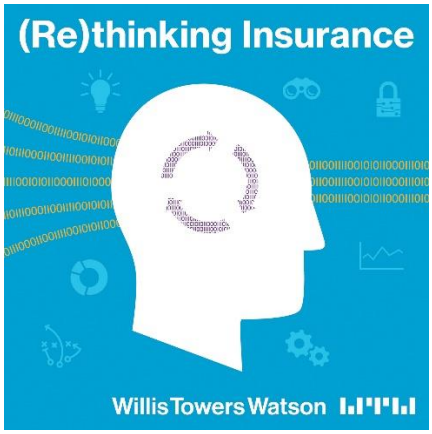

Episode 8: Open Source – what can it offer insurers?

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SERHAT GUVEN: Having the community of people to call upon to help you understand and evaluate the data to make better predictions, to establish the right rate for the right risk is huge. And this is where I think there's some really positive things about open source, and how it is changing and evolving our industry.

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SPEAKER 1: You're listening to Rethinking Insurance. A podcast series from WTW where we discuss the issues facing P&C, life, and composite insurers around the globe, as well as exploring the latest tools, techniques, and innovations that will help you re-think insurance.

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CARRIE KELLEY: Hello, welcome to Rethinking Insurance, I'm your host Carrie Kelley. Today, we are covering a very hot topic in the world of insurance, predictive modeling and data science, open source. We're going to talk about what is it? What are the pros and the cons? And how do you strike the right balance with specific focus on the applications of it within the insurance industry?

So thinking back 28 or 30 years, actuaries within insurance were one of the primary strategic analytical resources for the insurance industry. In the past decade, we've seen similar trends with the influx of data scientists entering the industry. And one of the results of this influx of data scientists has been an evolution in the analytical sophistication of insurance carriers and part of this evolution has been further fueled by the use of open source, our topic today.

My guests today are going to be Pardeep Bassi and Serhat Guven. They're going to share their views on actuarial and data science skill sets or complementary. And how embracing open source is accelerating WTW ambitions to provide the best in class analytics and decisioning, consulting services, and technology solutions.

So let's start with a little bit of background on Pardeep. So Pardeep is WTW, a global leader in data science. In this newly created role, Pardeep will lead the advancement of WTW data science capability, globally building on the WTW market leading analytics and data science software, emblem, and radar. Pardeep is most recently served as chief data science officer at LV General

Insurance, a part of Allianz, where he was responsible for creating and delivering the insurer's advanced analytics and machine learning strategy. Welcome Pardeep.

PARDEEP BASSI: Thanks for the introduction, Carrie. Really looking forward to having this conversation.

CARRIE KELLEY: Great. And then a little background on Serhat, who is a managing director here at WTW, and he's WTWs global leader of personalizing product, pricing claims, and underwriting. He's a 25-year actuarial, veteran, where the majority of his career has been on developing into blowing advanced analytics solutions for a wide array of insurance applications. Prior to his current role, he was America's regional leader of WTWs insurance consulting and technology line of business. Welcome Serhat.

SERHAT GUVEN: Thanks, Carrie. I'm also very excited to be here today. Very excited to chat about what we think is. One of the more interesting topics that are going around in the insurance industry.

CARRIE KELLEY: Absolutely. All right. So why don't we jump in with just-- what is open source? And Pardeep, do you want to kick us off?

PARDEEP BASSI: Great, great. So open source, the terms usually associated with software development. So it's software development in an aspect where the source code is open and anyone can inspect, modify, enhance, make any changes to it as they please.

But it's more so than just software development, it's more of a movement, a philosophy, which embraces open exchange, collaborative development. It's like a community type feel to it, common problem solving, speed to innovate, and just the transparency. Just being completely open with what codes being used, how it's developed, and complete openness, very much a philosophy.

So when I think about open source as well, I mean, it's been a growing movement for the past 20 years, but it's been around a lot longer than that. I mean, think about Linux, and Linux is an extremely, it's kind of an old version of what open source means, and the benefits are pretty astounding. And as pretty as you mentioned things like innovation, flexibility, community, these are all elements of open source that have really been embraced by the analytical community. And that's created a lot of opportunity to become and to develop more sophisticated solutions within the insurance environment.

I also think that just with anything though, when we're thinking about something like open source, just like any other philosophy, there is pros and cons to it. And pretty kind of curious from your point of view, clearly, is that from your prior experience as a chief data science officer.

When you're thinking about some of the pros of it, how important is it to have the flexibility and have the innovation when you're looking at the insurance marketplace? And I'm talking about insurance, we're not talking about Amazon where we are a retailer, we're insurers and we live in a regulated and somewhat risk managed business, because those philosophies of innovation and flexibility play into this space.

Insurance has been data rich from inception, and ultimately, it's having that core source of data. Allows quite a few developments unique uses of that data, unique developments of algorithms, unique processes and approaches, which really allow us to innovate. And most analytical teams functions individuals, data scientists, and actuaries, their real interest is on that innovation.

Can they really do something which is new, something that gives them the satisfaction of? I've created something new, I've done something which hasn't done before, it's had a positive impact? So I think what open source allows is being part of a community where everybody's forward thinking and wants to develop and have a new perspective on things?

So within insurance, ultimately, like I said, we have all of the data and we have been big users of predictive analytics for a long time. The insurance problem is also quite unique, in terms of the asymmetric nature of the problem, and also you're trying to predict events which happened quite a long time into the future. So along with all the regulatory requirements which differ region to region. So with all of those three things together it's almost like the perfect development ground for innovation.

SERHAT GUVEN: No, absolutely. And you're spot on. I mean, insurance at its heart is a data driven product. I mean, if you think about any other widget that's sold, there's a manufacturing process. There's raw materials, all that kind of stuff. And data is our raw material, and the ability to understand and leverage that data is critical.

And what we see seen, what I've seen, especially in prior roles here at Willis Towers Watson and prior roles that I've had in the industry is that having the community of people to call upon to help you understand and evaluate the data to make better predictions to establish the right rate for the right risk is huge.

And this is where I think there's some really positive things about open source and how it is changing and evolving our industry. I'm going to switch gears a little bit. Because again, I think it's easy to be enamored by open source because it brings so many great benefits. And it does. But there are also some challenges, right?

And some of the challenges are the same challenges that we face regardless if there's open source. And one of the things that's come to my mind immediately is the idea of which open source solution works best for you and how easy is it to get trapped into a particular open source solution and embed your entire processes within that solution when something new will come along to replace it. Because invariably, something always new comes along and replaces it. I'm curious in your experiences, especially in your prior roles, what were some of the challenges you saw with leveraging such a powerful tool?

PARDEEP BASSI: So I think open source is amazing for innovation as we've just mentioned. But from an organizational perspective, where you have certain risks you need to mitigate, there's a lot of potential cons or areas to consider to partner with that innovation.

And I think this is where our rich history in WTW in providing software which gives you governance, maintenance, support, and security all by design, we're in a good position to understand almost how to extract the maximum value from open source and contribute back to the wider society, as well as doing it in a governed, secured, maintainable manner.

So I think one of the biggest things having been a leader of a data science team, you quickly realize when you're using open source code and just the nature of the uniqueness of writing your own code and contributing to your open source code is you become very dependent on key individuals.

So that lack of standardization across your team and organization is a risk you need to understand it and mitigate. So put the right processes in place where, like I said, you maximize the innovative thought process and the ambition to do things in a new way. But you've got to standardize it. So you remove the people risk.

The average lifespan of a data scientist is 18 months. So within 18 months, you will lose potentially somebody who's written a custom piece of code which others may not necessarily be able to fully understand and amend.

The other aspects, very quickly, the maintenance and support, that's something which is just taken for granted. But it's something that needs very careful thought, because it's nice to innovate and create new things, but do you then necessarily think about the maintenance and support by design?

Most data scientists will say, this is really cool. I've got this new methodology, I've got this new approach. They won't build the maintenance and support as part of the process. And then they'll be required to provide the support once it's live. So it's a very interesting dilemma to have.

SERHAT GUVEN: It's interesting that you say that, because here, as you've been getting to know our team since you've joined, we have a pretty large technology group with well over 400 or so engineers and technologists.

And it's interesting that when you're saying that what really resonates to me is I was talking to one of our lead engineers the other day. And she was telling me that solution building in technology, regardless if you're using open source or C sharp or whatever or whatever, is 10% coding and 90% maintenance and support and debugging.

So it's really interesting to get excited about the innovation aspect of any type of development process, but the innovation aspect is really a piece of a broader, broader industrialized solution that requires thoughts of, like you just said, maintenance, support, debugging. All the things that aren't fun to talk about.

PARDEEP BASSI: Exactly. And we are breaking ground from an insurance perspective here at WTW but not necessarily from a software perspective. And there's a number of other industries we can look to and see how things have progressed. So you mentioned the Linux example before.

It's quite interesting to see how philosophies have changed. So Linux is an open source operating system. And Microsoft in the 1990s were massively against an open source to the extent, I think, their leader potentially even described open source as a cancer, which they had to remove.

But recent years, I think, Microsoft, as an example, they've completely switched tact. And they are now the biggest contributors to open source code. So we can look to probably one of the biggest software developers out there who used to be full on we want to develop our own proprietary code, have our own IP, license it, to now understand the power of the open source and how to create that balance between governance, maintenance, support, as well as the innovation. So I think we are, in effect, following in the footsteps of Microsoft if we think about it, in particular, with respect to our Radar release.

SERHAT GUVEN: And that's what I wanted to talk about. Because one of the things that we've done within our Radar application, which is a market leading decisioning and analytics platform, is open it up to open source. So that it is more integrated.

So you're integrating your Python script directly within the application itself. You're working with the open source solutions in tandem with them. And again, we see that as extremely important for our clients to be able to leverage the best of both worlds, have the ability to have technology that allows you to be flexible and do innovative things but also in an environment that is secure and governed and for lack of a better word, safe.

I'm curious, Pardeep. I mean, I'm hearing as you've seen through it and as you've industrialized solutions before, what are key risks that come to the forefront with respect to just relying completely on open source solutions? What are key concerns that our clients and listeners should think about when you're doing something in a less governed environment?

PARDEEP BASSI: So I think security is a very big risk that needs to be thought about and accounted for. Because open source code, it's open in its nature. And anyone can contribute and make changes to it. But when you use a piece of code for something as important as insurance, you really need to understand every single component of the decision that you make, anything that influences it.

So do you have a process in place where you interrogate open source code line by line to ensure that there's no security flaws? Or do you design processes in place with firewalls and architecture to take into account there may be certain weaknesses or vulnerabilities in open source code? And how do you mitigate for that?

So that's quite a big piece. And generally, the pace of development is also exciting but also worrying. If you think about there may be a new package for a certain algorithm in deployed in Python. There could be a possibility that that's only just been released and it's only been out for two to three weeks. Do you adopt it or do you wait for wider adoption?

Because open source community works when you have a significant number of people all contributing, all developing it. If you're an early adopter, you could potentially open yourself up to a risk of you've adopted it, you don't have to support the whole community, because you're almost at that cutting edge there. So getting the balance there is equally as important.

SERHAT GUVEN: That's an interesting point. I didn't think about it from that perspective of the fact that-- but again, that's an interesting point. What I was trying to say is, when we think about innovation, we're thinking about it from the positive benefits of innovation.

But innovation in and of itself requires failure and that's a feature of innovation, not a bug. And when we think about open source and we're using and deploying innovative libraries into our processes, how much risk of failure are we really willing to swallow when we're deploying something in real time or when we're deploying something in a regulated environment?

And that's something to give consideration to. I'm curious, because it sounds like from-- again, I'm an actuary by trade. Like as Carrie mentioned, I've been in the industry for 25 years as an actuary in the analytics space. But when I think about my experiences as a carrier and as a consultant, key things that come into mind are productivity.

And a lot of the things that you're talking about that are required for effective innovation in the open source community sounds like it takes a lot of time and a lot of people. This is where I would argue maybe a vendor might be better situated to more effectively and efficiently create solutions for the industry. Of course, that's a biased view because of where I work.

But I'm kind of curious with your experiences at LV, how did you guys balance the decisions of saying, this is something we want to build ourselves or this is something we're going to rely upon from a partner?

PARDEEP BASSI: So I'll start by answering that question. It depends on the maturity of what we're discussing. So this is a common problem with open source, non open source as well. You could apply this to absolutely anything. So when you are breaking ground, you have to naturally innovate and take more risk.

So within an organization, within an insurer where I've worked previously, we were implementing machine learning for the first time across all the different decisions in the insurance value chain. And the real value was how quickly can we build and implement those models.

But what we didn't have is the longer term thought process. And it wasn't the right time at the beginning when you're doing things for the time. For the first, say, 10 or 15 models you build, there's more value in just focusing on the business problem and getting a solution out to market.

But the longer term thought is once you have all these models, how do you maintain them, how do you provide that governance, how do you improve the efficiency of your data science team, which is a very expensive resource.

So with that in mind, what you're looking for is as the overall data science machine learning community matures, the use of software which is developed centrally with a larger budget by potentially a provider, like WTW almost providing a service to the insurance industry saying, this is something you are all doing individually. We can help build software to automate it and do that more efficiently at a reduced cost to help the industry overall.

So I think we're at that inflection point now where machine learning and data science isn't something new. Everybody's doing it. Can they do it more efficiently? And then really focus on the real reason for moving into this space, which is innovation. So yeah.

SERHAT GUVEN: So it's interesting, because what just came to mind when you're talking about productivity, when you're talking about resources, and even in terms of partnership management, I'll go back to the engineers that we work with at Willis Towers Watson within our technology group.

Our tools like Radar are integrating with open source and we'll continue to do more to do so to the benefit of our clients. But even if you open the hood of Radar, you can see that it uses all sorts of open source solutions that are very technology and engineering based.

And what's interesting is because Radar is a state of the art solution that is offered to the market and is licensed in the market, what we see is engineering teams studying different open source solutions to make sure that they're using the right ones for the purpose.

What I'm getting at is I've got a list over here, we call it a technology map that it's about 300 different open source platforms that our engineering teams review over and over again and add to and study to ensure that they're choosing the right platform for the right solution for the right piece of the overall kit.

From a point of view of someone like Willis Towers Watson, that makes sense, because we're building technology solutions. I would imagine from the point of view from an insurance carrier, that's a lot of expensive resources doing stuff that are less directly connected to writing insurance policies, selling insurance policies, and building insurance products.

So I find it's an interesting discussion, it's an interesting path to think about to say, open source is way more than just Python. Open source is hundreds upon thousands of different platforms that when put together allow the community to come up with some of the most creative solutions out there. And they're driving the world we live in. And that's fantastic.

But again, so from an insurance point of view, the question I'd probably ask as an insurance carrier is to say, how much of that do I need to build better insurance products. Because I don't want to hire data scientists to study 30 or 40 different open source platforms and spend a significant amount of

time studying different insurance platforms to make the right decision . I'd like to do that more efficiently.

I'm articulating in this manner. I'd be curious if that resonates or if that was reflected upon in different experiences that you've had.

PARDEEP BASSI: No. No. I think it definitely did. So I think the question is, how do you make best use of limited resource that you have and extract the most value and understand where it is that you have the most value. So when you're in a situation where no one else is really looking at a new technique or a new approach, by spending that extra time and resource to go and find it, investigate it, and adopt it, gives you that market leading advantage.

When you're in a situation where everybody's using this new approach, it's then who's doing it most efficiently. And because you're doing it most efficiently, you can then re-use that surplus resource you have.

SERHAT GUVEN: As an actuary who has spent most of his entire career in the insurance industry studying and quantifying risk and living in the US, which is a highly litigious society, I'm curious when it comes to open source, and you put all those things together, what are what are pitfalls or concerns when you're thinking about things like copyright, licensing, cyber risk, all that kind of security types concerns? Where does that sit in the modern insurance sector?

PARDEEP BASSI: So innovation works in cycles. So I think it's good to take a look back and think about where did open source actually originate from and where was it originally used and the cycle it's gone through. So originally, in the 1970s, I think a lot of universities and academics used open source because they were openly collaborating on common problems.

It was only around the 1970s and 1980s that quite a few academics' works were stolen by software companies who looked to monetize and write proprietary code. And I think that's effectively this cycle which repeats over and over again that people want to innovate and then they look to build something proprietary and get value from it.

So we covered the Linux and Microsoft example previously. But again, people always look at it in one loop, not a continuous loop and continuous innovation. So I think Microsoft, when they did realize that they need to contribute back to open source and then work out how they take things back into a proprietary code and how to facilitate that continuous cycle of innovation, that's something we should really think about.

Because it was only now with machine learning and more compute power and new algorithms being developed that we almost went back. We as an industry or as an analytical profession went back to academia to say, we've developed these new techniques which can leverage the more data we've got and the increased compute power. And we've gone through this continuous loop again.

So I think it's with that in mind, I think we as WTW have understood that and appreciate that. And we've opened ourselves up to open source. But we've opened ourselves up to open source. But at the same time, we understand that the insurance problem is very unique, and some of the developments we've made, in particular with our Radar product, is something that I'm quite keen to hear more about.

SERHAT GUVEN: Because if you think about insurance, again, especially a regulated product like the insurance product, and regulation occurs in all sorts of forms and fashions across the entire world.

Even when we talk about unregulated markets, there is still consumer protection agencies. There's still regulation. There's still concerns that there's a need for transparency in the process.

And the common theme that you hear behind machine learning is that it is a black box, which it is. I mean, most AI teams will tell you that machine learning is a black box. So one of the things we did at WTW recognizing that transparency is an important theme in the insurance industry is that we looked at machine learning methods.

We looked at decision tree algorithms and looked at what's going on in open source and basically picked it apart to say, can we build an algorithm that creates the ability to get the right rate for the risk, leveraging the complexity and sophistication of the underlying data. But do it in a way that is completely transparent. So that the product owner, the underwriter, the claims manager can truly understand why the score is high or why the premium is low.

And this is something that we've just released within our latest version of Radar that we're calling a layered GBM. Now, that's a technical term, but one of the things we talk about this is something that we've really developed to make machine learning interpretable. So no longer are we just saying, here's the score, and the score is the score, because the machine told us.

We're saying, here's the score, and we can now articulate in very clear and concise ways what's driving that score. And that's something that's very unique to the algorithms that are coming out of the WTW development shops.

PARDEEP BASSI: That's very interesting. And hopefully, we'll have many more algorithms like that, which we build and release.

CARRIE KELLEY: OK. Thank you, Pardeep and Serhat. This has been a very interesting discussion on open source, and we went over some of the pros and cons. But I think more importantly, a lot of focus on how you balance, how you strike the right balance between innovation and governance within industry specific focus. So I appreciate both of your time and discussion. Thank you for joining me today.

SERHAT GUVEN: Thanks, Carrie. Thanks for having us.

PARDEEP BASSI: Thanks, Carrie. Thanks a lot.

CARRIE KELLEY: And thank you everyone for listening to Rethinking Insurance.

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