Global Forum
15TH ANNUAL
Temperature Controlled
Life Science Supply Chains

Disruption in the Pharma Industry

Paul Zikopoulos, VP of Competitive and Big Data
Analytics Teams and Future Trends Expert, IBM

An Interview Transcription

Ahead of the 15th Annual Global Forum, we sat down with Paul Zikopoulos, VP of Competitive and Big Data Analytics Teams and Future Trends Expert, IBM. As the keynote speaker at the Global Forum, he gave us insights into disruption and disruptive technologies in the industry and what the future holds.

Why do you think the Pharma Industry is ripe for disruption and why do you think they have been slow to innovate?

Paul Zikopoulos:

I don't think you ever get to disruption, but I do think it's ripe for disruption. I think absolutely every single industry is ripe for disruption, and for the same reasons across them all. Let's think about the world's largest taxi company right now, Uber. Was the taxi company ripe for disruption? Absolutely, they weren't data analytics led. They weren't running data analytics to put the location of a taxi nearby the customer. And they weren't running data analytics to figure out what you'll pay, what's a good price. There wasn't any type of social sharing, there was nothing. And so you took this very old school kind of industry and you turned it on its head.

The companies who lead with data analytics have the power in this day in age. And by the way, Uber doesn't own taxis, they're a data science company. So start looking at who is disrupting with the analytics led businesses. AirBnB, right? Largest hotel and lodging provider in the world. Alibaba, largest inventory in the world or largest retailer in the world. All inventory. And then you may have heard that Amazon just bought Whole Foods.

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Amazon definitely is a data led company. Think about it, they buy Whole Foods for 13 billion dollars. Their market cap stock went up 15 billion dollars. Somehow they suddenly made market capitalization 2 billion dollars by announcing they are buying a grocery store. That's crazy right. And what it was, was the market saying, here is a data analytics company that's on the leading edge of technology. And technology, in general, is a list, shift, rest or cliff. Two of those are good and two those are bad. We can start applying this to any business. With Amazon, I can guarantee you it, people are going to start looking at the convenience of ordering and looking at autonomous vehicle delivery or drone delivery of groceries. That's what people are thinking.

So what kept pharma back is like any industry, they are guilty of not knowing what they could already know. And so you ask yourself how do you go about clinical trials and how do you go about drug discovery? Are you creating simulations around those? Or are you doing it kind of the old fashion way, where it takes years and years to get through a clinical trial?

And so, data analytics is going to help clinical trials & drug discovery enormously. And it's going to help there enormously in the same manner it helps everywhere. Look at what Monsanto does. The way Monsanto use to work, you would drive down some corn field for miles and miles and have rows and rows of different kinds of seed. They would try to figure out the ideal climate or insects to attack the plants make them more resilient. And what they have moved to is running these massive simulations using computers so that they can bring in the DNA structure of a particular strand of wheat. Through these simulations they can see what this strand can be attacked by. They can make the weather super hot, then super cold, and see what happens to the strand in those different elements. Now they are actually doing what we call precision agriculture. They are literally engineering seeds that get planted in a certain area of the farmer's field. I think the disruption for farmers in precision agriculture is how fast can I innovate the old and how fast can I get to market. Now think, how fast can I shorten clinical trials by being data led?

I think the next disruption will be on things like basic household health & wellness management. A pharmacist can suggest not to just pop this pill & make it better, but take a holistic view of your life and health system. Look at what Medtronic is doing right now with this idea. They are literally designing analytics around your blood sugar levels for diabetes to start to predict a sugar crash with approximately 80% accuracy. In just a couple years from now, I'm telling you when every diabetic patient will eat something, there will be a history of what you eat and how your body reacts to what you eat. And they will fine tune this so it's not just about giving you a drug to take to make you better, its about improving your lifestyle.

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And the final thing I think for pharma is around social experience. And that leads to the bit that I talked about on how to make

clinical trials a heck of a lot faster. I think about folks researching Crohn's Disease. Imagine being able to pull in an exact profile of people who eat specific kinds of foods all over the United States and how they are reacting to these foods.. And we start to create these clusters with tangible evidence and it gives useful information for Crohn's sufferers. There is a lot around this precision medicine.

Just to give you an idea of how big precision is cross-industry, let's take Pantene, the hair-care company as an example. They have created a tailored program that does social profiling, but, instead of your stomach it's your hair. They track whether you will have frizzy hair or dry hair based on weather forecasts and historical data of people with similar hair. Then it makes product recommendations tailored to you.

Now mix this with the demographics of pharma. In America by 2060, you've got double the amount of Americans over the age 65. Pharma has a great opportunity here to understand this group of people by using different techniques like gamification. Now go back and ask yourself what if numbers are the same in Canada. What are the prevalent diseases that are killing and creating health problems for North Americans? It's depression, diabetes, and heart disease. And guess what? All three of those are really impacted by walking. And so now what you are seeing are governments wanting to team with companies and pharma has a great opportunity to go in there and do what we call gamification.

Imagine if I'm dealing with juvenile diabetes. If I'm a pharma company involved in the drug creation, imagine now I create some gamification on your iPhone. Every time you take your blood sugar level, you input it into this iPhone application. That system is going to determine whether you have a crash

by you inputting levels and telling them the food you eat Because you are actively using this gamification system, we give you so many points for each use.. And after a thousand points we give you a $10 iTunes gift card. That is what I'm talking about for disruption.

Why do you think the pharma industry is so slow in adopting this new technology?

Paul Zikopoulos:

Every industry I talk to tells me they've been historically slow, so it is not the industry per say.

I think it's culture and maybe the culture that is created in the pharma industry makes things a lot slower..There is a spirit of cost for failure. If you go out and then you fail a drug, and let's say it doesn't get to clinical trial or it doesn't pass it, my God, that's a lot of lost investment. If you go out and pass clinical trials and you get released in the market place and suddenly that drug is very harmful, that is a costly failure.I think the key is to mitigate the cost of failure by what you do with data analytics and simulation feeds. And I think that's what is holding them back.

I think that's been it for pharma because there is a high expense to come in and there are big time problems if it doesn't work out for you. Every industry I talk to will tell me they've been held back on innovation. They'll tell me that. But there is a whole evolution. Retail, they will tell me,

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we are the last to enter, but look at what Amazon has been doing. I don't think it's industry specific, I think it's culture and when you start looking for fast analytics driven leadership in these companies, you'll see disruption.

What do you think the pharma supply team, in particular, would look like in 2030 and even beyond?

Paul Zikopoulos:

So to me, if I had to make a prediction, I think the biggest thing that I think is going to hit the supply chain is the technology called block chain. And I think the block chain will bring us not just to a transparency, or not just to a flow of the drug. Initially we'll start to use that for prescriptions. You won't come in with a doctors note, you will be on the block chain. I will be able to see all points in between, from supplier to the doctor to the patient and how that exactly flowed. And then you start to see that's how they handle the opioid crisis going on in Canada and the U.S. So that's what we call traceability. But I think you will see block chain will come out with traceability and it will evolve to transparency. I think in a new

consumer market place, especially with the younger generation, people want to understand where their drugs comes from.

The next generation of patients, will not only want to see where their drugs come from, but the history of the company who made it. How is this company socially responsible. That's what it will be. I can tell you that block chain will disrupt the world. Today, the top five diamond houses all inscribe on the block chain for diamonds over a certain quality and a certain size. So one carat and above will be on the block chain, and that is how we can avoid problems like blood diamonds or theft.

That's traceability, so I just switched industries on you but it will tell you the same words, that's traceability. Now imagine the value add to transparency. So for example, as I now get this diamond I find out this famous actress wore it in the 1920's. Wow, that just added value to it. So imagine if you can see if this drug has been used to save or to make 800,000 people's lives better because it exists and it's in the block chain. That's what I mean by transparency.

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