PERFORCE

The State of Game Development Report

2020 & BEYOND

Introduction

WELCOME TO THE STATE OF GAME DEVELOPMENT REPORT

We're excited to bring you the results of our State of Game Development survey.

This year, we surveyed over 500 professionals working in the game development industry. They shared their insights on the future of game development, from the impact of COVID-19 in 2020 to technology advancements driving AR/VR and 5G.

We also heard about some of the major challenges they're facing today, from getting funding to collaborating effectively during development and design.

Finally, they shared insights on how they do their work and build their next hit game.

We hope the information in this report will help your game development team prepare for the future of game development by implementing the right tools and processes today.

Thank you to everyone who participated in the survey!

Brad Hart
Chief Technology Officer, Perforce

Key Takeaways

COVID-19 continues to impact studios and compound on existing challenges.

Rapid growth in AR/VR, eSports, and 5G is driving innovation in game development.

Funding challenges are leading to a new wave of crowdsourced smaller studios.

Remote work is causing teams to refine processes and tools to address communication and collaboration issues.

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Who We Surveyed

What Is the Future of Game Development in the 2020s?

The game development industry continues to rapidly evolve. And it will continue to do so in the 2020s.

We asked game development professionals about the future of game development and how they think it will be impacted and changed in the 2020s. Here are their insights.

What Will Impact Game Development the Most?

Among the game development professionals we surveyed, there was not one trend that stood out as a single disruptor. Rather, there are various trends many believe will shape the future of game development.

The Unprecedented COVID–19 Impact

70% of those we surveyed believe the COVID-19 coronavirus that emerged at the beginning of 2020 will impact the future of game development.

Over the course of 2020, game development teams have gone even more remote. Instead of working with remote teams, they now work with remote individuals.

That said, while COVID-19 impacts game development today and will continue to do so, game development teams are already well set up to work in a collaborative, remote environment. 67% of those who said COVID-19 will impact the future of game development as an industry don't believe it will impact the way they perform their work.

Related Blog: How to Enable Collaborative Game Development For Remote Teams

The Rise of AR/VR

61% of the game development professionals we surveyed believe AR/VR will impact game development in the 2020s.

AR/VR has been on the rise for years. And AR/VR has become a key focus area in game development. In the 2020s, AR/VR is expected to dominate.

Immersive experiences will become standard. 8K resolution will arrive. Unreal Engine 5 (UE5) will drive technological advancements. And AR/VR will no longer be a separate category. It will become an expected feature in game development.

The Continued Growth of eSports

61% of the those we surveyed believe that eSports will continue to grow and impact game development in the 2020s.

eSports and online competitive gaming are expected to become a $1.8 million industry by 2022. This is partially due to the impact of COVID-19.

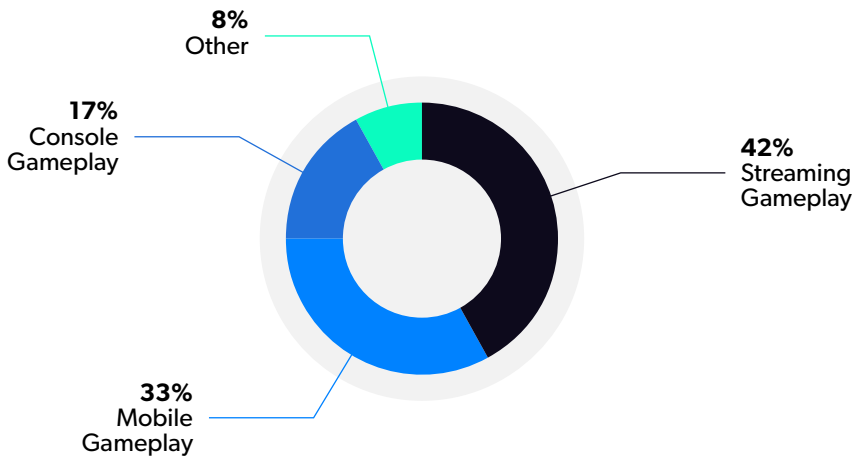
Some Impact of 5G in Mobile Game Development

53% of those we surveyed believe that 5G will have a positive impact on game development, with more bandwidth capable of handling more pixels and polygons.

There are high expectations for 5G performance and speed. Many in the game development industry believe that 5G will spur innovation. The high resolution of 5G in particular will drive the industry toward high-resolution graphics with photorealism. 5G will be a game changer for mobile and beyond.

Which Platform Will Grow the Most?

Streaming gameplay will grow the most in the 2020s, said 42% of the game development professionals we surveyed.



Streaming gameplay grew 99% from 2019 to 2020, partially due to COVID-19 as more people are stuck at home and turning to video games. Prior to COVID-19, streaming gameplay was already expected to grow 19% by 2025.

Driven by platforms like Steam and Stadia, streaming gameplay represents an area with significant opportunity for game developers.

Other platforms expected to grow included:

- Mobile gameplay (33%).
- Console gameplay (17%).
- Other, including AR/VR, cross-platform, and more (8%).

In Your Words

"We believe cross-platform gaming will become an expected standard in the game development industry. We as developers need to break the barrier at limiting people from interacting based on a platform. If we have all the tools and resources, we should have no excuse to not deliver."

How Will Game Development Studios Evolve?

We asked game development professionals how they expect studios to evolve, in particular:

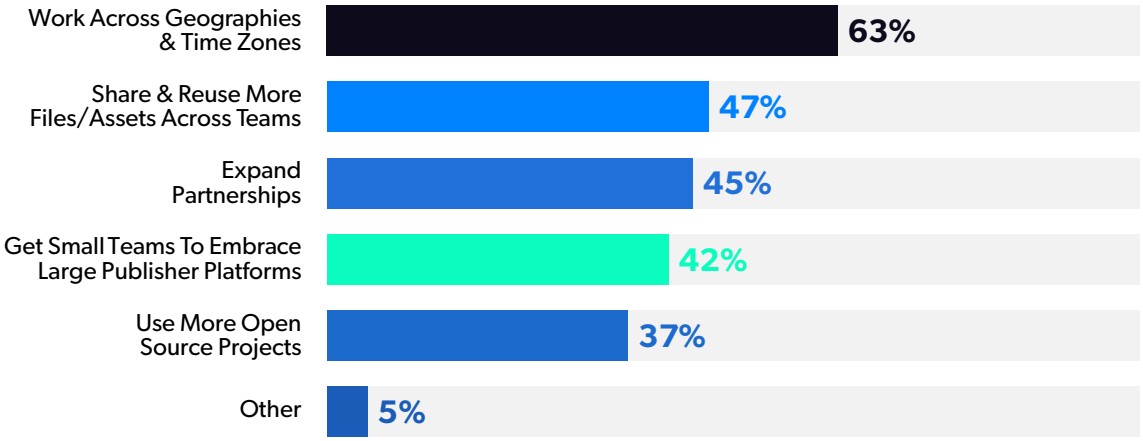
- How will game development become more collaborative?
- How will game development become more inclusive?

Ways to Improve Collaboration

Those we surveyed shared insights on how to make game development more collaborative in the 2020s. The top one was working across geographies and time zones (63%). It's critical for increasingly remote game development teams (and contributors) to be able to collaborate, regardless of location.

Other top ways to improve collaboration included:

- Share and reuse more files/assets across teams (47%).
- Expand partnerships (45%).
- Get small teams to embrace large publisher platforms by providing more valuable code (42%).



In Your Words

"Different studios with different strengths working as team units on the same game."

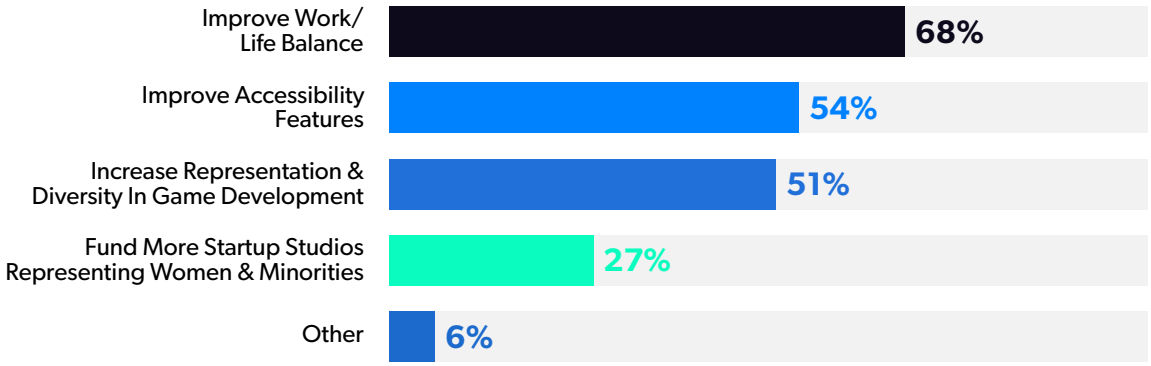
"Work in smaller modules."

Ways to Make Game Development More Inclusive

Those we surveyed also offered insights into how game development can become more inclusive in the 2020s. The top one was to improve work/life balance (68%).

Other top responses included:

- Improve accessibility features (54%).
- Increase representation and diversity in game development (51%).



In Your Words

"Celebrating long video game development LGBT history."

"Better access of game dev for people without degree."

Top Predictions For the Future of Game Development

We invited game development professionals to share their top predictions for game development in the 2020s.

Here are some of their top predictions.

UE5 Will Be a Game Changer

"When UE5 comes out, it'll change how game devs work 100%." — Anonymous

"It will be a year of transition toward a new generation of consoles and a larger shift for game development pipelines thanks to new game engines like Unreal Engine 5." — Nazzareno Giannelli

AR/VR Will Dominate

"I predict that VR and AR gaming is going to grow rapidly in the 2020s. We're going to see a higher adoption rate of VR and AR as prices start to decrease and the technology becomes more readily available. We will also see games really pushing the technology and becoming more immersive and innovative than ever before. I also see AAA titles, like large scale RPGs, becoming available for VR, which will bring more serious gamers to the various VR platforms." — Matthew Dalton

"AR will have some kind of breakthrough with Apple's unreleased AR Glasses." — Made Indrayana

"I think those games that generate communities and experiences that are increasingly similar to the real world (such as Amazon's New World), and those VR and AR experiences, will be the big bets. After COVID-19, it has been shown that we are social beings, and I think we have the market there." — Javier Toral Conde

Accessibility Becomes More Important

"More accessible tools that allow development without a strong technical background, allowing creative freedom to a wider range of people." — Andy Cowe

Game Dev Will Become More Inclusive

"We will see studios become more diverse, distributed, and inclusive. The gap between indie and AAA will grow larger as technical improvements continue to occur." — Anonymous

Remote Work Is Here to Stay

"Biggest prediction from me is a lot of game studios will move to remote work and probably remain remote work even after COVID-19, due to convenience and them having adapted to the new normal. Also 2020 will see an increase in remote work and communication tools, and vast improvements. See google for example already introducing conference calls in their Gmail product." — Ed Rowlett-Barbu, CEO of LudicMind Entertainment

"Remote working is here to stay, and teams need to figure out the right tech stack to be most efficient and collaborative." — Jacob Hawley

Funding Will Be Disrupted

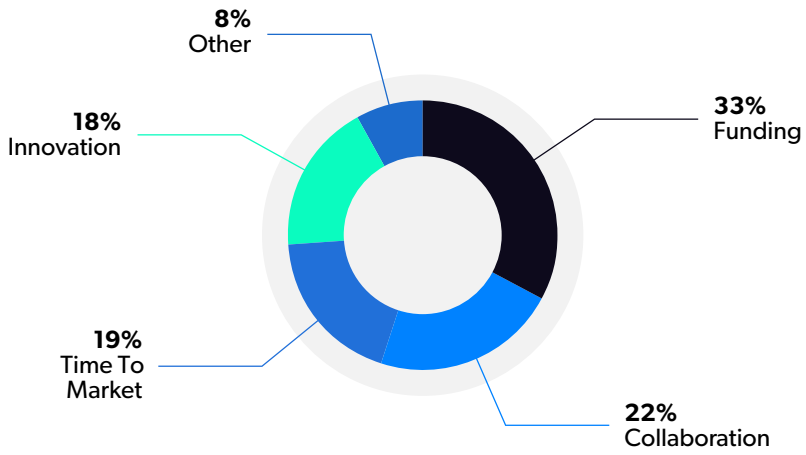
"More indie developers will be able to publish market-disrupting games with the help of publishers like Steam and revenue sources like Kickstarter." — Shirley Xu

"Quarterly earnings for many companies will increase due to the excess of free time people are getting from staying at home due to coronavirus. It will allow smaller studios who earned more than projected to take on bigger projects." — Anonymous

"There has been a lot of amazing opportunities being pushed out for indie teams with small budgets. This includes new tools and funding from bigger companies that allow indies to shine with smaller based teams and show how much of a powerhouse we can be if we're supplied just enough within our budgets. I can see 2020 being a big year for game development, especially as UE5 rolls out, making a new standard in game development quality, even for indie teams." — Anonymous

What Is the Biggest Challenge in Game Development?

We asked game development professionals about their biggest process challenge. Overall, funding was the most common challenge (33%). But many also struggled with collaboration (22%), time to market (19%), and innovation (18%).



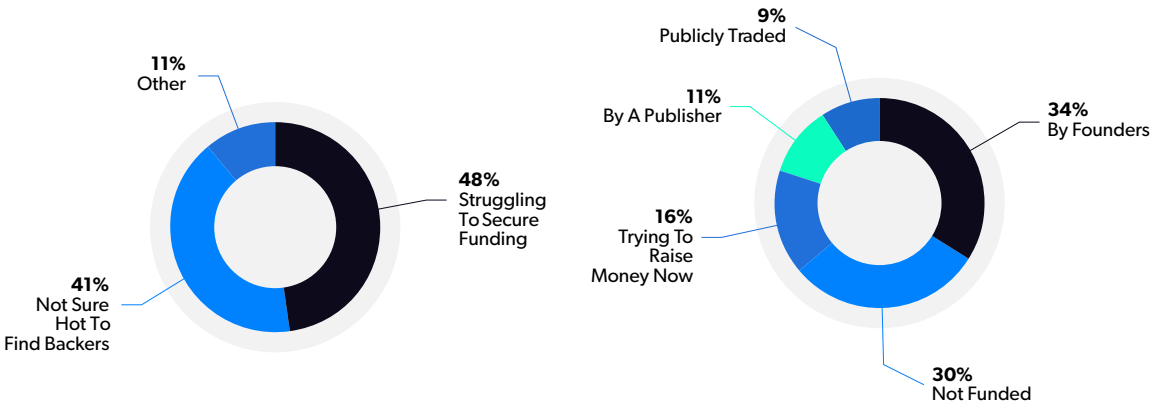
What Challenges Impact Game Development Studios Today?

There are many challenges facing game development studios today. Most are not new. Teams need to collaborate on user-rich experiences while balancing productivity and quality. But now these challenges have been amplified.

How are teams dealing with these challenges now?

#1 Challenge: Limited Funding For Teams/Projects

33% of those who selected funding as a challenge are struggling to secure resources. And 41% are not sure how or where to find backers.



Producers and larger studios are looking to invest in fully built ideas. But projects are underbudgeted. Market research, talent scouting, and building a roadmap all take time and funds. When we asked survey takers how they were funded, the majority were funded by the founders (34%) or were not funded at all (30%).

Teams are usually paid on their releases, not their ideas. And team members often work on several other games to try and fund their own projects. COVID-19 has limited the ability to fund new projects, leading many to look to social and crowdfunded options.

Related Blog: Tips For Game Development Funding

In Your Words

"We're currently in our alpha stage, we are nearing a solid demo that we can pitch for backing. Right now, we are working under deferred payment plans."

"Because of COVID-19, a paid project was cancelled and now we need to get back the month/year that somehow was lost."

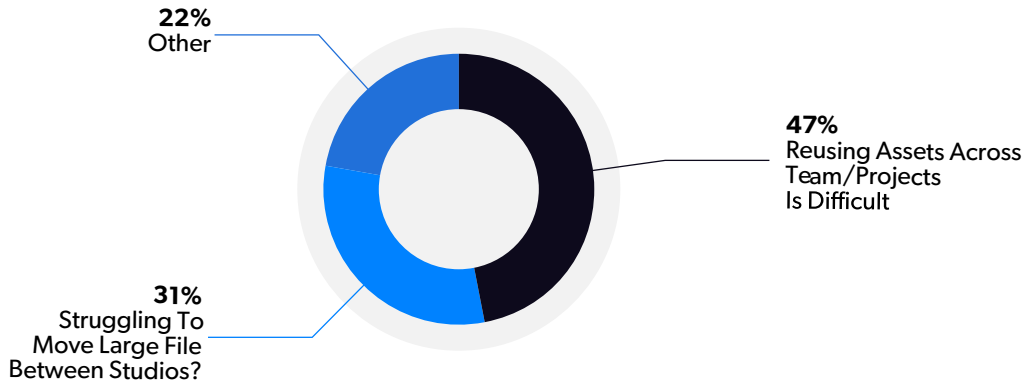
"We are still preparing for our first funding round. Until now we've been building our roadmap, strategy, and market research."

"Instead of looking for funding, or doing crowdfunding, we're planning on funding future development through sales. Part of our plan is to make smaller games and use that profit to fund a bigger game."

#2 Challenge: Collaborating With Remote Team Members

Making a game requires a lot of large assets. Of those surveyed, 31% struggle to move large files between studios. Strained WAN connections leave people waiting for feedback and files.

Game development also requires reusing assets. 46% struggle to effectively find and reuse files. This can lead to duplicated efforts or time wasted searching.



Of the 21% that selected other, there were some additional challenges.
Collaboration issues included:

- Difficulties managing and stabilizing large codebases.
- Technology changes from COVID-19 impacting remote communication.
- Interdisciplinary coordination.

Communication difficulties and time spent waiting for files negatively impacts developer velocity. Although these collaboration challenges have always existed, studios need to create new processes to connect remote team members. Having high-performance tools plus documentation increases communication. For many teams, they are looking at cloud deployment options, because developers are working remotely.

In Your Words

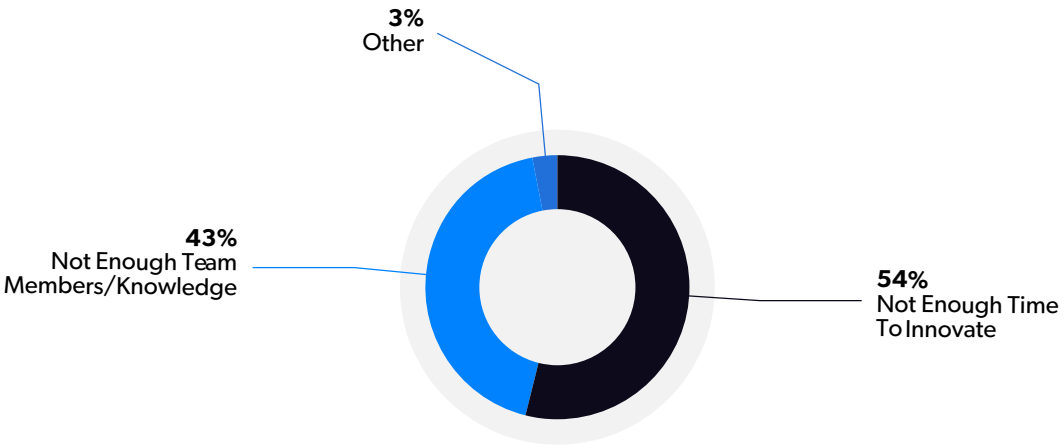
"Difficulties maintaining strong communication & collaboration among developers who are only are engaged on a project part-time."

"[Need to] streamline workflows with automation and well-written documentation."

"Building infrastructure, investigating products, looking at multi-location of servers, and distributed builds in the cloud."

#3 Challenge: Struggle to Innovate on Tight Timelines

Innovation is key to making a hit game. Of those we surveyed, 42% said they did not have enough team members and knowledge. The majority, 53%, responded that they do not have enough time.



Bringing on new team members involves onboarding them to studio processes and tools. Most teams hand down information through word of mouth. Training soaks up time that could be spent innovating.

Documentation can help. Providing self-service resources leverages knowledge from within the team and makes it accessible, especially to team member that are remote. It can help free up time to innovate more.

In Your Words

"Streamlining processes makes things more accessible to users."

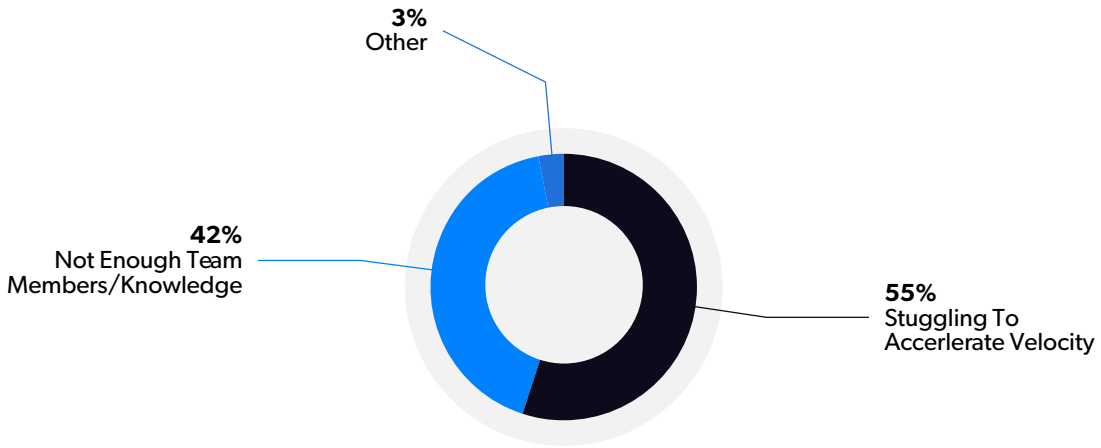
"Trying to optimize workflow and get more info from experienced developers."

"Implementing better tools and processes, better onboarding for new team members."

#4 Challenge: Time to Market Demands

There are few industries as competitive as game development. The market is constantly changing. It puts pressure on teams to build something new, now.

54% of people whose challenge was time to market struggled to accelerate velocity. Whereas 42% had issues with not enough team members and knowledge.



Game development rarely remains on schedule. Teams need to balance, timing, quality, and budget with frequent changes. And managing game development teams can be challenging.

Accelerating velocity to deliver on time requires reviewing tools and processes for ways to improve. Then studios can adjust plans and streamline. If there are not have enough team members on a project, it could mean allocating additional resources. By reviewing how work gets done, studios can tailor a workflow to a specific team or project.

In Your Words

"Competition is very high, produces pressure to make something NOW."

"Utilizing best practices, introducing Scrum and Agile, training crew members and staff in best practices."

"Constantly improving our production workflows and rely heavily on Continuous Integration to improve iteration times."

"Encouraging cross-discipline collaboration and spending more time managing issues face to face with partners."

How They Work: The Key Tools and Processes For Success

Choosing the right tools and processes can help teams overcome their challenges. We asked our survey takers how they work today, including their tools and processes.

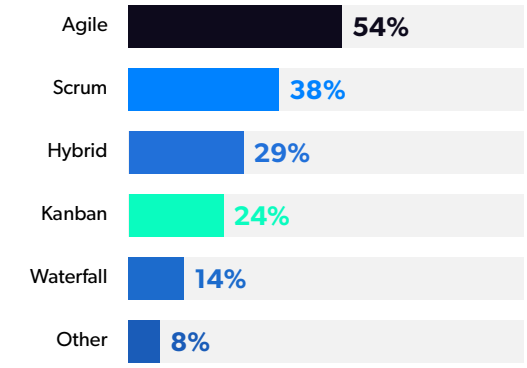
How Do They Work Together?

Process is important to building a game. Here is what we heard from those we surveyed.

Development Methodology

Teams use a variety of development methodologies to build a game. There is no single method that works for every team.

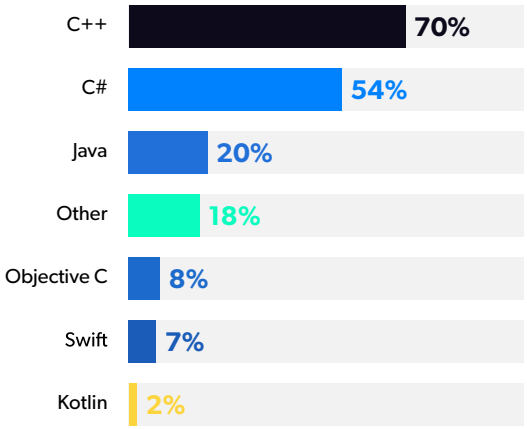
Most survey takers used Agile (54%), opting for flavors of Agile methods like Scrum (38%), and Kanban (24%). 29% of survey takers used a combination of methods. Few use Waterfall (14%) alone.



Programming Language

Games are developed using different programming languages. We asked our survey takers which language(s) they used.

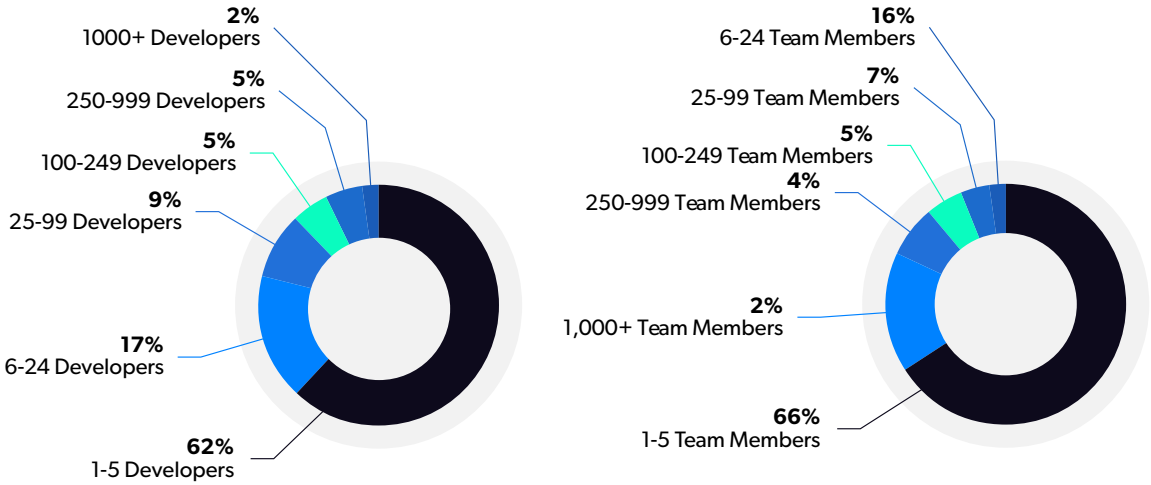
C++ (70%) and C# (54%) were by far the most prominent. C++, in particular, is used in game development because of its unparalleled performance and control. C# is popular due to the dominance of Microsoft tools in the game development market, especially with PC and Xbox.



Other languages like Java (20%) and Swift (7%) are used most often in mobile game development, but remain less popular than C++ and C#.

Size of the Team

A majority of those we surveyed need to collaborate with others. Creating code and non-code assets, in particular, requires collaboration. Multiple developers, designers, and artists need to be able to access these assets.



We saw a range in size of teams of developers and other team members who need access to code and non-code assets.

A majority are working on small teams. However, just because their teams are small does not mean their needs are. Small teams face big challenges, too. And their teams might not stay small for long.

Scale, for instance, is a challenge for many game development teams. And there are different aspects of scale that affect them.

Of those we surveyed, most were affected by the following dimensions of scale:

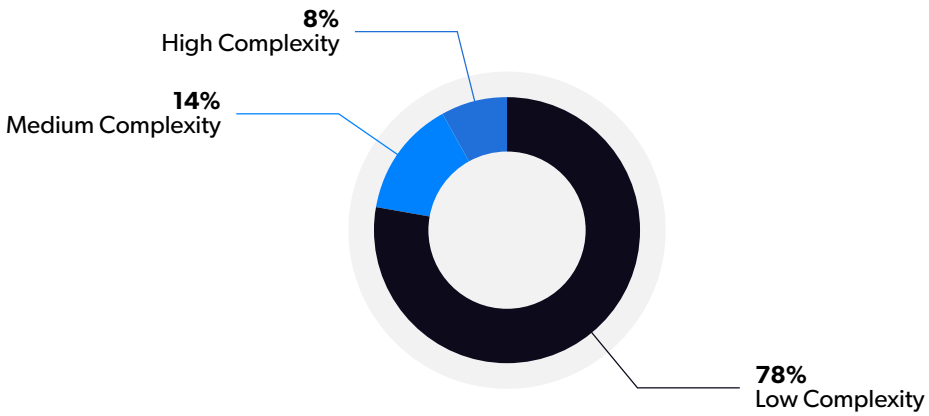
- Contributors/developers/teams (68%).
- Repositories/repository size (42%).
- Bandwidth/traffic (34%).

These dimensions of scale intensify challenges. The more people contributing to a project, the more complex it will become. Individuals need to be able to do their work on a game — and collaborate with others. At the same time, repositories for game assets can grow large. This can slow down teams, who may have to wait longer to access the files or get the feedback they need.

Complexity of Development

Those we surveyed are also dealing with varying levels in complexity of development. Complexity in development varies based on:

- Number of users.
- Number of projects.
- Number of branches.



A majority (78%) of those we surveyed cited that they're dealing with low complexity today. That is, they may have 100s of users and projects and a couple of branches. This can be easier to manage than those dealing with medium (14%) or high (8%) complexity.

However, low complexity projects can get more complex.

As teams and projects grow, more people need to collaborate on more assets. Having visibility into everything — branches, users, projects, and assets — is important.

To work effectively, teams need the right tools.

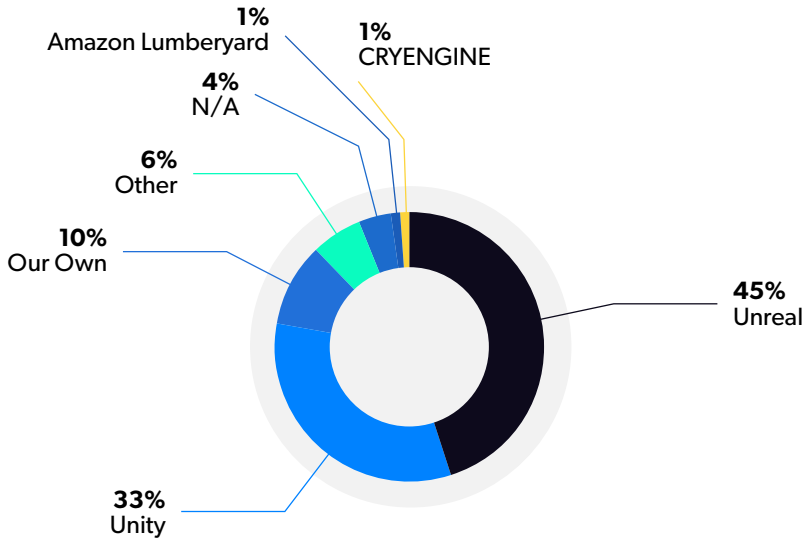
Which Tools Do They Use?

There are several types of game development tools critical for success. We asked our survey takers which tools they use for developing and designing games. Here is how they answered.

Game Engine

Unreal Engine (45%) and Unity (33%) remain the most popular game engines by far, followed by teams using their own game engines (10%).

Many also commented that they use multiple game engines, often Unreal and Unity, for their work.

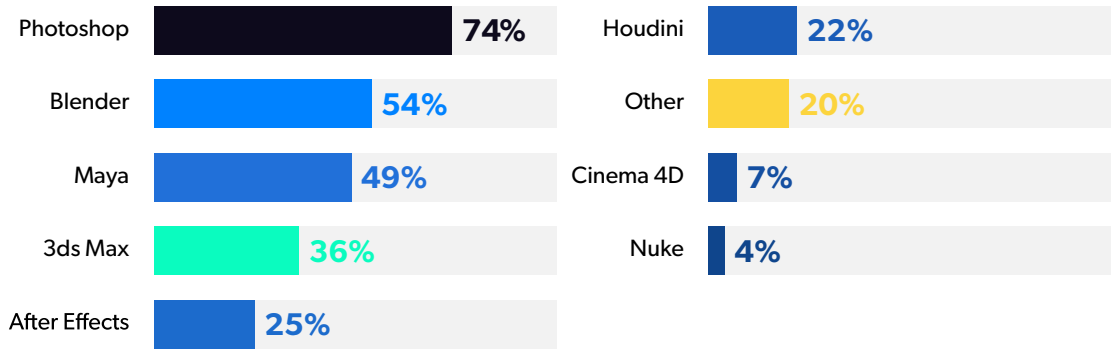


Choosing a game engine for a project involves research. It largely depends on the scope of a project, the number of people, amount of assets, and what resources are available.

Related Blog: Compare 5 Most Popular Game Engines

IDE

Game developers do much of their work directly in their IDE. Microsoft Visual Studio (72%) is the IDE of choice for most game developers.



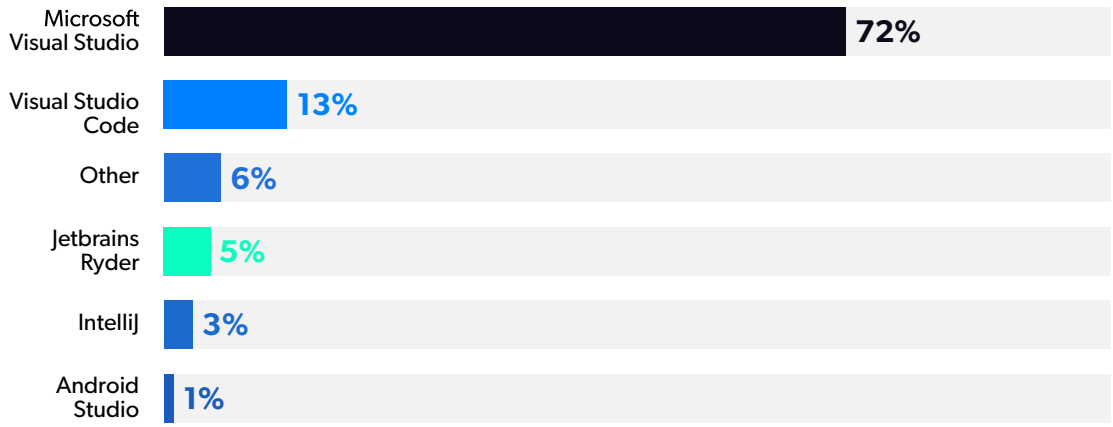
Visual Studio has become the game development industry standard. It offers tight integrations with the tools developers already use.

One reason why Visual Studio is the IDE of choice is because game developers can easily edit and debug code. Using features like IntelliSense, they can take care of typo and restructure parameters of functions in just a few clicks.

Related Blog: How to Use Microsoft Visual Studio With Unity and Perforce

Graphics Tools

PhotoShop (74%), Blender (54%), and Maya (49%) were the most popular graphics tools among those we surveyed. However, we saw a wide range of graphics tools used in combination by those we surveyed.



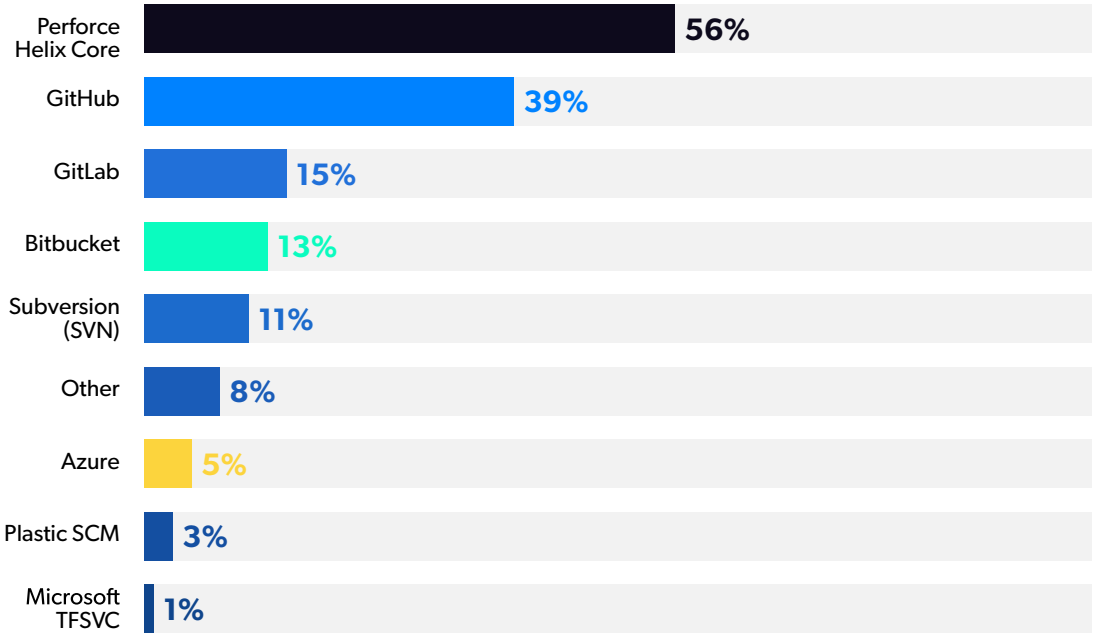
Selecting the right graphics tools is important. One thing to consider is whether graphics tools are integrated with the rest of the toolset, especially version control.

Related Blog: Version Control For Designers

Version Control

Using version control is important in game development — for solo developers, small teams, and large teams alike. It enables developers, designers, and artists to collaborate on code and non-code assets. And selecting the right version control can help teams tackle challenges around complexity and scale.

Of those we surveyed, a majority use Perforce Helix Core for version control. Teams choose Helix Core because it can uniquely solve the challenges of scale.



Helix Core enhances collaboration between designers, engineers, and developers. Teams can store all their digital assets — code, design files, and artifacts — under a single source of truth.

It securely versions all file types, scales for large teams, and handles 10s of 1,000s of daily transactions quickly. Helix Core can be deployed in the cloud or on-premises and replicate around the globe.

Related Webinar: How AAA Studios Build Faster with AWS & Perforce

Artists and designers choose Helix Core because there are OS and graphic tool integrations, such as 3DS Max, Maya, Photoshop, and Windows File Explorer. Developers love its integrations with game engines such as Unity and Unreal, and IDEs like Visual Studio.

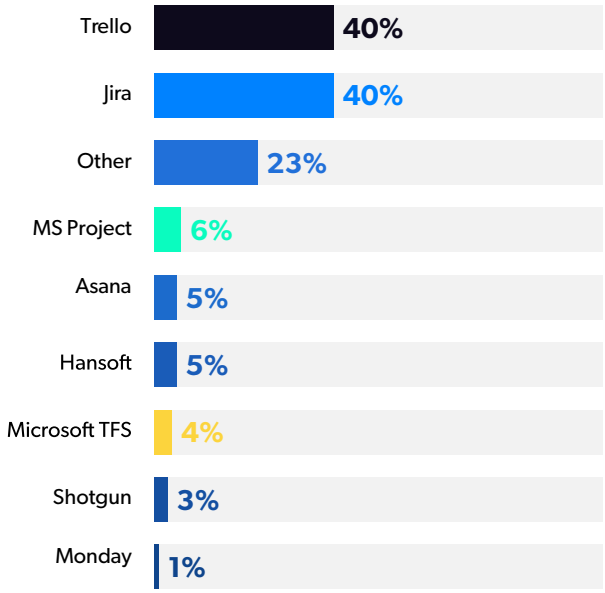
Helix Core also works with Git (via Helix4Git).

19 of the top 20 AAA game development studios version on Helix Core. Any game development studio can get it free for up to 5 users and 20 workspaces.

GET HELIX CORE

Project Backlog

There are a lot of tools on the market to help teams with backlog management. The majority of survey takers used Trello (40%) and Jira (40%). Other tools included Shotgun (3%), Asana (5%), and MS Project (6%).



Survey takers also responded with:

- Not using a backlog tool.
- Paper checklist.
- "Hack'n Plan".
- Wiki/Confluence.
- Google Docs.

For smaller teams, wikis, Confluence pages, and shared documents can work. But as projects scale, backlogs grow. In game development, teams need a tool that can manage the big picture and pinpoint issues before it delays progress.

A lot of project backlog tools offer a stagnant view with filters. It is easy for high-priority items to get lost among a growing number of requests and defects.

Related Blog: 6 Tips For a Lean Backlog

Hansoft is the project management tool that unites project backlogs. It empowers everyone — artists, developers, QA, producers, and executives — with the insights they need to ship better games faster. Teams can easily refine, prioritize, and estimate scope.

Hansoft is uniquely designed to deal with ever-evolving attributes and changing workflows. It works with Scrum, Gantt, Kanban, Waterfall, and more. Teams can mix-and-match their methods to find what works for them. And regardless of how they work, the backlog stays organized.

Related eBook: Discover How 5 Leading Studios Master Game Production

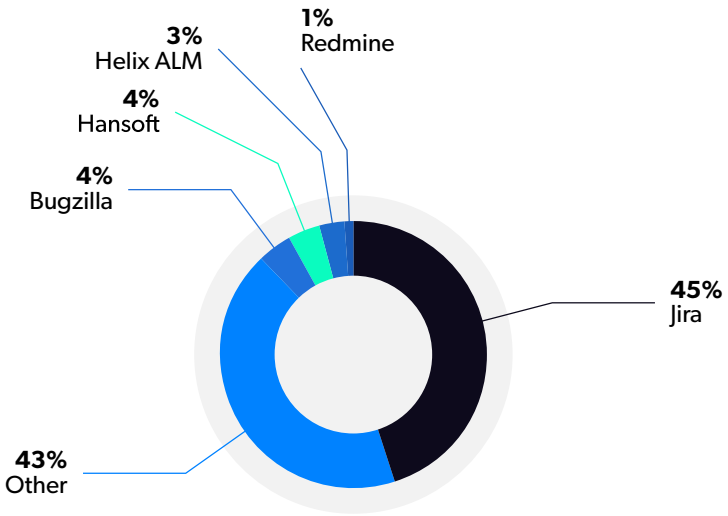
With Hansoft's dashboard feature, teams can customize, view, and share reports as their project evolves. The ability to track and share analytics keeps development moving and helps identify obstacles before they become a problem.

Get the only Agile backlog management tool made for game developers by game developers.

GET HANSOFT

Test Case Management & Issue Tracking

For test case management and issue tracking, a majority of teams use Jira (45% for issue tracking and 36% for test case management). However, there were a range of tools cited by our survey takers.



When selecting an issue tracking tool and test case management tool, it's important to consider integrations. Some of those we surveyed used Helix ALM. Helix ALM can be used to manage test cases and bugs. Helix ALM can also integrate with Jira, to link test cases to Jira issues.

Both Helix ALM and Jira integrate with Helix Core, too.

TRY HELIX ALM

Summary: What It Takes to Build the Best Games in the 2020s

The game development industry is always changing. COVID-19, AR/VR, eSports, and 5G will all have an impact on game development in the 2020s. As a result, game development teams may face greater challenges getting funding, collaborating, innovating and meeting deadlines.

That said, there are some constants in game development. And one constant is that teams need the right tools and processes to be successful. Those tools need to evolve to keep up with the pace of game development.

Using Perforce game development tools — Helix Core and Hansoft — is a wise choice for game development teams looking to conquer tomorrow's challenges today.

Game development studios of any size can get started with Hansoft and Helix Core for free for up to 5 users by downloading the Indie Studio Pack.

INDIE STUDIO PACK

Who We Surveyed

In spring/summer 2020, we surveyed over 500 professionals working in game development. We heard from developers (45%), designers (10%), artists (7%), testers (2%), producers (5%), and directors (10%) from companies small and large. Their experience ranged from less than one year to over ten years. They build single platform games (33%) and multiple platform games (51%) that range from casual to serious. Some are virtual reality. Others are eSports.