



metaplay

# The true cost of building a mobile game backend

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FOREWORD: TEEMU HAILA

# External tech in game development

Once upon a time, game developers would build their own game engine before they could start making games on it. Now, third-party game engines like Unity, Godot and Unreal give us access to next-level tech and tooling that, realistically, we wouldn't have been able to replicate unless we'd spent hundreds of person-years working on it ourselves. Importantly, this also means we can focus our time and energy on more useful things elsewhere, like core game development, while drastically saving on cost.

All the signs are pointing to backend tech following suit.

When making games is harder than ever, it's a welcome landscape shift. The challenge in front of us today is that games now really are much more than games. We're deep into the era of games-as-a-service - and the technical demands of building, scaling, operating and maintaining a live service game are heavier than ever.

On top of that, running in-house backend tech is wildly expensive. As a company which has spent almost four years focused on building backend tech for mobile games, we wanted to find out just how pricey it is for large game developers and publishers to build their own. Even we had to do a double-take when we saw the data, particularly at the previously hidden, human costs it highlights in addition to the purely financial ones.

To accompany this research, [we've compiled an in-depth guide](#) (to be released May 22nd) to the technical ingredients a game needs to hit the top-grossing charts in 2024, and how studios should approach the decision to build those ingredients in-house, or buy them from experts somewhere else.

**Teemu Haila**

Metaplay Co-Founder &amp; CPO

## THE SURVEY

# Putting a price on internal tech

To put a price on the decision to build your own backend, we surveyed 125 leading game developers at US game studios on the resources they invest in backend tech and tooling development.

## The methodology

The research fieldwork took place between 23rd and 26th April 2024. The 125 respondents all work at game development companies with a minimum of 50 staff in the United States (US), and are all c-level executives or tech team leads. The online survey was conducted by Atomik Research, an independent creative market research agency that employs MRS-certified researchers and abides to the MRS code.

## The questions

Data was gathered on:

- The genres of games the studio made
- How long the studio had been building internal tools and tech
- How many people at the studio were working on internal tools and tech
- The average salary of a backend tech developer
- The impact of re-deploying game programmers to work on internal tech

For the first time, the answers have enabled us to put a concrete estimate on the cost of a studio's decision to build their own backend - and the results are eye-watering.

On average across leading US mobile game studios, **52 developers** spend **36 months** building and running their studio's in house backend tech, at a salary of **\$138,864 per person, per year.**

That makes the cost of a studio's decision to build their own backend tech a startling

**\$21,662,784.**



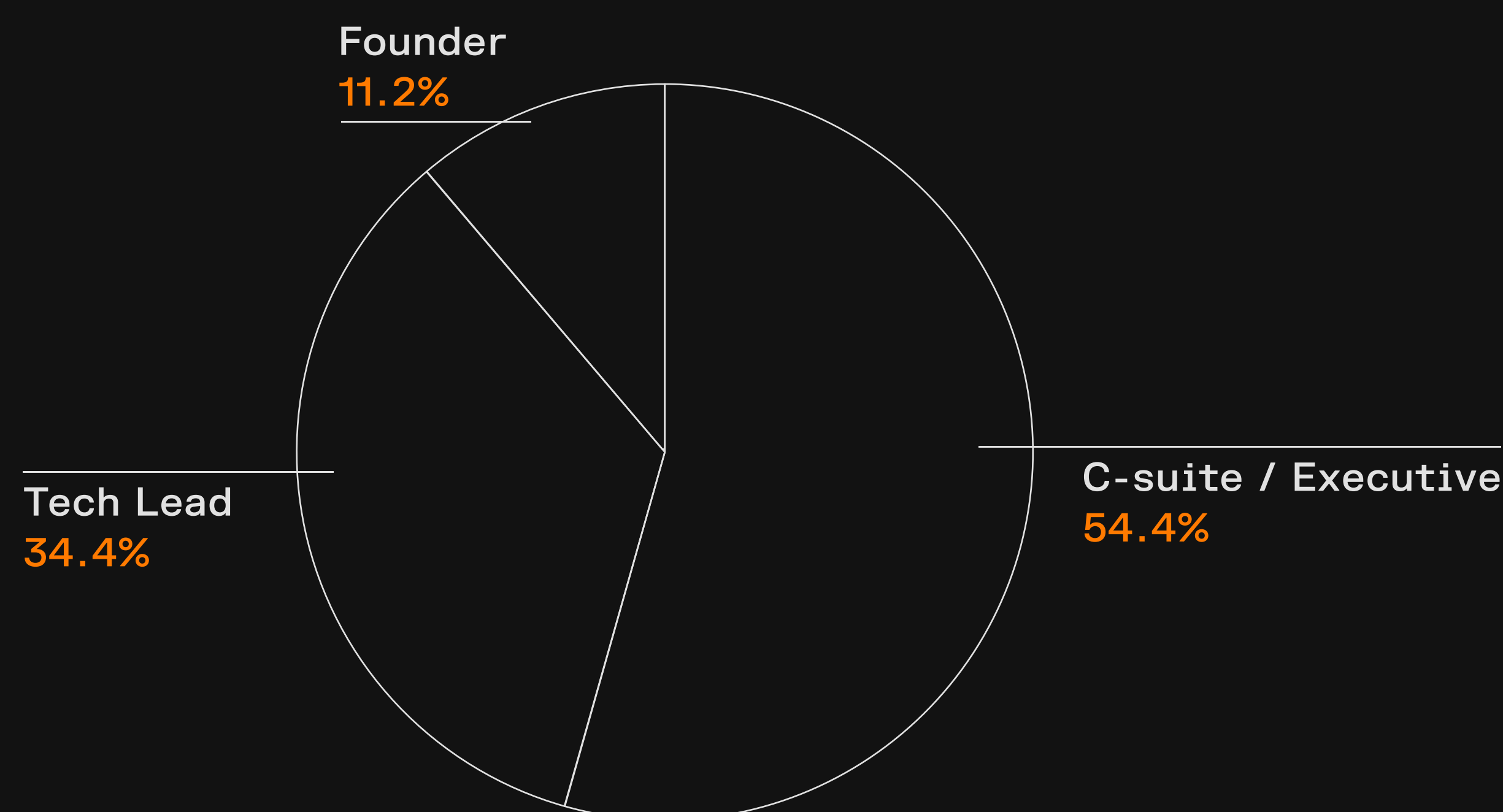
## THE SURVEY

# Results & analysis

## QUESTION 01

## What is your job role?

Only senior leadership were invited to answer the survey to ensure the viability of results. Over half of respondents were c-suite/executive level, a third were tech leads, and the rest were founders.



## QUESTION 02

## How many full-time employees does your company have?

Only studios of more than 50 employees could answer the survey to give the best chance that their interpretation of the terms 'backend' and 'internal tech' were in line with Metaplay's - i.e. feature-complete backend platforms, and not smaller individual component parts.



## QUESTION 03

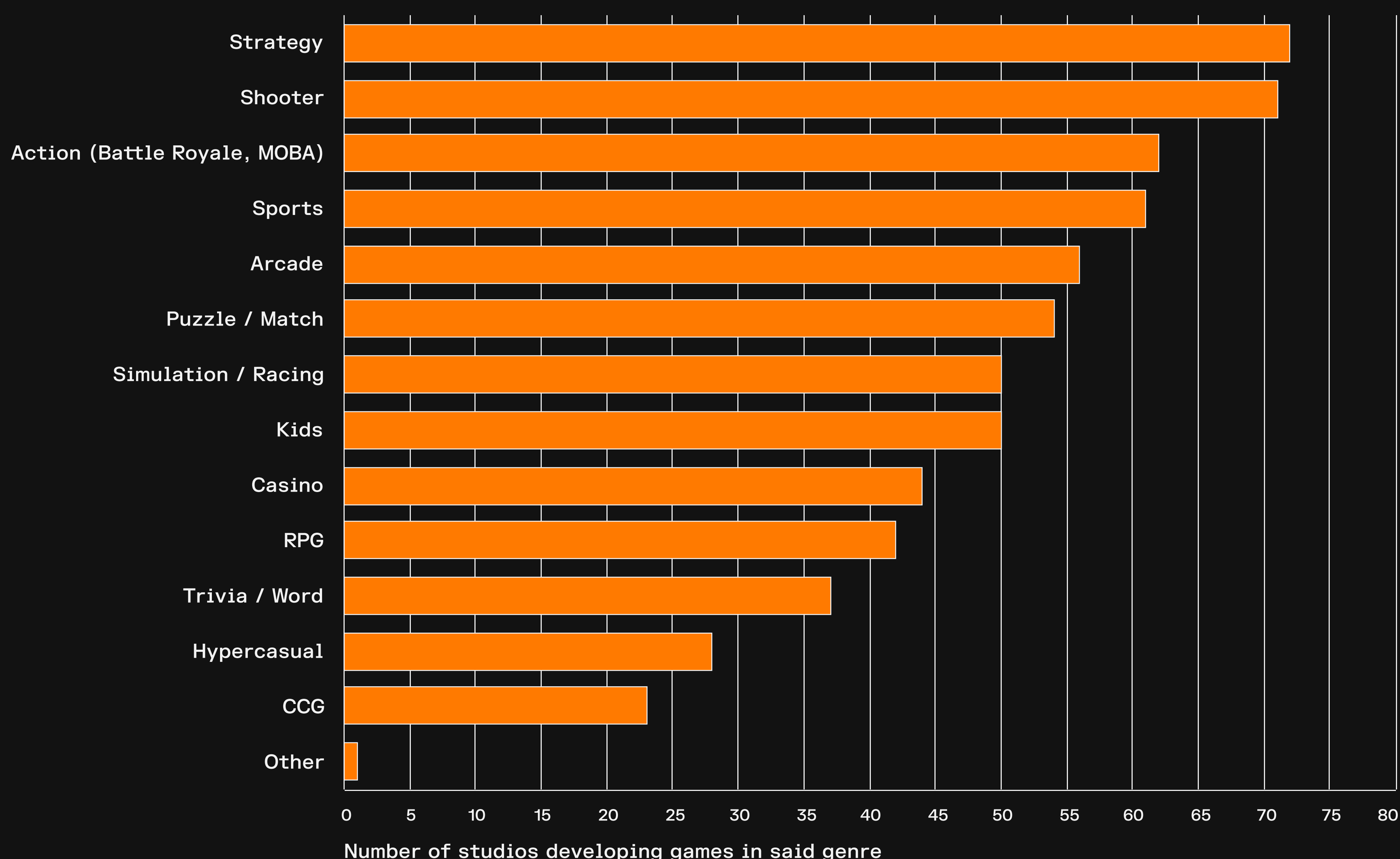
## What genre of mobile games does your studio develop?

The studios surveyed developed a wide variety of mobile games, giving validity to the results and not skewing heavily towards any particular type of game.

Top-tier mobile game studios in the US which require a backend for online services are most likely to be developing strategy games (58%) and shooters (57%). They're least likely to be working on hypercasual (22%) and card collecting games (18%).

This is in line to what we're accustomed to seeing in the app stores: online games, often with a deep meta, need backends that can help developers with social features and LiveOps. Genres that are categorised by mostly single-player games, like Hypercasual and Trivia/Word, are less in need of a backend due to lack of a need for online services or regular LiveOps.

As mentioned at the outset, LiveOps, and online and social features, are increasingly a requirement of successful games today. The recent emergence of 'hybridcasual' games from the hypercasual genre is testament to that. One would expect that if we were to run this survey again in a few years' time, even the genres classified by mostly single-player games would by that point have implemented online and social features in order to keep up with the market.



## QUESTION 04

## How many people in your company spend the majority of their working time on internal tools and tech?

60% of the studios surveyed had over 50 people working on backend tech, with 20% having 26-50 people, and 20% having 25 people or fewer. The mean number of people working on backend tech was 52. The lowest result across the entire survey was four, implying that to build any kind of legitimate backend a studio would need to hire at least four people.



## QUESTION 05

## How long has your company been building internal tech?

Around 80% of the survey respondents had spent at least two years building out their own backend. The average length of time was 36 months, while over one in five respondents spent more than four years working on internal tech.





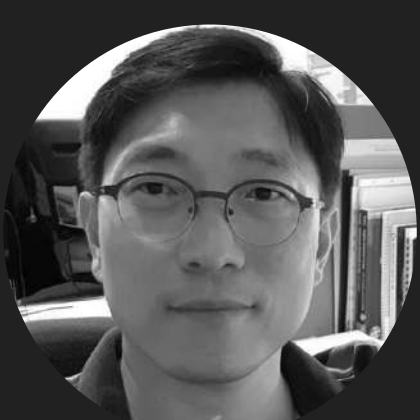
## QUESTION 06

## What's the average annual salary at your company of people working on internal tech?

Almost half of our survey respondents said their average backend software engineer salary was less than \$100,000 per year, suggesting it may be possible to hire less senior staff to build out a backend. Just over a quarter of respondents reported an average pay of over \$150,000 per year, which took the mean salary to \$138,864.



Backends today need to be efficient and effective at every stage of game production, from creating an easy-to-use development environment to providing functional services for the game, live services, and continuous updates, whether starting up or to scaling to millions.



### Chris Hong

Former tech lead at Metacore; now CEO & chief developer at CosmoUniverse



## THE SURVEY

# The hidden costs of building your own backend

As well as the direct financial costs, the choice a game studio makes to build their own backend has wider ramifications on internal studio operations which can be harder to quantify, and thus more difficult to measure.

These hidden costs should be given equal weighting to the monetary outlay, as they can be a drain on a studio's most valuable resource of all: people.

In an attempt to ascertain some indication of the scale of these hidden costs, our survey asked studios what, if any, was the impact of redeploying game programmers to work on backend tech. The results follow.



## 1 in 3

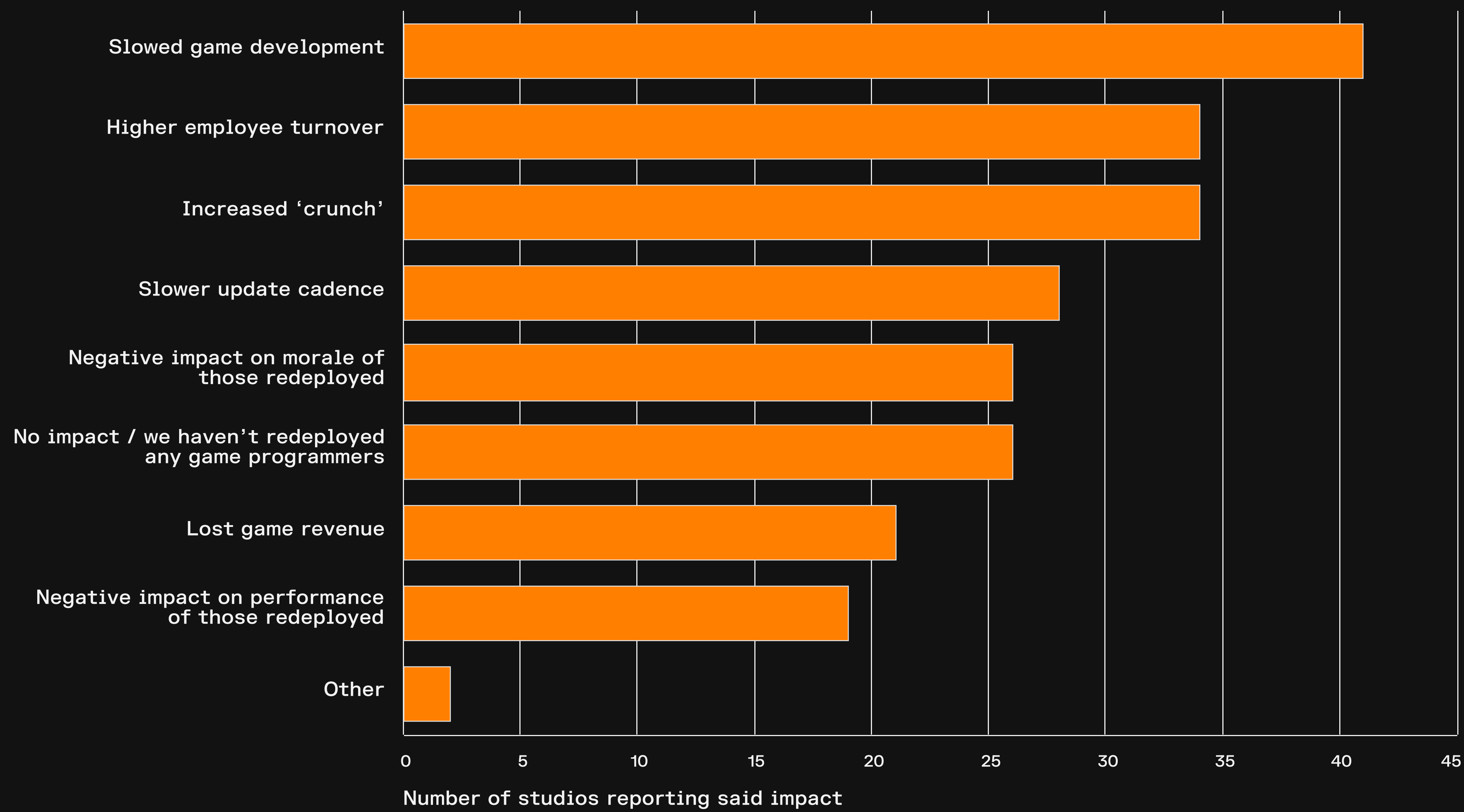
game studios reported negative personnel and operational impact as a result of redeploying people to work on backend tech.

QUESTION 07

What has been the impact of redeploying gameplay programmers to work on internal tech?

One in three game studios report higher employee turnover as a result of redeploying people to work on backend tech. One in three also reported increased crunch, while one in five game studios stated that their company lost revenue. Tellingly, almost half of the game studios surveyed reported that deploying gameplay programmers to work on internal tech slowed game development.

It should be said, then, that as well as the more obvious costs to a studio of building their own backend (time, people, effort, and ultimately, money), developers shouldn't neglect the potential indirect costs involved, either. A consequence of the choice to build internal tech could more than likely involve assistance from another department at some point, as many projects tend to do, and it has been found that when left unmonitored, such assistance can have potentially harmful knock-on effects to the business as a whole.



## CASE STUDY

# NITRO GAMES



## From Integration to LiveOps: Nitro Games' Journey with Metaplay for Autogun Heroes

Nitro Games is a Finnish mobile game developer and publisher that prides itself on high quality mid-core games. They leveraged Metaplay's backend technology to support their latest game, Autogun Heroes, which launched globally in 2023.

### Building an ambitious 2D platformer

Nitro's vision is to be the household name for action and shooter games without platform limitations. With Autogun Heroes, the goal is to provide casual gamers the best experience possible for an auto shooter, 2D platformer game. And for this, a robust backend tool would be needed - which is what brought Nitro to Metaplay.

Autogun Heroes' game lead Jijo Jackson and his team were initially hesitant about integrating Metaplay's backend because of the manual work needed, but they realized the effort would pay dividends over the long-run.



Metaplay's team worked around the clock to ensure a smooth and speedy integration, working closely with Nitro's developers. This involved porting the (previously client-only) game logic and configs to a form that works with the authoritative server paradigm that Metaplay uses, infra-side work for the cloud server environments, and more. Within three months, the integration was complete.

## LiveOps tools to match the best

Since soft launch, the Autogun Heroes team had been thinking about and planning the game's LiveOps strategy. Because an engaging, fun, and dynamic LiveOps strategy was such a central part of the game's roadmap, it was absolutely crucial for the team to partner with a backend provider with a robust and easy-to-use LiveOps tool.

"I've used LiveOps tools built internally at large gaming companies, and Metaplay's LiveOps tool is just as good, and in some cases even better, than those", Jijo says. He adds that the segmentation solution, player communication tools, and A/B test support are "extremely useful", and the UX makes the dashboard "so easy to navigate".

"My favorite part of working with Metaplay so far has been the ease of setting up game configs in the LiveOps dashboard, and getting granular, user-level insights to see how our players are progressing and the different issues they're facing".

Metaplay supports a data-driven way to specify the game's design, economy and localization data using external tools like Google Sheets and Excel. The benefit of this is that less technical people can author the data without needing to touch the game code, with faster iteration times as the client doesn't need to be rebuilt.

## A bright future ahead - with an unlimited tech upgrade path

Metaplay's backend tech provides an unlimited tech upgrade path, which resonated with Nitro's goals. The ability to mold, extend, and customize the backend technology without limitations was seen as crucial for the game's long-term success. With Autogun Heroes aiming to be the leader in 2D platformer games, and a "forever hobby" in the words of Jijo Jackson, Metaplay's adaptable and extensible technology will have a key role to play going forward.

# Metaplay

A complete backend solution for building, operating, and scaling top-tier live service games. Metaplay's SDK is the only backend that offers a full suite of customisable and extensible tools which cater to every stage of production of an online game's growth from the first line of code, right through to LiveOps and player support.

Based in Helsinki and founded in 2019, the team comprises veteran game developers and engineers, each highly familiar with the tools needed to support a game as it scales.

Since its founding in stealth, Metaplay has worked with various Finnish developers including Metacore, Dodreams, and Playsome to create a leading-edge game development platform that studios can now make use of all over the world.

Promo inside



