Five mistakes to avoid when porting your game to Nintendo Switch

Watch out for these potential missteps
before the porting process begins.

unity

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Introduction

Porting your game to the Nintendo Switch presents a massive market opportunity. The platform has seen [a whopping 43% year-over-year increase in software sales during the first nine months of the 2020 fiscal year](#). It's no wonder that so many consumers ask developers when their games will be ported over in community Q&As, interviews or neverending replies on literally any social media post.

Players are attracted to the platform for its flexibility, since it offers both portability and a home console experience. Ported games like *Ori and the Will of the Wisps*, *Subnautica* and others have enjoyed a huge bump in sales after they decided to offer users the chance to play on Nintendo Switch.

The Nintendo brand has exploded in popularity among everyone from families and casual players to hardcore gamers. This growing community is itching for new content to explore, adding tens of millions to your potential install base.

That's not to say porting to the Nintendo Switch is easy. The platform's hardware specs have limitations that require compromises. You'll need to strike a balance between visual fidelity, technical performance, and creative vision to overcome developmental obstacles.

Thankfully, the upside is worth the effort, provided you go into the process fully aware of the most important considerations. Here are five of the most common missteps to avoid when bringing your game to the Nintendo Switch.

Mistake No. 1

Failing to see that porting to Switch is a potential goldmine

Thankfully, just by reading this e-book, you're starting to explore the benefits of porting to Switch and avoiding the first mistake. Savvy move!

In all seriousness, Nintendo Switch's popularity as a platform cannot be overstated. It overwhelmingly became the choice of new console owners in 2020.

While console sales are typically much lower in the months following the holiday season, the Nintendo Switch saw hardware sales increase by more than 100% in year-over-year sales in March 2020. 2020 was not a normal year to say the least, but these sales were a marked improvement from the 25+% increase seen by the PlayStation4 and Xbox One during the same period.

"Half of the top 20 best-selling games of December 2020 were published by Nintendo."

— Mat Piscatella, Industry Analyst, The NPD Group

PHOGS!, by Coatsink – Made with Unity

"For the type of games that we make, it can be the most important platform for us. It's at least as good as the other consoles, in terms of commercial return."

— Tom Beardsmore, CEO, Coatsink Games

New console gaming enthusiasts flocking to the Switch also have a higher spending ceiling for titles than other major console platforms. Roughly [12% of Switch owners report spending more than $30 a month](); that's greater than the 8% total among other console consumers and 6% of North American mobile gamers.

In simple terms, more people are enjoying the Nintendo Switch than other platforms, and they're spending more on high-margin games. The Nintendo eShop marketplace expands your title's potential revenue streams, and many of its bestsellers come from third-party developers and publishers.

PHOGS!, by Coatsink – Made with Unity

Ori and the Will of the Wisps, by Moon Studios – Made with Unity

Mistake No. 2

Refusing to compromise around the Switch's hardware limitations

The Nintendo Switch has found an excited, dedicated audience, but that doesn't mean its technical specifications are top-of-the-line. Because the console is something you can play both on the go as a portable tablet and as a docked home platform, the Nintendo Switch's hardware specs pale in comparison to those of the PS4 and Xbox One, let alone the PS5 or Xbox Series X.

Everything about the platform's visual and computational output aligns with its architectural goal: being a portable console stronger than anything on the market. However, with a consistent memory limit of just 4GB of DDR4 memory (compared to the 8GB RAM standard established back in 2013 for non-adaptive consoles), your available resources might be dramatically more restricted than you're used to.

The Switch's chipset uses mobile Nvidia architecture on a foundational level, meaning you shouldn't expect a non-smartphone port to feel, perform, or look the way you might imagine. It's an unavoidable problem, so where do you start in finding a solution?

It will take work to bring a previously released title to the Nintendo Switch, but most things worth doing aren't easy. While there are many considerations to account for on the systems hardware side, developers must also understand the overall hardware limitations and judge which compromises to make in terms of graphical output or rendering options.

For example, fighting games and competitive action games should keep a framerate of at least 60 fps as the most critical technical priority, because performance matters dramatically more than stunning graphics to their players. Simultaneously, to overcome stuttering, it might be worth lowering the resolution in handheld mode while taking advantage of the boost in performance for docked-mode gameplay.

Optimization means achieving optimal results based on the limitations at hand. Learning how to use your design toolsets means being flexible with your options and reasonable in your expectations for the final result. Refusing to budge on an unreasonable expectation can create a downward spiral of bad decisions, and nothing is more disappointing than a game that functions worse on one platform than on others.

Hardware constraints don't necessarily limit creative possibilities. Instead, they provide opportunities for you to think more creatively about how to overcome these challenges and achieve incredible feats of engineering and artistic vision.
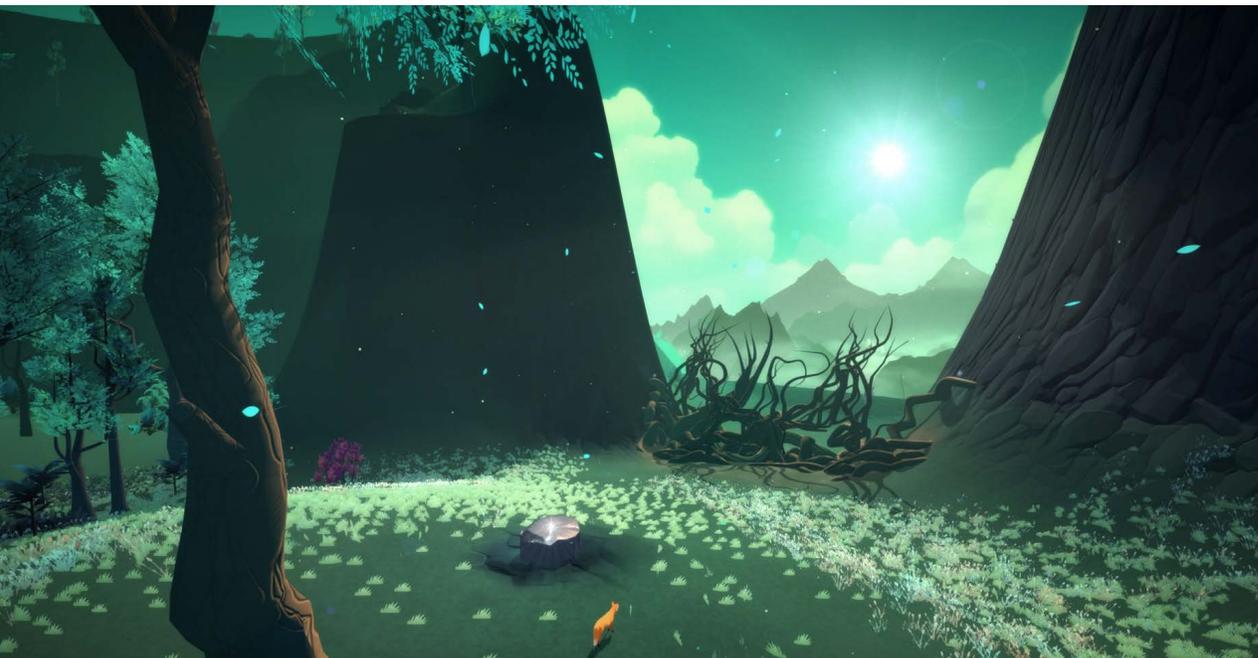
The First Tree, by David Wehle – Made with Unity

Mistake No. 3

Letting hardware-based decisions limit opportunities for a strong artistic style and visual fidelity

We've already discussed how the Nintendo Switch places limitations on graphics, but we should also talk about visual style more broadly. Since 4K video resolution remains out of reach for the platform at the moment, developers need to be realistic in their approach to creating real lookers.

Nintendo had the first opportunity to wow audiences with how games would look on the console. The debut of *The Legend of Zelda: Breath of the Wild* at E3 in 2016 took critics and audiences by storm, and Nintendo received multiple awards from a panel of more than 40 global media outlets.

That title's visual style proved attractive to audiences despite the graphical limitations inherent to the Switch, and third-party developers have taken that lesson and run with it. Studios large and small have produced awe-inspiring games for years without visibly sacrificing resources, proving that sometimes all it takes is finding the right technology partner to unlock potential.

What the Golf? by Triband – Made with Unity

Unknown Worlds encountered a series of unique challenges bringing their gorgeous action-adventure survival game *Subnautica* to Switch. Teaming up with Unity allowed the studio to maintain the game's remarkable aesthetic, defined by its distinct neon palette that harmonizes authentic Earth flora and fauna and otherworldly alien sea life.

Porting a game like *Subnautica* – with its custom water rendering and texture rendering of impressive voxel environments – from PC to console was one thing. Porting it to Switch was a next-level challenge, one that might not even be possible without stripping out some of the game's best features. But the studio was determined.

"Unity not only brought out our best gameplay, they also helped make this amazing game available to a new Switch audience. They're more than a long-term partner – they're part of the core team."

— Michael Verrette, Development Director of *Subnautica*, Unknown Worlds

"We did an initial port with Unity to see how it would shake out," explains *Subnautica*'s technical director, Max McGuire. "We got it up and running, and it turned out more feasible than we expected. But it would take quite a bit of elbow grease." For that reason, they sought end-to-end help to port the game to Switch, get it on the market, and expand their player community.

Other studios have run into these technical issues and been forced to find innovative solutions. In *Ori and the Will of the Wisps*, scaling down an open-world design meant leaning into the game's unique aesthetic to compensate for hits to performance and sharpness. But in the end, *Ori* is a hauntingly beautiful platform-adventure title in both docked and handheld form – which is no small task considering the [series' depth of 3D environmental detail , which still performs reliably at 60 fps](#).

From the moment *Cuphead* was first announced, fans fell in love with Studio MDHR's take on classic American cartoons through the lens of a run-and-gun action title. Switch users get to appreciate the same stylish looks [at the maximum video resolutions of 1080p docked and 720p on portable, while sticking strong at 60 fps thanks to compressed assets. All this with only slightly longer loading times serving as the team's primary compromise.](#)

Each of these three studios produced wildly different games in terms of scope and size, yet each managed to port to Switch with minimal sacrifices. Not only do they all look intoxicating in their own right, they also prove it is possible to have impressive visuals despite the lack of graphical realism or the hardware capabilities available on other consoles and PCs.

Subnautica, by Unknown Worlds – Made with Unity

Mistake No. 4

Underestimating the complexity of porting to the Nintendo Switch

When you port from the PlayStation or the Xbox family of consoles or from PC to the Nintendo Switch, you're committing to fundamentally changing your game's computing methods. It's not just about the obvious physical differences between the Switch and other major gaming platforms; there are tons of factors to consider when you're looking to develop for the console.

One of the Switch's most attractive features is its offer of multiple ways to enjoy single-player and multiplayer content. Take Joy-Cons, which you can pull out of

the console and use in a variety of ways. You can use them as a pair to operate motion-controlled and standard setups, flip one Joy-Con on its side for a simplified control scheme, or slide them back into the side of the tablet to work as a touchscreen-tablet-plus-controller setup.

The variety of control schemes also adds a series of hurdles to overcome that you don't see with simplified single-controller setups found on competing consoles. Not only do you have the option to implement all those different controls, but you must also make sure those inputs are noted with in-game menus as well as designating resources to testing them in QA.

Despite its importance in actually playing video games, controller inputs are just one of many elements that the Nintendo Switch approaches differently than its competitors. Without preparation, small factors can eventually topple down the line like dominoes, and these could completely gridlock the development process late in the porting process.

Even the smallest functions of game development might require tinkering when porting to the Nintendo Switch. You may need to change render pipelines, rethink asset management systems, or reconsider post-launch content based on patch file size limitations. And you'll need creative solutions to overcome challenges you never saw coming. Even something simple like using resources.load as a coding-level decision might become an issue due to Nintendo's certification specifications.

There are numerous boxes to check off before successfully porting to the Nintendo Switch. Thankfully, you don't have to do it alone.

Cuphead, by Studio MDHR – Made with Unity

Mistake No. 5

Missing that both the tech and the experience need to be right

Even as a skilled programmer with decades of experience creating console and PC games, the swarm of hurdles that arise when porting to an unknown platform can lead to death by a thousand cuts. Release delays, lost momentum, or even depleting resources can doom the project if they're not handled correctly.

Having the right kind of technical prowess is one of the most important aspects of game development for these kinds of tasks. Knowledge is power when time and money are of the essence. You'll need to combine game design and technical creativity to overcome obstacles in both development fields at the same time.

Don't be too discouraged if you push the boundaries of your experience to the limit. It's important to remember there are always knowledgeable industry partners who can help you with the porting process.

One example is Unity Professional Services, which provides the top-to-bottom expertise required to ensure that your Switch port project is relatively painless. There are various consulting options available for those who want help, ranging from minimal top-up help to a more complete, hands-on approach to analyzing your project and optimizing its performance. Some of the advantages of turning to Unity Professional Services include harnessing Unity's relationships with hardware and software partners, the depth of the technical support they provide, and their considerable experience porting games to Switch.

These services bring you an unparalleled level of familiarity via programmers, technical artists, and others who have foundational expertise with the platform. Whether you're stuck at the conceptual stage or struggling to cross the finish line, Unity is ready to have your back by leveraging best practices to reduce risk and accelerate development.

Image from *PHOGS!*, by Coatsink – Made with Unity

Unlocking new opportunities

No matter how many times you go back to the drawing board, it's always worth remembering that everyone encounters challenges when porting their game to the Nintendo Switch. The sales data overwhelmingly show that it's worth the hassle, though, as the platform continues to grow its user base and blow away the competition.

Sure, there might be new technical limitations to consider, but time and time again, third-party developers have crafted uniquely stylized identities on the platform without making major sacrifices to their design ideas. Whether you tough it out on your own or level up with Unity Professional Services to get the upper hand, the best time to develop for the Nintendo Switch is right now.

If you're still on the fence, make sure to connect with our team directly to have your porting questions answered by Unity experts.

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