



Elwha River Casino is operated by the The Lower Elwha Klallam Tribe.



ʔéʔtɬwə nəxʷsłayəm
“The Strong People”

Case Study: Elwha River Casino Using data and artificial intelligence to optimize slot floor product investments

Elwha River Casino is a locals casino located in Western Washington on the northern tip of the Olympic Peninsula, in the Elwha River Valley. Called the “friendliest casino on the Peninsula”, the Elwha gaming experience combines Las Vegas style gaming with local hospitality. The property caters to a dedicated and faithful customer base who are predominantly within 50 miles of the casino. Much of the casino’s success has been as a direct result of its location on the Peninsula.

Like most gaming enterprises in Washington State, Elwha has faced competitive pressures by regional operators. Competition for gaming share of wallet is fierce, with multiple operators vying for player visits. Elwha’s closest competitor is 30 miles west of the property and boasts a diversified gaming operation that covers slots, table games, poker, and bingo. 40 miles further west, is a larger full-service destination property with a diversified gaming and amenity product mix, including a hotel and conference center.

Elwha has invested heavily in creating the best slot floor experiences for its local players, with an eye towards cultivating personal gaming connections through its products on the floor. As a result, Elwha has focused its efforts on optimizing slot floor product investments.

Problem: Optimizing Product Investments

As with any property, a large portion of capital expenditures rests in the gaming products on the floor. Understanding the right mix of products to invest in is a critical function of the property. Elwha makes frequent investments in new products to ensure that the slot floor is refreshed with the latest and greatest games, keeping local players energized and engaged. Elwha was eager to make new product investments, and their management team set out to explore innovative new AI technologies to assist with these decisions.

Elwha intended to make investments in their floor using data to guide their investment decisions. They wanted to answer the following questions:

1. What slot machine attributes affect performance?
2. What factors affect machine performance relative to the customer base?
3. How would changes to the mix of machines impact the performance of other slot machines on the floor due to market saturation and cannibalization effects?
4. What products should Elwha invest in and which products should be retired?
5. What uplift in overall win will be achieved with the investment?

Elwha was interested in precisely targeting future product investments by evaluating the existing player data and machine utilization on the floor. Ultimately their goal was to be armed with accurate and actionable information, to have more informed, data driven negotiations with their slot machine vendors, and understand the impact of their new investments on revenue.

The Slot Floor Optimization Challenge

Casinos collect massive amounts of transactional data on slot play for analysis and regulatory purposes. A good slot manager uses data and experience to make decisions about which slot machines to purchase and which to retire or convert. However, even with decades of experience, it is impossible for a human to understand every possible slot machine mix and how it will impact the performance of the slot floor. The slot floor is a dynamic ecosystem where every change impacts the performance of every other machine on the floor, often in surprising and non-intuitive ways. No human, regardless of experience, can evaluate the full range of possible slot floor configurations.

Solution: *Reel AI* - Using Data and Artificial Intelligence to Optimize Product Investments

“*Reel AI* has helped us understand our slot floor in ways that we never could. Optimizing our slot product mix means greater revenue with less expense. That means more money for the casino and the tribe.”

Pat Owens

EGD/Slot Manager
Elwha River Casino

Reel AI contains a mathematically sophisticated, data-driven, and scientific model that describes the underlying “physics” that dictates the behavior of players, and how they interact with a slot floor. The *Reel AI* solution discovers which slot machine characteristics drive performance, finding the best possible changes to the mix of slot machines to suit the preferences and play characteristics of players. Moreover, it predicts the uplift in win from such changes.

Core to *Reel AI* is its ability to understand important subtleties of the slot floor that are not discoverable by human operators, like the intricate balance between supply and demand. A popular machine type might be occupied most of the time, prompting a slot manager to increase the number of these machines on the floor. But how many should be added? The more machines of a particular type are added, the more their individual performance decreases due to market saturation. Even worse, other machine types may also suffer due to cannibalization effects. With *Reel AI*'s built-in mathematical analysis of these effects, combined with its ability to explore *millions* of alternate slot floor compositions, significant improvements can be made to the efficient utilization of the property's floor real estate and budget for new machines.

Impact: How *Reel AI* Helped Elwha Make the Best Purchasing Decisions

Reel AI helped Elwha to understand which machine categories to invest in and which to retire. It may seem like an obvious choice to simply remove the lowest performing machines from the floor, but using performance statistics without fully considering the full floor impact often leads to less than optimal removal decisions. Sometimes, poorly performing slot machines turn out to be harmless, or even beneficial, when they attract niche customers with little interest in other higher performing machines (e.g. video poker players). In other cases, poorly performing but popular machine segments attract enough attention to pull people away from other more profitable regions of the floor. *Reel AI* is able to explore these trade-offs in an intelligent way and flag these harmful low performers for removal. *Reel AI* was also able to make recommendations for new purchases, by properly taking into consideration supply and demand trade-offs.

Elwha was provided with two alternate sets of purchase/retirement recommendations. With machine changes that affect 8.8% of the floor, *Reel AI* found a potential **3.8% uplift in theoretical win**. When the number of replacements increased to 18.3% of the floor, the **expected uplift was 5.2%**. *Reel AI's* analysis also showed that much larger gains will be possible in the future as a greater fraction of their slot floor is upgraded. This insight gave Elwha the confidence it needed to make impactful changes to the slot floor.

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Reel AI found a potential 5.2% uplift in theoretical win.



Casino Science is a data science and analytics consulting company that works with tribal and commercial gaming enterprises. The company empowers casino marketing teams to discover and act on insights using a scientific and data-centric approach.

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