

Actuaries Institute Podcast

Title: Driven by Data: Amanda Aitken

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Interviewer: Meg Yang

Guest: Amanda Aitken

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Meg Yang: Hello, and welcome to the Actuaries Institute Podcast. My name is Meg Yang and I'm a member of the Institute's Young Data Analytics Working Group. This podcast is the second episode of the *Driven by Data* series, which I interview data analytics professionals from both within and beyond the actuarial profession.

Meg Yang: Today, I'm joined by Amanda Aitken who is a member of the Institute's Data Analytics Practice Committee and is an actuarial educator within the Institute's Education Program. In this podcast, Amanda and I will discuss what inspires her to get the best out of actuarial students, the exciting new data analytics initiatives being undertaken by the Institute, and her advice to listeners starting out on their data analytics journey. Welcome Amanda!

Amanda Aitken: Thanks Meg. It's great to have this opportunity to talk to you about data analytics.

Meg Yang: Great. Shall we start with a brief introduction of yourself?

Amanda Aitken: Yeah, sure. So, I qualified as a Fellow in the year 2000. That's also the year that I got married, so that makes it really easy for me to track how long I've been married and how long I've been a Fellow. I started working in an actuarial consulting firm in both life insurance and general insurance. Then I transitioned to working as an in-house actuary for 12 years, before running my own small consulting firm. I've had a range of different actuarial experiences. Then more recently I followed my passion for teaching into a role with the Institute's Education Team. That was three years ago.

Meg Yang: Wow, that's great. So, what made you decide to join the Education Team?

Amanda Aitken: Oh, good question. Might've been a bit of a midlife crisis. I was reflecting on what I really enjoyed the most at work in different roles that I'd been in. And when I thought about the sorts of jobs that I'd enjoyed the most, it came down to different experiences

I've had where I'd been able to teach. So, when I was working at WorkSafe, I used to run Actuarial 101 sessions and I was working with a whole lot of different people. So, lawyers and claims managers and medical people and teaching them what a liability was and how what they did in the workplace impacted the liabilities. And then I had some other similar roles when I was consulting to clients as well, just helping their staff understand the impact that they have on liability evaluation.

Amanda Aitken:

So, I realised that what I loved about those jobs is being able to impart knowledge to others, and it was that teaching element that I loved the most. So, when I saw the role come up for the Education Team at the Institute, I thought it's a perfect opportunity because it lets me move into that teaching space, but also use all the actuarial knowledge that I'd gained in the past. So, it's sort of best of both worlds.

Meg Yang:

Wow, amazing. You found a sweet spot between your career and your passion. So, what are the current initiatives that you and your teams are working on?

Amanda Aitken:

Lots of different things. We're currently teaching quite a few new subjects in the actuarial curriculum. So, subjects like Communication, Modeling and Professionalism, Asset Liability Management, the new life insurance and retirement subjects, and also the general insurance and health subjects. And at the same time as teaching those new subjects, we're developing quite a few new fellowship subjects. So, we're working on ERM, some of the general insurance and health subjects are still being developed, investments and data analytics applications.

Amanda Aitken:

And then on top of both teaching and developing new subjects, given that we started from scratch, I suppose, as an in-house education team three years ago, we still spend quite a bit of time developing principles and policies and procedures, just to make sure that everything we do is consistent and we're treating all of our students in the process equally, on any assessment process.

Meg Yang:

I see. We're most interested in the data analytics projects becoming subjects. Would you like to tell us a bit more about what subjects are there available to our members?

Amanda Aitken:

Yeah. So, within the new actuarial curriculum, we've got a new subject that was introduced last year that the universities are teaching, called Data Analytics Principles. That's a compulsory subject that all actuarial students will undertake. So, the target group is obviously students completing their actuary program, which is the equivalent of part two.

Amanda Aitken: The aim of the subject is to extend students' knowledge of modern analytical tools and techniques beyond the foundation program and to teach them how to apply that knowledge in real life business settings. So, it covers the full data analytics process from business environment, data understanding and preparation, modeling, evaluation and communication. So that's the compulsory subject that's taught by universities.

Amanda Aitken: We're also in the process of developing a new fellowship subject, which is called Data Analytics Applications. We're going to be teaching that within the Institute from semester two this year. So, it's not very long away now. This is an optional subject. So unlike Data Analytics Principles that all students will study, students can elect to study this as a module three within the Fellowship Program.

Amanda Aitken: I guess one question that I'm asked a lot is the difference between this Data Analytics Application subject and Data Analytics Principles. For me, the main difference is that Data Analytics Applications adds some more techniques to what you will have in your toolkit from the Data Analytics Principles subject and takes the business application focus up a notch from what you learn in Data Analytics Principles. So, within this subject, students will learn how to apply a whole range of data analytics skills and techniques, and some of the tools that will teach them neural networks, natural language processing, unsupervised learning, and optimisation techniques. And they'll use all those tools together with their professional judgment to help them solve a variety of complex and challenging business problems. So, it's going to be very fun and exciting.

Meg Yang: **Definitely sounds very interesting. So, can I just do a quick summary for our listeners because there's a lot of information just covered in there. So, I think there are two subjects that you just mentioned. One is the Data Analytics Principles. So that's more theoretical or principle-based, which is compulsory subject for the Actuary Program. And the other one is the Data Analytics Applications. And that one is more practical with lots of toolkits in it, and that's an optional subject for the Fellowship Program. Is that right?**

Amanda Aitken: That's right, yeah. They're both technical and practical, but I think Data Analytics Applications just has maybe slightly more of a focus on the application of the techniques. But they both incorporate elements of applying the techniques in practice.

Meg Yang: **Right. So, they both involve coding, programming, I mean.**

Amanda Aitken: They do. That's right. Yes.

Meg Yang: **Is there any difference of whether they use R or Python or some other language?**

Amanda Aitken: Yes. A good question. In Data Analytics Principles, universities have the flexibility to choose which programming language they want to teach the subject in. Most of the universities are using R and that follows on from what students will have learned in the foundation program. For Data Analytics Applications, we're going to be teaching the techniques in Python. So, we'll teach the theory of the techniques and then we'll show them practical applications through case studies, but using Python rather than R. I don't think R or Python, that one is better than the other, but I think it's really important for students who want a career in data analytics to be exposed to a range of different languages. And to be able to enter the workforce with two very popular toolkits in their bag of tricks, is a real advantage.

Meg Yang: **Yeah, that's great. I think you've just answered a really popular question amongst our students, our members. It's just, what's the difference between R and Python and which one is better? Yeah, I think that's great.**

Amanda Aitken: And I guess the other thing I would say is that a lot of students may not have learned Python before coming into the Data Analytics Application subject. So, we will be providing some advice on what students will need to cover to have a basic understanding of Python before they can take the subject, and we'll provide some resources to help them acquire that knowledge.

Meg Yang: **So, what about people who are already qualified? I think at last year's actuarial summit, you mentioned there's a Data Analytics CPD certificate, which will be launched this year?**

Amanda Aitken: Yeah, that's right. So that was launched by Macquarie Uni in March this year, so it was very recently launched. As you said, the target group is a little bit different for this subject, in that it's not students going through the qualification program. It's qualified actuaries who want to add modern statistical methods to their toolkit.

Amanda Aitken: My understanding is there's no prerequisites for the subject, but it is assumed that you have an actuarial qualification so that you have a lot of that statistical knowledge already down pat from the actuarial education, and this just adds modern statistical techniques to that toolkit. So, some of the topics covered are data

visualization, data manipulation and ethics, as well as machine learning and artificial intelligence. And yeah, you can enroll directly with Macquarie University for this course.

Meg Yang: **Where can people find out more about the courses you just mentioned?**

Amanda Aitken: Yes. So, on the Actuaries Institute Education web page, you can find the syllabus for Data Analytics Principles, and you can find information about Data Analytics Applications on there as well. And we'll post a link in the show notes of how to find out more about the CPD course that Macquarie is offering.

Meg Yang: **Thanks, Amanda, to make it easier for our listeners, we'll include the links to each of the courses in the notes section of this podcast.**

Meg Yang: **So, Amanda, it's amazing to see how much progress Institute has made to get its members well-equipped for this rapidly evolving analytics space, especially the courses that we just talk about. I think it's especially beneficial for people who prefer a structured way of learning, but what for people who prefer the unstructured learning or who are looking for some other ways to supplement their learning? Do you have any suggestions?**

Amanda Aitken: Yeah, for sure. And you've hit on a good point, that some people like a really structured way to learn. They like to be told exactly what they're going to learn and when. Whereas other people might like to have a bit more flexibility to pick the particular topics they're interested in and also to pick when they'll study them throughout the year.

Amanda Aitken: So, if you prefer an unstructured or a tailored approach to suit your needs, then you could still start with the syllabus for Data Analytics Principles and Data Analytics Applications. As I said, they're available on the Institute's website. And if you have a look through the learning objectives in the subject, you can work out which of them are of interest to you, but also where your current knowledge gaps are, which might help to direct you as to what you want to learn first.

Amanda Aitken: I guess there's two different paths that you might head down. It might be that you recognise coding is a particular skill gap. So, if you're wanting to learn a bit more about R or Python or other programming languages, there's lots of different ways that you could gain that knowledge. So, we often have snippets or code snippet articles in *Actuaries Digital*. They're really helpful to see coding applied in real life settings. There are books series like the

'O'Reilly and 'For Dummies' series. And I'm also reading one at the moment, 'Automate the Boring Stuff in Python'. And we're recommending that as a good resource, particularly for those wanting to study Data Analytics Applications. So as an aside, 'Automate the Boring Stuff in Python' is a good resource to get started.

Amanda Aitken:

And then there are Meetup groups that you can join. So, Meetup groups like 'Data Science Sydney', and Melbourne, and I think there's Data Science Meetup groups in every capital city of Australia, and other coding-specific groups, like I think there's one called 'R Ladies' in Melbourne. So, groups like that can be a great and fun way to learn how to code and also meet people who are on a similar learning journey to you.

Amanda Aitken:

So, as I said, one path you might want to head down is coding. Another path might be machine learning techniques. So again, there are lots of different ways that you can acquire that knowledge. You might want to look at the Institute's monthly Data Analytics Newsletter. *Actuaries Digital* also has a range of different articles on machine learning topics. Another option could be to sign up to publishing platforms like 'Medium'. So, I've got a 'Medium' membership and every day I get a whole range of interesting topics pop up in my inbox that I can click through and read articles that interest me. There are also online courses. I guess they're a little bit more structured. So, if you're looking for an unstructured session, then that might not suit you.

Amanda Aitken:

Couple more options are the Insight Sessions that the Institute runs throughout the year and that the Data Analytics Practice Committee puts together on topics that we think will be of interest to members. And we're also looking at running a few master classes again this year. So, they'll be on various data analytics related topics.

Amanda Aitken:

Whether you're heading down the coding route or machine learning, and whether you like a structured approach or an unstructured approach, one tip I would have is that hands-on experience is really important. So, it's one thing to read about techniques in a textbook. It's another thing to then remember and know how to implement them yourself in a real situation. So, you should be looking for ways that you can practice your skills, and that might be entering a Kaggle competition or undertaking... There are some online data science internships, like one that Quantum offers. It's a great opportunity to showcase your skills, but also try out some different problems. Or just pick a project that you want to work on. So maybe there's something at work

that is currently solved in Excel and you decide to take that on to convert it over to Python, to be more efficient and more effective.

Amanda Aitken: So, with all of those options, websites like 'Stack Overflow' will be your best friend because they'll have all the answers when you get stuck and can't work out where that bug in your code is coming from.

Meg Yang: **Fantastic. It definitely sounds like for people who are interested, they have plenty of options out there available for them. And just to help our listeners who are starting out on their data analytics learning journey, Amanda has kindly given us a few links to some of the basic coding and machine learning textbooks, which we'll include in the notes section again of this podcast.**

Meg Yang: **So, what about people who are proficient in coding and machine learning techniques? How can they contribute to the Institute's data analytics initiatives?**

Amanda Aitken: Fantastic. We're always looking for willing volunteers. People that might be wanting to help in the Education Program, we always need scrutineers and markers for assignments and exams. So, with the Data Analytics Applications subject coming up, you'll see some notes in the Bulletin seeking volunteers in that area. We'll also be putting together a Data Analytics Education Faculty to oversee the implementation of Data Analytics Applications. So, on the education front, there's a few different options for getting involved.

Amanda Aitken: And then the Data Analytics Practice Committee and the Young Data Analytics Working Group, which you're a member of, Meg, are often running different initiatives to try to provide data analytics opportunities to our members. Do you want to talk about some of the initiatives that you guys have currently got going on with YDAWG, Meg?

Meg Yang: **Yeah, absolutely. Thanks for letting me put in a plug for YDAWG here. So, we definitely have lots in our pipeline, for example, the Hackathon or Python study group, the newsletters, and even the podcast. And similarly, we're always looking for people who are passionate about data analytics, who are willing to contribute to the actuarial community as well. So, anyone who is interested, you are more than welcome to get in touch with myself, Amanda, or YDAWG, or the Data Analytics Practice Committee.**

Amanda Aitken: I know you guys on YDAWG are always coming up with fantastic initiatives and probably the main problem is finding enough people to help get them off the ground.

Meg Yang: Yeah, absolutely. So, my last question for you, Amanda, what final advice do you have for any listeners want to start out on their data analytics journey?

Amanda Aitken: You touched on something before Meg, when I talked about the various options for unstructured learning, and then we've obviously talked about some options for structured learning. It is really overwhelming how many options there are, and someone starting out can often be overcome by it all and I think with not knowing exactly where to start and having too many options. So, my advice would be just start. Just pick a topic, find one resource that someone's recommended to you, and get started. You don't necessarily have to map out your whole learning journey at the very start, but just get started in one particular area, and that will probably then lead you down a particular path.

Meg Yang: Note taken. Just get started.

Amanda Aitken: Definitely.

Meg Yang: Thanks, Amanda. That's all we have time for today. Listeners, we hope you enjoyed this discussion. Check out our Actuaries Institute Podcast for more thought leadership content or write in with your questions and comments on the show. We'd love to hear from you. Thanks for joining the podcast today, Amanda.

Amanda Aitken: Thanks, Meg. The pleasure was all mine.

Meg Yang: Thank you. I'm Meg Yang. Bye for now.