

6 Competencies to Look for in a Data Scientist



Introduction:

As the amount of data being generated has exploded and the cost of processing it decreased, the role of the data scientist has been elevated to one of the “sexiest” jobs of the 21st century. These technical and statistical wizards are being snapped up by global companies hungry for new insights into their markets, customers, and business operations to get a data-driven edge on their competition.

But if you’re trying to hire one of these data-taming, insight generating people what skills and capabilities should you be on the look out for?

This ebook looks at the 6 core competencies – including a mix of “hard” (i.e. technical), “soft”, and business related skills - you should look for in a data scientist.



#1: Statistical Analysis

Not surprisingly statistical training is essential to help glean insight from data. Any data scientist worth their salt will know their cluster analysis from their regression analysis and be able to design experiments to test a hypothesis. But most importantly, they will know which methods and data they need to use to get the information that their business needs.

But does the data scientist you hire need to have a PHD in statistics? That depends on the level of analysis that you require. Writing in the [Wall Street Journal](#), Thomas H. Davenport, professor and Director of Research at the International Institute for Analytics, offers up this observation about different educational levels required:

“Ph.D.’s in quantitative or science fields are often sought by organizations that want a combination of deep analytical skills, the ability to learn new tools easily, and an experimental orientation. M.A.’s or M.S.’s in some form of analytics are likely to be able to do fairly routine statistical or data manipulation work, but may not be able to develop cutting-edge algorithms. MBAs typically can do good spread sheet work, and perhaps a regression analysis, but aren’t normally taught much beyond that.”



#2: Database Design and Technical Coding Skills

Today's data scientists need to understand how to get access to data as well as to play an integral role helping to design and set up the systems that will help them collect the data they need. That's why they need technical computer skills associated with both database design as well as the technical languages

"The familiarity and ability to use Hadoop, Java, Python, SQL, Hive, and Pig are core essentials. Programming itself and computer science in general is the very starting point of gathering data and understanding how to 'get' data and piece it together," writes Mitchell A. Saunders in a blog post on Data Science Central. "If you can't GET data, you sure can't analyze it. And you sure can't expect somebody else to capture it for you."



#3: Data Visualization/Presentation Skills

Your business must be able to interpret the information that your data scientist produces. Otherwise, all that technical brilliance that they've brought to bear on analysing and interpreting data will never get translated into business value because nobody understands what it means!

Data visualization can be as simple as a standard bar chart or pie graph. The key is to help the data convey meaning so that your business users can make sense of it and use it. . Data visualization can also help people to “see” the patterns or trends in the data much more clearly than just data on a page. For more complicated analysis, a data scientist should be familiar with the scope of visual representations possible as well as the software that can be used to produce them such as Tableau, Excel, PowerPoint, HighCharts, Flare, and others.



#4: Business Acumen

It can be difficult to find people with both technical brilliance as well as the astute business acumen that will help them hone in on the insights from data that your business users require to make smarter, more informed decisions. But that's exactly the sort of combination of skills that you require in a data scientist. It's not enough to just be technically brilliant – part of the role of a savvy data scientist is to ask the right questions and find the answers that will really help generate better business results.



Does the data scientist understand your business? A data scientist who understands the industry and market in which you operate, will be able to provide greater value by drilling into the numbers that really matter to your business. It also helps when they understand the business processes and the data that is available. Finally, a data scientist with domain specific knowledge will have greater credibility with your business users – which will help anytime someone trots out that old adage that “there are lies, damned lies and statistics”.



#6: Curiosity

While this is perhaps the “softest” skill on list it is an absolutely critical attribute of a successful data scientist. It is curiosity that will drive them to look for patterns that nobody else thought to look for, or ask questions that nobody else thought to ask. A data scientist should be able to demonstrate curiosity about the world and why it works the way it does. And when they apply that passion for answers to your business...that’s where the magic will happen.

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