

THE PAST AND FUTURE OF THE **SLOT MACHINE**

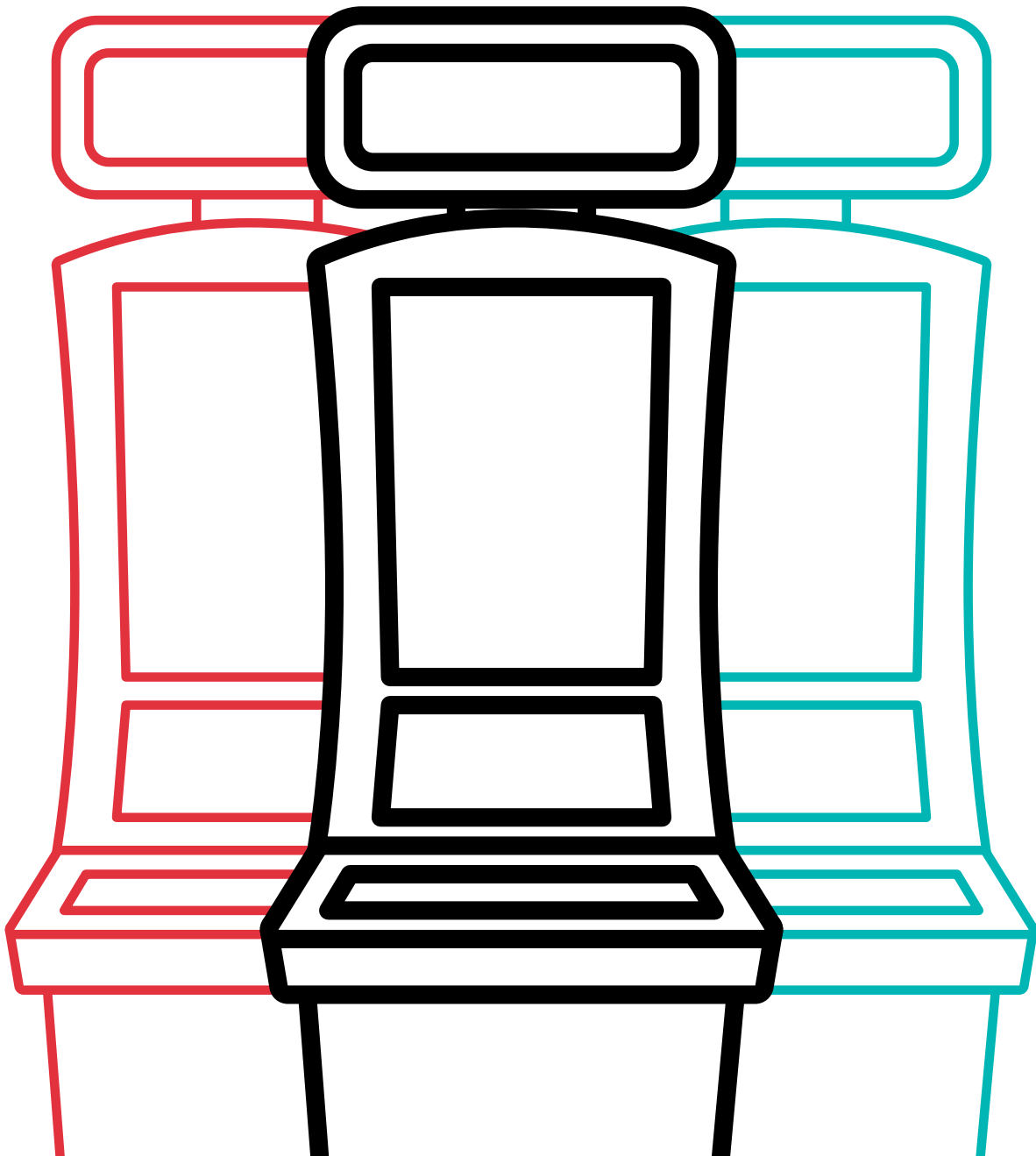


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ABSTRACT

If you went into a bar in the late 1800s in or around New York City, it might have been called, The Burnt Rag, Milligan's Hell or even, Chick Tricker's Flea Bag. You could have had a punch made of hot rum, whiskey, camphor, benzene and cocaine, and had a better than average chance of finding a gambling machine created by a New York based company called, Sittman and Pitt. The machine was basic but innovative for the time and allowed for a chance to win prizes like free cigars and drinks.

The machine contained five drums carrying 50 cards, cost a nickel to play, and was based on the math and the concept of poker. Most establishments hosting one of these machines would literally discard two cards to tilt the odds in favor of the house, and none of these machines had a way to directly pay winners.

The exact date is up for debate, but around this time an inventor named Charles Augustus Fey is credited with the next evolutionary step in slot machines – automatic payouts at the machine. He accomplished this by reducing the complexity of the five drums and 50

cards, to three reels and five symbols: spades, horseshoes, diamonds, hearts and the image of a liberty bell. This is what gave the machine the name Liberty Bell.

By most accounts, these two developments were the opening chapters of the modern-day slot machine. Clearly,

the story didn't end there as there are few industries in which a single image is so iconic as the slot machine is to the casino industry.

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The purpose of this paper is threefold:

1.
BROADLY OUTLINE THE TIMELINE
OF TECHNOLOGICAL INNOVATION
FROM THE EARLY SLOT MACHINES
TO THE MODERN, SOFTWARE-BASED
ELECTRONIC GAMING MACHINE.

2.
DESCRIBE SOME OF THE MOST
CUTTING-EDGE DEVELOPMENTS
THE INDUSTRY IS SEEING TODAY.

3.
LOOK FORWARD AT WHAT'S NEXT
FOR CASINO FLOORS AND POSE
SOME OF THE QUESTIONS THE
INDUSTRY WILL HAVE TO ASK
ITSELF TO ATTRACT THE
PATRONS OF TOMORROW.

INNOVATION AND A HISTORY OF THE SLOT MACHINE

CONSIDER SOME MILESTONES THAT HAPPENED BETWEEN CARDS, REELS, SPRINGS AND THE FIRST ELECTROMECHANICAL SLOT MACHINE

One of the most surprising aspects of the evolution of the slot machine is that so little changed for so long. Slot machines shrugged off or were passed over for real innovation from the late 1900s till past the midway point of the 20th century.

If you're thinking to yourself that you could have been sipping a beer from a can in air-conditioning, wearing flip-flops, while using an arc welder before you ever touched an electronic slot machine, you're entirely correct.

Until 1964 and Bally's fully electromechanical slot machine called Money Honey, slot machines remained entirely mechanical: a lever was pulled, a spring sprung, reels reeled, stoppers stopped, kickers kicked and control cams cammed.

- **1901** King Camp Gillette invents the double-edged safety razor and Hubert Booth invents the compact vacuum cleaner
- **1902** Air conditioning, lie detectors, the teddy bear and neon light
- **1903** The Wright brothers fly the first gas fueled, manned airplane
- **1905** Thank you Mr. Einstein for $E=mc^2$
- **1907** Plastic is invented
- **1913** The first time anyone hears a zipper
- **1919** The pop-up toaster, flip flops and the arc welder
- **1922** The first 3-D movie
- **1927** PEZ candy, Technicolor (color movies) and aerosol cans
- **1928** Penicillin, bubble gum and the first electric shaver
- **1930-1940** The first jet engine, Scotch tape, the electron microscope, polaroid photography, radio telescopes, the first tape recorder, canned beer, radar, the photocopier, ballpoint pens and the helicopter
- **1940-1950** Color television, the digital computer, the Slinky, Silly Putty, Jacques Cousteau invents the aqualung, now known as SCUBA, the atomic bomb, the microwave oven, mobile phones, the Tupperware seal, the Frisbee, the first time anyone hears Velcro and finally, cake mix gets us to 1950

SLOT MACHINES TODAY

Moving forward in development, players club cards and analytics entered the industry and redefined the concept of loyalty programs. Ticket in/ticket out (TITO) changed the sound of casinos and put a serious dent in the plastic bucket market. Video slot machines changed the look, feel and potential of games. Progressive jackpots transformed winning at a slot machine from a steak dinner or a new car, to a life-changing event.

Server-based floors enable slot management to reconfigure entire sections of a casino, or just one machine, from a work station or device depending on any number of factors.

Today, the slot machine experience can be extended from the casino floor to phones, devices and computers online. This not only stretched gaming for patrons but opened gaming to the masses who never set foot in a casino.

While these virtual slot machines might be tough to count currently, according to Todd Eilers, Principal at Eilers & Krejcik Gaming, LLC, "Our research shows over 990,000 electronic gaming devices across the U.S and Canada markets coming out of Q2 2018. By 2020, the industry is projecting that number to exceed one million."

In terms of the nature of slot machine games, which fundamentally can be described as a chance only game expressing its math outcome through combinations of symbols on reels, a new class of games has emerged. These games can be thought of as interactive gaming machines where the player can interact in a broader way with the game than a simple press of a button to get a result.

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SLOT MACHINES TODAY CONTINUED

According to Marcus Yoder, Vice President, Regulated Markets Business Development at Gamblit Gaming, LLC, “We have seen that the term “Skill-based game” is really not the right way to classify these games, as this description implies that the games base their outcomes predominately on the skill of the player. They most often don’t. In reality, the new games you are seeing introduced would more aptly be described as Player Interactive EGMs.

The amount of skill to play these interactive games varies, but in no instance is skill the predominate determining factor. Gamblit games actually use RNG math in a traditional sense to generate the wagering outcome. Our games are just simply more interactive and we think fun to play, than a traditional slot machine.”

Elaborating on this perspective, Yoder continued, “The introduction of Video Game EGMS is not a fork in the road. It’s an introduction of a spectrum of video game styles. Much like billions of people like different styles of games on their phones, we see different types of players gravitating to the various genres we have on our Player Interactive EGMs. There’s no question that these games will have a bigger footprint on the floors going forward making it just a matter of timing.

Based on our field data, we are bringing new players into the mix, so our games are complimentary, not disruptive to the traditional player market of today. We’re focused not on a revolution, but incremental growth.”

When prompted to speak on the transformation of chance-based, traditional slot machines to skill, Yoder added, “To many, myself included, Gamblit games are crossing from the terrestrial casino gaming world into the terrestrial casino interactive gaming world. Why? Because instead of simply pressing a button and waiting on chance, our games allow you to get involved in the game, even to the extent that you can influence the outcome.”

WHAT'S NEXT?

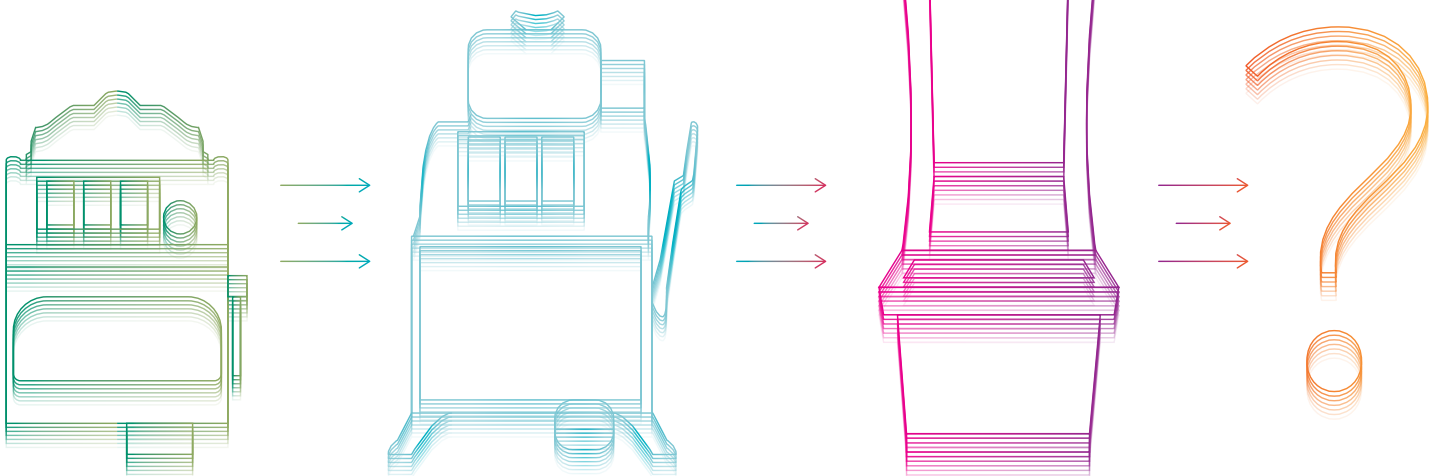
"If you don't know where you are going, you'll end up someplace else."

— Yogi Berra, former New York Yankees catcher

What's next for the industry is difficult to predict as patron demographics and demands shift, as well as how technology develops. What is certain, is that the industry can no longer merely hope that casino floors will attract and retain tomorrow's patrons.

According to Floyd Barroga, VP of Technical Compliance at BMM Testlabs, "Success requires promulgation of statutes and regulations which will encourage the integration of compelling product through the execution of leading-edge design. Robust testing through independent test labs such as BMM and internal controls implemented by regulators and operators will lead to player trust of the new technology as the industry incorporates varying styles of games."

Barroga continued, "Today the industry is at a crossroad, and the stakeholders can use this opportunity to collaborate. In terms of real innovation, the regulators can invite industry innovators to discuss the current technology and the requirements to bridge the gap moving towards product that incorporates the latest security protocols and entertaining features."



Building on this idea of innovation born from collaboration, it's possible to see and imagine opportunities for existing and emerging technologies to converge with the gaming industry around every corner in day-to-day life. Consider for example:



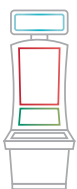
Localized climate control: With cigarette smoke as a top-10 obstacle to new players entering a casino,¹ and micro-climate air cleaning technology available, when will the two merge?



Biometric identification at games and across the casino: From becoming a security feature on phones to a *Forbes Magazine* report that, "77% of airports and 71% of airlines are reviewing digital ID options,"² biometric identification is moving from science fiction to how business is done. Think of a thumbprint or glance replacing player's cards.



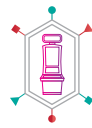
Expanded slot functionality: Drinks, 911 emergency services, valet, charitable donations, music (phone or online service), in-screen texting, total phone integration.



Slot machines as betting portals: Simultaneous betting on the slot machine as well as on sports, esports, table game stadium gambling all from a configurable window on a slot machine.



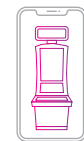
Artificial intelligence and analytics: Going beyond studying what people have done, to predicting what they'll do.



Integration, integration, integration: Seamless connections that make it easier and more personal, but less private to be a patron.



Skill-based gaming tournaments: The next evolution in skill-based gaming, Esports out of the stadium and across the casino floor?



Bridging the platform divide: From slot machines to devices, the exact look and feel anywhere you play.



Augmented reality slots: Using VR glasses to find computer generated prizes, bonuses and offers.



Cashless gaming: How payments will be made and accepted (phone, thumbprint or iris scan?).



New forms of currency: What will be considered 'currency'? (think of Bitcoin).



Voice controlled... everything: "Alexa, open an upper-left betting window on the Lakers game; open an upper-right betting window on arena roulette; open a non-betting window to watch the Celtics; zero-out betting windows and slot sound; log me into the 4pm Zombie Shooter tournament as a single player; play Elvis from my Pandora account with volume level eight; turn on in-game texting; donate 10% of my cash out total to my whale charity; order a Cuba Libre and turn smoke control to ten."



1 American Gaming Association study of March 2018
2 Forbes September 29, 2018

QUESTIONS FOR THE INDUSTRY

THE CASINO INDUSTRY NEEDS TO QUESTION THE STATUS QUO AND CONSIDER THE GAP FROM THE LIBERTY BELL TO MONEY HONEY. TOMORROW'S PATRON WON'T BE PLEASANTLY SURPRISED BY INNOVATION, THEY WILL EXPECT IT.

- How far is the industry prepared to go to attract a new generation of patrons knowing that some steps, such as space dedicated to skill-based floors and non-smoking sections, will alienate existing slot patrons?
- If the casino floor can be extended beyond the property to people's lives at work or home, where does it become invasive?
- Where will esports collide with, or align to casino slot floors?
- In a world of data breaches, how will casinos that gather immense data on patrons protect those 1s and 0s?
- Studies have shown that Millennials and Generation Z value companies and organizations that share altruistic values and contribute to causes that are important to them. How can casinos boost their philanthropic and environmental profile to attract these generations?

The next time you're making your way through security at the airport, paying for an Uber ride, playing a video game with your kids, or ordering a pizza on your phone, consider the technology you see all around you and at your fingertips. Ask yourself, "What's new and what's old, but applied in a new way?"

Stay tuned to BMM Testlabs for insight, updates and resources.

BMM Testlabs is the longest established and most experienced private independent gaming testing laboratory in the world.

We have been serving the gaming industry for over 37 years. Our experience, expertise and dedication in this fast paced and evolving market ensures we always exceed client expectations.

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