

VEGAS 2047

High Limit Advantage Play Video Pinball



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SUMMARY:

- **Vegas 2047** – High Limit Advantage Play Video Pinball, combining five of **NanoTech Gaming** patent-pending technologies into a single machine:
 1. **Bet Cube System** – allows players to independently select bet amount, win amount, and effect of skill on the resolution of the wager
 2. **NanoTech Advantage** – allows players to use their skill to gain a positive Expected Value (EV) for the resolution of a wager
 3. **High Frequency Videogame Physics Simulation (HVS)** – combines high-frequency physics with a low-latency input system, creating a more realistic and immersive videogame experience
 4. **GameFlow** – combines 120Hz backlight-strobing technology with 120Hz refresh rate on an LCD display to enable accurate motion portrayal
 5. **NanoTech PDQ** – upload your performance to social media by taking a photo of a QR code



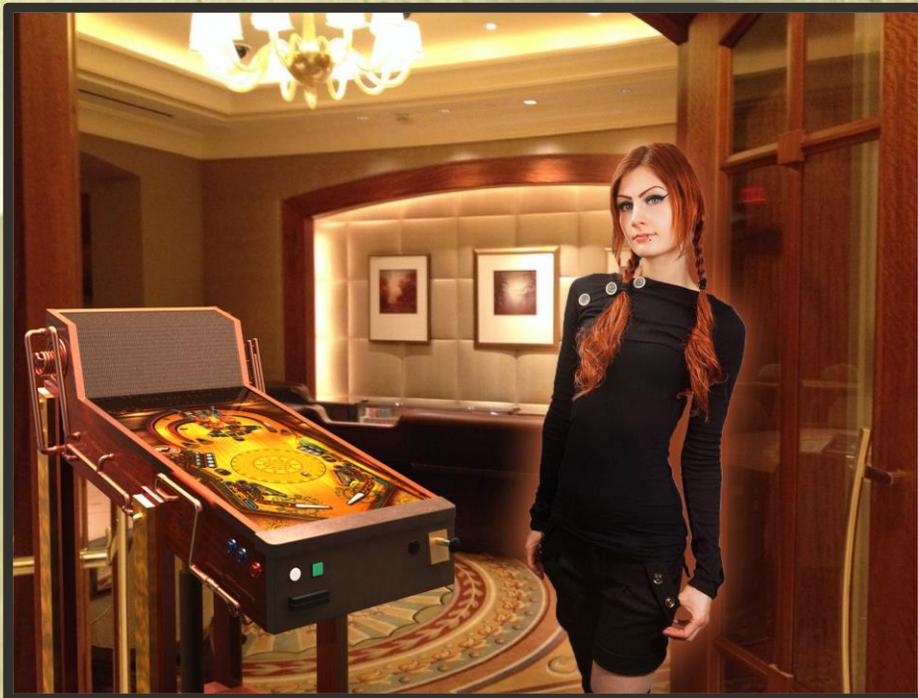
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THE VISION:

- **Vegas 2047** – this is the future of Las Vegas where the element of skill is a key for players to unlock a player edge. This unique player edge does not expose the casino to losses any more than any other purely negative expectation game.
- **High Limit** – long average game time, low house edge, and the possibility for advantage play open the doors to large denomination bets. **Vegas 2047** belongs in the high limit lounge, where \$100 is a small minimum bet
- **Advantage Play** – higher-skilled players enjoy an advantage because of lower-skilled players with absolutely no mathematical exposure to the casino
- **Video Pinball** – the **HVS** and **GameFlow** patent-pending technologies combine to make the most realistic pinball simulation of all time. Low-latency input and high-frequency feedback allow **Vegas 2047** to be the truest measure of player skill
- **Vegas 2047** is designed with the professional gambler in mind, the likes of whom will enjoy lifetime winnings in the millions of dollars. With baccarat's surge to dominance in Las Vegas, lucky Asian gamblers are comfortable making \$100,000 and larger single bets. For the Western gambler ready to demonstrate their skill to win big money, **Vegas 2047** is poised to enable their high limit Bets where previously there was no motivation for them to play high limit table games

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HIGH LIMIT:

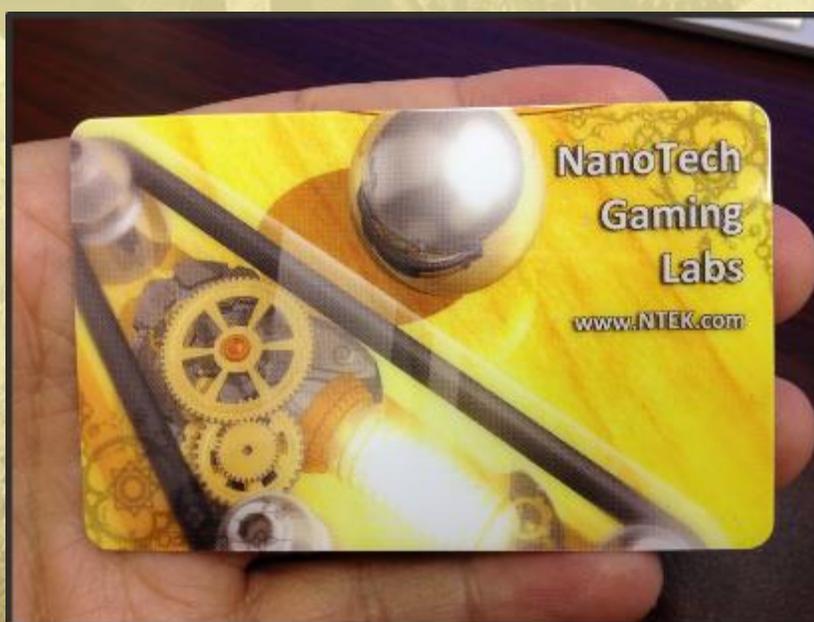


- **Vegas 2047** targets a new demographic: one that includes the competitive video game player, the gambler who does research to seek out positive EVs, and those who are enthusiastic about casual pinball gameplay. All of these attributes are specifically within a player who is a more intelligent western style player.
- **House Edge:** With a 1% suggested house edge and a \$100 minimum bet, the player cost is \$1 per game on average which is in line with expectations for overhead for the entertainment experience.
- **Player Conditioning:** For the casino, the goal is to condition the player that the chance to win is very real and fair, encouraging bigger bets. This increases the excitement as well as the possibility for the wagers to have a life-changing effect! All the while, that 1% becomes significant revenue for the casino as the player becomes increasingly convinced that they are beating the house and obtaining advantaged bets. Onlookers become engrossed in the very real opportunity to win.

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HIGH LIMIT:

- For 2013, the total revenue generated from about 300 baccarat tables in the state of Nevada was nearly \$1.6 Billion*. Ninety-nine percent of this revenue came from the Las Vegas area. On average, each baccarat table earned over \$5,000,000 for the year. Most of this revenue comes from a very limited player demographic.
- **Vegas 2047** is intended to operate in high limit table rooms as a table game that requires an attendant to conduct money transactions, and who can inform the player about betting and gameplay details.
- Also designed as a cashless gaming device, **Vegas 2047** allows players to easily add credit to a player card through a read/write system instead of managing chips or cash.



* <http://gaming.nv.gov/modules/showdocument.aspx?documentid=8618>

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HIGH LIMIT:

- A 39" HD display running at 120Hz with **GameFlow** technology complements the top-of-the-line cabinet, making the virtual pinball table look very real.
- The **Vegas 2047** machine is hand-crafted out of quilted maple and red oak wood. Polished copper and brass fittings accentuate the game's **steampunk** visual style. A real leather locking-bar – where the player's hands rest during play – and leather kick-plate finish this one-of-a-kind luxury piece of art.
- Two mid-range speakers, and a punchy sub-woofer not only provide audio feedback for gameplay elements, but are tactile as well. The player feels the cabinet vibrating with each bumper and slingshot kick.



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BET WHEEL, EV METER:

- In **Vegas 2047**, the three dimensions of the **Bet Cube** system – bet amount, win amount, and skill effect – are represented by two visual elements: the **Bet Wheel**, and the **EV Meter**.



- The player independently adjusts bet amount and win amount, and (factoring in the house edge) is visually shown their chance to win. At the end of the game of pinball, the **Bet Wheel** spins – if the wheel stops on red, the player loses, if it stops on green, the player wins their bet.



- The **EV Meter** is an analog indicator of the effect that skill factors into the bet resolution. A player may choose any setting from "MAX" down to "ZERO" skill effect. At "MAX" skill effect, the player's score is used to influence the bet resolution to the maximum allowed by local law. At "ZERO", the player's score does not influence the bet resolution at all.

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ADVANTAGE PLAY:

- The patent-pending **NanoTech Advantage** system compares a player's score and bet amount against all previous scores and bet amounts, awarding a weighted positive EV for an above-average score, and decreasing EV below that set by the house edge for a below-average score.
- The **NanoTech Advantage** is self-regulating, and will always trend towards the house edge regardless of the number of skilled performances, bet or win amounts, and winning and losing bets.
- Obviously, it is possible to win a bet even with a below-average score. Likewise, it is possible to lose a bet even with an above-average score.
- Generally, the **NanoTech Advantage** system allows a very small number of highly skilled players to enjoy a consistent advantage, and thus overall lifetime winnings because of the majority of money bet on below-average skill and scores.
- It is possible with a large bet amount and small win amount to earn a 100% chance to win a bet with a high enough score.
- The **NanoTech Advantage** system is agnostic of wins or losses, and only is affected by above-average or below-average scores where theoretical EV is awarded or lost.
- The maximum player advantage can be calculated by 100% minus the jurisdictional minimum payback, minus twice the house edge. In Las Vegas, Nevada, with a minimum payback of 75% and a house edge of 1%, the maximum player advantage is 23%.

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VIDEO PINBALL:

- **High Frequency Videogame Physics Simulation (HVS)** – There are two critical elements of this technology. First, the physics simulation in **Vegas 2047** updates at 1000Hz. Second, the leaf-switch buttons operate on an interrupt-driven system that reduces input latency to a few nanoseconds (compare to milliseconds in a contemporary video game).
- Most contemporary video games run at a display refresh rate of 60Hz. **GameFlow** technology is critical to the pinball simulation and runs at a refresh rate of 120Hz. Additionally, **GameFlow** incorporates a backlight strobe which functions in sync with the refresh rate. This portrayal of motion eliminates motion-sickness resulting from display artifacts on a more traditional sample-and-hold LCD display.



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TABLE LAYOUT:



- Advancing Bumpers, Left, Center, and Right Target Banks by 1 level activates Multiball
- Hitting all 3 Multiball Bonus Targets awards bonus score and additional ball for next Multiball
- Completing Upper Rollovers or Lower Rollovers awards bonus score
- An additional Add-a-ball is awarded when the first ball exits the Bumpers

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FAQ:

Q: Why focus on high limit players at \$100 minimum? Isn't there more money to be made with a penny slot machine approach?

A: There's more money to be made at higher denominations through revenue-sharing with the casino, and actually less risk for the smart gambler who plays Vegas 2047 compared to the penny slot machine player.

Q: if Vegas 2047 is advantage playable, won't the casinos be turned off by player exploitation?

A: The NanoTech Advantage model is mathematically proven to return the operator-selectable house edge. The advantage play opportunities exist for skilled players when there are sufficient players with below-average-scoring games.

Q: Won't Vegas 2047 suffer from 'vulturing' – where an expert player swoops in and takes all of the available EV?

A: No. Only a percentage of stored positive EV can be awarded on each game. By only awarding a percentage of the total positive EV available, the store of positive EV is never exhausted. In addition, the requirement to have only games with positive EV is unlikely even for the best of players due to the chaotic nature of skilled pinball gameplay.

Q: Isn't NanoTech Gaming worried about copycat products?

A: The casino industry thrives on copying successful games. However, with multiple patent-pending technologies and systems in place, those products that do not license our technology will most likely be inferior in many ways – from the advantage play system, to the display technology.

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FAQ:



Q: Why doesn't the machine have a ticket printer and bill validator (i.e. TITO)?

A: Vegas 2047 is a table game and not a slot machine, and operates with large denomination bets (dollars not pennies). The game's attendant can help you with cash transactions and give you a player card.

Q: How much does a Vegas 2047 machine cost?

A: Our manufacturing cost is about \$10,000, but these cabinets are not for sale. It is our intent to lease machines to the casino and share in an operational revenue model.

Q: When will Vegas 2047 appear on the casino floor?

A: NanoTech Gaming is working with New Jersey's Department of Gaming Enforcement to fast-track the approvals process. Our goal is some time in 2015.

Q: How can I win at Vegas 2047?

A: The short answer is, "get lucky." The long answer is, "practice and learn about the Kelly criterion and risk of ruin while encouraging below-average gamblers to come in and bet big." Over the long run, players who are sufficiently skilled will win more than they lose because of consistent positive EV.

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KEY TEAM MEMBERS:



Aaron Hightower:

VP of Gaming Technology

Stephen Riesenberger:

Creative Director



Adrian Ludley:

Senior Art Director

Aaron, Stephen, and Adrian each have over 20 years' experience developing video games. The three team members were the same core team who collaborated on the **Atari Games** arcade racing game, **RUSH 2049**, in 1999.

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