



Slots Design Report

Competitive Research and Data Insights for Slots Designers

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AUGUST

2018

STRATEGY INSIGHTS



WELLNESS CONTROLS

App usage control settings are coming this Fall in iOS 12. EU RMG Mobile Casinos already have *Reality Checks* due to regulations. Think long-term and test in-app wellness controls, like DoubleU Casino has with recent bet warnings

Apple will release time limit controls (1 & 2). The EU RMG Mobile Casino regulation enforces *Reality Checks* to promote healthy player engagement (3). DoubleU Casino notifies players attempting aggressive bets with a warning "Too high bet for you! Please play carefully!"(4)

More Information

- [Apple iOS 12 New Features](#)
- [EU RMG Mobile Casino Reality Checks](#)
- [Reality Checks in a Machine](#)
- [Reality Checks Settings Control](#)

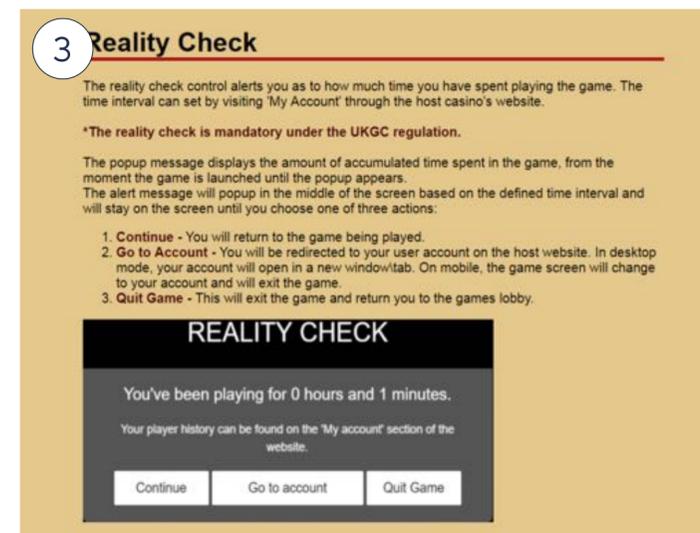
Screen Time Summary in iOS 12



'Downtime' turns off notifications and select apps in iOS 12



EU RMG Mobile Casino *Reality Checks* popup information



DoubleU Casino *High Roller* bet notification warning



NEW INNOVATIONS



RESPINS TO PICK 'EM

MECHANIC ANALYSIS

Wizard of Oz and House of Fun released an evolution of *Lightning Link* with a pick 'em bonus after respins

Detailed Information: Wizard of Oz *Lullabies and Lollypops*

- The *Lock & Pick* feature is triggered when 6 or more *Pick* symbols land (1)
- Players are awarded 3 respins with locking symbols. Any additional *Pick* symbols landing resets the number of respins to 3 (2)
- At the end of the respins, players pick from symbols collected. Prizes include: credits, multipliers, extra picks, and a jackpot bonus (3)
- The respins feature is available in the base game and free spins (the free spins contains a jackpot)

Detailed Information: House of Fun *Hoppin' Habaneros*

- *Jackpot Respin* initiates when 7 or more *Jackpot* symbols land (4)
- *Jackpot* symbols lock in place and 3 respins are awarded. Landing additional *Jackpot* symbols resets the number of respins to 3 and increases the jackpot level (5)
- When respins end, players pick 3 of the symbols to reveal credits, additional picks, *Heat Up* (increases the value of revealed prizes), *Move Up* (increases the jackpot level), or *Super Habanero* (increases the value of all jackpots) (6)

Additional Information

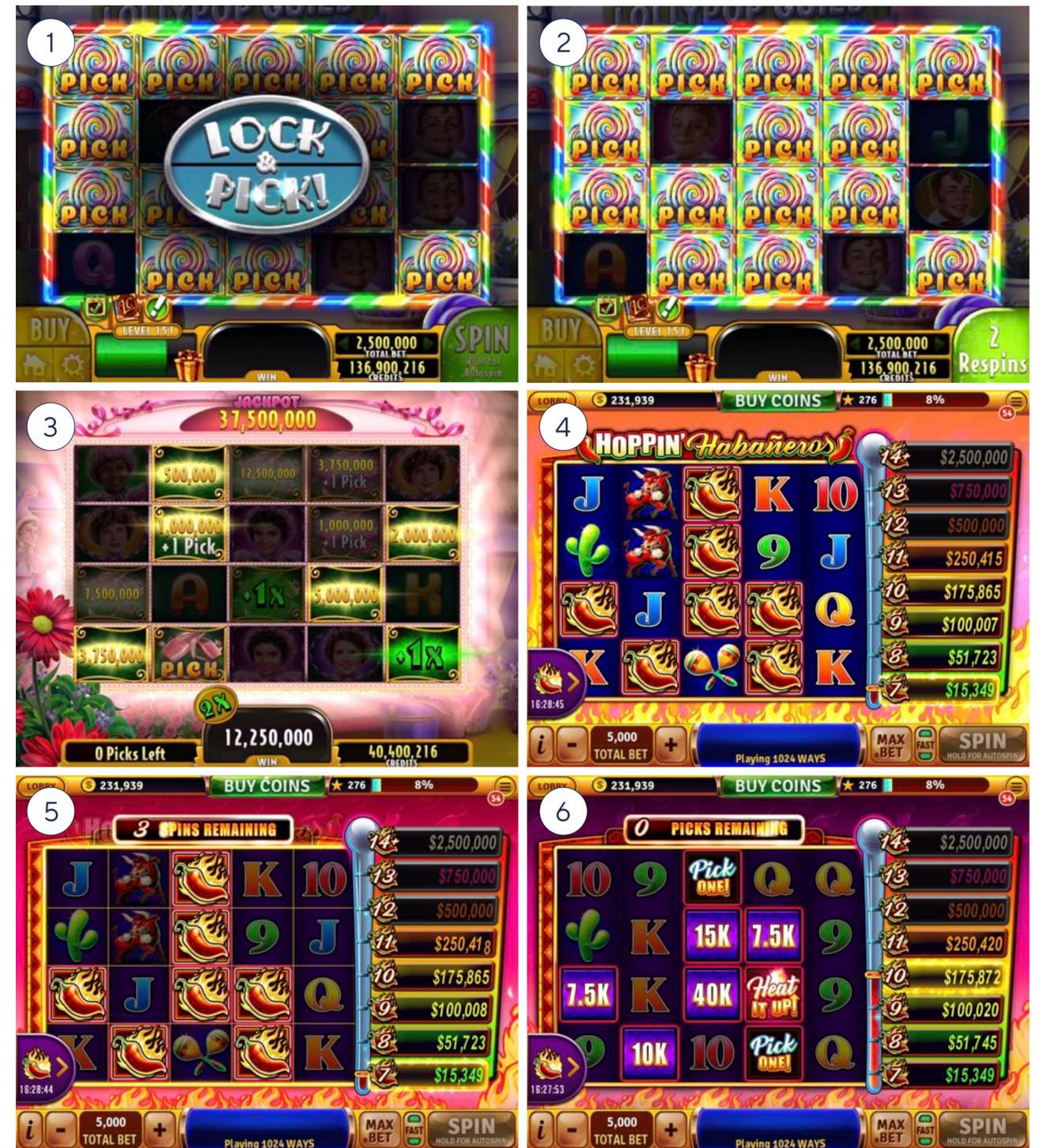
- *Lullabies and Lollypops* release: 7/20/18
- *Hoppin' Habaneros* release: 7/7/18
- Target Players: Entertain-Me Eddie, Night-Out Nancy

Related Machines

- [Clover Isle](#) - Caesars Slots
- [Long John's Loot](#) - Caesars Slots
- [Prince of Sherwood](#) - House of Fun

Variations of *Lightning Link* in July

- [Neptune's Pearls](#) - Caesars Slots
- [Rapid Hit Jackpot](#) - Classic Vegas Casino
- [Ocean of Beauty](#) - Classic Vegas Casino



Click below for more images and videos

[Lullabies and Lollypops](#)

[Hoppin' Habaneros](#)

IMPLEMENTATION INSIGHTS

Key Takeaways

- Monitor average coins sunk-per-day closely when releasing a machine with an extended bonus mechanic. As you increase the time spent on the bonus, coins sunk-per-day may decline. To prevent impactful wallet growth, lower the base game RTP
- Entertain-Me Eddie and Night-Out Nancy player types are more willing to try new mechanics compared to Plain Janes ... so adjust the amount of new concepts introduced based on your player types

Slots Mathematician Expert Analysis

- When emulating a popular RMG mechanic, match volatility to meet your players' expectations. In *Lullabies and Lollypops*, for example, the *Grand Jackpot* is removed from the respins and the jackpot is 15x bet ... much lower than the 100x max credit prize in *Lightning Link* (and even lower than the progressives)
- Tie the number of pick 'em picks to the number of symbols that land during the respins to make the respins more relevant ... and to show players that rarer outcomes lead to larger potential wins
- At the end of the pick 'em, reveal all the symbols to create a *what-could-have-been* moment
- *Hoppin' Habaneros* is an offspring of [Jackpot Inferno](#) from Everi with a couple of enhancements, like *Heat Up* and *Super Habanero*

“The way that the *Lightning Link* mechanic is being used in these machines is evidence that *Lightning Link* is plateauing as a mechanic” - Slots Mathematician Expert



MYSTERY JACKPOT BET-UP

MECHANIC ANALYSIS

A bet-up spin dialogue is randomly triggered during play. Players can opt-in to increase the bet and progressive jackpot win amount

Feature Explanation

- *Big 5 Safari* offers players 5 *Mystery Progressive Jackpots* with the option to switch between 5 different backgrounds (1)
- To trigger the *Mystery Progressive* feature, a combination of 20 matching animal symbols must land (2)
- Once the *Mystery Progressive* is triggered, players are notified that they have a chance to win a *Mystery Progressive* (3)
- Players are awarded any line-based and progressive-based wins (4)
- The *Big 5 Tracker* feature can initiate after any spin. Players are offered a higher bet level to increase the progressive jackpot amount (5)
- Accepting the higher bet level spins the machine with the higher bet and progressive jackpot amount. Choosing to keep the same bet level ends the feature (6)

Additional Information

- Release: 7/3/18
- Target Player: Plain Jane

Related Mechanics

- [Fort Knox](#) - IGT
- [Kingdom of Ra](#) - Novomatic
- [Pirate's Loot](#) - KONAMI

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



IMPLEMENTATION INSIGHTS

Key Takeaways

- Focus your attention on creating *thrilling, gambling-like* moments for Plain Jane player types, who often replace physical casino play with social mobile games and crave *gambling-like* excitement
- After players opt into the higher bet and complete the bet-up feature, give them a two-choice dialogue to: 1) stay at the higher bet, or 2) return to previous bet levels

Slots Mathematician Expert Analysis

- Try this bet-up option for machines where bonus games are *earned* through spinning (e.g., collect 10 icons to trigger a bonus). With each increase in bet amount offered, players must *also* spend more to balance the RTP. This additional bet amount is *actually good*, because it will increase the *thrill* of the bonus game due to the more sizable win/loss potential
- *Big 5 Safari* is an offspring of [Golden Goddess](#) with less stacked symbols ... since players became tired of the stacks in *Golden Goddess*. *Big 5 Safari* leaves out stacks from reel 3 to benefit from the near misses with a variation that players do not easily recognize
- When players hit a blackout screen, they only have a *chance* at the progressive. The beauty of this system is that when a player *does not* win the progressive, which happens most of the time, their consolation prize is still a full screen of symbol pays

“A one time scripted-spin randomly placed in the next 20 spins after the bet-up mechanic could get the player to remain at higher bets” - Slots Mathematician Expert



ANTICIPATION MODE

MECHANIC ANALYSIS

DoubleU Casino *Geisha Secret* locks reels 2, 3, and 4 during the free spins. This triggers a 3-reel wide *anticipation mode* when a scatter or jackpot symbol lands on reel 1

Feature Explanation

- *Geisha Secret* is a video stepper machine with 5 reels, 243 ways to win, and 3 stand-alone progressives (1)
- Players hit a progressive jackpot when 3, 4, or 5 *Golden Cherry Blossom* symbols align on the same row (2)
- *Anticipation* appears any time players are 1 symbol away from triggering a bonus or jackpot (3 & 4)
- Free spins are triggered when 3 scatters land, awarding 10 free spins with reels 2, 3, and 4 linked together (5)
- *Anticipation* appears frequently during free spins:
 - When a *Golden Cherry Blossom* hits on reel 1, a 3-reel wide *anticipation* triggers on reels 2, 3, and 4 (6)
 - When 3 *Golden Cherry Blossoms* hit on the locked reels 2, 3, and 4, an *anticipation* triggers on reel 5

Additional Information

- Release: 7/27/18
- Target Player: Entertain-Me Eddie

Related Mechanics

- [McGraw](#) - Cashman Casino
- [Disco Reels](#) - Huuuge Casino
- [Brides Maids](#) - myVegas Slots

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



IMPLEMENTATION INSIGHTS

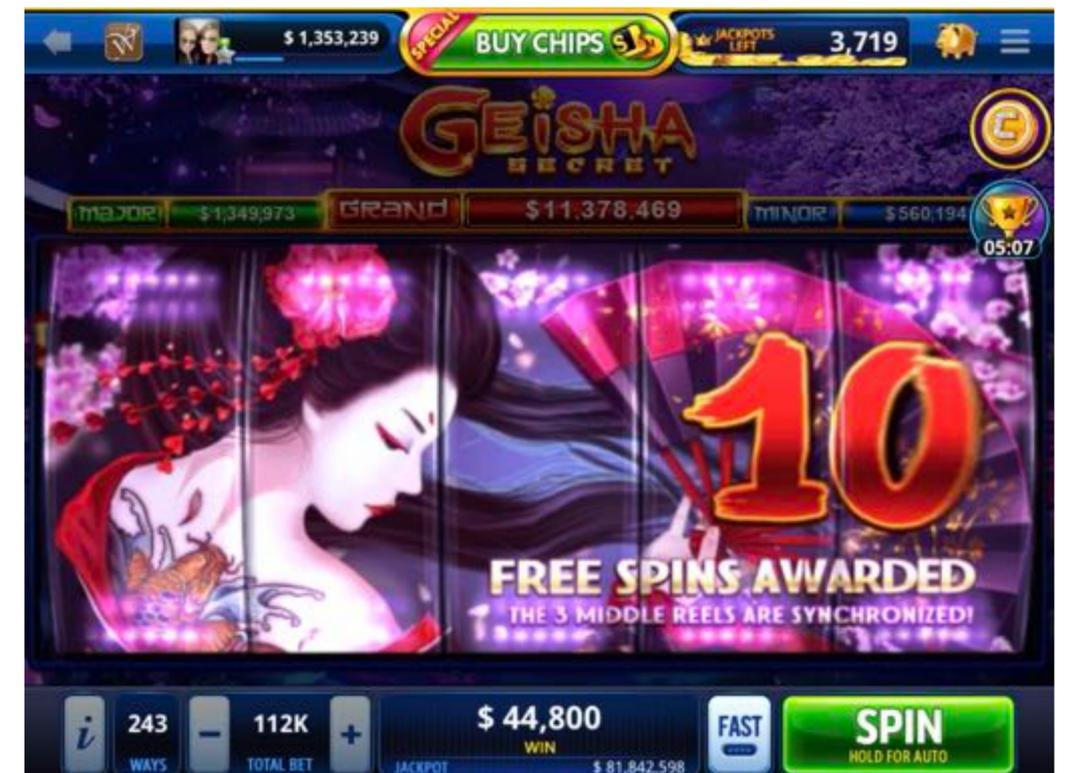
Key Takeaways

- Build an entire machine centered on *anticipation modes*. In this example, the jackpot and scatter symbols are both used to trigger an *anticipation* ... in addition to the locked reels 2, 3, and 4
- The animation and timing of the *anticipation* is critical, so involve the art and design team early in the design process
- Consider making the rest of the machine fairly simple. This will: 1) free up development time and cost to spend on the *anticipation*, and 2) make players yearn the *anticipation*
- To keep players engaged in the machine before an *anticipation* triggers, show the *anticipation* on machine-load. See NetEnt [Starburst](#) machine payable animation as an example of how this might be implemented

Slots Mathematician Expert Analysis

- To add *more* reel-based spinning animations to the base game, review how NetEnt [Twin Spin](#) animates the reels when any set of adjacent reels lock
- Consider slowing down the *anticipation*, as is nicely done in [Aruze stepper machines](#)

“When the locked reels hit *Cherry Blossoms* on reels 2, 3, and 4, the *anticipation* is powerful because it determines the size of the *Cherry Blossom Jackpot* win ... as opposed to *anticipation* that typically determine if there is a win or not” - Slots Mathematician Expert



PROGRESSIVE RTP

MECHANIC ANALYSIS

As players progress in Caesars Slots *King's Throne*, both the progressive jackpot value and major symbols payout increase

Feature Explanation

- At machine-entry, a dialogue explains the collection mechanic and map journey (1)
- *Prize Disks* appear above the reels, rotating between coins, free spins, and the wheel. A *King's Throne* symbol landing awards the corresponding prize (2)
- Triggering the wheel gives players 1 spin for a progressive jackpot (3)
- During play, special symbols are collected to fill the 3 meters to the left (4)
- Filling the meters evolves the special symbols, changing the appearance and increasing payouts for each symbol. Then, a new section of the map unlocks with larger progressive jackpots (5 & 6)
- There are 4 sections of the map. Progressing to *The Castle* section unlocks the highest-paid symbols, progressive jackpots, and a single fill meter (7)
- At *The Castle* level, collecting 175 special symbols fills the meter, unlocking a pick 'em (8)
- Once a player completes the pick 'em, players may fill the meter again for another

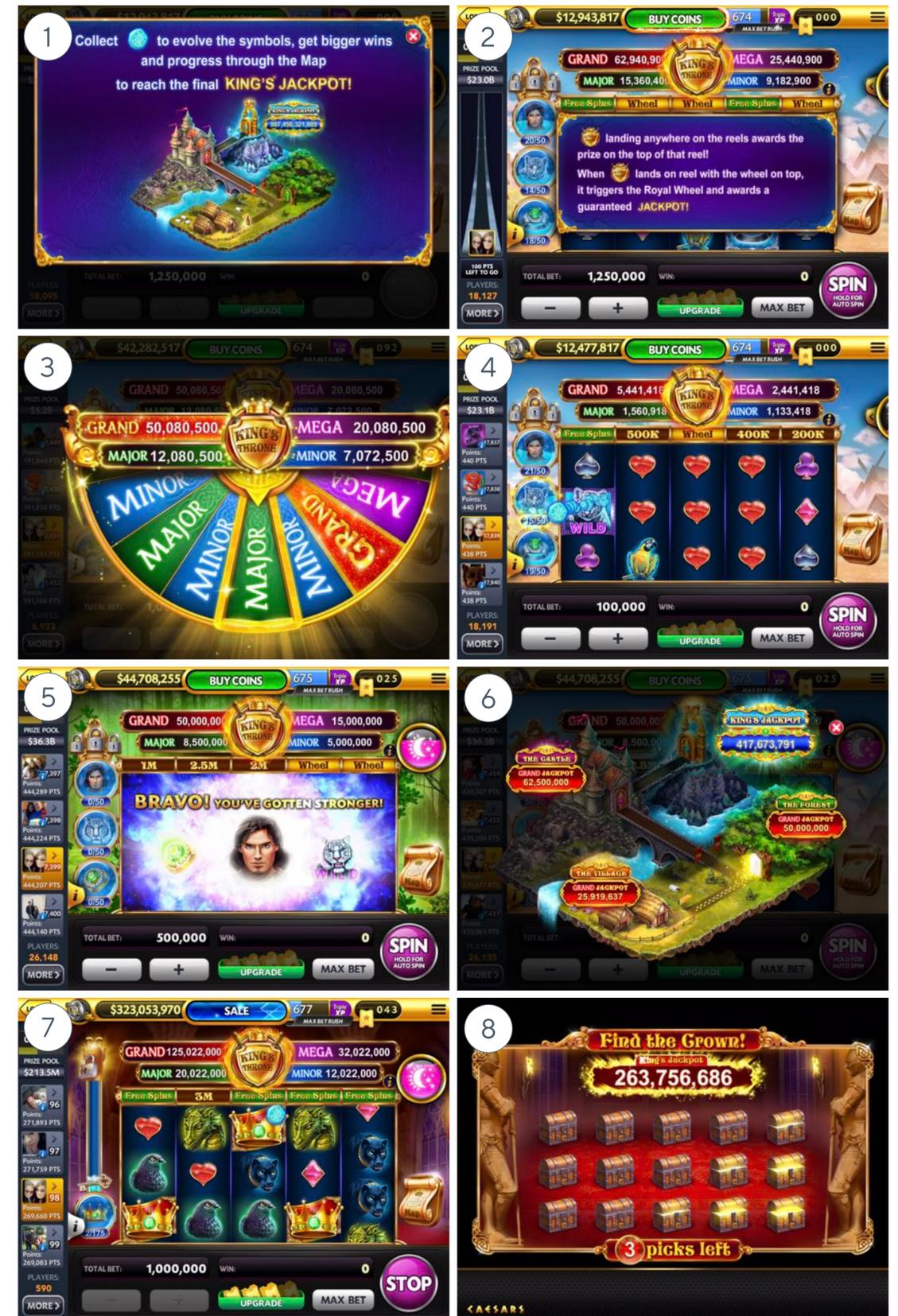
Additional Information

- Release: 7/16/18
- Target Player: Night-Out Nancy

Related Mechanics

- [Crystallomancy](#) - House of Fun
- [Wolf Ridge](#) - IGT
- [Triple Double DaVinci Diamonds](#) - High 5 Games
- [Fortune Gong](#) - IGT

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



IMPLEMENTATION INSIGHTS

Key Takeaways

- Changes in RTP could actually *increase* coins sunk-per-day due to improvements in engagement and retention. RTP adjustments based on engagement is an area of opportunity for social slots designers (over land-based designers)
- Clearly showcase achievements that will positively impact RTP ... even if only by slight amounts (the case with a higher progressive jackpot)

Slots Mathematician Expert Analysis

- No matter how bad a machine is early on, players will want to *finish* and *progress* to experience the improvements, a cornerstone of many social games (like *Idle Tappers* and *Time-Based Progression* games). Preview 'surprise content' to players early in their play to capitalize on this feature
- *King's Throne* is an offspring of [Elephant King](#). The mechanics in both machines work well because it is easy to see wins ... and near misses for big prizes hit smaller prizes

“Be careful not to unintentionally build mechanics that look rigged. In *King's Throne*, the big wins above the reels refresh right before the spin lands, making it feel like the game can change the big win mid-spin. In comparison, in *Elephant King* the big wins move and lock before the reels start spinning, making the output seemingly more on luck” - Slots Mathematician Expert



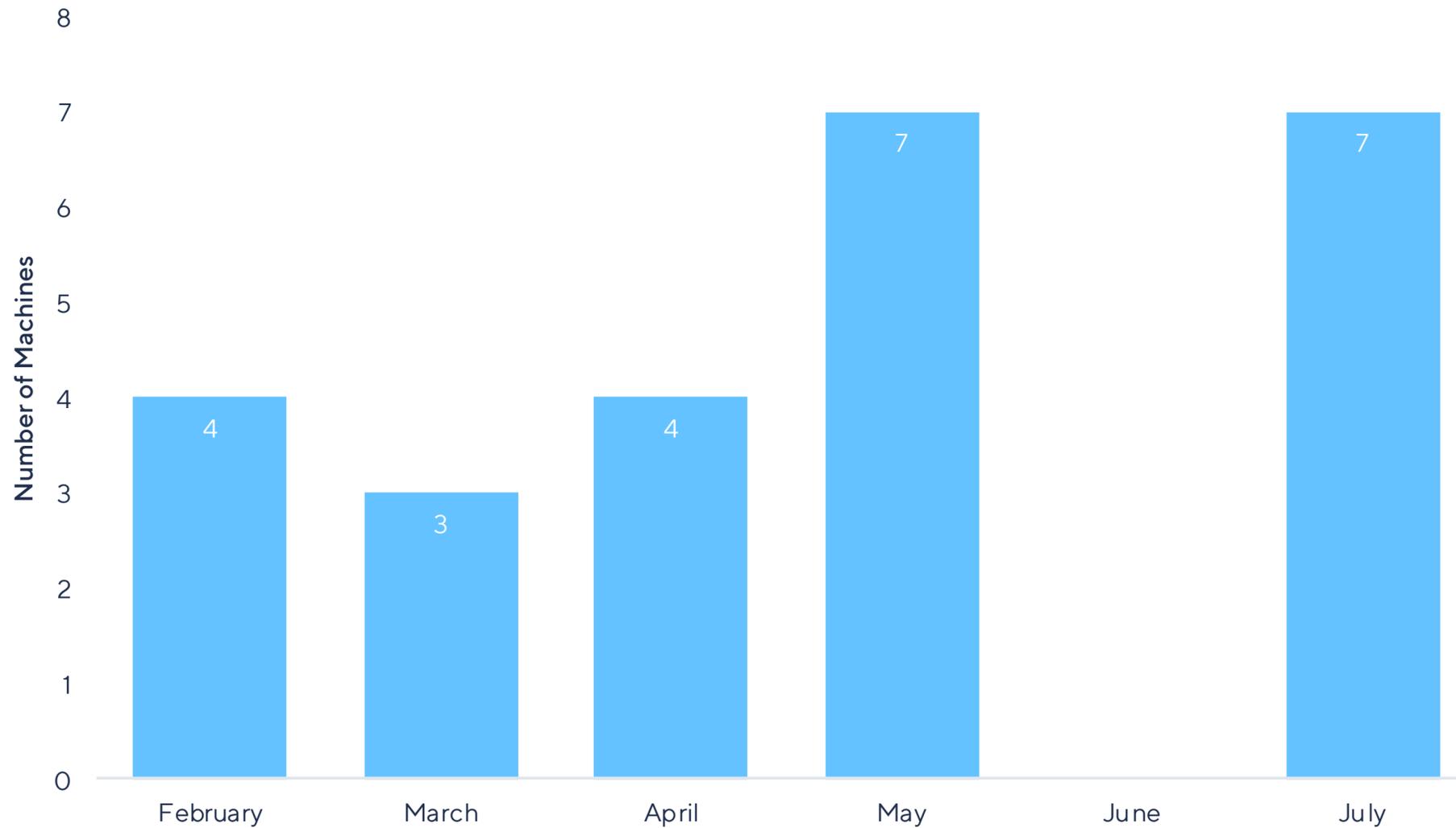
UPCOMING TRENDS



CULTURAL THEMES

Cultural themes spiked recently ... 20% of machines released in Featured Apps in July had a cultural theme

Cultural Themed Machines



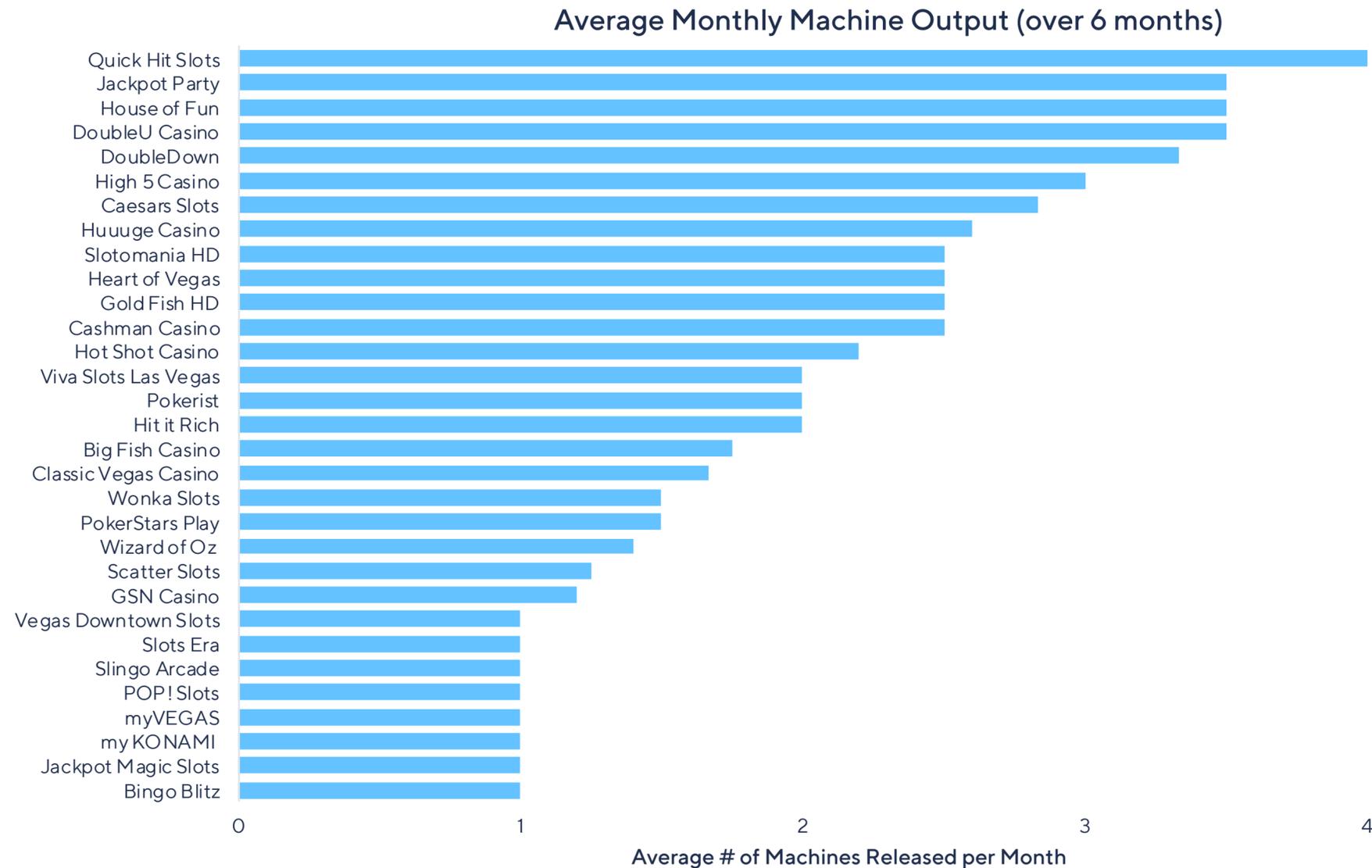
[Hoppin' Habaneros](#) in House of Fun



[Desert Spirit](#) in DoubleDown Casino

MACHINE OUTPUT

Quick Hit Slots continues to lead with 4 machines released per month (the output is erratic with 4, 4, 8, 2, 4, and 2 machines released in the past 6 months)



Acorn Pixie in Quick Hit Slots

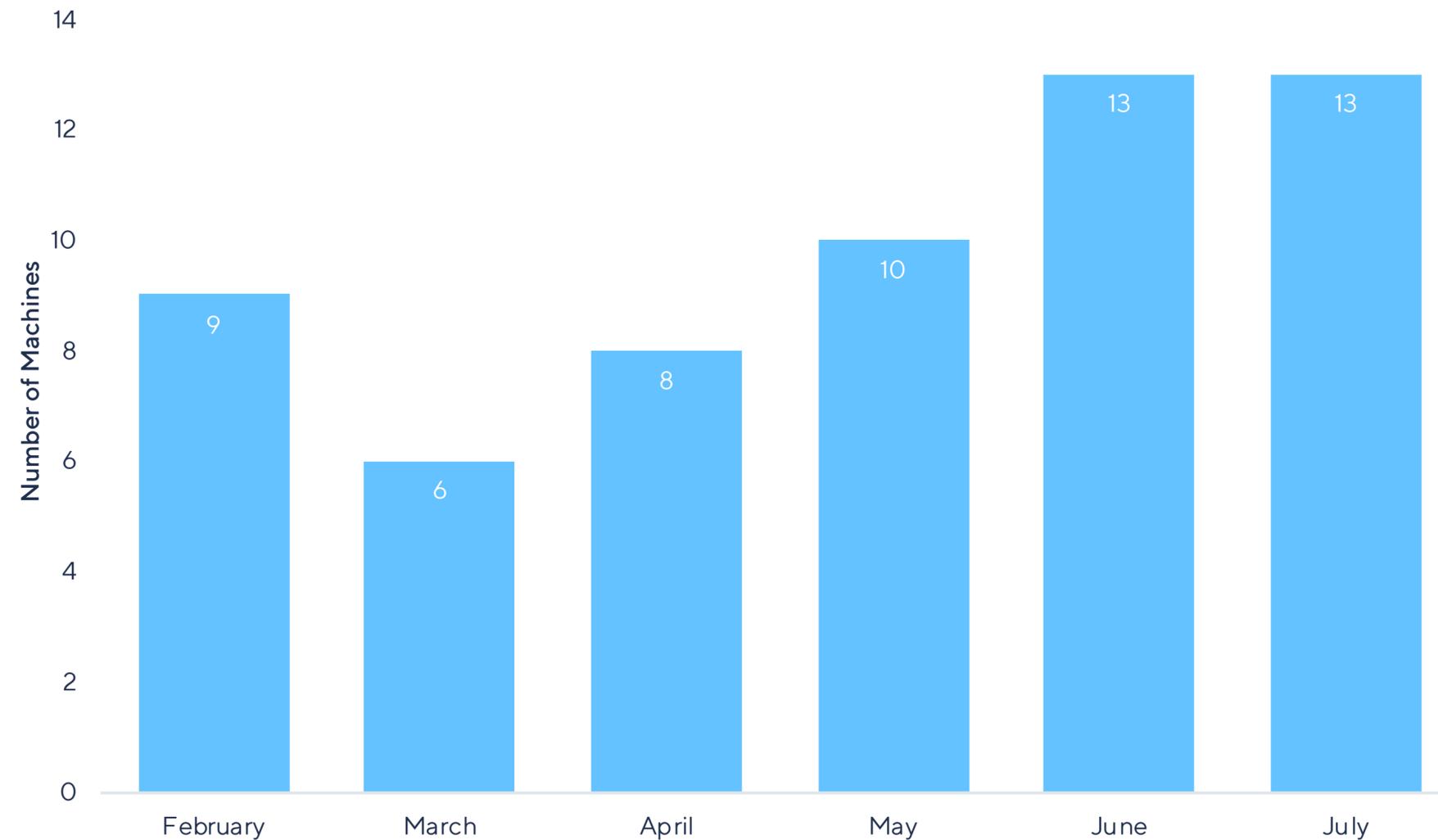


Big Vegas in Quick Hit Slots

PROGRESSION MECHANICS

Progression mechanics are trending, with the 'Reel or Symbol' (4), 'Fill Meter/Collection' (4), and 'Bonus' (3) sub-categories driving this trend

Progression Mechanics



[Rise of the Tiger](#) in Slotomania



[King's Throne](#) in Caesars Slots

MARKET WATCH



7/1/18 - 7/31/18

NOTABLE RELEASES

Publisher	Machine	Features
Slotomania	Sakura Legends	A <i>Bonus Flip</i> symbol is identified at the top of the reel set. Hitting that symbol in the base game and free spins flips the symbol to reveal coin prizes or <i>Jackpot</i> symbols (1)
	Hero Of Olympus	A battle mode between symbols takes place during free spins ... a mechanic similar to Heart of Vegas The Third Prince (2)
House of Fun	Dia De Amor	Players collect symbols to progress along a map to pick items for credit prizes or boosters to enhance the free spins feature ... a reskin of Brave Red (3)
Heart of Vegas	Twilight Spirit	Consecutive wins during free spins awards an additional free spin and fills a win meter, <i>Multiplier</i> meter, and <i>Jackpot</i> meter
	Heart of Vegas Anniversary	A limited-time machine was released celebrating Heart of Vegas' anniversary. During free spins, wilds multiply wins by 2x or 3x
Cashman Casino	Lucky Destiny	In this stepper machine, players pick mystery flip symbols during free spins to reveal the amount of free spins (up to 15) and a multiplier (up to 30x)
DoubleU	Betty's Circus	If 2 or more wilds hit with no winning combinations, wilds lock and trigger a respin
Quick Hit Slots	Big Vegas	In base and free games, <i>Wild Roulette</i> wheel symbols spin and point in any direction across the reel set, generating a line of additional wilds in the direction indicated by the point of the wheel
Gold Fish	Ouija Board of Fortune	A <i>Ouija board Planchette</i> randomly selects a symbol and converts it to the highest paying symbol

[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 $3.3 / (\text{square root of } 10,000)$, which equals 3.3%
- The RTP range for *Zombie Prom* is then $103\% \pm (1.65 \times 3.3\%)$
- 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

“I am seeking, I am striving, I am in it with all my heart.”

– Vincent van Gogh

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