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DATA

# Are You Setting Your Data Scientists Up to Fail?

by Thomas C. Redman

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Getting as much as they can from analytics is critical for companies seeking to monetize their data, become data-driven, and put their data to work. Yet most find this difficult. Indeed, the failure rate of analytics projects remains distressingly high.

A key reason for this is that senior managers fail to manage their data scientists properly. Many fail to focus the data science program, or they put data scientists in the wrong spots in the organization; others view the data science as a technical, not business, initiative; and still others underestimate how resistant their organizations are to change, and do not fully equip data scientists to change hearts and minds.

These missteps lower your chances of success and, in extreme cases, doom the effort from the very start. But by following the road map below, you can ensure that your data scientists are more productive, and increase both your probability of success and the rewards you reap.

First, think through how you want data scientists to contribute, and put them in spots where they can do so. The worst mistake a company can make is to hire a cadre of smart data scientists, provide them with access to the data, and turn them loose, expecting them to come up with something brilliant. Lacking focus and support, most fail. Instead, clearly define the opportunities you want to address using data science, and put your data scientists in places in the organization where they can best pursue those opportunities.

Consider my experience when I started at Bell Labs as a freshly minted PhD. At that time, Bell Labs employed dozens of world-class statisticians — some in network performance (like me), but others in research, quality assurance, and so forth. A few days after my arrival, I was ushered into Steve Katz's office, my director, who was three levels above me in the organization. Steve welcomed me, then explained exactly what AT&T was trying to achieve, where his lab fit, and why he was adding so much statistical talent. He made clear that the overarching goal was to improve the telephone system and that I'd work on teams filled with people of diverse skills to do so.

Every senior manager should follow Steve's lead. If you want to improve marketing efficiency, put data scientists in marketing; if you aim to drill oil wells more effectively, put data scientists close to the action; if you seek game-changers and new discoveries, put them in a laboratory. Even if you're just getting started in your data efforts, pick one specific objective and position your data scientists to pursue it.

Second, immerse data scientists in your business. According to LinkedIn, the top 10 skills for a data scientist include machine learning, R, Python, data mining, data analysis, data science, SQL, MatLab, big data, and statistical modeling. The focus is on skills, and many data scientists are perfectly content to apply those skills while sitting at their computers and plowing through ever-increasing amounts of data in the hopes of finding something interesting. But it is not enough to put data scientists in the right spots and let them work. You need to instruct them to fully engage in your business, show them how things really work, and help them connect with others in the organization.

Back in my initial conversation with Steve, he urged me to build skill in my craft but also to learn new skills. He thought everyone in his lab should be both a specialist *and* a systems engineer. He also advised me to aggressively build my professional network.

He didn't mention a single skill I needed to focus on. He knew it was one thing to "find something interesting" and quite another to see that idea through to fruition. He made clear that my job was to help improve the telephone network and that to do so I needed to learn beyond my domain of expertise and work with others. I spent far more time learning the details of digital transmission, how billing worked, and what AT&T voice and data customers expected than I did looking at data. And I came to rely on the professional network Steve urged me to build.

Third, obsess on quality, professionalism, and business results. "Quality" doesn't simply mean producing error-free work. Instead, senior managers should ensure that their data scientists are delivering results in ways business counterparts (for example, customers) can understand, interpret, and use to improve business performance. This includes everything from the definition of the problem, to the data and analysis, to the presentation of results and follow-up. An obsession with quality is doubly important because so many managers are skeptical of data science. And rightly so — bad data, poor analytics, or an improperly trained robot can do enormous damage.

Finally, encourage data scientists to "pull on a thread." A thread is something that looks out of place in the data. While data science is not a fishing expedition, managers should encourage data scientists to spot such threads in the course of their work. Serendipity lies at the root of many great discoveries (penicillin and the background noise of the Big Bang are famous examples), and data scientists, since they see so much data, are uniquely positioned to find these threads. Ask data

scientists what else they're learning, what surprised them, and what just doesn't look right. Most threads won't lead anywhere, but help data scientists develop a knack for identifying those with the most potential and the courage to follow up.

One thread I pulled during my time at Bell Labs stemmed from my concern that performance didn't look right. The network performed quite well most of the time, but sometimes things looked odd in ways I couldn't explain. I wondered if statistical control, a concept invented by Bell Labs' Walter Shewhart, which had proven enormously effective in manufacturing, could help. My manager encouraged me to follow up.

I never did try out statistical control on the operation of the telephone network. Instead, the thread led to a different focus, the quality of data used to run that network, keep track of facilities, pay bills, and so forth. We hit the mother lode, finding opportunities that saved AT&T hundreds of millions of dollars.

There are far too few good data scientists out there, and they command high salaries. They may very well be the key to more-efficient operations, new customer insights, and revenue growth. Invest time into getting them in the right spots and managing them properly.

Thomas C. Redman, "the Data Doc," is President of Data Quality Solutions. He helps companies and people, including start-ups, multinationals, executives, and leaders at all levels, chart their courses to data-driven futures. He places special emphasis on quality, analytics, and organizational capabilities.

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## Joshua Barbour 12 hours ago

Wonderful article! My team's research suggests that organizations trying to derive and advantage from their data or bring in expertise have to take care with the web of expert relationships that are involved in getting work done with data. Data scientists can be read as a threat to existing data-intensive units. We also found that success depended on the sort of data and relational work in play. http://journals.sagepub.com/doi/abs/10.1177/0018726717711237

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