New study on freemium marketing strategies demonstrates their limits for creating revenue

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Freemium strategies dominate software product markets, with many if not most applications enticing new users with a free version, then requiring payment for more advanced features. The strategy thrives at attracting users, but there's very little empirical evidence showing how it impacts a company's bottom line. New research published in the *Strategic Management Journal* in November changes that, with data that suggests this oft-used tactic has its limits for generating revenue, especially for companies trailing in their market category.

"Freemium strategies often seem like a natural way of exploiting a network effect," says Kevin J. Boudreau, an associate professor of entrepreneurship and innovation at Northeastern University, and one of the study's authors. "By offering a free version, companies may be able to increase the size of their user base. But in order for a company to use the freemium model to increase revenue, they have to gain enough of a network advantage to tip the market."

Boudreau, along with co-author Lars Bo Jeppesen of Copenhagen Business School and corresponding author Milan Miric of the University of Southern California, created an empirical study using Apple's launch of the Game Center in 2010 and its effect on 485 gaming app market categories. Like almost all app categories, the gaming apps already existed in centralized markets, with leaders capturing 40% of all revenue in their app category, and second-ranked followers only 17%.

The new Game Center introduced strong network effects to the market with multiplayer and interactive features. To better compete amidst the network effects, many apps shifted to a freemium model with their next product update, 70 days later. Researchers used this window, combined with 70 days before Game Center hit the market, to investigate how the freemium strategies performed. Their analysis included public data on more than 1.4 million mobile apps and proprietary data from a marketing analytics company to categorize the apps and identify market leaders and followers.

"Although a sample of 140 days may not seem a long time in conventional industries, app markets are particularly dynamic," says Jeppesen, a professor of innovation management. "On average, a market category would undergo dozens of leadership changes within this short time window."

The authors used Apple's daily list of top 500 apps in sales and downloads to approximate revenue, using an established method that incorporates revenue ranking, prices and download ranking. They found using freemium strategies in markets with strong network effects widened the already large revenue gap between leaders and followers by 55%. Leaders gained ground and second-ranked followers lost it.

"Our results show that freemium strategies can lead to drastically different outcomes for market leaders and followers in markets with strong network effects," says Miric, an assistant professor of data sciences and operations. "Network effects had no impact on products that were paid-only, but greatly amplified leaders' advantages where freemium strategies are used."

The study's data suggests that freemium models and network effects are not always mutually beneficial, as many software companies believe. Companies that do not lead their market ultimately suffer when both are at play, and the market itself also suffers since competition and innovation ultimately decrease.

More information: Kevin J. Boudreau et al, Competing on freemium: Digital competition with network effects, *Strategic Management Journal* (2021). DOI: 10.1002/smj.3366

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