

The Future of Data Science

September 8, 2020

Data science and business context are converging

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Towards Data Science

A Medium publication sharing concepts, ideas, and codes

I spend a lot of time consulting with a diverse set of companies about their data science strategies. I also regularly teach courses on topics in data science. I'm witnessing a change in the way companies are thinking about the role of data science and its position within their corporate structures. I believe these changes have been slowly taking place for the past few years, but the onset of COVID-19 and the Russia-Saudi Arabia oil price war this year have accelerated the shift.

What's changing?

There are many [roles](#) necessary to succeed in data science, but this change is primarily targeting the role of the data scientist itself.

Data Science work falls into two distinct camps. One group is focused on the more academic aspects of data science like models and algorithms. The other group is more focused on the pragmatic

work of helping make business decisions. This latter discipline is commonly referred to as applied data science.

This division of work within data science has existed for a while now. And although the distinctions between the two foci are becoming more drastic in the real world, its the second group — applied data science— I want to focus on. So, for the remainder of this article, I'll use the term data science and data scientist to refer to the discipline of applied data science unless otherwise noted.

The role of the Data Scientist is beginning to migrate within most of the companies I encounter. Previously, Data Science was a group of its own, often within the Business Intelligence Department, or may be located within the Data Team. Data Scientists from both camps existed in this same group and divided the work between their two areas of focus, as appropriate.

However, the role of the Data Scientist is moving out of this centralized group and into subject matter specific departments throughout the organization. A perfect example is a manufacturing company I recently worked with. They have an expert in their manufacturing process learning data science. This individual has no interest in changing jobs to solely focusing on data science work. His interest is its influence on improving his company's manufacturing processes. Data science is being pushed out of the BI / IT nest and closer to the tactical work in organizations all over the country.

What motivators are driving this change?

The reasons behind this shift depend on whether you look at it from the company's vantage point or that of the employee. For the company, two simple words are driving this change: budgets and expertise. From an individual's personal perspective, there are two different forces in play: job security and a potential increase in salary.

Organizational Driver #1 — Budgets

In corporations and at home, budgets control much of our decision making. When you think of a centralized data science team, you end up with a cost center instead of a profit center. It's harder to get corporate money for a cost center and it's nearly impossible to convince other departments to pay for someone that ultimately reports to your cost center.

Dispersing the data scientist role into departments throughout the organization, each department is responsible for paying the salary of their data science personnel. Departments caring more about leveraging data for decision making are free to hire more data scientists and those that do not value the practice can act accordingly.

This way, each department makes its own bed and can lie in it. Any resource a department hires is their resource, not shared with a dozen other departments. If the Drilling Department finds a high degree of value in data science they can invest heavily in it and not have their projects delayed waiting in line behind other departments' requests for the centralized Data Science Team.

Organizational Driver #2 — Expertise

Data Scientists, like any professional working in a centralized service capacity, become a *jill-of-all-trades* attempting to understand the unique aspects of each department engaging them for work. They are not only expected to be experts in merely data science but also in finance, marketing, engineering, and human resources.

While this expectation is unrealistic and exhausting for the employee, the other departments suffer as well. The Drilling Department of an oil company could gain even more useful insights if someone with subject matter expertise was performing their data science work. The easiest method of accomplishing this marriage between data science and department-specific expertise is to place the data scientist within the department itself.

This can be accomplished in two ways. One approach is to hire a data scientist willing to learn everything about the drilling department. Since they work solely for the drilling department,

they will be drilling specific. It's more realistic for an individual to achieve an expert level of understanding in two separate disciplines instead of thirty. A second approach is choosing an existing subject matter expert within the drilling department and training them to be a data scientist.

Although either path will get you to the goal, I find most companies are choosing to train existing subject matter experts in data science.

Personal Driver #1 — Job Security

In today's tumultuous job market everyone is either looking for ways to guarantee to keep their current position or improve their chances of getting their next position. If you and another applicant are equally qualified for a position in human resources, but you can show a portfolio of work in data science to boot, you're much more likely to get the job. Likewise, if the training department makes the decision to reduce its workforce and the only difference between you and another person is the portfolio of data science projects you've posted to Github, you'll avoid this round of layoffs.

It isn't difficult to see the impact this added value makes in your company's hiring and firing decisions. And in today's world, data science capabilities are a very favorable skillset. When you measure the data science training someone in marketing learned from an online class or a local evening program against the

complete absence of data science that still plagues many marketing departments, you're hired!

But remember for marketing or drilling or finance, the data science abilities you possess are the *differentiating* factor, not the featured one. With constricted budgets, just like in constricted markets, a sales department isn't looking to spend their money on a data scientist. They are hiring a sales professional. But, the time you've invested in data science makes you the better candidate.

Personal Driver #2 — Increased Salary

The other difficult aspect of joblessness and smaller budgets is the hopes of a raise. But, like everything else, if you can prove a significant increase in your value, a raise might be possible. Perhaps you use your data science skills to save your department \$1 million this year. You might find a small token of gratitude in your paycheck.

Similar to a raise is the opportunity for a promotion. Using data science to help your company frequently enough could lead to a promotion within your department. By the way, most promotions come with a raise. Again, increasing your personal value to the company will benefit you in job security and the potential for a raise.

Why are companies choosing to train their existing employees in data science instead of hiring a data scientist?

I find most companies are choosing to train existing subject matter experts in data science.

It's a very practical answer. Let's use the marketing department as an example. Marketing's budget is smaller than last year's. They need someone who understands marketing. But they also believe leveraging data science could help them in tremendous ways. Here are the options available for marketing.

- *Hire a data scientist.* Hiring a data scientist might be outside their budget. Even if they could afford to hire one, they would still need to teach them about marketing.
- *Hire a marketing professional that already has data science skills.* This is a great option if the recruiter can find someone fitting the description. Of course, this is what most of the unemployed marketing professionals currently taking data science courses are gambling will happen. And once these people are available on the market, they will be hired before someone who is only a marketing professional. But right now

this is still another salary for the marketing department to cover.

- *Ask an existing employee within marketing to become a data scientist.* This option gives an existing employee the chance to increase their personal value and increase their salary. It also keeps the impact on the marketing budget low. Plus marketing is starting down the road of data science, even if these capabilities are very limited in the beginning.

Conclusion

Data Science will continue spreading into every aspect of business and other organizations in the years ahead. As with all industries, the more mature they become, the more they fragment and specialize. The same is true for data science.

As data science becomes more widely used within companies, it will need to be closer in proximity to each application of industry. These early stages of transition will ultimately create the disciplines of marketing data science, finance data science, and sales data science. But whatever titles the future holds, one thing is for certain. The practice of data science is moving closer to each subject matter it analyzes. This shift demands parity of skill. Future data science work will require both expertise in data science and subject matter expertise in your specific department.