# Mid-Life Journey to Data Science

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Data Science has been hailed as the sexiest job of the 21$^{st}$century. This news has understandably had an influence over today's college undergraduates and even high school students. But can a person who is mid-career — who has invested proverbial blood along with real sweat and tears into a different path — act on this news? Is it possible to transition into Data Science later in life? "It depends."

From a tactical standpoint, the areas of one's expertise, in schooling and career, dictate the level of effort needed to make the transition. Your years of work experience can give you an edge if you understand business goals, creating processes to support those goals, and implementing technologies to support those processes. If you have those skills, the transition could mostly be a matter of mechanics and timing.

So, should people with that experience dive right in? Again, it depends. Next, determine whether the move would fit your strategic goals. The tactical questions above answer the "how" of a career switch; the more important question is the "why."

Let's face it: switching careers is a big move, especially if it involves leaving a stable job to join the ranks of unemployed students…with hopes that everything will somehow work out. Such a move should never be taken lightly. I know this from experience, and I will share my story to demonstrate the internal reflections and motivations that go into such a career shift. Before making a big move, you must ask a variety of honest questions about goals and motivations to ensure the change is in line with your strategic plans and not just driven by financial considerations.

Note: this article assumes you already have a good grasp on what the field of Analytics is about and the role Data Scientists play in that field. To read more about these areas, check out this article about What a Data Scientist Really Does and this article outlining Six Facts about Data Science. For a deeper dive, check out these books: one that describes what data scientists do and how some leaders, including two of my colleagues, became data scientists.

# Passions and Goals

Since the most important considerations in a career switch are strategic, let's start with those questions first. Are your yearnings for change rooted in temporary desires or do they have deeper roots? To discern your motivations, make a list of reasons you are considering a switch to the Data Science profession. Then assess whether these fall into the category of "destinations" or "fundamental whys." What is the difference? *Destinations* represent a hunger that can be quickly quenched simply by arriving at that destination. Examples include leaving a bad job or getting a promotion.

The *fundamental whys* are your central driving forces that evolve over many years. They are passions whose flames will not only continue after arrival to the destination, but are likely to grow stronger over time. Examples include a love for learning, a desire to work with numbers, or a desire to help organizations become better through data-driven decisions.

Most people will find that their yearnings are rooted in both "destinations" and "whys." If so, then this is the first litmus test of being a future Data Scientist: Can you decipher the signal from the noise? If the idea of thinking through these hard issues brings up images of drudgery instead of excitement, then your core motivations are likely "destination" based. Data Scientists are paid to ask tough questions and find the answers in the data before them; whether or not that sounds enjoyable to you will be quite telling.

My own story can demonstrate. As an undergraduate, I bounced around between different majors and had an academic record that suffered as a result. I was originally attracted to science; I wanted to contribute in a meaningful way to humanity's body of knowledge. I thought those contributions would come naturally, but like most idealistic students, reality quickly set in. I ended up switching majors several times before settling on a mix of Computer Science and Economics—a combination my advisors said was a waste of my time. They told me it was a pipe dream to believe a career path could arise out of such divergent schools of thought.

For almost 14 years after graduating from college, I worked in IT consulting, Information Security, and in IT Audit. While I enjoyed each of these jobs, I realized through introspection two common themes on my approach to them:
1. Information is King—after I had the chance to "learn the ropes" in each job, I always found myself seeking ways to gather information to spot problems before they became issues. I found ways to use data to make my job progress more smoothly. I felt the power in data-driven insights, and I was passionate about sharing these insights with others across the organization.
2. Process is Queen—each career I worked in had frameworks or other guiding principles upon which to proceed. I found that my career always went in good directions once I made the investment to understand these frameworks and stick to them. But I noted a common principle: all frameworks really boil down to assessing the environment in which one operates. Before making decisions, frameworks remind us to consider not only costs vs. benefits, but also uncertainties and assumptions to gain a true understanding of our risk. I saw the connection between good data and robust processes. In fact, robust processes and useful data are married together: one never seems to last long without the other.

These two insights led me to an unexpected conclusion: my youthful goal of gaining insight and discovery did not really die when hitting college or the real world. Rather, it subconsciously transformed itself. I had actually followed that passion in all three of my jobs every time I invested the effort to understand frameworks or gather new information to improve decisions.

I first considered a master's degree in Analytics after I took an Accounting course for my auditing job and received a tip from my professor. As I explored the still relatively new program offered at my local university, it didn't take long for me to fall in love with Analytics and Data Science. I had found a discipline that could solve real-world problems, like I learned about in my old Economics classes, yet used Computer Science-like methods to do it. It fused the best of math, statistics, computer science,

and business knowledge to offer direct opportunities for discoveries that could really make a difference for organizations, and possibly humanity writ large.

In short, I knew in my heart that I had waited many years for such a career to be invented. Now that I saw it was a reality, I knew I wanted in.

# Transition Challenges: Your Experiences DO Matter

Convinced that my desires to switch careers were rooted in specific, strategic-level career goals that properly addressed the "whys," there were still practical challenges to consider. Could I really quit my job, become an unemployed student for a full year (a requirement for the program I attended), and then start the job search process all over again? This required asking more tough questions:

1. Do I have what it takes to make it in a rapid-fire master's program?
2. Would anyone want to hire a newly graduated, middle-aged person like me?

When I pondered these two questions, I realized my recent work experience provided a clear answer.

# Do I Have What it Takes?

This is a personal question you must answer honestly. When considering your data points in making the decision, the costs of failure should be considered, but don't dwell on them. My wife has a saying: "*Can't* never could do anything."

Instead, ask yourself whether you have made it through some tough challenges before and what it took to get through it. Do you have the support of your family to get through? Are you willing to enter into such a tough period through your own choice? Any good master's in Analytics program is going to be intense. I was told that I needed to invest at least 60-80 hours of effort per week just to survive in the one-year program.

I had another fear that weighed on me: I did not exactly have the best academic record as an undergraduate. However, I realized that when I was younger, I gave up too easily when the going got tough. As I got older, failure was no longer an option, and I learned to navigate some really thorny situations. I developed persistence, and a survival instinct to work my way out of difficulties. I was not the same person I was when I was 20, and I could confidently approach school as a solvable challenge. It helped that school had a definite end date; I felt that I could endure the temporary pain and suffering it could inflict.

# Would anyone want to hire a newly-graduated, middle-aged person like me?

This is a tougher question to answer because being hired is not something you have full control over. To further complicate matters, changes in the economy could significantly alter the job market between starting time and graduation date.

With just a one-year program, the economy would (hopefully) not fall to pieces that quickly. There should be an ample supply of employers seeking Data Scientists. I took the time to define what I wanted from a new career, as I knew that employers favor candidates who present a cohesive strategic vision in interviews. With goals well defined, I could focus on what my past experiences brought to the table. When I began to interview for positions, I actually found it easy to craft such a narrative around my strategic vision.

In this way, I built up faith that I would land not only a job, but one with an organization where I could use my unique set of skills to make a difference. I simply had to maintain the discipline of not thinking about my future job while in the thick of school. Instead, I focused on devoting 100% to my studies to learn as fast as I could. With my age I had fewer years remaining in my career to become a guru than a 20-something graduate would have, which gave new meaning to *carpe diem.*

## Conclusion

I hope the questions I have posed, and my story, will help those of you who are considering a career change. While it is important to consider the "hows" and assess whether you have the wherewithal to make the change, it is more important to first ask the bigger "why" questions about your strategic career goals. Does the thought of gaining insight through analyzing data, and then sharing those insights with others, sound like an exciting opportunity to you? If separating the signal from the noise sounds fun, then Data Science could be a great strategic fit for you.

## About the Author

Data Scientist Robert Pitney of [Elder Research](#) enjoys listening to the needs of clients and finding ways that data can be used to solve problems, increase efficiencies, or prevent fraud. Previously, Robert worked six years in the private sector as an IT Systems Integrator followed by eight years in the government sector as an Information Security Manager and an IT Auditor. In these roles, he learned the importance of analyzing data to ensure the continued security and integrity of key information technology systems, and became a Certified Information Systems Security Professional (CISSP) and Certified Information Systems Auditor (CISA).

Robert joined Elder Research after earning a Master's of Science in Analytics from North Carolina State University, from which he also had earned undergraduate degrees in Economics and Computer Science. He actively seeks to cross-pollinate ideas from these fields to maximize positive impacts for clients.

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