



Advice to advance your career

# CAREER COACH

ANALYTICS

## Analyzing The Future

*How to prepare for the evolving career landscape*

by Ray Harkins

**For this column, I had the privilege of talking to Richard Lamb about the emerging role of analytics in process quality, and his advice for professionals looking to broaden or advance their careers.**

Lamb is the author of two books on reliability engineering and founder of the Analytics for Strategy Institute in Houston. Not only is he a licensed professional engineer and certified public accountant, he also is a Lean Six Sigma Black Belt.

***Harkins: It's an honor to talk with you, Richard. Thank you for sitting down for this interview.***

Lamb: I like the idea of this column. My career is much further along than yours, and at some point you realize—like in the movie "Bull Durham"—that one of your biggest goals is to get the youngsters ready for the "big show." And part of that is helping them recognize what shifts are taking place.

I think we're all concerned about getting left behind. When something new happens, you end up with a lot of people on the outside looking in because they didn't see it happening or wouldn't admit it was happening. So, I see myself in an advisory role, setting a direction for the youngsters.

***So, what are you doing to prepare these so-called "youngsters"?***

I've been writing a series of articles and consulting on projects to get the attention of Six Sigma practitioners and organizations. The big idea is to get them focused on asking the right questions, and transferring my knowledge to them.

If I was helping a team set up a quality control system, for example,



I would want to get to the end of the project with more than just the new system in place. I would want to leave them with a body of people who know how to reach into their databases using software like R, pose the right questions that analytics can answer, and correctly interpret their results. If I can do that, I know they'll apply those skills to every project moving forward. So, it's a big idea.

I also tell the younger people, "One of the things you must think about throughout your career is what you are going to do when you hit your 60s and beyond. You've got to stay engaged. Look for that final career."

My job now is not to aspire to be a manager or anything like that. It's to aspire to get the next generation ready for the big show.

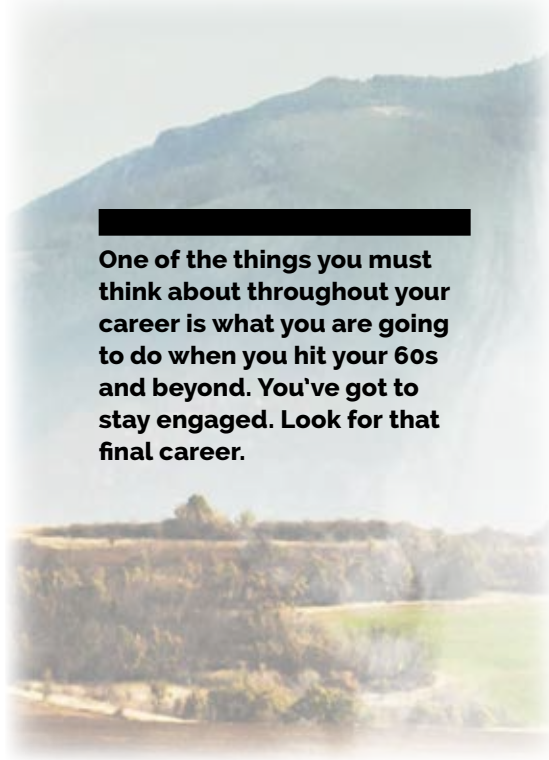
***Today's professionals have heard the buzzwords like big data and analytics. What is analytics in a nutshell, and how does it differ from the statistics we learned in school?***

When most people think of big data, they think of a table with many rows, like you see in Excel, only much larger. But big data is not to be mistaken with what we think of as a large table.

Ten million rows of data are not big data. Big data refers to a technical aspect of data that is so large it's stored on multiple servers and you need special technology to reach out to those servers to bring it together. You can't do that on your personal computer.

Also, the different types of data involved are disparate in nature, as opposed to most of the data we typically deal with, which is structured in nature.

So, the first thing I tell people is to forget about the expression "big data." You just have data. And analytics is when you take the data and drop it into one of a whole body of models. In the end, analytics is about dropping your data into one of those



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instruments and putting together a legitimate model, and interpreting what comes out of it.

This really doesn't differ from traditional statistical tools. It's just those statistical tools now have been rolled up into models.

***So, do analytics have any application in the quality or reliability engineering fields?***

Yes. Think in terms of five types of questions. The first is about change. Is there a difference? After I put my quality program in place, did I see the intended change?

The second is about relationships. How do the things that vary in my process relate to one another? They may not be causal, but they're related.

Next are questions about time series analysis. I think this is especially interesting to the quality mind. Take process control charts, for instance, where you have a time plot. There's a huge amount of information there but, traditionally, we look only at the surface. Are there any cyclical aspects to the data, for example? If we see the data moving in a certain direction, is it only random movement or is it part of a larger trend?

The fourth is about duration. How long has something stayed in the same state? In reliability, you want to know how long things last and, on the flip side, what the hazard is of something bad happening given how long it has endured. I like to joke with people that I wake up each morning and ask myself, "What are my chances of dying today given that I've lasted this long?"

The final question is about something I call "apparency." What's the underlying story? Apparency is about the story the factors are telling that isn't directly visible in the data.

Imagine what thinking in terms of these five questions could lead you to in your quality and engineering projects.

***For the typical quality engineer—maybe someone who is a***

**certified quality engineer or Black Belt—what would you recommend as his or her next step to deepen his or her knowledge of analytics?**

I hate to say it, but they're going to have to put some energy into it—and I mean years of energy—to get good at it. Learning analytics was some of the hardest thinking I've ever done. It takes unusual ways of thinking. A quality engineer must make a commitment to find coursework like a massive open online course or, better yet, quality distance education. I did 18 hours of graduate studies in applied statistics at Texas A&M University. The information is out there—you just have to go after it.

**What advice would you give mid-career professionals who want to take the next step to senior management or executive leadership?**

As a condition to advancement, they should have been developing their soft skills all along. For me, the core of all leadership skills is emotional intelligence and the humility to go along with a senior position. If someone doesn't have that, it doesn't matter how good they are at anything else—a leadership position will destroy them and others.

On the technical level, they must understand financials. A CEO must understand the financial benefit of any project and how to optimize his or her own business.

And then I would say practice seeing the big picture. Start practicing the idea of casting problems in terms of objectives. To paraphrase what educator Peter Drucker once said: It's easy to say what we produce, but we must ask ourselves, "What do we really do?"

If you throw a concept at high-level leaders, they catch on immediately. As you go down the ladder, people don't seem to be able to catch on to concepts as easily. Always practice asking, "What is this really all about?"

**So, it's soft skills, the books and the big picture?**

Yes. And I would say that the five questions of analytics I mentioned earlier are being swept up in the big picture. A scarce commodity will be the managers who know how to think with analytics and pose these questions to their organizations.

Sometimes, the right questions are harder to come up with than the right answers. The higher up we go on the career ladder, our questions become more important than our ability to answer them. In strategic planning, the goal is to make sure all the questions that should be asked have been asked and well answered.

**What about younger professionals? What would you recommend to someone just coming out of business or engineering school?**

A couple things. Even just coming out of school, they should start thinking about what they're going to do with the last segment of their life because they'll want to let that influence their career a little bit. You have two things going on at the same time: the work you're doing now and the preparation for the work you will ultimately do.


Also, it's important to recognize that new knowledge is coming to the forefront. Or maybe it's old knowledge that now has come to its time. You should often think, "What do I want to learn about now? What is that body of knowledge out there that will really add something to what I can bring to the table?"

**We've talked about accounting and analytics. Any other bodies of knowledge young people should at least investigate to see whether it applies to their career?**

Change management, which is breaking down change into stages of development and looking at all the elements you must weigh out and how those changes affect the various stakeholders. Regardless of what profession you choose, you're going to want to bring about change, and the principles of change management will help persuade a group to enact that change.

Salesmanship is another important skill. It involves understanding the customers or stakeholders extremely well and being able to pull from them an understanding of what they really want. It's a fundamental skill.

I spoke with the owner of a famous architecture firm—the kind of firm everybody wanted to work for after coming out of architecture school. I asked him, "What do you look for in the people you hire?"

He surprised me when he said, "Their salesmanship. Because whatever they do, whatever design they come up with, whether it's with a client or their own design team, they must sell them on the idea." 

**NOTE**

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