



LIQUID & GRIT

Slots Design Report

Competitive research and data insights for slots designers

TABLE OF CONTENTS



SOCIAL INNOVATIONS	4
Collect Mini-Stepper Spins	
Free Spins Opt-Outs	
Free Spins Challenge Options	
RMG EU INNOVATIONS	8
Information Systems	
Cash Zone Selections	
Opt-In Tutorials	
SOCIAL TRENDS	12
Themes	
Bonus Features	
MARKET WATCH	15
Social Casino	
RMG EU	
APPENDIX	18
Slots Player Personas	
Data Collection Process	

APRIL

2018

INTRODUCTION



Social Casino

Successful innovation requires knowing how much to adjust a proven mechanic. Too little change can cause mechanics to become stale, and too much can be overwhelming for players. For example, the Collect Mini-Stepper Spins feature provides small, yet noticeable, modifications to the already successful mini-stepper bonus mechanic (p. 5). This makes players excited to try something new, while still feeling *comfortable*.

Opt-in personalization mechanics (not often allowed in real money), is an area of opportunity for social slots designers to develop new, engagement-driving features. Explore how to award massive amounts of free spins while enabling players with Free Spins Opt-Outs (p. 6).

In addition, meta-game mechanics continue to creep—for good reason—into slot machine design. In the Free Spin Challenge Options (p. 7), players may pick their preferred difficulty and corresponding award, similar to the meta-feature [SlotoQuest](#).

RMG EU

RMG EU machines provide excellent tools to inform lite players of bet/reward relationships, volatility, and play stats. These types of tools should be tested on social players. See Information Systems for details (p. 9).

If Cash Zones have been successful with your players, read the section Cash Zones Selections to learn how an RMG machine lets players choose the area of their Cash Zone (this also adjusts the bet amount) (p. 10).

Consider an opt-in tutorial to ease lite-to-medium slots players into more complicated features. For more information, check out Opt-In Tutorials (p. 11).

We're always thinking about new markets we could enter, but it's only by saying no that you can concentrate on the things that are really important.
- Steve Jobs, as quoted in "The Seed of Apple's Innovation" in BusinessWeek (October 12, 2004)

A handwritten signature in black ink that reads "Brett Nowak".

Brett Nowak
Editor-in-Chief

SOCIAL INNOVATIONS

COLLECT MINI-STEPPER SPINS

Players collect mini-stepper spins during free games (each mini-stepper with associated progressive jackpots)

House of Fun: *Frau's Fortune: Elsa's Bierfest*

Feature Explanation

- Hitting three or more bonus symbols triggers the free games (1)
- During free games, landed jackpot symbols are collected (2)
- One spin on each of the mini-steppers is awarded for each symbol collected during the free games (3)

Additional Information

- Release: 3/4/18
- Target player:
 - Entertain-Me Eddie

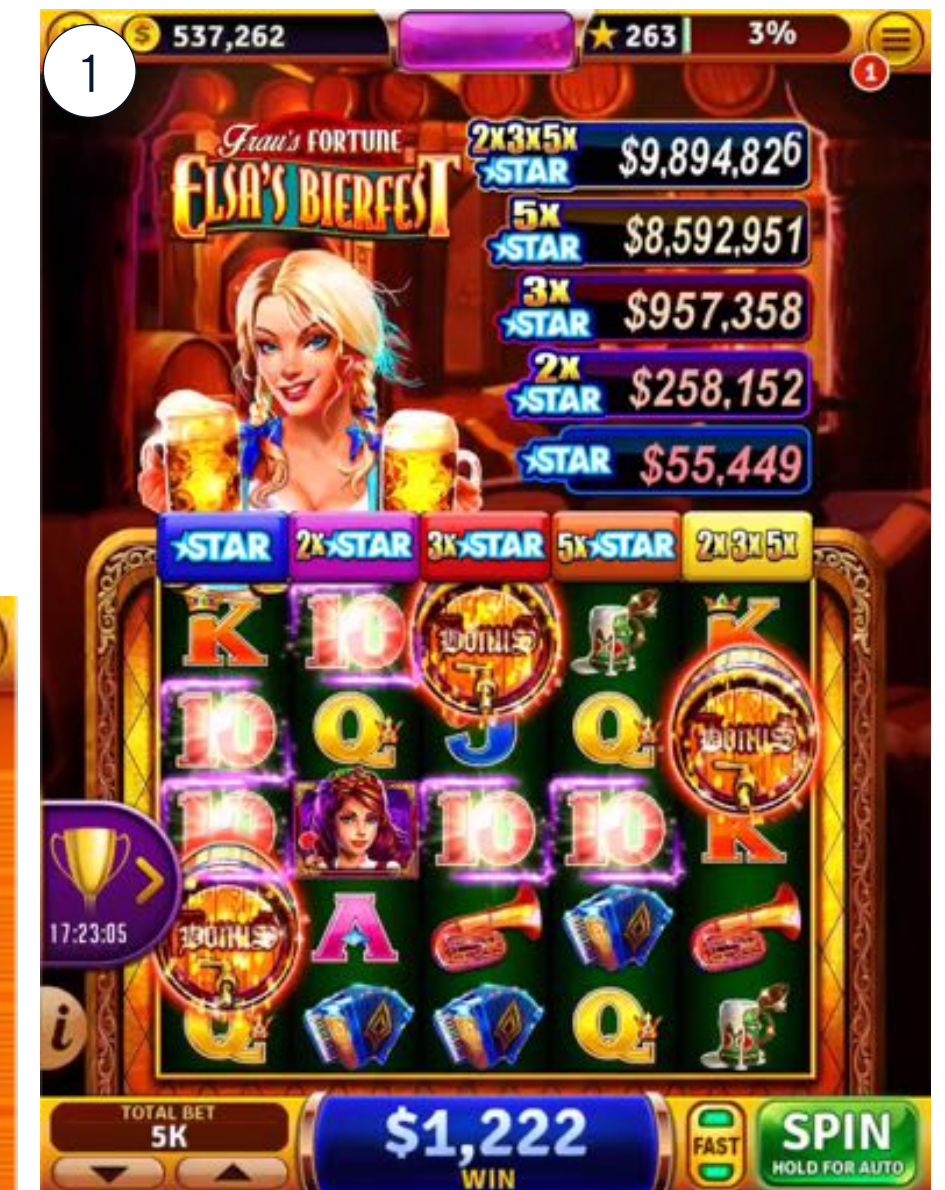
Related Machines

- [Frau's Fortune](#) - House of Fun
- [Lightning Jackpots](#) - Hot Shot Casino
- [Fireball](#) - Quick Hit Casino

Key Takeaways

- Strong slot machine innovation and design is largely predicated on the amount of change implemented. Players are often unwilling to engage, and ultimately enjoy features that are too unfamiliar.
- The best approach is to take proven mechanics, like progressive jackpots and mini-stepper bonus machines, and "+1" the design. Here, there are two "+1" adjustments: 1) the portrait layout, which places more emphasis on the progressive jackpots and allows the mini-stepper pay table to be shown during spins, and 2) the ability to collect multiple spins on the mini-steppers during free spins.

[Click here to view full gallery >>](#)



FREE SPINS OPT-OUTS

Players with a certain number of free spins have the option to continue free spins or stop and collect the full bonus at any spin

DoubleU Casino: *The Legend of Z*

Feature Explanation

- Three or more symbols landing triggers the bonus. Wild symbols may be used as substitutes, and multipliers increase the total number of spins awarded (1 & 2)
- Triggering 20 or more spins allows players to *choose their own bonus feature*. This includes a *Quick Prize Deal* or *No Deal* option (3)
- During free spins, a 'Feature Bonus' tab is visible below the reels. Players with 20 or more spins remaining may change to another selection (4 & 5)
- Choosing *Quick Prize* while mid-bonus, awards a random amount of coins and displays a breakdown of coins won (6)

Additional Information

- Release: 3/23/18
- Target player:
 - Plain Jane

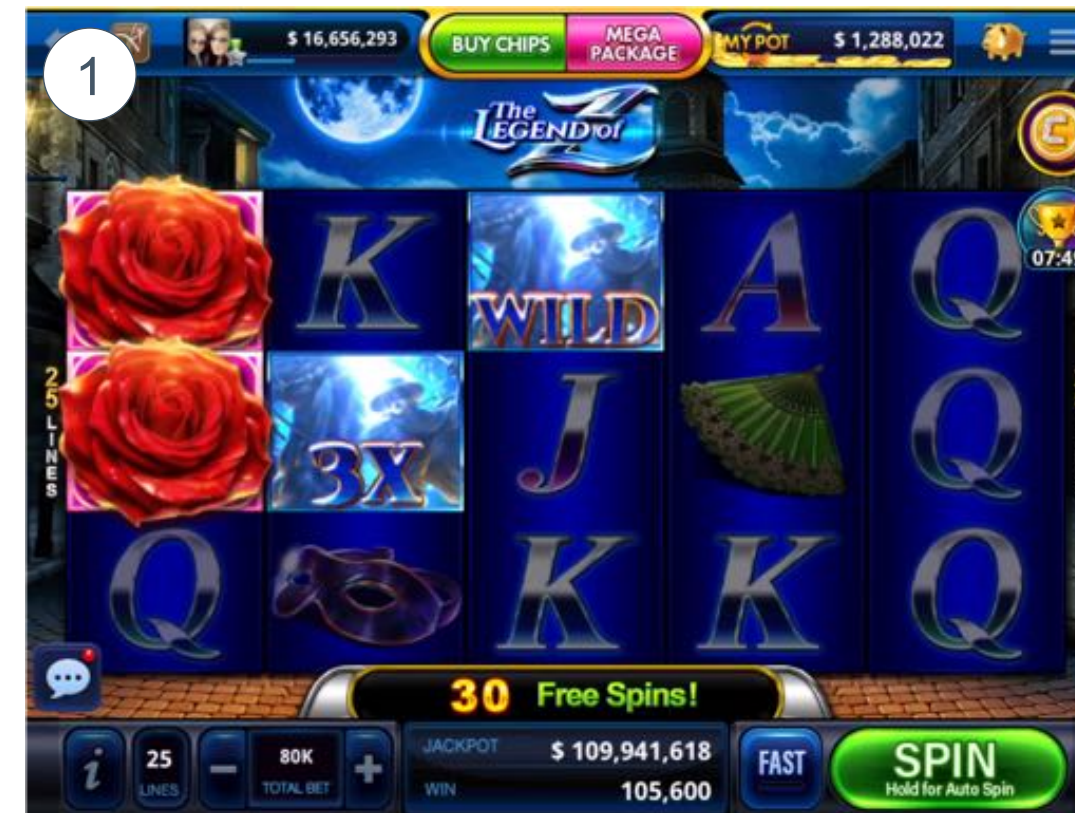
Related Machines

- [Hawaiian Shores](#) - my KONAMI
- [Fortunes of Gold](#) - Slotomania
- [Whales of Cash Deluxe](#) - Heart of Vegas

Key Takeaways

- Increase player retention through opt-in features where players may adjust their own experiences in real-time. Or, provide *pre-set* opt-in adjustments, like 'Bet Strategies' from ELK's [Kaiju](#) to give players a greater sense of agency.

[Click here to view full gallery >>](#)



FREE SPINS CHALLENGE OPTIONS

The free spins bonus round gives players a choice of challenge *and* prize level

Slotomania: *Eagle Quest*

Feature Explanation

- Triggering a bonus presents a bonus dialogue box with five challenge levels, each with different prizes (1)
- Symbols landed during the free spins are collected. Progress and goals are visible above the reels (2)
- After a goal is completed, the additional prize and goal to collect 25 or more symbols appears (3)
- At the conclusion of the bonus, a dialogue box displays a summary of spins and prizes (4)

Additional Information

- Release: 3/9/18
- Target player:
 - Night-Out Nancy

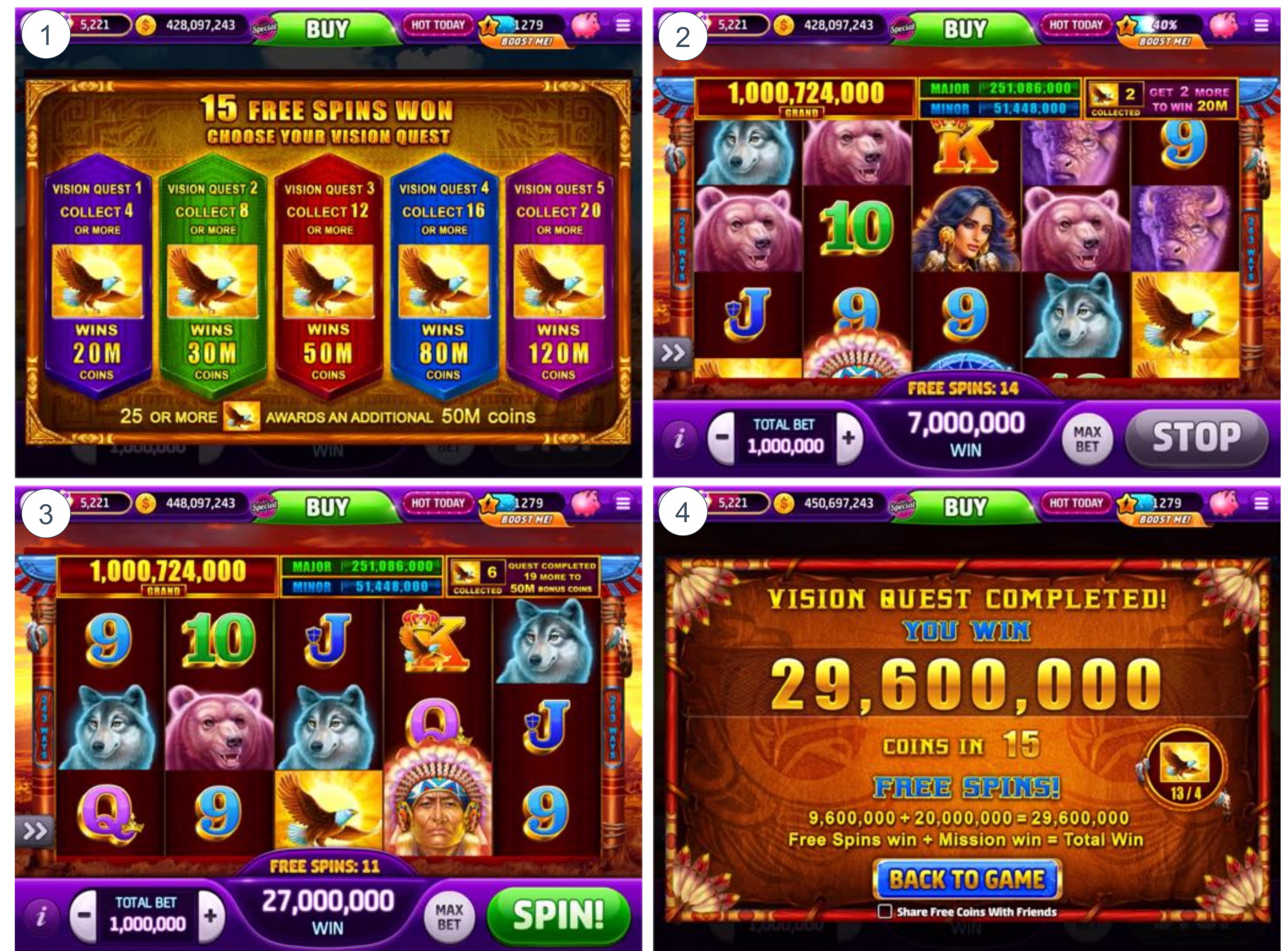
Related Machines

- [5 Treasure](#) - Quick Hit
- [The Sand Princess](#) - 2By2
- [Mystical Sands](#) - Heart of Vegas

Key Takeaways

- When offering a choice-based system, add a “Random Selection” option. This gives choice-averse players an easier way to play.
- Consider combining *opt-in personalization* (players pick their experience) with *back-end personalization* (app changes the experience based on player actions). Use this to raise or lower challenge difficulty, which leads to additional coin sink.

[Click here to view full gallery >>](#)



RMG EU INNOVATIONS

INFORMATION SYSTEMS

Players receive information about the payouts, volatility, and player RTP of a machine

Multiple Machines

Feature Explanation

- The simple designs in Genesis [Fortune Dragon](#), and Top Trend Gaming [Cherry Fortune](#), allow for a reel-side pay table that displays payouts for every bet level (1 & 2)
- In Leander Games [Amazing Alchemist](#), and Pragmatic Play [Fairytale Fortune](#), machine volatility information is provided in the pay table (3 & 4)
- Microgaming [Playboy Gold](#) incorporates a number of pop-up menus for players to view stats and change bets. Also, all pay table information is displayed (5 & 6)

Additional Information

- Release: 3/2/18
- Target players:
 - Entertain-Me Eddie
 - Plain Jane

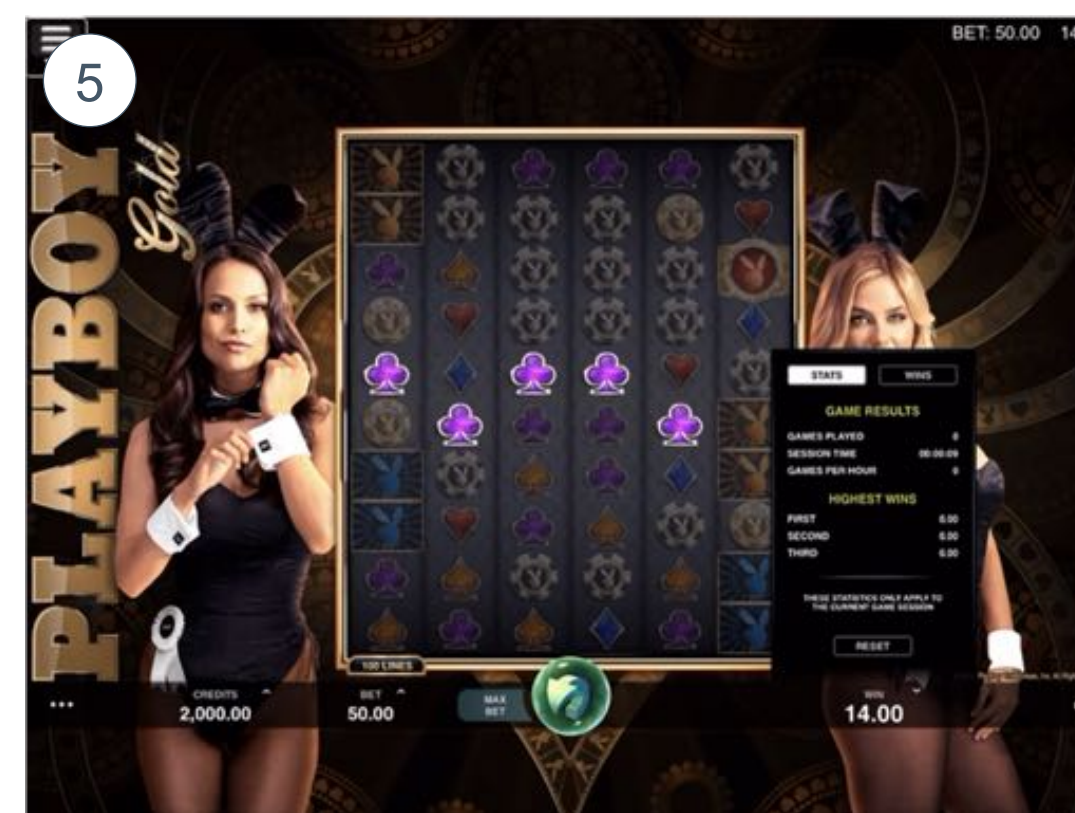
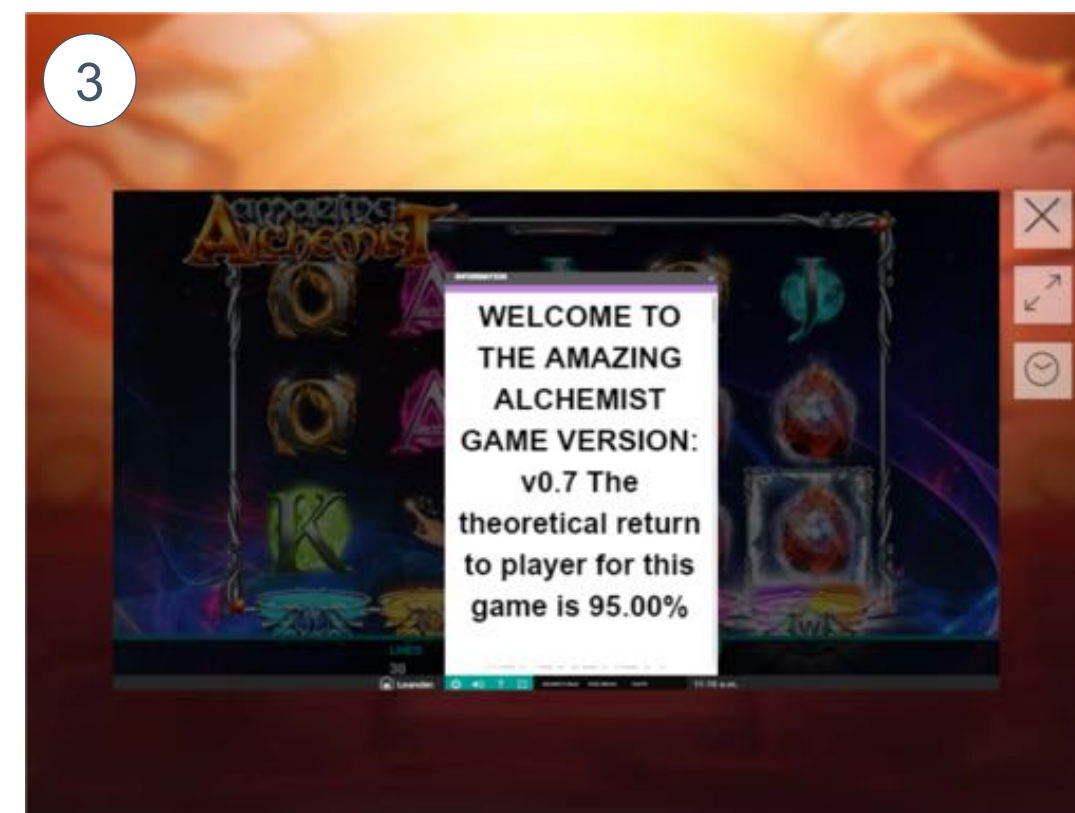
Related Machines

- [Magic Stars 3](#) - Wazdan
- [Chilli Heat](#) - Pragmatic Play

Key Takeaways

- Information gives players more ways to *feel in control, be informed, and create their own luck* ... subsequently increasing player retention. “Lucky machines” is one of Entertain-Me Eddie’s primary motivations for picking a machine (see the Appendix for player motivations).
- Provide precise information on machine volatility and clearly explain to players how it will impact their experience. Try presenting lobby-card recommendations based on prior player behavior, as well as the volatility of each machine.

[Click here then select Machines > RMG >>](#)



CASH ZONE SELECTIONS

Players may change the selection or increase the selection size of the Cash Zone. Increasing the size also increases the bet amount

NetEnt: *Hotline*

Feature Explanation

- There are three *Bonus Bet* options that increase active Cash Zones. Adding additional Cash Zones increases the bet (1 & 2)
- Landing wild symbols in an active Cash Zone expands them into full reel wilds (3 & 4)
- One respin is awarded each time a wild expands. Wilds remain locked until the end of the respins (5 & 6)

Additional Information

- Release: 3/19/18
- Target player:
 - Plain Jane

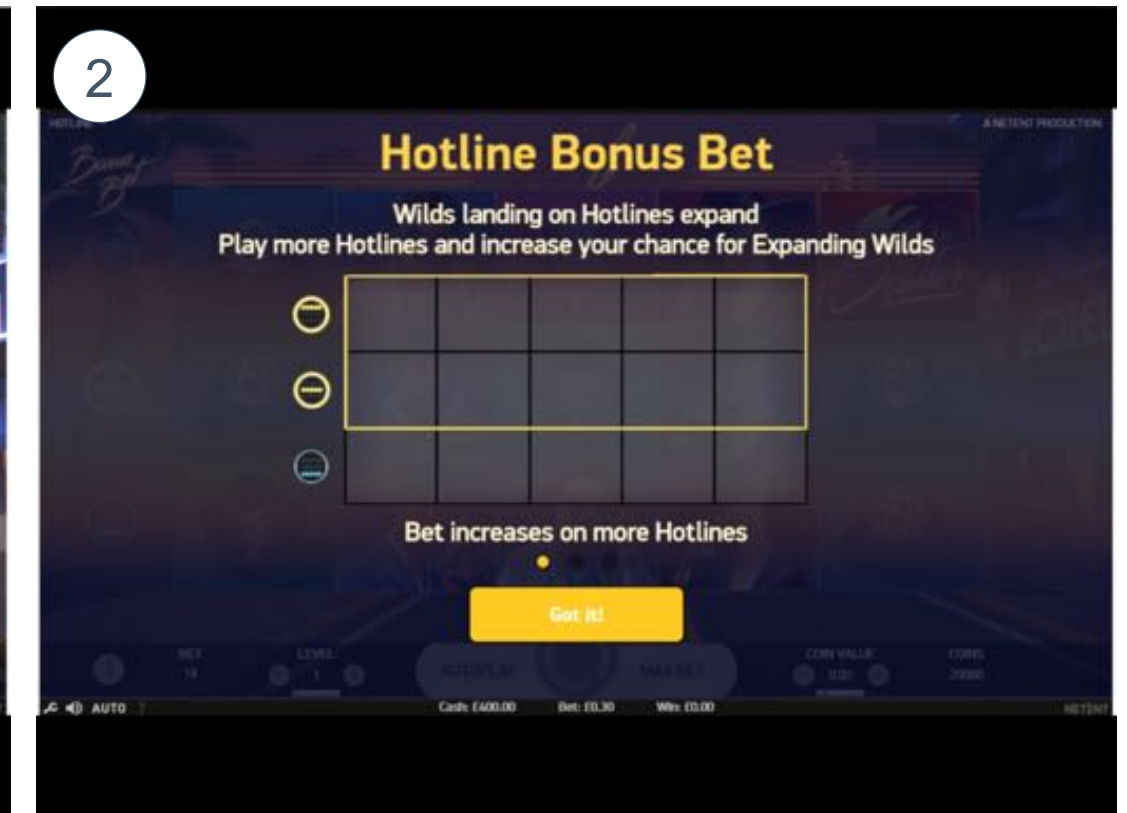
Related Machines

- [Casino Win Spin](#) - Nolimit City
- [Bounty Bonanza](#) - myVEGAS Slots
- [American Glamour 2](#) - Caesars Slots

Key Takeaways

- Deeply integrate bet-up mechanics into machine play for two reasons: 1) so your desire to increase the bet amount is more subtle, and 2) to make clear the benefits of changing a bet.
- Decrease churn by giving players a *sense of control*, so they have more confidence in their ability to win. Likewise, if they lose, they feel more responsibility.

[Click here to view full gallery >>](#)



OPT-IN TUTORIALS

Players receive an optional tutorial that introduces machine features and mechanics

Play'n GO: *Sweet Alchemy*

Feature Explanation

- At machine-load, players are presented with a slide show outlining the main features. A "Don't Show this Again" option allows players to bypass for the future (1)
- A 10-step tutorial appears with an exit option upon machine-entry (2)
- The tutorial describes and demonstrates all features and mechanics (3 & 4)
- The final step of the tutorial explains how to revisit the tutorial later (5 & 6)

Additional Information

- Release: 3/22/18
- Target player:
 - Mr. and Mrs. Ricardo

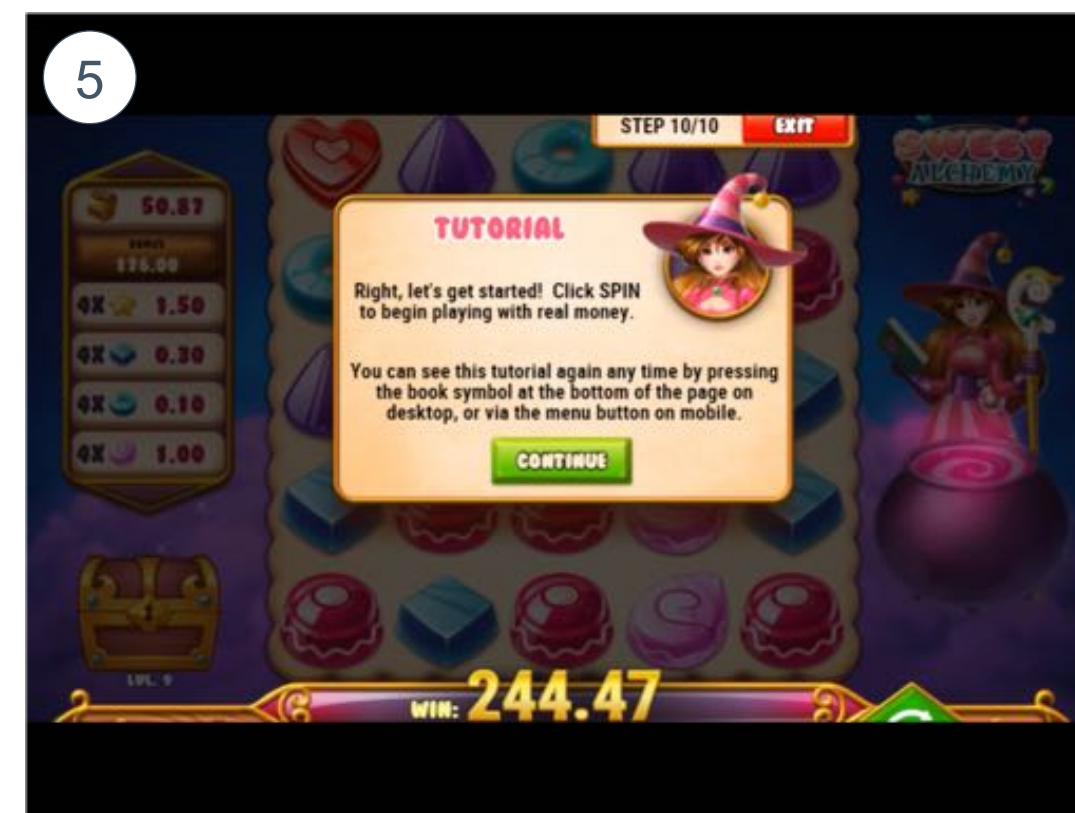
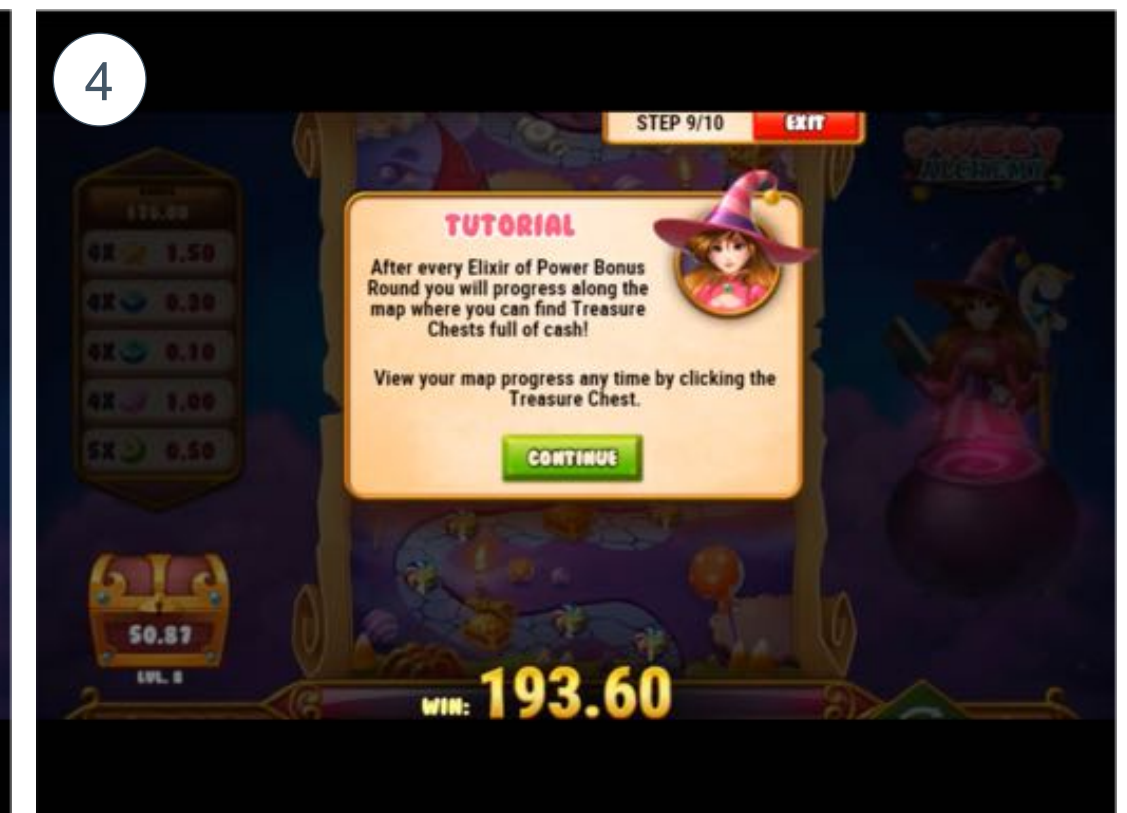
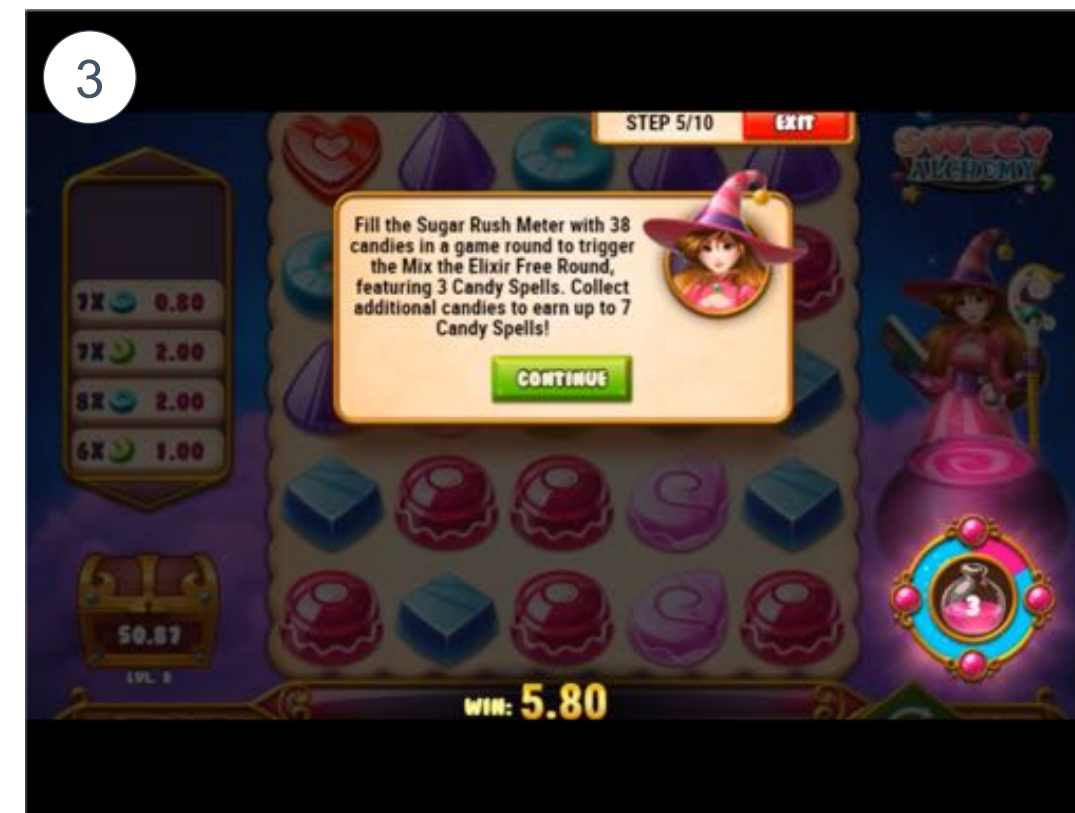
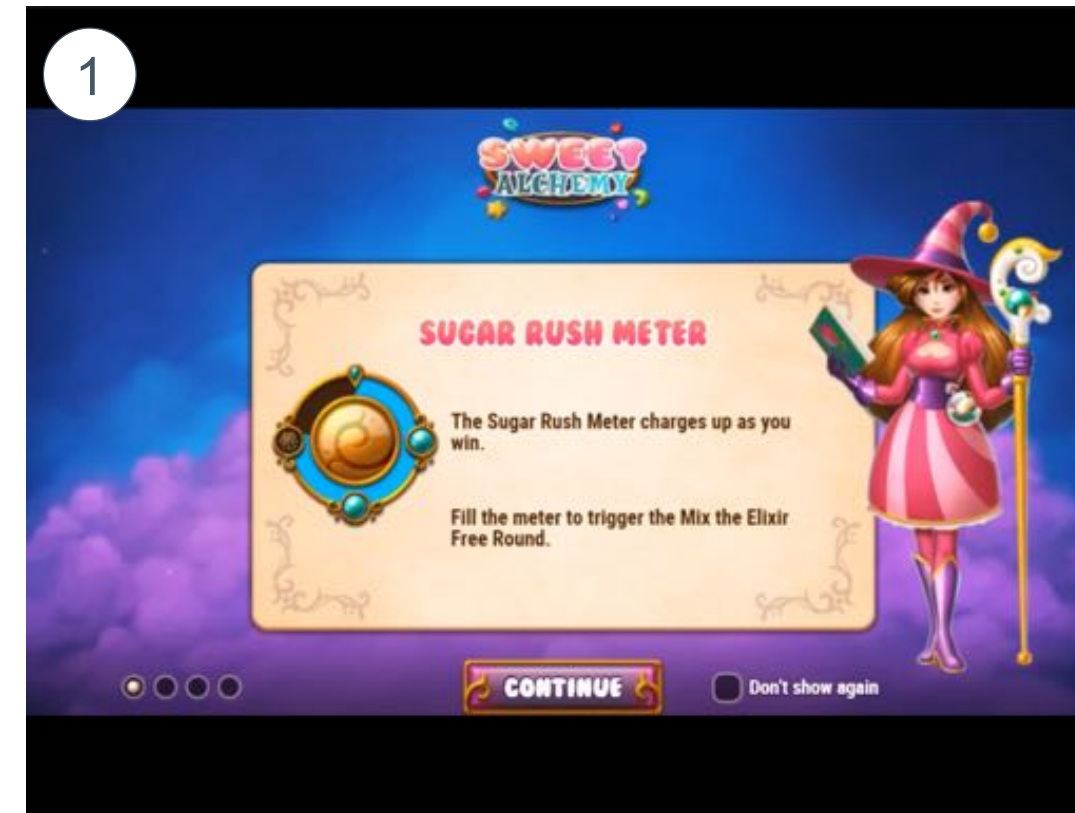
Related Machines

- [Classic Blackjack](#) - GSN Casino
- [Vegas Words](#) - Vegas Downtown Slots
- [Atari Pong](#) - Pariplay

Key Takeaways

- Make it easier for lite-to-medium players to learn slot machine mechanics using a tutorial system. Consider adding a tutorial mid-play for more complicated features, like new bonus systems.
- Consider providing a more in-depth tutorial for players who *really* want to understand how slot machine payouts and pay tables work.

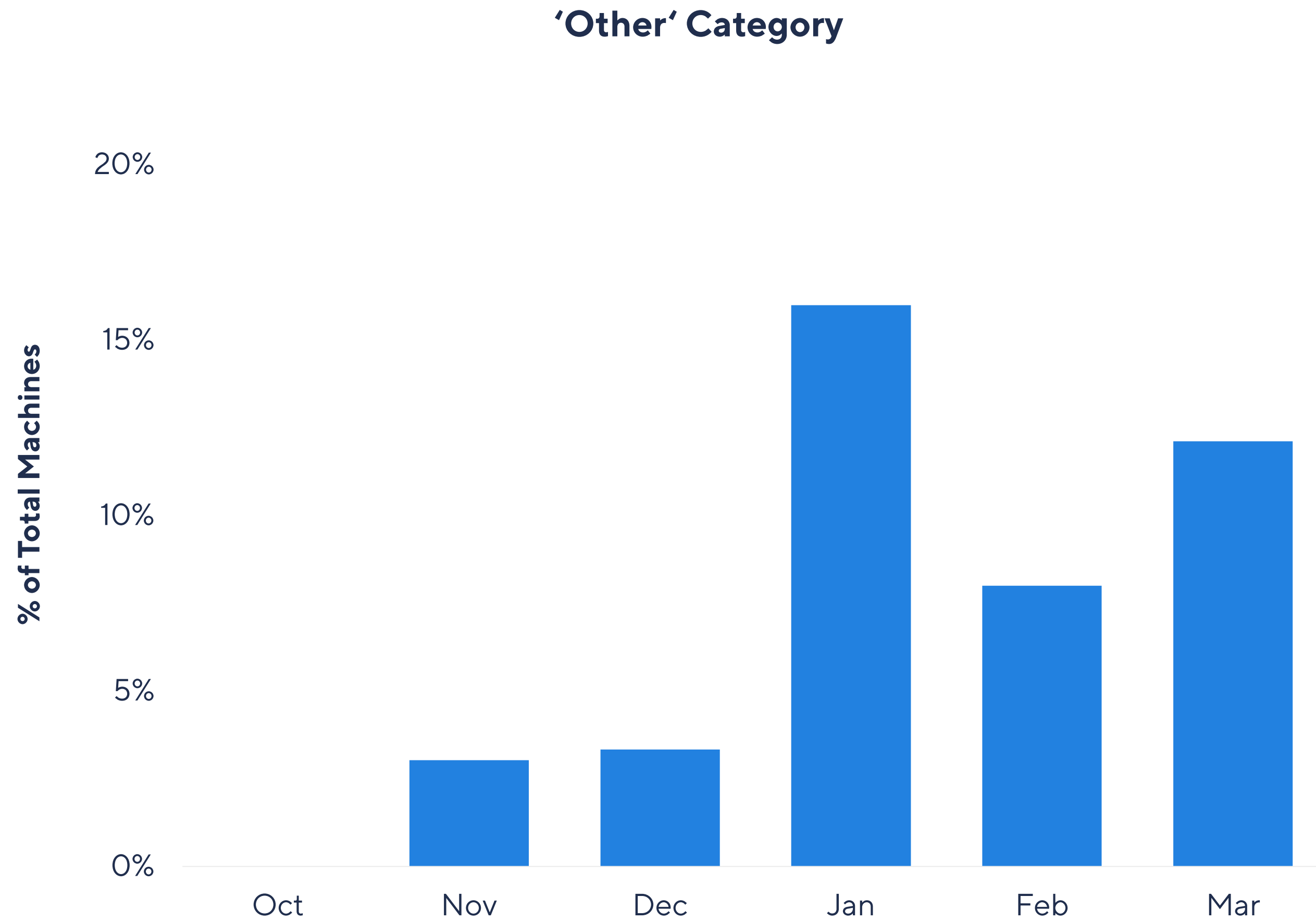
[Click here to view full gallery >>](#)



SOCIAL TRENDS

THEMES

Developers are expanding into new and wilder themes, such as DJ cats and pigs in space



House of Fun [Drop the Treats](#)

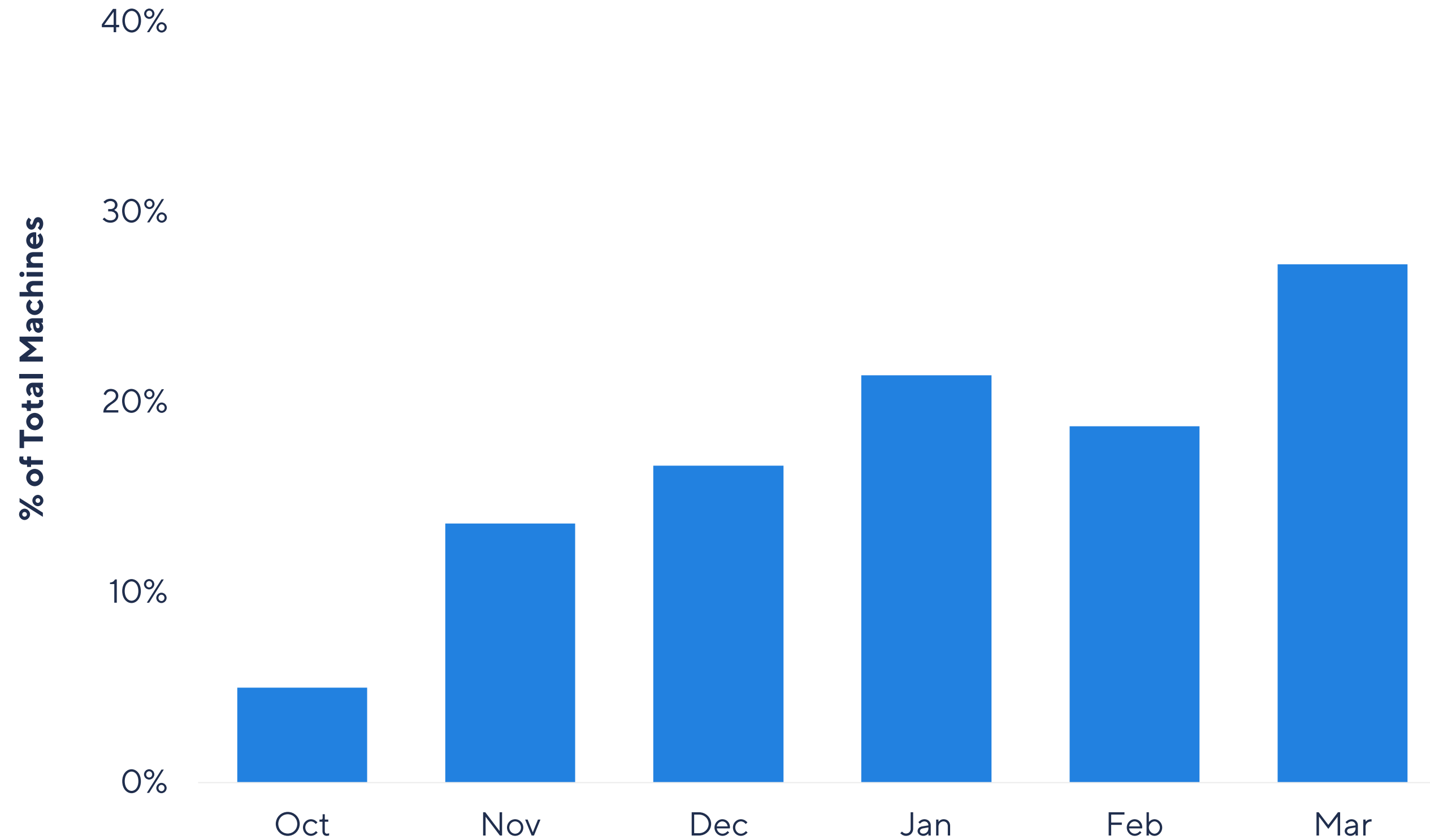


Quick Hit Slots [Cosmic Piggy](#)

BONUS FEATURES

Giving players additional options is a new trend with more Choose Your Bonus mechanics being released in Featured Apps

'Choose Your Bonus' Category



House of Fun [Riches of Apollo](#)



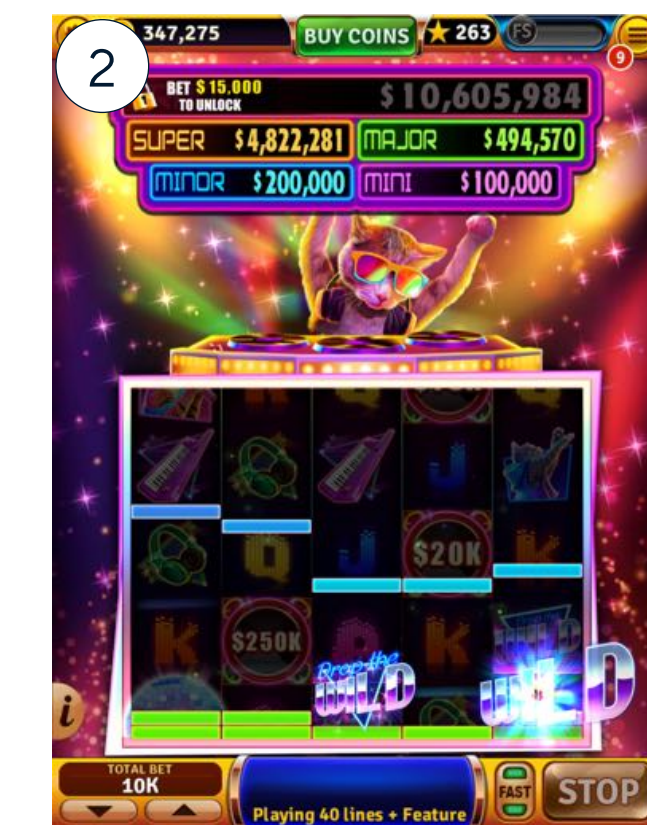
Cashman Casino [Timber Wolf](#)

MARKET WATCH

3/1/18 - 3/31/18

SOCIAL CASINO

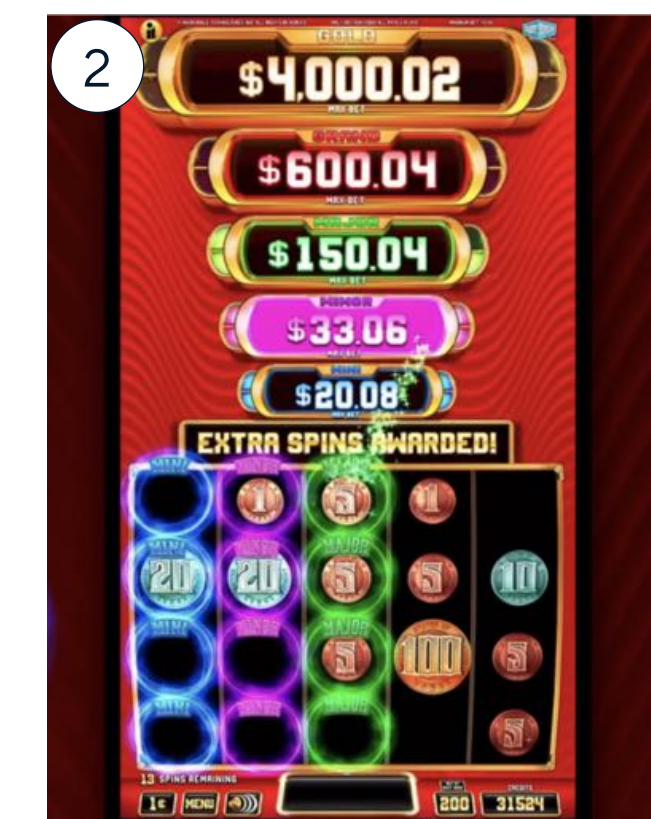
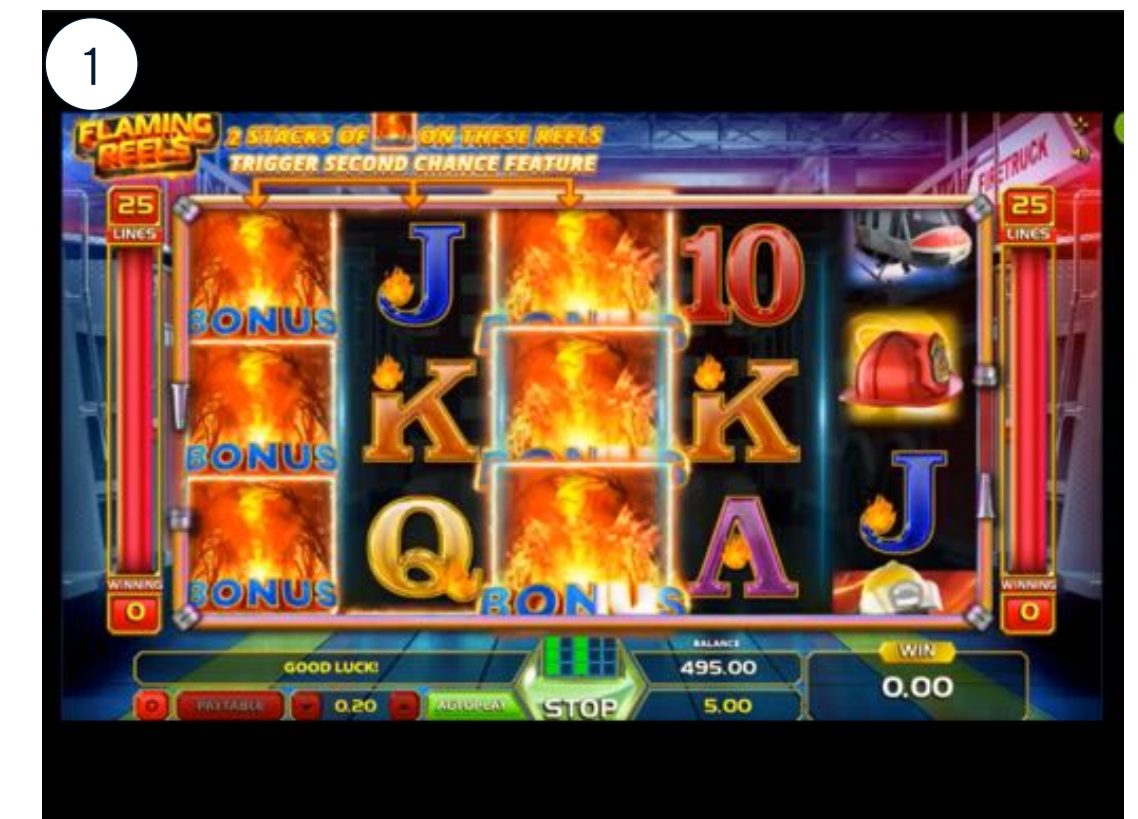
App	Machine	Features
DoubleDown	Hot Roulette - Wolf Run	<ul style="list-style-type: none"> Roulette mini-game bonus (1)
House of Fun	Drop the Treats	<ul style="list-style-type: none"> Symbol drop mechanic with DJ cat theme (2)
	Colossal Pigs	<ul style="list-style-type: none"> Stepper with respin feature
	Twinkling Treasure	<ul style="list-style-type: none"> Reskin of Shake the Bonsai with motion features
DoubleU Casino	Giant Gorilla	<ul style="list-style-type: none"> Expanding wild conversion mechanic during free spins (3)
Caesars Slots	Clover Isle	<ul style="list-style-type: none"> Large bets trigger respins with fewer symbols
GSN Casino	Leprechaun Hills	<ul style="list-style-type: none"> Winning combinations of medium symbols trigger respins
Quick Hit Slots	Fireball	<ul style="list-style-type: none"> Mini-stepper bonus round
	Reel Rainbows	<ul style="list-style-type: none"> Colossal symbols during free spins
Classic Vegas Slots	Double Hit Bonus Dollar	<ul style="list-style-type: none"> Stepper with video Deal or No Deal bonus round



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

RMG EU

Publisher	Machine	Features
Barcrest	Rainbow Riches Fortune Favours	<ul style="list-style-type: none"> Larger bets unlock multi-matrix reel set
Betdigital	Ambassador	<ul style="list-style-type: none"> Stepper with gamble feature based on number and color selected
	Knights of Gold	<ul style="list-style-type: none"> Has a second 12 x 5 reel set
GameArt	Flaming Reels	<ul style="list-style-type: none"> Two stacked symbols on the <i>Second Chance Reels</i> trigger a respin of the third reel (1)
Incredible Technologies	Crazy Money Gold	<ul style="list-style-type: none"> Collect scatter symbols during the respin to fill and unlock next level progressive jackpots (2)
Leander Games	Amazing Alchemist	<ul style="list-style-type: none"> Each reel has a different wild feature. Players choose feature at entry
Pariplay	Wild Cherry	<ul style="list-style-type: none"> Reality check pop-up feature (UK regulation). Players set time intervals for a dialogue to appear, displaying session length (3)
Playson	Claws vs Paws	<ul style="list-style-type: none"> Players collect tokens to trigger a Deal or No Deal prize wheel
Playtech	Murder Mystery	<ul style="list-style-type: none"> <i>Clue</i>-like mystery storyline solved through gameplay
Yggdrasil Gaming	Easter Island	<ul style="list-style-type: none"> Winning combinations during a respin triggers a conversion mechanic



3 Reality Check

The reality check control alerts you as to how much time you have spent playing the game. The time interval can be set by visiting 'My Account' through the host casino's website.

*The reality check is mandatory under the UKGC regulation.

The popup message displays the amount of accumulated time spent in the game, from the moment the game is launched until the popup appears. The alert message will popup in the middle of the screen based on the defined time interval and will stay on the screen until you choose one of three actions:

1. Continue - You will return to the game being played.
2. Go to Account - You will be redirected to your user account on the host website. In desktop mode, your account will open in a new window/tab. On mobile, the game screen will change to your account and will exit the game.
3. Quit Game - This will exit the game and return you to the games lobby.

REALITY CHECK

You've been playing for 0 hours and 1 minutes.

Your player history can be found on the 'My account' section of the website.

Continue
Go to account
Quit Game

[Click here for 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 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
- 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

LiquidandGrit.com



Brett.Nowak@LiquidandGrit.com

