

## Smart Chicken's Inspiring Success: Leading the Way in BI and Analytics

### Background

Tecumseh Poultry was founded in 1998 based on a simple goal, "to produce the best fresh chicken in the United States", and that's what they do! Over 20 years they have defined and then implemented methods which result in the highest quality finished products. In other words, they do things the right way. Not necessarily the easiest, fastest or most efficient way. Simply the right way. So, what exactly does this mean? Proper treatment and care of their chickens and people, and the utmost care and discretion in how they process and package their product. Furthermore, they do all this while keeping a careful eye on the environment and on the sustainability and renewability of the resources they rely on.

Beyond being industry innovators in their day to day operations, they're also 10 steps ahead when it comes to how they analyze their business and are visionary in how they use data to identify opportunity for improvement. In fact, Smart Chicken has more advanced predictive analytics than many investment banks we've worked with. Recognizing this vision early on, Peraison was very excited to be given the opportunity to help Smart Chicken take their BI and analytics to the next level.

*"Smart Chicken has more advanced predictive analytics than many investment banks"*

Author

**David Anderson,  
Partner**



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### The Challenges

There are many challenges unique to producing a perishable fresh product. The shelf life is short, high wastage would make the business model unfeasible, and there's no real opportunity for inventory. So, supply and demand need to be in sync, and this requires precision planning and a perfect understanding of your market. Supply is relatively fixed in the short term, but demand can fluctuate wildly depending on time of year, weather and promotional activities. Believe it or not, demand for white breast meat skyrockets for the short period of time that our new year's resolutions are still intact, before settling back down in February. Try planning around that!

Beyond this, there are a raft of challenges unique to poultry production. Football season sees a huge uptick in wings consumption, but last time we checked, a chicken only has two wings, so there's no ability to increase production of this single SKU. In another twist, Thanksgiving and Christmas is a time of year where we all get together and eat whole Turkey, but that sees the demand for whole chickens plummet for November and December. Planning around these erratic peaks and troughs causes plenty of pain, but together with the Smart Chicken team we've developed some novel ways of optimizing the planning process through a combination of live analytics in Qlik dashboards, and machine learning assisted forecasting with Data Robot.

### The Solution

#### Using Qlik to shed light on the business

The power of Qlik is leveraged for both its ETL capabilities and as a data visualization and reporting platform. Powerful associative models consolidate data from ERP, CRM, live production and planning tools giving managers an asset to empower decision making.

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The customer demand forecasting process is a critical step in the chain to running a successful operation. Visualizing the forecast in Qlik, managers can quickly move from a brand level right down to individual SKUs. Different ordering patterns unique to geographies are easy to see, and the demand fluctuations driven by weather, events, promotions and holidays are all evident when trended or exposed through geographic maps.

Qlik provides a great view into the forecasting and sales data, but with such diverse ordering patterns there's real opportunity in perfecting the forecasting process right down to the SKU and customer level. Smart Chicken and Peraisson enlisted the help of Data Robot to apply Automated Machine Learning technology to the demand forecasting process.

### **Taking forecasting to the next level with Data Robot and Automated Machine Learning**

What really separates Smart Chicken apart from their competitors is how tight their forecasting and planning process is. Representatives in the field have their finger on the pulse by chatting to customers in supermarkets and they feed anecdotal information back into the planning team, while back at head office demand is forecast right down to the SKU and customer level, something most companies would not dare attempt.

Instead of applying a single forecasting algorithm across all customers and SKUs, Data Robot has enabled Smart Chicken to mathematically cluster and segment similar customers and products based on volume and ordering behaviors. Unique forecasting models are then auto-generated for each unique cluster.

Pulling from a library of hundreds of predictive models, Data Robot ranks its recommended models based on performance, error and speed, and then recommends a model to be put into production. Without an in-house data science team, Smart Chicken uses the power of automated machine learning and predictive analytics to further refine customer demand forecasting.

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### **Beyond demand forecasting**

While customer demand is a pivotal data point for Smart Chicken, there are other parts of the business that can also benefit from the power of Data Robot. Predicting the growth trajectory and final weight of chickens can inform the planning process of anticipated supply. In a sector where inventory is almost non-existent, having a keen eye on supply avoids surprises and lets the customer support team know exactly how much produce they have available to distribute. Having advance notice of any expected shortfalls lets customer service pro-actively manage expectations.

In another industry first, Smart Chicken have installed a full end-to-end 'air chill' system – the only one of its kind in the US. While the impact this has on product quality is beyond measure, it's a tricky piece of equipment to run and presents a risk should it fail. Smart Chicken are looking to Data Robot for predictive maintenance. By analyzing the events leading up to previous parts failures, we can begin to predict when another failure is looking likely. IOT sensors constantly measure conveyor belt motor amperage, temperature and tension. The most minute change in tension may indicate a stressed or worn ball-bearing, or a slight increase in motor temperature might indicate an increased level of strain. Being able to pro-actively identify issues before they fail during production hours can have a massive impact on continuity of supply.

## The Impact

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### **Looking to the future**

As consumers place a higher importance on the quality and origin of their produce, the market for Smart Chicken's products is on the rise. The game-changing innovator from small-town Nebraska is setting the bar for the larger producers. We're excited to be on the analytics journey with them!