

UNLEASHING ADVANCED ANALYTICS

Get inspired by seven data all-stars who are breaking down barriers to brilliance with advanced analytics.



(ACCESSIBLE) ADVANCED ANALYTICS

At forward-thinking companies around the globe, data science and analytics are upending the old way of doing things. As the stories in this book illustrate, businesses are marketing, buying, selling, and improving operations in ways that simply were not possible a few years ago. A few are even transforming data science into a profit center by building data-powered tools directly into customer offerings. The business case for advanced analytics has never been greater. And advanced insights have never been more accessible — even to those without a formal data science background.

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THREE OPPORTUNITIES FOR ADVANCED ANALYTICS

1 MULTIDIMENSIONAL CUSTOMER INSIGHT

Most companies are drowning in customer data. They collect it from everywhere — purchase activity, website history, public records, credit bureaus ... the list goes on. There is a tremendous opportunity for companies that learn how to transform this raw data into insightful, actionable business intelligence. Do it well, and you'll create a compounding competitive advantage.

2 LOCATION INTELLIGENCE

The accuracy and availability of GPS data has created a world of possibilities for data scientists that simply did not exist 20 years ago. As you'll see in two of our stories, location data transforms into business intelligence through spatial analysis. It is most powerful layered with business intelligence data.

3 ADVANCED FORECASTING

Traditionally, financial forecasts for revenue and expenses have relied almost exclusively on internal business statistics. How much did we spend last year? How much did we make? What can we forecast based on those numbers? As you'll read, however, a few innovative companies are combining internal company data with external macroeconomic trends — and creating far better forecasts as a result.

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SOFTWARE PREDICTS: FROM CUSTOMER CHURN TO RETURN

83%

ACCURACY IDENTIFYING AT-RISK ACCOUNTS

An NPS model pulls from 36 essential variables and makes predictions with 83% accuracy

INDUSTRY

Human Resources
Management

DEPARTMENT

Company-wide

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**INSTEAD OF WAITING FOR
A CUSTOMER COMPLAINT,
ACCOUNT MANAGERS ARE
GOING OUT PROACTIVELY
TO MAKE SURE CLIENTS
ARE HAPPY.**

BI PRODUCT MANAGER & ANALYTICS CONSULTANT

Leading Human Resources Software Company

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1 EVERY DAY IS PAYDAY FOR SOMEONE

One in six employees in the U.S. receives paychecks through this software company's payroll and accounting services, which translates into a tremendous amount of data. "On Facebook, there are **8.4 million** posts 'liked' every second," says the company's BI Product Manager and Analytics Consultant. "That's a lot, but what's astounding is that we process twice as much data as Facebook." The BI Product Manager wanted to make sure **employees receiving paychecks and their employers stayed happy.**

2 A DRAG-AND-DROP PREDICTIVE MODEL FOR UNHAPPINESS

The BI Product Manager built a predictive model to identify customers likely to be dissatisfied with the company. He began with NPS (Net Promoter Score) survey data, working to build a model that could predict which customers would turn up as "detractors" on a survey — before they even took the survey.

Using the Alteryx Platform's drag-and-drop interface, the BI Product Manager quickly selected **73 variables** likely to impact customer satisfaction, then began testing his model. Through experimentation, he cut many of his initial variables, trimming his data set to **36 essential variables.**

3 TRANSFORMING CUSTOMER CHURN INTO RETURN

Well-known research from Bain & Company shows that increasing customer retention rates by just 5% can increase profits by 25 to 95%.¹ The key isn't just in segmenting NPS responders into cohorts of Promotor, Passive, or Detractor, but in being able identify detractors before they churn — and tell all their friends. The BI Product Manager's prediction model is **83% accurate** at identifying unhappy customers.

Thanks to the predictive model, the company **can identify four out of five at-risk accounts before they churn.** This information gives account managers a powerful tool for retention. "Instead of waiting for a customer complaint, account managers are going out proactively to make sure clients are happy," the BI Product Manager said. "If the customer has any outstanding issues, their account manager can use the data to **convert a potential detractor into a promoter.**"

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WATCH THE FULL PRESENTATION FROM
THE ALTERYX INSPIRE CONFERENCE

¹ "Prescription for Cutting Costs," Bain & Company

HYPERLOCAL MARKETING AT NBN

100

LOCAL ADVERTISING VARIABLES ANALYZED

NBN built a predictive model that maximized hyperlocal advertising spending for the marketing team.

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Telecommunications

DEPARTMENT

Sales + Marketing

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**WE WERE ONLY ABLE TO DO
THIS WITH OUR VERY LEAN TEAM
BECAUSE **ALTERYX** GAVE US THE
**ABILITY AND AGILITY TO DELIVER
RESULTS QUICKLY.****

BERNARDINO PELAEZ

Executive Manager, Sales & Marketing Capability

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1 ACTING LOCAL, THINKING GLOBAL

NBN, Australia's wholesale broadband access network provider, wanted to become a market leader at data-driven advertising, and it wanted to expand that expertise to every part of the organization. **"The vision is to become the center of excellence of data and analytics, and what underpins that is our guiding principle around acting local and thinking global,"** says Bernardino Pelaez, NBN's Executive Manager of Sales & Marketing Capability. To help achieve that goal, NBN partnered with the digital consultancy RPX Group.

2 FROM DESCRIPTIVE TO PRESCRIPTIVE

The NBN team wanted to move away from looking at descriptive data in the rear-view mirror. Instead, they wanted to use data to diagnose, predict, and prescribe next steps. On day one, RXP brought in NBN's Chief Data Officer and IT department, who told them to **stop using a more traditional data platform and start using Alteryx**. RXP's goal was to build and deploy a prototype that included all NBN's data sources "under the hood," and also delivered marketing analytics to decision-makers in a way they could understand.

3 HYPERLOCAL MARKETING

The RXP team built an attribution model with over 100 market variables that looked at advertising spending at a hyperlocal level. "We were lacking the understanding of where we were actually spending our money when it came to advertising," Pelaez said. The data-backed model allowed marketing to predict where it could best spend its ad dollars in the future. It also identified places where they could reduce spending without impacting results.

"It gave us a picture of where we were saturating the market with advertising," Pelaez said. "That allowed marketing to pull back in certain areas and reestablish their investments of marketing across different channels." Using the marketing model as a prototype for success, the RDX team helped NBN centralize reporting for the entire organization, **giving NBN analysts the ability to spend 80% of their time analyzing data, not gathering it.**

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**ROLL YOUR SLEEVES UP AND GET PREDICTIVE
WITH YOUR MARKETING ANALYTICS: TRY THE
MARKETING ANALYTICS STARTER KIT TODAY.**

BENCH PRESS A PREDICTIVE MODEL

OVER

200

HOURS SAVED
THROUGH AUTOMATION

Every week, account managers receive a list of customers predicted to be at risk of going out of business

INDUSTRY

Wellness Services

DEPARTMENT

Data Science

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ALTERYX HAS BEEN A HUGE GIFT FOR US, BECAUSE WE DON'T HAVE TO FIND PERFECT DATA SCIENTISTS. WE CAN QUICKLY BRING IN **PEOPLE WHO HAVE THE RIGHT PERSONALITY FOR THIS WORK** AND GIVE THEM A TOOL THEY CAN USE IMMEDIATELY TO START CREATING VALUE.

SR. DIRECTOR, DATA SCIENCE

Wellness Services SaaS Company

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1 IDENTIFYING AT-RISK CUSTOMERS

As a leading wellness services marketplace, connecting **130 million users** with the businesses they need to look and feel their best, this software also includes a payment processing service, accepting and processing millions in payments every month. The company makes a small fee on each transaction, but its payment processing service also comes with significant risk. If a customer using the software goes out of business, the company is sometimes responsible for services paid for but not delivered by the now-defunct customer. In some cases, **that can mean \$1 million or more in chargebacks**. The company's data science team wanted to find a way to predict which customers were at risk of going out of business before it happened — and prevent \$1 million+ chargeback situations.

2 A PREDICTIVE MODEL

Using Python, the company's data science team built a model that analyzed all existing customer data to find patterns that could predict which companies were likely to go out of business. They pushed their model to Amazon S3 for processing, then downloaded the results into Alteryx to perform logistic regression. They then defined entry-point criteria to define companies that appeared to be headed towards going out of business. "The front-line team now gets an email with a list of these companies every month," said the Senior Director of Data Science.

3 TAKING ACTION

The company has the power to suspend the activity of a customer account that appears to be at risk of going out of business, giving it excellent leverage to get to the bottom of any problems. If needed, the account can be reactivated, or it can remain suspended to allow for an organized end to the business's operations — **without leaving the company on the hook for service not delivered.** "The power we have is that we can shut down their account when we think they're going to go out of business," the Senior Director of Data Science said. "We can pause them, have a phone call, then go from there."

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HEAR MORE ABOUT THIS WELLNESS SOFTWARE
COMPANY'S JOURNEY IN ENABLING ANALYSTS
TO PERFORM PREDICTIVE ANALYTICS.

FLIPPING CUSTOMERS FROM “AT RISK” TO “RETAINED”

96%

PREDICTIVE ACCURACY FOR
CUSTOMER CANCELLATIONS

Understanding the key business problem unlocked a new effort to identify at-risk customers

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DEPARTMENT

Product
Management

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ALTERYX MAKES IT EASY FOR ANYONE TO BECOME A 'CITIZEN DATA SCIENTIST.'

ERIK OKUNEVICH

Product Manager
OnePlus Systems

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1 GETTING TO THE ROOT OF THE PROBLEM

OnePlus Systems is the largest provider of Smart Waste Management software. The company's strong focus on analytics and monitoring empowers waste management companies to improve their operations through data.

Leadership at OnePlus Systems asked for a customer loyalty rating system, but Erik realized that **what they really wanted was a way to predict which customers were at risk at renewal time.** "The important part is to make sure you have the right problem," says Erik Okunevich, product manager for OnePlus Systems. "Don't be intimidated by the business terminology. Feel empowered: Alteryx will help you cut through most of the process."

2 BUILDING A RISK MODEL WITH RICH DATA

Once Erik understood the true business problem, he was able to dig into the data to find answers. The company's CRM provided demographics, volunteer, and purchase history data, while marketing automation software provided data related to social media and email activity. Erik also layered in third-party data to build his risk model.

3 MODELING, EVALUATION, AND DEPLOYMENT

Erik used multiple Alteryx modeling tools to evaluate customer data including Decision Tree, Random Forest, Logistic Regression, and Boosted models. Using the Model Comparison tool, he evaluated the accuracy of each predictive model against actual customer cancellations from the previous year. He found the random forest model to be the most accurate, with **95.75% accuracy**, a result that gave Erik's leadership confidence in the model for predictive use. Now OnePlus Systems has the data it needs to create retention programs custom-built for at-risk customers. The model is improving as Erik fine-tunes it. "It's an iterative process, and we're constantly learning from and changing the model."

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GET THE FULL STORY IN THE ONEPLUS SYSTEMS PRESENTATION:
"TURNING UP PREDICTIVE."

FROM BLACK BOX TO GLASS BOX: REAL ESTATE PREDICTIONS GET CLEAR

400%

FASTER MANIPULATION OF DATA

CBRE used predictive analytics to identify properties likely to have higher tenant turnover

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DEPARTMENT

Digital and Technology,
Research, and Data Integrity

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IT REALLY TAKES MACHINE LEARNING AND PREDICTIVE ANALYTICS OUT OF A BLACK BOX BECAUSE IT'S NOT JUST SOME PYTHON CODE ON A SCREEN. OUR BUSINESS USERS CAN ACTUALLY SEE WHAT'S HAPPENING. THEY LIKE IT A LOT MORE BECAUSE OF THAT.

ANEES KHANDOKER

Sr. Software Engineer

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1 IDENTIFYING FUTURE INVESTMENT OPPORTUNITIES

CBRE is the world's largest commercial real estate services and investment firm. However, commercial real estate as an industry is often slow to adapt to new technologies. "There's a lack of transparency in commercial real estate data. There's also a lack of access to that data," said Kevin Kim, CBRE's Senior Data Intelligence Manager. **The team decided they needed to collaborate across departments to better organize their efforts.** Their goal was simple: to provide business intelligence for the organization, including identifying the best investment opportunities currently on the market. One project that has been successful for them has been identifying future commercial real estate investment opportunities.

2 BUILDING A PREDICTIVE MODEL

Los Angeles has been one of the most popular investment choices for commercial real estate, and **the CBRE data team wanted to identify the best opportunities within that market.** The team used spatial analysis tools to create hexagons that covered every piece of their target area. They then gathered data about the growth of residential, commercial, restaurant, recreation, and retail spaces throughout Southern California. From there, they created an Alteryx macro that analyzed the historical data for each hexagon on their map. "We fed every hexagon through the batch macro and we plugged in five different models to create a forecast," said Anees Khandoker, a Senior Software Engineer for the team.

3 DECISIONS BACKED BY INSIGHT

By applying their batch macro to every area of Southern California, the CBRE data science team can now provide the brokerage team with unique insights about the properties being considered for purchase. "We couldn't have done that without being able to collaborate. **And we wouldn't have collaborated without having a community internally with Alteryx,**" Khandoker said.

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WATCH THE FULL PRESENTATION: "ALTERING ANALYTICS IN COMMERCIAL REAL ESTATE AT CBRE."

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KEEPING THE MUSIC PLAYING AT AN AMERICAN BROADCASTING COMPANY

FROM

178,599

DATA POINTS TO 22 CLEARLY
DEFINED PROBLEM AREAS

Broadcasting Company Predicts 22 Signal Trouble
Spots in Nashville

INDUSTRY

Technology

DEPARTMENT

Engineering

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**YOU WOULDN'T BELIEVE
WHAT PEOPLE BUILD ON
FREQUENCIES THAT AREN'T
THEIRS. WE FIND THEM SO
THAT THEY DON'T INTERFERE
WITH YOUR RADIO.**

SYSTEMS ENGINEER

U.S. Broadcasting Company

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1 BROADCASTING COMPANY WANTS A CLEAR SIGNAL NO MATTER WHERE YOU GO

This leading American broadcasting company takes their radio quality very seriously. To identify problem areas, they spend thousands of hours driving around major cities to collect data about the quality of their satellite radio signal. A Systems Engineer who works in the Signal Delivery group says, “I don’t want you thinking about how the music gets to you,” he said. **“I just want you to have a good time and enjoy your music.”**

2 FROM 178,599 DATA POINTS TO 22 CLEARLY DEFINED PROBLEM AREAS

The two most common problems that block satellite radio signals are physical obstructions (such as mountains or tunnels) and interference from other wireless signals. By driving 1,700 miles of roads in and around Nashville, the company collected 178,599 data points about the quality of their signal. Using Alteryx, the Systems Engineer identified 1,053 points that showed some kind of problem with its signal. **He then used machine-learning powered clustering tools to combine, reduce, and filter the problem areas to identity 22 clearly defined trouble spots in Nashville.** “We’ve been calling this process ‘spatially normalizing’ the data,” he explained.

3 PREDICTING THE CAUSE OF THE PROBLEM

For each of the 22 trouble spots, the Systems Engineer and his team can automatically analyze three variables collected by their road teams — signal power, signal quality, and cellular power. Within Alteryx, he used a variety of tools to analyze the clusters, including the K-Centroids Diagnostics tool, to sort the 22 anomalies by the probable cause of the problem. Some areas show low signal power, suggesting there is a physical obstruction. Other areas showed unusually high cellular signals, which could interfere with the radio signal. **“Alteryx runs the analysis in one minute and 31 seconds, saving hours’ worth of work,”** the Systems Engineer said. Every Monday, he receives an email report identifying problems and potential causes in major cities. The automated processing has freed him to spend his time investigating problem areas and recommending solutions, instead of manually crunching data. **“I basically have an assistant now,”** he said.

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WATCH THE FULL PRESENTATION ON FINDING PATTERNS AND ANOMALIES AND CLUSTERING THEM TO TAKE ACTION.

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FROM CHECKERS TO CHESS: SOPHISTICATED FINANCIAL MODELING



EXECUTIVES EMPOWERED WITH **LONG-TERM** FINANCIAL FORECASTS

Dozens of external variables added to predictive models

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Services

DEPARTMENT

Financial Planning
and Analysis

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ALTERYX PUSHES OUR ANALYTICS FROM PLAYING CHECKERS TO PLAYING CHESS

WILLIAM MCBRIDE

Director, FP&A

Cetera

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1 PIVOTING AWAY FROM SPREADSHEETS

Cetera is one of the largest independent financial broker-dealers in the U.S. Like many companies, Cetera had been using a spreadsheet-driven analytics process to produce its annual 5-year expense and revenue forecasts, but it was looking for a better way of doing things. **William McBride, Cetera's Director of FP&A, wanted to create a reliable and accurate long-term financial forecasting model that included traditional data from within the company and data from external sources.**

To help with the new process, Cetera turned to Competitive Analytics, a firm that specializes in building predictive analytics models.

2 INTERNAL AND EXTERNAL DATA, COMBINED

Most revenue forecasts are created using a laundry list of internal factors, but they don't often incorporate external macroeconomic factors. The state of the economy, the housing market, the stock market, and a wide variety of other factors impact the performance of every firm, but they're rarely included in revenue and expense models. "And that's critical, since nothing exists in a vacuum," says Michael Pontoon, Director of Analytics at Competitive Analytics. **To create more accurate forecasts, the team built a consensus predictive model in Alteryx by combining and comparing multiple regression models that incorporate GDP factors such as the industrial production index, job growth, and nonperforming total loans.** This powerful forecasting model predicts future economic conditions.

3 EMPOWERING DECISION-MAKERS

Cetera executives now have access to revenue and expense forecasts **based on 10 to 20 internal and external drivers, including economic changes, raw materials, supply changes, inflation, and seasonality.**

Company leaders can see **comprehensive and sophisticated forecasts across multiple dimensions.** The Competitive Analytics team also set up a driver overlay to explain the effect of each economic driver on the Gross Dealer Concession—helping the executive team interpret these advanced forecasts. "It's the difference between playing checkers and playing chess," Michael says.

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**WATCH THE FULL CETERA FINANCIAL PRESENTATION:
"HOW TO BUILD SCENARIO-BASED REVENUE & EXPENSE
FORECASTS WITH ALTERYX PREDICTIVE TOOLS."**

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ABOUT ALTERYX

Revolutionizing business through data science and analytics, Alteryx offers an end-to-end analytics platform that empowers data analysts and scientists alike to break data barriers, deliver insights, and experience the thrill of getting to the answer faster. Organizations all over the world rely on Alteryx daily to deliver actionable insights.

+1 888 836 4274



BECOME A DATA DISRUPTOR

See how advanced analytics can transform your business — backed by data.

1 UNPRECEDENTED
CUSTOMER
INSIGHTS

2 LOCATION-
BASED BUSINESS
INTELLIGENCE

3 ADVANCED
FORECASTING

**TRY ADVANCED ANALYTICS
FOR YOURSELF.**

**DOWNLOAD THE PREDICTIVE
ANALYTICS STARTER KIT**

