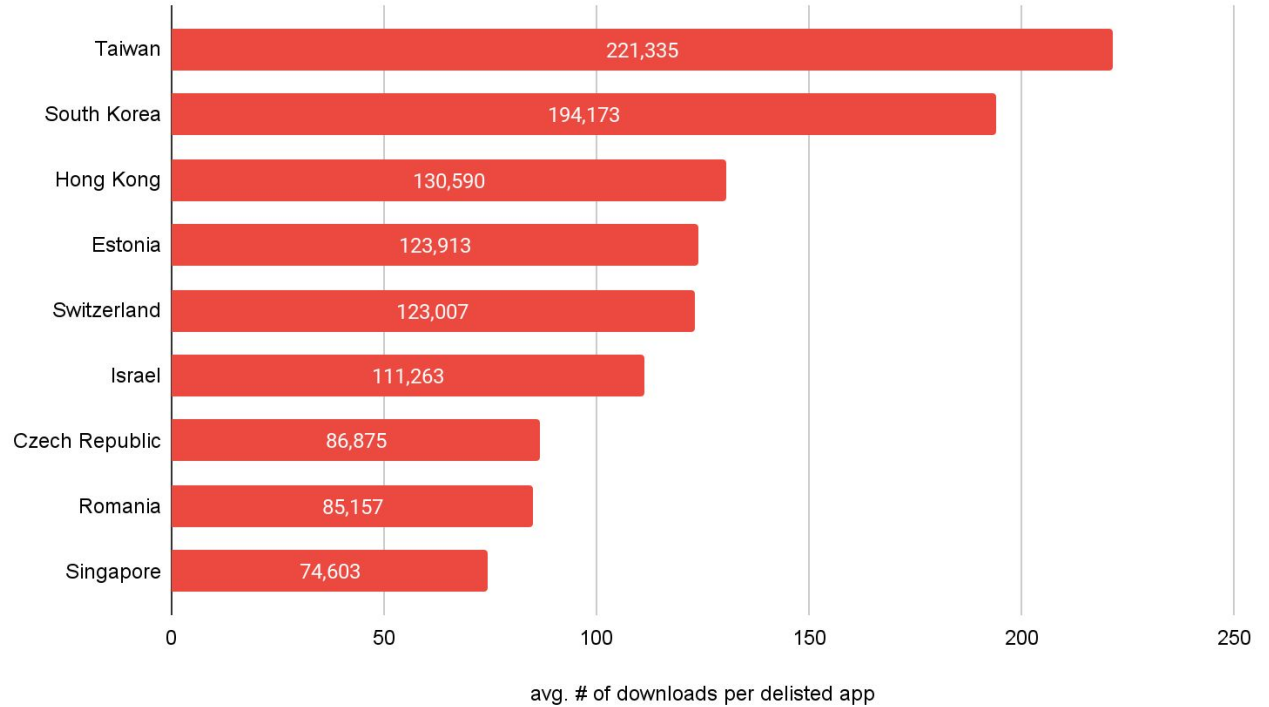
74%

of apps delisted from the Google Play Store in H1 2021 had either no address listed or no identifiable address



ANDROID: DELISTED TAIWANESE APPS WERE MOST POPULAR

H1 2021; 'POPULARITY' BASED ON DOWNLOADS PRE-DELISTING



221K

average downloads
(pre-delisting) per
app, among apps
registered in
Taiwan

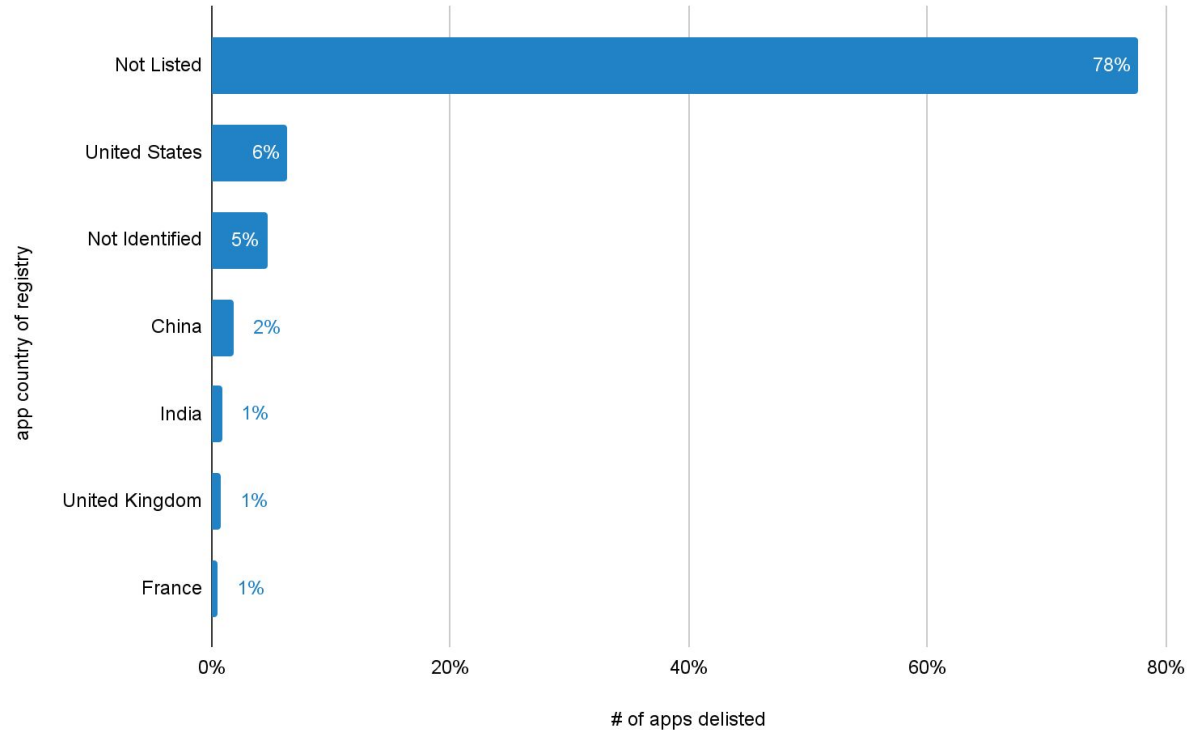


COUNTRY OF REGISTRY (iOS)

Where were the delisted apps registered?

iOS: 78% OF DELISTED APPS HAD NO ADDRESS

H1 2021



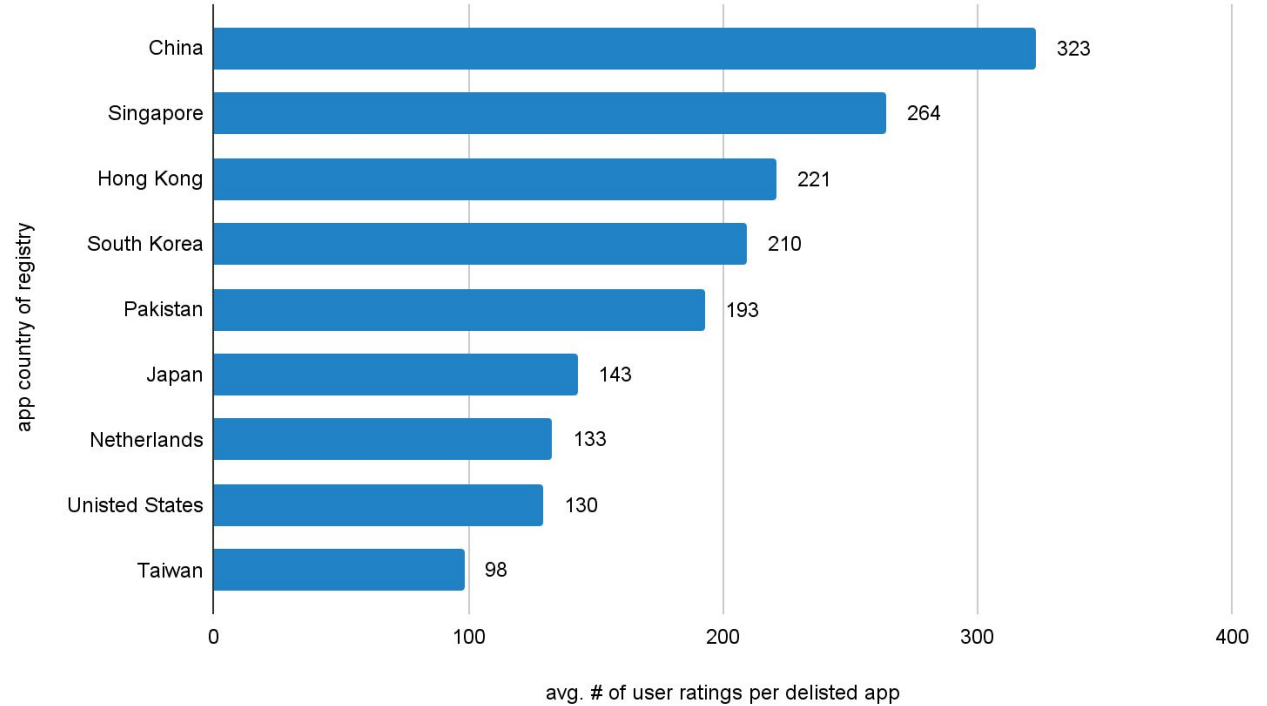
83%

of apps delisted from the Apple App Store in H1 2021 had either no address listed or no identifiable address



iOS: DELISTED CHINESE APPS WERE MOST POPULAR

H1 2021; 'POPULARITY' BASED ON USER RATINGS PRE-DELISTING



323

average user ratings
(pre-delisting) per
app, among apps
registered in China





DANGEROUS PERMISSIONS

What delisted apps had 'dangerous permissions'?

WHAT ARE 'DANGEROUS PERMISSIONS'?

ON THE GOOGLE PLAY STORE

Per [Google](#), “dangerous permissions”:

“...cover areas where the app wants data or resources that involve the user's private information, or could potentially affect the user's stored data or the operation of other apps.”

There are a total of **30** “dangerous permissions.”

Here are examples; our methodology has the full list.

“Dangerous Permission”	Description
WRITE_EXTERNAL_STORAGE	Allows an application to write to external storage.
CAMERA	Required to be able to access the camera device.
CALL_PHONE	Allows an application to initiate a phone call without going through the Dialer user interface for the user to confirm the call.
BODY_SENSORS	Allows an application to access data from sensors that the user uses to measure what is happening inside his/her body, such as heart rate.
RECORD_AUDIO	Allows an application to record audio.
READ_CALENDAR	Allows an application to read the user's calendar data.
READ_CALL_LOG	Allows an application to read the user's call log.
READ_CONTACTS	Allows an application to read the user's contacts data.
WRITE_CALENDAR	Allows an application to write the user's calendar data.
WRITE_CONTACTS	Allows an application to write the user's contacts data.
READ_PHONE_STATE	Allows read only access to phone state, including the phone number of the device, current cellular network information, the status of any ongoing calls, and a list of any Phone Accounts registered on the device.
ANSWER_PHONE_CALLS	Allows the app to answer an incoming phone call.
ACCESS_FINE_LOCATION	Allows an app to access precise location.
ACCESS_COARSE_LOCATION	Allows an app to access approximate location.
ACCESS_BACKGROUND_LOCATION	Allows an app to access location in the background.

66% OF DELISTED APPS HAD AT LEAST 1 'DANGEROUS PERMISSION'

H1 2021; DEPICTS EXAMPLES OF 'DANGEROUS PERMISSIONS' AND THE % OF DELISTED GOOGLE PLAY STORE APPS WITH SAID PERMISSIONS

66%



Any Dangerous
Permission(s)

57%



Write External
Storage

27%



Access
Precise Location

19%



Read
Phone State

19%



Access
Camera

9%



Record
Audio

6%



Phone
Calls

4%



Read
Contacts

2%



Activity
Recognition

2%



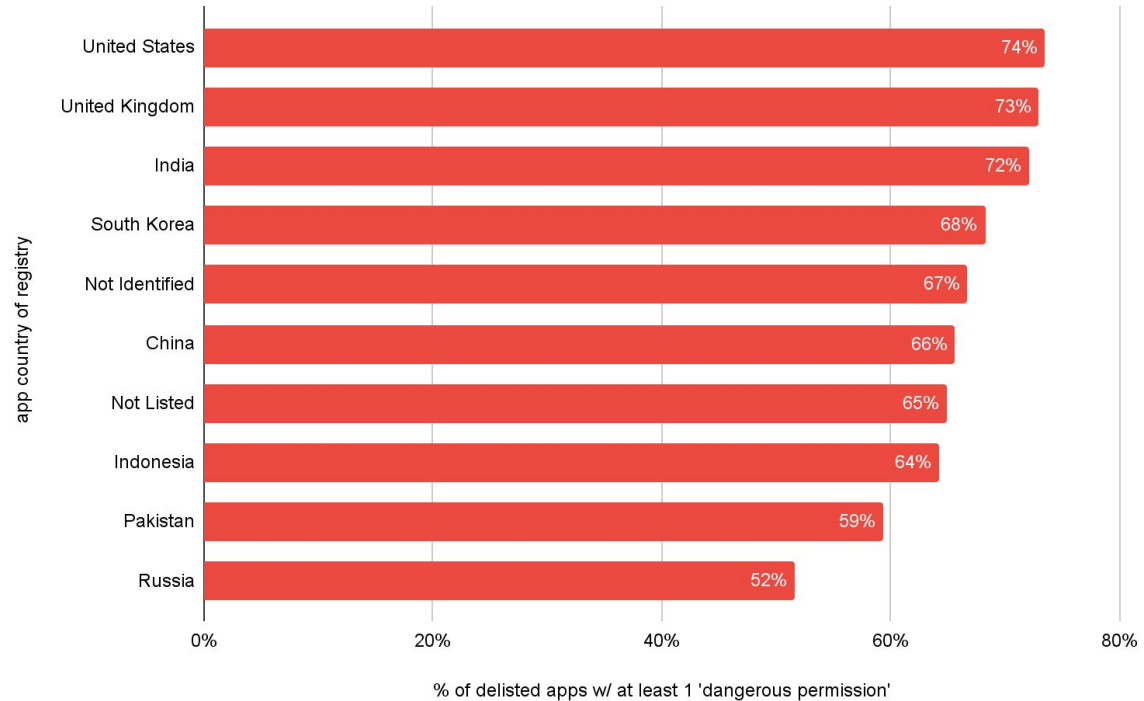
Read
Calendar

74% OF DELISTED US APPS HAD DANGEROUS PERMISSION(S)

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS

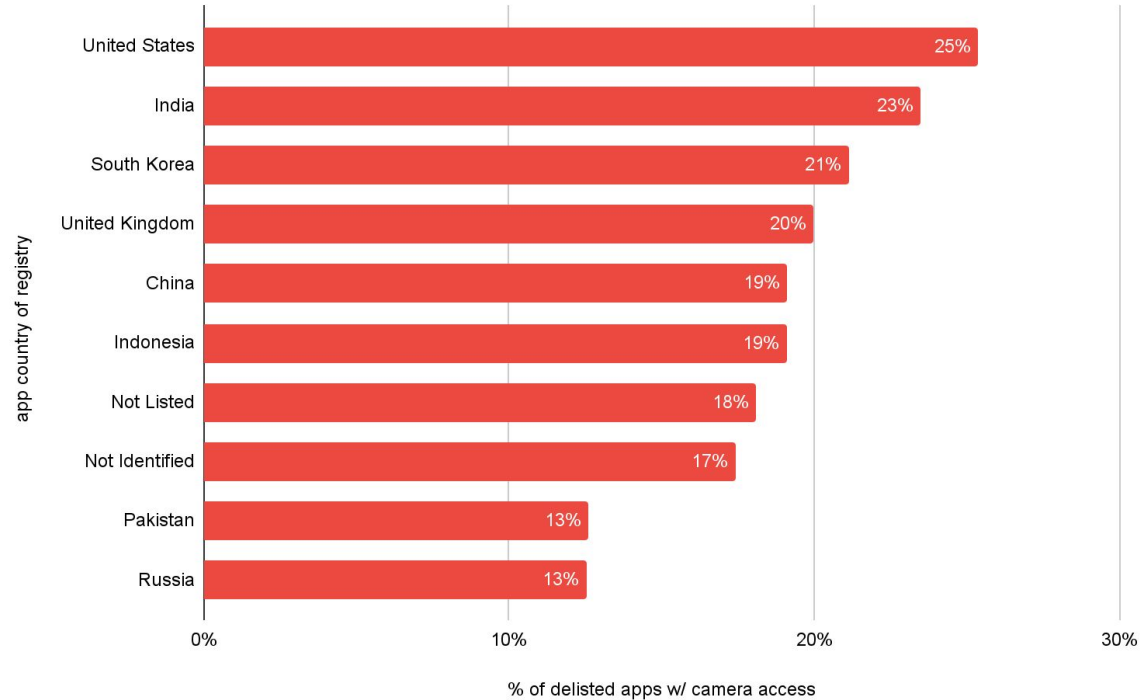
74%

of delisted U.S. apps in H1 2021 had at least one dangerous permission, the highest rate among all countries



25% OF DELISTED US APPS HAD CAMERA ACCESS

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS



25%

of delisted U.S. apps in H1 2021 had access to the phone's camera, the highest rate among all countries

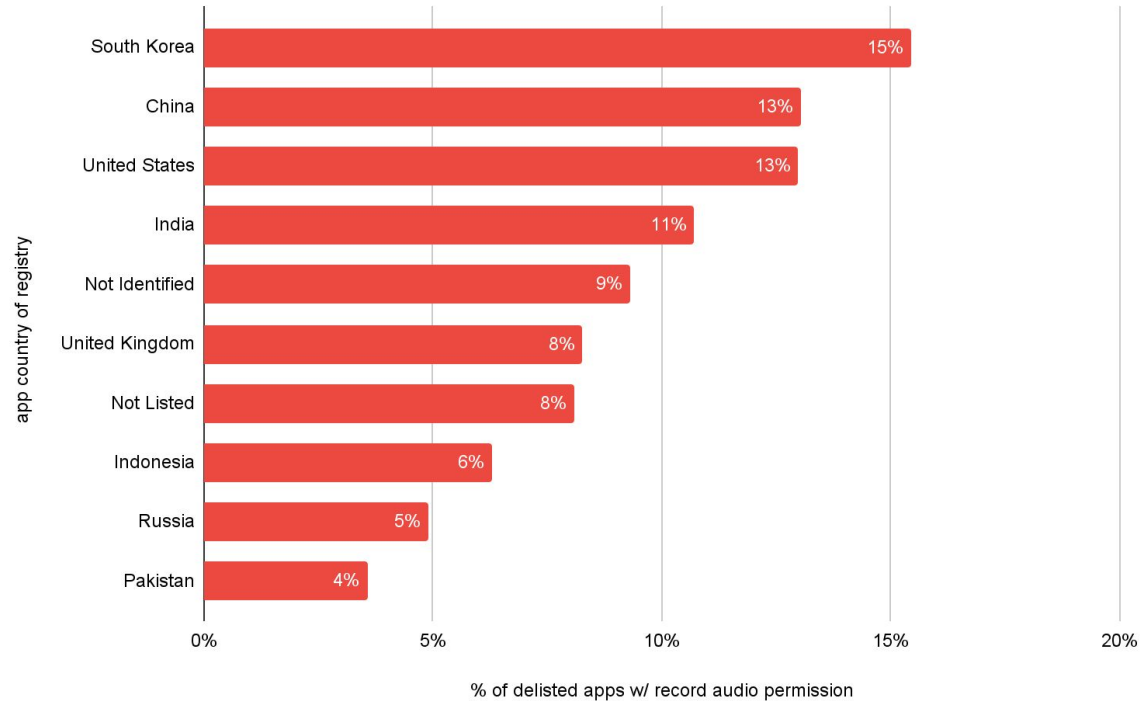


13% OF DELISTED CHINESE APPS HAD MICROPHONE ACCESS

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS

13%

of delisted Chinese apps in H1 2021 had the ability to record audio via the phone's microphone

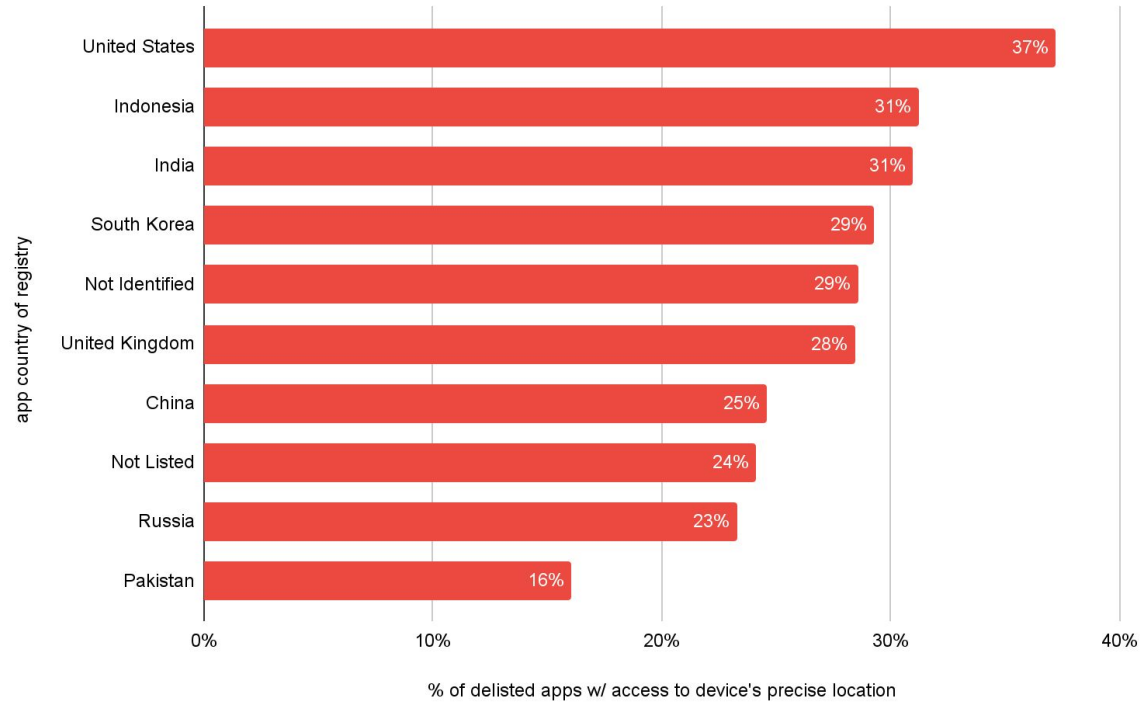


37% OF DELISTED US APPS HAD PRECISE LOCATION ACCESS

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS

37%

of delisted U.S. apps in H1 2021 had access to the phone's precise GPS coordinates, the highest rate among all countries



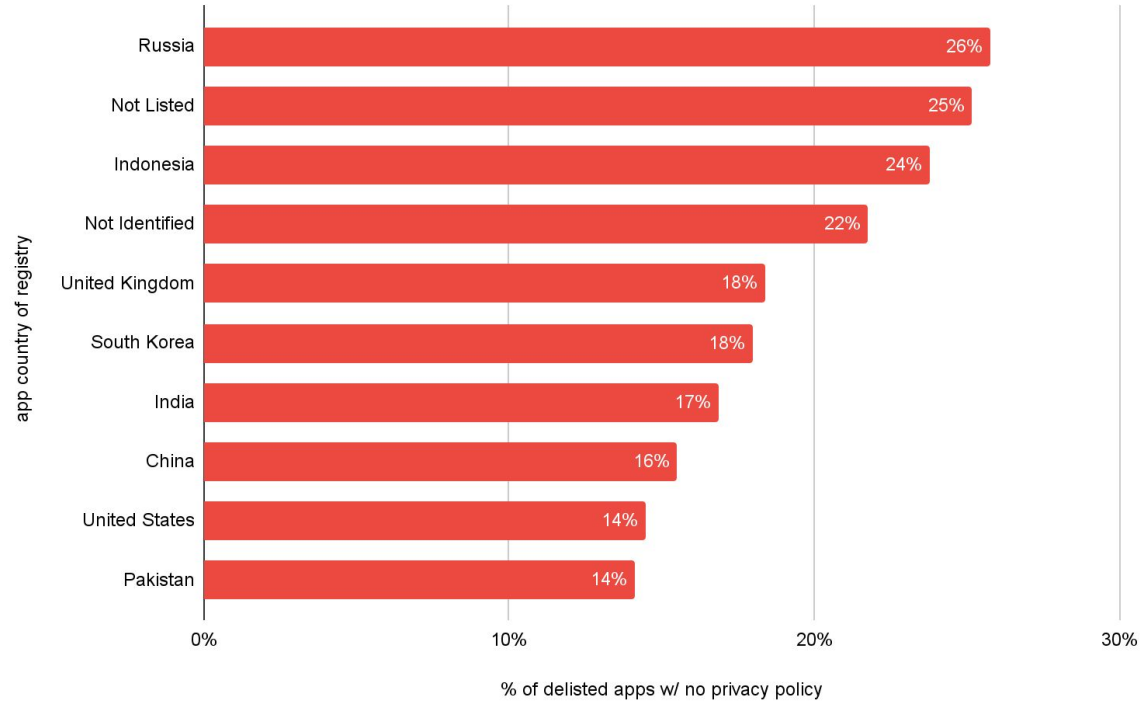
DELISTED APPS WITH NO PRIVACY POLICY

ANDROID: 26% OF DELISTED RUSSIAN APPS HAD NO PRIVACY POLICY

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS

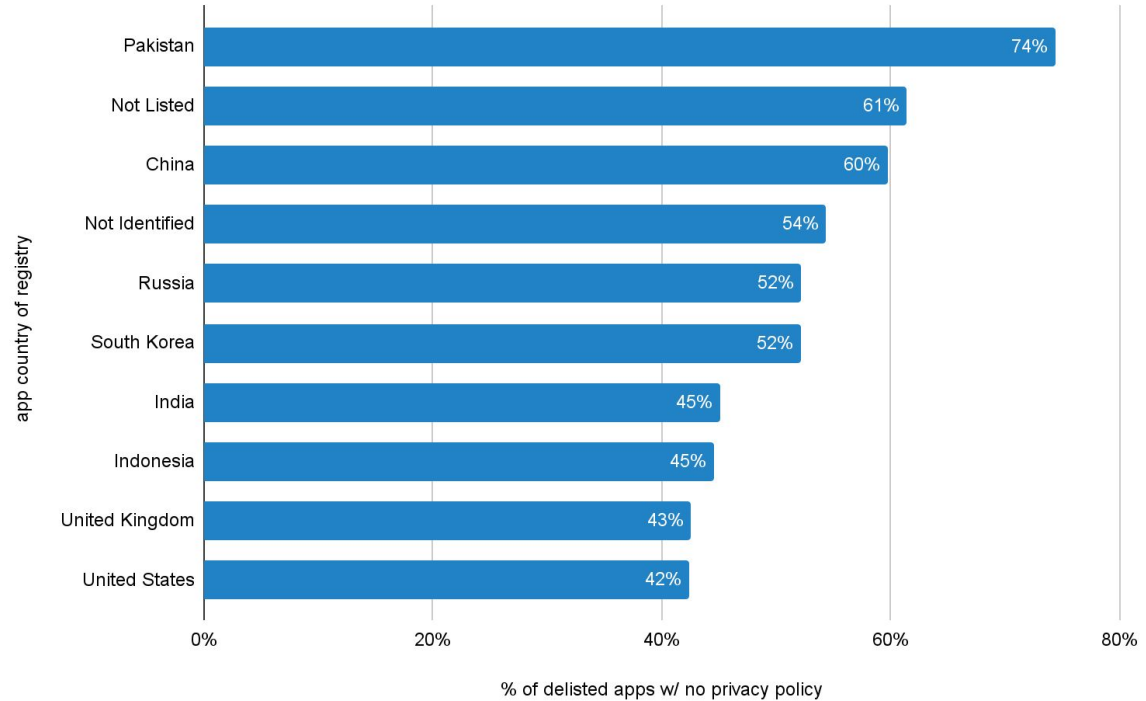
26%

of delisted Russian apps from the Google Play Store in H1 2021 had no privacy policy, the highest rate among all countries



iOS: 60% OF DELISTED CHINESE APPS HAD NO PRIVACY POLICY

H1 2021; APPS DELISTED FROM THE GOOGLE PLAY STORE; AMONG COUNTRIES WITH AT LEAST 1K DELISTED APPS



60%

of delisted Chinese apps from the Apple App Store in H1 2021 had no privacy policy



MOST POPULAR DELISTED APPS (ANDROID)

Apps with 10M+ downloads before delisting

2K+ DELISTED GOOGLE PLAY APPS HAD 1M+ DOWNLOADS

H1 2021

Downloads	# of apps delisted
100M+	4
50M+	17
10M+	162
5M+	351
1M+	2,076
500k+	4,166
100k+	15,647

2,076

apps delisted from the Google Play Store in H1 2021 had at least 1 million downloads prior to delisting



ANDROID APPS W/ 50M+ DOWNLOADS BEFORE DELISTING

H1 2021

Title	App ID	Developer	Country of Registry	Downloads Before Delisting
Cloud Print	com.google.android.apps.cloudprint	Google LLC	United States	1B+
Google Japanese Input	com.google.android.inputmethod.japanese	Google LLC	Not Identified	100M+
Google PDF Viewer	com.google.android.apps.pdfviewer	Google LLC	United States	100M+
Quik – Free Video Editor for photos, clips, music	com.stupeflix.replay	GoPro	United States	100M+
Periscope - Live Video	tv.periscope.android	Twitter, Inc.	United States	50M+
Hola Free VPN Proxy Unblocker	org.hola	Hola VPN Ltd.	Israel	50M+
Hot Wheels: Race Off	com.hutchgames.hotwheels	Hutch Games	United Kingdom	50M+
ASUS PixelMaster Camera	com.asus.camera	ZenUI, ASUS Computer Inc.	Taiwan	50M+
Driving School 2016	com.ovilex.drivingschool2016	Ovidiu Pop	ROMANIA	50M+
News Republic - Breaking and Trending News	com.mobilesrepublic.appy	News Republic	Not Identified	50M+

ANDROID APPS W/ 50M+ DOWNLOADS BEFORE DELISTING (CONT.)

H1 2021

Title	App ID	Developer	Country of Registry	Downloads Before Delisting
Counter Terrorist Shoot	com.counter.terrorists.swat.attack	Doing Studio	Not Identified	50M+
Archery King	com.miniclip.archery	Miniclip.com	Switzerland	50M+
Hot Wheels: Race Off	com.hutchgames.hotwheels	Hutch Games	United Kingdom	50M+
Burger	com.magmamobile.game.Burger	Magma Mobile	France	50M+
Photo & Video Downloader for Instagram - Repost IG	instake.repost.instagramphotodownloader.instagramvideodownloader	Video Downloader & Video Player & Photo Downloader	Taiwan	50M+
AT&T Navigator: Maps, Traffic	com.telenav.app.android.cingular	Telenav, Inc.	United States	50M+
Shoot Hunter-Gun Killer	com.ray3d.shootsniper	RAY3D	Not Identified	50M+

MOST POPULAR DELISTED APPS

(iOS)

700 DELISTED APPLE APPS HAD 5K+ USER RATINGS

H1 2021

Downloads	# of apps delisted
250k+	7
100k+	25
50k+	64
10k+	392
5k+	700
1k+	1,773

700

apps delisted from the Apple App Store in H1 2021 had at least 5,000 user ratings prior to delisting



iOS: 20 MOST POPULAR APPS BEFORE DELISTING (1-10)

H1 2021; 'POPULARITY' BASED ON USER RATINGS PRE-DELISTING

Title	App ID	Developer	Country of Registry	Ratings Before Delisting
YOLO: Anonymous Q&A	1462082664	YOLO Technologies, Inc.	Not Listed	731,394
Arctic Remote	1483715721	DongZhang Lin	Not Listed	698,107
EiuGuy Curtain	1485243322	Lisa Judy	Not Listed	314,984
Kleiderkreisel	565098722	Vinted Limited	Not Listed	310,383
我爱拼模型-口袋里的世界	1488306599	SEARONACORPORATIONLIMITED	Not Listed	305,545
激斗火柴人	1440447205	li lei	Not Listed	303,378
Quik - GoPro Video Editor	694164275	GoPro, Inc.	United States	273,562
Word Streak With Friends	485084223	Zynga Inc.	United States	240,770
Tropical Rewards App	998950128	noordstar management, inc	United States	207,782
Ultimate Disc	1497873581	SUPERSONIC STUDIOS LTD	Israel	196,165

iOS: 20 MOST POPULAR APPS BEFORE DELISTING (11-20)

H1 2021; 'POPULARITY' BASED ON USER RATINGS PRE-DELISTING

Title	App ID	Developer	Country of Registry	Ratings Before Delisting
猜歌大神-音乐闯关一键猜歌名	1522439554	Shuang YU	Not Listed	185,626
Mamikreisel	598245138	Vinted Limited	Not Listed	181,129
人人视频-全民追剧神器	1453979465	Wuhan Yin Xiang Network Technology Co., Ltd	Not Listed	175,921
TCHO Seniors - Socket	1481423417	Letitia Samantha	Not Listed	174,879
VOA慢速英语 - VOA每日英语听力	576745090	Shanghai Rangli Education & Technology Co., Ltd	Not Listed	163,827
Fun Fan.	1477005461	Beau Nelson	Not Listed	156,608
开心点点消-快乐消除	1493507346	丽张	China	154,738
套马的汉子-休闲解压养成手游	1483032762	Xu Zhang	Not Listed	150,263
烈焰轩辕-武侠江湖游戏	1401856752	涛宋	Not Listed	142,577
梦幻仙缘-梦幻双修仙侠回合制游戏	1432519237	John Santiago	Not Listed	132,163

**DEVELOPERS W/
THE MOST MOST
DELISTED APPS**

TOP 10 ANDROID DEVELOPERS W/ THE MOST DELISTED APPS IN H1 2021

H1 2021

Developer	Country of Registry	# of Apps Delisted
ProwebCE	Not Listed	1,594
Magzter Inc.	United States	1,564
Neemo	Not Listed	1,506
Ciprian Marin	Not Listed	908
Medicin Consultancy Services	India	824
Sua Rádio Web	Not Listed	703
Yeruza Buenaño	Not Listed	583
cenahost	Not Listed	531
echurch	Not Listed	530
Maudie Killian	Not Listed	521

TOP 10 iOS DEVELOPERS W/ THE MOST DELISTED APPS IN H1 2021

H1 2021

Developer	Country of Registry	# of Apps Delisted
Magzter Inc.	United States	1,158
DigitalTown, Inc	United States	401
OFFLINE MAP TRIP GUIDE LTD	Not Listed	385
ChowNow, LLC	Not Listed	362
Nextmeta, Inc	Not Listed	359
MINDBODY, Incorporated	United States	321
OBENTO LIMITED	Not Listed	290
MAPITECH LTD	Not Listed	276
Subsplash Inc	United States	274
Netsummit Marketing, Inc.	Not Listed	261

**DEVELOPERS W/ THE
MOST POPULAR APPS
BEFORE DELISTING**

ANDROID DEVELOPERS W/ THE MOST POPULAR DELISTED APPS IN H1 2021

H1 2021; 'POPULARITY' BASED ON TOTAL DOWNLOADS PRIOR TO DELISTING

Developer	Apps Delisted in H121	Downloads Before Delisting
Google LLC	6	1.2B+
GoPro	2	100M+
Hutch Games	2	100M+
Doing Studio	4	65M+
Video Downloader & Video Player & Photo Downloader	3	60M+
Hola VPN Ltd.	3	60M+
Ovidiu Pop	2	60M+
Miniclip.com	3	55M+
Magma Mobile	2	50M+
Twitter, Inc.	1	50M+

iOS DEVELOPERS W/ THE MOST POPULAR DELISTED APPS IN H1 2021

H1 2021; 'POPULARITY' BASED ON TOTAL USER RATINGS PRIOR TO DELISTING

Developer	Apps Delisted in H121	Ratings Before Delisting
YOLO Technologies, Inc.	1	725K+
DongZhang Lin	1	690K+
Sammy Networks Co., Ltd.	66	640K+
Vinted Limited	3	550K+
Zynga Inc.	6	350K+
Lisa Judy	1	310K+
SEARONACORPORATIONLIMITED	1	305K+
li lei	1	300K+
GoPro, Inc.	2	270K+
FUNNII PTE. LTD.	74	270K+

METHODOLOGY & DISCLAIMER

METHODOLOGY & LIMITATIONS

General

Pixalate's data science and analyst team analyzed apps and app developers delisted from the Google Play Store and Apple App Store during H1 2021 (January 1 through June 30, 2021).

Delisted Apps

An app is considered delisted if it existed in a given app store in a given time period of interest and then it was removed. Delisted apps are calculated at the month granularity level, i.e. all the app removals are grouped together according to the month they occurred. Delisted apps cannot reflect the initiator of the delisting action, i.e. Google, Apple, or the app developer. Also, if an app is delisted in a given month but is later added back to the store, it will be counted as delisted only until the month it was added back.

Downloads and user ratings

Download figures and user ratings referred to within this report are determined based on the published number of downloads (Google Play Store) or user ratings (Apple App Store); data derived from crawls of the respective app stores performed by Pixalate or one of Pixalate's third party licensors.

Google Permissions

According to Google's [documentation](#): "The purpose of a permission is to protect the privacy of an Android user. Android apps must request permission to access sensitive user data (such as contacts and SMS), as well as certain system features (such as camera and internet). Depending on the feature, the system might grant the permission automatically or might prompt the user to approve the request. A central design point of the Android security architecture is that no app, by default, has permission to perform any operations that would adversely impact other apps, the operating system, or the user. This includes reading or writing the user's private data (such as contacts or emails), reading or writing another app's files, performing network access, keeping the device awake, and so on."

METHODOLOGY & LIMITATIONS (CONT.)

Google Permissions (continued)

All the permissions that an Android app needs to be granted should be listed in the “[manifest file](#)” of the app. Google classifies these permissions as “Dangerous” if they could potentially affect the user's privacy or the device's normal operation, such as the SEND_SMS permission.” The user must explicitly agree to grant those permissions. The list of “dangerous permissions” is as follows:

- 'write_external_storage'
- 'camera'
- 'use_sip'
- 'read_sms'
- 'send_sms'
- 'call_phone'
- 'receive_mms'
- 'receive_sms'
- 'body_sensors'
- 'get_accounts'
- 'record_audio'
- 'add_voicemail'
- 'read_calendar'
- 'read_call_log'
- 'read_contacts'
- 'write_calendar'
- 'write_call_log'
- 'write_contacts'
- 'accept_handover'
- 'read_phone_state'
- 'receive_wap_push'
- 'answer_phone_calls'
- 'read_phone_numbers'
- 'access_fine_location'
- 'activity_recognition'
- 'read_external_storage'
- 'access_coarse_location'
- 'process_outgoing_calls'
- 'access_background_location'

Country of Registration

The country of registration for a given app is determined only if a) the app has a physical address published in its app store page, or otherwise b) from the registrant physical address of the publisher domain listed in the app store page excluding privately registered ones. If none of them is available, the physical address associated with an app cannot be determined. Sometimes, the same developer may list different countries of registration for different apps.

App Titles and Developer Names

Certain non-English characters may have been altered in App Titles or Developer Names. PixaLate has included App ID information to help identify certain apps.

DISCLAIMER

The content of this report reflects Pivalate's opinions with respect to the factors that Pivalate believes can be useful to the digital media industry. Any data shared is grounded in Pivalate's proprietary technology and analytics, which Pivalate is continuously evaluating and updating. Any references to outside sources should not be construed as endorsements. Pivalate's opinions are just that, opinions, which means that they are neither facts nor guarantees.

It is important to also note that the mere fact that an app has been delisted, receives “dangerous permissions” (as defined by Google), does not appear to have a published registration address, or is registered in a traditional tax haven country or a country that appears to be receiving heightened scrutiny by, among other governmental bodies, the Committee on Foreign Investment in the United States (CFIUS), does not necessarily mean that such app, or its publisher, is actually exploiting data.

Instead, Pivalate is merely rendering an opinion that these facts may be suggestive of heightened risks to data subjects.

Apps can be delisted for a variety of reasons, and Pivalate is neither asserting nor assigning a reason for any delisting action. Additionally, the initiator of the delisting is not generally publicly-available information, so it is often not possible to know whether the removal was triggered by the app store or the developer.

Pivalate is sharing this data not to impugn the standing or reputation of any entity, person or app, but, instead, to report facts as they pertain to delisted Android and iOS apps.

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Apple App Store and the Apple logo are registered trademarks of Apple Inc.

ABOUT PIXALATE

Pixalate is the market-leading fraud protection, privacy, and compliance analytics platform for Connected TV (CTV) and Mobile Advertising. We work 24/7 to guard your reputation and grow your media value. Pixalate offers the only system of coordinated solutions across display, app, video, and OTT/CTV for better detection and elimination of ad fraud. Pixalate is an MRC-accredited service for the detection and filtration of sophisticated invalid traffic (SIVT) across desktop and mobile web, mobile in-app, and OTT/CTV advertising. www.pixalate.com



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THANK YOU

DELISTED APPS REPORT: H1 2021

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