

Episode 146 | Eutelsat's AI in the sky (Dr. Mariam Kaynia)
Released August 4, 2026

Mariam Kaynia: [00:00] As a company that provides a network from the sky, and by the way, a network that is extremely complicated and expensive to deploy, Eutelsat is very dependent on the right data to make the right decisions and allow also for self-control, self-healing when the satellite is in orbit. It's not like in telcos where you can send a field force to the site because something goes down.

Danielle Rios: [00:24] Exactly.

Mariam Kaynia: [00:24] So you need to be super solid the moment you send up that satellite.

Announcer: [00:34] This is "Telco in 20," a podcast that helps telco execs achieve a competitive advantage with AI and the public cloud. It is hosted by Danielle Rios, also known as DR. Today we're talking to Dr. Mariam Kaynia, Chief Data and Information Officer at Eutelsat.

Danielle Rios: [00:53] Hi guys, I'm DR. Space is super hard. It's cold, dark, and really far away. Case in point, launching satellites. No truck to send, no tower to climb, no do-overs. If it doesn't work, you crash it and eat the loss. So everything, hardware, software, data, AI has to be rock solid before launch. And yet space is en fuego right now. Starlink is launching rockets every month. Amazon LEO is racing to get its constellation live, and AST Space Mobile is signing direct to device deals with telcos around the world. Everyone wants a piece of the sky.

[01:36] Then there's Eutelsat, a satellite operator and Europe's only LEO alternative to Starlink in orbit today. It runs more than 600 satellites at 1,200 kilometers. Plus a geostationary fleet parked even higher, all of it delivering broadband to telcos, businesses, and governments. Today I'm talking to Dr. Mariam Kaynia, Eutelsat's chief data and information officer designing the AI that runs it. We dig into how to launch a network no one can climb up and fix. Why the data foundation has to be perfect before anything leaves the ground and why without someone owning the outcome, AI is just an expensive hobby. So let's take 20.

[02:20] Dr. Mariam Kaynia is chief data and information officer at Eutelsat. Hi, Mariam. Welcome to "Telco in 20."

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Mariam Kaynia: [02:27] Hi, thanks for having me.

Danielle Rios: [02:29] Yeah, this is going to be super fun. I recently met you at DTW Ignite and we hit it off fabulously, had a really great conversation.

Mariam Kaynia: [02:38] Absolutely.

Danielle Rios: [02:39] And we're going to talk about some of the things that we talked about in Copenhagen, but I learned you have a very interesting career. You're a wireless PhD, McKinsey, six years at Telefónica Germany, and now you're running data AI and IT for a global satellite operator. So tell me about why you made the move from mobile to satellite.

Mariam Kaynia: [02:59] Well, I guess the main driver for me is that I like to make impact. Why satellites? The satellite market is changing incredibly fast. There's so much innovation that is happening, and we are now able to deliver with satellites high speed internet from anywhere. And I realized a couple of years ago while I was at Telefónica that we are right upon the disruptive moment in that industry, and we are seeing how it's becoming the center of the connectivity market. Telcos have kept an eye on the satcom for years, and this was really the moment where you start seeing it become more and more core. And so yeah, I decided that I now want to take part in it. I want to help shape that market, that industry, and of course, the company.

Danielle Rios: [03:45] Yeah. Well, tell me about the satellite market and Eutelsat.

Mariam Kaynia: [03:49] So satellite networks are essentially a layer of connectivity that provides private networks or primary network where terrestrial networks cannot reach. So it provides an additional layer of resiliency and redundancy for businesses, for governments or critical infrastructure. Eutelsat is a satellite provider. It's a B2B satellite provider. And we have two types of satellites. One is what we call geostationary satellites or GEO, you often hear about. These are 35,000 kilometers away. And the second one is what's called LEO, so it's low earth orbit satellites. And these are operating for us around 1,200 kilometers away.

Danielle Rios: [04:30] Okay, got it.

Mariam Kaynia: [04:31] We are one out of two globally operational networks at the moment. And with these new, more innovative LEO satellites, we are able to deliver higher speeds, lower latency, and we are able to deliver that anywhere. You can think about this almost like a mobile network from the sky. We operate literally in all verticals. We are in flight connectivity. We are in ships at sea. We are providing critical connectivity in emergency response situations for governments, businesses, that layer that you can leverage when you don't have mobile connectivity or use it as an extra redundancy layer.

Danielle Rios: [05:09] Yeah. And so the main distinction from Starlink, from SpaceX, they're a consumer and you guys are B2B. Is that the big difference in the business models?

Mariam Kaynia: [05:18] That is true. There's a lot of actually differences, honestly, in the business models. I think indeed, as you say, the most important is that Starlink is more mass market oriented. It's focusing on connecting the individual homes. Whereas we are focusing on B2B and B2G, so to governments as well. We work with telecom operators, service providers, governments, enterprises. So our role is also to help our partners. So we are sometimes B2B2X, so we help also our partners to bring that connectivity and pick the right connectivity and the right mix to our customers. Just to give a couple of examples, in Greenland, we are working with local telecom operators to extend the connectivity to remote communities.

Danielle Rios: [05:59] That's that whole rural economics that terrestrial networks really struggle with.

Mariam Kaynia: [06:03] Yes.

Danielle Rios: [06:04] Where you have low density of population, but still have the same cost to build out.

Mariam Kaynia: [06:08] Exactly.

Danielle Rios: [06:09] And so very expensive. And so this is really helping that rural build out.

Mariam Kaynia: [06:13] Absolutely. It's a partnership with telcos. So this really helps both the end customer, but it also helps telcos. But we also have other business models. So we have multi-orbit, LEO and GEO. We are working within Europe on next generation

sovereign constellation infrastructure. That's mainly for the whole sovereignty, governmental, or critical infrastructure type of areas. So there are some differences, and I'm convinced that there is significant room for multiple models, different operators to succeed because there is so much demand and this market is growing so fast.

Danielle Rios:

[06:46] Well, super exciting. And when we caught up at TM Forum, we talked about how you're investing big in building a data platform. So tell me all about what the goal of that platform is and what you're going to do with it.

Mariam Kaynia:

[06:57] Yeah. So as a company that provides a network from the sky, as mentioned, and by the way, a network that is extremely complicated and expensive to deploy, we are very dependent on the right data to make the right decisions and allow also for self-control, self-healing when the satellite is in orbit. It's not in telcos where you can send a field force to the site because something goes down.

Danielle Rios:

[07:22] Exactly.

Mariam Kaynia:

[07:23] So you need to be super solid the moment you send up that satellite. And so we are more dependent on topics like monitoring or remote control, self-calibration, and use cases I'll talk about later, but just to explain why the data and the platform is so important. Now, we have historically had multiple data platforms. And in order for us to very fast move forward and be able to focus on what really matters, which is the use cases that you use the data for and you build, we decided to federate our data platforms. We opened up the data architecture for that across the different platforms. We connected these. We created also a data governance, data catalog, data products, and the transparency that comes with it. And that's the enablement, if I may call it that, that we focused a lot on at the start so that we can move faster forward with the actual focus that brings the value, which is the use cases.

[08:23] And in order to enable the use cases, we added an MLOps platform with different AI capabilities enabled on it that allows us to then focus on the right pick, the right prioritization. And then we can relatively fast pick and connect the data knowing where the data catalog is, knowing what is the right quality, and focus rather on the right training, the right agent creation, and getting the use cases out there.

Danielle Rios: [08:49] And did you have the problem that a lot of telcos have where you had a big legacy platform, several acquisitions, lots of technical debt, lots of mixed systems, multiple CRMs? Or is this a relatively newer company where the system sprawl isn't quite as crazy as you see in say a Telefónica Germany?

Mariam Kaynia: [09:09] Yeah. So compared to Telefónica, for sure, it's different. It's much more new, both the LEO and GEO. The LEO for sure. I mean, it's really the last years that it has disrupted and changed. So I had less of a problem of the systems themselves being legacy or being these 25-year-old customized to death type of systems, which we are all used to from telco.

[09:31] But the problem that we had was more around the market, the fact that it's extremely fast-changing demand. And if you want to accommodate to that, you can't build a functionality, almost like stack for every customer. And of course, being a B2B, that's even a bigger problem. So that's one of the biggest problems that we have at the moment, that the market is not standardized. It is shifting extremely fast. It's disrupted every day. And we need to be very smart about how we deploy, what we deploy. What do we not do? Where do we standardize and simplify versus where do you actually accept that here is so important demand is so specific that we need to invest and customize for it.

Danielle Rios: [10:13] Yeah. That requires a lot of discipline because I think the answer in telco has always been just customize it. It's a CR. How much is it going to cost? It's not that much money. And so you customize it, customize it, and customize it. And so having that discipline to say no and say, "Hey, we need to keep this simple so that we can keep our speed and agility."

Mariam Kaynia: [10:33] Exactly. And we are doing this for the customer. The faster, and as you say, more agile we are, the faster we can actually bring new functionalities to customers.

Danielle Rios: [10:42] Absolutely.

Mariam Kaynia: [10:42] So it's really that balance of where is it really needed and where can we just be fast for them?

Danielle Rios: [10:47] Well, I think it's really a trade-off. You just can't have it all. You can't have highly customized and speed. You have to

decide speed's very important, so we need to not customize as much.

Mariam Kaynia:

[10:57] True.

Danielle Rios:

[10:58] And so let's talk about what you're doing with the data platform. Now that you have it federated and set up for you, are you using it to drive AI use cases? Tell me about that.

Mariam Kaynia:

[11:08] Absolutely. So Eutelsat has been experimenting and productizing AI for various use cases and at different stages. We do it from engineering support for the satellites and ground segments to operational optimization or business plan support. So we are doing a lot. I would say the part that we are pushing more over the recent years is the more innovative GenAI, agentic AI. Just to give you a few examples, we are using data and AI models in order to better predict and prevent collisions once a satellite is in orbit. And as I mentioned, you're dependent on doing this alone. It's almost like autonomous networks as we are used to in telcos. It needs to autonomously plan avoidance maneuvers. It needs to recalibrate itself. It also needs to detect faults and anomalies and take corrective actions in real time so that it can actually have a longer lifetime. Same with fuel. So you need to have very strong algorithms in order to optimize for when do you use the fuel and also how much fuel do you keep for de-orbiting when the satellite is end of life?

[12:15] Another example, maybe call it a bit more on the ground use cases is on the operational side. So we have created one agent that helps classify incidents. We have another agent that helps with root cause analysis and based on operational procedures, recommends a potential resolution. We have also started testing with new type of use cases in AI. For example, we recently won an award on outstanding catalyst for Tech for Good at DTW for a working prototype that showed AI-powered end-to-end solution across several multi-orbit constellations. And as I said, since we are multi-orbit and because our model is to really enable whichever network works for our customers, because at the end, it's the end customer we care about, we help to create this AI-powered solution to find out when to use what network, what do you do for emergency response scenarios? And also how do you do AI-driven ordering, dynamic edge orchestration, and autonomous network management?

Danielle Rios:

[13:21] That's a big topic at TM Forum, autonomous networks. And so with AI making all these decisions and crossing multiple domains, how are you making sure that what the AI is doing is secure, your outcomes are good, and you guys can trust it?

Mariam Kaynia:

[13:34] Yeah. There's so many guardrails or hygiene, if I may call it, that is important to have in place and govern so that you get the right outputs. So one is, as you said, security. For me, security is all about how you safeguard the data when it is at rest, when it is in motion, which location do you keep it? And also, how do you make sure that the right access is given, meaning you don't want your agents or your data to fall in the wrong hands. There's a lot of access management technologies around this.

[14:04] The second aspect, I think we touched briefly about it, is this clean data and having clear metrics. If you don't have the right quality of the data, you can't get the right output. And so we invest quite a lot on defining the right thing. A good example maybe for your more telco audience is throughput. How do you define? If someone goes in and searches and does a query, tell me what my throughput is in this particular country or this location. Do you give the five-minute value? Do you give the peak of the hour? There's a lot of definition and context engineering, as we often talk about, that's important to put in place to get the right outputs.

[14:41] The third aspect is algorithms. It's critical to get the best output. You want to minimize AI hallucinations. So this needs proper training. It needs the right algorithm selection. You need to retrain the models. So there's a lot of effort on that. And fourth and last, which I do want to raise because it's sometimes forgotten. We talk so much about tech, but we forget some of the fundament that's been there for years and is even more important now, which is the governance around ownership. You need to have clear ownership. Someone needs to have accountability for the outputs of the use case, of the agent. It needs to validate the results. They need to make sure also later they can capture the value that it brings. Without that, it becomes a hobby project and then unfortunately not used as much as you would want to. So the soft part of it is so important and it always has been, and we're trying to also push this along the way.

Danielle Rios: [15:36] Well, one thing I really advocate is not putting decisions into things that are using inference to make the decision. And so my company, Totogi, has built a product that is that enterprise-wide context. It is a model that uses AI, but captures what the company's trying to do in terms of decisioning, what's a valid decision, and what are the things we allowed and don't allow? What are the levels? How do we define the way that we make decisions? And then you add inference generative AI to that, and then it's very, very powerful. But I think a mistake that some people are making is they're putting the decisioning into inference time. And I think that's where we're going to get into trouble because it's very difficult to audit. It's very difficult to make sure it's making the same decision all the time. You're giving too much power to AI.

Mariam Kaynia: [16:25] Exactly.

Danielle Rios: [16:25] And so by having this, I call it enterprise-wide context, really gives the guardrails so AI never makes a mistake. And we've found that that is working very well for our customers. They love it. They love the governance. We can show why this decision was made, what rule did we follow? And they really, really like that. And so it's pretty powerful.

Mariam Kaynia: [16:46] Fully, I agree. We talked about this actually in DTW, and what I really loved in our conversation was the additional layer of optimization that you also do add. When do you use the AI? When do you not? When do you not run the query? The fifth time in a row. These are all the nitty-gritty, small stuff that actually matters so much in terms of getting the right value out and not over-consuming or doing the wrong queries.

Danielle Rios: [17:15] No. I mean, if you know the right decision, you don't need AI to generate the right decision for you. You know the answer. The answer is one plus one is two. You don't need to ask an LLM to do that. We can just write down that fact and use it. And so yeah, it's amazing. Once you put these two things together, like good data with this model and then attached to systems that can act, it's super powerful.

Mariam Kaynia: [17:36] Yes.

Danielle Rios: [17:36] Now we talked a little bit about how you can't have it all in tech. You can't have highly customized in speed, but a topic that comes up for women is having it all with work and a family.

And so as a woman that has a big job and small children, how do you do it?

Mariam Kaynia:

[17:53] That's a tough question. I think for any working parent, there's always a lot going on. Be it woman, be it man. Honestly, it's tough. But it is fully possible to be both a good mother or a father and at the same time work on complicated topics or tough roles and solve things. I sometimes even think I am a better mother because of what I learned at work, and I'm better at my work because of what I learn from my kids.

Danielle Rios:

[18:19] I agree.

Mariam Kaynia:

[18:19] So there is that combo. To me, it's not one or the other. It's really how you bring it together. But I'm not going to lie, you have to give up some things. It's still at the end 24 hours in the day. So I replace the me time. I do replace sometimes sports more than I should. So to be fair, there is always something that goes, but it still is possible.

Danielle Rios:

[18:40] It's tough.

Mariam Kaynia:

[18:41] Yes.

Danielle Rios:

[18:42] Well, Mariam, this is a super interesting conversation learning about what's going on with satellite. Everything is moving so fast, and so I really appreciate that you took time out of your day to spend it with me on the podcast. Thanks so much for coming on.

Mariam Kaynia:

[18:55] Pleasure to be here. Thank you.

Danielle Rios:

[18:57] Awesome.

[19:02] Stick around. We end each podcast with a "Telco in 20" Takeaway. I've got two minutes to tell you something you need to know.

[19:13] Mariam nailed it. Someone has to own the output of every AI agent. But here's the problem. You can't scale AI if humans are your accountability layer. So how do you make AI accountable? If you design your AI architecture for decisions to live at inference time, you can't. The model pulls data and decides on the fly. Ask the same question and you get different

answers. Every decision needs a human to sign off. That's not AI-native, that's AI-abled.

[19:46] With the Totogi Ontology, every decision your business makes is captured in a model. Every rule is explicit. Every action leaves a trail. When the AI acts, you can show customers, auditors, and regulators exactly what fired and why. Put decisions in the ontology and use inference everywhere else. That's AI-native. That's AI you can trust.

[20:09] Want to see Totogi in action? DM me on LinkedIn or X @TelcoDR and let's talk. Until then, tune into more "Telco in 20" episodes. Like and follow and leave us a five-star review. Don't forget to sign up for my no BS email newsletter on TelcoDR.com and check out our awesome YouTube channel and hit that subscribe button. Later, nerds.