Topic 1d - The view from business - more examples

Rezatec is a geospatial data analytics company. And we really came about initially to look at estimating carbon stock in forests. But very soon, we started to look at far more commercial applications of data. So now we work in the forestry sector with water companies, with infrastructure companies, and in agriculture.

So Rezatec is answering the need for disrupting more traditional ways of doing things, like monitoring your assets, monitoring your natural assets and your man-made assets, and making sure that you are protecting them and future-proofing them. And we're agnostic to the data source. So we get data from all types of inputs, be they satellites, Earth observation, open access data sets.

And really, our first point is to bring them all together, to normalise that data so that we can start to interpret that data. And that's where the real value comes in. That's where the data science comes in, where our modelling and our proprietary methods for deriving value from all of that data. And then thirdly, we're actually articulating that. We're presenting that in a very usable format.

We have a portal whereby our customers can go online, look at the results, look at the risk associated with their assets. But then they can also pump that data straight into their own systems if they want to. So for us, it's really important that we are able to integrate our results, our data products into our customers' workflows, integrate them with their existing systems. And it's got to be complementary to what they're doing already.

If we look at detecting spruce beetle infestation, now we're not actually detecting the beetles. We can't see that. Even with the most powerful high-res optical imagery, you're not going to see a beetle in a tree. So what we're doing is looking for proxy information that tells us that that tree has become infected.

So for example, we would look at the general health of the tree, look at the stress, look at the canopy. And using lots of different techniques from lots of different data inputs-- so radar and optical imagery, for example-- we can start to identify when there's a change. And then we can associate that change with the modelling associated with spruce beetle infestation.

We're working in Mexico. And what we're doing there is working with farmers, normally smallholder farmers, who are growing sugarcane and wheat. And what we're trying to do there is help improve their yield, help them improve not just their yield but their economic livelihoods.

Now a lot of these farmers have little access to technology. So what we're doing there is we're providing them with handheld applications. And then we're providing them with tools that allow them to tell us their farming practices and when they're sowing particular crops, when they're providing pesticide, fertilizer, for example.

And then we can analyse that data and we can calibrated it against their crops. So we can start to see the health. How are they tracking against the sugarcane model, for example? And then we can send back to them information that means that they can increase their yields. So not only is that

good for the farmer, but it's also good for the whole Mexican economy, not just in terms of domestic but also export.

We're reaching Mexican farmers through their mobiles. Most Mexican farmers have mobile applications. They've got smartphones. So that's really our connection. That's the way that we're providing data to them. And they're providing data back to us.

We work with the European Space Agency as well. In fact, we have two projects at the moment. One of them is looking at how we analyse crops, crop yields, in order that we can start to provide global supply and demand data. And this is going to be really useful, not just for food manufacturers but also for soft commodity traders, hedge fund managers. And that's the current project we're working on over the next two years.

IMGeospatial is an automated business intelligence business. Earth observation is, in essence, a good way of understanding the world. If you can get artificial intelligence to then understand that in an automated fashion, you can answer a lot of problems for business and society. AI can extract features from remote sense data.

Those features are not just from Earth observation. They might be from LIDAR and using drones. And we're looking at autonomous vehicles as well. We see ourselves as the conduit between the very technical Earth observation people and business, understanding technically what's feasible, digesting, distilling, and disseminating that data into something useful, so useful nuggets of information that business can actually use.

We have a variety of products. And these products are structure classification. We have a land use classification. And then we then use derived products out of that. So if you think about structure classification, you will have a building with certain attributes. And then if you know where all the trees are from the land use classification, you can create a derived product, which is vegetation proximity.

So that is, how close is a tree to a building? That might be something that doesn't seem very useful at the outset. But then you start talking to insurance companies, and you start talking to water companies, and other large institutions, and that type of data's incredibly interesting.

With supervised learning, you have huge data sets. The problem with huge data sets and the way that people are using machine learning and deep learning with feature extraction is you have so many different problems around that. So you'll have often different angles and shadows and seasonality and even different areas around the world. And you'd have a different data set for each extraction you do. So it gives it a bit of a-- it's a hard task to have something that's truly global. And you're talking to NGOs or insurance companies, they want global solutions for their global business.

The AI has very good extracting features. And we can use different hybrid or even cloud-based solutions to enable us to extract all those features and scale up quite easily. The bottleneck at the moment is around the data pipeline. So there are so many satellites out there. And there's so many being launched over the next five to 10 years. The issue's not going to be how much data's there. The issue is going to be around how do you understand and make that-- turn that data into useful

information? And if you can make that into an automated business intelligence product, then the demand is going to be exponential.

Looking to the future, I think where we see the opportunity is continuing to take all of this space data but start to integrate lots of other big data sets. And when you combine those together, when you combine your customer's data with space data, then you start to get something really powerful. If we can provide that environment in order to solve some of the challenges they're going to be facing in the future, then that's really exciting.

And what Rezatec is doing is really representing the success that Europe and European countries are seeing on the global application, space application stage. There are a lot of North American companies doing very well. But Europe is really holding its own. And I think it's got a lot of innovative and exciting technologies going on.