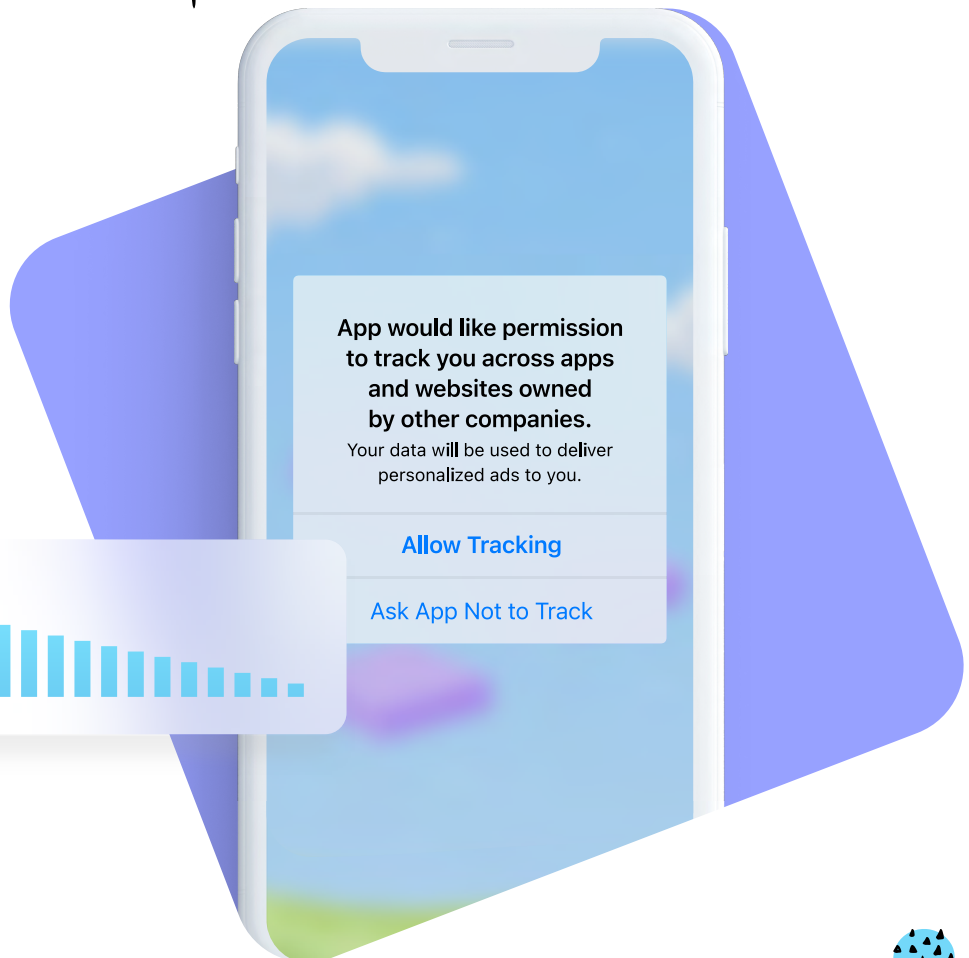
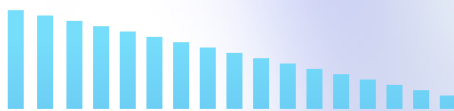




# Appocalypse Now

## Mobile advertisers have their say on privacy-first marketing



# Foreword

“Since Apple released iOS 14.5 just over a year ago, it’s fair to say that it has been a strange time for the mobile advertising industry. On the surface it seems very little has changed; the impact of app tracking transparency (ATT) was not as substantial as anticipated. Scratch that surface, though, and it’s clear there are indeed some tectonic shifts underway.

“Yet even as an organization of people who spend their days focused entirely on the solutions our mobile advertising customers need, it’s safe to say there’s more work to do to identify the specific challenges they face. So we decided to ask the question of businesses outside our network too, in the hope of delivering additional insights that might benefit the mobile advertising industry as a whole.

“One thing that is crystal clear is that the privacy-first direction of travel across both iOS and Android is set. More change is inevitable, even as we’re still adjusting to those that came into force a year ago. In order to keep growing great apps and games, we must keep adapting.”



**Christopher Farm,**  
CEO and Co-Founder of Tenjin

# Executive Summary

---

- Despite feeling reasonably well prepared for Apple's privacy changes, the majority of mobile advertisers say that mobile advertising became more difficult in 2021. This had a considerable negative impact on advertisers' revenues.
- ATT's introduction increased advertisers' spend on Google Play and alternative Android app stores at the expense of iOS. This accelerated a long-term trend, although there are signs that iOS has clawed back some of the lost ground.
- Mobile advertisers are using a patchwork of strategies to achieve success; including deterministic attribution, probabilistic attribution and fingerprinting, and significant budgetary shift to Android.
- Making the most of Apple's anonymized SKAdNetwork data is a challenge for mobile advertisers. Few companies have access to in-house data science talent, with the majority implementing marketing automation to gain insight from large, disparate datasets.
- Mobile games advertisers felt the impact of Apple's privacy-first changes most keenly of all. They were more concerned about the impact of ATT and more likely to shift budget to Android, or use attribution methods such as probabilistic attribution or fingerprinting.
- Despite a tough 2021, mobile advertisers are largely positive and bullish, approaching 2022 with optimism and plans to increase rather than decrease their ad spend.

# Key findings

Of 302 mobile advertisers from the US and UK:

**68%**

Felt at least fairly well prepared for ATT

**55%**

Said mobile marketing became more complicated in 2021

**39%**

Median estimated revenue loss of games and apps

**59%**

Shifted budget from iOS to Android

**85%**

Used probabilistic attribution or fingerprinting

**32%**

Had data scientists in their marketing teams

**75%**

Had some automation in their daily workflow

**84%**

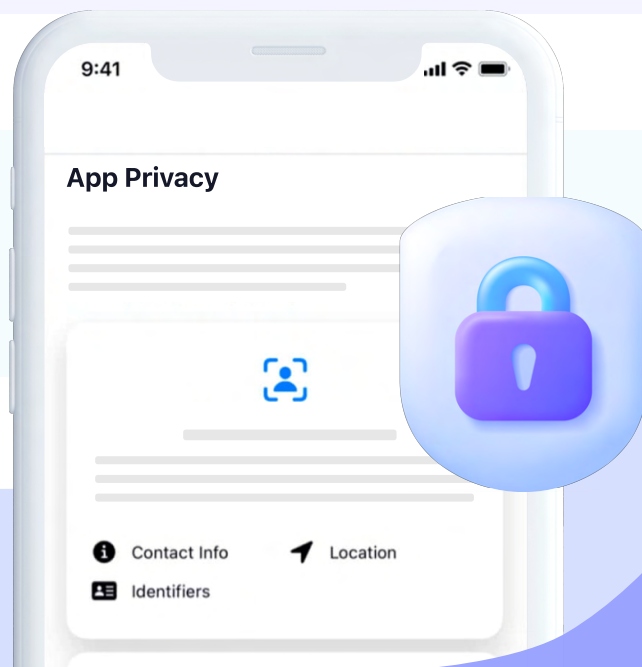
Concerned that Android would introduce similar changes to iOS

**65%**

Planned to increase their ad spend in 2022

**85%**

Optimistic that marketing would be less challenging in 2022



# Introduction

With billions of people shopping, socializing, scrolling and, of course, gaming on mobile for up to [a third of their waking moments](#), it's hardly surprising that mobile ad spend reached [almost \\$300 billion](#) in 2021. This amount could hit as much as [\\$350 billion](#) in 2022, reflecting the strength of an industry boosted by permanent changes to user behavior brought about by the global COVID-19 pandemic.

Yet, for an industry that is so accustomed to knowing whom its dollars target and the return on investment they deliver with pinpoint granularity, the last year has been a rude awakening. Privacy-first changes have forever altered familiar ways of targeting and measuring ad performance, particularly on what is often seen as the most lucrative ecosystem of them all - Apple's iOS. With attribution of users taken in-house by Apple, a 24 hour data privacy threshold introduced, and no real-time marketing events available, it has become much more difficult to determine the success of campaigns - even with the full range of anonymized SKAdNetwork (SKAN) marketing data being shared with advertisers. One year on from what was billed as [the mobile ad industry's apocalypse](#) - the introduction of ATT - we share how mobile advertisers are feeling about their industry and whether booming mobile ad spend tells the full story.

## A timeline of Apple privacy changes:

<p><b>The announcement</b></p> <p>At its Worldwide Developer Conference, Apple announces plans to change how advertisers access IDFA.</p>	<p><b>ATT begins</b></p> <p>With the release of iOS 14.5, users are notified every time an app wants to "track" them, and have to grant permission for it to continue to do so.</p>	<p><b>Advertisers get access to Apple's SKAN</b></p> <p>Advertisers receive direct access to anonymized SKAdNetwork (SKAN) data directly from Apple - but few are able to generate insights from it.</p>
<p>WWDC, Jun 2020</p>	<p>iOS 14.5, Apr 2021</p>	<p>iOS 15, Sep 2021</p>

## 2021 in review

When Apple first announced changes to how app developers would access its identifier for advertisers (IDFA) at the Worldwide Developers Conference in June 2020, the plan was that implementation would take place as soon as September 2020. In reality, it wasn't until April 2021 that ATT was introduced. But was 10 months enough preparation time for an industry wedded to retargeting and re-engaging on a per user basis?

### Preparation

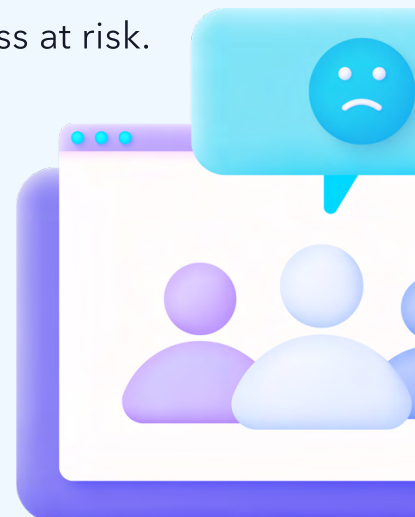
Our survey shows that, with an additional six months to get ready, mobile advertisers felt reasonably comfortable by the time ATT was introduced. More than half (53%) said they felt fairly well prepared, with an additional 15% feeling very prepared. The majority of respondents (55%) nevertheless said that mobile marketing became more complicated in 2021, reflecting the complexities of getting to grips with SKAN.

### Revenue

Despite this initial picture of relatively modest repercussions - at least compared to industry predictions - impact on bottom lines was more pronounced. Respondents estimated that their companies, games, and apps lost an average of almost two-fifths of their revenue in 2021. The median estimated revenue loss due to Apple's privacy changes was 39%. Even more startling was that, of those advertisers that had their revenues impacted, three-quarters (75%) felt it put the future of their business at risk.

**75%**

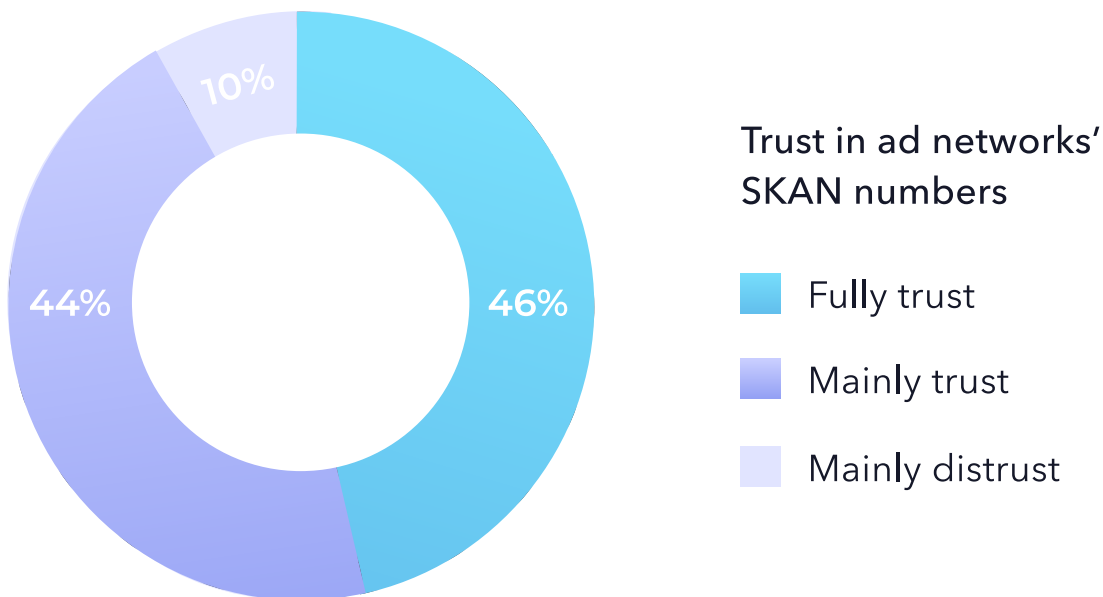
of those advertisers that had their revenues impacted, felt it put the future of their business at risk.



## Ways of working

iOS 14.5 fundamentally altered established deterministic marketing models, causing mobile advertisers to seek respite from ATT in other attribution methods such as probabilistic attribution or fingerprinting, and also the Android ecosystem.

The introduction of iOS 15 in September 2021 gave mobile advertisers unfettered access to SKAN data, direct from Apple. Previously, advertisers had to rely on the SKAN numbers provided to them by their ad networks. Although mobile advertisers' trust in ad networks' SKAN numbers was generally high, only 46% had full trust in them, compared to 44% who mainly trusted them, suggesting some discrepancies with first-hand SKAN data were being identified.



# Android in the ascendancy?

With uncertainty rife on iOS in 2021, was there an opportunity for Android to capitalize and increase its market share? Our research shows that the implementation of ATT did indeed provide a surge of ad spend on Android - both for Google Play and alternative Android platforms - at the expense of iOS. Yet iOS remains vital as a mobile advertising ecosystem and, following the initial shock of ATT, advertisers' enthusiasm for iOS campaigns appears largely undiminished.

## Shifting budgets

Our survey shows that 59% of mobile advertisers shifted a proportion of their budgets away from iOS and towards Android in 2021, accelerating a trend seen in recent years of a closing gap in mobile ad spend between the two, reducing iOS's dominance.

[Data from thousands of hyper-casual mobile games](#) that use Tenjin suggests that, in Q3 2021, this led to ad spend on Android surpassing that on iOS for the first time ever - with a significant swing of 10 percentage points over the three years from 2018.

## The rise of Alternative app stores

While Google Play was an obvious beneficiary of this redistribution of budgets, almost all (93%) of the mobile advertisers in our research also planned to spend in alternative Android ecosystems in 2022. With various device manufacturers now keenly prioritizing their own app stores, the iOS vs Android debate can no longer be framed as Apple vs Google.



**93%**

of the mobile advertisers in our research also planned to spend in alternative Android ecosystems in 2022.



Mobile advertisers' top three\* alternative Android ecosystems for 2022 were:

- Samsung Galaxy Store (50% of respondents)
- Huawei App Gallery (40%)
- Cafe Bazaar (37%)



## iOS vs Android in 2022

Despite a clear Android surge in 2021, when asked what percentage of their user acquisition budgets they planned to spend on each platform in 2022, mobile advertisers narrowly favored iOS. Respondents anticipated spending 53% of their budgets on iOS, compared to 47% on Android. This again tallies with data from the [Tenjin dataset](#), which in Q1 2022 showed that hyper-casual mobile games' ad spend had shifted back towards iOS and settled at an even 50/50 for that quarter.

Though this doesn't invalidate the broader long-term trend of a reduction in Apple's dominance, it suggests that mobile advertisers have adjusted relatively quickly to privacy-first marketing on iOS since the initial shock of the announcement at WWDC 2020.

Respondents' anticipated budget distribution in 2022:



\* Respondents could select multiple options

# Tools and processes

Before Apple’s privacy changes, traditional mobile measurement partners (MMPs) were mobile advertisers’ Swiss Army knives. They gave them install data, standard analytics (DAUs, sessions, revenue, retention), LTV metrics, ROI and ROAS. In 2021, the relationship between ad networks, MMPs, and advertisers changed, leading app developers to combine a wide range of tools and processes to keep their user acquisition campaigns ticking over.

In particular, many are automating marketing processes such as the collection and storage of data. However, understanding and gaining insights from that data is the ultimate challenge, and only a minority of mobile advertisers have access to in-house data science to help them do so.

## Marketing stacks

The makeup of advertisers’ marketing stacks is largely consistent. 87% of mobile advertisers use an MMP, while 96% said they use spreadsheets in their reporting. Google Sheets were slightly more widely used than Microsoft Excel - demonstrating the continuing importance of free and cost-effective tools in app development companies’ marketing. Of those advertisers who used Business Intelligence tools, the most commonly referenced\* were Google Data Studio (56%), Metabase (41%), and Tableau (37%).

### Most used Business Intelligence tools:



**56%**

Google Data Studio



**41%**

Metabase



**37%**

Tableau

\* Respondents could select multiple options

## Data science

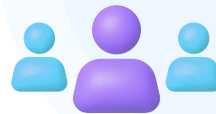
While mobile advertisers now have direct access to it, generating insights from SKAN data to inform marketing decisions is no mean feat. Larger companies are often able to leverage in-house data science and R&D expertise to help them do so. Overall, our research shows that just under a third (32%) of mobile advertisers have access to data scientists in their marketing teams.

In the largest companies we polled (those with 500 or more staff), 50% of respondents had data scientists in their marketing teams. In companies with 5-10 staff, this fell sharply to 8%. Within companies that did not have in-house data science, the most common reasons cited were budget constraints (41%) and lack of talent (26%).



**50%**

of respondents with 500+ employees had data scientists in their marketing teams.



**8%**

of respondents with 5-10 employees had data scientists in their marketing teams.

## Automation

With SKAN data being passed directly to them, mobile advertisers have been forced to automate their own processes to deal with the large amounts of anonymized data they now have to handle. 75% of respondents had some form of automation implemented in their daily workflow. Only 2% of respondents had no plans to implement automation.



**2%**

of respondents had no plans to implement automation.

## Is 2022 as expected?

After a turbulent 2021, you'd have forgiven mobile advertisers for being extremely cautious at the start of 2022. Our research does show that the impact of ATT meant they were largely fearful of Android making similar moves in 2022, though optimism remained strong. Respondents also showed an awareness of the need to continue adjusting to Apple's changes rather than relying on stopgap attribution methods such as fingerprinting.

### Fingerprinting and probabilistic attribution

In 2021, 85% of respondents were using probabilistic attribution or fingerprinting. While 78% of mobile advertisers think there is a difference between the two methods, only 63% planned to use them in 2022: a large fall of 22 percentage points.

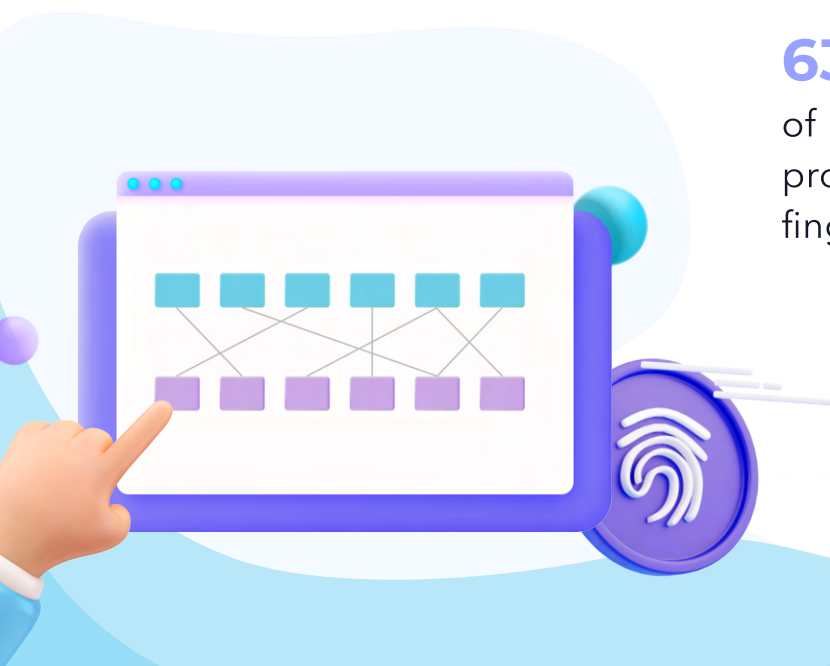
This is perhaps because more than three-quarters (77%) of mobile advertisers expect Apple to clamp down on fingerprinting in the future. This is unsurprising, as Apple has already taken steps to reduce the effectiveness of that specific form of probabilistic attribution, which only works for ad networks that use links in their ads - meaning it doesn't work for Snapchat, Google or Facebook.

**63%**

of respondents planned to use probabilistic attribution or fingerprinting in 2022.

**77%**

of mobile advertisers expect Apple to clamp down on fingerprinting in the future.



## ? Explainer: Fingerprinting

Fingerprinting collects device information (OS version, IP address, device model and more) to attribute a user to an ad, and create a unique ID that can track user activity across several devices. [Apple's privacy and data use guidelines](#) explicitly state that fingerprinting is prohibited. Does fingerprinting differ from probabilistic attribution? If so, how? There are two opposing industry viewpoints on this:

1) Fingerprinting and probabilistic attribution are **different things**. While probabilistic attribution collects the same device information as fingerprinting to attribute users to ads, it does not create a persistent ID that tracks activity across devices.

2) Fingerprinting and probabilistic attribution are the **same thing**. While Apple guidelines don't mention probabilistic attribution, the fact that fingerprinting is prohibited means it could just be a matter of time before probabilistic attribution is regulated in one way or another.

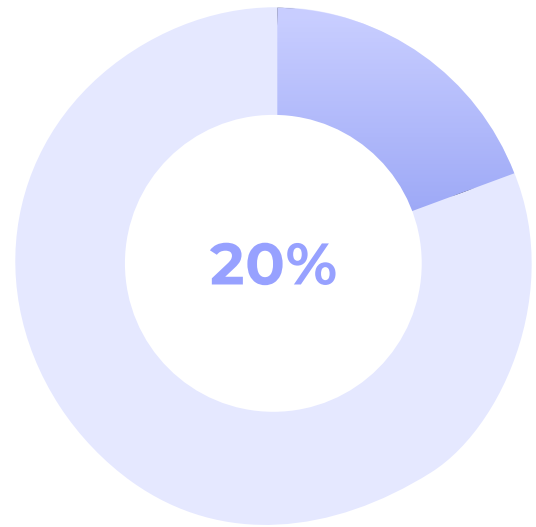
## Privacy on Android

When our research was conducted in early 2022, it was common knowledge that Android was exploring its own forms of privacy-first marketing, although there was little clarity on what this would look like. 84% of respondents were concerned that Android would introduce similar changes to those on iOS, with 43% saying they were very concerned.

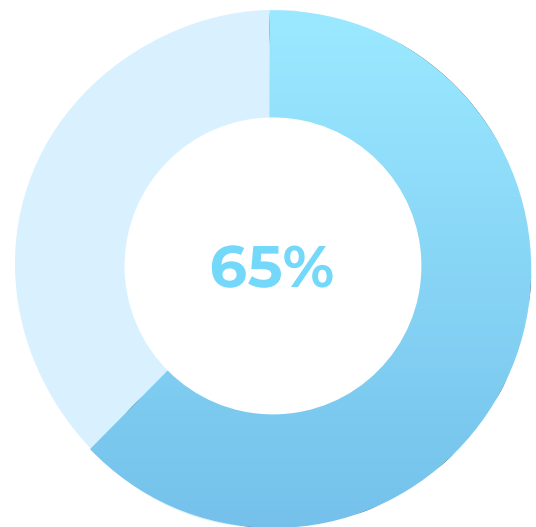
Since then, Google has announced [a more consultative and gradual roadmap](#) that means the Google Advertising ID is likely to exist for the next two years or more: welcome respite for mobile marketers.

## Optimism prevails

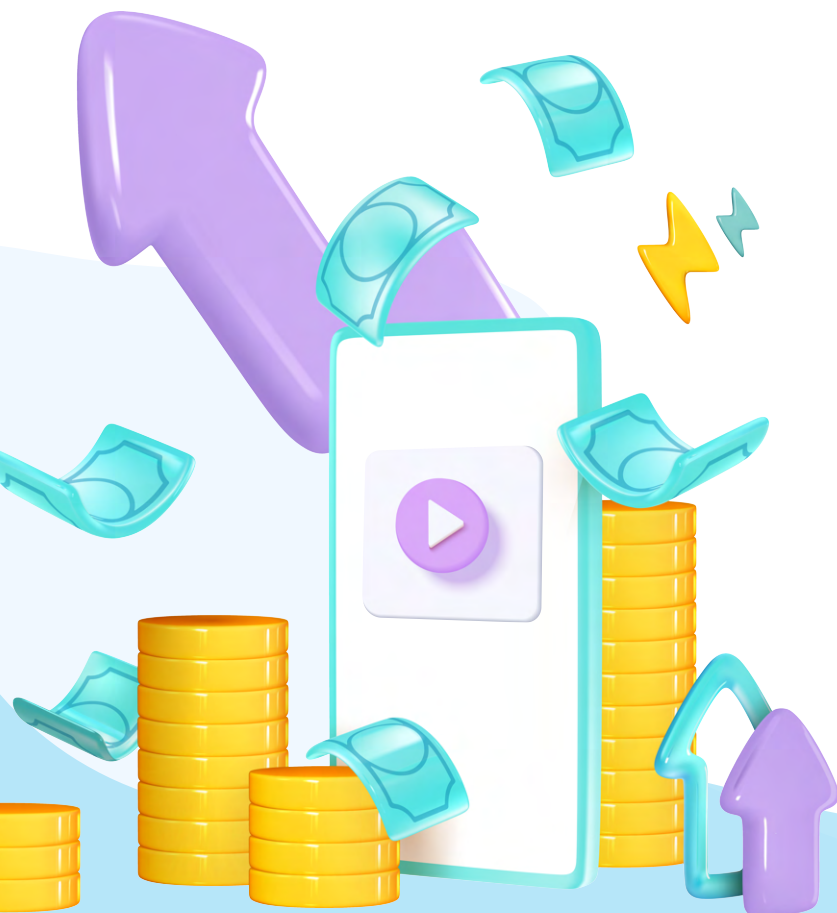
With Android opting for a less abrupt approach, our respondents' positivity about 2022 has at least in part been borne out. 85% of mobile advertisers felt optimistic that their marketing would be less challenging than the previous year. This translated to budget expectations too, with almost two-thirds (65%) planning on increasing their ad spend in 2022, versus just a fifth (20%) who said they would reduce it.



of respondents planned to reduce their ad spend in 2022.



of respondents planned to increase their ad spend in 2022.



# Game devs vs the rest

2.8 billion of the world's 3 billion daily gamers in 2021 played on mobile devices. Fast forward to the start of 2022 and mobile publisher Zynga was acquired for \$12.7 billion. It's little wonder that the mobile games market is forecast to be worth as much as \$272bn by 2030.





As companies that specialize in supporting small and mid-size mobile game developers with their marketing, it was particularly important for Tenjin and Growth FullStack to hear mobile gaming's perspective on Apple's privacy changes. Across the board, it appears the games industry felt their impacts even more keenly than its app development counterparts.

	Games	Apps
Mobile marketing became more difficult in 2021	68%	43%
Revenue loss due to Apple's privacy changes	42%	34%
Felt future of business at risk	84%	67%
Shifted ad budget to Android	63%	48%
Planned to spend in alternative Android ecosystems	99%	86%
Very concerned about Android changes	47%	23%
Have data science in marketing team	27%	32%
Use fingerprinting or probabilistic attribution	91%	70%

# US vs UK

For almost a century, the United States has been home to the biggest brands, catchiest slogans, and splashiest ad campaigns. Across the [data] pond, however, lies a little island that is much more optimistic about privacy-first mobile advertising.

	 US	 UK
Mobile marketing became more difficult in 2021	58%	53%
Revenue loss due to Apple's privacy changes	41%	38%
Shifted ad budget to Android	56%	63%
Have automation in workflow	72%	78%
Have data science in marketing team	30%	34%
Use fingerprinting or probabilistic attribution	78%	92%
Optimistic about 2022	76%	95%



# Conclusion

---

So is it safe to say that the appocalypse has now been averted? Not exactly. Why? Because the reality is that no one yet understands the full ramifications of privacy-first marketing.

While a full-scale collapse may not have materialized, mobile marketing can be characterized as being in a zombified state, living in the liminal space between the familiar era of unrestricted targeting and the new, privacy-first one. The sustainability of the current patchwork model remains to be seen. It's likely that, in the not too distant future, committing to understanding SKAN will become imperative rather than optional. Those mobile advertisers that manage to do so will have a head start when it comes to adjusting to what a IDFA-less, Google Ad ID-less world might look like.

And yet, despite a rough 2021 for mobile advertisers' bottom lines, and with more change ahead, our research shows that advertisers' optimism remained strong. After all, one thing is unchanged: the best mobile content and services are in high demand from billions of people the world over, on both iOS and Android. So let's keep working together to grow our apps and games.

# Methodology

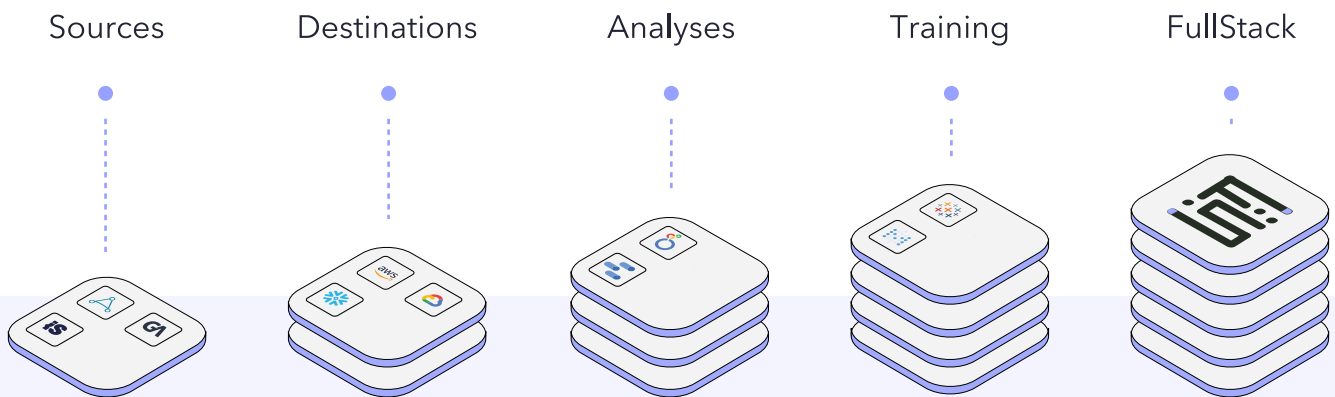
---

The research fieldwork took place between 17th and 26th January 2022 among 302 companies with no known affiliation to Tenjin or Growth FullStack. 151 respondents were located in the United States (US) and 151 in the United Kingdom (UK). Respondents were pre-screened on the basis that they had responsibility for advertising, marketing, or monetization within app developers or publishers, or game developers or publishers.

The fieldwork was conducted on behalf of Tenjin and Growth FullStack by Atomik Research, an independent creative market research agency that employs MRS-certified researchers and abides to MRS code. Respondents completed the questionnaire via leading market research software Decipher.

# About Growth FullStack

Growth FullStack empowers mobile developers to adapt to a privacy-first world and continue pursuing their marketing analytics goals via ETL service and best in class tooling.



## How it works

- Automatic data pipelines**  
 We move the data to your preferred destination, on schedule with no maintenance from you.
- Data merging or transformation**  
 We explore the various sources and how to join them for you.
- Catalog of Dashboards & Tools**  
 Plug the combined data to unlock one of the growth use cases.



Visit our [website](#) for more information.



# Tenjin is more than ad attribution



Unlock your app growth with:

SKAdNetwork Reporting

Free attribution

Ad Revenue LTV

Automation APIs

Cost and ad revenue aggregation



[info@tenjin.com](mailto:info@tenjin.com)



[www.tenjin.com](http://www.tenjin.com)

