unity Whitepaper

Top 5 reasons to invest in a third-party gamedev platform

Executive summary

Over the years, the gambling industry has evolved significantly due to technological innovation. And recent advances in computer-generated graphics, interactive features, and mobile platforms have led to unprecedented growth and revenue.

These technologies have extended games well beyond traditional casinos and home-based PCs. They are now in users' hands wherever and whenever they want to play, creating thriving global markets with 24/7 opportunities and engagement.

But there's a lot more competition too, as countless real-money sites and games enter the virtual arena, all vying for players' time and attention. Not surprisingly, studios are making top-quality gameplay, appealing visuals, and fast performance their highest priorities.

But many proprietary game engines simply cannot produce these results, at least not quickly or painlessly. And even if they can, in-house tools may take a long time to learn, require costly resources to maintain and upgrade them, and can even dissuade top developers from joining studios that lack industry-standard software tools.

This whitepaper focuses on five key areas that real-money game developers should consider when assessing both how they currently build games and how fast, creative, and competitive they want to be for the foreseeable future.

1. Expand your technical and creative options

"History has repeatedly shown that when a new method or material becomes available, new uses for it arise."

– Wilson Greatbatch, engineer and inventor

Years ago, your team had to write and maintain their own engine to produce gambling games – there was no other choice. But it was painfully slow, and it took a lot of engineers. While the games got made, the tools themselves weren't flexible or future-proof.

Today, players experience movies, phone apps, virtual reality (VR) and augmented reality (AR), and videos produced with stunning graphics and effects. They expect the same graphic fidelity when they walk into a casino or download a gambling app or PC game – especially if they're going to potentially spend big money. The demands on your development environment are increasing, and proprietary technologies and platforms are challenged to keep up.

Where it all started – a classic casino environment.
(Source: www.pixabay.com)

When legacy tools aren't enough

Why can't proprietary systems deliver? On a technical level, developers often orchestrate graphics and effects by writing extensive code and positioning sprites, videos, and text assets within config files. They can't

preview their work in a rich visual editor. They can't test with convenient source-level debugging tools. And there's very little documentation and training. All this translates into costly and lengthy development cycles.

Furthermore, proprietary systems are costly to maintain and expand. Not having the right tools constrains developer productivity; to create the needed tools, you need to hire more developers. Yet the talent pool is almost nonexistent for proprietary systems, so training new hires means longer learning curves and productivity inefficiencies. To move cross-platform often requires development from scratch, including reworking assets for different devices. And this volume of work can mean having to find and train even more staff.

The need for engineering and artistic collaboration

On a collaboration level, the development environment is heavily engineer-focused, and coding limitations rather than artistic vision tend to drive features. Artists work independently in Photoshop or After Effects and produce finished assets that an engineer plugs into the code. To change something, to fix or iteratively improve the game, artists have to recreate the asset. Compare this workflow to modern software platforms where artists work directly within the environment, making and sharing changes immediately.

Ideally, as in the non-gambling game industry, development workflows should tightly integrate artists, designers, and other creatives to optimize profitability. Quality falls off without their real-time interaction. For example, just as marketers A/B test to find the most effective messaging, developers can A/B test different colors, designs, and gameplay to find what increases buy-in and retention. This is usually prohibitively expensive with the time and labor constraints of proprietary systems, whereas modern game-development engines include features or modules that enable this type of interaction.

Now there's a better alternative

Historically, software teams had to construct and maintain their own development platforms; they had no other option. Today, time spent developing in-house software tools is wasted when third-party platforms offer powerful solutions – off the shelf – that are easier, faster, and more affordable. For Martin Ruel, Technical Director at Square Enix Montréal, moving to a third-party platform "really helped us focus on crafting compelling experiences instead of spending critical time building engines."

A brief slot-machine timeline*

1880s – Coin-operated machines, typically in bars, raced horses or other figures to stimulate wagering between patrons.

1898 – Charles Fey's three-reel slot machine features automatic cash payouts.

1909 – "Trade stimulator" machines arrive on the scene, dispensing chewing gum: fruit symbols represented different flavors, while the bar symbol represented a full pack of gum.

1964 – Debut of a fully electromechanical slot machine from Bally.

1970 – Dale Electronics introduces the Poker-Matic video poker machine.

1976 – The Las Vegas Hilton rolls out the first video slot machine.

Since the 1970s, screens have gotten bigger with sharper graphics, and players can choose from hundreds of different themes and games. But the basic functionality of the one-armed bandit remains tried and true – insert money, watch something entertaining, and occasionally get some money back. Today, there are over 164,000 machines in Nevada[1] and nearly a million worldwide[2].

**All dates are approximate.*

2. Iterate fast and often

"I have rewritten – often several times – every word I have ever published."

– Vladimir Nabokov, author

Sometimes, you get a project right the first time. But to create something great, you usually need to try different approaches and new ideas, opening the door to the unexpected. Working in a game development environment that supports quick changes to art, gameplay, and builds means more frequent iterations. This can create more opportunities for incremental and sometimes significant improvements that will attract and retain more players. As noted industrial designer Onur Cobanli puts it, "Great design is the iteration of good design."

Why faster iteration matters

The rate of change for both technological capabilities and consumer expectations is such that release cycles are getting shorter and rapid modifications are critical. That's why when developing gambling software, the importance of quick and frequent iteration can't be overstated. If a desktop or mobile CPU can multithread its way into graphically rendering 100,000 unique wizard characters at 60 fps, a millennial playing a battle game in a casino lounge will expect to see that level of performance. If biometric breakthroughs enable modifying payout patterns based on player behavior, a game designer will want to take advantage of it. The faster a studio can respond to new market opportunities – for example, by adding bonus features or swapping out graphic environments – the greater its competitive advantage.

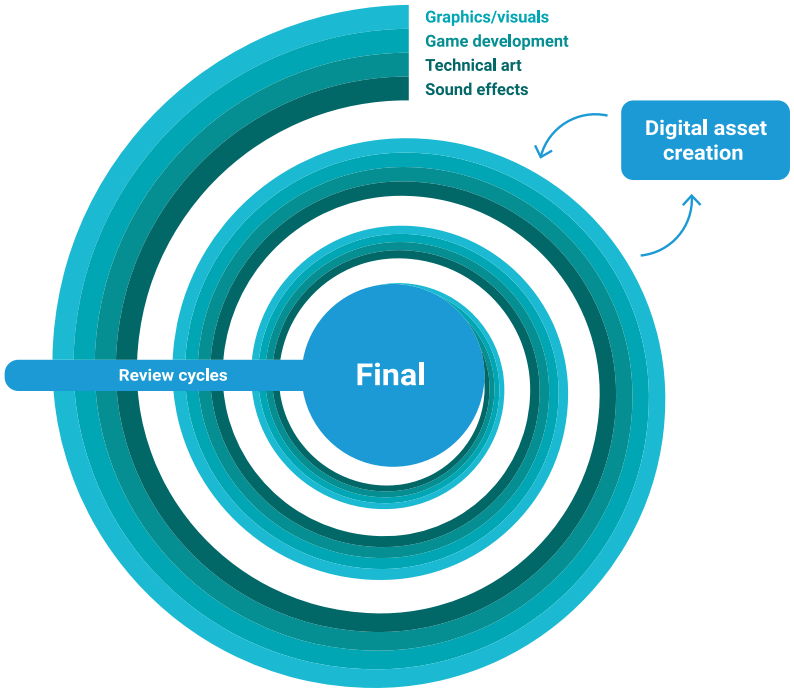
Yet the benefits of iterative cycles are limited by the capabilities of the development platform. A platform built for just one type of game on one type of device is unlikely to need a rich or flexible feature set. And to the extent that it lacks adequate editors and tools, then it's likely that incremental improvements will be cumbersome and few. As games and technologies evolve, any time spent updating proprietary tools takes precious resources away from the primary business: creating and delivering compelling user experiences.

What it takes for fast changes

Artists and designers are critical resources for creating captivating gameplay experiences, and tight collaboration between them and

developers sparks faster, higher-quality production. Yet proprietary development environments often tend to be engineer-focused instead, treating artists as external contractors rather than partners. For example, many game codebases require pixel-based image and video assets created in Photoshop and After Effects. Artists get their creative briefs, build the asset, and deliver it to a programmer. After the asset is compiled, if any changes are needed, no matter how small, the time-consuming process repeats.

When the graphics and video tools are built into the same development engine the programmers use, real-time collaboration and experimentation is possible. A third-party platform can significantly increase quality and speeds up production. A programmer can ask, “How does it look?” The artist may respond, “Let’s try this instead.” And both can then say, “Much better!” in minutes instead of hours – or even days.



A real-time workflow enables faster iteration and feature refinement.

For reskinning a game, this kind of development is essential. If a game is dated or not performing well – and could really use a boost from new art or popular IP – the team can swap out artwork, music, sound effects, and titles in minutes without modifying the codebase. In as much time as it takes to collect or modify the skin assets, you have a new game.

3. Improve efficiency and collaboration

"Just do what you do best."

– Red Auerbach, NBA coach

A skilled software engineer can code almost anything, including proprietary tools for specific applications. But development tools are just a means to reaching a goal – and in the gambling business, that goal is a great game with user experiences that entertain and excite players.

There are companies whose sole goal is to create tools that speed up game production and expand creative possibilities. A third-party game engine with comprehensive features based on the latest technology and industry best practices is a platform that can vastly outperform proprietary tools – so game developers can spend their time doing what they do best: creating great games.

> *Imagine easily changing, sharing, and managing your projects with confidence and control, without the complexity.*

(Source: www.shutterstock.com)

Focusing on gamedev efficiency rather than tool development

Gamedev engines developed by third parties can provide capabilities that enable faster iteration, collaboration between artists and programmers, and freedom from engine maintenance, all serving to get to market quicker and improve game performance.

A number of features are particularly important for gambling applications.

Are land-based and online casinos competing with each other?

A land-based casino can transport a player to another world with rich sensory stimulation and the excitement of feeling that in a moment, one's fortunes can change. One can happily sit transfixed by bright, spinning 2D slot reels, or stack chips, throw dice, and enthusiastically cheer in craps. Bricks and mortar works: 2017 marked the first year U.S. gambling revenues topped $40B[3].

Yet a land-based experience usually requires planes, buses and automobiles, and the time it takes to get to the casino. Plenty of people wouldn't mind playing a few hands of blackjack during their lunch break but travel time can be prohibitive. While a trip to a real casino requires planning, players can enjoy an online experience almost anywhere at any time. That's one reason the global online gambling market may surpass $94B in 2024[4].

Bottom line? Each "venue" offers something unique, and each is likely to thrive.

2D tools
While most game engines focus on 3D capabilities, 2D is still the gambling industry standard. A third-party engine with wide-ranging 2D tools can simplify your team's work with:

— **Layer management** – sorting and visualization

— **Physics** – managing physical simulations such as gravity, velocity, and collisions

— **Determinism** – enabling outcomes based on random number generation rather than physics (important for licensing)

— **Sprites** – reusing and scaling images dynamically, hiding and revealing, and mesh skinning

— **Importing pixel graphics** – automatically creating sprite sheets from .psd layers and saving changes back to the .psd file

— **Fixing pixelation** – rendering with and without antialiasing

Preconfigured game objects
As in other development environments, developers of gambling games like to avoid repetitive tasks. Being able to efficiently create, place, and update multiple game objects across an entire game can be a godsend. For example, with a third-party engine, developers can place props such as trees, non-player characters (NPCs) such as bystanders, and projectiles such as cannonballs in multiple scenes and levels. If the game designer or art director wants to change any characteristic, voilà – you change it once and the update is reflected throughout the game.

If the engine also enables nesting these objects, developers can place multiple instances of a parent object with its unique child objects. For example, a spaceship can have an array of preconfigured weapons. Cloning the spaceship places all the child weapons as well, and the weapons can

be individually customized with unique characteristics and behavior. And all of these preconfigured components are reusable too, making for easy repurposing or reskinning.

User interface (UI) management

The ways users interact with traditional casino games is simple – insert coin, pull handle, scoop up coins. But with modern online games, how players log in/out, manage bets, adjust settings, and actually play the game – the user interface – is complex and critical to the success of a game.

A UI-editing system that is graphics-based rather than code-driven eases scaling versions for different screen resolutions, speeds up usability testing of different layouts, and allows for creating unique game controls.

Enabling greater collaboration

According to the UNC Kenan-Flagler Business School, a truly collaborative environment can help recruit, retain, and motivate employees as well as bring new products and services to the market faster[5]. Engines that provide collaborative workspaces and smooth workflows for artists, designers, and programmers encourage the communication and interaction that is essential for quality game development. A centralized editor enables art creation, reviews, and changes significantly faster. And if it has cross-platform capabilities, the engine allows you to publish games on different devices. This lets game producers and others review and test content more conveniently than by having to output it to a physical machine.

4. Hire faster and enhance productivity

"It doesn't make sense to hire smart people and then tell them what to do; we hire smart people so they can tell us what to do."

– Steve Jobs, founder, Apple

Imagine interviewing a prospective new bookkeeper. You show them your old bookkeeper's spreadsheets, filled with highly customized formulas collected over the last 20 years. The candidate may respond with, "Look, you really need a new system built for modern business processes."

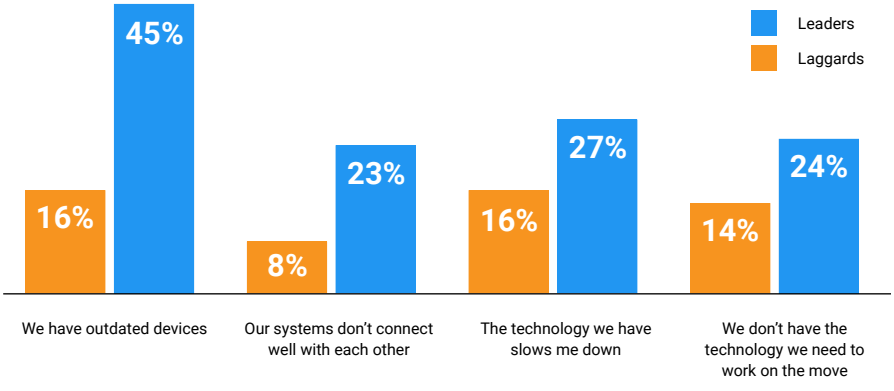
This is a typical business dilemma: Stick with a time-tested system or invest in new technology that may work a lot better and open up new business opportunities after the initial investment and growing pains. Is the investment worth it?

In a competitive game and developer market, you may not have a choice.

Onboarding the best developers

Top talent wants to work with the top tools. Proprietary development engines may have gotten the job done, but few professionals want to take over or adapt their skills to someone else's idiosyncratic system. Gaming technologies have changed radically, and the best developers are accustomed to working with engines that offer the latest capabilities. It's good for creativity and it's good for games.

On the flip side, according to a recent Unisys study[6], "workers at 'technology laggard' organizations [are] more than 500 percent more likely to be frustrated and 600 percent more likely to consider quitting when they work with outdated technology."



Employees in leader organizations are significantly more content with the technology they use in their jobs than employees in laggard organizations.
(Source: The New Digital Workplace Divide, Unisys)

As well, proprietary systems typically lack extensive documentation and training materials, which is particularly challenging for interns and new graduates facing a steep learning curve. Additionally, seasoned developers may not have the time to pass on their hard-earned "tribal" knowledge because they're busy producing game content. In a worst-case scenario, some may even guard their knowledge because it's key for job security.

Adopting an industry-standard gaming engine means there is a larger pool of experienced developers who can comfortably step into your environment, speak the same development language, and begin producing results almost immediately.

Maintaining a productive development environment

Increasing productivity is another benefit of evolving from a proprietary to a widely used engine. Development is easier when your team interacts with others using the same tools to build similar things. Specialized forums serve everyone from car collectors to database architects – allowing peers to post questions and compare notes – and all modern software platforms make extensive use of them. Industry trade shows and platform-specific events build community and are excellent educational opportunities.

In the extended gamedev community, some developers create and offer specialized add-ons and resources for the game engine itself. These include everything from props, characters, and textures to shaders and complete environments. Leveraging these assets can significantly reduce development times and make the work environment more creative and productive. And for all intents and purposes, these types of resources only exist for third-party platforms.

Another resource that's limited for proprietary engines is enterprise-level support. General forums work well for ad hoc issues, but teams may need outside expertise when they're tackling strategic challenges such as multi-monitor outputs, device optimizations or OS-specific configurations. Commercial off-the-shelf (COTS) vendors maintain knowledge bases for these types of common issues, and have experts ready to pick up the phone or travel to help solve deadline-threatening bottlenecks.

Ready for VR/AR?

Slowly but surely, virtual reality (VR) and augmented reality (AR) are expanding footholds in applications from automotive design to education and training. Gambling is one such foothold, as evidenced by Alea's online VR casino launching in 2015[7] and IGT's land-based Virtual Zone[8] launching in 2018. Yet VR/AR adoption has been uneven, and as with many emerging technologies, hype can outstrip reality.

The global online gambling market is expected to surpass $94B in 2024[4]. However, in a 2018 survey[9], only 29% of online gambling operators rated the business climate for Q1 2019 as "good." Still, 46% anticipated a good climate within the year. According to MarketResearchEngine[10], the global VR market alone will exceed $43B by 2024, driven largely by entertainment and gaming. VR/AR for gamblers is well on its way.

5. Reach more devices and more players

"Exceed your customer's expectations. If you do, they'll come back over and over. Give them what they want – and a little more."

– Sam Walton, founder, Walmart

As of 2016, there were almost 8 million[11] land-based casino machines in the world. Yet their number doesn't begin to compare to the billions of smartphones, tablets, and PCs that can run gambling games. That's one of the reasons why, according to Statista.com, only 25% of current global gambling takes place in casinos[12].

$450B
Total global gambling market gross gaming yield (in USD)

25%
Global gambling market share of casinos

$76.59B
U.S. casino gaming market revenue (in USD)

Only 25% of global gambling takes place in casinos.
(Source: www.statista.com)

Quickly adapting to the changing mobile market

According to *Online Gambling Quarterly,* 61% of online gambling operators' revenue comes via mobile devices and 72% of betting stakes are from the same devices[13]. However, developing for mobile requires constant adaptation across the board. Devices and platforms continuously evolve, and developers have to contend with device fragmentation, memory and speed issues, screen sizes, notch design, as well as thermal and battery conditions. The software development space is also subject to intense competition from new entrants.

These challenges make most proprietary development tools ill-suited for creating cross-platform adaptations, let alone simultaneously porting game versions to Android, iOS, console, and PC platforms, and popular social applications like Facebook Gameroom. In the context of a quickly evolving, highly competitive market for mobile devices, third-party game engines, by contrast, are built with cross-platform output and support as primary features.

Additional cross-platform benefits

Cross-platform game development isn't just about unlocking and increasing potential revenue streams to capitalize on an enormous and growing internet market. In a game engine, cross-platform capabilities enable faster iterative development and more thorough testing as well. Developers don't have to work with casino operators to get their games in front of an audience, and competition for floor space isn't an issue.

When a casino game is successful, publishing it online brings access to all the benefits of online marketing, from global reach and leveraging social networks to analytics and personalization. This also works in reverse – game developers who have a top-performing mobile or social casino game can pay, with less risk, the high license fees (up to $50,000 in Nevada) necessary to put the game on land-based machines. This extends the game's reach across all markets and audiences.

Regardless of whether a game is published publicly or not, creating cross-platform versions lets development teams collaborate more effectively. During development, reviewers can run a game remotely on a mobile device or PC, provide feedback, and look at a revised version in minutes. And with more iterations and reviewers, more bugs are discovered and resolved. Testing and QA occurs as a parallel development stream, so games and real-time updates get to market sooner.

Real-time gamedev sweetens the pot

As shown in this whitepaper, a third-party, real-time development platform yields multiple benefits for producers of gambling games, whereas proprietary game engines limit your options, especially in the long run.

Today's games need the quick and frequent iterations that a real-time system enables. Game production benefits from higher development efficiency and better collaboration. When you adopt an industry-standard gaming engine, you can also tap a wide pool of experienced developers, and your work environment becomes more agile and productive.

Ultimately, the wide-ranging capabilities and speed of a real-time gamedev platform enable you to put your games in the hands of many more players, on more machines and devices, and much faster. Such real-world benefits definitely stack the competitive odds in your favor.

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