



### Data Science Consultants providing Predictive, Marketing, And Data Analytics and Fraud Detection



**Gerhard Pilcher**  
President & Chief Executive Officer

Elder Research, Inc.  
[www.elderresearch.com](http://www.elderresearch.com)

Contact:  
Gerhard Pilcher  
434-973-7673  
[Gerhard.pilcher@elderresearch.com](mailto:Gerhard.pilcher@elderresearch.com)

**“We see a lot of analytics get created, but not actually built into a work flow process. You must fundamentally change some decision process to get full advantage, or return on investment, from the analytics that you have built.” - Gerhard Pilcher**

Interview conducted by:  
Lynn Fosse, Senior Editor  
CEOCFO Magazine

**CEOCFO: Mr. Pilcher, what is the idea behind Elder Research?**

**Mr. Pilcher:** Elder Research was founded by Dr. John Elder a little over twenty-one years ago. He founded it because he found that he loved to do data science work, but at that time data science was not a cool thing. There were not really companies doing data science or data mining as a business. He realized that that was what he loved to do, and he wanted to do it full time instead of it just being part of the job. He was working in aerospace at the time. Therefore, he founded Elder Research to do just that, so he could have a company where he could do data science all the time.

**CEOCFO: Would you tell us about the services you provide today? With so many companies in data and analytics, what is your approach?**

**Mr. Pilcher:** There is a lot of excitement about it, and many people are making claims about data analysis and data science. However, we really focus on a few things. What we do for companies [first] is Analytics Assessment and Strategy. For companies that want to get into analytics, we use our twenty-one years of experience in building systems and helping companies with analytics to assess where they are on an analytics scale, on a maturity-type scale. We then help them develop a strategy, whether to hire service firms like ourselves or consultancy firms to help them, or to build out their own capability internally for analytics. That is one of the services that we offer. We look at very unique business challenges as well as their available skillset in terms of people. We also look at their data and infrastructure and what types of business intelligence they may be utilizing at the time.

The second part of our service is what we call Model Development and Deployment, and Deployment is really important. We see a lot of analytics get created, but not actually built into a work flow process. You must fundamentally change some decision process to get full advantage, or return on investment, from the analytics that you have built. Therefore, a big focus for us has been on deployment. A few years ago, about seven years ago, we purchased a software company that could specifically help with the deployment aspects of the analytics.

The third area that we work in is Model Validation. We provide expert judgment – professional judgment on the quality and robustness of models. That can be done as an independent validation for either the internal team’s model, which we have done, or another vendor’s model. We have done quite a bit of that across the spectrum.

Then the last point would be that we provide Analytics Training. We provide both general data mining and data analytics training for organizations as well as customized training based on the client’s more specific needs. Sometimes it ties into

us developing a strategy for them and developing their internal teams, and there is some training with that. However, there is also working with them hand-in-hand in developing models and being able to pass on some of that experience to the actual development of an analytical model.

Those would be the four areas that we primarily offer as services. We started in the financial sector by building hedge fund trading models. We still do that. However, we expanded into other areas based on the investors, the hedge funds, and high net-worth individuals such as CEOs. They asked us to solve other types of problems for them, including fraud detection, marketing problems, and up-selling services across a number of industries: the energy sector, banking sector, telephony or mobile telephony sector, healthcare, and the health insurance sectors as well. We really got our start commercially through the hedge fund trading models. Then our business moved into the federal government space for intelligence work. Our founder, Dr. John Elder, was appointed to a special committee after 9/11 by the president to help define how we could trade and share data better across federal agencies, especially intelligence agencies, to avoid another 9/11 type of attack. Therefore, a little more than a third of our business is in the intelligence area now, helping in those areas.

**CEOCFO: *When you are working with a company, what might your consultants look at that is not always recognized?***

**Mr. Pilcher:** We have seen analytics applied in so many places and have gotten to experience a number of different business verticals; one of the things that we notice going into many engagements is that the client has not really defined well the business problem that they are trying to solve. While that sounds like a more general business consulting method, it is not, in the sense that they want to solve a business problem or get better insight into their business using data. Therefore, it is a combination of not only business and understanding their business, it is being able to translate that into the data they have available and determine pretty quickly whether or not there is any utility in that data to be able to answer the question they are asking.

We have found that in most cases we spend a good deal of up front time just going back and forth between the data and the business to help them refine that business question. Many times, especially lately when this has become such a big buzz word, we find that executives may read a book or may read an article in the Wall Street Journal or Harvard Business Review or somewhere and say, "Hey, I've read this article, let's do an analytics project, let's solve a problem." They have not really thought about the value of that problem to the business and how they are going to measure the return on investment for that. Many times that will impact the data that you need and how you approach the problem in the longer term. Therefore, we have found [the importance of] having this experience, not just being excited about doing analytics and running some mathematical models, but really trying to dig in with the client and understand the business problem they need to solve and then mapping that in a very iterative process. We use a very agile process for this development. We look at and refine that business problem over time with business leaders who understand, appreciate, and want the return on investment they are going to get from that analytics project.

**CEOCFO: *Working with the federal government is always a challenge. What have learned in navigating the waters, and how do you reconcile when you come up with something that works well but the agency is not quite ready? How do you deal with your federal clients?***

**Mr. Pilcher:** That is a good question. The federal government can be a special challenge, because they do not necessarily have a good measure of return on investment. Many times it is driven by politics or Congress making a mandate, so you have to understand that mandate and how you can help them meet it. However, I will tell you one thing that we do and it really goes back to the type of employees that we hire and our need to be involved and engaged in exciting work. As we are engaging in clients and understanding their problem, we are also evaluating them in terms of how ready they are for analytics. I have spent a great deal of time in Washington over the last seven years, and in my experience it is refreshing to know that there are people within the federal government that truly and honestly want to make a difference in how the government uses our tax dollars and to make sure that the tax dollars are used wisely and going to the intention of the program that Congress set out. Those are the most fun to deal with! We try to evaluate that up front; are they really ready for analytics, do they want to make a significant difference in the way their program is run, and do they have the mandate to do that?

Many times what we find is that we can come up with very good analytic solutions, but there are statutory or legal hurdles to cross before the agency can actually make the changes to the program necessary to incorporate what they have learned from the analytics. Therefore, we look for those opportunities where they are willing to really hang themselves out there and push hard through some of these hurdles that will be put before them before we take on an engagement. It is just our way of sort of filtering that and making sure that the work that we do can make a difference in the long term. It is

not only in the government that we do this, but also in the private sector. Part of the reason we bought the software company was that our founder, John Elder, looked back over our engagements and did a little analysis, pointing analytics inward on ourselves, on our technical success versus what he considered to be a business success. Now granted, this was either ROI measured by our clients or our own assessment of ROI based on the completion of a project. What we found is that in the technical sense we were better than ninety percent successful. However, the technical success generated business success in only sixty-five percent of those engagements. We believed the result should be much better and began exploring ways to improve the outcome by enhancing delivery.

Therefore, we decided that two things had to happen. One is that we needed to provide an easy way for our clients to operationalize or deploy the models into their work flow process. The second was that we had to find engagements where they were really ready to take on the analytics. It sounds like we are making it easy for ourselves to win, but that is not really it. Why should we go into an agency and have them spend money on us and our services if they are not going to implement that? That is just another waste of tax dollars from a federal government point of view. From a business point of view, on the commercial side, the same thing can happen. You go in and you do something they do not really want on some executive level, [and they get no] return on investment because they were not ready to do it, and so they leave with sort of a bad taste of analytics in their mouth and they are less likely to engage in the future. Therefore, for us it is a strategy of preservation as well as [considering] tax dollars that we pay into the federal government and making sure they are spent in a wise way as well.

**CEOCFO: *Elder Research works in the fraud and compliance arena. How do you decide what to suggest with so many approaches?***

**Mr. Pilcher:** That is a magical question! The thing about us humans, or what we call carbon-based life forms, is that the bad guys are unfortunately out there, and they are creative and smart. They are always sensing how we might be detecting them and then trying to find new ways to circumvent that. Therefore, we try to build models in and look for ways that we can get ahead of them and anticipate where they might go next. Sometimes we can even create misinformation out there that steers them in a direction that makes them easier to catch the next time. However, in general what we encourage people to do is to look at it as not a onetime model, especially in this arena, whether you are talking about cyber security or fraud. It is that you can build a *system*. The system that you build needs to be able to be flexible to adjust to the criminal's intent.

This is just like when you buy a car and you have a car that you can drive because it has a steering wheel and tires; a fraud system also has components, but different components for different types of fraud. In a car you have to change the oil every now and then. You have to add new tires, or you might have to replace a timing belt; some problems are more serious than others. It is the same way in these fraud [models]. You have to continually look for new ways that the fraudsters are trying to hit your systems and then build in preventative maintenance. Therefore, there is the idea of what we call "back testing."

It may be to easier to illustrate this in a financial model. If you think about trading models in the financial world, that is changing all the time. That little inefficiency that you find in trade within a market may only be there for a period of time. Once other investors see that inefficiency and start trading to it, the market settles back into an efficient mode and you lose that edge. Therefore, we are back testing any financial models at least on a weekly basis to make sure that the model actually still has some validity. In other words, in the statistics and analytics, the basic question you are trying to answer is, "is this insight, this result that I am giving you; is it better than if I just randomly guess that same answer?" Therefore, we test the models on a periodic basis, build that into the system so that we know whether the model is still better than a random guess. If it gets to the point where it is no better than a random guess, then you need to rethink the model, retrain the model and make it approved or maintain it so that you are better than a random guess; otherwise, there is really no need for the model. You can just simply wake up and guess that day on which [transaction] might be fraudulent or not. Therefore, the model has to have some edge, or what we call lift, for it to be helpful to a business or an agency.

**CEOCFO: *Why does Elder Research stand apart from the crowd? Why choose Elder Research?***

**Mr. Pilcher:** I think there are two reasons that I would state. One is that we have probably more experience than anybody in the industry at solving analytic problems, and we have had great success doing it. We have written extensively about it. We have four books out, so we like to share our knowledge. However, we bring a tremendous amount of experience to the table.

The other thing is that if you get to know us and get to know our stats, what you realize is that we love what we do. It is a craft to us. The people that are in our company and the way that we work together and the way that we work with our clients – we really enjoy seeing them succeed and have a return on investment. That is because we love data science. It is not really a job. Most of our people are doing this outside of work for fun or are doing it pro bono for agencies or non profits that need help in this area. Therefore, it is really a craft for us that we love, and I think it shows in our work and the results that we deliver for our clients.

