



The Deloitte On Cloud Podcast

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Title: Turning data into growth: Western Kentucky University's AI-driven approach to boosting enrollment and revenue

Description: In this episode, Gary Arora, Ethan Logan, former VP of enrollment and student experience at Western Kentucky University (WKU), and Deloitte's Benjamin Lynch discuss how WKU used AI-driven predictive modeling to reverse declining enrollment, optimize recruiting, and boost net tuition revenue by \$2.3 million. The lessons WKU learned in its journey go beyond higher education, however, to show how AI-powered analytics can spark innovation, enhance efficiency, and drive growth in any industry.

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Gary Arora:

Hey, everyone. Welcome back to the On Cloud Podcast. I'm your co-host, Gary Arora, chief architect for Cloud and AI solutions here at Deloitte. Higher education is at a crossroads. Declining enrollment, shifting demographics, and economic pressures are forcing universities to rethink how they attract and retain students. But what if data and AI could not only solve this problem, but also create a more personalized and effective enrollment experience. That's exactly what Western Kentucky University set out to do and with remarkable results. That's the focus of today's episode.

I'm joined by two incredible guests, Ethan Logan and Benjamin Lynch. Ethan is a higher education enrollment advisor, and most recently the former vice president of enrollment management at Western Kentucky University. And Benjamin is an associate vice president at Deloitte Consulting, leading our Candidate 360 business and several of our Higher Ed analytics-focused products. And the story they're sharing with us today is how they used AI, analytics, and predictive modelling to help WKU transform, including a \$2.3 million boost in expected net tuition revenue. Lots of lessons here that are applicable to every industry looking at AI-driven transformation and decision making. Benjamin, Ethan, welcome to the show.

Ethan Logan:

Thank you, Gary.

Benjamin Lynch:

Thank you so much.

Gary Arora:

So, let's start with the big picture. WKU was facing a serious challenge, a 20% enrollment drop since 2013, and a broader industry-wide decline. What was the moment when leadership knew something had to change? And how did the decision to turn to AI and analytics come about?

Ethan Logan:

With a declining enrollment participation that was consistently in decline, I think that was not something that was new or a surprise, rather it was an opportunity for us to try to reevaluate the way that we are approaching our cultivation-and-development-of-students pipeline into the institution. And so, it was important that as we were trying to realize the way our operations needed to be enhanced or to change in approaching the cultivation of new students. We set out particularly to look at predictive modelling and to find a way to try to operationalize stronger data alignment in terms of our operation, choosing the way that we approached students and promoted the institution to the students and their families, and trying to really open up markets of participation.

And it's not uncommon today to see predictive analytics embraced in the enrollment management and cultivation across institutions. In fact, I would say it's becoming an industry standard. And so, we set out to look for a way to find the best opportunities in the market to really help enhance the way that we were doing our work and that's how we came across Candidate 360, the Deloitte platform.

And that was really exciting to us as an institution at Western Kentucky when I was working with the school, because it was a step above what we had seen in terms of consistency across the market in predictive modelling and analytics. Particularly because of the way that Deloitte leverages the PeoplePrism™ data, and the way that they incorporate that information to build upon a more robust predictive model and analysis.

When you're looking at predictive modelling, you're really limited to information that you can cultivate from a student, through their college going indication behavior. Like, when they, for example, sit for college entrance exams like SAT or ACT or college inquiry platforms or services where they're actually looking to see about different institutions and can actively ask for more information.

But the idea being is that's a relatively limited scope in terms of what information we know about a student. Perhaps where they're from, some information that they promote themselves, like their interests or their academic success, but it's a small factor from that we have to build models for prediction. And so, the Deloitte Candidate 360 model incorporates a supplementation of more information and really helped develop a portfolio of prospective student participation with some more solid information.

The trick is that the institution needed to see some immediate change in terms of how we were working on the development of our students. The scenario being an enrollment decline that needed to be arrested, and we needed to really regain some momentum. The challenge, of course, is that as enrollment comes down, that impacts the net tuition revenue that the institution can cultivate. And that has a ripple effect to the institution. You have to think about restricting operational expenses; it can lead to ideas of restrictions of programming and offerings to try to make sure that you maintain a financial standard and stability. And it starts to become a declining spiral, if you will, the way that we lose activity in terms of offerings that negatively impacts the participation of people seeking the institution. There're lower resources in terms of when we do enrollment. And it can be a challenge to the institution as it tries to recover.

So, immediately we needed to try to find some way to arrest that and try to rebound from that experience in terms of a decline. It was not lost on the institution that we are also coming out of the COVID pandemic and the way that that impacted higher education across the country. To do this activity, to embrace in a predictive modeling, and to try to really capture some information to help design and inform the way that we were working on the cultivation of new students was really emboldened by the way that we incorporated some of the data analytics in the ways that the Candidate 360 platform helped us.

And the way that higher education uses this information today, and the way that we use it for enrollment, cultivation, and awareness, it provides us with some ability to really leverage our resources to the maximum potential, because we can target, by probability, people who have interests, people who have a higher probability of participation in the institution, and we can spread what resources we have to the most effective means of trying to target the most students that we have the most opportunity with. That's a lot of most in the way that I explained that, but really the value of the way we do this work is to be able to say, "Okay, I have a limited structure that I have to work within in terms of how I have the capabilities of attracting students to participate in higher education." This is a public good. This is very important in terms of what we believe in philosophically, in terms of the educational process and what it provides to not only the practitioners, the students, but also to the communities and our society as a whole.

So, we have a great process and a great means, we just need to incorporate more participation, because that's how we sustain these practices. And really embracing the idea of predictive modelling gives us some ideas of ways that we can try to maximize the potential participation. Because we start very cold, very blind, we take as many opportunities to outreach to students as possible. And there's a lot of people who that falls upon deaf ears. But there are opportunities there that we can find with some residents, with students, and we want to try to zero in on those students quickly, so that we can be able to make sure that we build relationships with them, and we can invite them into our university communities so that they can experience it for themselves and make a decision.

The beautiful thing about this work is that we're talking about college choice. We are talking about college choice in traditional-age students who are approaching the institution, who are 17, 18 years old, when they're thinking about entering college. And this applies to nontraditional groups of students also, those students who are transferring to the institution, those students who are returning to the institution. They have a lot of factors they use to determine which choice they're going to make for higher education. So, a few of those factors are within our range in terms of scope of influence. And we do that in a very open and transparent means.

We're trying to make sure that the student has the best picture of what the institution can provide for them. But ultimately, we have to try to make sure that we can touch the most people with the most impact. And we do that by leveraging those ideas of probability, who has the higher interest likelihood, who has the most likelihood to participate, and how can we build the best scenario for approaching an institution. That's both in terms of content delivery, but it's also in terms of the campus experience, it's also in terms of financial aid and support. So, it's a wonderful challenge in higher education in terms of how we're trying to maintain and cultivate participation in higher education. Because just like you said, it's a challenging environment. We've had a very interesting approach to return to higher education after the COVID pandemic, when we really shut down and really saw a drought in terms of participation. And then we also have some challenging future scenarios that are going to interplay in higher education, including the presumptive enrollment cliff that is coming after a birth rate stall that took place in 2008 from the recession.

That's coming to fruition, those students are coming to college, and there's fewer of them than there would be in a traditional class coming forward. There is recovery, but that recovery is 10, 12, 15 years down the road. So, institutions need to be agile. Institutions need to be cognizant of how they're doing and investing in their approach to cultivating new students in participation, and they have to be informed. And this is a great conversational item, that is, I think on the top of minds with institutional administration and enrollment managers across the country.

Benjamin Lynch:

I loved about working with you and with Western Kentucky, just the hyper focus on impact, because the stakes have never been higher. Like you said, there's the enrollment cliff. But I really grew to appreciate Western Kentucky University's, not just that hyper focused on impact, but how innovative they had been over the years, how innovative they continue to be to maintain that competitive edge, and how they were looking for the data and analytics to do

that because they had a commitment not just to their students, but also the community. The investment in electric battery plants that are coming to the area, there's a need for them to continue to grow and deliver that impact and that time is now.

Gary Arora:

Yeah. And predicting the behavior of college applicants is such an interesting and complex data science problem. And the tailored approach that was used here, combined WKU's own data with Deloitte's data set of more than 270 million records of demographic, geographic, lifestyle, digital preference, and purchasing patterns for nearly every household in the country. With AI playing a major role in enrollment decisions, how did WKU and Deloitte ensure fairness, transparency, and compliance with some of the data privacy regulations, and what steps were taken to prevent bias in the predictive models?

Benjamin Lynch:

I'd say first off that when we're doing engagements like this one with Western Kentucky, we provide insights. They are very much informational. They are not a decision type insight. We try to help guide a more strategic approach, how that can trickle down to tactical action. But don't provide any decisions or recommendations, particularly when it comes around student acceptances during the application process. That's the first hard line in the sand that we take from a business perspective.

When it comes to our predictive modelling and our data science, Deloitte adheres to a six-part trustworthy AI framework to make sure that we are maintaining both high levels of ethical standards. But we're also doing the reviews that are required for robust, reliable, analytical models that are also transparent and explainable, so that any of those informational insights that are getting passed on to a client are not subject to a black box perspective. There's not a request to the trust the model, because the model knows best. We could dive deep into the assumptions that the model is making and make sure that there's a comfort level between us and the client that the data, that the insights that are coming out of the model that they make sense and that there's a human in the loop for anything that's being spit out.

I think the last thing that we're able to leverage is our Google Cloud platform, very high and robust security standards, very secure environment that keeps client data, both safe and separate. And so, that data is not coming back into any larger data set to be used for other clients. It's maintained for the client and their mission objectives. But because of that data and our products are built on Google Cloud's platform, they are very flexible. They're easier to scale as we grow both the product, the business itself, but the insights, the volume of insights that we're able to provide, so that we can do more and do more, faster.

And that's one of the things that was really helpful, I think here with Western Kentucky was being able to rapidly and nimbly adjust the data that we were looking at to not just provide insights on known quantities of students, but be able to go and find new markets of underserved communities where there was a concentration of likely to apply students, that could really help Western Kentucky grow and think strategically when it comes to college visits, when it comes to college fairs, to high school visits, they take a long-term approach to how they were going to grow.

Gary Arora:

I agree with you on transparent and explainable, key tenets to develop trust in any model, especially with human in the loop as well. You mentioned you leveraged Google Cloud, and as a result you were able to generate insights within 12 weeks, that's significantly faster than typical implementations of this size. Could you walk us through some of the key architectural decisions and development practices that enabled this faster timeline?

Benjamin Lynch:

I have to say part of the acceleration was, we benefited from a really high level of data quality and data cleanliness coming from Western Kentucky University. Because they were able to not only get us their data in a very timely fashion but provide that data in a way that would facilitate the analysis, we were able to jump start our processes much sooner in the process with a shared understanding of the assumptions, and that gave us a strong foundation to build off of.

Architecturally, I mentioned that Candidate 360 is built on Google Cloud platform and Google Cloud platform also hosts the Prism data set—Deloitte's data set with over 270 million records, at this point in each record with 1700 or so variables about each record. So, we're talking about millions and millions, if not billions, of data points. Being able to use Google Cloud's platform and some of the underlying features like Big Query, we were able to prepare that data for each one of our successive models that match higher education enrollment life cycle. We were able to query that data for modeling purposes much sooner in the process. And so, part of that is just native to Google Cloud and part of that is also native to how we've constructed the product to be able to operate in that environment.

Gary Arora:

Yeah. It's certainly a lot of data and data points, but collecting data is one thing, turning it into actionable insights is another. So, what were some of your key factors in ensuring that WKU could not only generate predictive insights but also operationalize them effectively.

Ethan Logan:

That's a great point Gary. It's a threat of analysis paralysis, and the idea that we have good information what next. And I think that that's always a great challenge with this process. And the challenge is that predictive modelling is dynamic, because we're always introducing new elements into the conversation or into the analysis. And so, if you think about the life cycle of a student approaching a college, we're looking at information that we know on the offset which is static, but then we need to incorporate activities that are transitioning through the recruitment cycle, that is interchange of communication, that's participation, like being on campus for a campus visit.

And so, there's elements that continue to stack toward the student profile and the institution can't be passive, in this process they get a good picture. I mean, they see an evolution and the resolution of what the predictive model looks like, but if they wait too long, then they wait too late. So, the best way to do this is to do this in parallel or in a choreographed manner that we're continuing to work with the prospective student pool as they continue to mature in our predictive models in the way that we approach the institution.

So, key factors here are that we are constantly looking at the probabilistic models about participation, and that's shaping the way that we're approaching students and engaging with them. So, think about it in the context of a scale. If you think about a scale from low likelihood to high likelihood, we know that

students that are demonstrating or modeling high likelihood of enrollment. These are students that are exceptionally, I mean, they're really invested in institution. We're very invested in them, and we're supporting them in terms of outreach and communication. But we keep them in this high support, but they don't need a lot of attention. They already made their decision.

And then if you think of that from like medium to high, that little section of that distribution, those are students who are still kind of on the fence, leaning toward us. And so that's an opportunity for the institution to say, let's really try to capitalize on this interest and really show the best that we can about the institution, find ways to personalize those engagements, and really personalize the offer to the student. How can we offer you this opportunity of higher education that best appeals to you? There are students who have a lower likelihood in that distribution and we still, we always maintain, we always keep the door open, keep the light on. But really when we have a limited time, personnel, and resources we're really going to functionally focus on where we have the most opportunity for return.

And additionally, we also learn about new markets in this scenario when you think about what we can do with looking at the students' historical participation. We've built some profiles and ideas of likelihood that, which then can be superimposed upon the data that the Prism can do. And we can discover new markets of participation in which we may not have addressed in the past. And that's a wonderful, important commodity for an institution to be able to find new markets and cultivate new markets. But ultimately, as much as it is a challenge to working in an evolving model, one of the values of working in evolving models is, it gives you an idea to be able to be proactive provoking participation.

And so, in my example earlier where we talk about activities that a student is demonstrating in their approach to an institution, like visiting campus. We know that that's a powerful lift in terms of interest and intent toward enrollment. So, we can look at that retrospectively and say, "Okay, this student has a medium to high likelihood of participation and yet they have not visited campus." I know that that's a powerful moment that really can conceptualize the idea of leaning toward this choice of institution.

My work is going to be to try to cultivate that idea and invite that student on campus. How can I get you to come visit and see, "What do you want to see while you're here? Can I take you to you know this department or to this college and let you see some students sitting in a class, meet a faculty member?" The idea being is we can work dynamically within evolving models, because we can introduce elements that we know have variable lift toward probability. And that's really the maturation of what predictive model and enrollment management can do together. Because we're built upon historical performance to give us a threshold for the conversation, the beginning of a cycle, but that cycle evolves and though we have a historical background to work from, the world continues to change, the generation of students continue to change, and their needs continue to change, and we have to adapt to it quickly, so that we don't become obsolete in that conversation.

Gary Arora:

I really like your approach of first grouping your student pool into medium to high interest, and then focusing on creating personalized engagements within this group, especially with campus invitations. That's such a powerful nudge. This kind of personalized outreach has so much potential across all industries and sectors, and many of our listeners are leading digital transformation initiatives in their own organizations. So, if you had to distill the biggest lessons from this transformation that apply beyond higher ed, what would they be?

Benjamin Lynch:

I see kind of two takeaways right now, one is right size your AI solution to the challenge that you're facing. I love Generative AI. I probably use a Generative AI tool on a daily basis. But I wouldn't say that every challenge needs a Generative AI tool. For example, you may want to watch a movie. You may want your streaming platform to recommend you a movie and not generate a movie from scratch. And so, making sure that you've got predictive models in place when you need a prediction to solve your problem. That I think can go a long way to having the impact that you're looking for and not spending time adjusting to misalignments or reworking because you've underbuilt a solution to the problem that you're trying to solve for.

The second insight I'm seeing out in the market is, there was a time when organizations had no data, and they had no insights. And they were swimming in a sea of uncertainty. I think we've seen over the past several years a lot of tools and a lot of process and a lot of governance be established. That has created a lot of data and a lot of insights. Institutions and organizations are still swimming in a sea of uncertainty, with too much data and too many insights. And they're not exactly sure, what to do with that? And so, to the extent that leaders can focus on having the right data and the right insights, both for the challenge, but to train their AI solutions it'll just go that much further to having the right impact at the right time for your organization's mission.

Gary Arora:

I like how we moved away from the era of not having enough data and insights to having too much data and insights. So, much that the challenge now is really separating noise from the signal. Thank you so much for sharing these insights Benjamin and Ethan, and your experiences.

For our listeners, if you're thinking about using AI and analytics to solve complex business challenges, what's the first step you should take? How do you start identifying the right data and building a strategy around it? Let's continue this conversation. Connect with us on LinkedIn, share your thoughts, and if you're working on an AI-driven transformation, we'd love to hear about it. Thanks for listening to the On Cloud podcast. Until next time, I'm Gary Arora.

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