



Slots Design Report

Competitive Research and Data Insights for Slots Designers

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JULY

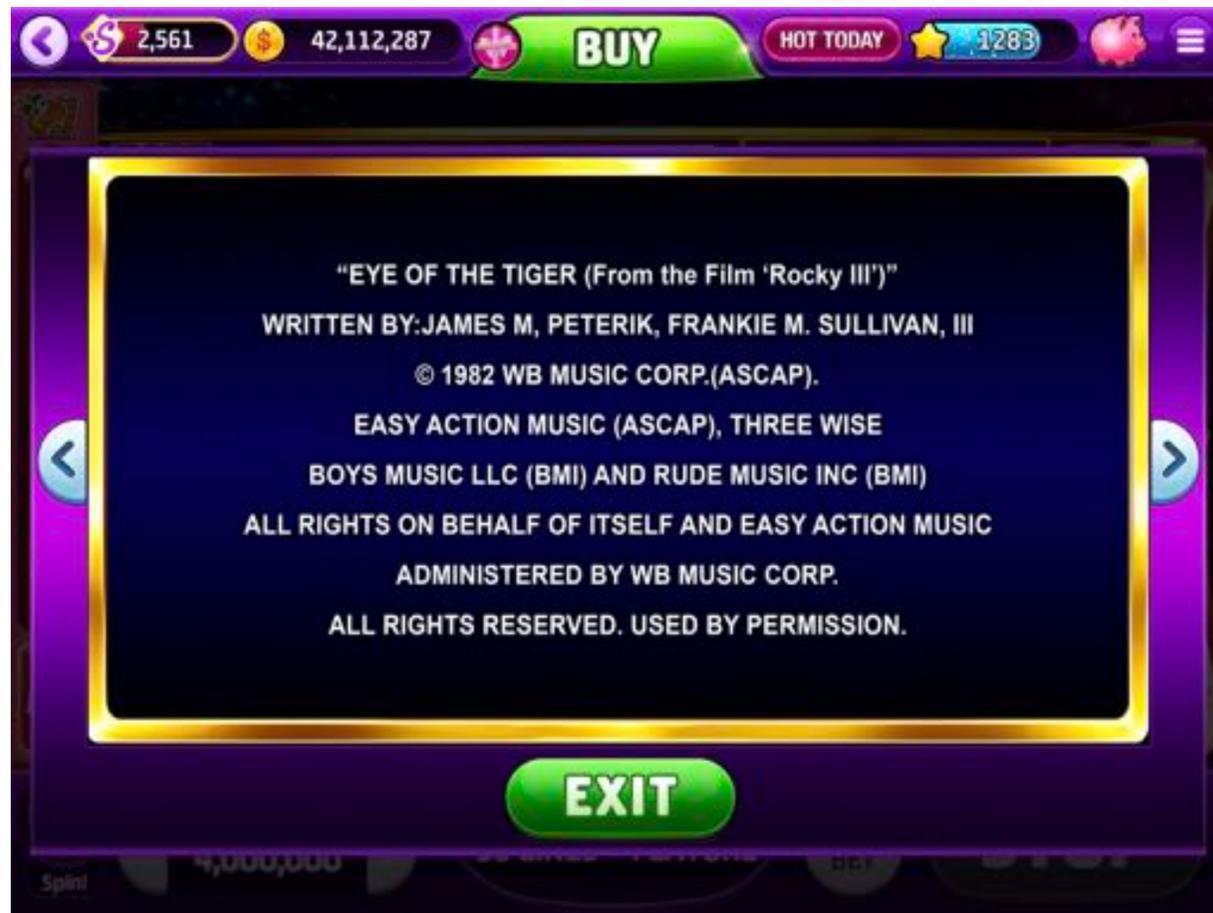
2018

STRATEGY INSIGHTS



SOUNDTRACK IP

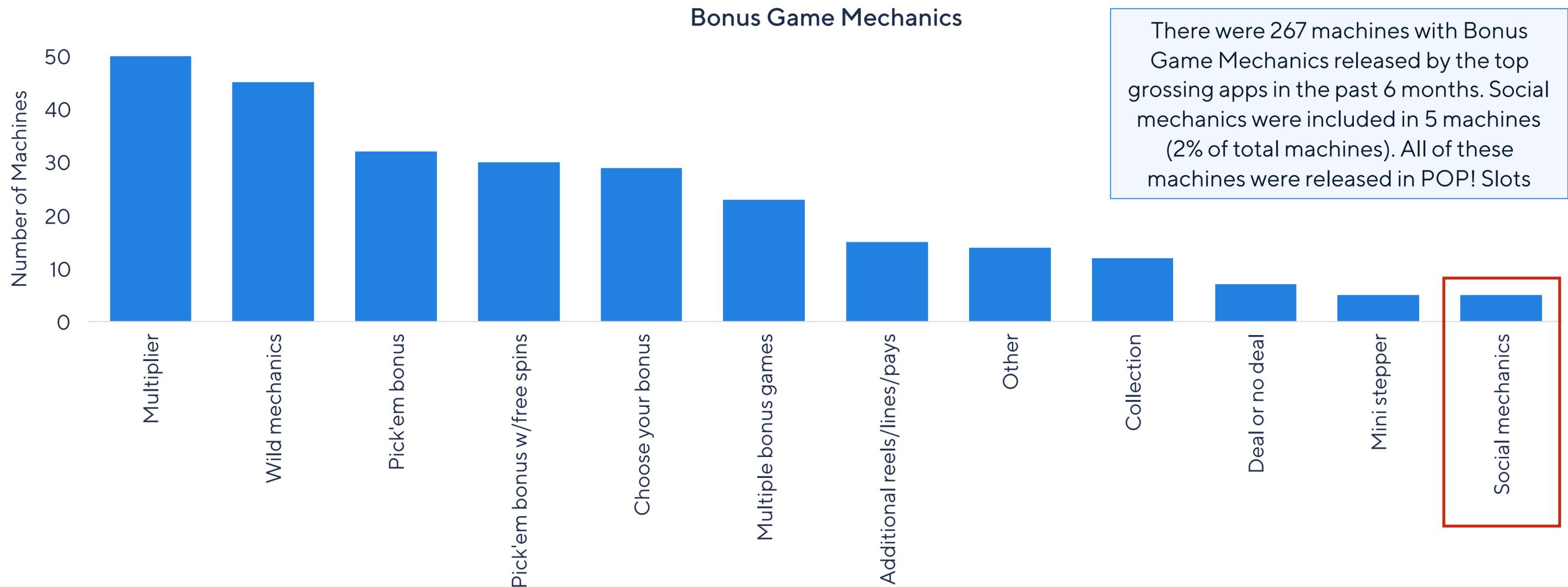
Slotomania combined the famous *Eye of the Tiger* song from Rocky III with more traditional slots sound effects to generate a strong emotional response with licensed, sentimental music in *Rise of the Tiger* (without paying for the full movie IP license)



[Click here to listen to *Rise of the Tiger*](#)

SOCIAL BONUSES

POP! Slots remains the only top grossing app to combine social bonuses with player interactions (Huuuge and Big Fish have machines with only social reward mechanics). Consider a social, symbiotic bonus game mechanic so players can share their winning experiences with others. This is a fundamental reason why many people visit Las Vegas



NEW INNOVATIONS



CROP MECHANICS

MECHANIC ANALYSIS

Caesars Slots *Farming Fortunes* combines a collection feature with a *Crop* mechanic to unlock multiple bonus games

Feature Explanation

- During base play, *Water Droplets* are randomly awarded on any symbol (1)
- Players can press an *Upgrade* button for additional mid- or high-range bets to increase the *Droplets* awarded (2)
- Once a player accumulates 25 *Droplets*, the *Crop Plot* unlocks and an arrow appears above the plot (3)
- Clicking the *Crop Plot* takes players to a pick'em board where they may unlock *Veggies* and coins by spending *Droplets*. Players must then spin to harvest the *Veggies* (4)
- Players then trade in *Harvested Veggies* to play 1 of 3 bonus games (5)
- The bonus games are: a pick'em game for coins, a bonus wheel, and a goal based pick'em (6)

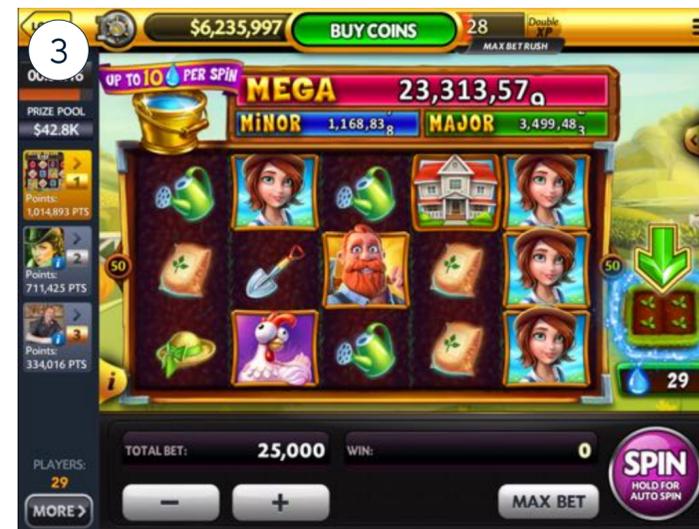
Additional Information

- Release: 6/20/18
- Target Player: Night-Out Nancy

Related Mechanics

- [Monster Treasure](#) - Caesars Slots
- [Gummy King 2 GummyLand](#) - House of Fun
- [Winning Streak](#) - POP! Slots (event)

[Click here for more images and videos](#)



IMPLEMENTATION INSIGHTS

Incorporating metagame features into slot machine design has become a proven tactic in the social mobile space. The depth of metagame integration is still unknown

Key Takeaways

- Once a metagame feature shows strong results, make a larger investment to develop a machine (or potentially stand-alone app) with extended complexity to keep players invested for months
- To decrease risk, build the machine in stages. For this example, Caesars Slots could build a *Garden*, and eventually a *Farm* ... drawing inspiration from farming apps

RMG Math Consultant Analysis

- The collection feature provokes a responsibility and caring instinct that makes players *feel* an emotional and moral obligation to take care of their crop. Consider increasing the chance of planting new crops (relative to the time it takes to grow one to completion) so that players are more likely to have multiple patches growing concurrently with different harvest times
- The number of *Veggies* (price) of each bonus type varies. Although there is no explanation of how this price impacts the bonus game, *thrifty players* will try to identify the bonus game with the best bargain, allowing players to *feel* like they are making strategic decisions
- The bidding bonus game is unique: players collect *Points* instead of *Credits* and need a particular score to advance each round. The payout is a function of the total *Points* won within a certain range of *Points*. This hits on a key principle of game design: minor player decisions should lead to big reward differences ... creating an “*oh, so close!*” moment
- The 3 different bonus games appeal to *completionists* and let players choose their preferred bonus frequency



FREE SPIN WILDS

MECHANIC ANALYSIS

The free spins in DoubleU Casino *Inferno Empress* are retriggered with a collection mechanic. During the free spins, Sticky Wilds stack, starting with the bottom of reel 5 and working backwards

Feature Explanation

- During base play, landing 6 *Ruby* symbols triggers 15 free spins (1)
- *Rubies* are also collected during free spins (2)
- Every 3 *Rubies* collected during free spins awards an additional free spin *and* a Sticky Wild (3)
- The Sticky Wilds stack, working backwards from the bottom of reel 5 until the bonus concludes (4)

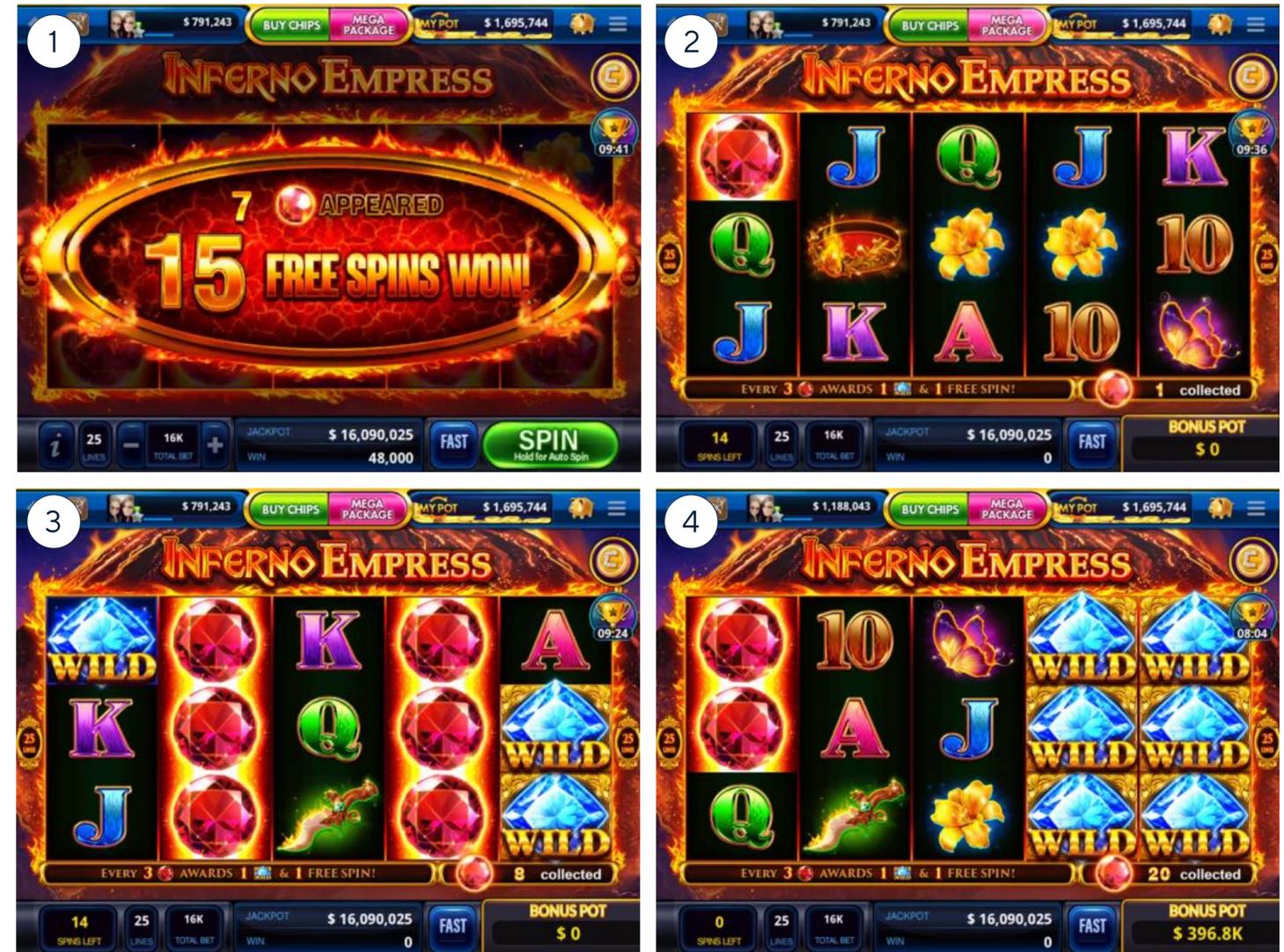
Additional Information

- Release: 6/14/18
- Target Player: Plain Jane

Related Mechanics

- [Elves Workshop](#) - DoubleU Casino
- [Michael Jackson Leave Me Alone](#) - Jackpot Party
- [Camelot Cash](#) - Huuuge Casino

[Click here for more images and videos](#)



IMPLEMENTATION INSIGHTS

Utilize a collection mechanic with stacking Sticky Wilds to create anticipation and build excitement during free spins

Key Takeaways

- Adding wilds to the last reel creates anticipation with every spin (a mechanic made famous in the 3 x 3 *Wheel of Fortune* slot machine). Players must wait until the last reel completes before earning their full prize
- Stacking Sticky Wilds on top of one another builds the excitement level throughout the free spins, so the last spins are the most rewarding. Incorporate this mechanic into base play in order to increase spins-per-session
- Consider extending the reels upward during the free spins to increase the potential Sticky Wilds awarded, while still maintaining the same free spins RTP

RMG Math Consultant Analysis

- The value-per-spin increases during play, producing great drama and excitement, while the chance to retrigger diminishes. This is exactly what you want out of a free spin feature
- This feature is easy to understand as it takes familiar game elements and merges them in a novel way. Then, the symbols are clearly labeled with *Wild*, *Jackpot*, and *+1 Free Spin*
- This game is aimed at action-genre moviegoers who want to watch an adventure unfold (while not actively participating). To increase suspense, adventurous music with dramatic crescendos are added



REEL CONFIGURATIONS

MECHANIC ANALYSIS

Quick Hit Slots *Tetris Super Jackpots* melds the Tetris IP into the theme, base game reel configuration, and number of spins/multipliers in the free spins

Feature Explanation

- The *Tetromino* feature can activate on any spin (1)
- When activated, 1 or 2 *Tetrominos* randomly land on, or above, the reels (2)
- *Tetrominos* are replaced with symbols for that spin (3)
- During free spins with an expanded reel set:
 - A win generates a *Tetromino*, which falls on top of the reels (4)
 - A bet multiplier is awarded when rows are cleared (5)
 - Free spins continue until a *Tetromino* hits the top of the reel set (6)

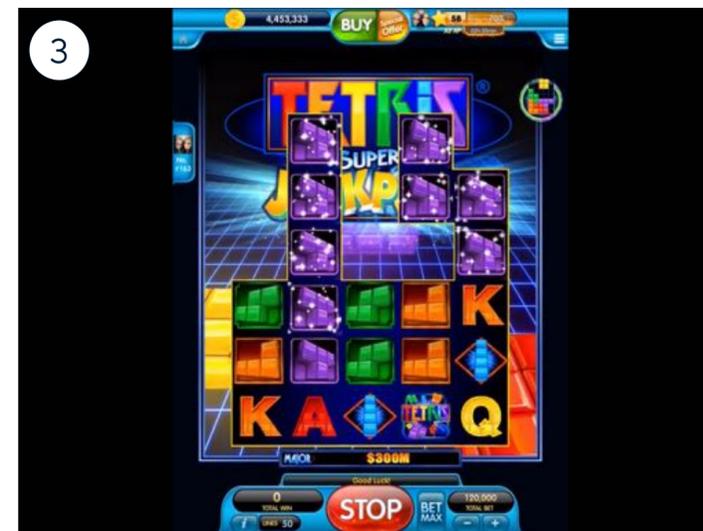
Additional Information

- Release: 5/29/18
- Target Player: Entertain-Me Eddie

Related Mechanics

- [Pac-Man](#) - Big Fish Casino
- [Atari Pong](#) - Pariplay
- [Battleship](#) - Jackpot Party

[Click here for more images and videos](#)



IMPLEMENTATION INSIGHTS

Release more dynamic reel configurations as both machine design elements and mini game mechanics

Key Takeaways

- Mechanics that form unique reel set configurations during free spins are trending. Quick Hit Slots also recently released [Quick Hit Ultra Pays Sun Dragon](#), a machine that forms different reel set configurations based on pick'em rewards
- These types of reel mechanics are best suited for portrait-layout machines. Compare *Tetris Super Jackpots* with *Hot Zones* in landscape mode in [Playboy Hot Zone](#)
- Consider incorporating additional arrays, e.g., building the reel set *upward* and *outward*

RMG Math Consultant Analysis

- In the free spins, requiring a winning spin to generate *Tetromino* pieces is a great way to guarantee the free spin will pay reasonably well
- The free spin has an open-ended length controlled by the Tetris game as an overlay. This might be a little 'out there' ... so the game has a learning curve for players to overcome
- The more universal the IP, the more novelty the game design mechanics can adopt (and vice versa)
- Although many games have recently added extra cells to create larger, complicated wins ... this is a novel approach



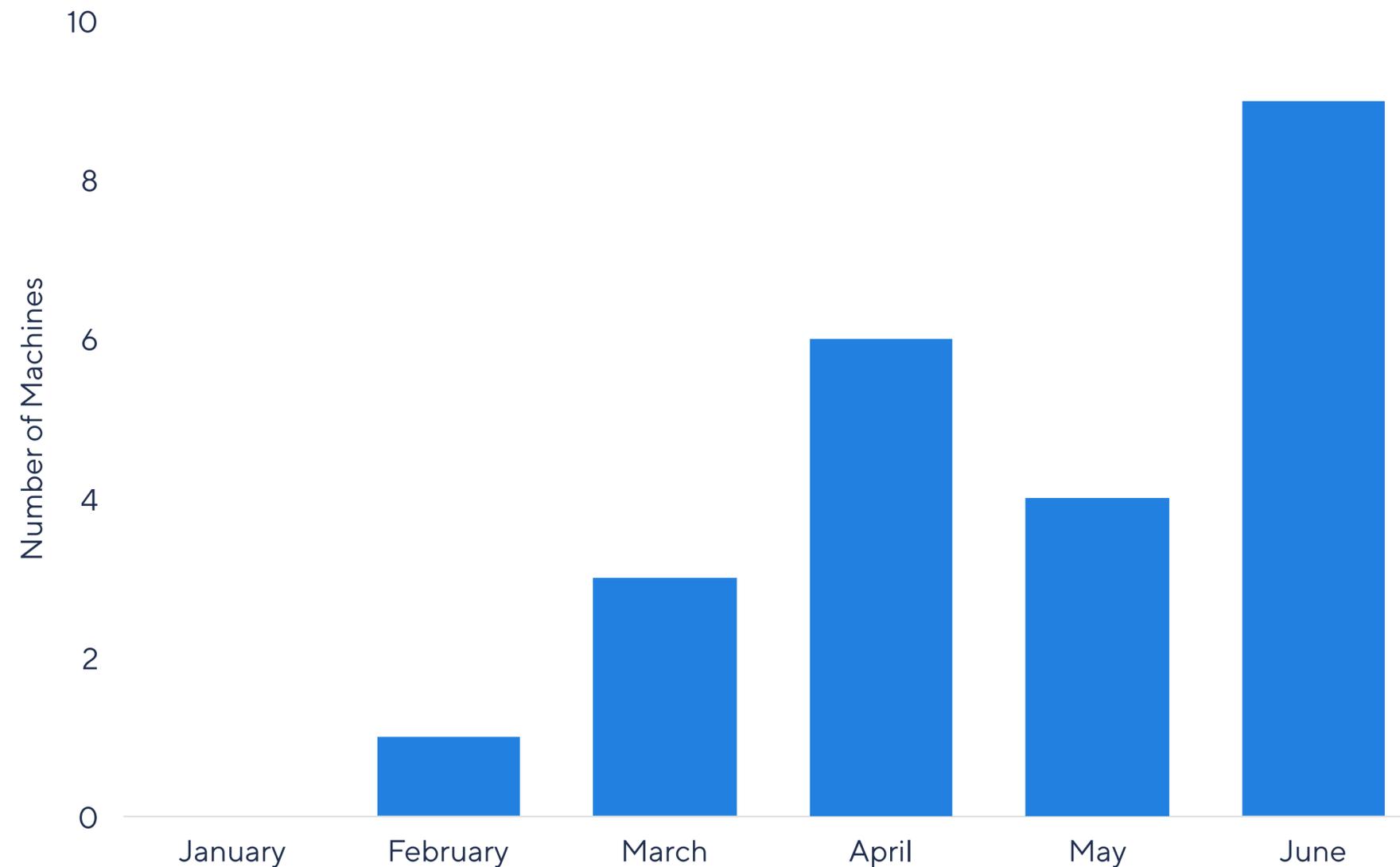
UPCOMING TRENDS



BONUS GAME FEATURES

Bonus Game Multipliers are trending in Featured Apps, with 9 machines (39% of total machines) releasing with this type of mechanic in June

Bonus Game Multiplier Machines



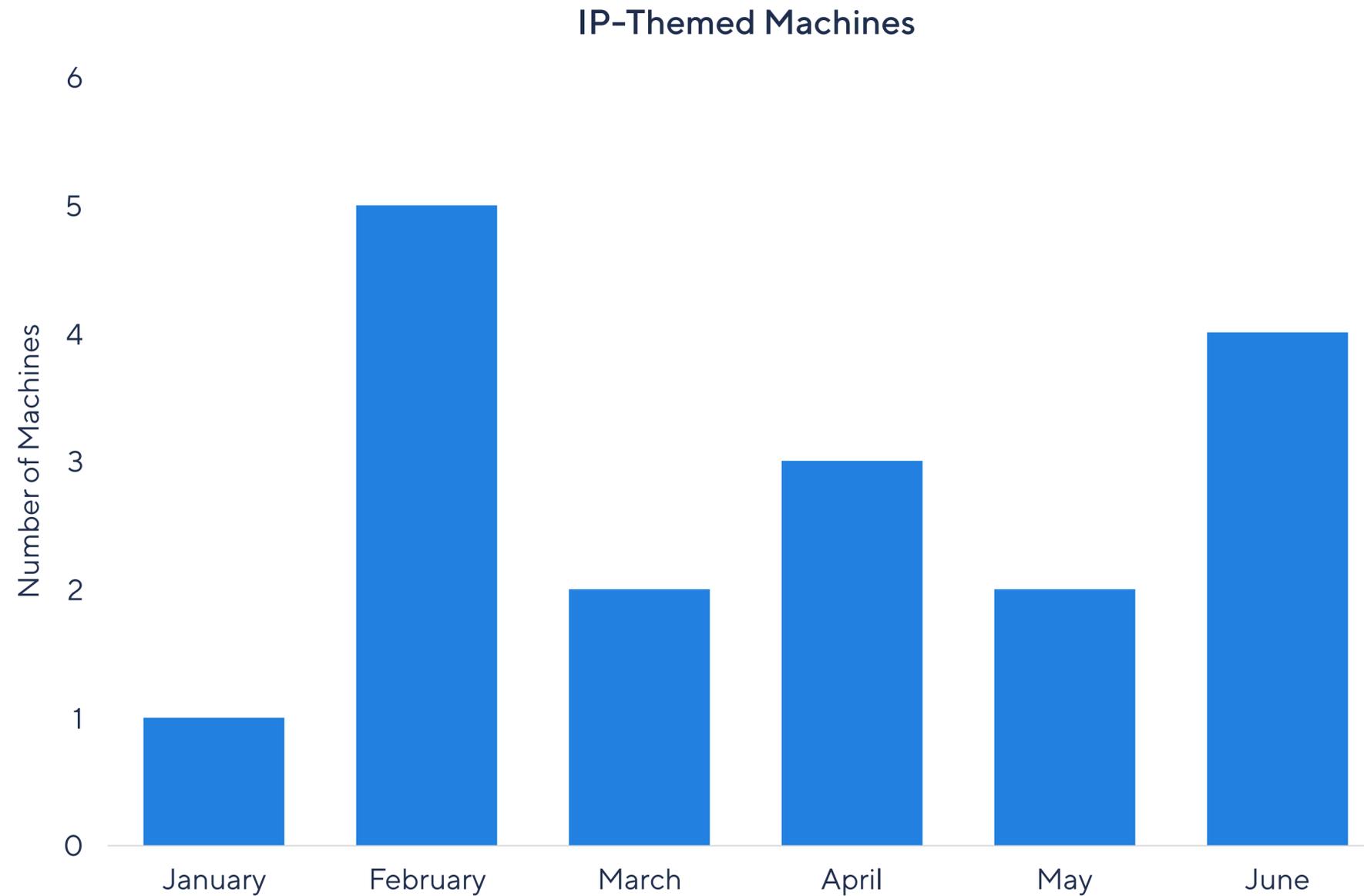
[Big 5 Safari](#) DoubleDown Casino



[Ghost Mansion](#) DoubleU Casino

THEMES

Although IP-themed machine releases were up in June, they were still within the expected range



[Tetris Super Jackpots Quick Hit Slots](#)



[Wheel of Fortune Triple Cash DoubleDown Casino](#)

MARKET WATCH



6/1/18 - 6/30/18

NOTABLE RELEASES

Publisher	Machine	Features
Slotomania	Fu Fu Flip	Players choose heads or tails in bonus coin flip rounds. Correctly-called coins remain for another round, while climbing <i>Ladder</i> increments (1)
	SmashOmania	Players spin to collect a fill meter for a <i>Deal or No Deal</i> pick'em bonus (2)
Big Fish Casino	Harvest Fortune	Season symbols activate corresponding <i>Harvest Seasons</i> . Crop symbols that match the activated <i>Season</i> pay double (3)
Cashman Casino	Buffalo Inferno	A 3 x 3 machine with the classic buffalo theme. A minimum bet of 30K is required to unlock the bonus wheel feature
Huuuge Casino	Luxor Treasures Gods of the Desert Lions of Beijing Chinatown Fortunes	<i>Lightning Link</i> -inspired respin with a Grand Jackpot between 4 select <i>Huuuge Link</i> machines
Hit It Rich!	Wolf Chief	A 6 th multiplier reel is added during free spins
GSN Casino	American Fireworks	In the base and free games, <i>Rocket Wilds</i> landing on reel 3 blast in a random direction, turning symbols into wilds
my KONAMI Slots	Divine Eagles	Retriggering the free spins awards additional retrigger bonuses. The number of bonuses awarded is shown on a meter above the reel set

[Click here for a full list of machines released](#)



APPENDIX



SLOTS PLAYER PERSONAS

	Plain Jane	Night-Out Nancy	Entertain-Me Eddie	Mr. and Mrs. Ricardo
Desire	Utility	Excitement	Multi-Purpose	Relaxation
Motivation	Looking for something to do: kill time and reduce boredom	Wants a buzz: thrill of winning a jackpot, relaxing, and having a good time	Considers machines “lucky” or fun to play	Socialization, have fun, and relieve day-to-day stress
Features for choosing one game over another	Denomination that I want to play	Bet within budget, fun game to play	Fun game to play, good chance of winning	Fun game to play, denomination I want to play
% of machines played with progressives	29%	40%	37%	25%
Player Income	Medium-high	High	Low	Medium-low
% female	54%	59%	45%	49%
Size of group	19%	28%	27%	26%

DATA COLLECTION PROCESS

Recommendations, information, and data come from market research, app intelligence tools, industry consultants, and a deep analysis of the games

Data

- The RTP range is found using a sample of 10,000 spins, which is approximately 20 hours of play
- To find the RTP range with 90% confidence, the median payout of the 10K spin +/- (standard error) x (z-score for 90% confidence) is calculated
- The standard error is (standard deviation) / square root of sample size and the zscore for 90% confidence is 1.65
- For example, the median payout for *Zombie Prom* after 10K spins was 103% with a standard deviation of 3.3
- The standard error is 3.3/(square root of 10,000), which equals 3.3%
- The RTP range for *Zombie Prom* is then 103% +/- (1.65 x 3.3%)
- Based on this sample, the result is a 90% confidence that the real RTP of *Zombie Prom* falls between 97% and 109%
- The volatility is the standard deviation, expressed in Excel as =STDEV(A1:A10001), of the 10K payouts. Payouts are in the form of multiples of bet

Research

- Each game is reviewed daily for updates, regardless of whether the game has been updated through the App Store
- Transaction information comes from the iOS App Store's In-App Purchases tab. These transactions are ranked based on the number of transactions
- Las Vegas player insights come from online sources, such as the Las Vegas Convention and Visitors Authority, and the UNLV Center for Gaming Research
- Progressive jackpot information comes from online research
- Trending revenue, downloads, and package-rank data come from Priori Data, a Liquid and Grit partner

“The artist is a receptacle for emotions that come from all over the place: from the sky, from the earth, from a scrap of paper, from a passing shape, from a spider’s web.”

– Pablo Picasso

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