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Machine Learning For

Analysts

2019
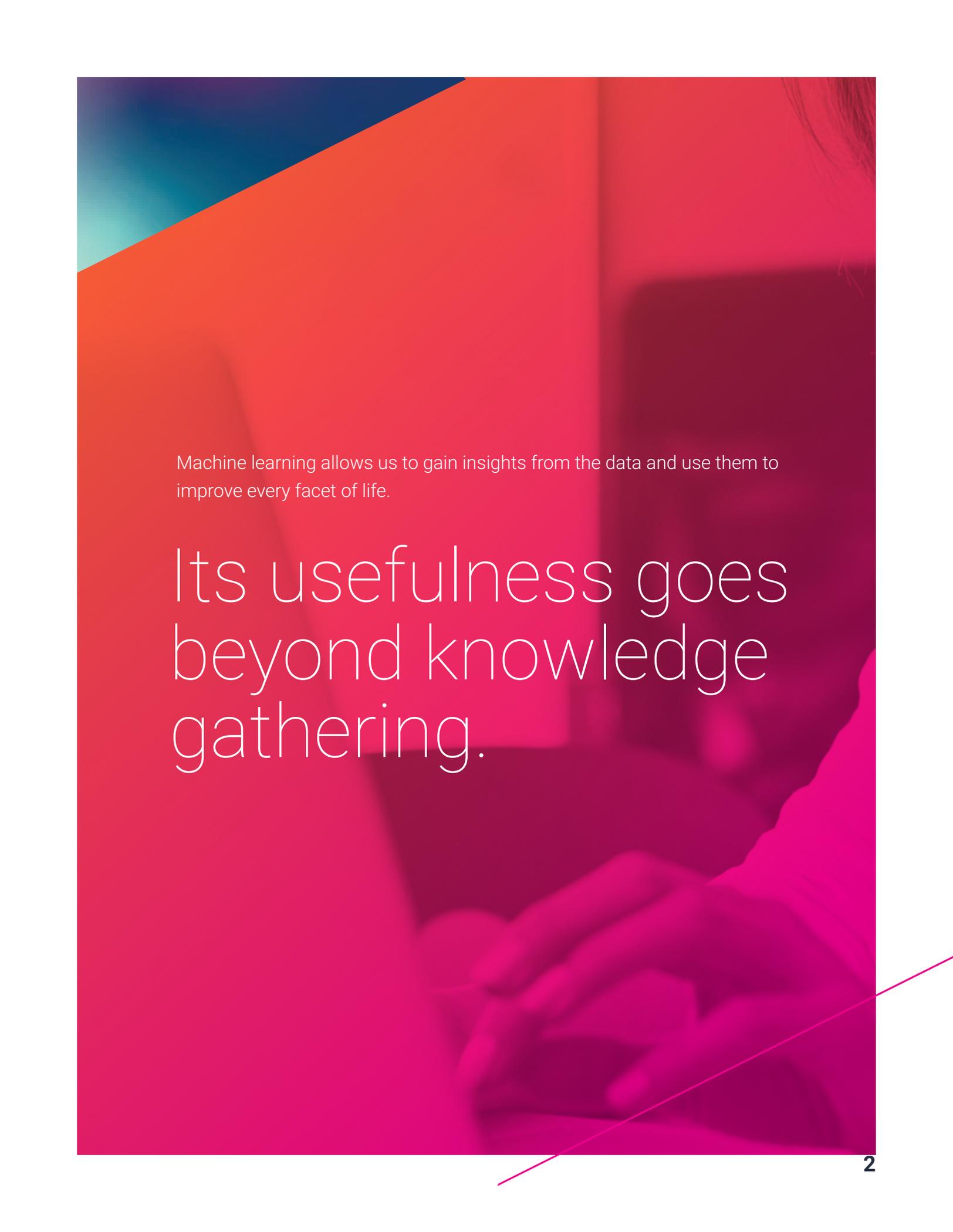
Machine learning allows us to gain insights from the data and use them to improve every facet of life.

Its usefulness goes beyond knowledge gathering.

As an analyst, you know better than anyone how volatile and unpredictable the data landscape can be. Like a roller coaster, the last few years have been an interesting ride for many analysts. For example, just a few short years ago, business intelligence (BI) systems were once the sole domain of large companies with seemingly inexhaustible resources. As an analyst, owning this part of the business provided made you an asset and the insights you uncovered gave your company or organization a major competitive advantage.
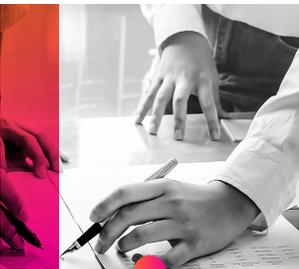
Today, however, BI systems and "analytics have turned into an expected part of the bottom line and no longer provide the advantages that they once did." As such, the analyst role may have lost some of its original luster and *"chances are that your self-confidence has taken a beating"* as Cassie Kozyrkov, Chief Decision Scientist at Google, points out in an article for the Harvard Business Review.

However, as is often the case, a change was already on the horizon and to remain competitive, companies began to pivot and look for creative ways to not only collect data more from additional sources but mine that data for unique business insights by pairing it with BI. Predictive analytics and deep-learning technologies like machine learning (ML) and AI have quickly moved into the mainstream vernacular and are now heralded as the next step in the evolution of business analytics. And just as BI quickly moved from obscurity into the mainstream, the demand for machine learning—and with it, data scientists—is rapidly increasing as success stories emerge from early adopters. The roller coaster continues.

The growing demand for capable data-scientists gives you a unique opportunity to recover your previous position of importance within your organization by owning some of the ML initiatives. Even though you may not have the formal training of a traditional data scientist, your experience as an analyst makes you the perfect person to pair BI with ML. You merely need software to help you extend the insight and value you can extract from the data you are already using. Through automated machine learning (AML) tools, you can become an invaluable member of your data team and help augment the efforts of the data scientist by becoming a citizen data scientist.

As a citizen data scientist, you'll help your organization gain a competitive edge by creating and deploying your own models based on your understanding of the business needs. Since you already own the BI, you have a better understanding of business context than a traditional data scientist will possess. You know the business strategy, what matters to the business, and can help enact rapid change in the organization. Furthermore, you know the data. You know how it's used, what's used, by who, and why, giving you the ability to use ML to ask the right business questions. Finally, you own the delivery/communication system for insights that the business acts on (BI). You are literally the trusted source for your respective decision-makers. You are in the perfect position to leverage AML to give yourself a distinct competitive advantage and advance your career quicker than ever.

This whitepaper will explore the value of AML within your organization as well how becoming a citizen data scientist can benefit you and your career.

Your organization's need for automated machine learning

As more organizations embark in the race for more and better data, technologies like machine learning and AI are viewed magic bullets that will solve all their problems and pave the way to success. Management author Ram Charan illustrated the importance of a data-centric approach when he said,

> *"any organization that is not a math house now or is unable to become one soon is already a legacy company."*

Ram Charan

Likewise, those that possess a mastery of those technologies are also seen as invaluable and are in short supply. According to The Quant Crunch: How the Demand for Data Science Skills is Disrupting the Job Market, "by 2020 the number of positions for data and analytics talent in the United States will increase by 364,000 openings, to 2,720,000. In 2020, job openings for data scientists and similar advanced analytical roles will reach 61,799." Furthermore, Mckinsey predicts "the United States alone could face a shortage of 140,000 to 190,000 people with deep analytical skills."

Job Opennings
Data & Analytics Talent

3M

364K

2018   2019   2020
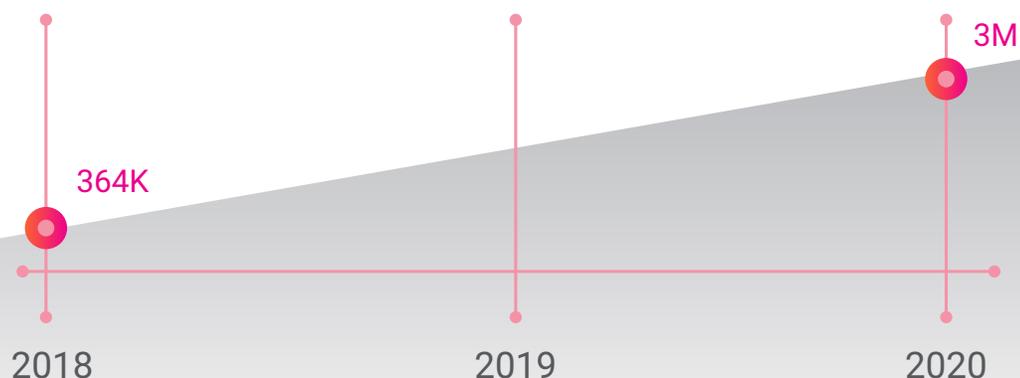
The growing demand for predictive analytics and corresponding shortage of data scientists will leave businesses scrambling for alternative solutions and technologies. This is where AML comes in. An AML solution will benefit your company in two very significant ways.

ONE
Scale current/future data scientist resources

If your organization is fortunate enough to have an in-house data scientist, there is likely a "breadline" that exists made up of the demands of the various departments, each with their agenda and initiative that takes precedence over all others. As these requests build up and the backlog gets bigger and bigger, it is impossible for a single data scientist—or even a team of data scientists—to meet all the demands. By leveraging AML, your organization can alleviate some of the burdens on the data scientist's time by re-assigning specific tasks to the analysts, freeing up the data scientist to scale across the entire organization and take on the more complex business needs. A data scientist is a significant resource and will contribute a higher ROI if they are free to tackle the more significant, complex ML use cases.

TWO
Uplevel existing analyst teams to tackle specific ML tasks

As an analyst, you are the perfect candidate to own not only the BI, but the AML as well. "There is... a huge benefit to be realized by having someone with actual industry and business experience analyzing the data." Combining your understanding of the business needs with existing analytical knowledge can be a significant benefit to your organization as you work alongside the data scientist, assuming your organization is fortunate enough to have one, and begin to build and deploy ML models that meet business needs and provide valuable insights. Not only does this reduce the backlog of work waiting for the data scientist, but it also creates entire teams of citizen data scientists who can work with very little oversight and produce immense value.

Becoming a Citizen Data Scientist and how it will benefit you

We've mentioned the Citizen Data Scientist role multiple times and how it will help your organization now let's unpack that term and examine how becoming one can be extremely beneficial to your career and progression.

What is a citizen data scientist?

Gartner defines a citizen data scientist in Citizen Data Science Augments Data Discovery and Simplifies Data Science as a person who creates or generates models that use advanced diagnostic analytics or predictive and prescriptive capabilities, but whose primary job function is outside the field of statistics and analytics. In many cases, analysts have no desire to take on the responsibility of a full-blown data scientist, let alone the additional learning required. However, by becoming proficient in BI and ML, an analyst can provide many of the same benefits of a data scientist.

"users throughout the business want a more democratized approach to Big Data and analytics. Not every company can afford a data scientist, which is a big reason why citizen data scientists will become a big part of the data ecosystem as it evolves."

Shawn Rogers,
Chief Research Officer at Dell Statistica

The value a citizen data scientist provides

As mentioned previously, an organization that claims to be "data-driven" realizes that while historical data has its place and is undoubtedly vital to the decision-making process, forward-facing and predictive insights are far more critical. According to How Analytics and Machine Learning Help Organizations Reap Competitive Advantage,a whitepaper by Google and MIT Technology Review,

Ultimately, the insights gained from analysis matter only if they can be converted into action. That's the metric for success, based on how quickly insights can be surfaced and put into use, driving business decisions and action. Doing that, of course, also requires communicating these insights—and their potential impact—to the business leaders who need to know about them.

The ability to understand and communicate business needs is where the citizen data scientist provides the most value. As a citizen data scientist, you'll be in the valuable position as someone who understands the business needs and can communicate with decision makers, gather insights from your BI and AML tools, and work with the data scientists. The insights you uncover, as well as those that come from the data scientist, have the power to alter the course of your organization significantly.

Going forward, citizen data scientists will be in high demand. "Gartner predicts that there will be **five times** as many citizen data scientists than expert data scientists going forward" since "one data scientist will not have all the necessary skills—save for a few "unicorns." Early adopters of AML will have a distinct competitve advantage in the job market over their less-proactive peers.

Final Thoughts

"Data-driven organizations that do analytics well will unquestionably have an edge—especially if they hire the right people, select the right tools that increase speed to insight, and work toward being able to forecast the future." We are experiencing something of a modern industrial revolution. Just as robotics and automation revolutionized many industrial industries, the rising use of machine learning technology is going to change forever the way we think about and use data. The improvements in technology and access to new ways of storing and analyzing data are going to give companies of all sizes a greater capacity to collect more and more data from a variety of sources with the confidence that there are insights hidden within that data, undiscoverable by humans. "Organizations can obtain more insights (and more valuable insights) to improve the customer experience continuously. In addition, they can do so faster—often without human intervention."

Analysts and data scientists are at the forefront of this new industrial revolution and act as the gatekeepers to those invaluable insights. Competition for talented, skilled people who can simultaneously understand the business need and possess the analytical skills to ask the right questions is only going to increase. The future is bright for those individuals with the clairvoyance to get the training and knowledge that will make them beneficial to data-driven organizations.

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