

COLUMNS

## 5 businesses that benefit from data science

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Data is growing at a monstrous rate and businesses that prioritize data science are winning.

Data science and data scientists themselves still remain somewhat of a mystery.

We looked at five businesses benefiting from data science and what exactly it is that data scientists do to better understand how these companies achieved success.

### Ecommerce

Rent the Runway is an online retailer that lets customers rent designer dresses and accessories. Data science has played an important role since the company's inception.

"One of the biggest fears women have about renting is worrying if it will fit," said Vijay Subramaniam, chief analytics officer of Rent the Runway, in a recent article in ZDNet.

"We have customer reviews and photos," he said. "Reviewers are posting pictures, and we're getting all that data and building features that allow you to enter your attributes and find women who look like you, where did the gown land, etc.

"Women are very detailed about what worked, what didn't work, what was tight, what was loose. It's almost amazing how much data they're willing to share. They're willing to pay it forward.

"My job is to take all that data, parse through it, and use it to recommend what to rent and surface data for someone browsing, to make them feel confident."

Mr. Subramaniam helped develop and personalize the brand through data science.

By piecing data together about size dimensions, Rent the Runway is able to suggest products that fit right, as well as select clothing that is perfectly tailored to customer preferences.

### Brands

I am sure that you have seen Timberland's yellow boots somewhere. You might even own a pair yourself. But what happened to the company behind the iconic, rugged footwear?

If you thought it fell off the radar, you would be right.

From 2006 to 2012, the company struggled immensely and lost significant market share in the Americas.

However in the past year, Timberland sales have increased 15 percent.

How did Timberland turn things around?

By focusing on the consumer. Over the course of a two-year study, Timberland collected shopper data from 18,000 people in eight countries.

By analyzing the data, Timberland found problems to address and, most importantly, discovered its ideal consumer: an urban dweller with a casual interest in the outdoors.

#### Content

Buzzfeed is a data darling. No other publication reaches the heights of virality that BuzzFeed does.

Exceptional coverage, like that of a questionably colored dress, is scientifically derived by BuzzFeed's data science team.

When BuzzFeed says these are the "19 Most WTF Moments From Full House," it is not lying.

Every BuzzFeed listicle item is carefully analyzed in terms of engagement. If engagement is too low, an item is removed.

Each item is also placed strategically on the page. Order matters.

More recently, BuzzFeed experimented with clustering user characteristics with the content that they consume.

For example, they found clusters that showed people who are interested in Jennifer Lawrence are also interested in penguins.

Another important optimization is finding out how to best promote content.

By analyzing data in real-time, BuzzFeed arranges and rearranges what posts to show most prominently on its Web site. It can also predict the 10 most viral posts on any given day.

#### Retailers

Retailers stand to benefit the most from big data analytics and data science.

In Lightspeed's Annual Independent Retail Technology Adoption Report, 54 percent of respondents credit data tools that help them buy smarter for making the biggest boost to revenue in 2014.

Twenty-six percent plan to add data analytics by the end of 2016 to make better buying decisions. Thirty-five percent say they plan to use data analytics for personalized marketing by the end of 2015, with 18 percent predicting that using data for personalization will be a top source of increased revenue.

#### On-demand services

When it is not making headlines for its latest controversy, Uber gets attention for its non-stop growth and success due largely to how the company handles data.

The entire Uber experience is predicated on data science and algorithms.

Your driver is closest to you, your own rating and your driver's rating affect your likelihood of a pick up, and prices peak at the busiest times.

Surge pricing by Uber is revolutionary for the taxi business.

Algorithms monitor traffic and journey times in real time to influence pricing.

Controversies aside, Uber continues to succeed due to the convenience that its data-driven product provides.

Success from data science came seemingly easy to the companies listed above, but there are small steps that any business can take to start incorporating a data-driven philosophy into their business.

The terms "data science" and "data scientist" are still somewhat new.

To achieve success with data science, first we need to really understand what data scientists do.

Hiring a data scientist or employing data services will seem less of a leap when you have a better understanding of the field.

#### Data science skills

Data scientists typically use different tools at different stages.

For example, they may use SQL to store and fetch the data, Pandas and Numpy to clean and process the data, R or Python's machine learning packages such as Caret or Scikit-Learn to build machine learning models, and finally use

D3.js or Tableau to present the results and insights.

Moreover, with the data explosion, big data tools such as the Hadoop or Spark ecosystem are widely used among data scientists.

In the past, data scientists have teamed together to create and modify Hive, a programming language for creating Hadoop projects. They also need tools to show their findings visually primarily data visualization software.

"We have the data, but the data can't speak for itself," said Strap data scientist Ke Sang. "Humans have to use an algorithm to develop insights and find patterns in the data.

"Most importantly, we want to be able to provide insights to our customers," he said. "That's data science's key competitive advantage."

Data by itself is not particularly useful. What is important are the insights gained from data.

Sandy Steiger, vice president of insights at 84.51, sheds light on some of these insights.

"Success comes from listening to your customers," Ms. Steiger said. "Your customers are telling you something every time they shop at your store, and the data helps tell the customer story.

"You can discover what they want or don't want, what products you're missing that they can get at other places, and more. When you trend and track your customers, you can meet their needs better and in turn grow their loyalty."

How to become a data scientist

First and foremost, data scientists need to be able to work well with new technology and adapt to changes.

Data scientists need to code. They need to easily convey their findings to decision-makers and visually display data.

Most importantly, data scientists should have an insatiable curiosity to dive into problems and derive clear hypotheses.

Data scientists need a solid foundation in math, statistics, probability and computer science.

Coincidentally, the best and brightest data scientists have Ph.Ds in fields such as physics, electrical engineering, cognitive science and system biology.

Ms. Steiger breaks down these qualifications further.

"When we interview people just coming out of school for data science jobs, they're excited about putting to practice what they've learned in school models and techniques from their statistics, economics, math and decision science degrees," Ms. Steiger said.

"That is needed, and there is a time and place for a statistical model to be built, but a lot of the time it's the descriptive statistics that can tell you a majority of the story, like who your customers are, what they buy and how can we track their behavior over time, across different brands," she said.

DATA SCIENCE is difficult work, but harnessing data for insights significantly affects bottom lines.

Data science does not need to be confusing, since it is really just a term for getting us closer to consumers.

The more we know about consumers, the better we are able to market to them.

As more businesses adopt data science practices, it will be interesting to watch how data revolutionizes more industries in the years to come.

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