

## How TD Ameritrade's Chief Data Officer is driving change

CDO for almost three years, Derek Strauss has pushed through organizational change and launched many large-scale initiatives



By **John Dix**

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Derek Strauss, Chief Data Officer, TD Ameritrade  
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Data is king in the world of financial services, and many organizations are adding new roles in recognition of that. Derek Strauss, for example, has been Chief Data Officer at TD Ameritrade since the position was created almost three years ago. Network World Editor in Chief John Dix recently caught up with Strauss to learn more about the CDO role, how it fits in with IT, and how Strauss is using the role to drive change at the largest U.S. online brokerage in terms of trading activity.

**I understand that TD Ameritrade created the role of CDO and hired you to fill it.**

**Where did the need come from?**

The CEO and the COO had been discussing for some time the need to become more of a data and analytics driven enterprise, to figure out how to derive more from the data we have about clients in order to service them better. But we don't want to overstep the mark. There's a lot of sensitivity in the marketplace about, "Do you know too much about me?" That can be creepy. We're very sensitive to that.

On the one hand, we want to be able to present clients with information and guidance at the appropriate time that is useful to them, things like education or news articles about areas they might be showing an interest in. But we don't want to overstep that mark where they think, "How did they know that?" It's a fine line, but getting to the point where you can understand what would be perceived as useful on a client by client basis is something we desire.

**Who do you report to?**

We have a pragmatic organizational structure that has developed over time. Essentially the COO decided to have the CDO role in his organization. And he has the three core IT functions reporting to him as well: the CIO, the CTO and AppDev (as well as several other shared services, such as back office, middle office, procurement, etc.). But when we started this the idea was to have data and analytics outside of IT reporting directly to the COO so we could have an equal seat at the table. Most other organizations have the CDO role reporting to IT or the CEO.

What became evident is that, in order to really move the ball forward as fast as possible, we needed to make a couple of adjustments. When I started the analytics groups were spread across the enterprise. The first adjustment was, I brought them together to collaborate on a federated approach. They still remained in their respective lines of business, but they were collaborating through a Center of Excellence on Analytics I established.

But what we found was that, in order to really get people across all the business units to focus in areas of enterprise importance, we would need to have someone fulfilling a very senior role on the analytics side reporting to the CEO. Although this person has not been called the Chief Analytics Officer, that's pretty much the role he is taking, and he's someone who's been in the business a long time, who understands the value of information and analytics. So the analytics center of excellence has now moved from my area into his and he reports directly to the CEO. We have a very tight relationship between the two of us. That's one thing that is really fantastic about the culture of TD Ameritrade. It's a strong collaborative culture so different reporting lines doesn't make much of a difference.

**When was that analytics role created?**

In the last two months. The way we talk about our respective roles is we produce the Ferraris and he trains the drivers.

### **Is one role more tactical and the other more strategic?**

No. We're both strategic and we're both tactical. All it really means is, there are parts of the organization that don't need Ferraris. They need trucks. He's not focused on those kinds of initiatives. Those are just as strategic for the firm, but it's certain types of analytics that are the major focus for what he's doing.

He's also involved in tactical support for analytics users. One thing we're working on jointly is how do we create an environment for people in the business who are explorers and discoverers, verging on the data science kind of role. How do we create environments for them such that when they discover something, say, a new algorithm, there is an easy path to production? That's a tactical thing we're both involved in trying to figure out. Both of us have aspects of strategy and aspects of tactics.

### **Were the analytics groups you brought together in that federated approach in IT?**

No. When I created this Center of Excellence, I had a small team of people reporting to me and they were responsible for networking with the rest of the teams and creating that collaborative federated communication channel, and that's essentially what has moved across to the head of the center of expertise for analytics.

### **How would you define your role today?**

The group I established is called the Enterprise Data and Analytics Group. Inside of that there are a number of pillars. One is data governance. That's purely a business function. It's working with all of the heads of the various lines of business -- typically managing director level folks -- to establish ownership for the data. They have people in their organizations who have been given the role of either data officer or data steward. The data steward level is all about controls on the data, the data quality, the day-to-day care and feeding, basically, of all of our enterprise-class data. So that's data governance.

The second area -- this is not in order of importance because all of these are critically important -- deals with data science. This is a small team of folks who are building best practices and showing how the results of data science can get implemented into business processes.

A third area has to do with the technology platforms that underpin all of our data and analytics capabilities; the platform for our big data store, the platform for our metadata repository, etc. There are probably about ten key data and analytics capabilities we've been standing up that have platform considerations, and certainly we need to be thinking about performance and interoperability, etc., of all of those.

The fourth area is data architecture, which includes data modeling, data quality, metadata management, master data management. Those are all components of the data architecture team.

The fifth area is all about data asset development and maintenance. That includes our enterprise data warehouse team, our big data store and the team that manages that, and things like data virtualization. Those are all key components which have teams which are managed out of the data development team or the data asset development team.

So those are the five areas of focus we have. Things like regulatory compliance falls into the data governance group. I know a number of people that have the CDO title have a major focus on regulatory and minimal focus on any of the other things I've just talked about. We've tried to really cover the full spectrum end-to-end. There are

probably only one or two areas related to data that do not fall in my scope, and those would be things like the database administrators. Our DBAs still report in to our CTO, and our CISO reports in to the CTO as well. Obviously we work very closely with both of those, but they're outside of the CDO realm.

**How much of this was existing versus what you had to build when you arrived?**

**For instance, in the data governance group, were the data officers and data stewards already there?**

No, none of that was there.

**I presume the organization had some platform technologies in place already.**

The only platform we really had was the enterprise data warehouse at the time. All the other new capabilities, roughly nine new capabilities -- the Hadoop data store, the metadata repository, the reference data management capabilities, those types of things -- had to be stood up and integrated.

**Over what timeframe?**

It's basically been about an 18-month timeframe that we stood up most of those capabilities.

**Wow! Very aggressive.**

I've been in the role for about two and a half years. The first six months or so were really about understanding the business needs, establishing the strategy and starting to map out where we were headed. After that it was building the team and starting to stand up these different capabilities, and using use cases that came from the business and making sure that it all hung together. We're now at a great point in time because we've stood up the capabilities, we've made sure they're going to work together, we've run a couple of use cases through them. Now we're at the point where we're really looking at the high-value business use cases and starting to mobilize the troops towards achieving that. We're right up in the thick of tuning up our final game plan for this financial year in terms of what we're going to be focusing on.

**Do you own the budget for all this or does it get paid for out of different buckets?**

There's a budget that the CEO and COO agreed on that is purely dedicated to the data and analytics initiative. We don't have to go out and try and get budget from various profit centers.

**Okay. You say you're just about to reap the benefits of all this effort, how will you measure success?**

Adoption of the capabilities in scenarios where the business is going to derive significant business value. A lot of it has to do with getting the various managing directors that run the different business units to specifically call out, "If we had this, we'd be able to do the following." Then for them to actually see that through to fruition and to measure that so their success would be our success.

**Are there financial goals as well?**

They certainly talk about financial goals. We will certainly be trying to focus on getting as specific as we can, but essentially it's all really going to be about building that better relationship with our clients, continuing to improve that, testing and learning better ways of building our client relationships.

**Any surprises along the way?**

Lots of surprises. But from conversations I've had with other CDOs, pretty much everyone is finding the same thing. The first thing is, most of us underestimate -- I know

I certainly did –the amount of time you have to spend on change management, because everything we’re doing represents a major change. It’s not just change in the business; it’s change to IT. That’s where a lot of work had to take place. Things as basic as more of an agile approach to data and analytics. People have used agile for programming, but they haven’t thought about it in terms of a complete lifecycle of data and analytics and how you would use an agile approach for that. In many cases that ends up being a brand new thing, “Let’s start from scratch and figure out how we can get people to adopt that approach.” If I could do it all over again I would pay a lot more attention to change management early on.

Another thing that has been interesting for us is, when we started this journey almost three years ago now, the vendor community was not really ready for us so we had to do a fair amount of experimental work. We’re now at the point where the marketplace is starting to catch up and there are more and more useful things emerging. I don’t regret the fact we got in early because I think it put us a bit ahead of the curve, but it took a little longer because of that. There were certain areas where a bit more maturity in the products would have been useful.

**I was actually going to end with that question. Are the tools where you need them to be, or is more development needed?**

The whole unstructured data and big data area is changing every day. There are new products and new capabilities coming out. I think that’s going to take probably a decade or two before we can say those products and services are mature. I think we are with big data today where we were with data warehousing in the late ‘80s, and it took three decades, pretty much, for data warehousing to get to the point where it was mature. I think this is going to follow a similar path, although I think it will mature faster than data warehousing did.

**On that note, there’s been more and more talk about big data cloud options. Are you using anything like that, or do you see anything like that in the future?**

We’ve done a little bit of cloud work with Amazon Cloud, mainly on the data science side of things, because we were working with a number of universities as an extended arm of our data science group. It turns out that the most efficient way of working with them would be having some of our data in the cloud for them to access. That is pretty much where we are. We know there’s going to be more and more of that so we’re actively looking at implications from a privacy and security perspective.

**Any advice you would give to other companies that are considering creating a CDO role?**

I think probably the one thing that’s worth mentioning is I’ve been part of a small group of pioneering Chief Data Officers working under the auspices of Professor Richard Wang at MIT. Richard and his group came out with a really interesting paper which looks at a cubic view of the role of a CDO, with each facet of the cube having different aspects and dimensions. And over time the role of the CDO might change, as in my case where initially I had the center of excellence for analytics in my area. I incubated it, got it to the point where it would make sense to spin it back out to someone else, and so my role has changed because of that. The CDO role should flex with the needs of the enterprise and it may take on many forms over time.