

Telecommunications, Media, and Technology

Development drivers: Third-party engines and mobile gaming

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A tiny but key component in the massive mobile gaming industry, game engines enable rapid innovation. Deciding on a third-party engine entails a range of factors.

Worldwide, the total third-party game engine market was worth about \$130 million in 2013—an amount dwarfed by the \$13 billion collected by the mobile gaming industry that same year. While overshadowed by the more flashy and fun-filled elements of the gaming ecosystem, game engine companies nonetheless play an indispensable role. A critical building block in creating new games, game engine software enables developers to build 2-D and 3-D graphics, animation, sound, “collision response,” and other elements into their games. Compared with in-house solutions, third-party engines offer ready-built features and functions that can greatly reduce development cost and time in a market where speed is critical.

Third-party engines in the mobile gaming landscape

Third-party game engines can deliver game developers graphics and other creation tools. Looking at the top 1,000 free gaming apps, developers turn to third-party engines for nearly 40 percent of the mobile gaming apps they build (Exhibit 1). Among the top 100 grossing game apps, two types of third-party engines predominate.

Unity. For the top-grossing 3-D games, Unity is clearly the dominant choice for third-party engines. Of the big-four gaming markets—South Korea, Japan, the US, and China—South Korea and Japan are home to a significant share of 3-D games. In South Korea, more than one-third of the top-grossing games are 3-D, making Unity a dominant force in that market. Unity is also preferred by many who develop 2-D games.

Cocos variants. A preference for Cocos-based engines is apparent in the 2-D space along with

its two variants Cocos2d (for iOS) and Cocos2d-x (supporting multiple platforms). Unlike in South Korea and Japan, the Cocos variants lead the market in China, since only six of the top-100 grossing apps are 3-D games. It will be interesting to see how this trend unfolds as handsets become more powerful, enabling a greater number of 3-D-based games.

Given its influence on the overall gaming scene, a conservative projection puts the annual growth of the third-party game engine industry at 21 percent through 2016. A scenario in which growth of 36 percent is also quite possible (Exhibit 2).

Choosing a third-party game engine

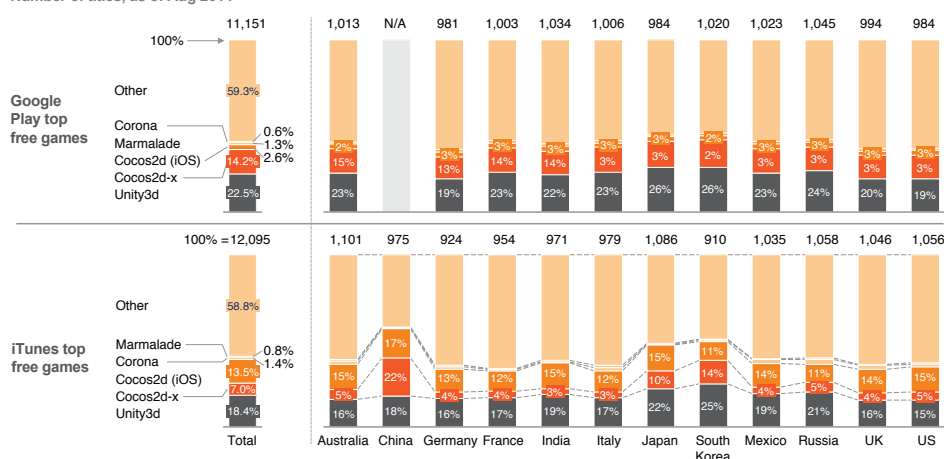
While two engines dominate the industry and their deployment most starkly falls along the 3-D/2-D divide, there are actually several engines to choose from and a host of factors that should guide a developer’s decision. Specifically, developers should consider seven main factors when choosing game engines—both from the product fit/support angle as well as from the capability angle.

Knowledge availability. Is the programming team skilled in using the specific game engine? Are there resources to train developers and troubleshoot? Familiarity can help a developer save time and skip over the learning period that comes with using a new engine.

Support and community. What kind of support does the engine provide developers? How quickly can they fix bugs when discovered? For independent developers, it is important to have self-support tools and a vibrant community surrounding the engine.

About 40 percent of the top free games apps are created using third-party engines

Worldwide engine market share
Number of titles, as of Aug 2014



Source: McKinsey analysis based on data from SourceDNA

Exhibit 1

Genre and features required for the game. Do the features of the engine meet game requirements—graphics and technical requirements, for example? Some engines are more well-known for supporting the development of specific game genres. Unreal's engine, for instance, does very well in racing and shooting games. As mentioned above, the 2-D versus 3-D requirement is also a major differentiator when it comes to choosing an engine.

Engine compatibility and source code availability. What is the engine's ability to adopt plug-in and work with other in-house systems, such as sound engines? What third-party add-in support and customization is required? Does the engine support multiple platforms? If so, how easy is it to port from platform to platform? More advanced developers will typically seek a full source code arrangement so that they can tweak and make changes to the code as required.

Company product vision. Is the engine's development trajectory aligned with the direction the developer wants to take the games in the future? The engine may meet the developer's current

needs, but is it clear that there will be learning opportunities going forward? Some developers take a game-by-game approach but neglect to take the longer-term view of whether they buy into the future road map of the game engine. Getting the alignment question right early on in the process is important, because once a team has become familiar with an engine, the cost of switching to another one can be significant.

Development team size. Another consideration in selecting a third-party engine is development team dynamics. How large is the team? How will the work flow within the team for this particular project? Unity, for example, is known for working well in small-team, iteration-driven development environments, whereas Unreal is known to be well suited for very large development teams.

Cost. What is the licensing fee for the engine given the size of the development? For small developers, the cost has been reduced across the board recently so the difference may be getting smaller. For large studios, however, the cost of licensing an engine—especially when source-code licensing

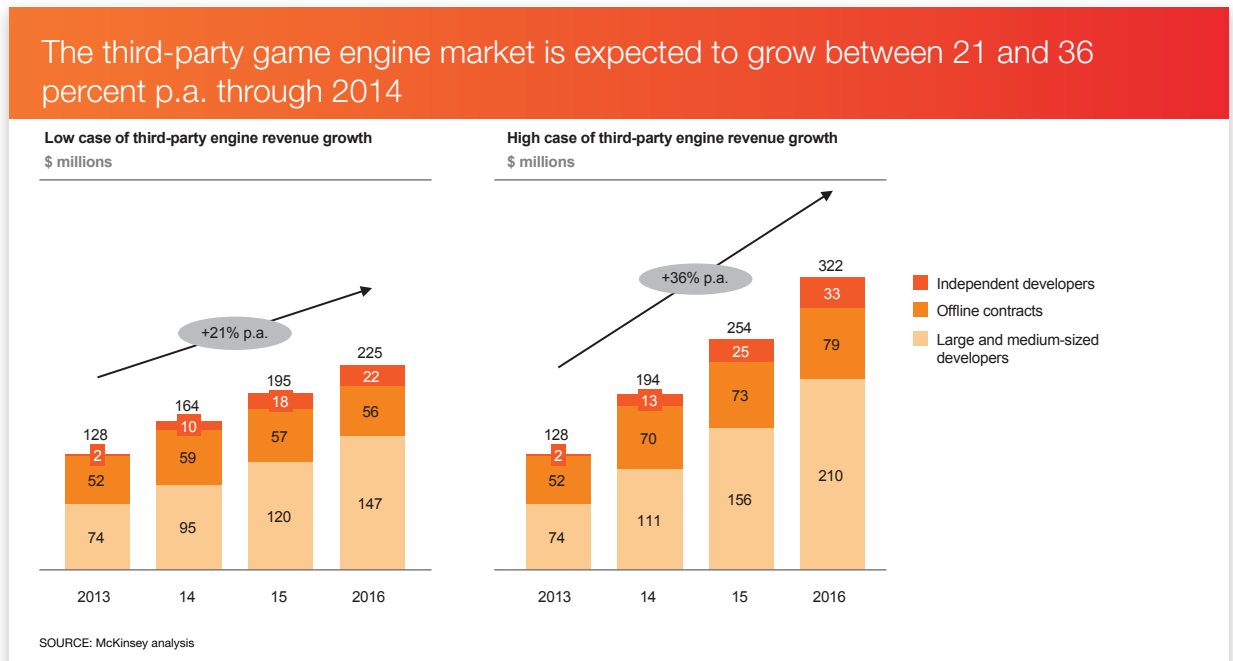


Exhibit 2

is a requirement—can be a major swing factor in choosing the engine.



The industry is looking at strong growth as the overall mobile game market continues to expand. Third-party mobile game engines can give developers the benefits of speed and cost efficiency. Considering a range of factors will help developers in choosing the right third-party game engine.



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