DA 320 Project 4 M. Blanco

# Barbecue chain eyes using Alexa to augment BI dashboards in kitchens

Dickey's Barbecue Pit, the nation's largest barbecue chain founded in 1941 by Travis Dickey, currently operates 514 restaurants across the U.S., and has leveraged big data and business intelligence to enhance the way they serve their customers and do business. Along the way, they have become an industry leader within the restaurant business in the use of these tools and are now poised to do even more by leveraging Amazon’s Alexa.

In 2013, Dickey’s set out to build a world class analytics platform without the high price tag typically associated with enterprise hardware and software. Prior to that time, the company was heavily dependent on spreadsheets and other inefficient tool sets.  Analysts pulled raw data from outdated systems and updated spreadsheets to support daily operations.  Sales data reports were distributed via email, while inventory was self-reported throughout the day across their system.  Purchase data was manually extracted from vendor websites and guest satisfaction survey results were copied from web page output.

The result of Dickey’s business analytics change, Smoke Stack is a cloud-based proprietary system that combines Amazon Redshift’s data warehouse with Syncsort's data integration tools and Yellowfin's BI and dashboard software. With Smoke Stack, the company can analyze data from point-of-sale (POS) systems, marketing promotions, loyalty programs, customer surveys and inventory systems to provide near real-time analysis on sales and other key performance indicators (KPI). Following Smoke Stack’s implementation, business analytics teams were able to provide insights across the enterprise, without spending hours integrating data and reports to show correlations between training compliance, guest complaints, and sales impacts. The platform supported new metrics to accurately predict daily sales at their various stores by integrating Holt Winters and ARIMA models into their solution.

In the next step of their BI evolution, the company is using Amazon Alexa so franchisees can get real-time operational data, while cooking, as a supplement to the dashboards that are available for querying outside the barbecue pit. Alexa can provide up-to-date data on daily sales, inventory levels, food safety reminders, waste management controls, scheduled deliveries by suppliers, customer ratings and optimal smoking times, just to name a few. While Alexa does not eliminate the need for franchisees to access longer-term analysis and planning data dashboards via tablet devices, it does help owner-operators manage their business more efficiently. Dickey’s adoption of the Alexa enterprise voice platform has helped to not only drive more business, but also to make their restaurants friendlier. Additionally, as a leader in the restaurant industry, Dickey implemented this platform to accelerate the development, deployment, operations, and monitoring of Alexa Skills in the industry.

For Dickey’s, one of the challenges encountered was getting Alexa to understand all the different ways that Dickey's users could ask a question. The development team had to incorporate as many as 40 variations of the same question into the Dickey's application. To deal with this challenge, the team is leveraging machine learning and natural language processing to improve Alexa's ability to determine the meaning of unfamiliar or unclear phrases. Another challenge encountered was finding an optimal location to place the devices inside the store to protect them from smoke, grease and ambient noise while letting end users interact with the application in an appropriate manner. Additionally Dickey’s is exploring add-on functionality that would let users access [data visualizations in dashboards](http://searchbusinessanalytics.techtarget.com/tip/BI-dashboards-need-measured-approach-on-data-visualizations) and pull information from them [through voice commands](https://www.youtube.com/watch?v=zqGK2LYtx-U).

Alexa is enabling Dickey's to deploy new capabilities that is allowing them to better serve customers and improve efficiency. This has allowed them to remain at the forefront of the restaurant business and provides a competitive edge.