



LIQUID&GRIT

Slots Design Report

Competitive research and data insights for slots designers

TABLE OF CONTENTS



SOCIAL INNOVATIONS	4
Respin Transitions	
Spelling ‘Bonus’	
Level Up Jackpot Symbols	
RMG INNOVATIONS	8
Bet Strategies	
Collect & Trigger Free Games	
Meter-Triggered Colossals	
SOCIAL TRENDS	12
Base Game Mechanics	
Bonus Mechanics	
SOCIAL MARKET WATCH	15
RMG MARKET WATCH	17
APPENDIX	19
Slots Player Personas	
Data Collection Process	

MARCH

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2018

INTRODUCTION



Social Innovations

Invest in more elaborate *animation transitions* from base to bonus game ... this is a new area to awe Plain Jane and Entertain-Me Eddie players. For lite slots players, add trigger symbols that *spell out* 'bonus' with cluster pays ... then, evolve the cluster art into something more elaborate, but subtle, once players become familiar with the mechanic. Increase *perception* of winning a jackpot for Entertain-Me Eddie and Night-Out Nancy players with guaranteed bonus jackpot wins, and/or even simply jackpot level up mechanics.

RMG Innovations

Add '*bet strategy options*' to entice auto-spin and increase spin-per-session. Then, check out how one machine is using volatility options to also personalize the play session. Let players accumulate...and then trigger...free spins whenever they want to better personalize their shorter (mobile) playing sessions. For more casual players, create easy-to-understand visual bonus meters *and* award several levels for more frequent triggers (but still include enticing big wins).

Social Trends

Respins are now the 2nd most popular *base* game mechanic (behind collections) ... not a surprise considering all the respin innovations analyzed over the past six months. Pick 'em bonuses with free spins is now the 2nd most popular *bonus* game mechanic (behind Stand Alone Pick 'em bonuses). Longer bonus game session length is a trend in the market.

Social Market Watch

Big Fish Casino continued to release RMG content, this time from Bandai Namco. Huuuge Casino invested more in slots content, adopting a new art style. POP! Slots released another team-based bonus machine. And, stepper machines continued to adopt more and more video machine mechanics.

RMG Market Watch

Incredible Technologies' *All Good!* attempted to provide that full-cabinet feeling in a single screen. Endorphina released a scandalous sex-themed machine *Taboo*. Puzzle-themed machines and custom play experiences were notable features (see RMG Innovations for more details).

"Never regard study as a duty but as an enviable opportunity to learn ... and to profit the community to which your later works belong." - Albert Einstein

Brett Nowak
Editor-in-Chief

SOCIAL INNOVATIONS

RESPIN TRANSITIONS

In House of Fun *Year of The Dog*, the transition from base to bonus game moves the jackpots and expands each reel a different height

Feature Explanation

- Five or more scatters trigger the *Colossal Rewards* (1)
- During the respin, the reels expand to different heights. Each slot acts as an independent reel. Jackpots are above each reel. Any scatter landing pays and sticks in place (2)
- Filling reels 3, 4, or 5 fully with scatters awards the corresponding jackpot (3)

Additional Information

- House of Fun [Year of The Dog](#)
- Release: 2/3/18
- Players:
 - Plain Jane
 - Entertain-Me Eddie

Related Machines

- [Lucky Pug](#) - High 5 Games
- [Diamond Winners](#) - Gold Fish Casino
- [Eastern Cash](#) - Slotomania

Key Takeaways

- This machine overlaps nicely for both the *Plain Janes*, who want more 'traditional feeling' machines, and the *Entertain-Me Eddies*, who want fun and exciting ways to hit jackpots
- Transition animation from base to bonus is an area to develop new ways to awe players. Brainstorm ideas with the design team
- In this machine, the jackpots move from the center to left while the reels grow (go online for a full video [here](#) or in the [Feature Database](#))



SPELLING 'BONUS'

High 5 Games' social and RMG machine *Lucky Pug* triggers the free spins with a three symbol cluster pay that clearly spells out, "Free Games Awarded"

Feature Explanation

- There are 15 independent reel positions in *Cluster Bucks*, marketed during machine-load and explained in the paytable (1 & 2)
- Groups of matching symbols in adjacent horizontal or vertical positions are paid (3 & 4)
- To trigger a bonus, 3 symbols need to line up on reels 2, 3, and 4 that spell out, "Free Games Awarded" (5 & 6)

Additional Information

- High 5 Games [Lucky Pug](#)
- Release: 2/15/18
- Player: Plain Jane

Related Machines

- [Diamond Winners](#) - Gold Fish Casino
- [Year of The Dog](#) - House of Fun
- [Incredible Super Dog](#) - DoubleU Casino

Key Takeaways

- Consider pairing this simple bonus trigger combination with a leveling system to transition from an easy-to-understand machine—for lite slots players—to a more complex system ... introducing lite slots players to more popular mechanics in a single machine



LEVEL UP JACKPOT SYMBOLS

Caesars Slots *Diner Beauties* uses special symbols to add free spins, increase jackpot amounts, and increase jackpot levels

Feature Explanation

- During free spins, players collect *coin symbols* to move up the jackpot ladder. The lowest-rung jackpot is guaranteed (1)
- *Arrow symbols* increase all jackpot amounts and *multiplier arrows* landing increase the amounts twice (2 & 3)
- The end of bonus dialogue breaks down wins resulting from spins and jackpots (4 & 5)

Additional Information

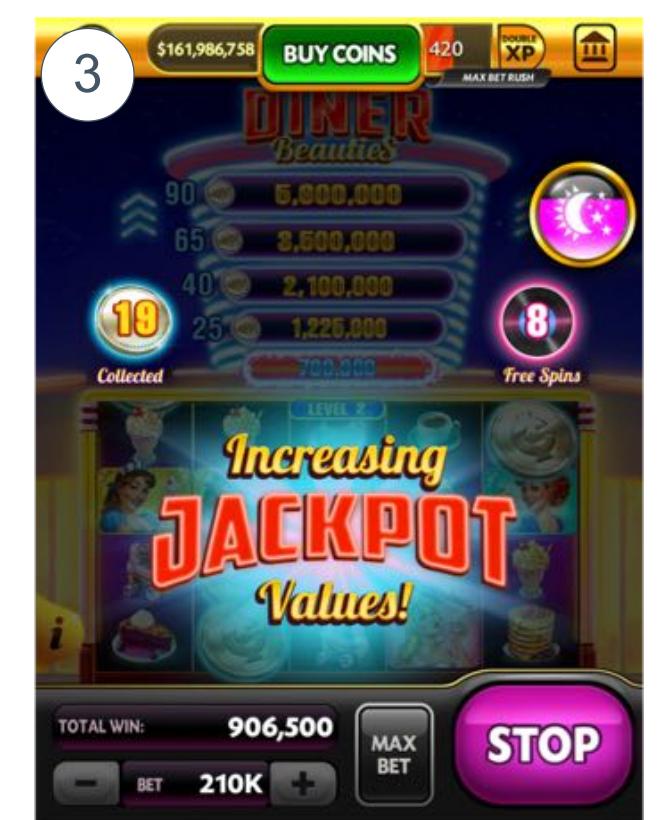
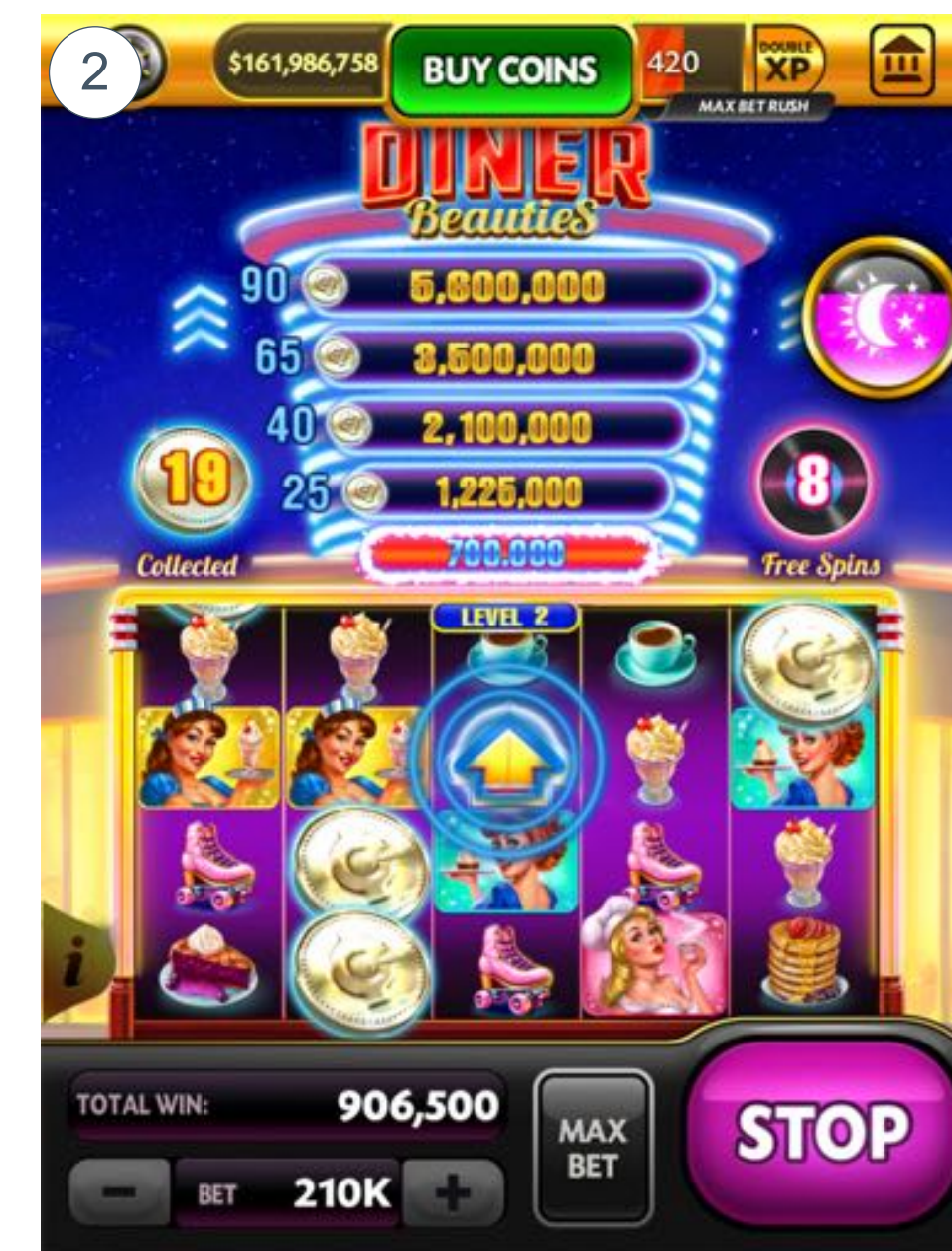
- Caesars Slots [Diner Beauties](#)
- Release: 2/5/18
- Players:
 - Entertain-Me Eddie
 - Night-Out Nancy

Related Machines

- [Twin Fire](#) - Jackpot Party
- [Devil's Choice](#) - Caesars Slots
- [Power Shot Jackpots](#) - Caesars Slots

Key Takeaways

- Entertain-Me Eddie and Night-Out Nancy players continue to want more frequent jackpots. To satisfy this desire, increase their hit frequency, but also increase *perception of hitting a jackpot*
- Make small jackpots guaranteed ... while providing seemingly simple ways to *increase* the jackpot amount (in this case, with an *arrow symbol*)



RMG INNOVATIONS

BET STRATEGIES

ELK *Kaiju* offers several *Bet Strategies* that are chosen by the player and tied to the auto spin

Feature Explanation

- Four *Betting Strategies* are available in the bet menu
- Choosing a bet strategy will automatically adjust the bet during auto spin (1)
- *Optimizer*: changes bet based on percentage of coin balance (2)
- *Leveller*: raises bet 2 levels after 5 consecutive losses, resetting after a win (3)
- *Booster*: raises bet 1 level after a loss, resetting after a win (4)
- *Jumper*: raises bet 1 level after every win, resetting after a loss (5)

Additional Information

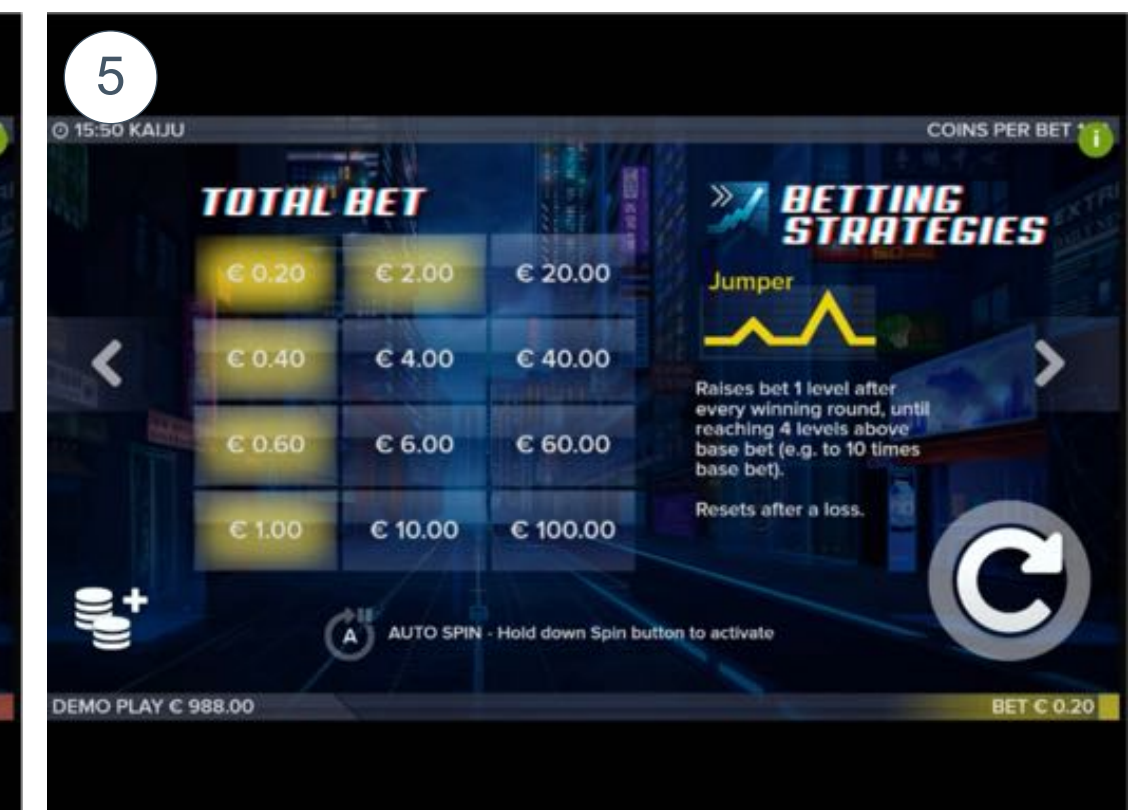
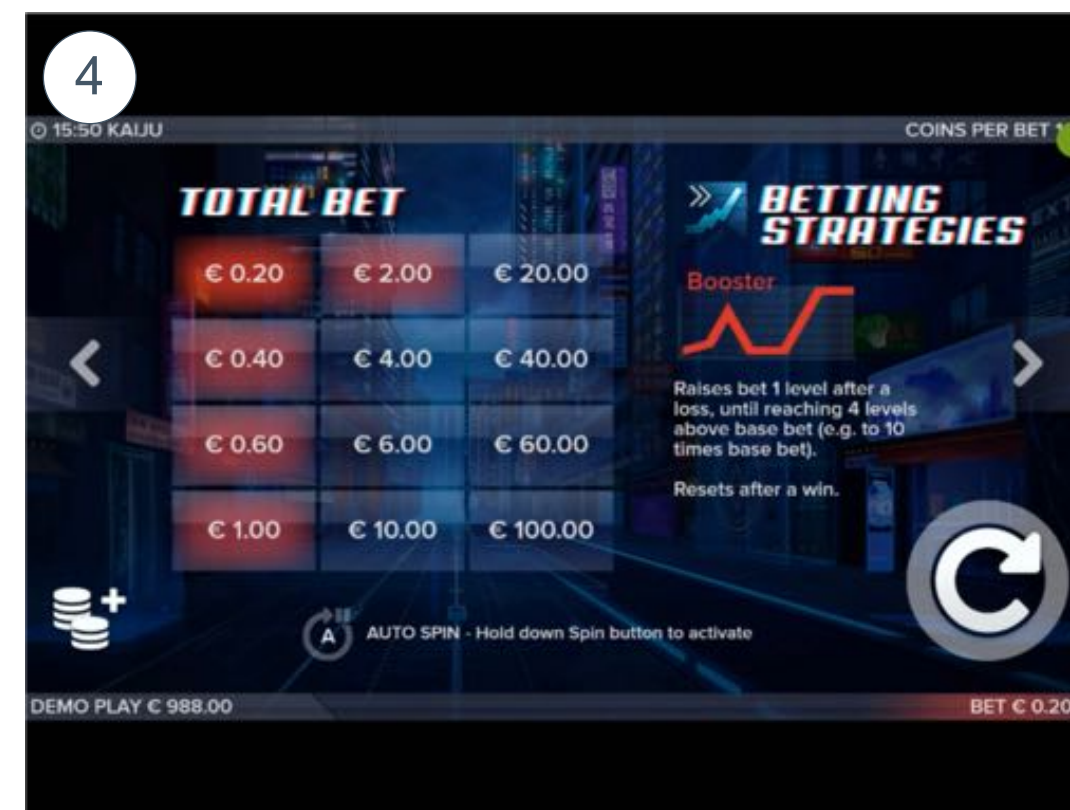
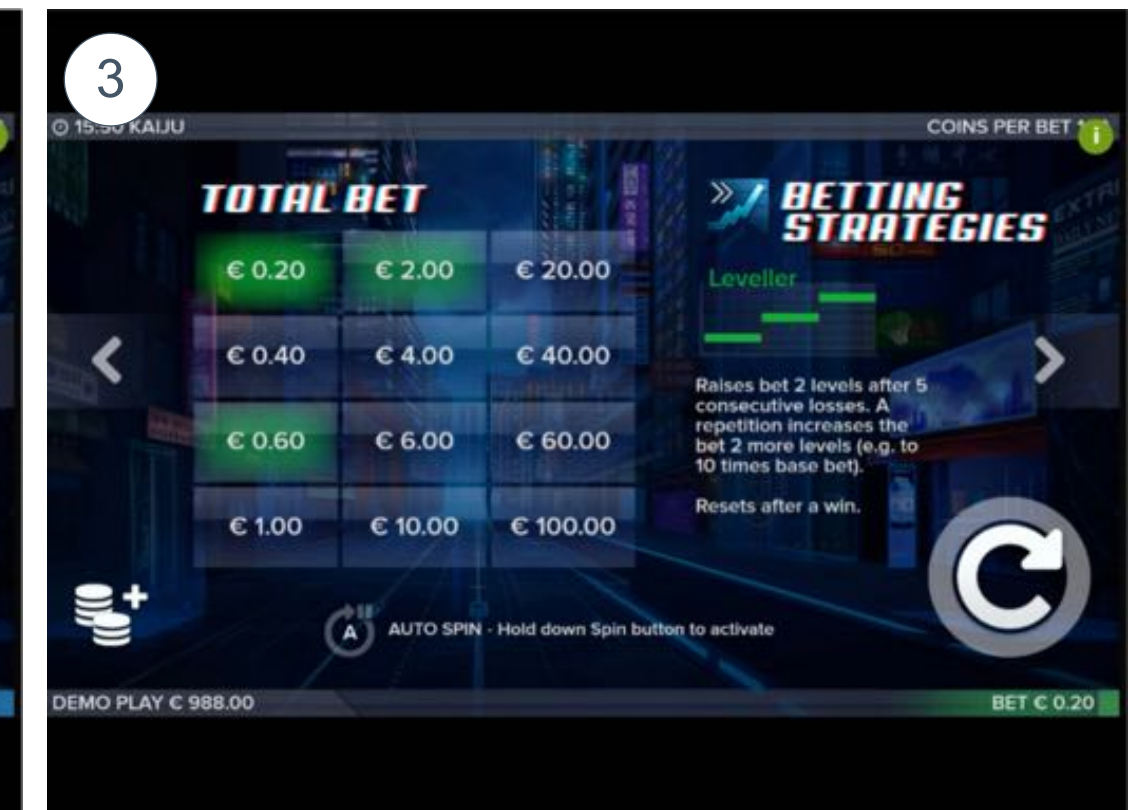
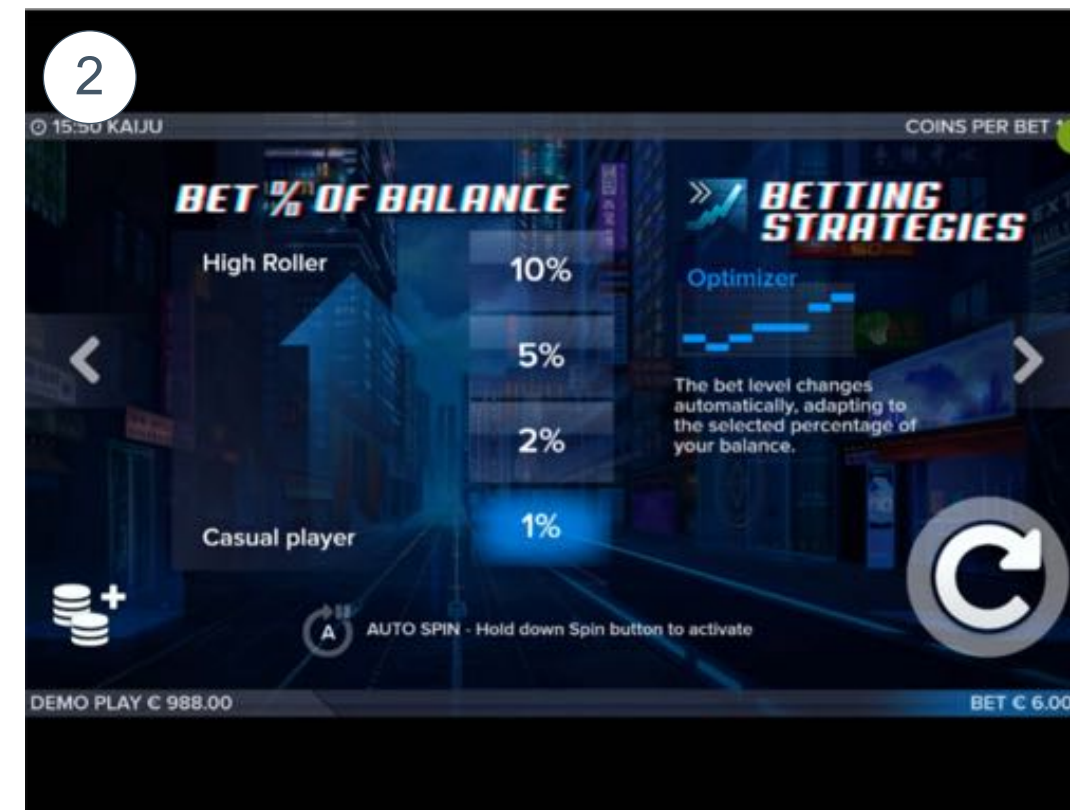
- ELK [Kaiju](#)
- Release: 2/22/18
- Player: Plain Jane

Related Machines

- [Wild Sea's](#) - ELK
- [Wild Wheel](#) - Push Gaming
- [Magic Stars 3](#) - Wazdan

Key Takeaways

- Consider adding this functionality for *all* machines in the spin button option ... keeping the user interface the same
- Implement more bet-up mechanic dialogues upon machine-load for better adoption
- Allow players to also adjust their volatility. In Wazdan [Magic Stars 3](#), players have a volatility button they may adjust based on play preferences



COLLECT & TRIGGER FREE GAMES

Felix Gaming *Planet Rocks* collects free games and then lets players decide when to trigger the free games bonus

Feature Explanation

- Free games symbols that land on the reels accumulate (1)
- Players may collect up to 25 free games and choose *when to play* by clicking the 'Play' button above the reels (2 & 3)
- The payable alerts players that a change in bet resets all accumulated free games (4)

Additional Information

- Felix Gaming [Planet Rocks](#)
- Release: 2/20/18
- Player: Night-Out Nancy

Related Machines

- [Beauty & the Beast](#) - Yggdrasil
- [Fortunes of Gold](#) - Slotomania
- [Prince of Sherwood](#) - House of Fun
- [Royal Choice](#) - Pharaoh's Way

Key Takeaways

- Adding this type of customization will improve player experience, and as a result, *retention*. With an opt-in bonus, players may customize their play experience to their specific play session (collecting a small amount of free spins in shorter sessions and a longer amount of free spins in longer sessions)
- Consider adding a *max auto-trigger option* for players with long session lengths that simply want the bonus to trigger at X amount of free spins
- This mechanic also *locks* players into a certain bet level, increasing the chances of betting large amounts until running out of coins



METER-TRIGGERED COLOSSALS

Two RMG machines use fill meters to trigger *colossal symbols* and give different level rewards along the fill meter

Feature Explanation

- In Yggdrasil Gaming *Gem Rocks*, a meter triggers colossal symbols (1)
- Winning combinations that trigger cascading symbols fills the meter. Consecutive cascades level up the award from 2 x 2, to 3 x 3, and finally to a 4 x 4 colossal symbol (2)
- Habanero *London Hunter* features two fill meters; one to trigger a multiplier and the other for a wild expansion. Filling a meter triggers the feature ... and remains active until the feature is used (3)
- Once the wild expansion has been triggered, a wild symbol landing with a special symbol creates a *wild colossal symbol* (4)

Additional Information

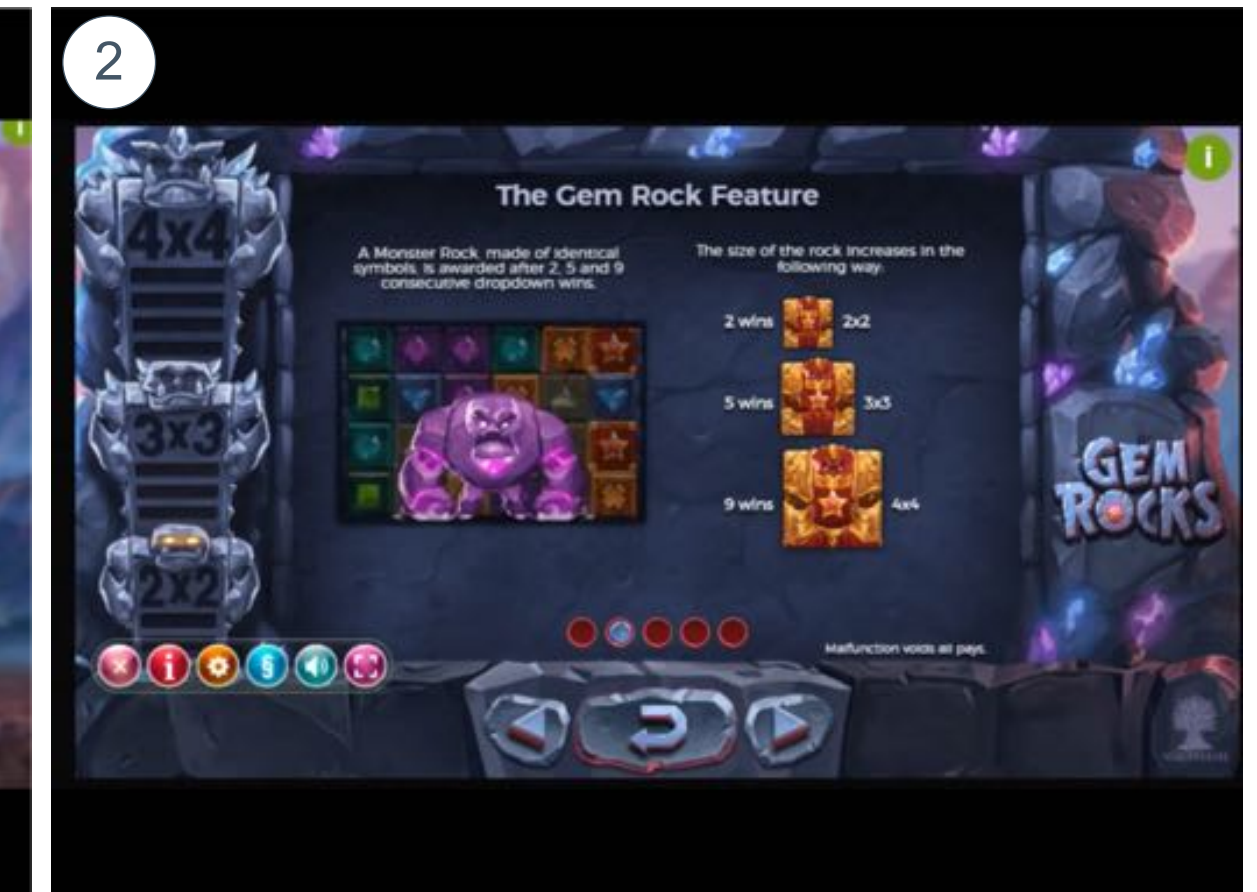
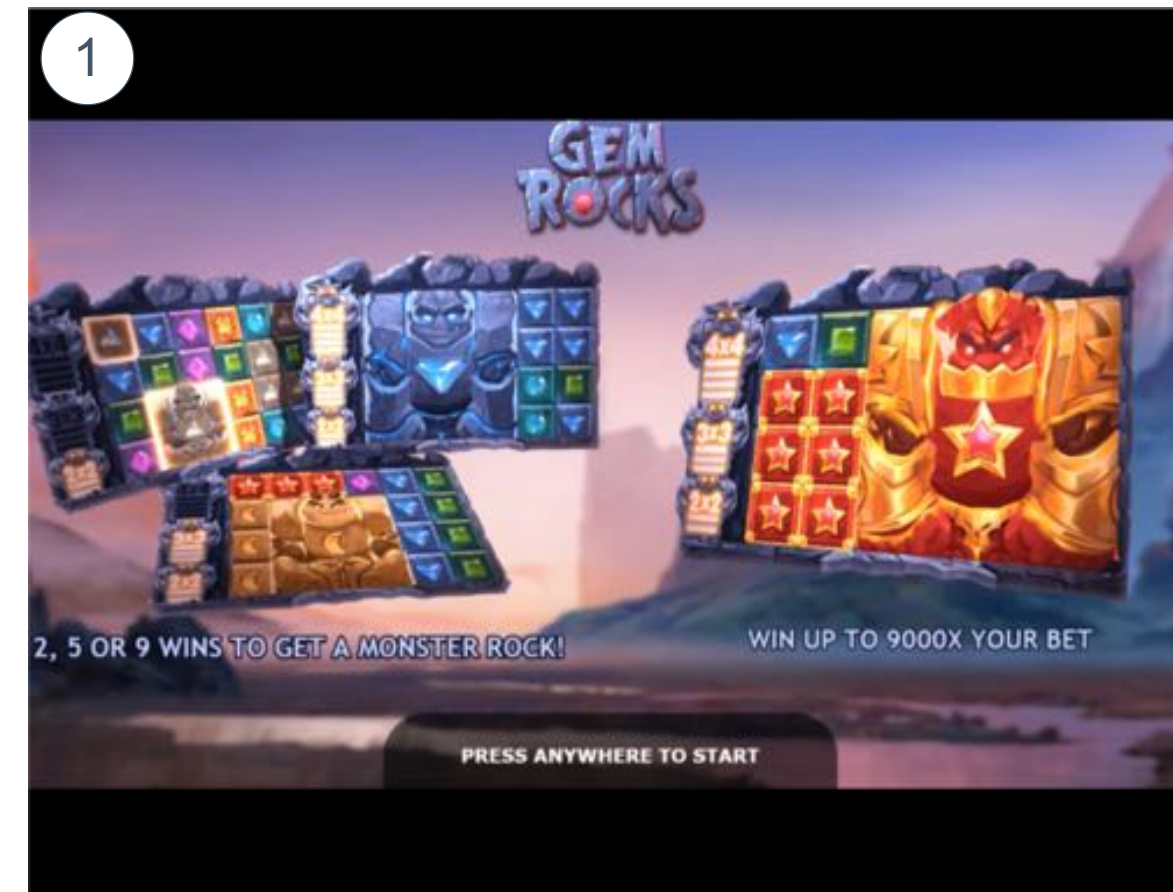
- [Gem Rocks](#) - Yggdrasil Gaming
- [London Hunter](#) - Habanero
- Player: Entertain-Me Eddie

Related Machines

- [Sun & Moon](#) - Scatter Slots

Key Takeaways

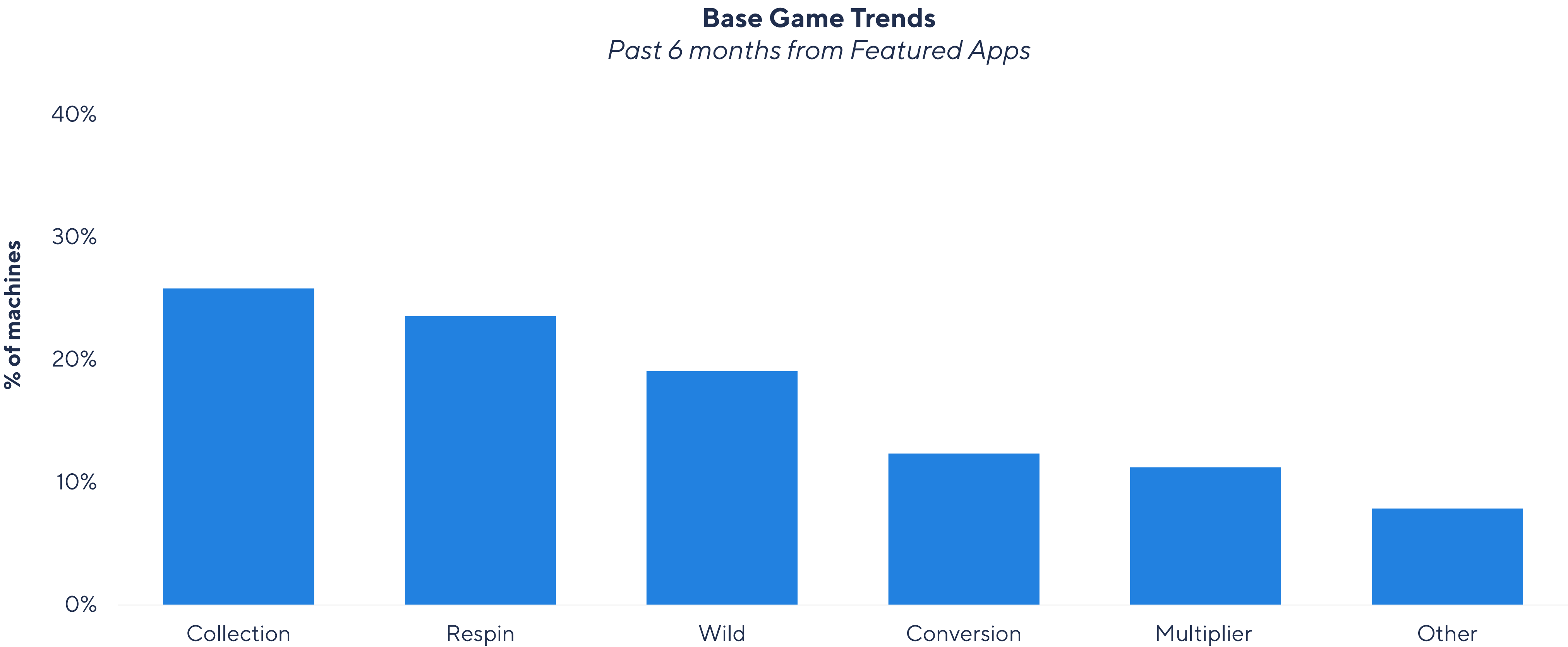
- Build progression meters that give multiple awards to make the bonus feature *appear* attainable in short sessions. Then, level up that feature as players progress along the meter for the *thrill* of a potential big win
- Build bonus awards that are easily translatable within the meter; *Gem Rocks'* colossal symbols are more obvious visually than *London Hunter's*. Sticky wilds during free spins is an easily translatable bonus with a visual (See [Wilds and The Beanstalk](#))



SOCIAL TRENDS

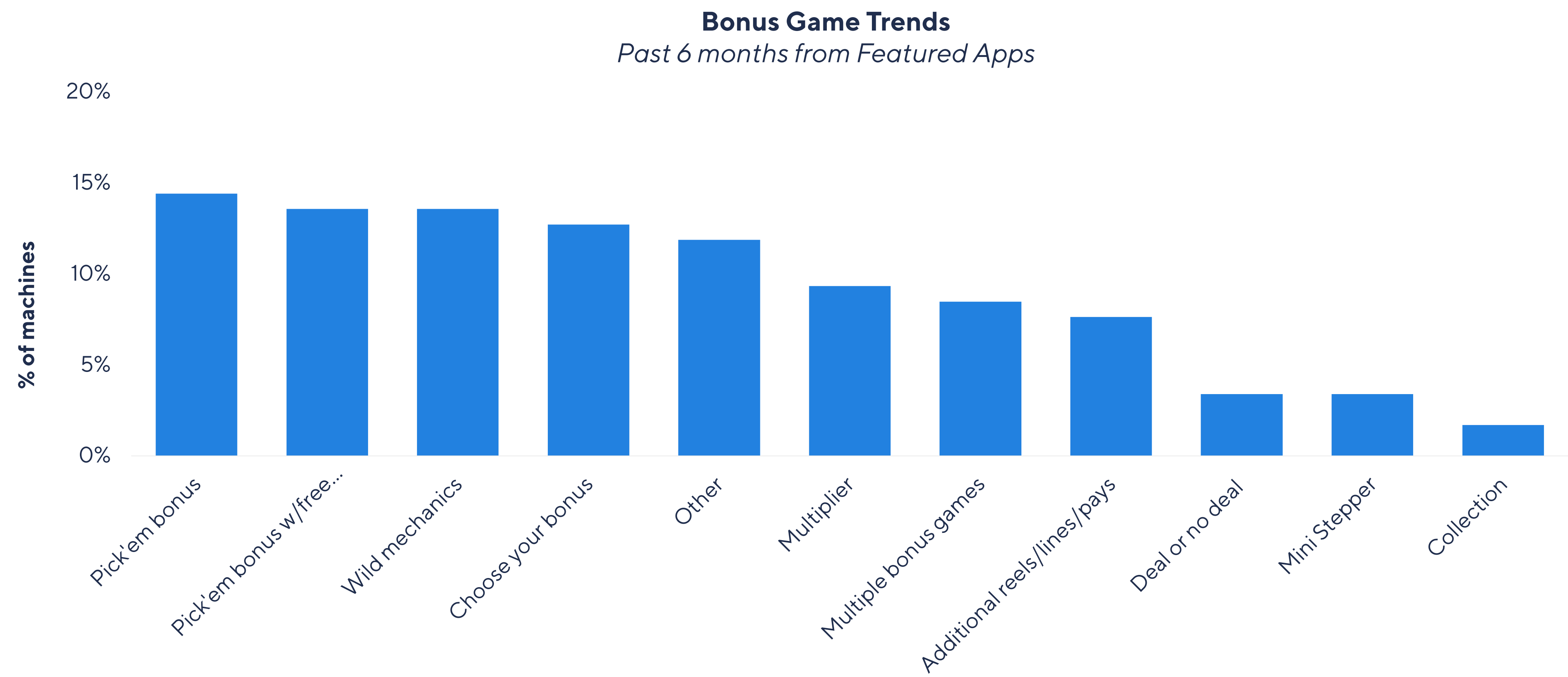
BASE GAME TRENDS

Respins are now the 2nd most popular base game mechanic (behind collections) ... not a surprise considering all the respin innovations analyzed over the past six months



BONUS GAME TRENDS

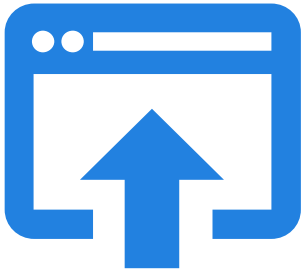
Pick 'em bonuses with free spins is now the 2nd most popular bonus game mechanic (behind Stand Alone Pick 'em bonuses) ... longer bonus game session length is a trend in the market



SOCIAL MARKET WATCH

2/1/18 - 2/28/18

SOCIAL APPS



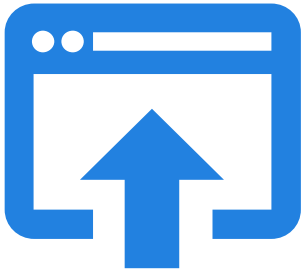
Go online for the full list of machines released this month with links to more images in our Database

App	Machine	More Information
Slotomania	6 Tigers Grand	<ul style="list-style-type: none">n x n, Multi-way, Asian theme, Video, Choose your bonus, Bonus (Wheel w/free spins), Stand alone progressive jackpot
	Peacock Palace	<ul style="list-style-type: none">3 x 5, Line, Cultural theme, Video, Cascading, Multiplier, Stand alone progressive jackpot
	Chili Cash	<ul style="list-style-type: none">Locked, Cultural theme
DoubleDown Casino	Carnival of Mystery	<ul style="list-style-type: none">3 x 5, Multi-way, Circus theme, Video, Multiple bonus games, Progressive and jackpot
	Wheel of Fortune Triple Double Emeralds	<ul style="list-style-type: none">2 x 3, Line, IP theme, Stepper, Multiplier, Bonus (Wheel only), Jackpot
House of Fun	Year of The Dog	<ul style="list-style-type: none">Multi-matrix, Line, Asian theme, Video, Expanding, Respin, Progressive jackpot
	Lovely Riches	<ul style="list-style-type: none">4 x 5, Line, Romance theme, Video, Nudging, Respin, Choose your bonus, Stand alone progressive jackpot
	Empires of Opulence	<ul style="list-style-type: none">3 x 5, Line, Cultural theme, Video, Mystery reveal, Collection, Mini Stepper, Progressive and jackpot, Map with fill meter
Big Fish Games	Pac-Man	<ul style="list-style-type: none">3 x 5, Line, IP theme, Video, Conversion, Progressive and jackpot
	Cupid's Holiday	<ul style="list-style-type: none">3 x 5, Line, Holiday theme, Video, Progressive and jackpot

RMG MARKET WATCH

2/1/18 - 2/28/18

RMG PUBLISHERS



Go online for the full list of machines released this month with links to more images in our Database

Publisher	Machine	More Information
2by2	The Sand Princess	• 3 x 5, Line, Egyptian theme, Video, Multiplier, Choose your bonus, No Jackpot
Ainsworth	Cash Hound	• 3 x 5, Line, Animal theme, Video, Multiplier, Jackpot
	Pearl River Quad Shot	• 3 x 5, Line, Asian theme, Video, Reel improvements, Multiplier, No Jackpot
Amatic Industries	Enchanted Cleopatra	• 3 x 5, Multi-way, Egyptian theme, Video, Multiplier, No Jackpot
Aurify Gaming	Geisha's Garden	• 3 x 5, Line, Asian theme, Video, Locked, Wild mechanics, Bonus (Wheel w/free spins), Jackpot
Barcrest	The Legend of Big Foot	• 3 x 5, Line, Folklore theme, Video, Other, Collection, No Jackpot, Fill meter/collection
Betdigital	Wilds Deluxe	• 3 x 5, Line, Gem/Jewel theme, Video, Both way pays, Locked, Respin, No Jackpot
Betsoft	Sugarpop 2: Double Dipped	• 7 x 7, Multi-way, Food theme, Video, Both way pays, Wild, Reel or symbol
BF games	The Best New York Food	• 3 x 5, Line, Food theme, Video, Multiplier, Jackpot

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 want to play
% of machines played with progressives	29%	40%	37%	25%
Player Income	Medium-high	High	Low	Medium-low
% female	54%	59%	45%	48%
Size of group	20%	28%	27%	26%

DATA COLLECTION PROCESS

Recommendations, information, and data comes from market research, app intelligence tools, industry consultants, and 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) / $\sqrt{\text{sample size}}$ and the z-score 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 $3.3 / (\sqrt{10,000})$, 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, specifically from wizardofodds.
- Trending revenue, downloads and package-rank data come from Priori Data, a Liquid and Grit partner.

Immature poets imitate; mature poets steal; bad poets deface what they take, and good poets make it into something better, or at least something different

– T.S. Elliot

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