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Julia: **Hello and welcome to a DerivSource podcast. I'm Julia Schieffer, founder and editor of DerivSource.com.**

There's no doubt that there's a growing need and reliance on data science in the financial services industry and as a result the role of data scientists within financial firms is becoming increasingly important. Of course, the definition of a data scientist and what this role typically encompasses in financial institutions varies greatly, and in light of this new trend, and in this podcast, we are speaking to John Houston, Principal within Deloitte Consulting and Lead for the Advanced Analytics and Predictive Modeling Practice, to learn a little bit more about data scientists and their role in financial services.

Welcome to the podcast John.

John: Thank you Julia, great to be here.

Julia: **Before we begin and talk about data scientists in some detail, John can you tell us a little bit about yourself and your role at Deloitte?**

John: I'm one of over 2,000 data scientists that we have across the globe at Deloitte. I am based in Boston and a Partner in our consulting practice. I currently lead what's called our Advanced Analytics and Predictive Modeling Practice that houses a large contingent of data scientists that do client service work across multiple industries.

Julia: **So let's start from the very beginning John, because I personally am not quite sure about the definition of this so I'd like kind of a basic intro. What is a data scientist specifically, and what does the role commonly cover?**

John: Great question. There are many different definitions and many data scientists may define it slightly differently, but there are three basic skill sets that most data scientists have. Typically, they've got some sort of statistical or mathematical background, they also have computer programming skills, and then lastly some business acumen, and really bringing those three skills together to solve questions or problems that have been persisting in business for a long time but we're never being to solve because the data wasn't available, or even solving new questions because there are so many new data sources.

Data scientists really focus on bringing together a wide range of data and tools to answer questions and help decision making.

Julia: **So why exactly are a growing number of institutions (financial institutions) looking to hire data scientists today, and are there specific driving factors behind this trend?**

John: Well, data scientist is a relatively new term in the last 10 - 15 years. Many of these institutions have had those kinds of skills in them for a while, certainly actuarial science is very close, and many companies have had actuaries for 100+ years. Computer science and some of the other financial forecasting and financial modelling that investment professionals have done over the last 50 years are kind of the basis for some of these skill sets.

The reason there's been such a growth in the term and the need for this skill set is really around the growth of data, computing power and storage power. All of a sudden, things that used to be done by pencil and paper or maybe on a spreadsheet now can be done using all the data from every system at a very granular level because the computing and storage power exist.

All of a sudden the skill set around data science has become much more prevalent and much more needed by these institutions.

Julia: **It sounds like this skill set could be applied to multiple departments and multiple functions within a financial institution, so where do data scientists typically sit within a firm? Is it all different department, or is there a particular department or function that this skill set is particularly necessary for financial institutions?**

John: Different companies have different views around this. Some companies want to get their data scientists as close to the business problem as possible, and so they may have small populations of data scientists in their customer service area, or in their human capital or HR area, or in their risk management and investing area, or in their pricing area. They may have them scattered all over the organization.

Other organizations say: hey, this is such a skill set that we need a concentration of talent. Typically, it takes a long time to find and develop these folks, they require some very sophisticated toolsets and so we want to have them centrally located so we can create a center of excellence that can be used across the organization.

And then some organizations are a hybrid of the two.

There's no set answer and a lot depends on the organizational structure and style of the organization. At the end of the day, the key is to try and make sure that the data scientists are working on the problems that are most important to the organization, and they are creating insight and information that is usable by the business users and believable by the business users.

Julia: **Can you tell me a little bit about where data scientists and this skill set really fits in those departments within financial institutions today?**

John: Sure, and kind of taking a step back, a lot the best uses of data scientists are applied to problems where companies have limited human resources and they have to point those people to the right place at the right time. If you think across compliance or operations, there are thousands or millions of transactions that take place.

Data scientists can create sort of that first layer. The first layer to look at things that may be anomalies, that may require additional research or looking into. A well-placed algorithm can in real-time look across all of these transactions and focus the human resources where they could potentially be the most needed. And again, there's a wide range of areas where that could happen in the compliance space.

Julia: **Looking a bit broader, a lot of financial institutions have to really evolve their businesses to remain competitive in today's market. How can the skills of data scientists really help these institutions either evolve as needed or achieve the competitive advantage, specifically, that's really necessary in today's market and to survive?**

John: As things are changing and evolving very quickly, one of the things that data scientists can help with is bringing together lots of disparate data sources. So, historically, organizations have had very siloed data, and systems have been built that are very static to produce certain types of reports on certain types of data.

Now things are changing so quickly organizations have to adapt, and in order to adapt they have to merge and bring in both internal and external data from a wide range of sources, some of which is very structured, and some of which is very unstructured. Data scientists are very skilled in dealing with this kind of issue and bringing these sources together to help organizations evolve and adapt.

The other point I would make is around early warning indicators. Many new products, new offerings, have long tails to them and it's important not to have to wait 2, 3, 4, 5, 10 years for the actual experience from a product or how customers used the product to evolve. Data science can put some early warning systems or indicators on that give people insight into what is likely going to happen so they can react a little bit more quickly.

Julia: **My final question for you John is about where this is going, so for data scientist roles how do you really see that evolving in specifically the financial institution space in say the next two years?**

John: Well certainly broadly, and even beyond financial institutions, the advent of many of these deep learning systems and self-learning systems are starting to create some interesting opportunities for data scientists. It's not only do they create very bespoke and customized solutions, but they are now starting to set up systems that can do some of the early upfront work in a much more automated fashion.

Data scientists' roles are evolving to not only build some of these but also monitor and make sure that systems that are becoming a little bit more self-learning and automated are not going in directions that are unintended (and that's very easy to have happen).

You'll see the role of the data scientist continue to grow and expand, and particularly in financial services as the markets become much more complicated and the velocity of change happens even more rapidly. That ability to develop early warning systems and the monitoring systems is going to become even more important.

Julia: **Great, so more to come from this space. In the meantime, I just want to thank you John for joining us and giving our audience this brief insight into data scientists. I know a lot of financial institutions are hiring them, so this information is highly valuable.**

Thank you for joining us in this podcast.

John: Sure, my pleasure.

Julia: **For more information on this topic please go to the show notes page on DerivSource.com, and if you're listening on iTunes please rate us or comment so others can find this podcast more easily.**

Thank you for listening. Join us next time.