



## The Deloitte On Cloud Podcast

**David Linthicum, Managing Director, Chief Cloud Strategy Officer, Deloitte Consulting LLP**

**Title:** Trustworthy AI: Powerful technology requires powerful ethical guardrails

**Description:** Artificial intelligence (AI)—especially when it's cloud-enabled—can be a force multiplier and powerful tool for innovation. However, there's a crucial need to think about the ethical issues and implications of ubiquitous AI. In this episode, David Linthicum talks with Deloitte's Beena Ammanath about the reasons to establish ethical guardrails around the use of AI, as well as who should be responsible for developing and maintaining those guardrails—now and in the future.

**Duration:** 00:23:54

**David Linthicum:**

Welcome back to the On Cloud podcast. Today on the show, I am joined by Beena Ammanath. She's the executive director of Deloitte's AI Institute. So, Beena, you've got a rather large bio, some amazing things that you've done. Why don't you introduce yourself and tell us what you do at Deloitte and how you came to Deloitte and what's your day job like? And, also, what are other things you're doing? Looks like you're writing a book, you're on boards. You're a very busy woman.

**Beena Ammanath:**

Thank you, David. And you're right. I certainly didn't plan out my career this way, but it has shaped out to be a very interesting ride so far. So, my background, my core education, is in computer science, and I started out in the database field. Data, leading a SQL developer and then on to a DBA and so on with managing large data teams. It just so happened, even though I had studied AI back when I was in the university, it was mostly theory. It just so happened that data turned out to be a very evolving, interesting field, and it—a lot of things that we studied in theory started becoming real in my own lifetime and in my own career. So, I've seen the evolution of data from traditional transaction databases, to BI and data warehousing, and then the big data and machine learning and AI. It's been quite the ride.

Prior to Deloitte, I was a CTO for AI at Hewlett-Packard Enterprise. Before that, I led data science and innovation in GE. Again, didn't plan my career this way, but every time I got curious about an, or about a certain sector, it was time to go and explore that space within the data and AI context. My day job at Deloitte is really leading our Deloitte AI Institute, we have a number of other Deloitte AI Institute versions from China, to Germany and UK and South Africa and Netherlands and Japan. So, it's really to bring together all the dimensions of the AI ecosystem from an applied AI lens in one place. So, that does include whether you should deploy your algorithm on-prem or on the cloud. What are the pros and cons? And also looking at dimensions that are a little bit fuzzier, like ethics and diversity in AI, or what kind of regulations are taking shape. Anything that is on top of mind for companies and organizations across the board who are using AI today.

**David Linthicum:**

So, you have a book that was just released, *Trustworthy AI*, which helps businesses navigate trust and ethics in the world of artificially-intelligent systems, so tell us about that.

**Beena Ammanath:**

Yes, and this really comes from my background and my experiences working across all these different industries. And there's obviously a lot of headlines around AI ethics, and many times we hear about bias and fairness in the context of AI space. The reality is the AI space in the real world is much broader than that. Yes, bias and fairness are absolutely crucial if you are working with human data—if there is human impact. But if you are using AI in a manufacturing plant to predict a machine failure, the implications are not so much about fairness and bias, but it is about the security of the algorithm, about being able to provide reliable and robust AI. So, a trustworthy AI is really focused on looking at all the different dimensions of AI ethics and how to operationalize it in the real world within the context of the business or any organization that is developing it or just using AI.

**David Linthicum:**

Yes, one of the things—I've been involved in AI for a long period of time. It was my first job out of college, and I'm almost 60, so it's been around for a while. But in looking how it evolved, one of the things that became apparent to me was that there needs to be some sort of a moral compass or an ethical framework that surrounds the use of AI. I mean, I built many systems in my career that were very intelligent and did their job, and almost did their job too well. In other words, it really kind of embedded the biases of the data that it had.

There was some erroneous stuff that occurred, and we had it behaving in ways that we didn't want it to behave. And, so, you had to, in essence, adjust the way the systems behave and the answers that you're getting based on doing the right things and making sure you're using things in ethical context; I guess assume privacy as an example of that. So, what are the origins of AI ethics? How far does it go back, and what were we concerned about back then versus what we're concerned about now?

**Beena Ammanath:**

Yes, it's a relatively new topic. I like to give this analogy of we are in this very interesting time period. Think of what the generation before us must have gone through when cars were invented. The engine was created, and we were able to get from Point A to Point B faster, so it was being used in the real world, but the roads were not necessarily built. We didn't have seatbelts, or we didn't have speed limits. And that's kind of where we are with AI today. There is still research happening, and it has been happening for several decades, but it's still evolving. AI and technology is nowhere near having reached its full potential as a core technology.

That's the first stream. Where there is research happening, where there are research groups and academia and universities, but at the same time, it's being used in the real world, applied in real organizations. And, so, because there is value that you can get from the technology, even though it's not fully mature, that's the second stream, so it's applied everywhere. And then the third stream is really because it is scaling out so fast and in general because the technology is not as mature, there are negative impacts to it. And I put it under the category of trustworthiness. There are ethical implications, there are regulatory implications, there are—because we don't have the speed limits and we don't have the roads fully developed to make sure that AI stays on track, there is a lot that's coming in that third stream, which is also growing.

So, I would say when we started using machine learning 12 years ago is when it really started scaling out rapidly, is there were no conversations happening around ethics, or that third stream about the negative impacts of this technology, or how to mitigate it. It's really in the past six, seven years that conversation has picked up because now you're seeing these cars driving everywhere, and they are driving all over the place, and humans are getting impacted in negative ways. But now that third stream of ethics and trust is really expanding, and there're conversations on regulations. We've seen a lot of proposals of regulations around it. So, I think that has definitely evolved in the past few years, and we—I anticipate we'll have a lot of regulations coming out in the next four to five years. You're going to see much more regulations around this technology coming out.

**David Linthicum:**

Yes, indeed. And I think people even self-regulating, the ability to create policies within companies in terms of how they're going to leverage this technology in an ethical way, and you think about it, cloud had a lot to do with the growth of AI because suddenly AI was cheap and effective. And I always joke, back when I got out of college, to build an AI system was about \$20 million, and now it's \$20 to do the same thing and have better technology. So, in other words, we have weapons in our hand, new force multipliers that really can take the business to the next level, but we have to be very careful that we don't hurt the business along the way, or hurt people, or hurt society in general. Is that kind of the core ethical challenges right now?

**Beena Ammanath:**

Absolutely. We have very powerful technology, and cloud is absolutely a big factor in AI. AI wouldn't really grow as far without cloud technology. So, it is enabling, powering a lot of these AI solutions, and I'm laughing, David, because I remember those massive supercomputers that you had to use, and you had to book time and try to get access to that compute power which is at the core of AI. And now you're pretty much carrying that compute power in your pocket. So, the availability to design and develop these systems but also the user part. It's not just restricted to large organizations or research groups. It's available to everybody, and so how do you make sure that there are those guardrails put in place? How do you make sure there are lanes defined, and speed limits defined, and we have seatbelts in place for these AI solutions?

**David Linthicum:**

This is a fascinating topic for me because I don't know much about it, and the reality is I think that rank and file people in IT haven't considered the ethical challenges around using some of the emerging technologies or re-emerging technologies in this case, AI being one of them. So, what should their thought process be in how they evaluate where they are and setting up the ethical guidelines, policies, influence lawmakers, all that sort of thing?

**Beena Ammanath:**

Yes, you actually raise a great point, and I would love to share as one of my roles at Deloitte, in addition to leading the Deloitte AI Institute, is really looking at the ethics of emerging/re-emerging technologies. The reason being with AI, now there's a lot of awareness, and we've had enough headlines around it everybody's focusing on fixing it. But there are other technologies coming in very rapidly, whether it is NFT, or metaverse, block chain, and those are growing very rapidly as well.

So, part of my other role is really looking at defining that third lane, so to speak. What are the ethical implications of those emerging technologies and how can we get ahead of it? With AI and ethics, we're playing a bit of catch-up, but what are going to be some of the unintended consequences of the metaverse? Who's going to be left behind? Is it going to be driving more inequity? Is it going to drive more biased systems? We don't know, and I think that's the opportunity we have with emerging technologies to be able to look and consider the ethical implications and get ahead of the game in terms of defining those guardrails early on. Sorry, I segued a little bit into my bio because I did want to share that there is a team that's really focused on just thinking about ethical implications of emerging technologies beyond AI as well.

So, in terms of what organizations should focus on, I think because we are at this interesting point where all the regulations and rules are not fully defined, the best-practices playbook is not fully adopted, there are—there is going to be a period when there will need to be some level of self-regulating while the regulations come into play, and I do believe because AI is still closely tied to context and domain knowledge, there will always be a need for some level of self-regulation.

So, the regulators and regulations, the way it's being approached, is really looking at not only at just the broad technology but from an application perspective. Think of it when you are using, say facial recognition, one of the most controversial topics when you hear about AI and its use. Facial recognition is absolutely terrible when you're using it for, say, identifying criminals. But how do you balance it out if that same technology is helping you rescue human trafficking victims? These are decisions that we as technologists need to be involved in and need to participate in, and we need to be key stakeholders to make those context-specific decisions from—about the technology.

So, you need the awareness of the technology, but there's also the social aspect of it. Ethics does fall in the philosophical category, but it is impacting businesses today, and it is up to the businesses to provide some level of self-regulation while keeping—being aware of regulation that's coming from the governments or policymakers.

**David Linthicum:**

Yes, it's also derivatives of technologies that we're using. Back when I was building AI systems, having a gigabyte of data for training data was a myth. It was almost unheard of, and now we can have petabytes of information to leverage training data. All sorts of information, we can figure out different aggregations of the data to get to ethical privacy concerns because before, just reading personal information, we know we couldn't read personal information, but in many instances, AI technology can derive personal information directly from anonymized information, and that—what that is, that means we can take massive amounts of information to determine things that people may not want to be known about themselves by a particular enterprise. But this seems like this is both an opportunity and a curse, and we have to kind of put some policies in place in how we're going to use this effectively and not make it a force for evil.

**Beena Ammanath:**

Yes, as technologists—look, I'm a trained technologist as well. As technologists, we've been trained in a sense to look at all the value creation, the positive things that technology can do, and just build it because it can be built. And I think we are that moment where we need to get mindful. The excuse of, "Oh, I'm just a technologist who builds." We have to get beyond that. We have to get more mindful. It is that classic line from *Jurassic Park*, "Just because your scientist could build it without thinking they should."

I'm paraphrasing it, but I think with such powerful technology, we as technologists need to take more responsibility and put in that 10 percent extra time to think of the ways this could go wrong. "Yes, I built this really cool solution which is going to bring amazing value to my company, to my organization, to my team." But take that ten minutes, thirty minutes, whatever it is that you can give. Make it part of your checklist where you're proactively thinking of what are the ways this could go wrong? Now, obviously that list will not be as comprehensive, but at least it's a starting point. At least, even if you can cover 50 percent of the ways it could go wrong and put—encode it so that those scenarios are covered, put in those guardrails. If you're building a chat bot, put in those guardrails to be—to make sure that it doesn't go wrong.

So, I think as technologists, we have to get beyond just thinking about technology for the sake of the cool, shiny objects, things that you can build, but also what are the ways it could go wrong and proactively address it, because technologists are really smart people. We can build really smart things, but let's make them smart for everybody and not just for a select group of people. And I think that's where the technology DNA, technologist DNA has to change no matter whether you work—no matter which technology you're working in, whether it's AI or traditional software engineering or a cloud engineer. We have to all get a little bit more mindful because we are building those tools, and we cannot take a back seat and expect others to find that out or expect it to have unintended consequences. We have to get more mindful.

**David Linthicum:**

Absolutely. So, I'm channeling my listeners here. They're asking the question in my head who should set those policies? Is this the role of governments? Is it the role of enterprises? Is this the role of committees or independent boards of directors, everybody involved? Who should be setting the ethical guidelines that we're following?

**Beena Ammanath:**

So, I think over a period of time in the ideal scenario, we will have policies and regulations coming from a global and country-specific level, but at this period of time, it is at an organization level, and it's about bringing in key stakeholders. I see both a top-down and bottom-up approach. I see boards, C-suite, and leadership coming together and agreeing on a few key ethical guidelines, but the reality—you and I both know, David—is that the devil is in the details.

The reality is that it's those engineers and scientists who are going to make it real in the solutions being developed and used. So, there is a part of it is self-regulation and being able to be trained about these topics so that you can ask the right questions, changing your—what your project management process you're using so that you can carve in a task to think about ethics, to think about the way that the solution or the project could go wrong, not just from a timeline and financial risk perspective, but from a perspective of where it's impacting humans negatively, where it is ethically just the wrong thing to do. It should be an informed decision. If you know that the solution that you're building could potentially lead to emotional or mental harm, and it is still a decision that you make to choose to do it, it's no longer an unintended consequence. Even if you can reach a point of where the consequences are known and intended, and if you're still chosen by the organization to do it, that is a better scenario than having these unintended consequences.

**David Linthicum:**

So, when should we learn about the use of ethics? Should it be college and universities. as we get training localized for enterprises, all of the above? Should it be a part of technology training in general?

**Beena Ammanath:**

It's a great question, David, and one of the things that I'm focused on is also really getting more diversity into AI. And I have a nonprofit that I started five years ago called Humans for AI, and it's something that has been on top of mind for me, and I'm glad to say Deloitte is extremely supportive of this, but we are working to develop an ethics-related curriculum for technologists.

And this is for not only for technology training, but for MBAs or any degree. Because at the end of the day, you may not be developing the technology, but you're going to be using it. You may not be developing the metaverse, but you would be using it, and you need to know what questions to ask. So, to answer your question, it is all of the above. I think training needs to be—the base training, the fluency training of what ethics means—should be in your university, but the content-specific ethics training should probably come within your organization or the project that you're working on.

**David Linthicum:**

Yes, it should have the attention paid to it at a higher level. I think as we build these technology solutions, someone needs to be asking the question are we doing so for some sort of good outcome, or is this something that could, to your point, do harm and we need to kind of make sure it doesn't do that? So, let's talk about the future—future of ethics and technology, the evolution of AI. Say it's 2026, 2027, how are we thinking about this?

**Beena Ammanath:**

I think in the next five years we're definitely going to see more regulations coming into play, but regulations can address only so many scenarios. I do think the regulations—we are still very much at this very high level where we are looking at technology as a whole. I think to actually regulate and make policies, you need to go down to the deeper level on this context, using this technology, what are the impacts. So, we're going to see more granular regulations coming in, and you most likely be extensions to already existing regulations.

So, whether it's an AI-specific regulation extension to HIPAA for healthcare, for example. So, you're going to see that level of regulations coming in the next five years. We are going to see more and more awareness, which I think it's more of my optimistic hope is that every technologist is thinking about the ethical implications and self-regulating to some extent, because there is definitely the awareness. I do see most of the workforce now being more purposeful about where they want to work, why they want to do a specific job, and that, I think, will lead to more ethical AI and ethical technology in general. I also think that the conversation around ethics in the other emerging technologies is going to be much more active by then.

**David Linthicum:**

Yes. I think we have to start asking the questions, and as it evolves, the technology is just going to get more powerful, and we have to make sure that we're using it properly and not misusing it. So, enjoyed having you on the podcast and learning more about this. So, where can we find you on the web and where can we find your book?

**Beena Ammanath:**

So, my book is at [trustworthyAIbook.com](http://trustworthyAIbook.com), and I'm the only Beena Ammanath in the world, so you can find me with my name on LinkedIn, Twitter, and if you want to check out my website, it's [beenaammanath.com](http://beenaammanath.com). And I would love to engage with your audience, David, and continue the conversation.

**David Linthicum:**

Yes, this is a very important conversation to continue. I'd love to get you back on the podcast as this evolves and get your perspectives as this evolves. So, if you enjoyed this podcast, make sure to like us, rate us, and subscribe. You can also check out our past episodes including those hosted by my good friend Mike Kavis. Find out more at [deloittecloudpodcast.com](http://deloittecloudpodcast.com). If you'd like to contact me directly, you can e-mail me at [dlinthicum@deloitte.com](mailto:dlinthicum@deloitte.com). So, until next time, best of luck with your cloud journey. Everybody stay safe.

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