

***Interview with a surveillance expert at a vendor***

- SPEAKER1 00:08 Great. OK, so just to start off, just the background, so could you let us know what sort of field your company is in? What's the broad sort of field?
- SPEAKER2 00:25 So, we provide surveillance solutions to investment banks, asset managers, fund managers and crypto companies.
- SPEAKER1 00:38 And I mean, how long have you been going?
- SPEAKER2 00:42 [REDACTED] has been going since 2014, so that is seven years now. And it started up in 2014 and in the US, and we've now got a and an office in and in Europe and in Asia as well.
- SPEAKER1 01:11 And the platform that you offer, does that cover all asset classes? That's right.
- SPEAKER2 01:17 Yeah. So predominantly we cover equities, fixed income or futures options. Cryptocurrency, FX, and yes, so that the main ones, but it's the platform is asset class agnostic. So, we can we were able to ingest data for various different asset classes and process, improve the procedures that we have.
- SPEAKER1 01:51 Do you find that some of the asset classes are easier to deploy a surveillance solution to than others?
- SPEAKER2 02:00 Yeah, absolutely. So, because equities are far more mature than most of the other asset classes and also with futures and options, you have the exchange of venues for them as well. They tend to be for a little bit easier when it comes to getting the market data. Crypto is somewhat easier. Well, when it comes to collecting market data for that asset class. FX and fixed income, they tend to be a little bit more fragmented, a little bit more OTC so, it's not it doesn't mean it's much harder, but there's much more work given the relevant market data for those losses
- SPEAKER1 02:58 in terms of algorithmic deployment as you are probably aware, the European Union and the UK, they have this sort of broad categorization in RTS 6 between very different types of algorithms. One of them is order router, which is not regulated, really have the execution enhancer. So, things like a stop loss or alteration. Right. Or an iceberg or something like that, which they are algorithms, they do things on the road initiative, but they are calibrated by people. And then you've got a sort of high end Blackbox sort of investment decision making algorithm. So, they actually can see if the trading idea and execute the order in terms of the sort of firms

that you see, how many of them sort of would you say roughly divided each camp?

SPEAKER2 03:51 I think every family, they all use all three, essentially. So, you'll have specific quantitative analysts that are really writing the code, the logic behind what we're calling black boxes and how they work, and they all use all the desks, or you will have to use these algorithms. And same with the authorities as well. And how orders are routed to various different venues, various different MTF sites and so forth. So, yeah, I'd say that they all use them when you get to the smaller firms when they're using third party vendor solutions. So, they may be rooted in their orders through someone like, you know, one of the big investment banks. So, they're not in those circumstances. They're not really using their own proprietary black box, so to speak.

SPEAKER1 05:10 And you see many firms sort of using machine learning type algorithms and, you know, and if so, are they coming to you to sort of say, well, there's a particular surveillance need around those because they might behave in a way that's not expected.

SPEAKER2 05:31 What I've seen recently is a lot of firms are doing more work. Some firms that I've worked at, they've even set up their own siloed departments that are working on AI and big data. So, they're working on collecting vast amounts of data and using that data to predict trends essentially is what they're doing. So that is relatively not new, but it's new within the last five to 10 years that I've been seeing firms do. And as when it comes to surveilling this type of activity, I haven't seen many tests that are up to that point yet. But essentially, that doesn't mean that they are missing transactions in any way. They you know, the transactions are still feeding through in the same way. The orders are still feeding through in the same way. The only difference is that there could be a different algorithm behind how the orders are working in the market.

SPEAKER1 06:59 Are you being you sort of asked to participate in the design, deployment and recalibration process when firms are creating algorithms? Are they sort of involving you to sort of say, OK, well, this is a new concept that we've got, and we'd like to not test this against, you know, how what the surveillance output might be like before we deploy it.

SPEAKER2 07:21 So, there's been the drive in many firms for compliance, surveillance to be involved in the deployment of new systems, new desks that are being set up. But again, what I'm seeing is a lot of these new I kind of am big data kind of projects that have been

carried out in more of a silo. So, in that sense, I haven't been at a firm yet where I've seen them include compliance in any way, maybe compliance advisory, but not compliance surveillance. I haven't seen them include compliance surveillance, but that doesn't mean that they don't include compliance advisory.

SPEAKER1 08:17 What is your understanding of conduct risk? Because it's something which firms in certainly in London but other jurisdictions around the world are starting to get to grips with. Is that something which a company like yours is involved in helping to define some level?

SPEAKER2 08:43 It's something that we would like to help define in the future, and in fact, to be honest, we actually have procedures ready right now that that do look at conduct risk. For example, market making behaviours, order and quote, behaviours. We do have procedures actually look at various conduct behaviours. And for me, behaviour, conduct risk is wider region than just. Market abuse and market misconduct is it's more to do with the behaviours and languages that they use using when communicating with other traders or other brokers within the within the bank, it's to do with, you know, more around the not only within the firm, but also outside the firm and how they conduct themselves in and out of the of the firm as well .

SPEAKER1 10:02 Are you seeing firms sort of reflect on and change their modus operandi as a result of, you know, the proliferation of trading algorithms and basically in the context of how they think about conduct risk?

SPEAKER2 10:22 I would say yes to that, I think. There's been much more of a drive with firms in that area in respect, and so, yeah, I would say there has been a change, and it is actually getting a lot better in the way that the firm in its entirety, at all levels looks at conduct risk. It's not it's not just really something that is a responsibility for compliance is a responsibility for everyone within the firm. And you'll see that in policies and procedures that the firm actually issued, especially in the training as well, especially to new joiners to the firms that I've been in.

SPEAKER1 11:17 And what kind of training is being given to sort of help them understand, maybe conduct risks in light of the use of algorithmic models of trading? Is there anything specific or is it still quite humanist? And focusing on sort of human bad behaviour..

SPEAKER2 11:33 think one of the main challenges when it comes to our trade and is the understanding not many people within the firm will understand how the algorithms are working or what the algorithms are doing.

In fact, in most cases, very few people would understand how they're working. You know, there is the sense that with MIFID II the logic should really be shared with compliance and compliance, understands how these logics are working. But there are very few cases where I've come across where that has actually happened. I don't think I've actually come across a case where that has happened.

SPEAKER1 12:27 Are you seeing firms change that headcount as a result, since algorithms have proliferated all day, reducing maybe the numbers of staff in some areas and increasing them in others? Or is it sort of roughly just the same and it's the same sorts of things are being done with just new tools, basically.

SPEAKER2 12:50 I think it's really changed the equity business and how equities are traded nowadays, there's very few firms that have large equity desks. They but there are they mainly have quite large algorithmic trading desks on the equity sides. So, there is a change there in other in other asset classes. I'd say probably it'll change more in the near future, so long to the medium term, but it is not it's not a significant change that, you know, we're not seeing an impact outside.

SPEAKER1 13:44 What do you think that is?

SPEAKER2 13:50 I think it's more for asset classes like the effort. Well, in fact, I have seen quite a change in the market there. A lot of FX is actually...one of the banks I worked there, they had a small desk and it's mainly electronic trading, in fact, which were coming in and them, so they were setting their prices, and it was all done for electronic trading. People, you know, customers will come and take their products and take their price. You're seeing a lot more. In fact, am I allowed to mention names?

SPEAKER1 14:27 I mean, maybe describe the organization.

SPEAKER2 14:34 In the FX market, this is not new, but they're fairly new to the scene and they're based out in Kings Cross. They're not even based in the city. And they're like one of the largest vaults that they have. They trade some of the larger volumes on the FX that you see in the market. And it's a very small firm. It's not as you know; I've actually been to the firm that they're based on one floor. There's about two or three rows of traders. And the rest of them are all like data scientists and analysts, the whole program in focus. So, yeah, I think there's been a change in that sense in the FX markets. And now we're seeing more volumes being done electronically than by, you know, over the phone and so forth. So, yeah, there's been a change

and why so, you know, I think that there is a change towards more electronic trading. Is the answer to that.

SPEAKER1 16:01 Is that something which we should be concerned about, what if it's changed like that, so it's the fault of a human traders, or is that actually a positive thing, that it's move towards more electronic trading, emotions being taken out of it? But then on the other hand, you've got IT, which could malfunction and could spray off orders all over the place, I suppose. I mean, what's your perception of that?

SPEAKER2 16:36 I think so. It's the interesting thing is to see where these algorithms have actually malfunctioned, and the problem is getting down to the bottom of it seem to be very difficult. It's almost as though even the people that wrote it don't understand why it malfunctioned, why it reacted in the way that it did. So that is an issue. And the issue there is people fully understanding what these new algorithms that they're putting out there are doing. And on the other hand, I've heard a lot of people talk about how these algorithms have provided liquidity to venues. So that that's probably an argument for algorithmic trading. But what I've also seen is, if so, if another person that. It's very, very technical minded, can understand how these algorithms are working, they can actually trade in a way that will make the algorithm trigger to do something. If they are able to work out how these algorithms are working just by seeing what is going on in the market, they're able to trigger the algorithms to do certain things. And that's where you get these kinds of meltdowns are seeing that only once. And that was about 2015. When some want to trade in a certain way and it triggered an algorithm elsewhere to start selling off and all of a sudden the share price in the instrument is internally , it's like so did he start trading in the same way in the algorithm when the firm started to sell and the share price within the instrument fell very sharply?

SPEAKER1 18:53 And when, for instance, in the FICC markets the last few years....?

SPEAKER2 19:00 No, not in the FICC market. This was equities based, I'm aware of in the signal market where this is happening. But I wouldn't be surprised if it has....

SPEAKER1 19:21 Why do you think firms come to a vendor for a trade surveillance solution like yours when trying to mitigate the risks associated with algorithmic technology?

SPEAKER2 19:36 For many reasons or well, from working within surveillance myself as a surveillance of service manager. One is the capacity for the I.T. within the firm to create and maintain a platform on a regular basis.

That it's time consuming and resource consuming as well. But then again, I've always felt, you know, if the cost more than the vendor you are other, then that it means they must keep up the pace at all time with what the regulations are saying. So that's one aspect as to why I've come to a vendor like us for civilian purposes.

SPEAKER1 21:08 Look, I love how they cut out that slightly.

SPEAKER2 21:12 OK, so as we're focused on surveillance and, you know, we're always looking at the regulations, we're creating procedures to meet those regulations on a regular basis. So that means then the surveillance team that they don't have to actually focus on that side of things as much. They are focused on doing the work and making sure that they're identifying they're reviewing the alerts and identifying the suspicious activity. And therefore, there's not much focus on having to keep the system up to date, having to produce new procedures and everything else. So that's another reason why the surveillance teams look externally for vendors to try to make their surveillance requirements.

SPEAKER1 22:13 How many firms you think are using in-house solutions?

SPEAKER2 22:21 Um. I would say it's probably less than 10 percent of GDP in our solutions. The other thing with in-house solutions is, is sometimes in the way they are built. Just barely. One second, please. One second.

SPEAKER1 22:45 So, I...

SPEAKER2 22:59 So, I have to say, one thing is one aspect is the way they are built internally, generally, when you when they do internally, the spreadsheet based, and recordkeeping becomes an issue in that sense. So, yeah, it's really when they built internally, there's not much emphasis on record keeping in case management and then many things like that, which becomes an issue.

SPEAKER1 23:39 And how would you rate the ability of surveillance people to sort of work in firms to be able to spot activities which are characteristic of poor conduct by algorithms? What do you think? I mean, is it something which the human eye can pick up that easily, or is that more of a challenge than say something which is done on a desk? And, you know, there's a human being involved.

SPEAKER2 24:09 But I think the question...

SPEAKER1 24:12 So how would you rate the ability of the sort of surveillance teams that you work with? Do you think that they are able to use your type of product to identify poor conduct by algorithms? I mean, is it

is it that straightforward for them or is it a really difficult job perhaps in comparison to say, you know, traditional sort of voice broke business?

SPEAKER2 24:41 OK, so it really depends on the surveillance officer themselves and how knowledgeable they are within the asset class and how the asset class is traded as well, where I, you know, firms that I've been at, there's always been a mixture of X traders and compliance officers. So, the X traders understand the product really well, and they're able to provide that insight into the product and how the product is traded. And the compliance officers understand the rules very well, the regulations very well. And they're able to apply the regulations to the trading activity to understand whether there is suspicious activity going on or not. With the tools that we provide, we're able to we're able to analyse vast volume of data for our clients. Then they need to and essentially, they're able to make a decision as to whether they consider the obviously after a bit of a review into it, whether that the activity is suspicious or not, whether they need to raise the store internally. So, yeah, they still have a lot of tools at the table for them to use in order to make that decision.

SPEAKER1 26:21 Do you support real time solutions as well? And what what's the main difference between them and two plus one in terms of being able to sort of detect conduct issues?

SPEAKER2 26:36 Yeah, we support real time. The main difference, as you know, I prefer T +1 myself, because T +1 is one. If you get things T + 1, you're analysing, you're able to analyse the data past the event as well, whereas real time it'll give you an alert based on up to the event. So, when for example, if I was looking at something like a price ramping alert, I may want to look at what happened to the price in the instrument after the price ramping event had taken place. I mean, had it come back to a normal price range, or had it maintained the level that it was at, whereas with real time, I find that you are just an alert at that time, so you're not really gets it. You don't really get that insight until after the event.

SPEAKER1 27:47 Are you getting much take up on the real time?

SPEAKER2 27:50 There are some clients that take the real time, but it seems as though they use the real time for different uses, a more transaction monitoring, position monitoring and certain things like that, rather than the traditional surveillance T plus one surveillance monitoring.

SPEAKER1 28:15 As algorithms become more sophisticated and start to include sort of also deep learning, machine learning and stuff, are you seeing

firms try to actually do things preventative? So, for example, in the code that they use to write the actual algorithm, the trading algorithm, where if they actually put some ethical standards in there, that they expect the algorithm to adhere to. So, I think Google, they had a dilemma because one of the self-driving cars, obviously, they could just follow the instruction, get me to the airport in the quickest time possible. But that might involve running over a few people in the process by taking a shortcut or something. Are you seeing that kind of movement or not? Really.

SPEAKER2 29:15 So, we do see that there are preventative measures inserted into algorithms, however, there more like to avoid errors in a large volume being traded by mistake. Those kind of preventative measures, and they are not preventative measures that look much at the potential for market being committed from certain actions and so forth, that's what we're seeing at the moment, I think I think the more compliance gets involved in the in the build-up of these algorithms , the more that we could see more preventative measures of market manipulation and so forth .

SPEAKER1 30:21 That's something that businesses would be willing to accept. I mean, are they worried about competitive disadvantage, maybe if they are first movers and decide to sort of code things for their competitors?

SPEAKER2 30:35 So, this is this is one of the arguments or debates within between compliance and the first line. So generally, what tends to happen, and I think this is where the whole the first line of defence has a rise from because what the business does not want to do is have procedures in place that will limit the how they do business or limit their business in general and so forth. So, for that reason, it's hard for compliance to say you can't do this, you can't do that. It's more that it's more of a business. It's more that it's more of a business responsibility. They also need to understand the rules and regulations and ensure that the decisions that they are taking are in line with those rules and regulations. And I think that for me, that's where the first line of defence has really come out because. A lot of compliance officers, especially within surveillance. I mean, I used to me remember when I was working as well, I used to have these kinds of decisions. I mean, I have to have these kinds of discussions with the desk all the time where, you know, it used to be that has to be a business decision. If I want to are saying, for example, let's look at something like frontrunning. One thing one thing that I wanted to implement was that traders had to execute trades for clients on a different block from where they would execute trades for their own books. And one of the firms are working. And in fact, in many firms,



they can use any book to execute a client trade and so forth. So that's a better business decision. It makes it difficult for us, but as a business decision, it makes it harder for us to identify genuine frontrunning of a client order and so forth. But they have to take responsibility for that decision that they've made and then we have to monitor it the best we can with the tools that we have available to us.

SPEAKER1 32:54 Can you ever see a future where machines are almost regulating machines, and that surveillance on a sort of T plus one basis is not really the thing anymore. And it's actually more of something where , you know , if you can see , for example , that there's a there's a number of orders being put on the order book , which could be inducers of layering and spoofing so that the almost like the regulator or the market , if it's a market , has a you know , its own algorithm , which identifies that in operation and actually basically just stops or pulls the orders . Can you because you imagine that type of thing or is that a bit farfetched?

SPEAKER2 33:43 To a certain extent, which that could happen, but the difficulty is a lot of market abuse behaviours, a lot of events that we see, that is normal behaviour could also look like market abuse behaviour as well. So that I always feel that the there is a need for human intervention to take that and to make that objective decision as to whether this this activity is genuine, suspicious, generally suspicious or not. So, I think and certainly in certain circumstances, possibly you could use a rule-based algorithm that could pull orders in certain circumstances. I can't think of any other top off the top of my head right now. But yes, there could be instances where we use rule-based procedures to stop or halt the trading activity.

SPEAKER1 35:01 Well, you know, what sort of level of collaboration do you see across different firms? Is there are they very secretive or are they willing to think they're willing to cooperate on matters involving mitigating conduct, risk caused by algorithms, you know, between different firms? And that could be, for example, working with yourselves to help you change alerts, designed alerts, which could be beneficial across the whole market. I mean, do you see much of that, or do you detect, again, a sort of a reticence to do that? Because maybe firms are worried about losing a competitive edge.

SPEAKER2 35:43 So far, a lot of firms, they worry about that, the data being shared. So that hasn't happened. I mean. It hasn't really happened as much as it should do, but that's because of the whole worried about, you know, their proprietary data, et cetera. Um. And could that happen in the future? Possibly it would be good if it could, but then there

needs to be much more emphasis on the privacy of data, how the data is shared amongst other firms and so forth. Yeah, and is precisely that how the data is shared, because there'll be a lot of crucial proprietary data that will be within that sharing, so that introduces different areas of concern.

SPEAKER1 36:49 Do you think they would be willing to work with somebody who is perceived to be independent? I mean, it could be the regulator or yourself, or is that still something that they would be uncomfortable with?

SPEAKER2 37:04 I think. At this present time, I think it's something that firms will be uncomfortable doing just it's very difficult for example, we provide cloud-based solutions, and many firms want to actually use their own cloud-based solutions. So, or on Prem as well. So, so there's that obstacle that where we're already facing, where we're seeing firms are much more protective when it comes to their data.

SPEAKER1 37:49 And what would you say to them, prime primary merits of, say, top-down legislative type solutions may be similar to those already committed to versus industry leading solutions. So, I think the FICC Market Standards Board, they've done quite a bit of work on combat risk. They've also done quite a bit of work on surveillance and algorithms, I think. Yeah. I mean, what's likely to be more effective in encouraging firms maybe to up the ante and make sure that systems and controls in the best place they could be?

SPEAKER2 38:33 I think one of the really good introductions was the same, and some see some of the senior managers regime that has put a lot of emphasis on since I have been introduced, I've seen a lot more firms. You know, they've gone out to get more consultants and to have a better understanding of the of the surveillance and also AML processes. I think most of there needs to be more push from the regulators, not necessarily enforcement, but more regulatory reviews going into banks and reviewing their systems and so forth, you know, and that there needs to be a lot more of a push in in that aspect. And I think the regulators are now and are doing a lot of the work I did before joining where I am now. So, I was I did a lot of contracting before joining me. I am not under a lot of the work that I did was based on the FCA, the regulators really coming in and requesting that the firms do a full review and then a risk assessment, effectiveness review and so forth. So, I think a lot more of that needs to happen to push firms to meet the requirements and have more of an effective process in place.

- SPEAKER1 40:07 And I mean, how would you rate the sort of effectiveness or merits of what the UK and Europe have been doing, maybe versus some of the main competitive centres like America, Singapore, maybe in other jurisdictions, and sort of trying to create a framework control framework for this type of activity.
- SPEAKER2 40:35 Um, so I've always seen. London, really, as a leader in that in that respect, simply because of the of the projects that I've been working on, because of MA and extraterritorial reach, you know, a lot of the projects I've worked on in the past have been global projects, ensuring that Asia and the US. Their surveillance processes are able to capture what would be required of more as well. So, it's really and what we've been doing, what happened in firms is trying to come to the common understanding of the American regulation, the Asian regulation and the European regulations, and then within the firms looking to come to a common understanding as to how each region conducts surveillance. And generally, what has happened in those kinds of projects is more has been looked at, has been seen as the regulations that each region should be trying to meet.
- SPEAKER1 41:56 OK, and are you. Are you aware of any sort of incidents outside maybe the trading industry, which involves algorithmic behaviours which know the financial industry can learn from? Because obviously there's a very significant degree of deployment in other sectors, you know, maybe health care, the airline industry, places which are very highly regulated. That's right. And I was just wondering whether there was any, or much thought given to what good is being done in other tightly regulated sectors. I'm wondering whether that's transferable in any degree to the financial services.
- SPEAKER2 42:39 I'm 40, I haven't really studied other sectors, I wouldn't know what is actually happening in other sectors, what the regulations are, or maybe I should really look more into what is happening elsewhere and how that can be transferred to financial services.
- SPEAKER1 43:06 Finally, what would you say your principal concerns for the future would be?
- SPEAKER2 43:17 I think. Right now, the principal concern is. From a survey from actually carrying out surveillance is the effectiveness of the surveillance, that's a principal concern for the surveillance teams right now. And that's something that we haven't as we try to help them with, especially we see ourselves as a next generation surveillance platform. We're much more agile than the likes of the legacy systems that are out there. And we're using a lot more

machine automation to assist in the in the review process for surveillance officers. I think the effectiveness is one major concern. And firms achieving effectiveness, I think. The next real concern is the understanding of the algorithm algorithms used within firms, the understanding of how they actually work. And I think this is where compliance needs to get more involved to understand what's working and to ensure that those algorithms are deployed, are compliant with the rules and regulations that are out there.

SPEAKER1 44:47 OK, that's been very helpful. Very good. That does conclude the interview. So, I'm going to switch off the recording now.