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Data Mesh Radio Episode #183: BI-gin with the End in Mind in Data and Analytics
Interview with Ryan Dolley
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0:00:01 Scott Hirleman
The following is a message from George Trujillo, a data strategist at DataStax. As a reminder, DataStax is the only financial sponsor of Data Mesh Radio, in the Data Mesh Learning Community at this time. I work with George and I would highly recommend speaking with him, it's always a fun conversation.

0:00:18 George Trujillo
One of the key value propositions of a Data Mesh is empowering lines of business to innovate with data. So it's been really exciting for me personally, to see Data Mesh in practice and how it's maturing. This is a significant organizational transformation, so it must be well understood. Empowering developers, analysts, and data scientists with downstream data has been part of my personal data journey that reemphasized the importance of reducing complexity in real-time data ecosystems, and the criticality of picking the right real time data technology stack. I'm always open and welcome the opportunity to share experiences and ideas around executing a Data Mesh strategy. Feel free to email or connect with me on LinkedIn if you'd like to talk about real time data ecosystems, data management strategies, or Data Mesh. My contact information can be found in the notes below. Thank you.
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0:01:11 Scott Hirleman
A written transcript of this episode is provided by Starburst. For more information, you can see the show notes.

0:01:18 Adrian Estala
Welcome to Data Mesh Radio with your host, Scott Hirleman, sponsored by Starburst. This is Adrian Estala, VP and Field CDO at Starburst and host of Data Mesh TV. Starburst is the leading contributor to Trino, the open source project and the Data Mesh For Dummies book that I cowrote with Colleen Tartow and Andy Mott. To claim your free book, head over to starburst.io.

0:01:48 Scott Hirleman
Data Mesh Radio, a part of the Data as a Product Podcast Network, is a free community resource provided by DataStax. Data Mesh Radio is produced and hosted by Scott Hirleman, the cofounder of the Data Mesh Learning Community. This podcast is designed to help you get up to speed on a number of Data Mesh related topics. Hopefully, you find it useful.

Bottom line up front, what are you going to hear about and learn about in this episode? I interviewed Ryan Dolley, an independent BI consultant or business intelligence consultant. Before we jump in, lots of things in the key takeaways, I marked as potentially controversial. Because much of what Ryan covered hasn't really been stated by a lot of people. Until we have more consensus, a lot of things could be controversial, but potentially aren't that much. But I think it's good to call them out as, I haven't heard as many people saying these same things.

Some key takeaways and thoughts from Ryan's point of view. Number 1, begin with the end in mind. It's easy to lose focus on what you are trying to accomplish instead of what steps you are taking. Focus on what the target outcome is and use that as a North Star to measure if you need to course correct. Number 2, BI people need to brace themselves for a wave of incoming innovation. There is so much, hopefully positive change coming up the stack and BI people can embrace it or get washed over by the wave. Embrace and ride that wave and upskill. Number 3, potentially controversial, Data Mesh and just about every other paradigm in data does not focus enough on the last mile of analytics, at least not explicitly. So we need to get a lot more specific about what is necessary to actually take advantage of upstream improvements in data to deliver better analytics. Number 4, an important one, we need to get more specific on who does cross domain BI in a decentralized world. Otherwise, we have interoperable data, but no one specifically leveraging that interoperability for improving our understanding of the overall organization.

Number 5, potentially controversial, if domains develop BI capabilities, how will they interact with a central BI team if one exists? Historically, a lot of people inside the domains haven't gotten along that well when they're doing that BI stuff with the central BI team. Number 6, another potentially controversial one, your central BI or data warehouse team should get converted into an insight generation engine team, meaning Ryan thinks that you should continue to have a centralized team. Number 7, we need to figure out if BI is a primary role inside the domain, or if it is a skill people inside the domain need to develop as part of their roles. You know, it's not going to be their full focus. Which between those is preferable is likely dependent on the size, complexity, and data value of that domain. I think it'll be different within different organizations. Number 8, BI teams must become part of the insight generation and resulting action conversations. That means implementing product thinking instead

of simply responding to requests. But most teams are not ready for that mindset shift to kind of product thinking just yet. Number 9, potentially controversial, domains should own an element of BI and not just share their data via data products, but should generate and share their insights as part of the Data Mesh implementation.

Number 10, product oriented thinking is not widely prevalent in the BI worlds, such as most BI teams do not understand the usefulness or usage of their BI assets, or even have monitoring set up to track that usage. Number 11, this one is pretty controversial. The BI analyst in the boardroom as merely a live question answer mechanism is a bad approach. It often leads to wrong answers with no meaningful quality control. I actually really agree with this. I think the BI analyst in the boardroom is a really, really good idea if you leverage it well, but it's a really, really bad idea if you don't. Number 12, BI people need to adopt product thinking and create meaningful relationships with users so they can evolve what they're producing to continue to suit user needs. Blindly producing the same report for four years into the void needs to go the way of the dodo. Number 13, this one's important but annoying. We will probably have to meet some people where they are when it comes to sharing insights. Trying to upskill everyone to being a SQL whiz isn't realistic. Allowing people to export data into Excel for further manipulation isn't going anywhere.

Number 14, part of product thinking is designing to the user. That's honestly pretty rare in data. What are they, the data consumer, specifically trying to do and how can the producing team support that? Instead of what does the producing team want to share, which is the common current method. Number 15, dashboards aren't dead. They are still the best way to answer known questions in an oversight and kind of management of that KPI type of way. Finally, number 16, another potentially controversial one. BI is possibly the most important part of your data culture simply because for the vast majority of your organization, they will interact with data mostly at that BI level. They're not going to be going in and being the citizen data scientist or any of that stuff. But too many organizations leave BI as an afterthought in data culture because it will be where the most people need the most help and thus it is the most difficult aspect. People change is going to be hard in all instances and BI requires people change, not just technology change. With that bottom line up front done, let's jump into the interview.

Okay, very, very excited for today's episode. I've got Ryan Dolley here who's an independent business intelligence BI consultant. We're going to be talking a lot about how Ryan sees and how in general the market is kind of reacting to the concept of BI in Data Mesh. This has been a conversation is if the BI, the data analysts have been in a centralized team, what happens to them? Is this a centralized function? Do you start to try and embed everybody into domains? And then how do

you start to think about the cross-domain questions that the execs are actually asking? How do we think about that? How are people in the BI org going to react to this? How are people going to think about this? We're going to come at this from a lot of different angles and I'm excited to talk about that because we haven't talked a ton on this podcast about the actual kind of generation of insights and how those are used when you have kind of this factory of, are we producing the raw data or are we producing the insights? So I'm very excited to kind of dig into that and kind of what you're seeing from talking with a number of people and everything like that, Ryan. But before we jump in, if you don't mind, if you could give people a bit of an introduction to yourself and then we can jump into the conversation at hand.

0:10:52 Ryan Dolley
Yeah, great. Thanks, Scott. And first of all, thanks so much for having me on the show. Like I really appreciate it. This, the whole Data Mesh concept is so exciting and the work that you've done here, putting this community together. I just really appreciate. So thank you.

Now, as for me, I'm, as you said, I'm kind of an independent BI consultant. I've done a lot of stuff over the years related to BI and data warehouse. And so I've been, you know, I've worked for BI vendors, software vendors, large and small. I've done consulting. I've been on and led BI teams at customers. And I've really, I think had a front row seat to a lot of really exciting changes since I kind of started my career in BI in 2010. And one of those, maybe the one that excites me the most of all of them was kind of the advent of Data Mesh. And I think that BI people in particular, like there's this... You know, we talk about the data stack, right? And BI is kind of at the very top of the data stack alongside, you know, apps consuming data through APIs and stuff like that. And so much of the conversation is about things that happen earlier or further down the stack than BI, whether we're talking about Data Mesh or really any of the approaches that people are out there advocating right now. And so I think, you know, this is a really exciting time. I think BI people need to brace themselves for a lot of change coming up in ways that are going to be different from some of the previous, you know, waves of innovation in our industry. And so I'm really excited to talk about that with you.

0:12:37 Scott Hirleman
Yeah. I think exactly what you said there of so much of the conversation hasn't been around this. But you know, what are we doing this for? Right? It's like, okay, well we want to become scalable and agile relative to data, you know, and sometimes it feels like we don't make it clear why we're actually doing that, right? That there is a business impact.

0:13:05 Ryan Dolley

It's very easy to get caught up in the data engineering piece of things, right? And you think about it, I mean, even that term data engineering, like that wasn't a term anybody used more than three or four years ago. And so, you know, it's very easy to get caught up in that and the advances that we've had there, and there have been really exciting ones that have increased the speed and agility for what you can deliver from a technical perspective, right? When you talk about, you know, the decoupling of compute and storage that happened in kind of the mid 20-teens and, you know, the stuff that people have been doing in cloud data warehouses and all of that. And BI is an area I think where there has been, things have been a little more static. You know, we kind of had the Tableau era is, is what I would say where we're maybe in the tail end of, as far as BI is concerned, not that Tableau is going away, but Tableau defined an era of BI and that era was defined by desktop solutions, visualization based discovery and delivering dashboards, right? And I think as we move forward, I expect that that's going to change significantly.

And I think that when it comes to the Data Mesh conversation in particular, we really need to start looking at how BI fits into it. It's kind of, people will often talk about the last mile problem when it comes to analytics. And I think that in Data Mesh, we could probably use to do a little more thinking about that last mile. There are a lot of interesting problems to solve and we, you know, who knows where this conversation will take us around the self serve data platform that we need to develop in order to really get Data Mesh out there and what does that mean. But I think one of those important pieces needs to be what does this change in approach and change in culture, which is really kind of how I view Data Mesh, what's most exciting about it. How does that change what we actually do when it comes time to build out a BI practice, analyze data and deliver insights to people and not just deliver data or data related capabilities?

0:15:19 Scott Hirleman
Yeah. I think that's been, Marisa Fish really made me rethink a lot of the way that I was kind of approaching this because she had kind of two layers and I've added my kind of third layer on top of it, which was, are you providing people data to create their own insights or are you providing people insights or are you providing people the insights in the so what, right? And that we aren't explicit in our actual conversations with each other very often about what are your expectations as a consumer of do you want the information or do you want the so what? I personally will share information with people and say FYI and they're like, well, what do you want me to do with this? And it's like, I want you to incorporate it into your knowledge base and if you think there is a so what off of this or if you think there is further insight to be gained, great. If not, fine. But like I've just kind of always used FYI as that, you know, for your information. It's just like so that you know this and if you do see something, but that's not even explicit enough of like, Hey, we need to have

that conversation. When I say FYI, it means, “Hey, I'm just providing you some additional data. If you have additional questions or want to go forward with it.”

I don't think we've done that around, you know, you said this last mile problem. So much of these dashboards don't get used. You know, there was this great tweet that I saw where it said, “Babe, are you okay? You haven't touched that mission critical dashboard since I created it for you four days ago.” And that, you know, how do you start to think about it? Like if you had your druthers, right? You come into an organization, they're starting to reorganize themselves or reorganizing by line of businesses. They're, you know, doing all that aspect. Where do you think BI sits? Or do you think BI sits in multiple places? Is it a centralized team? Is it within the domains? Is it yes, yes and yes? Is it like what, how do you think about that? And then how do you think about like a team of or a company of 5,000? I know I'm sorry, I'm adding layer and layer of questions. But when you think about a team of 5,000 people or a company of 5,000 people, they can't necessarily have a big centralized org and big, you know big within the domain. So then how do you organize, like manage people's careers and things like that. So you're not just embedding an analyst into this and then they get no career management so they leave relatively quickly. And so you don't have anybody who's analyzing data who has the domain knowledge and yeah, just lots of those things. I'm teeing you up to talk for like 10 minutes, 15 minutes straight if you'd like.

0:18:15 Ryan Dolley
Sure. No, it's a good question because it gets to the heart of like, I think that last mile piece, we haven't totally as an industry thought through how does kind of the decentralization and the data product approach of Data Mesh change that, right? And so a lot of companies, especially the bigger an enterprise gets, the more likely it is to have both a large centralized kind of BI and insights team that's probably managing a data warehouse, you know, for kind of critical corporate KPIs or regulatory reporting. And it's likely to have a kind of business unit or what, you know, going forward we're going to call domains, right? As we do a Data Mesh, as we move into Data Mesh, right? Kind of domain oriented data teams. And one of the interesting things about big orgs is that often those two teams don't like each other, I find, which is very strange.

Because I think, and one of my hopes for Data Mesh is that it will allow a greater partnership between, you know, that centralized BI, DW team and what they often call sometimes derisively shadow IT. The people who spring up in marketing or finance in order to help meet the unmet needs because of the challenges, and this is what Data Mesh addresses of, you know, well, it isn't all it addresses, but one of the things it addresses, one of the primary ones is the challenges of centralization, both from a cultural perspective and a technology perspective. And so if I go into an org

and they're asking that question, you know, like, well, where does this sit? We're getting into Data Mesh. We want to start building out domains. We want to create data products, data quanta, you know, where does BI sit into that? I don't think that you necessarily get rid of your centralized BI team. But I think what you need to do is you need to start thinking about that team as an insight generation engine that really is focused on the data that really needs the highest degree of governance and has the highest visibility within the org in order to provide that, but not funnel everything through it. And so I think it is, you mentioned, is it a "yes and."

And I was actually, before I got into this line of work, I was a theater major before, back in the day, before I realized I couldn't make any money. And so I made a pivot into IT in my late twenties. And one of the things, first things you learn in improv is yes and. And this is one of those cases where I think it applies. I think there's going to be and remain a role for a BI dedicated team in organizations. But I do think that as you look at domains, depending on the size of the company and the size and complexity of the domain, you will either need BI skills embedded within a domain or perhaps even a person who that's their primary skill. And so I think that overall, you know, that's the approach that I would advocate people take. And one of the exciting things about the Data Mesh approach is actually, I think it frees in a lot of ways. I don't think BI teams are going to recognize this at first, but I think when they get over the hump of the new concept and there's going to be some scaling up they have to do, especially as it relates to accessing data, you know, via APIs and understanding data contracts and things like embedded policy and security and code. These are concepts that aren't really done in BI in most instances today. But once you get over that, I think what you're going to find is that on a BI level, adopting a Data Mesh is going to be significantly freeing because of your ability to look at different domains and combine data from those domains without having to worry about the challenges of centralization and the brittleness of data pipelines, which really causes huge delays for BI teams today.

0:22:41 Scott Hirleman
Yeah, I think what you're saying there, especially of the central team, I am a little concerned by the number of times that I talk to people and they say there's no central anything with Data Mesh. And it's like, you know, it's like you have a central governance team. It's that the decision isn't flowing through them. They are there to provide general practices and policies and when people need help that they have a place to go, that there's expertise that they can leverage that stuff. But with BI, it does become a bit of a thing where, you know, you're saying, okay, do we need to have this central team and then we have kind of semi embedded or embedded but still reporting to the centralized team or...

And when you think about like we had on Omar Khawaja from Roche, right? And

Ammara Gafoor, Thoughtworks is also working on Roche. That's public knowledge. They've written some articles and stuff together. But talking about that's a hundred thousand person company and they've split it up into twenty one domains. So each domain itself, when you just average that out is five thousand people. There's probably some that are fifteen thousand people. There's probably some that are a thousand and things like that. But you know, they can have a full embedded BI team in that and then they can have kind of a centralized domain. Björn Smedman was talking about at Sinch, I think is the company name, if I remember. That they have a kind of centralized kind of G and A, you know, the general and administrative domain, that kind of oversees thing that is tied to all of the execs. And even though an exec may be, you might have a GM of a specific domain, but like all of the execs are in that kind of centralized org. And so they have their own data team within that to then take the data from all the different domains and make it so that it is reportable up in these dashboards and things like that. But like we are heading into this kind of new world.

And you know, Zhamak and I just did a recording recently where we're talking about exactly what you're talking about of the pipeline and the layers and that we're making this way more complex, that we're taking this and there's a handoff and a handoff and a handoff. It's handing off between systems and people and capabilities. And you're just adding these layers of complexity on top of each other. You know, when you say add additional layer, the next words are of complexity, right? Like so when you're layering that within data. Like how do we think about preventing that for BI? Because when we really think about, especially when I'm thinking about success of a Data Mesh implementation, BI is so crucial because it's the one that is interfacing the most with the people who have the budget, with the people who control the strings. So even if it's not the most value, but it really is kind of the most value at the end of the day because you need to have the insights to actually go and do things. But even if it doesn't, it's incredibly important to get this right.

But we're kind of skipping over this in a lot of the conversations because it's almost seen as a, yeah, yeah, that'll work itself out. But it's not. And so exactly what you talk about, the APIs, the skilling up, all this stuff. So a company is listening to you and they believe what you're putting out there. How do you start to work in that BI team, that BI capabilities early on? And then what's kind of your long term vision for it? Where do you think that it probably will go? And I'm asking you to prognosticate about something many years down the road, but where do you think will be kind of the way most people end up being successful with BI in a Data Mesh implementation?

0:26:45 Ryan Dolley
Yeah, that's actually a great question. I think, so first of all, I would say one thing that doesn't surprise me when it comes to BI and the conversation happening around

Data Mesh is exactly what you said, where it's kind of like a, yeah, yeah, we'll figure that out. And I can tell you that over the course of my career, I've seen that happen many times, both in terms of like theoretical conversations about new practices in the industry and even on specific projects. I was one time on a project, it was like a $120 million project at a regulated utility and there, this huge new system they were implementing. And then the question of like, well, how do we get the data out of the system and report on it was like a, yeah, yeah, we'll figure that out that was left to the end.

And so I think, an organization that's looking at this and says, okay, we want to adapt our BI to embrace the changes coming in Data Mesh, I think needs to go looking at the skillset of your BI team and think about skilling them up in some specific ways. For example, today they're probably extremely SQL competent, but it's unlikely that they really understand the world of APIs and interacting with data that way. And then I think, in the long term, the question of what is BI is really rapidly evolving today. And so early on in my career and even a few years ago, it was almost exclusively about dashboards and reports. And now we're starting to look at, we've had this kind of wave of embeddability in BI where you're going to take, the idea being we want to put the insights in the applications that business people are using. So the insight exists alongside the... Exists in flow, I guess would be the way to put it. So you don't have to leave a screen and go to another screen to access your BI system. We've got the right insight in the right place at the right time.

And so that's something that we've been going on. And then projecting this forward, I think that you're going to start to see a lot of work in the BI world, maybe some old concepts returning in new ways. So for example, the idea of the semantic layer was very popular when I started my career. It went away in that Tableau era and now it's coming back in a big way. And so I think the way that all of this plays into a company that's considering Data Mesh is that everything I just discussed, at the end of the day is all about making the BI systems and insights easier to access, less locked down and something that people from different domains are able to work with. Not just the BI professionals, but the generalists, technologists or programmers. So for example, there are many BI tools today, not many, there are a few, some very interesting ones, that have an open semantic layer. So you're doing your BI modeling, say your domain A, you're doing your BI modeling, you build this semantic layer. It's accessible via SDKs and APIs, not just the BI front end. And so what that allows you to do in a Data Mesh implementation is take metrics that exist in the BI layer and access them in kind of the same way that you might if you were accessing the base data product that exists underneath the BI layer.

And then that gets us into an interesting question about how do those two things actually interact with one another? Because there's this thing in BI that I would really

encourage organizations to think about, which is what belongs in the BI tool and what needs to be pushed down into the data product. We used to think about this strictly in terms of a database, what metrics should be materialized in a table versus what should exist in a BI tool. And that interplay, I think, is critical to get right. I'm not a person who argues all metrics need to be pushed down. You need to push the right ones down. But in order to prepare for this Data Mesh world in BI, I think you need to develop the skills for your BI people that will allow them to do things like access semantics from across the organization. And then that will also help them work with those generalist programmers who may have need data out of BI or need to interact with BI from time to time, but BI is not a core part of their job.

0:31:30 Scott Hirleman
Yeah, and there's a lot to kind of potentially unpack there. I think that last bit, though, of... I was going to be asking you this question next of when I think about who owns what in Data Mesh, right? How far does ownership extend? Again, is it that the producer is providing raw data or are they providing raw data with a data model? Are they providing data with the insights associated? Are they just providing the insights? Are they owning the dashboard that sits in front of somebody when especially if it's combined across multiple different data products... It becomes something where we have to stop. The implicit needs to become extremely explicit. But like, you know, I've seen people, Xavier Gumara Rigol was saying that at Adevinta, their ownership extends all the way into the BI layer, right? It extends into the visualization. They've got kind of three levels of how the data product works. Great. Most orgs aren't doing that because then you're putting more and more effort onto the producers. Carlos Saona's episode at eDreams, he was talking about we make this incredibly easy on the producers. It's just a single domain event for each data product.

And there are smaller organizations, so they're going to have 250, 300 types of business events, right? Like that event within the domain. So they're not going to have like, you know, a company like Roche probably has 30,000 different business domain event type of things. So do you want a Data Mesh that has 30,000 of these things? But like, how do you think about that ownership? Are the BI people going to be willing to own things? Are they going to be capable? Are they owning that insight generation tool like the dashboard or the application, you know, the embedded information, the embedded insight into the thing? Are they going to be owning proactive things instead of, you know, somebody going, oh, I'm in Salesforce and I'm looking at this company and here's a couple of different figures versus like, here is the signal that says that you need to go and jump on this thing. Like, how do you think... Again, giant, giant question. So I apologize for that. But like, how do you think about that moving forward?

0:34:08 Ryan Dolley
Yeah, I think... So this is a huge question. And I think, you know, I'll lean back on my days as a consultant, right? The consultant answer is always, it depends. That's how you know you've become a consultant. But so some things, though, I think from my perspective are pretty clear. And so one of them would be, I would argue that domains should own an element of BI and make that BI available to other domains. And the primary reason that I believe that really gets back to this idea of single source of truth that we, you know, Data Mesh, I think some people feel like, oh, Data Mesh gets rid of single source of truth. It maybe gets rid to some degree of "single source," but the "of truth" doesn't go away. Right? And so one thing that I think is important for a domain to be able to provide when it comes to BI is a way for people who truly have no technical skills to be able to look at and validate the high level metrics related to that domain. And so what I mean by that is for the longest time, if we go back to the data warehousing world, I shouldn't say go back because we're still in it.

But you know, if we look at data warehouses, the idea for the longest time was that the data warehouse is the single source of truth. And that's great. And it's a great concept. But one of the problems with that is that the data warehouse requires a degree of skill to interact with that many business people don't have. And it's through no fault of their own. They don't know how to write SQL and they shouldn't. That's not what they do. Right? In many cases at least. And so what I would advocate is that if you have some degree of BI embedded in a domain, what you're able to do is you're able to provide a way for someone, say, who's strictly working in Excel and doesn't know how to write code and doesn't know how to interact with your domain to pull data from it. But they can look at the work that they're doing, wherever it is they're doing it, even if it's two people working on a whiteboard. And they can go to the domain and say, is the stuff, does this make sense? Without having to write a query or interact with an API or anything like that.

And so in my mind, I would advocate that domains should own at least that level of BI. Hey, here's the key metrics that you are likely to need to understand from our domain. And here they are represented in a graphical format. So no matter what it is you're doing, you can, with no technical skill, come and look at this and do some reality testing between what you're working on and what's coming out of this domain. And so beyond that, the question of kind of ownership and where does the BI sit, that's where kind of the it depends comes in. But I would say as a fundamental bedrock, I would advocate every domain should maintain a basic library of visualizations with some explanations for what they mean and how to interpret them so that you can do reality testing with no technical skill.

0:37:43 Scott Hirleman

Well, and I think this is one thing that has been a big problem that I've seen in data. You know, I'm coming as kind of an outsider into the analytics world. And how little there is conversation with the consumers or potential consumers about what do you care about and that that's also seen as a one and done conversation, like that I collect your requirements and then I go and do something and I deliver and we are done and that it's transactional instead of relationship. And so a lot of this needs to be about having these conversations about, hey, we're going to have a lunch and learn about our domain and we're going to share with you what we're thinking about it. We're going to share with you some interesting things we've seen recently or some misconceptions that we think about how people might easily misuse our data. But that you actually have these conversations. And yes, a big part of this is that, yeah, wouldn't it be great if we all had all the free time in the world? Yes, but, you know, we don't. So, how do you kind of prioritize?

But I think if we're going to do federated and not decentralized, decentralized to me ends up being in a lot of ways ends up being siloed because federated is where there's a federation, right? You think about, you know, anytime when there's the concept of a federation, it's that there's still a cohesion versus decentralized just means that there is no central point of cohesion. And so we have to decentralize certain aspects, but a lot more of it is that it is federated. It's that not that everything is in a centralized team, but that you do still have those linking points of cohesion. I think BI, it's incredibly important because it is so much more about the insights than it is the raw data, right? A data scientist will go around and poke at a bunch of things and spelunk and do all this stuff and come up with interesting insights. But when the, you know, board of directors meeting is coming up and there's a question about how, you know, what is X or what is Y or regulatory, like that stuff is much higher stakes than kind of somebody building a model and testing out, does this work and things like that. You know, I mean, sometimes that can be wrong because there was that company that misingested data and it cost them like 110 million of revenue, but those are kind of less high stakes in most organizations.

But like right now Data Mesh is about learning and chaos and, you know, and taming that chaos and getting to a better place. But BI to me has been kind of stayed in steady and it's like, it is that single source of truth. It is, this must be 100% correct. How do we have those conversations with people where they can understand this is how much you can trust it, not that you can automatically trust it or that, okay, you want this with 100% accuracy, 100% precision, 100%. You know, you want it within 10 minutes of it happening. You want to, you know, all these different quality aspects. Well that just, you know, 10 orders of magnitude higher of cost versus compromise. Like how do we start to think about BI is not being that like this is 100% accurate? Or do people already kind of know that, that they might be working off bad data or, and they don't know how much they can trust it? And now it's a better situation because

they're in a place where they can at least measure how much they can trust it, even if they can't trust it very much. It's like out there, it's told to them.

0:41:32 Ryan Dolley
Yeah, there's a lot to that. I think that the, you know, when it comes to BI and understanding things like how much you can trust it and that sort of thing, there's a couple of things that I think BI teams and the business people they serve need to... Ways of thinking they need to start to adopt. And some of those, I really hope right along with Data Mesh, like the product oriented thinking, I do not think has really permeated BI in a lot of ways. For example, the vast majority of BI teams I work with do not have insight into their own, the usefulness of their own BI assets. They're not oftentimes, sometimes they technically don't know, like they don't even have the system set up. Other times they may have the data, but they're not looking at it. Right? So you mentioned earlier in this conversation, you know, the dashboard that you haven't looked at, the mission critical dashboard you haven't looked at in four days, right?

That's the type of thing I would say, you know, if you can adopt a product thinking approach to what you do in BI, you should be able to help head a lot of that stuff off. Like you need to know that, right? If you build a dashboard and nobody's looking at it, you need to know that and you need to know it in a way that is not, you find out four months after the fact when someone casually mentions it to you, right? You need to have observability into what's actually going on with your BI assets. Now and the other thing I think about product oriented thinking is it needs to, and observability as it relates to trust is that when done well, I think it creates trust, right? And so you can communicate with people. You establish the things like, you know, how accurate does this data need to be? How timely does this data need to be? How does it need to be presented? You have observability into how people are actually using it, right? Statistical observability, not just qualitative feedback, but you have quantitative information on how people are actually using it.

And then you can use that to adapt what you've built over time. And when you do that, you implicitly build trust with the people who you're working with because they know that you are... They can see that what you're creating is evolving as their needs evolve alongside them, right? Now one of the biggest problems in BI, and this has been the case forever is, I don't trust these numbers, right? So I can tell you, you know, going back, this was almost a decade ago now, I worked with this woman named Marlene, really smart woman. And she did, we worked on... This was in the OLAP days for those of you who are in the BI world. So I was working on cubes at the time. We don't do a whole lot of cubing anymore, and I built this really, this cube. And every month I sat down with Marlene and had a conversation. And she did all this work in a spreadsheet and she would compare it to my cube and say, your cube is

wrong. For four years, I had this conversation with Marlene every month.

And I think that the fundamental problem that I had was that I did not, was not able to provide to Marlene a way to interact with the data that adapted to her needs and that she felt she could trust over time, right? And I think taking a product oriented approach to that would have led me away from giving Marlene a cube at all and into another form of presentation that would have worked for her. Right? But at the time, that wasn't really the way that we thought about building BI systems or delivering insights, right? It was kind of a kitchen sink approach where it's like, look, here's this cube. You can slice and dice it however you want. But that's actually not what Marlene needed. Right? She needed something simpler that she trusted that didn't have as many levers to pull because those levers gave her doubt.

0:45:56 Scott Hirleman
It's funny, Jesse Paquette from a very early episode, I think that's like episode seven or eight or something. But he was talking about in, you know, they are doing kind of a SaaS solution around analytics for the healthcare industry. And these doctors, when you're talking about like drug trials and things like that, they'll be pulling these filters and filters and filters, and they'll have filtered this, you know, giant patient set down to 538 records. And they go in and they go into your system and they put on what they think are the same filters. And it comes out with 541 and they immediately just go, okay, I can't use this because I can't trust it. And then, so then they have to spend a little bit of time with that doctor and say, okay, let's go through filter by filter by filter. And then they're like, oh yes, you had to add this other exclusionary filter and it goes to 538 and they go, oh, okay, I can trust this. It does match.

But a lot of what you're talking about is, I feel like when we talk about these execs that aren't data literate and aren't data informed or data-driven or whatever, a lot of it is that they have seen so many times when somebody has delivered something to them that goes against their intuition. And then they dig in just slightly and it all falls apart. And their intuition was, if not right, much closer to reality than this number that seemed wacky. And so I think, you know, I think there's a lot of communication aspect, but I think there's also like, hey, I'm not going to just deliver you the end thing. But then that becomes again, this thing of, okay, do I have to deliver this to you and show you my entire math as to how I put this together, you know, when it's a complicated math versus here is the insight. And I think that's a conversation that we need to be having more openly and honestly where somebody says. I just want the information. And it's like, let's be clear though, do you? Because if I'm just providing this to you and it goes against what you believe, will that change anything?

Will that actually affect your decision making? Because if it won't, then let's not do

the work. And if it is way different than what you're expecting, let's have the conversation about how did we get to this. And maybe there was a miscommunication about where we should be putting those filters or however that works, but like, I want to walk you through it if you want to get walked through it. But if you also get to a point where you just trust, boom, I'm just going to drop the numbers in front of you and it's good. And like those two differences, we don't have that conversation. I feel like BI is that place where are we delivering raw data or are we delivering insights? Right? But we just don't have that conversation.

0:48:57 Ryan Dolley
No. There's this concept that I've been kicking around. I wrote a blog post about it a few months ago and I'm still fleshing it out to the point where I don't even have a name for it yet. But we've kind of got this, it's really the idea of taking like a product market fit approach to the actual BI asset or report or whatever you want to call it that you're delivering. I think in the blog post I call it data presentation fit. But I think part of how we address what you're talking about is we need to develop a framework for thinking about what are you trying to do for somebody or what is it that they need? And then what is the best way to present that that generates trust, that answers questions, that provides the right amount of context. And so like a classic example, we've talked a few times about dashboards here and I think I will tell you I think we're in the beginning of a cycle of everybody agreeing that dashboards are dead.

This happens every few years in BI. It's like perennial, just comes and goes, comes and goes, our dashboard's dead. And in some ways, and then they're not dead. But an example of kind of data presentation fit, what would that be for a dashboard? A dashboard is great at process oversight and management when you are answering known questions, right? Then a dashboard is really the best tool. And it's great for driving broad change in an organization. Like if you want to anything, a manufacturing process, the way you do sales, right? Your recruitment and retention. If you need something that many people can look at to understand whether or not you're succeeding or failing, a dashboard is like your best choice. But if you're presenting something to an executive, a lot of times you build this great, amazing looking dashboard. And when you build an amazing looking dashboard, everybody is going to look at it and agree it looks amazing, right? But that doesn't actually tell you anything. Oftentimes an executive really cares about one or two numbers on that dashboard and the entire rest of the thing is not useful to them. And so you start to say, okay, if we are going to be working with an executive and they're just doing oversight, we build them a dashboard.

But let's say we want to persuade them with data, right? We've discovered something in the data that goes against their intuition and we want to try to

persuade them that even though it goes against their intuition, it's correct. What you're going to want to look at building them is something with more of a narrative format, a notebook. Like there's this breed of BI notebook tools that I think have an interesting place in Data Mesh in general because they allow you to embed code and test that code and explain the code and visualize the code all in one document. It's kind of a side conversation. You build a BI notebook, you do a slide deck. Data people don't like building slide decks. BI people, they look down on slide decks. But if you're trying to persuade someone, you can't persuade necessarily with a dashboard, right? A dashboard is not the best tool for that. Sometimes a slide deck is. And there are BI slide deck tools that exist nowadays.

I think being able to step back and really think about what is the purpose of the presentation instead of just defaulting to a dashboard or defaulting to a report and then present the data in a format that makes sense for that purpose will really... It's not going to solve all of these problems, but it will significantly improve them because you will be delivering the data in a way that's meaningful, that matches what the person who's looking at it needs to get out of it.

0:52:58 Scott Hirleman
Yeah. And I've got a question that is a little bit, I think is challenging and I think the answer will be it depends and that's fine.

0:53:05 Ryan Dolley
Yeah.

0:53:07 Scott Hirleman
But in BI and in a lot of data, it has been a, I have delivered this versus that product of ongoing. But when you're trying to convince somebody, are you really able to iterate with them and be like, hey, let's iterate towards this dashboard or this report or this persuasion thing or this notebook or this whatever, whatever you want to say there. Do you think that people... Like this is part of Data Mesh. A big, big part of Data Mesh is that fast feedback, that iterative, that like let's work together, let's collaborate, collaborative negotiation, all of that. How do you think about that when it comes to BI? Is it that we have to rethink, we have to redefine what BI actually means and it's having intelligence about business intelligence? It's about having this iterative thing, but people aren't ready for it?

Or like you're talking with the people that are preparing the stuff for others. When you are trying to convince somebody, do you really want to go in and go, hey, we think we've got this thing, but we're not sure. Do you have to go in with, I've got my bulletproof stuff. Are people in general prepared for that or is it just every single person is totally different and you can't extrapolate out right now?

0:54:35 Ryan Dolley
Yeah, there's a degree of that. I think that, I mean, BI in general needs to embrace a degree of evolution that hasn't... A lot of times it has been about working towards the static output. Not that that goes away, but when I'm talking about building a notebook or an infographic or a slide deck, if you were to take that process all the way through to its end, you're not going to iterate on the persuasive presentation. You might a little bit. The executive will look at it, they'll say, what about this? What about this? You're really building a briefing or a report in a lot of cases, but that exists on a continuum that if what you're producing is truly valuable, at some point it turns into a metric that you know, a known question that you want to track over time that might be appropriate for a dashboard. I think BI people need to get out of the habit of thinking of a particular output as the end of the process.

And more think of a particular output, finding the right output for what you're trying to accomplish and know that if you're doing a good job, you will generate new questions, but you will also solidify the existing questions that you initially came to them with so that they can turn into a reproducible, trackable, more classic BI dashboard sort of thing. Now as far as people being able to embrace that, a lot of BI tool teams and a lot of the people that BI teams serve, I think are not really there today, but that's one of the things that excites me about Data Mesh for BI is exactly what you said. I think once you as an organization take that leap and decide we're going to embrace this... It's not a technology, right? It's a way of thinking and a culture as much as it is or more than Data Mesh is just a technology. I think that some of these changes in thinking, as long as we... We need to bring BI into the Data Mesh conversation, and then once an organization has embraced that Data Mesh philosophy, I think it can push some of those ways of thinking up into BI. Whereas today, I think a lot of that does still mostly live in your data engineering, data lake, data warehouse, data pipeline style thinking. And then when it comes to the BI, it's still a lot about, okay, we're building these three dashboards for this purpose and here are the specs and okay, we're done. Now we're moving on.

0:57:30 Scott Hirleman
Yeah. And I think it's, like I said, it's a complicated big question because you may have somebody that is willing to sit with you and go, let's look at this from six different angles and say, what am I doing? And Sarah Catanzaro at Amplify Partners, was saying something on Twitter recently and we were talking a little bit about the problem that I have with the data analyst or the BI analyst or the principal analyst or whatever, sitting in the board meeting to just answer questions versus pairing with these execs to say, what's the information you're going to need to answer about your strategic decisions? This isn't just reflecting back on what decisions you've made. We need to embed this into how you're going forward, your go forward where it's not,

hey, and it's that we're thinking ahead of time about what questions we're going to ask so that it isn't an urgent response of, oh, this board member asked this versus like, I want to tell this board member that is interested in this aspect about these different things. Like let's prepare this, let's prepare a specific report for them or let's do that. How do you approach BI being more strategically involved in decision making and the go forward and setting things up to be... You talked about the kind of orphan data asset thing that has this massive cost is such a ridiculous problem to me because it's just like, is anybody using this and then you can't get anything and so do you turn it off and see who screams? That seems to be the general consensus. And that just is insane to me.

So like, do you think most organizations are ready for this? Do you think that if they're heading down the Data Mesh path, they have to reflect well enough that they have to at least ask these questions themselves? Or do you think this is going to be the thing that where people go, well, we didn't get nearly as much value. And it's like, because you... Come on dingus. Because you didn't like actually think about how are you going to generate insights and then leverage those insights. Like why are we doing this? It's not to create awesome data products. Data products are a vehicle for communicating information so we can make better decisions. Like do you think that people are seeing that? Because I feel like the conversation is so centered around, how can we do this with data? How can we do the data? How can we do the data? Instead of, how do we get to insights that make us a better business?

1:00:25 Ryan Dolley
Yeah, no, a hundred percent. It's astonishing to me. I think that, you know, that phenomenon of the data analysts sitting in the boardroom or sitting with, you know, in the meeting with the VPs and just being asked questions and they got to scramble to try to answer them. You know, it's frustrating. It's frustrating for them. It's frustrating for the VPs. It leads to wrong answers because that individual is under enormous pressure to come up with something fast that sounds plausible, right? But it's really hard to do reality testing and data quality testing in that kind of environment.

You know, and really when it comes to Data Mesh in particular and like, you have to... I just, I firmly believe you have to think about that BI piece. And I'll tell you why I think that, that this just always gets left behind when people are implementing systems or that sort of thing or changing their data culture in a lot of ways. It's because our industry is mostly the type of people who find solving the logic puzzles to be very satisfying, but the people puzzles are a lot harder. And BI is where in most ways your data practice is going to interact with the people problem. You know? And so a lot of times it gets left to the end, I think, because people don't... They're uncomfortable thinking about it, right? And it's also, it's the most fraught. There's no right answer to

a lot of it. And so you really need to, I think, embrace, you should really, if you're going to a Data Mesh, I think you have to really think not just about where the product's going to be and how are we going to enforce policies as code and, you know, how are we going to query them and that sort of stuff.

But you really need to think about, and then on the top of that, you know, the people who are actually consuming this data, how are we going to interact with them? What are we going to provide them? And BI is a big piece of that. And I'm using an expansive definition of BI that we talked about earlier. It's not just reports and dashboards, you know, it's visualizations delivered, it's data delivered in context, it's all this sort of stuff, right? I think a lot of organizations haven't thought it through and I think they really run the risk of Data Mesh being a really cool idea that gives the engineers a lot of really interesting things to do for a little while, but doesn't actually deliver on what I think, I really believe is kind of a revolutionary promise if done right. And that's that you have to incorporate that last mile thinking into your Data Mesh plans, right? So it needs to be thought about it from the beginning and not as a, yeah, yeah, we'll do all the cool engineering pieces and then I guess we'll go and talk to the business people and the execs and the users and figure out what they want to do with it.

1:03:49 Scott Hirleman
To me, it's the definition of data as a product versus data products. Data products are a communication mechanism, right? They are how you communicate information back and forth. They are not data as a product. Data as a product is thinking about how is this actually used. How are we actually doing... There's a reason that I was told to focus on Data Mesh Radio first. I was originally going to launch Data Mesh Radio as a subset of and the Data as a Product Podcast Network. This is, that's the name of the bigger thing. I have bigger vision and stuff. I'm putting out three episodes a week right now, so I don't really have time to be doing that. But to me, that's a more important concept than Data Mesh. Data Mesh is a subset of data as a product. When you really think about, how do we think about sharing information in a productized way? How do we do that internally, externally, on the operational plane, on the analytical plane? It's not just like the API is the communication mechanism and APIs have unlocked so many things on the operational plane. You have to understand how to do APIs right.

But just understanding how to build good APIs does not make you successful on the operational plane. You have to think about how do we create these scalable communication mechanisms and experiences and that we do versioning correctly and all that stuff. To me, the actual consumption of the insight and the doing the “so what?”. What does this drive from a business perspective is the most important aspect. And you can get some of the other things where it's a little bit shoestring and

bubblegum and paperclips held together as you're getting to that productized way. But you need to really focus on, why are we doing this? And I don't think we do that enough. I want to give you space to react to that, but I also did want to wrap up a little bit on the question that we were planning on as well. I'm concerned about what happens with Data Mesh about opening up the floodgates from a question standpoint. That this becomes, that the BI team becomes a huge Jira backlog of requests and questions because now you have access to the data. I want to give you space to react and then I want to make sure that we transition into that because I get a little bit too excited chasing the laser pointer of the conversation.

1:06:41 Ryan Dolley
Yeah, okay, so that is, Scott, is an awesome point. Here's what I would say. There's this phrase I've heard. I can't remember where I heard it the first time, but it was, begin with the end in mind. I think that you need to, whenever you're setting out to create a data product or you're embracing Data Mesh or even if you're listening, these ideas are just interesting to you, but you're still working in a much more traditional data environment. When you're starting a new initiative, you have to begin with the end in mind and you have to keep in mind that the end is that last mile, right? It's not getting the package to the distribution facility. It's getting to the person's front door, right? And I would also, I would harken back. The way I really think about this, I would actually go back to my days as a theater major that I mentioned earlier and there was this book that I read called *Backwards and Forwards*, which encouraged you to actually read a play from the last line of the play to the first line of the play, right? Work backwards. And the reason that that was so insightful is that it would really uncover to you all of the little decisions that the characters made along the way that led them to where they got to, right?

It undoes the story in a way or makes clear why it evolved in a way that you don't get wrapped up in it in the same way when you're reading it forwards to the normal way from front to back. And so I would begin with the end in mind and I really encourage people to work backwards from that, “what impact are we trying to have?”. That's the first question, not the last question. And then you say, okay, what presentation do we need? And then you get into, okay, what data do we need? How fresh does the data need to be? How, you know, what's the pipeline look like, right? Even if your instinct and the problem that's most interesting to you personally is creating that elegant data pipeline or building that data product, right? If that's the part that you really love, what I would encourage you to think about is that working backwards will allow you to make a better data product. It will allow you to build a more robust, useful, long lived pipeline. And so that's really it.

1:09:13 Scott Hirleman
Yeah. Alla Hale kept asking the question, what would having this unlock for you?

Right? Like focusing on that business value. And then if we've got time, I did want to cover at least briefly like the big concern of, okay, we've now opened up all of the data, which is not the way that Data Mesh really works in an implementation. It's not that you went from zero to one. It's a process of adding more and more data out there as you're creating the data products, but that it doesn't become this massive backlog of requests where all of a sudden your BI team becomes overwhelmed because they say, well, you now have access to the data, right? That we don't make the BI team order takers, that they're part of the actual business conversations, that they're part of the outputs, not just question takers.

1:10:04 Ryan Dolley
It's very frustrating, I can tell you, to be on a BI team that's been buried in an avalanche of Jira tickets and is just trying to knock those out because it feels like it'll never end when you're in that situation. Each ticket creates two more tickets when you're at home at night sleeping. I think what you need to do from a BI practice is there's this balance to be made between letting people, enabling them and letting them run, providing tools and data and understanding to your business audience and then letting them go off and do their own thing versus maintaining the governed BI team work. I think the way that you manage that is you have to get really clear on when does something need to be brought into the BI team, when does a metric need to go from something someone... I touched on this earlier, the metric that exists in the BI tool versus the metric that gets pushed into the data product itself. That gets extended one level beyond that with the BI team. The metric that has been built by the business user in the self-service environment, when does that need to be brought into your more governed semantic layer? And then push down into a data product or pushed into a data warehouse or something like that.

I think that my hope is that with Data Mesh that there will be a greater degree, I hope, of being able to provide business people or more generalist programmers with the tools necessary to do a degree of BI development on their own. And then what you need is you need that observability and you need that cultural practice of being able to say, okay, you've gone off and you've built this thing and now we're going to incorporate that into whatever degree of centralized BI model that you have. And that is what can help relieve that stuck in Jira hell that some BI teams find themselves in that's really frustrating. There'll always be a degree of that in BI, of just like, here are the tickets and we're going to work on some of the tickets. But having a more thought out practice, having data products that are clear and usable across the different domains and being a facilitator, having a great relationship and a great culture with people who are doing self-service work or generalist developers who have a degree of BI responsibility allows you to really focus the core BI team on maintaining the highest quality data for the most important mission critical data tasks. And then otherwise, they're the experts who come in to help with everything

and help orchestrate it as opposed to being the ones who are expected to deliver it all.

1:13:16 Scott Hirleman
Because then you end up owning, right? Then you become that bottleneck, right?

1:13:19 Ryan Dolley
You do.

1:13:21 Scott Hirleman
Yeah. Well, Ryan, we've talked about a whole heck of a lot of different things all about BI and I think this has been really awesome. Is there anything we didn't cover that you think we should have or any way you'd want to wrap up the episode?

1:13:35 Ryan Dolley
This has been a great conversation and went a lot of cool places. I really appreciate coming on here. I think the thing I would just, the pin I would put in all of this is that as a BI team, if you are listening to this and you're on a BI team or you're friends with someone who's on a BI team, I think we need to prepare. We need to understand these concepts like data as a product and Data Mesh and some of the technical things, the APIs, how to interact with the APIs, right? Things like semantic layers and how that fits into a BI practice. We need to start thinking about these things, because I think they are, even if you're at an organization that's not ready for Data Mesh or isn't going to embrace Data Mesh fully, these concepts are coming and they're going to change the way that we do BI, I believe for the better. And so I think that we should embrace it. And that's my message, to tell your friends, right? To check this out and start learning about these things. Because I have seen thinking about BI as a product. Change the way BI teams work for the better, that makes your job as a BI practitioner more fun. What more can you ask for than that?

1:14:45 Scott Hirleman
I came up with a really dumb joke, which is BI-gin with the end in mind. Instead of just begin, it's BI-gin. So Ryan, I'm sure there's going to be a lot of people that would love to follow up with you. Where's the best place to do that? You know, LinkedIn or something like that? What would you like people following up about in general?

1:15:08 Ryan Dolley
Yeah, no, definitely. I'm very active on LinkedIn. I think that's kind of how we first got introduced to one another. And so hit me up on LinkedIn. It's just Ryan Dolley. You'll find me. And otherwise, as you said, I'm a kind of independent BI and data consultant. So if you want to have further conversations about any of this sort of stuff, I clearly love talking about it. And so I'm happy to do that. And if anybody out there

finds themselves in need of my services at any point, that's great. So yeah, just get in touch with me on LinkedIn. And if you're a BI person, I would check out the Data Mesh conversation that's happening there and happening in the Data Mesh Learning Slack and get involved. We need more BI people talking in this space.

1:15:52 Scott Hirleman
Yeah. And we'll drop links to your LinkedIn and your blog and stuff as well in the show notes so people can have an easy way to jump to that. But Ryan, thank you so much for spending the time here today. And as well, thank you, everyone out there for listening.

1:16:09 Ryan Dolley
Yeah, thanks, Scott.

1:16:11 Scott Hirleman
I'd again like to thank my guest today, Ryan Dolley, an independent BI consultant. You can find a link to his LinkedIn in the show notes as per usual. Thank you.

Thanks everyone for listening to another great guest on the Data Mesh Learning Podcast. Thanks again to our sponsors, especially DataStax, who actually pays for me fulltime to help out the Data Mesh Community. If you're looking for a scalable, extremely cost efficient, multi data center, multi cloud database offering and/or an easy to scale data streaming offering, check DataStax out. There's a link in the show notes. If you wanna get in touch with me, there's links in the show notes to go ahead and reach out. I would love to hear more about what you're doing with Data Mesh and how I can be helpful. So please do reach out and let me know, as well as if you'd like to be a guest. Check out the show notes for more information. Thanks so much.