

# Neal Analytics

## Podcast transcript

David: Welcome to the Microsoft Industry Experiences team podcast. I'm your host David Starr, and in this series you will hear from leaders across various industries discussing the impact of digital disruption and innovation, sharing how they've used Azure to transform their business. You can find our team online at [Aka.ms/INDXP](https://aka.ms/INDXP) or on twitter at [@industryxp](https://twitter.com/industryxp).

Hello. This is your host, David Starr, and I'm joined by three retail and consumer goods technology experts, who will be talking with us today about how the retail and customer goods industry is using technology and transforming the way retail and consumer goods industries are doing business. Unfortunately, we're in a rather small space with bare walls and the sound of this recording will be a bit bright, but that's okay because the discussion is a great one. Today we'll be covering the business and technologies of retailers, solutions created from that technology and how Microsoft Azure helped our Neal Analytics guest build a solution for their customers. And first I want to welcome Greg Gomez to the program. Greg is Vice President of alliances and industry strategy at Neal Analytics, a Seattle based consulting firm and Microsoft partner that helps companies drive digital transformation through the application of machine learning and artificial intelligence.

Welcome Greg.

Greg Gomez: Thank you David. Good to be here.

David: And we've also got David McClellan, who's the director of portfolio and strategy at Neal Analytics, who defines and builds the business solutions like Skew Max, which we'll discuss today. And we also have Mariah [Zoratovich 00:01:54], who is a worldwide industry leader in retail and consumer goods. Mariah has more than 20 years of experience in retail, leading strategies and initiatives across sales, operations, human resources, public relations, technology, and product management. Mariah is also a member of the Microsoft industry experiences team.

Mariah Z: Hello.

David: Glad to have you.

Mariah Z: Thank you.

David: Maybe we could start by exploring your mission.

Greg Gomez: Yeah, I'll take that one. As you heard in the intro, Neal Analytics is a consulting services company. What we really pride ourselves on is helping companies make these topics of digital transformation, machine learning and AI real. There's a lot of buzz about these topics, tons of marketing going on from every vendor on the planet, but where we've

really seemed to dig our teeth into and get recognized for and we have won multiple awards from Microsoft as a partner of the year finalist and winners, is actually helping companies move beyond the ideas, the thoughts, the questions, and actually put things into practice and put them into the culture, into the workforce and into operation. One of the examples we're going to share today is one of those solutions that we've developed working with customers in the industry, but taking that solution and making it repeatable so that companies can operationalize it in a very timely and effective manner. Of course, it ultimately [inaudible 00:03:14] the ROI and value of it.

David: What are some of the challenges in making artificial intelligence accessible to non technical organizations?

Greg Gomez: Well, one of the biggest ones that comes to mind is the cultural aspect of it. A lot of our customers are large consumer goods companies. They have people who've been doing their job for many years, and when you bring new technologies in, one of the biggest challenges you have is convincing people that this technology is not here to replace you. He's here to help you do a better job. When you think about companies that are undergoing digital transformation, there's a lot of moving parts. There's obviously the technology, how do we bring the right technology and how do we learn how to use it, how do we deploy it effectively. But then there's also the cultural side of it. People want to look at how does this impact my job and how do I take this new information, this new insight and use it in an effective way? And you have to think about this all the way from the strategic level down to the most detailed technical level. The biggest challenge is getting people wrapped around this concept, that it's not like traditional IT initiatives, where you can come in with the best technology and the best technologist and get it done. It really is all encompassing and overarching throughout the business and you've got to get everybody on the same page.

Speaker 4: I want to just add to that. A lot of the executive level of the business is looking for a business use case, where you want to make more money through sales or cut costs to increase your margins and things like that. So the business is typically focused on how can I generate some form of ROI from the technology? Whereas the IT and technology firms are just trying to look for ways to improve the infrastructure or make their lives easier. And really what we need to do as consultants is come in and bring those parties together to find a way to apply the technology, in order to generate that business value and that outcome from whatever critical use case for it. Otherwise, the machine learning or the AI becomes really fancy and really expensive Q&A and a PowerPoint, right? You want a business solution that can actually make an impact on what the sales team is doing or what the marketing team is doing, in order to really improve day to day operations. So that's kind of the lens when we build our solutions to improve in an ongoing fashion, not just a one off kind of project.

David: Do you guys actually help with the transformation culturally inside of your organization, once you have your products in place?

Speaker 4: That's a big part of the the end to end services that we offer. You can't just show up, build a technological product and offer a support contract to keep it running. Inevitably, that'll just go unused by the business consumers of those insights. If it's not actively

making their lives easier and you're working with them in kind of a repeatable manner, it just gets put out to pasture after the business chooses something new to focus on.

Mariah Z: I think some of these concepts that you guys are talking about, and I've seen you in action with customers, is a really good example about these modern capabilities that can be brought into organizations. They're game changers, but they also require the organization to think differently and act differently. Right? It's not only created around a business problem as you were saying, but also in terms of getting the entire organization bought on because new capabilities will be brought into the org and that means you have to operate differently around those pieces. Are there any examples you can share where you were working with a customer and here's some of the things that an organization must be thinking in the realm of the technologies you're bringing in, these advanced analytics?

Greg Gomez: One of the examples that we're going to talk about today is with a global beverage company, and one of the use cases that we're going to dive into is around helping ensure that you have the optimal mix of products on the shelf at a given outlet store, grocery store, convenience store, whatever that might be. The machine learning and the data science behind that is obviously deep and technical, but at the end of the day, what's happening is a truck driver, a sales rep for this company is going into a customer. Neither of them are analysts, data scientists. They have their job. This is what they do. Yet they have to make decisions about what to put on the shelf. And they've been doing that over the years based on a limited set of data. Some of it is even gut feeling and just this is what we've always done, so now you're changing that dynamic. You're saying we're going to feed you a recommendation from an AI engine that's sitting in the cloud and it's going to tell you which products you should put on the shelf and it's going to tell you how effective that's going to be, if you put this mix of products.

The fine balance between delivering those insights to this audience, a sales rep and a customer buyer, the fine balance between delivering those insights to them in a way that they can consume them and act on them, versus inundating them with information they don't understand, that they start to question, is really critical. And so working through that and working with the customer to say what's too much information and what's just enough, is really part of the process and that this plays out across a variety of different users and stakeholders within the business, who have varying degrees of interest, experience and knowledge around consuming data. And when some people want to dive in, they want to be able to dig into the details and say, why am I getting this recommendation? Other folks don't care, they don't have time to think about it. They don't want to think about it. They need to benefit from it. So you have to be able to reconcile those two worlds and that's a big part of what we do.

David: There's a lot there, but I also understand from a previous conversation that you guys have a pretty special product that you've been working on. Could you tell us a little bit about that?

Speaker 4: One of the major customers that we've worked with, we've worked with a variety of Coca Cola bottlers in the space, but the one we're kind of gonna focus on today is ARCA Continental, they're the third largest coca cola bottler in the world down in Latin

America. They kind of came to us, and this kinda goes back to your earlier question of how do you get that adoption and evangelism through the organization and it's really about setting up with the team and in this case with ARCA Continental, their revenue growth management organization inside of their business is really responsible for driving additional business through their sales execution tactics, through better execution on marketing. They came to us looking for a solution to instead of figuring out how much of a product to stock on a shelf, because as long as you make sure there are no stock outs and you're kind of operating relatively lean, that's going to deliver as much revenue as they can, because there's only so much of a certain product that a customer is going to come in and buy.

But what ARCA Continental was looking for was finding the right product for every shelf in every store, so that they can capture more market share from having a better selection of products that will capture more of that marketing share of mind, their competition in the stores and really because in most coolers there's a very limited set of space. There's only so many products you can reasonably carry and have them be cool and fresh to buy. So it was a really critical business problem for them and we've seen in many other industries in and outside of the bottling industry, where having the right assortment, both from a retail perspective if you're a retailer, you need to make sure that you're carrying the right kind of products depending on the region, maybe their preferences. You know up in Canada you're going to carry a lot warmer clothes than you are down in Atlanta. And those sorts of questions come, how can you capture as much of the demand, not just by putting enough products on the shelf that you don't run out of stock, but putting the correct ones for each individual market so that you can capture as much of that demand as possible.

Greg Gomez: The higher level business problem if you will, is for years, manufacturers of goods and services and retailers have kind of followed the mantra that choice is good. Like if you give the consumers more choice, more variations of a product, whether it's the package size or the type of it or it's the flavors or whatever it might be, that that's going to help you sell more. But the downside of that is that there's diminishing returns on that. You have the overhead, first of all, of manufacturing, all these different varieties of sort of the same product. You have the complexity of the logistics and distribution and inventory management that goes with that. You have limitations on shelf space and then you have customer demographics and customer socioeconomic situations and the variance that what drives demand is not the same everywhere.

As an example, I was talking earlier this week with a food services company that supplies restaurants and the food industry and they said, "We have 19 different types of French fries that we sell to our customers. Do we really need 19 different types of French fries? Could we in essence sell as many french fries if we only had four different types or five different types?" So those are the kinds of questions that companies are constantly asking, "Why do we have so many varieties of this particular product and what would be the difference if we dropped half of these and focused on just a few of them?" Machine learning and data gives us the opportunity to answer those questions. And in the past the only way to answer them was to try, trial and error and see what happens. You can simulate that now and you can get the answers in seconds of what

will happen if we drop this product and add a new one. So it's game changing capabilities.

Mariah Z: It is game changing, because in that example that you gave, the technology is finally there to give answers in seconds for massive amount of data that is trending over time. And that idea of having more inventories, more skews, more choices, I think we'll see a significant shift in kind of the models and approach from consumer goods companies. And that's really where that optimization piece comes into play. And we'll see that all across the value chain, just given investment capacity and the amount of competition that's out there for consumers.

Greg Gomez: And not to beat a dead horse, but this is not about taking away choice for the consumer, because that'd be the absolute wrong thing to do, especially in this day and age when people are just dependent on people to have choice. Not Only choice of the product, but where I buy it, how I buy it, how it's delivered to me and so on. So it's not about limiting choice, but it's about making smarter decisions in what we do offer as choices. So if you know those answers upfront, this is what's going to be successful, this is what's going to increase our market share, this is what's going to increase customer satisfaction. I don't have to make those investments that in essence fail because we didn't have those answers upfront.

Speaker 4: Yeah. I guess a lot of it comes back to the old 80/20 rule, which for those that aren't familiar is typically represented by 80% of sales come from only 20% of the products that you offer. And in our experience that's becoming more and more extreme, where the the number of products being offered continues to balloon, but sales isn't continuing on the same trend, so it's trending more towards 90/10, and like Greg was saying, there are diminishing returns there. If you're going to offer a new product, find the one that's the diamond in the rough and the needle in the haystack that if you pilot it out at 100 stores and it shows to be really successful, expand the production and the distribution of that product and not worry about these other hundred products that are sitting there on the shelves languishing and maybe move one unit or another, and they're not only costing you extra money to produce and distribute. They're costing you sales opportunities, because they're taking up space of something else that could be better there.

A lot of the analysis and conversations we've had with the business leadership in this space is that there's tons of justification and rigor that's put into creating a new product, you know, where's the white space for this or how we feel like it'd be a good opportunity to try out this new flavor, this new style, but there's very rarely a similar level of diligence put into which products do you remove. And that's what's kind of creating this problem of too much of an assortment or too big of a product portfolio. And really the solution is about creating the right individual assortment for a particular market. And this takes shape both on the retail and consumer goods side. So you want to match your product offerings to the consumer, the end consumer's desires in each individual outlet.

If you have a large number of products that kind of form your core brand, you don't want to mess with that, right? Because they've proven themselves, they sell a lot of

volume, and if you start messing with that too much, your customers will feel like they can't rely that that's going to be present in any store wherever they go to shop for your products, and that'll have a very large negative impact on your overall brand reliability or consistency and people being able to find what they're looking for from you. So they'll end up going away from you and you don't want to mess with your core products. Right? One of the major things that we can do is as one of the quickest, easiest ways to get real value from the solution, is find out where you're not actually stocking all of your core products.

And if you don't have a core product that is absolutely right for that market segment, you need to add it as soon as possible. That's the biggest possible addition you can make to your business. And then there's those, which of the long tail of that other 80% of products is right, kind of takes second priority to that. Once you've kind of filled out and made sure your core products, which would be unforgivable not to have, you've got these other ones where you can be strategic about and maybe you're competing with a store nearby that has a very similar offering in a portion of your business and you want to stock more products to compete with that, so that you can capture market share from your customers and not just cannibalize from your own assortment.

David: In general terms, can you describe the solution that you guys came up with?

Speaker 4: Yeah, absolutely. In essence, it's a machine learning algorithm under the surface that combines some regression techniques and other fancy machine learning jargon that I won't get into. Essentially what it does, it looks at your sales data, and that can either be your sell in sales data or your point of sale sell through data where it actually goes to the customer, and you look at what's actually selling by product in each location and correlate that to overall higher store performance. We know there are plenty of other things that dictate changes in overall store assortment, but all other things being equal, what can I do to my assortment to increase sales? And what this does is it says, "All right, we've created a market segment and we understand all these individual aspects of stores or regions and things like that to get a similar set of stores or a Peer Group of stores, which is kind of fair to compare, and then we say, all right, your competitors or similar stores in this space are carrying additional these three products that meet this kind of core need and you are not and their sales are higher. So you should carry those products too."

And that's kind of what the algorithm does at a very conceptual level. And then you can make recommendations on, "All right, your assortment is missing these ones, these are the highest potential value for you to add. Start with adding these three things." And then you can bring in additional business logic on top of that to say no more than this many in this product category, or don't make a change more than once every three months, something like that based on whatever business rules that each individual customer brings to us. So it's a core solution that we've made very repeatable, but we recognize that each individual customer is going to need some level of customization because their business logic is always going to differ from one customer to another. So we have that ability to configure the solution for them.

Greg Gomez: Another way of putting it is that the solution is an intelligent merchandising or category management tool. In other words, it's going to say whatever level of granularity I want to look at my business, whether it's a market, a region, a city, or a store, whatever lens I want to look at, recommend to me the optimal mix of products to put on the shelf in that store. Again, at whatever level of granularity. It could be just a category, it could be more broadly. Give me that optimal mix or recommend to me that optimal mix of products that's going to drive maximum revenue or volume or profitability. Whichever metric I'm really trying to drive. Behind that, as David said, there's a bunch of intelligent and algorithms and data science that's helping get to that answer, but ultimately what the solution is doing is giving those recommendations and giving it to you in a way that's easily consumable so that people that have to make this happen understand what they need to do.

Mariah Z: I think with the amount of emphasis on the customer experience today where retailers and consumer brands have to come together, to create this really great experience for the consumer, product is one of the major components of that. So when you look at where investment tends to be placed on improving experience, the merchandising side or the inventory side often is not the primary place where you're putting investment. So not to address it in today's terms where we are so hyper focused on the consumer or customer, to me would be a real disservice to that customer at the end of the day. Especially because you've already put investment into your inventory, into the skews that you're going to carry or the styles that you're going to carry. And not to maximize that to make sure you really have the product where your customer consumer, is truly is that disservice. It ties in directly to customer experience and that's where I put a lot of challenge out there to a lot of brands that I talk to. Managing Your Business on that side of the house too is extremely important. It needs to have some investment.

Speaker 4: Definitely. Actually, we see that all the time where a customer will put out a product in a market and sales will just not pick up any momentum or people try it for a few weeks and it'll disappear very quickly. And as soon as that product shows up on a shelf and has to be removed because it's expired or whatever other reason that you'd have to pull it from distribution, could be just a mismatch in where you place that product and maybe it's not meant for that market. And not to say that the product development team or the R&D team positioned it wrong in building it. But the execution takes a huge responsibility of making sure that that product actually meets its intended customer. And if you're not bringing data to the forefront of that decision, you're going to be wrong at least some reasonably large percentage of the time, just because there's only so much that a human being can individually look at with respect to data, even with the modern BI and visualization tools that we have, in order to position things correctly.

Mariah Z: The solution is about giving the optics, having optics truly into a line of sight of your business and product performance where you have not been able to have that in the past based on the capabilities that are brought forward with advanced analytics, machine learning, etc.

David: From a previous conversation, I understand that you guys are running on Azure and you're doing so with platform as a service, so you're using our platform services without

schooling up any VMs or anything like that on the infrastructure side of the house. Can you tell us a little bit about your decision to do that?

Speaker 4: Yeah, absolutely. So when I had originally conceptualized this solution, I wanted it to be a solution that we could continually upgrade, and it would be almost limitlessly scalable, because we encounter customers that they only distribute to other distributors and they only have a handful of customers. And then we have other customers, like this Coca Cola bottler that have over 40,000 customers and we need something to be able to scale across not just the complexity in reporting that, but the complexity in processing the data. So if you build on [inaudible 00:23:39], you've got a VM and you write your code and your only real means to scale is upping the size of that VM, and if you're going to make an update to the solution, you have to rip everything apart and rebuild the system, and you can't just take one piece of, let's say compute or modeling and upgrade it to a new service to process that more efficiently or do something like that.

You only get one thing to upgrade or change in. Everything on that VM has to be done manually, both from an automation and integration perspective, and upgrading the modeling code. You will have to kind of do inside of that interface. So that [inaudible 00:24:21] is nice, there are a lot of solutions that make great use of it, but we kind of saw the drawbacks as something that we didn't want to have to deal with, as this space is moving so fast that we want to be flexible to work with any of the products that our customers are using and be able to build out a data pipeline or an insights pipeline that can generate a tangible business result in a very efficient manner so that we're not just spinning the dial up on a VM or creating a cluster of VMs to try and process some of our larger workloads.

So that's why we went to pass. And with a platform architecture, using services like Azure Data Lake, Azure Data Lake analytics, the new Azure machine learning work bench and the spark environment that you can compute there, and most recently Databricks, we've been able to interchangeably upgrade our compute environment for the machine learning side of it or for the data manipulation side of this solution in a very component driven hot swappable way that, this customer is also interested in piloting out Databricks? Great. We can do our machine learning inside of that environment and demonstrate the capability for modeling in Databricks to the customer as well, so that we can build that evangelism in that center of excellence built around the analytics inside of the organization, where if they have visibility into their data and this stuff doesn't just sit on a black box VM that you don't necessarily want to allow access to, because it's got all of your code in. Right?

So we can still package up our components and where we started out with the Azure machine learning studio back in the day. We can still use that and we do use that for iteration and training because it's a fantastic canvas for building models and iterating through design. And then when you want to execute on a large workload, you've got these different environments that you can swap out. And automation is as easy as using data factory, because all the connectors that exist now for pulling in data from virtually any on prem or cloud platform, not just from Azure, any other cloud you can pull data in and get it to wherever you're going to store it or stage it, be it a data lake or even everything down to regular old Azure blob storage. You can pull the data in, send it over

to your SQL database, run some stored procedures or queries on it. Send it over to the machine learning API to get trained, tell that machine learning API to retrain itself automatically once a week.

All of that end to end can be orchestrated by data factory to where it gets a lot more complicated if you throw a VM into the mix because you're trying to pad some time where you fill up the data stage environment to be populated by Sunday and then your VMs on prem SQL server instance has a timer to kickoff every Monday morning and then you hope that everything kind of links together and is still in this much more complicated and less reliable infrastructure, as soon as you kind of throw in [inaudible 00:27:21] into the mix.

So we've kind of built out a much more flexible cost effective and powerful architecture, using the Azure [inaudible 00:27:32] theory. Very long answer, but I want it to be comprehensive into what I think is a very important design choice. If you're going to go [inaudible 00:27:39] and just focus on giving a VM for people to work on versus leveraging the true power of why you would choose a cloud platform. Because these platform services allow you a lot of new capability. In our experience, a much more reasonable or flexible costing model because you only pay for what you consume.

Greg Gomez: We're talking about one solution here, but a lot of our customers, as you would expect, are not trying to solve one problem. There's a host of analytics based, ml based scenarios that they're looking at as part of their digital transformation journey. So a lot of the customers are asking us, not only can you help us solve this problem, but how can we deploy a platform that's scalable and can address the many needs we have across supply chain, across sales, across marketing, across consumer insights and so on. We find most customers are actually moving away from the idea and the concept of point solution and understanding that data and AI are going to be core to their success going forward in digital transformation and they want a platform they can build on and scale on and deploy across the enterprise.

Speaker 4: And just to add one more thought that Greg, you reminded me of. When you have a platform offering, you can basically build any and all use cases that eventually come to mind. So it's really about setting up that analytics or data platform, data estate of the future where you've got your data into a place where this third party vendor or consulting firm like us, doesn't hold your data hostage. It's still your data and your team over time, will build up the competencies and hopefully we can be a part of that journey to build out a number of their own use cases. And the tooling the Azure specifically provides as a cloud platform, is far more robust and kind of end to end in the fact that it actually has a point solution for any one of these different little problems that a business could face, by having it all in that one platform. So you can talk about the competitive nature of compute and storage across the big three cloud vendors. But really the reason why we've selected Azure is that it has that differentiation and proper tooling and services that are built on top of that compute and storage, to really solve any and all little business problems that come along the way and allows us to build our solutions in a way that our customers can still retain ownership of their IT functions and of their data.

David: That's a great explanation of both your business problems that you're solving for your customers and the way you're doing so on your past services of Azure. Really appreciate that. We're kind of running to the end of our time allocation here, so I want to thank you all for joining us on the show today. I learned a lot about retail and how you guys look to optimize with your machine learning solutions.

Greg Gomez: Thank you. It was a pleasure. And can I add that if anybody wants to take a closer look at this, they can go out to the Microsoft app source and find Skymax in the source directory and see a demo and learn more about the solution.

David: That's perfect. Well, thank you very much.

Speaker 4: Thank you so much.

Greg Gomez: Thank you. Our pleasure.

David: Thank you for joining us for this episode of the Microsoft Industry Experiences team podcast. The show that explores how industry experts are transforming businesses with Azure. Visit our team at [aka.ms/indxp](https://aka.ms/indxp), and don't forget to join us for our next episode.