



Case Study:

How A National Healthcare Company Increased Forecast Accuracy by 20% in 3 Days

INCREASED SALES FORECAST ACCURACY **20%**

67K MULTI-DIMENSIONAL TIME-SERIES FEATURES DISCOVERED

ML MODELS TESTED AUTOMATICALLY **700**

3 DAYS OF DEVELOPMENT FOR ONE DATA SCIENTIST

When a national chain of clinics and surgery centers wanted to boost their forecasting capabilities, they first looked at the challenges of their legacy approach. The company's business is spread across the entire nation and is based on both regional as well as sub-regional geographic territories. The multitude of products, complex regional make up of the sales organization and the nature of sales data - which is transactional and relies on time-series - meant that accurately forecasting demand can be a challenge. While they had a forecasting model in place, it was not leveraging the full breadth of the company's complex data types. Nuances of product demand as well as regional sub-regional issues were impacting forecasts, but were not easily

ABOUT

NATIONAL HEALTHCARE BUSINESS

300 Facilities nation-wide

Industry: Healthcare

Employees: 10,000+

CHALLENGES

- The company was using the Facebook Prophet model, but it did not provide enough flexibility
- Forecasts are impacted by product, regional and sub-regional variables
- The team wanted to analyze multi-dimensional data across multiple time-series

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accounted for in the existing model. In addition, leveraging the complex data set required lengthy and complex feature engineering processes that were overwhelming for the data science team to manage. The combination of multi-dimensional data and time-series predictions, made them look at dotData.

THE CHALLENGE OF MULTI-DIMENSIONAL DATA FOR TIME-SERIES

While they were using Machine Learning to build forecasting models, their use of the Facebook Prophet model meant that they could mostly only use time aggregation based on historical revenue information without considering other dimensional details. Relying on the Facebook Prophet model was particularly constraining since the organization needed to forecast revenue while taking into account individual product trends regional and sub-regional variables across different time dimensions.

When the company first spoke to dotData, our automated approach to building features and the power and flexibility of the platform's handling of time-series data were of interest. The data science team wanted to achieve three critical goals: First, to boost model accuracy by leveraging more dimensions; Second, to account for the nuances of forecasting by product, region, and sub-region; and Third, to lower the impact of building, iterating, and maintaining ML models on their small data science team.

WHY DOTDATA

dotData's automated feature engineering provided the ideal solution. By automatically connecting to the organizations raw data - and by automating the feature engineering process, dotData's solution addressed several critical needs for the business. First, it allowed their data science team to connect directly to their data warehouse - bypassing the tedious and time-consuming building flat tables (feature tables) before testing ML models. An added benefit was that by connecting and manipulating raw data directly, the team could automatically explore thousands of feature hypotheses in just a few hours.

HOW DOTDATA HELPED

More than 67,000 features were built and evaluated. Second, the unit automatically evaluated more than 700 Machine Learning algorithms to evaluate the ideal combination of features

and ML algorithms. Lastly, but most importantly, the feature engineering process explored multi-dimensional time-series data critical to building a more accurate forecasting model. The best part? One person performed all the work in under three days, resulting in a forecasting model that boosted accuracy by over 20%.

MOVING FORWARD

The power of dotData's automated feature engineering has given the data science team the bandwidth to take on more projects without having to hire additional staff. The automated nature of the platform makes it possible for the team to explore data and experiment without going through lengthy, manual iterative cycles. With dotData's powerful automation capabilities, the client is now confident that they can begin to explore more use-cases across a wide range of business needs - all with minimal impact on the valuable time of subject matter experts and without hiring an army of data scientists which is prohibitively expensive.

ABOUT DOTDATA'S SOLUTION

dotData provides an automated feature discovery platform designed to work seamlessly within the existing development process of Data Scientists, Data Engineers, and Machine Learning Engineers. Our platform connects directly to enterprise data warehouses and data lakes. It analyzes relationships among dozens of tables, hundreds of columns, and millions of rows of data to discover novel and valuable features for machine learning and advanced analytics, building the necessary data marts and feature tables automatically. ML and AI Development across the Globe rely on dotData to help them experiment with data to discover new features and accelerate the ML model building process from months to just a few days.

RESULTS

- 20% Increased forecast accuracy
- 67,000 Multi-dimensional features discovered & evaluated
- 700 ML models tested
- All performed in 3 days, by one data scientist

About dotData

dotData solves the biggest challenge of organizations of any size: Turning raw business data into valuable and meaningful data marts ready for Machine Learning (ML), Artificial Intelligence (AI), and traditional data analytics deployments and applications. dotData helps businesses that are just getting started with predictive analytics and more mature organizations that have established data science and data engineering processes. Our core technology allows companies to automatically convert data from data warehouses and data lakes into data marts and feature tables by exploring the relationships between varied data tables with hundreds of columns and millions of rows. Our global customers have used our platforms to accelerate their ML, AI, and Advanced Analytics adoption, achieving rapid ROI by lowering their dependence on scarce, costly expert resources.

Forrester recognized dotData as a leader in ML and AI in 2019, and CRN named dotData to its emerging vendors' list in 2019, 2020, and 2021 and was named a CB Insights Top 100 AI Startups for 2020. The AI breakthrough awards recognized dotData as the “best machine learning platform” for 2019, and Fortune 50 clients around the Globe rely on dotData to help them accelerate their ML, AI, and Advanced Analytics projects. For more information, visit www.dotdata.com, and join the conversation on Twitter and LinkedIn.