◆ unity

Get ahead of tomorrow's mobile development challenges

Six ways to reach the largest audience with rich, performant experiences that make players take note.

unity

The complexity of mobile

Mobile gaming will generate

$68.5 Billion

in revenue in 2019, making up

45%

of all global or revenues.*

While the future is bright and full of opportunity, the road to success grows increasingly complex for mobile developers, from production to release and beyond.

As mobile devices grow in number and power, and competition increases in the marketplace (with hundreds of mobile games added each day), user expectations for beautiful graphics, rich experiences, and reliable performance are also at an all-time high.

Developers can't afford to miss on any one of these attributes without harming two key levers for success: discovery and user retention.

Performance issues – like crashes or heavy battery drain – remain one of the top reasons cited in negative user reviews. And to stand out from the crowd, you need spell-binding visuals to captivate players and an extraordinary gameplay experience to keep them.

*Source: Newzoo 2019 Global Games Market Report

Building for the future

Keeping up with the latest advances in technology, new hardware, and user expectations in the market is a continuous challenge for developers that often requires significant time and specialized knowledge to tackle.

Users today expect rich gameplay experiences that:

- ▶ run smoothly
- 🔥 don't crash
- 🔋⚡ consume less battery power

But how do you get the performance you need, without sacrificing your creative vision?

Put Unity's dedicated investment and expertise in solving hard development problems to work.

One

Unlock new levels of mobile performance with hardware-oriented design, without the hardcore programming.

Hardware-intensive mobile games with rich worlds or complex gameplay often require specialized low-level programming knowledge in order to efficiently take advantage of the multicore processors they're running on.

Optimization is more accessible with the Data-Oriented Technology Stack (DOTS), a high-performance multithreaded system that consists of the Entity Component System (ECS), Burst Compiler, and C# Job System. Your games will run faster, and your code will also be easier to write, read and reuse, speeding up development workflows.

[Learn more about DOTS]

Case study

See how Tic Toc Games used DOTS to speed up development and achieve a solid 60fps without draining batteries or overheating phones.

Two

Take control back from the device operating system to achieve higher fidelity and smoother frame rate.

Unlike for a PC or console game, harnessing the full power of mobile hardware requires a delicate balance for games to look beautiful and play smoothly. Maxing out a device's capabilities can quickly compromise your game's performance by overtaxing the hardware, which leads to throttling, poor battery life, and inconsistent performance.

Built in partnership with Samsung, the #1 smartphone brand in 2019*, Adaptive Performance gives you control over decisions that the device operating system usually makes, with thermal management, enabling you to provide players with the smoothest, best-performing experiences and longer play times while preserving battery life on Samsung devices.

<div style="background:#2196F3;color:#fff;padding:10px;text-align:center">Learn more about Adaptive Performance</div>

Adaptive Performance will be available first for Samsung Galaxy devices such as the Samsung Galaxy S10 and Galaxy Fold, followed by additional Samsung Galaxy devices later this year.

*Source: Newzoo Global Mobile Market Report, March 2019

<u>Video</u>

Watch the Unity at GDC Keynote 2019 segment on Adaptive Performance.

<u>Three</u>

Optimize rendering for stunning graphics users love without sacrificing performance.

When graphics rendering isn't optimized, it hurts performance. Control how your game is rendered with the Lightweight Render Pipeline (LWRP), designed to achieve best-in-class performance for mobile platforms. LWRP is highly scalable and configurable using C# script for optimal control. The result is graphics that impress players on high-end devices while still performant on the low end.
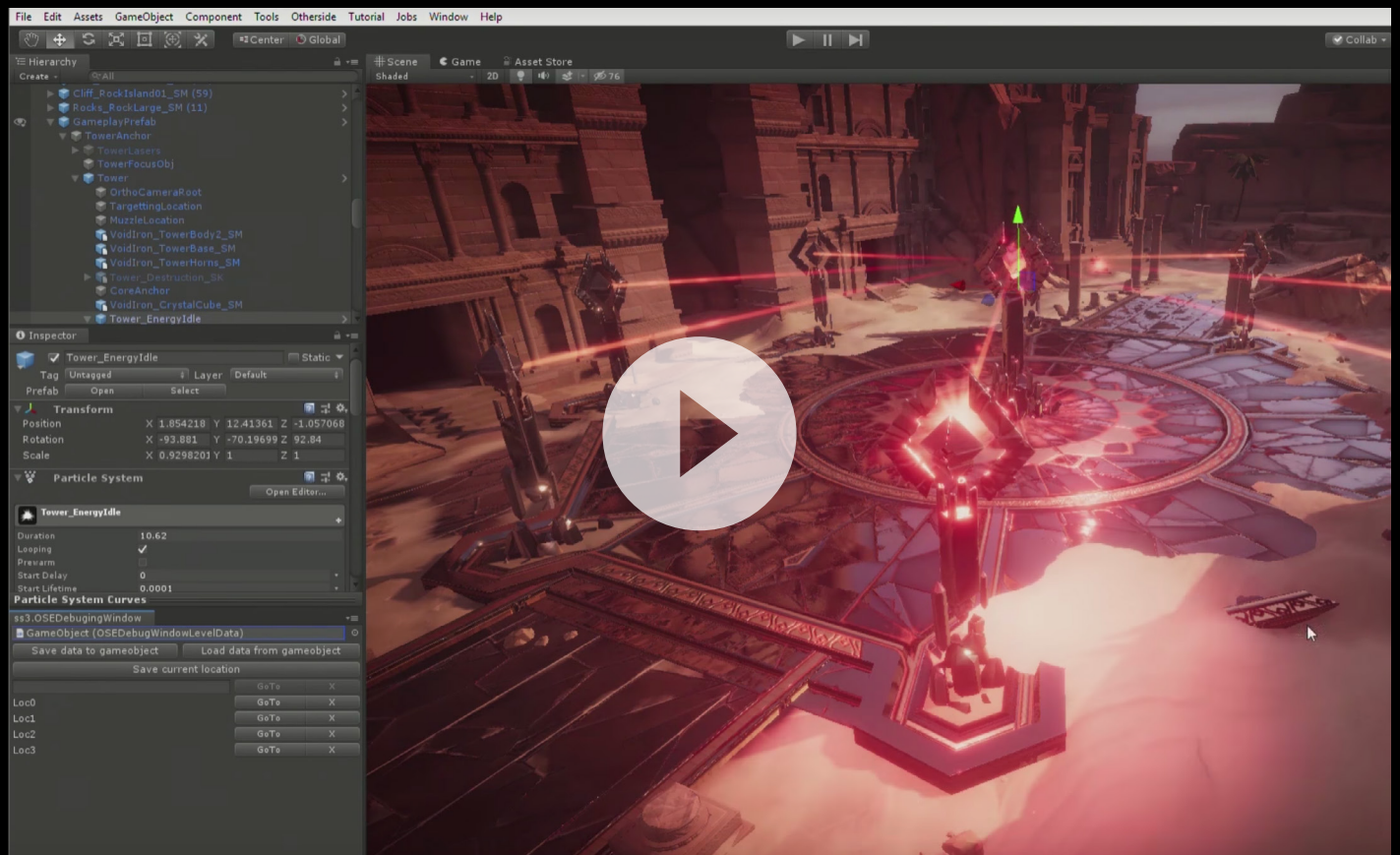
Learn more about LWRP

Video

See how Megalith and Disney Sorcerer's Arena use the LWRP to produce highly performant graphics.

Reach the largest audience with great graphics and performance on all devices.

With 50K+ phone models in the market* and more on the way, device fragmentation will only get more complex, especially as manufacturers push to innovate in specs and form factors like flexible or foldable screens. Targeting players on a wide range of devices quickly becomes an optimization nightmare, while focusing on only a few means limiting your potential audience overall.

Unity's performance and graphics tech enable you to deliver the best possible experience tailored for each device. Our significant investment in the right tech future-proofs your project, so you can reap the benefits for years to come. We work closely with technology partners to solve difficult problems for you.

*Source: Unity Analytics, April 2018

![Unity logo]

Simplifying operation and distribution

Rising competition in the marketplace places an increasingly heavy burden on developers to deliver ongoing player engagement and maintain multiple distribution platforms. As important as it is to optimize performance and graphics, it is critical to streamline the distribution and live operations of your mobile game to ensure all your hard work pays off.

Four

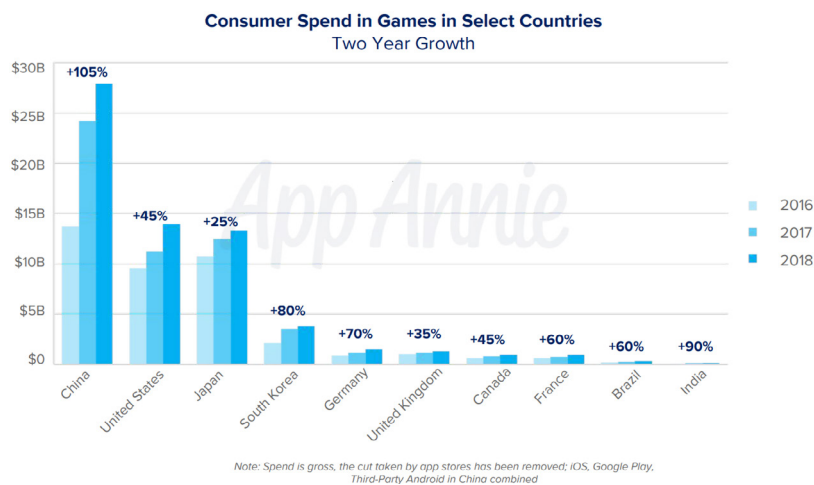# Streamline your distribution and tap into the global market to maximize your bottom line.

The fragmented Android ecosystem presents many challenges to distributing a mobile game. Stores have their own proprietary payment systems, governance, and regulatory conditions, requiring developers to implement individual software development kits (SDKs) and conduct a separate submission process every time. Throughout the lifetime of a game, developers have to repeat this approach for every update.

The Unity Distribution Portal (UDP) is a one-stop-shop for mobile game developers to tap into the global market.

It automatically creates builds for each store, enabling distribution regardless of their individual store publishing requirements.

Learn more about UDP

UDP connects you with hundreds of millions of players worldwide through store partners including:

Catappult (EMEA, Brazil)
MOO Store (SE Asia)
ONE Store (Korea)
APPTUTTi (China)
JioGamesStore (India)

and more app stores joining.

Consumer Spend in Games in Select Countries
Two Year Growth

	2016
	2017
	2018

China +105%
United States +45%
Japan +25%
South Korea +80%
Germany +70%
United Kingdom +35%
Canada +45%
France +60%
Brazil +60%
India +90%

Note: Spend is gross, the cut taken by app stores has been removed; iOS, Google Play, Third-Party Android in China combined

Source: AppAnnie, State of Mobile 2019

Simplifying operation and distribution

Five

Keep players coming back. Give them frequent content updates, without worrying about maintenance.

Regular content updates keep users engaged and lead to better retention rates and monetization. Over time, though, the initial download size of the game grows, and that can impact conversion rates. Delivering content remotely, such as with asset bundles, can help mitigate that issue. But doing so often requires you to use custom solutions to manage and track assets, which can involve a steep learning curve. And the more games and bundles you manage, the heavier the burden of maintenance.

The Addressables asset management system provides an accessible yet robust way to catalog, track, and load run-time content. It handles complex dependency management, memory management, and version management, saving you time and development costs.

Learn more about Addressables

Addressable Asset System

Available as a verified package for Unity 2019.3, the Addressable Asset System has already been adopted for use in over 300 projects. To get started, simply add it to your project using Unity's Package Manager.

Simplifying operation and distribution

Six

Keep players connected with live mobile comms.

Mobile games often center around having a connected experience – sharing the joy of the game with friends and fellow fans around the world. The ability to talk to others makes your game more immersive and "sticky."

Implementing voice comms into your mobile game involves a lot of complexity. What operating systems will your game run on? Do voice comms need to be cross-platform? How will your players communicate (without a keyboard)? How much memory/bandwidth will your voice comms use? What are the limitations of the hardware? How important is it that your players know the location of different sound sources?

The most implemented voice and text chat technology in the video game industry is now available on mobile too. As the voice comms provider to hugely popular games like Fortnite and PUBG, Vivox is feature-rich and battle-tested for games of all sizes, whatever the platform.

[Try Vivox for free]

VIVOX
COMMUNICATION IS CRITICAL

PlayerUnknown's Battlegrounds

Get ahead of the game

Future-proof against performance optimization headaches with the Data-Oriented Technology Stack (DOTS).

Achieve higher fidelity and smoother frame rates with Adaptive Performance on Samsung devices.

Create captivating visuals that perform on all platforms with the Lightweight Render Pipeline (LWRP).

Tap into the global market through the Unity Distribution Portal (UDP) and maximize your bottom line.

Streamline your content workflow and stay on top of your updates with the Addressable Asset System.

Implement mobile comms that keep players connected with live voice and text chat technology from Vivox.