

PERFORCE

2023

**STATE OF GAME
DEVELOPMENT
& DESIGN
REPORT**

Introduction

Welcome to The State of Game Development & Design Report

Our annual survey gathers insights from game creators around the world, from indie teams to AAAs.

The gaming and technology industries are always quick to evolve, and for the past three years, our State of Game Development & Design survey has served as a barometer for where things are headed. By participating in surveys like this, game creators provide other industry leaders with insights on the leading challenges and trends that are emerging and how teams and projects are shifting.

With our annual survey, we seek perspectives from people working across all stages of the game development process, from designers, program managers, and directors, to engineers and producers. We gather input that spans all experience levels, from newcomers to industry vets.

With this being the third year of our annual State of Game Development & Design report, we wanted to see how forecasts and adoption rates for platforms, IDEs, and other essential tools have shifted over the years. We also wanted to explore what causes game creators stress and creates bottlenecks, as well as what helps them innovate, iterate, and inspire.

This year's report is packed with data points about the high-level direction of the industry — how teams are being constructed and where they are investing their time — as well as the technology-level decisions they are making to continue to develop great games. We think you'll find this report a helpful resource for strategic decisions you are currently considering, as well as a guide to how your own studio or team can continue to evolve.

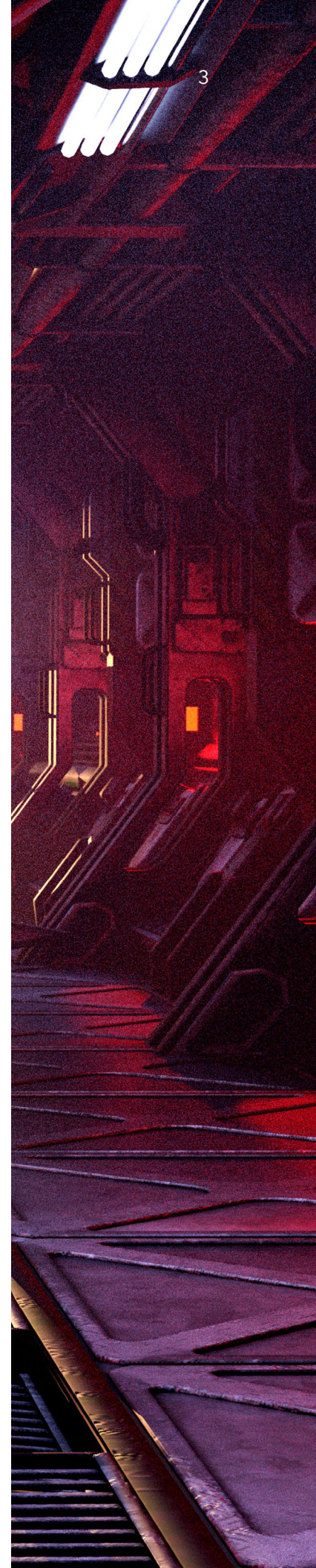
My team and I, here at Perforce, sincerely thank everyone who participated. I'm looking forward to seeing how we all grow together from here.



Brad Hart
Chief Technology Officer, Perforce

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Notable Trends

Comparing Results Across Our State of Game Development & Design Reports



Talent Acquisition Is the Most Difficult Challenge Facing Teams Today

Last year, funding was clearly noted as the #1 challenge facing game creators. This year, with global labor shortages continuing to affect all industries, it's talent acquisition and retention (32%). That's an increase of 45% from last year.

Fewer Creators Are Developing AR and VR Games

Game creators we surveyed in 2020 and 2021 predicted AR and VR would become a dominating presence in the industry, but this year, only 13% of respondents said they are currently working on a VR project. This number was 28% just last year.



Other Key Findings



PC Remains the Most Popular Platform

90% of respondents are developing their current project for PC.



Many Studios Are Self-Publishing

45% of respondents went DIY on their most recent project.

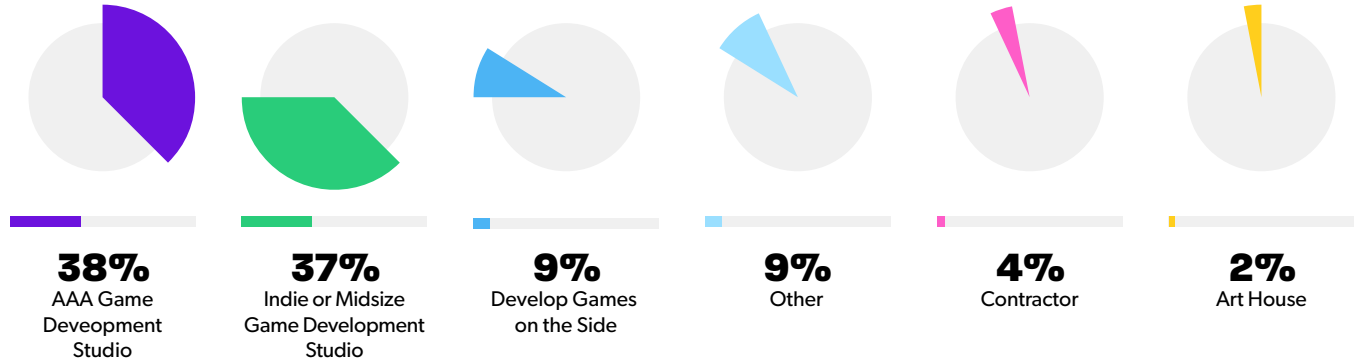


AAAs Are Short on Time

For 49% of respondents in this group, time-related issues were their biggest challenge to development velocity.

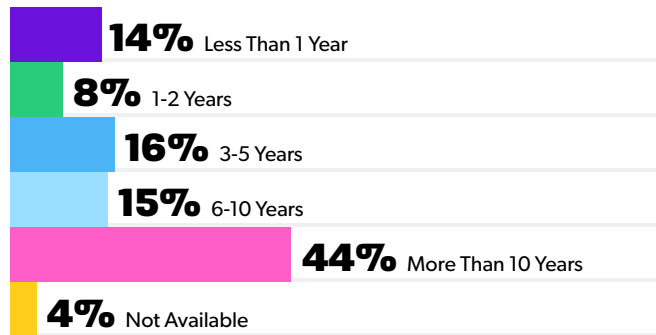
Who We Surveyed

What best describes the company that you work for?

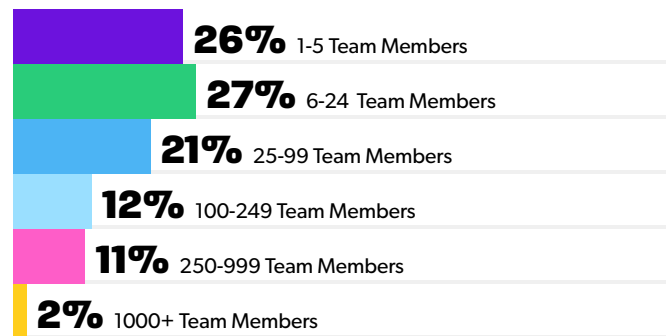


How long have you been working in the game development industry?

Or how long have you been working on your own game?

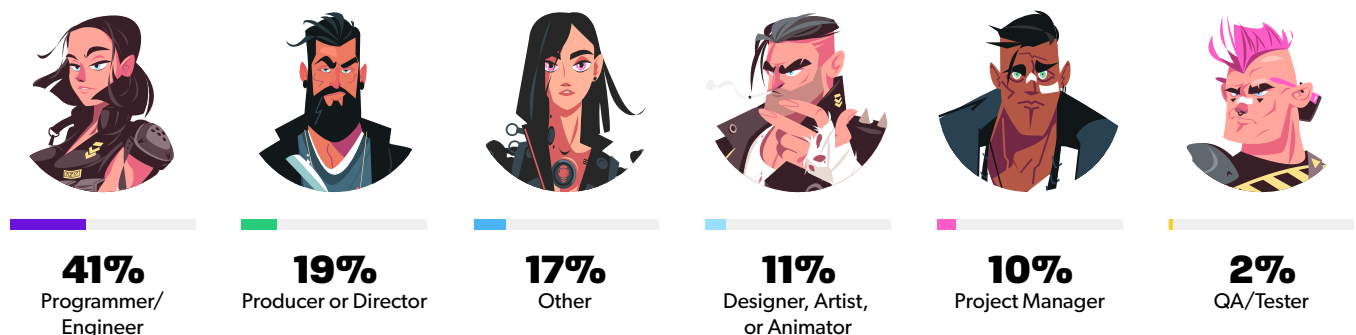


What is the size of your team?



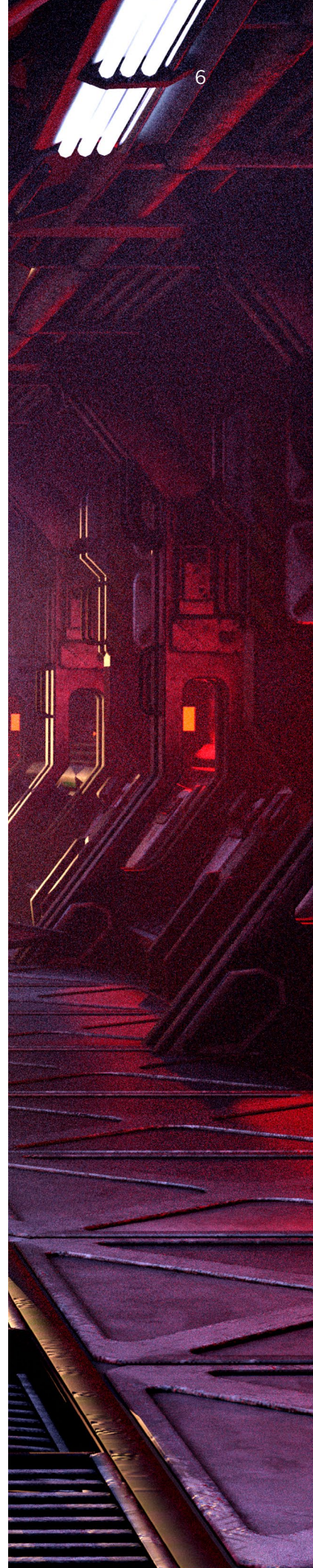
*In this report, percentages have been rounded to the nearest whole number.

What best describes your current role?



The Challenges Impacting Game Creators Today

Whether they're from an indie, AAA, or somewhere in-between, game developers share many of the same frustrations and challenges. The leading challenge our survey respondents reported this year was talent acquisition and retention (32%). Other top challenges included acquiring funding, finding time for innovation, and collaboration.



Talent Acquisition and Funding Are the Leading Challenges in Game Development

#1 Challenge: Talent Acquisition

In a notable change from previous years, 32% of respondents now cite acquiring and retaining talent as their most significant challenge to game development (securing funding had been the leading challenge in previous years). With a global labor shortage still impacting all industries, and the shifts in work many have made through the COVID-19 pandemic, teams of all sizes are feeling the pinch.

#2 Challenge: Securing Funding for Teams and Projects

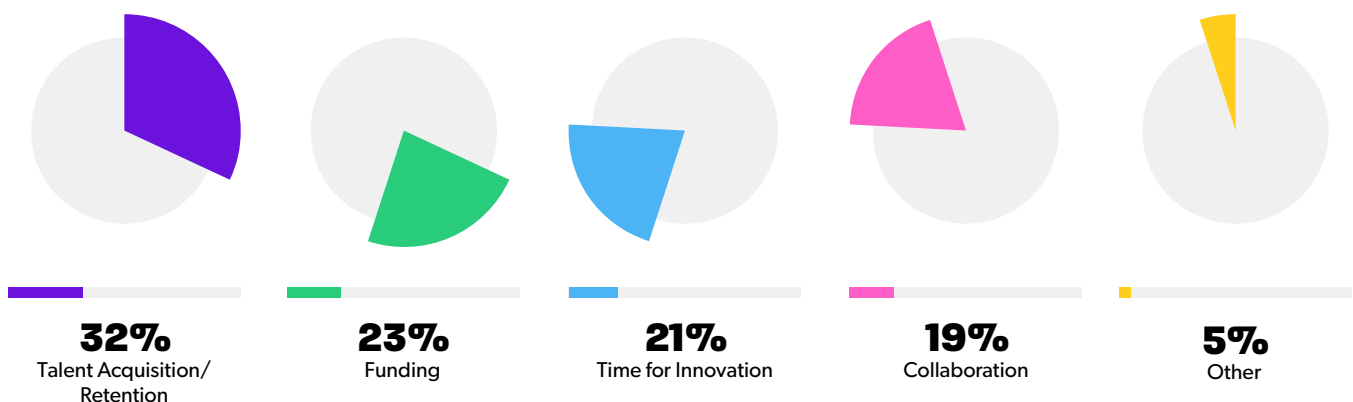
Rising consumer and business expectations, along with the multitude of platforms and streaming services audiences use, have raised the bar on what a successful game looks like. Developing a game — even a relatively simple one — is more time-consuming and costly than ever.

With the success of freemium gaming models, game concepts need to show a clear path to monetization and profitability to get off the ground. In this crowded and competitive market, 23% of all respondents cite funding as their leading challenge.

#3 Challenge: Time for Innovation

Teams have to move faster than ever with more limited personnel. This dynamic is adding pressure to teams and studios of all sizes. “Time for innovation” is seen as a challenge for 21% of respondents overall. Digging deeper into the data we see that this is felt hardest with AAAs, as 31% of respondents in that segment reported this as their top challenge (compared with 14% for indie and midsize studios).

What is the biggest challenge to your game development process?

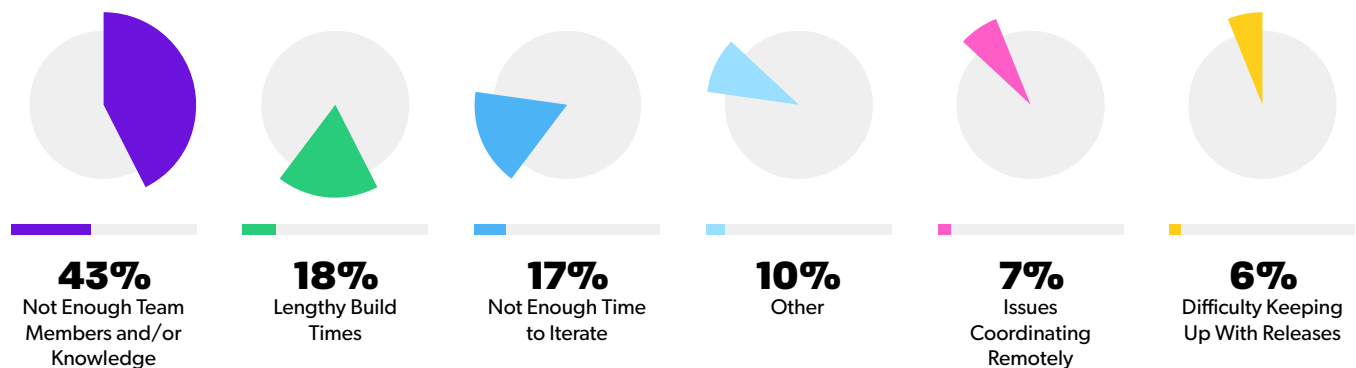


Slow Processes and Team Dynamics Are Challenging Efficiency

A Lack of Talent & Time Are Key Blockers for Development Speed

When asked about the biggest challenges to development velocity, 43% of overall respondents cited not having enough team members and/or knowledge. This insight points to the talent acquisition and retention challenges noted earlier, as well as a need for more formalized paths to gain knowledge or mentorship.

What best describes your biggest challenge with development velocity?



INSIGHT FROM INCREDIBUILD

Time Is Even More Important Than Staffing for AAA Developers

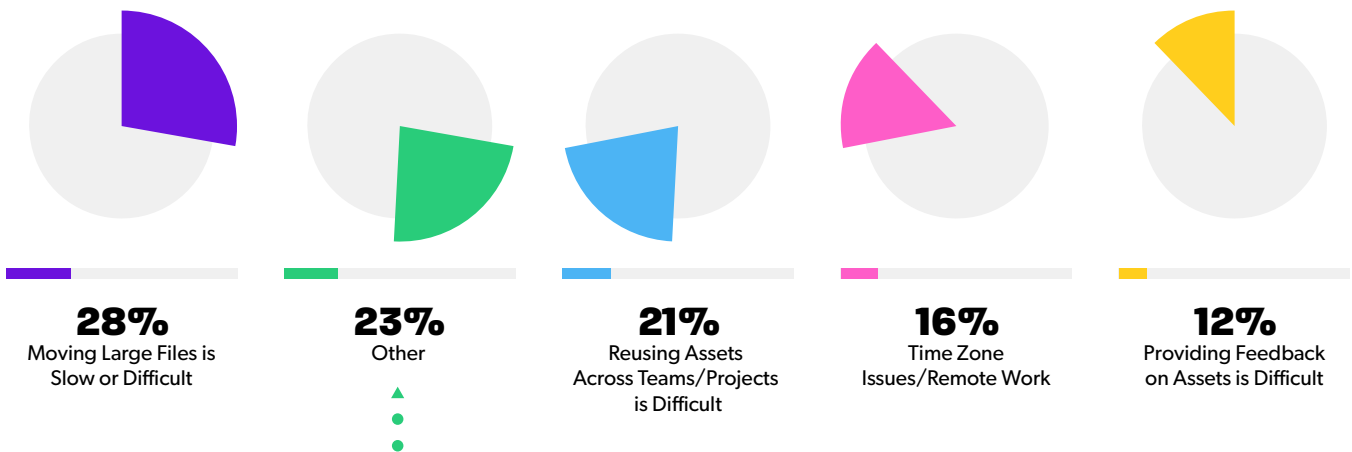
Time issues increase in importance for nearly half (49%) of AAA game developers. In particular, 31% say “lengthy build times” are the biggest challenge, and 18% say “not enough time to iterate” is the biggest challenge. Together, they overtake even staffing/knowledge issues (33%) as the driving blocker.

Industry-Specific Collaboration Needs

Studios Have a Wide Range of Collaboration Needs

Studios are more distributed today than ever, and the volume of digital assets teams are working with is increasing exponentially, as well. It should come as no surprise that respondents note “moving large files” as their top collaboration challenge (28%). Game developers also cite a mix of challenges, from “consistency” and “communication” to the “disparate sources of information” gathered between tools.

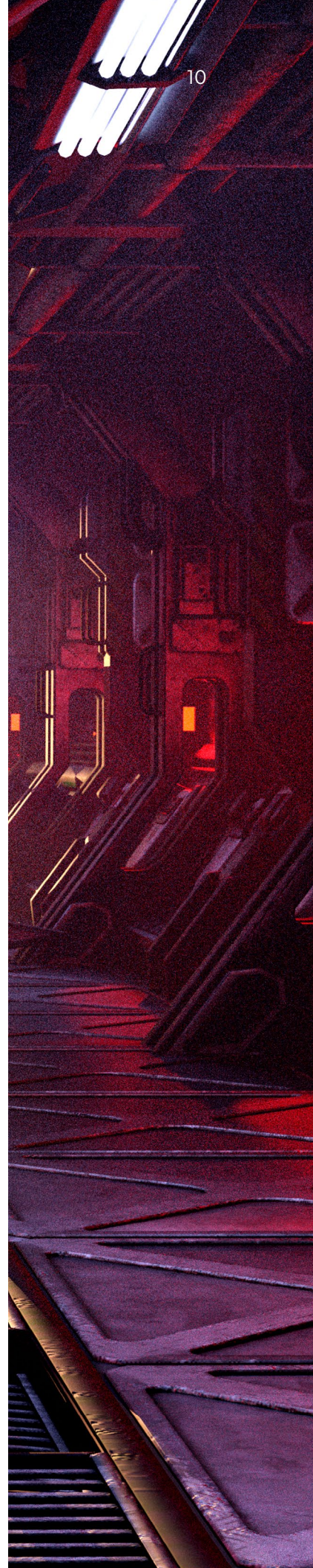
What best describes your biggest challenge with collaboration?



	<i>“Sharing and maintaining custom rules”</i>		<i>“Communication across departments”</i>
	<i>“Proper setup of collaboration tools”</i>		<i>“Adherence to project timelines”</i>
	<i>“Disparate sources of information between tools”</i>		<i>“Unmergeable file formats”</i>

How Teams Are Building and Publishing Games in 2023

Some of the biggest decisions game creators make are about what platform to create a game for and how to publish it. What we saw in this year's survey is that most respondents self-published (45%), and most teams are developing for PC (90%).



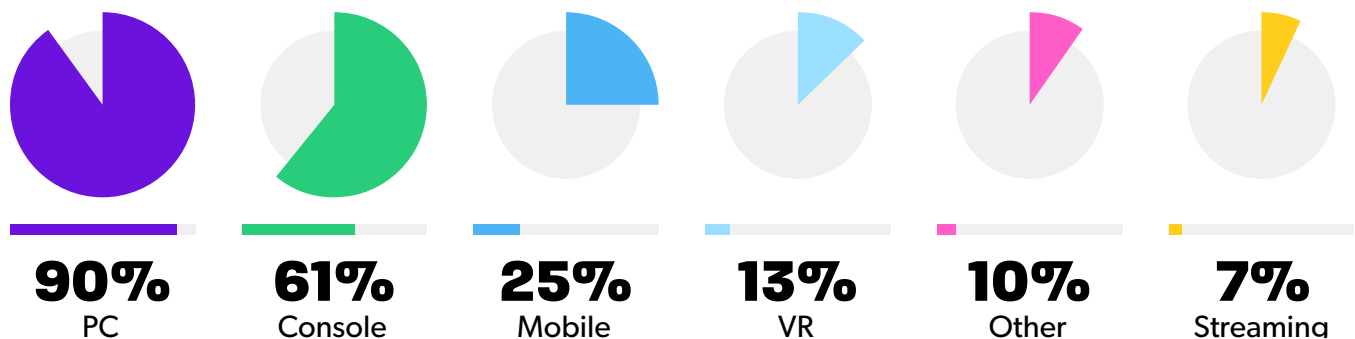
Most Creators Are Building Games for Where Audiences Are Today

Looking at this year, the most popular platform teams are developing for is PC (90%), followed by console (61%) and mobile (25%). Respondents had the option to choose multiple platforms, so these responses also consider cross-platform projects.

It was interesting to see some of the shifts from just last year. In our previous report, game creators predicted streaming as the platform that would grow the most in the coming years. Yet, this year, only 7% of those we surveyed are currently working on a project for streaming. Similarly, developers surveyed in 2020 and 2021 predicted AR and VR would become a dominating presence in the industry, but only 13% of respondents said they are currently working on a VR project — this number was 28% just last year.

These trends point to an overall disparity in audience numbers between platforms. And with instability in the global economy, industry adjustments point to studios wanting to make more certain bets in areas with established markets.

Which platform(s) are you developing your current project for?



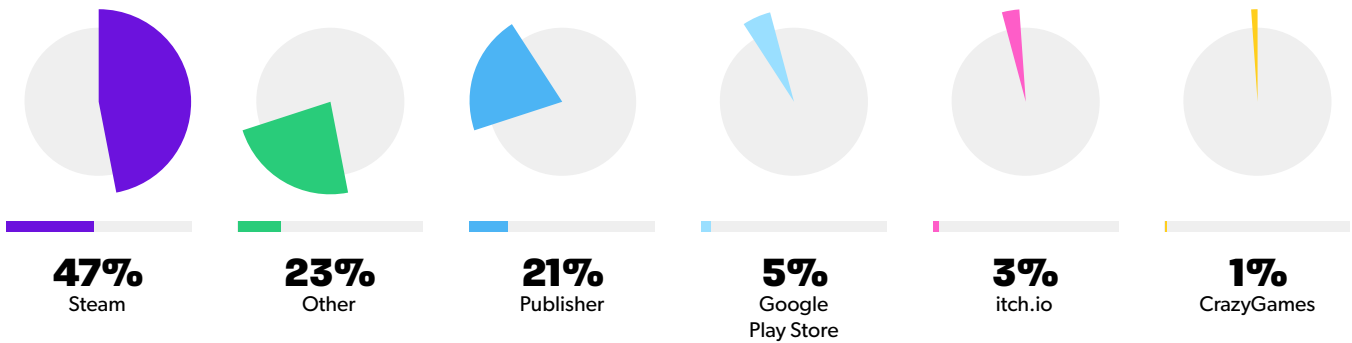
Related Resource: [What You Need For Cross-Platform Game Development](#)

Steam Is the Preferred Platform for Distribution

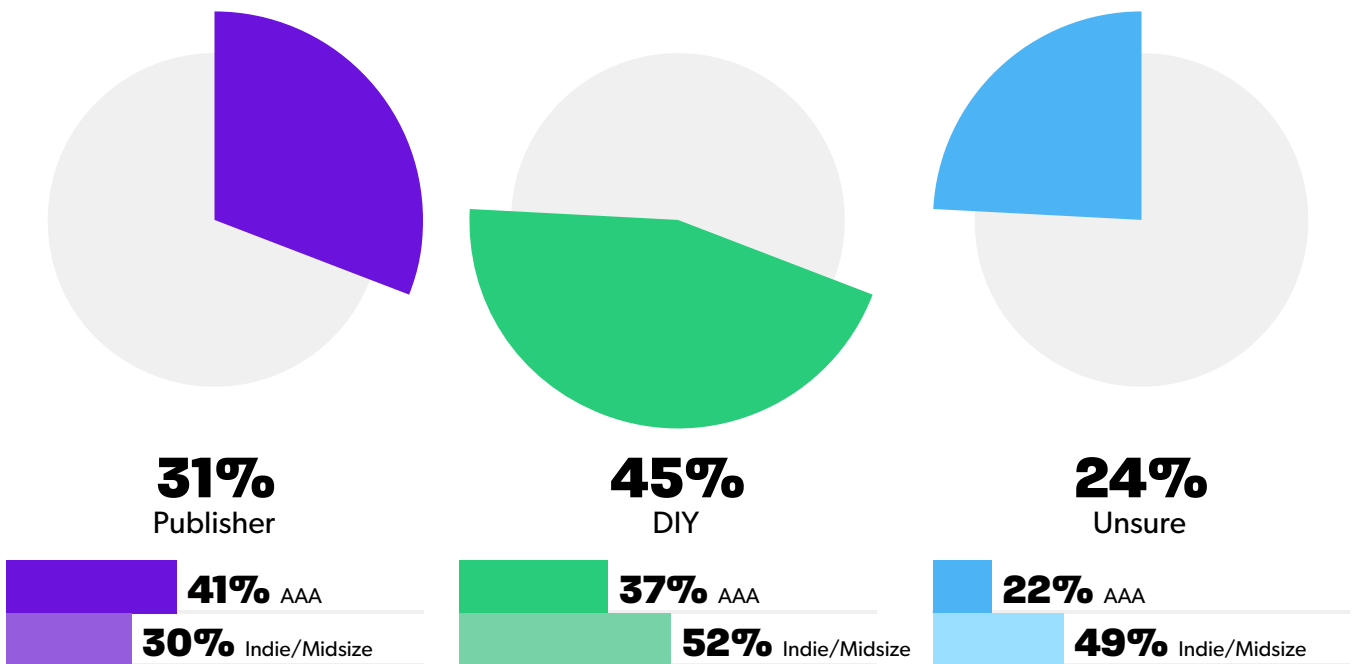
For studios who are planning on self-publishing, Steam was the most popular platform (47%) — making it the most popular distribution platform overall.

Unsurprisingly, AAAs were more likely to release their game through a publisher (41%), while small-to-medium studios were more likely to release theirs on their own (52%).

For your upcoming project, which platform are you most likely to use to distribute it?



For your most recent project, are you choosing to go with a publisher or release it yourself?

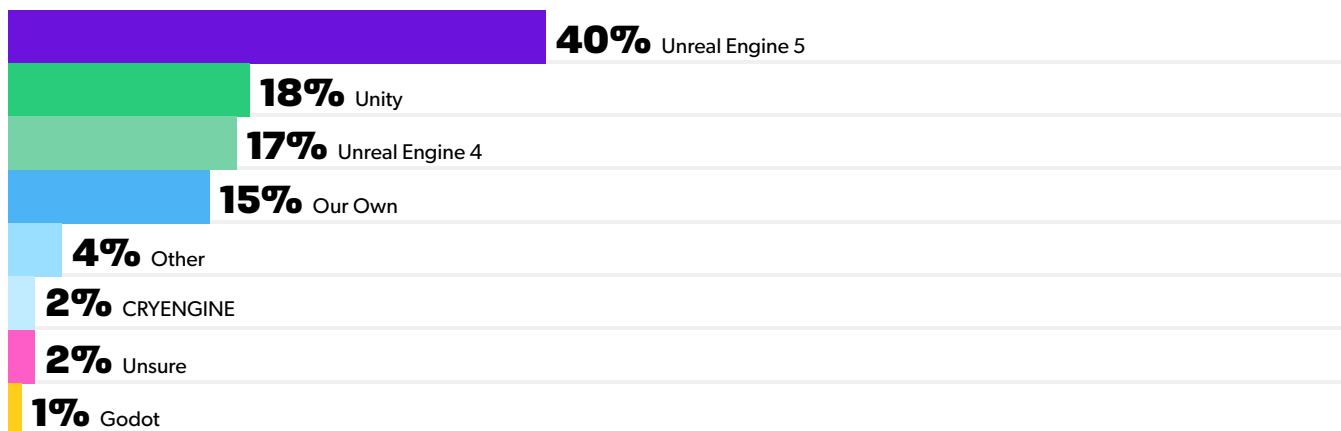


Unreal Is Still the #1 Game Engine

One of the most important decisions that any game development team can make is which game engine will power their project. There are many different game engines to choose from, each one with its own strengths and weaknesses.

For our survey respondents, the most popular game engines are still Unreal Engine (57% total) and Unity (18%). However, one notable finding is that the number of respondents using Unity drastically dropped from the previous year, with 50% of respondents using Unity in 2022.

Which game engine was used for your most recent project?



Related Resource: [Which Game Engine Is Right for Your Next Game?](#)

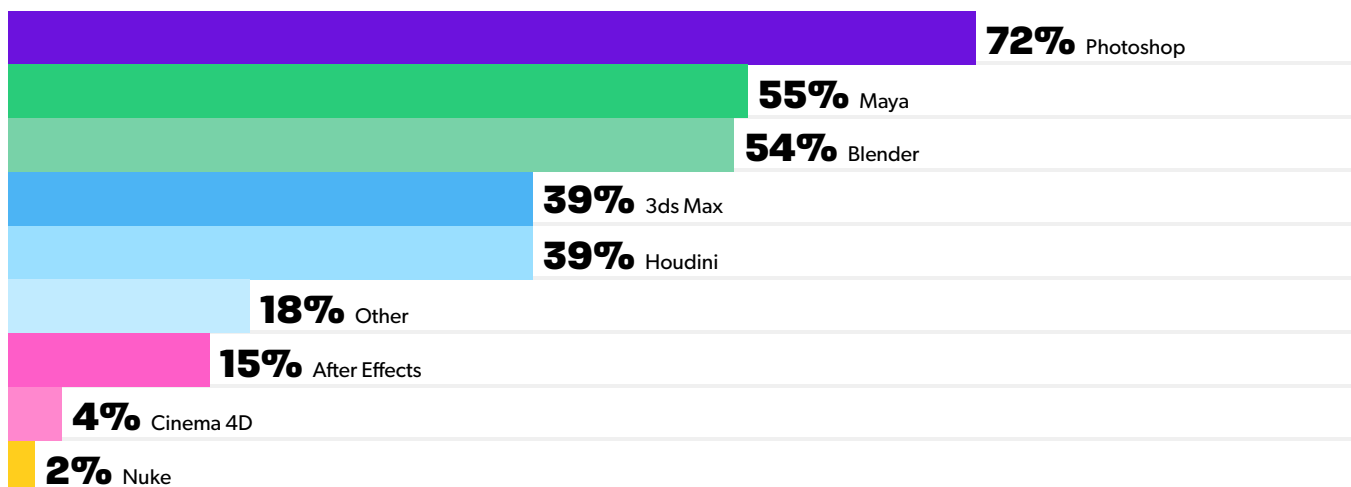
Photoshop, Maya, and Blender Are the Top DCCs

Digital content creation tools (DCCs) are becoming more tightly integrated with game creators' core workflows and tools.

Considering 71% of survey respondents said that artists make up nearly half or more than half of their team, it is no surprise that DCCs are more essential to how teams collaborate than ever.

Developers have many different digital content creation tools to choose from, and not much has changed over the past three years: The most-used graphical tools in game development are still Photoshop (72%), Maya (55%), and Blender (54%). It should be noted that respondents were able to select multiple digital content creation tools, so they could be using several together.

Which graphic tools were used for your most recent project?



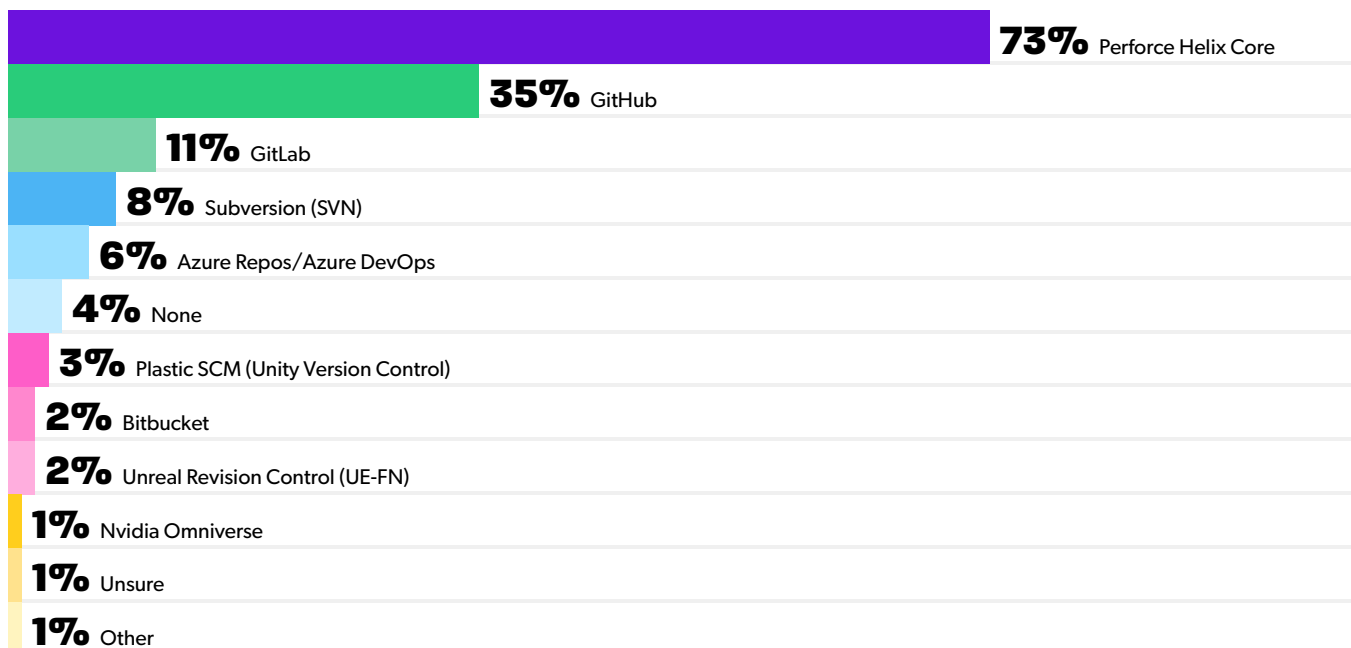
Related Resource: [Version Control for Designers](#)

Perforce Helix Core Is the Industry Standard Version Control

Version control is a foundational component for game development, as it enables teams to store and iterate on all of their digital assets. What's more, a good version control system enables teams to streamline collaboration on digital assets, which is especially important when working with 3D, game engine, and binary files.

The overwhelming majority of the game creators we surveyed use Perforce Helix Core (73%) for version control, with GitHub (35%) trailing behind as a distant second. Another notable finding is how much adoption of Perforce Helix Core has increased in the last three years, with only 56% of game developers sharing that they used it for version control in 2020.

Which version control system (VCS) was used for your most recent project?



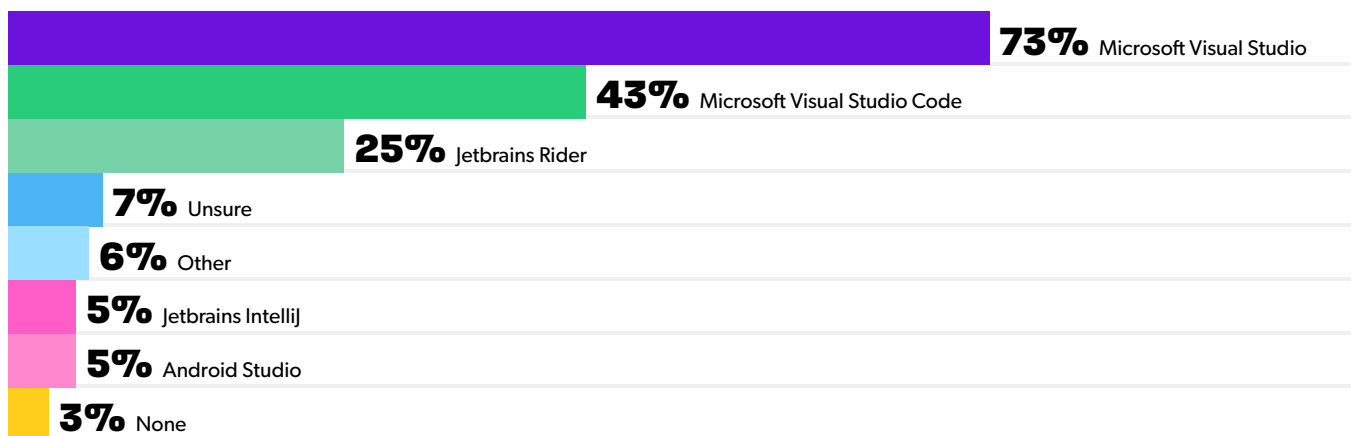
Related Resource: [Version Control in Game Development: Best Practices From 5 of the Industry's Biggest Names](#)

Microsoft Visual Studio Remains the Leading IDE

With IDEs (integrated development environments), game developers need ease of use and high performance. For the third straight year in a row, Microsoft Visual Studio has been the leading integrated development environment (IDE) solution for the game creators we surveyed, with 73% saying they use it.

A reason why Microsoft Visual Studio has been able to maintain such high levels of adoption year after year is that it provides teams with integrations with other industry-leading tools, as well as the ability to easily edit and debug code.

What IDE(s) do you use?



Related Resource: [How to Use Microsoft Visual Studio With Unity](#)

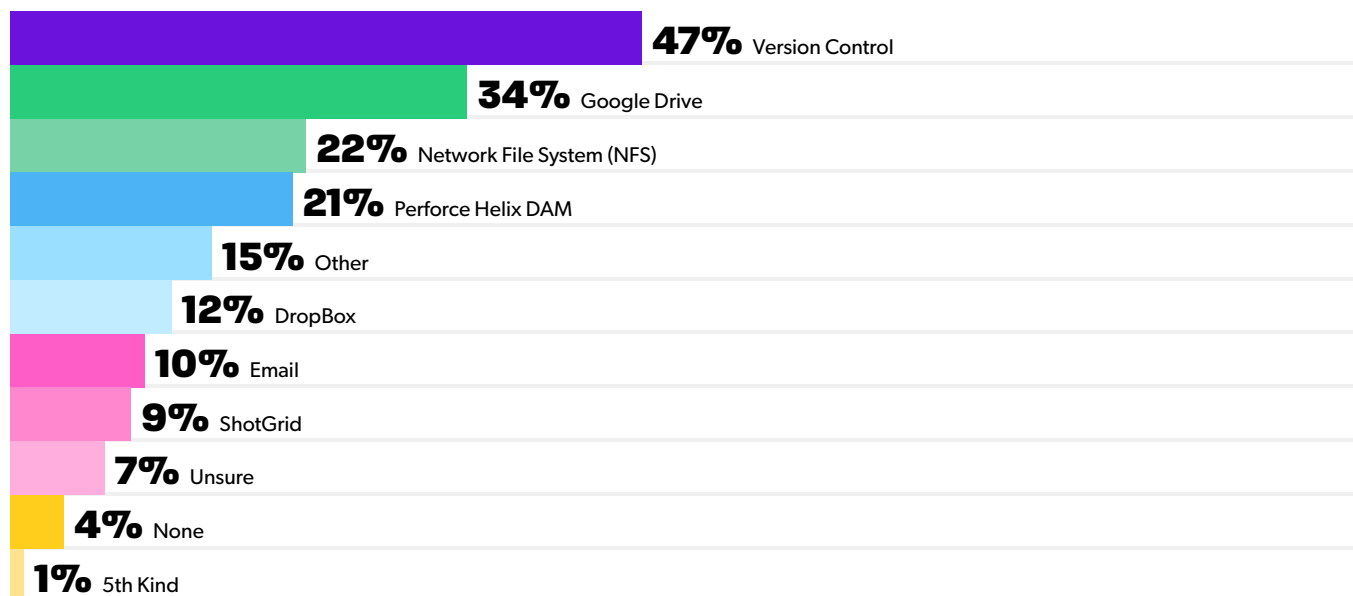
Studios Are Consolidating Tools to Manage Their Digital Assets

Even the simplest game requires a significant number of art assets — which can include 2D, 3D, audio, and video files. A digital asset management tool enables teams to easily find, track, review, and reuse these assets.

The leading solution for managing assets was version control. (47%), with Google Drive (34%) being the second most used solution. Respondents this year are using Dropbox (12%) and email (11%) much less. When comparing this year's results against our 2022 survey, we see usage of Dropbox and email for this task drop 45% and 93%, respectively.

The problem with using email and Dropbox is that it is easy to misplace assets or use the wrong version of an asset. That is why it is essential for teams to use a digital asset management tool that makes it easy to tag and find assets.

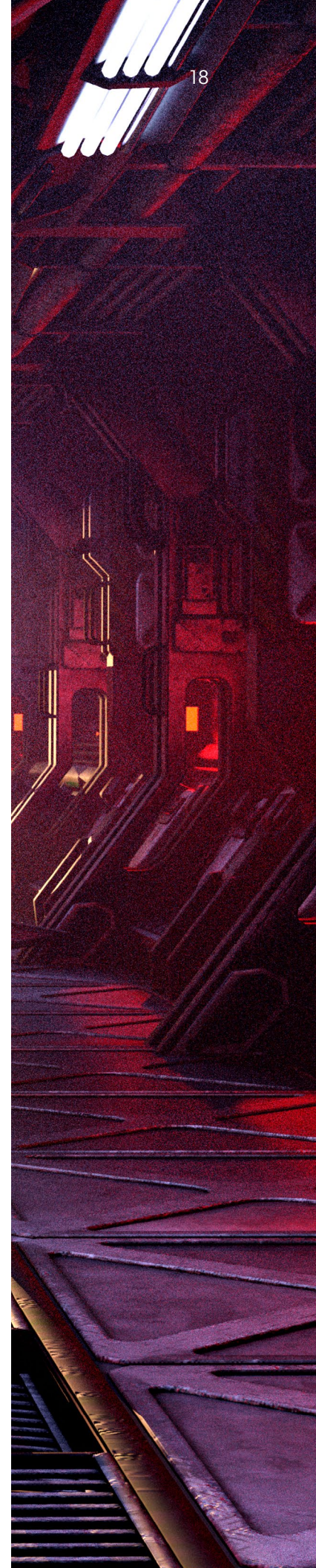
Which tools were used to store, share, and manage digital assets used for game production?



Related Resource: [How to Master Your Art + Game Assets With Digital Asset Management](#)

In Your Words

For this year's report, we also asked a few open-ended questions to learn what is on game creators' minds.



What Would Developers Change About the Games Industry?

INSIGHT FROM INCREDIBUILD

Game developers are aiming to create a healthier and more diverse gaming industry. Collectively, they are looking for more inclusive and respectful work environments, as well as a shift away from the most common profit-driven models. A full summary of the responses we gathered - including some individual comments respondents shared - are categorized below.

Work Environment and Culture

- Improve work-life balance and reduce crunch culture.
- Create a more inclusive and respectful industry culture.
- Address toxicity, misogyny, and unhealthy competition.

Monetization and Design

- Shift focus from profit-driven design to quality experiences.
- Reduce reliance on microtransactions and pay-to-win models.
- Prioritize creativity and original gameplay over monetization.

Accessibility and Diversity

- Increase representation of underrepresented groups.
- Support remote work for better access to talent.
- Promote equal gender and racial representation.

Technological Advancements

- Improve documentation and information sharing.
- Enhance version control and development tools.
- Integrate AI and generative tools for content creation.

Future Outlook and Adaptation

- Prepare for changes brought by emerging technologies like AI.
- Address challenges in cloud gaming and streaming platforms.
- Focus on talent retention, sustainable hiring, and workforce development.

In Your Words



"I wish it was less about making the most addictive game and more about making fun and unique experiences."



"Less focus on recycling IP, more focus on taking risks."



"It needs to be easier for people with no experience to gain experience."



"More opportunities for smaller teams and individuals to have communication and mentorship from more established developers."



"Make it easier to break into, especially for underrepresented groups."

What Developers Find Most Exciting in 2023

INSIGHT FROM INCREDIBUILD

Though there are opportunities to create more innovative games and to support aspiring game creators from all backgrounds, there is still plenty that our survey respondents are excited about. Resoundingly, respondents said they're excited about the leaps that have been made in technology — especially generative AI as a tool for creation and innovation. See below for a summary of responses and comments that were shared with us.

Technological Advancements and Innovation

- AI integration, real-time rendering, VR/AR experiences.
- Exploration of new tools and technologies for creativity.
- Evolution of hardware and graphical capabilities.

Creativity and Unique Experiences

- Innovation in gameplay mechanics and storytelling.
- Revitalization of retro-style games and niche genres.
- Pursuit of fun, innovative, and diverse gaming concepts.

Collaboration and Community

- Working with talented peers and creative individuals.
- Collaborative spirit among industry workers and companies.
- Sharing stories, knowledge, and experiences within the gaming community.

Personal Growth and Learning

- Embracing challenges and adapting to evolving technologies.
- Continuous learning from experts and industry advancements.
- Navigating technical challenges and creative problem-solving.

Inclusivity, Impact, and Enjoyment

- Movement towards inclusivity and diversity in game development.
- Creation of games that bond people and move them emotionally.
- Focus on making gaming accessible to a wider audience.

In Your Words



"The implementation of AI in every single aspect of the creative process."



"Niche genres and non-AAA games becoming more financially viable."



"AI will become a dominant factor in the game development lifecycle."



"The absolute unlimited potential with new technologies."



"Generally, AI will change how we make games on all levels and during all phases."



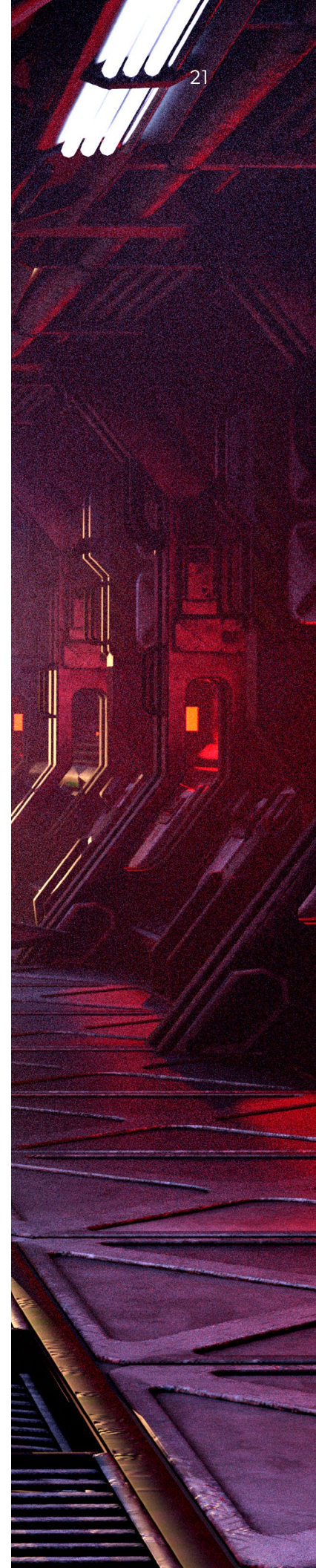
"Real-time rendering advances in lighting and detailed geometry (nanite, lumen)."

Summary

What It Takes to Make Great Games

Over the past few years, the game development industry has adapted to changes brought on by the global pandemic and shifting market demands. Distributed teams and remote development have become more of the norm for studios of all sizes.

With these changes also come new challenges, such as securely sharing art assets and an increased need for seamless and efficient collaboration. Game developers have risen to the occasion and have continued making innovative, enthralling games.



Accelerate Game Development With Tools From Perforce

Regardless of how the industry has shifted over the last few years, one thing remains true: Game creators need a strong foundation of development tools. With Perforce's industry-leading suite of creation and collaboration tools, game creators can bring the next best game to life faster.



The Industry Standard for Version Control

Trusted by 19/20 top AAA game development studios, Helix Core is the gaming industry standard for version control. It gives teams a single, secure source of truth for all digital assets, allowing them to streamline collaboration on 3D, game engine, and binary files. It integrates seamlessly with the popular creation tools your team is already using, from Unreal Engine to Maya and more. And it is the only version control system designed to scale without limits.

With our Indie Studio Pack, you can get Helix Core, Hansoft project management, and Helix Swarm code review free for up to five users — no limits on features or functionality. Get everything you need for world-class development in a single, pre-configured environment on AWS or Azure.

[GET THE INDIE STUDIO PACK](#)



Bring Your Artists & Designers Into the Fold

Helix DAM, digital asset management by Perforce, empowers your team to maximize your art and streamline your creative processes. Built on top of Helix Core, it gives artists and designers an intuitive visual library of all of their game art. With AI-powered search and auto-tagging, file locking, intuitive review tools, and integrations with leading tools, Helix DAM lets you find, reuse, collaborate on, and share all your game art faster.

[TRY HELIX DAM FREE](#)