Floor Mix Optimization at Lucky Duck Entertainment Case Study

As Geoffrey Knight walked to his car, he reviewed his conversation with Maria de la Luz, IT Manager at Lucky Duck Entertainment (LDE). His employer, Owl Research (OR), is a consulting firm eager to make LDE a new customer. OR's sales rep, Henry Hsu, has learned a lot about LDE's business by cultivating a relationship with them for months, culminating in this important phone call with Maria and Geoffrey, project lead.

Maria had explained that LDE owns eight casinos in Nevada. A large portion of the floor space at each site is consumed by a variety of slot machines. The VP of Operations, Donald Bird, strongly believes that analytics can help the company maximize the utilization of floor space. His team has observed that different types of machines yield different levels of profitability. He wants assistance determining the best mix of machines for each casino site and charged Maria with identifying vendors who could help them.

According to Maria, LDE collects transactional data for each slot machine at each site. The data includes historical time-stamped records of each machine on the floor: identification number (ID), manufacturer, game theme, money wagered ("coin in"), payout ("coin out"), and utilization (percent of maximum pulls per day). LDE's loyalty program allows gamers to use a card that tracks their play while giving them access to special coupons and prizes. The company would like to include the behavior and demographics of loyalty members in the analysis.

Geoffrey decided other factors worth considering include the amount of floor space at each site, the current mix of machines, the costs of procuring and revenue of decommissioning machines, management preferences for number of each type of machine to be in play at each location, and allowable deviations from the current configuration in any given time horizon. Maria claims that her IT department has current state and cost data that either exists or can be derived from existing data sources. Geoffrey knew OR would need to collect management preferences through interviews, surveys, or other methods.

Initial conversations with consultants have led LDE to pursue three forms of analytics: machine categorization, forecasting, and optimization. Some individual machines lack data, so it makes sense to group similar machines together for the purposes of forecasting and optimization. LDE wants guidance on how to best do the categorization based on the available data. Accurately forecasting the performance of the machines will be a critical component of the analytics work. The end goal is to make optimal decisions about machine mix at each of the eight sites.

Geoffrey would be responsible for drafting the Statement of Work (SOW) for OR. As a recent hire at OR, Geoffrey is eager to prove his abilities. During his commute home, he started making a plan for what else he needed to learn before he could complete the SOW. He only had a few weeks before it was due.