00:14
Speaker 1
Hello and welcome to the Human and Machine podcast. My name is Yaku, and my name is Lenny, and we are in 2023. Lenny with our 30th episode, artificial.

00:25
Speaker 2
Been a little bit of a stalement from our side. So happy to be back in the seat, proverbially seat here to record another episode. It's been a long time coming.

00:35
Speaker 1
We didn't have the most consistent recording schedule last year in 2022.

00:39
Speaker 2
It's almost like load sheding.

00:42
Speaker 1
Load sheding is a term that any of our international listeners will potentially not be familiar with. And I thought we're going to take at least a couple of minutes before we speak about load sheding.

00:50
Speaker 2
I'm sorry, it's top of mind for any South African at this point in time.

00:56
Speaker 1
This is episode 30 of the Human and Machine podcast. Last year was a little bit of a quiet year for us in terms of recordings. Definitely not due to a lack of amazing people that are doing some great work to speak to, simply just the time to get to record these episodes. But thank you for following. Thank you for the feedback that we received nonetheless. And we're back this year, 1 February 2023 with episode 30. So, the Uber and Machine podcast, if you're not familiar, we talk about specifically innovation, technology challenges, projects, and learnings, most importantly in the industrial, automation and manufacturing and mining industry in South Africa. So episode 30, we started this year, Lenny is already a month in. I think January was the longest two months of the year.

01:48
Speaker 2
Exactly. A little bit of hopefulness, I think were.

01:52
Speaker 1
We were optimistic.

01:53
Speaker 3
We were hopeful and optimistic.

01:55
Speaker 1
We were optimistic, as most South Africans were, that 2023 would be a year. We would observe much greater care for our very fragile infrastructure in South Africa, especially given the severe problems we had in 2022. But sadly, over and above the crippling effects of load sheding, water, roads and most infrastructure woes are mounting, and it's still all too common. So I think we may have mentioned this in one of the previous episodes, but in 2022, the South African Institute of Civil Engineering highlighted these difficulties, and they indicated that South Africa is the risk of becoming a failed state, which I think most of us can feel already. But yesterday I read an interesting opinion piece yesterday in the Mail and Guardian by Bongani Tambeni Muller. What she had

in there was quite insightful about Indonesia. I wasn't aware, and specifically Indonesia's recent economic growth.

02:47
Speaker 1
So in 2013, Indonesia was listed among Morgan Stanley's fragile five most fragile economies. South Africa was on that list, including Brazil, India and Turkey. But since the new president Jocko Widodo took his seat in 2014. The country has turned a corner. I think Indonesia today is regarded as an economic success story. GDP growth of more than 5% in 2022 and expected to grow at a similar rate this year. But what was interesting about this turnaround for Indonesia, or very sadient facet of Widowdo's success, was the focus on infrastructure. And I think since then, until today, Indonesia has 16 new airports, 18 new seaports, 38 dams. Just phenomenal.

03:34
Speaker 2
And if you look in the history kind of taught us this right. If you think about the Great Depression in America, in the FDR, Roosevelt, exactly the same massive infrastructure projects, to name a few. Hoover Dam, as an example, Guada airport, and then the massive infrastructure around the highway system. Yeah, very similar was done to try and alleviate the economy out of the Great Depression.

04:01
Speaker 1
And this infrastructure impact has allowed Indonesia's economy to thrive and ultimately improve the quality of life of her people. So, yeah, it was a lovely and encouraging shining light, which I feel like this week I did, getting into going into a four hour load sheding stunt. And, yeah, just an example of what can be achieved through probably a deliberate political and fiscal will as well. But, yeah, that was an interesting insight from Indonesia. So we're not the experts on infrastructure and engineering and projects and what is happening in that world. We primarily techies. But we are excited today to host Kenny O'Kennedy and Rion de Blissy from Zatari. Zatari is an engineering and advisory firm that really champions the unparalleled potential to create impact through infrastructure.

04:52
Speaker 1
And we've known Kenny and Rion for a couple of years, and today, no, we're not going to be dissecting load sheding unless we can't escape the topic for an hour or pivoting to get a very pivoting to the political landscape, but rather delve into the value of impact, creating future fit solutions, innovation, and cultivating mastery. So that was a very long intro. Kenny Rian, welcome to the Human and Machine podcast. Good to speak with.

05:25
Speaker 3
Thanks, Jaku. Looking forward to this chat.

05:30
Speaker 1
Fantastic. So, we. We did try and start off positive.

05:39
Speaker 3
But Lenny broke the rule.

05:43
Speaker 2
Sorry.

05:43
Speaker 4
I'm sorry.

05:44
Speaker 2
I promise I'll try it a lot harder next time.

05:48
Speaker 1
So, Kenny Rion, I think, Zitari, I would imagine a lot of people in our industry would be quite familiar with the business, the brand, and some of the people. But if you could maybe give us an introduction, maybe starting with you, Kenny, in terms of your role at Zutari and Rihanna, and maybe just a little bit of background around what you do and the nature of the.

06:16
Speaker 3
Yeah, I come from an industrial engineering background. That's what I studied. And then I, by chance, ended up at. So I've been working for three different companies with my colleagues. Haven't changed. So it was african. Then we merged with Nanamshand, also a big south african company. We merged those two companies with Connell Wagner in Australia, and then were part of that marriage for, I think, nine years or ten years. And then we demerged again and said, no, we want to take our test in our own hands. And then we became Zetari again. And I'm in Rihanna and myself. We're in the energy team, and we've got different teams in the energy team, and we're both in the industrial team and basically in the industry, we'll be called electrical control instrumentation engineers.

07:16
Speaker 3
So we do everything from eleven KV switch gear all the way down to MCCs, motor control centers, plCs, and up to fiber.

07:32
Speaker 1
Okay, that's quite broad.

07:35
Speaker 3
Yeah, very broad. Yes.

07:41
Speaker 1
Sorry.

07:43
Speaker 4
I'll get my background out of the way and then we can talk more interesting stuff.

07:49
Speaker 3
He's actually an interesting person.

07:55
Speaker 1
Please tell Lenny that you at least studied at.

08:00
Speaker 4
So I'm a texof. Next person.

08:02
Speaker 2
There we go.

08:07
Speaker 4
Started off my career at the company called WSP as a control instrumentation engineer, predominantly in the water infrastructure area. Did a lot of programming, Plc, HMI, SCADA programming in my early years, but,

yeah, then I obviously progressed from there all the way to Zutari, or initially joined Oricon. So I'm here now, six years at Oricon, and over my 14, almost 15 year career, I've tried to get as much of diverse exposure from substation automation, mining, little bit of oil and gas, a lot of water. And then the last couple of years had a big focus on renewable projects and focusing specifically on the instrumentation, monitoring and control of renewable infrastructure. So that was quite exciting. And so it's quite good working for a multidisciplinary engineering firm like Zutari, where we essentially have market units that address every infrastructure pretty much out there.

09:22
Speaker 4
And the nice thing about Zutari is that we, as the energy market, we basically deliver water infrastructure, mining, all the other infrastructure projects as part of one team engineering team, and we essentially, like Kenny said, do the ECNI component for a lot of the infrastructure projects. So quite a diverse company with a lot of focuses, but it's giving us the exposure and opportunity to get involved in different types of projects, which is very exciting.

10:03
Speaker 1
Yeah. And I would imagine that doesn't just pertain to South Africa, I would imagine it's throughout sub saharan Africa or the continent.

10:13
Speaker 3
Yes, correct.

10:14
Speaker 4
So Zetori is quite a large firm. I think we are just over 2000 employees now, and we basically are throughout Africa as well as the Middle east with offices in the Middle east. So we are truly african Middle east company covering projects all over. And yeah, it's quite exciting getting involved in greater Africa projects. And not only.

10:44
Speaker 1
Thanks, Joan, we're not the experts in renewables or energy. I think in many ways, outside of the technology that we work with every day and the stuff that we're passionate about, we probably just typical South African, Lenny and I on this side, as most of us are, you probably have a very different view in terms of being much closer to some of the renewable projects and initiatives that's happening. The ipps, for example. You probably have a much more educated and closer and more realistic view to what that looks like and the progress there. What's your take on that as it stands right now?

11:29
Speaker 4
Yeah, I think there's a lot of exciting projects at the moment, ongoing and programs. I think what most people don't realize is to get a project, a large infrastructure project like 140 megawatt wind farm or even these days 240 megawatt solar farm off the ground, is that there's quite a lot of EIA and permitting and landowner agreements and land acquisition and a lot of background or footwork that needs to be done just to get to a point where a project can be entered in one of the programs, or so called, be almost shovel ready. So I think a lot of these projects need a couple of years just to get to that point where they can say, okay, the project is ready to be built into one of the REIPP projects, the renewable energy independent power producer program.

12:31
Speaker 4
And when a project is entered there's a lot of investment that goes into getting the project to legal close, which is basically the point where they sign the contract with Eskom and the Department of Energy only once they've got legal close, then they need to still take the project to financial close, basically. And that typically could take between six to twelve months to get the project from bid to legal close, and then another, when they got legal close, they typically have six months to get financial close. So there you at best case, you're probably looking at a year from when you got preferred bidder status to getting what they call notice to proceed to start construction. So that process unfortunately takes some time.

13:25
Speaker 4
But there's a lot of development engineering authorizations and everything that needs to be in place before you can actually close a project and then go into construction. And then the other thing is a lot of these projects, their construction timeline is typically between 18 to 24 months. So a lot of these projects, once they start construction, we still like 18 to 24 months away from them actually producing electrons into the grid and making a difference. But that being said, that's the official programs and definitely the round five projects. A lot of them are going into construction. So they're on the path of contributing in the next 18 to 24 months. But then there's on the other side with the private offtaker market that is exploding almost so to speak.

14:32
Speaker 4
And a lot of companies that have targets in terms of their commitments to achieving carbon zero and them developing or essentially want to procure renewable energy to meet their own commitments in terms of climate change and carbon zero, that we see the private offtaker market and what they call commercial and industrial projects is also exploding. And a lot of those projects have much more aggressive timelines because the timelines is more in control of the client and the IPP. And there's a lot of those projects that will definitely come online in the next twelve to 18 months. Okay. There's a lot of positives happening. A lot of projects currently ongoing, a few projects that went into construction. And I would say the energy picture will look quite different in a couple of years time when some of those projects is starting to come online.

15:41
Speaker 4
I'm quite excited, quite positive about the programs that is ongoing. The projects that the chief preferred better status in round six. A lot of them is working now quite hard towards legal close. Hopefully if they can also achieve financial close in the next six to twelve months, then they'll definitely contribute a lot to the grid. So obviously it's not a flick on switch like a lot of people hopes where we could flick on the switch, we suddenly have a bunch of pv and wind farms contributing. But there are definitely programs in place. And the outlook, I think is very positive for those projects in the future. So it is real, it's real, it's happening. And it's not only doom and gloom. I think there's a lot of positives and a lot of programs underway.

16:42
Speaker 4
It's just not as quickly as a lot of people would like it to be.

16:48
Speaker 3
I think if I can add for us, because we do obviously infrastructure and there's a lot of political will needed for those infrastructure projects. So for us as Victoria and as engineers, we actually like these crisis because if there's load sheding. We know people are going to look for electrical engineers or energy experts. If there's water flowing, sewage flowing into camps Bay December, they're going to look for water expertise. If there's a drought, they're going to look for water expertise. If there's potholes, they're going to look for transport engineers. So for us, these crises. Crises, actually, it's a good thing. I don't know who said it, but I think it's a good thing when there's so much attention in the media. Bride talks about load sheding and sewage flowing into the rivers and drinking water and that kind of thing.

17:57
Speaker 3
It's a good thing because it creates a crisis and the crisis creates alignment.

18:03
Speaker 5
And it sounds like, I really hope.

18:07
Speaker 3
Stage six load sheding is really a crisis. I really hope that we can create that alignment even more in South Africa. In Zatari, we've really got, not that Rihanna and I, we're the brightest, but the people that we work with, there's really some awesome engineers here on both the water side and the renewable energy side. Our partners

that we work with, the developers, our clients, is really people that's in it for making a difference. And you've got the skills. Even though we're losing some of the younger skills, we still have a ton of experience in South Africa to solve the problems, but it's about being in unity, driving towards that same goal.

19:00
Speaker 4
I think in South Africa we still have a lot of good engineering firms and consultancy firms that definitely are here to make a difference. And being part of the Caesar awards evening last year and seeing some of the projects that the other consultants is doing and stuff, I think South Africa still has a very good engineering base and we definitely have the skills, although it is sad that we are losing a lot of skills of people immigrating and leaving. But I think the positive thing is we still have a proper engineering base in South Africa that are ready and geared to assist working on these challenges and finding solutions. I definitely think with maybe the added focus is a good thing so that some of those projects will be prioritized and timelines prioritized so that we can get that alignment goes on.

20:00
Speaker 1
It feels awful to say that with load sheding. And Kenny, you spoke about Camps Bay. That was in the news, an area like KZN. They were in the news, their beaches, for a very similar kind of problem. It sounds awful to say that it's a good thing, but only if there is enough pain and an understanding of what the challenge is will there be enough reason to change and to affect change. So, yes, I agree with you. I think whatever people like yourself and businesses like you guys have been, and communities like us have been saying for the last however many years, it is now actually being felt. So with the advent of that pain, maybe we still wouldn't really have seen any progress. So maybe you're right.

20:57
Speaker 1
I think it can only be a good thing, at least as a minimum, to put it as a talking point on everybody's agenda, because it literally is wherever you go, it's the only thing that anybody speaks of and speaks about. So it is center, prime focus for everybody in South Africa at the moment, not just for business. Exactly.

21:20
Speaker 2
And I think media has got a little bit of always a negative spin on all of these stories. You always hear of the bad things. Great to hear Rion explaining the process and five projects that's already in construction phase, you very seldom hear about that type of stuff, of how many of these things is online and what's actually building. So the media unfortunately feels the fire literally at the bride a little bit for us to become a little bit negative. But yeah, as Kenny said, out of crises and negativity, there's always the opposite, that there's actually an opportunity, a massive opportunity.

21:57
Speaker 1
I wanted to chat about two things that you mentioned, Arian, specifically on the sustainability and the environment aspect of these new projects. So listening to some of the timelines, as you explained it, in my mind, it sounds really long, but if I think about a typical project in any industry, the business case, the conceptualizing all of the different phases of a project, up to shovel, ready and eventually completion, to me it feels really long, but I suppose it's not.

22:32
Speaker 2
If you consider, and maybe to that point, we've heard so many things about the red tape, and the government is really trying to reduce the red tape. But surely from an environmental perspective. Yeah, you need to do your environmental studies. You can't just go and plunk these things down anywhere you wish.

22:51
Speaker 1
Yeah. So that resilient infrastructure at pace that we need, and the environment and the sustainability aspect as part of these projects, what is that relationship between making that work? You mentioned farmers, for example. What is that relationship? Is it like a Facebook status? Complicated. How big a part of the project is that to make

that a win? So there's no loss, whether it's for private individuals, environment, and it's a win for everybody. How big part of the project is that?

23:31
Speaker 4
Well, it's a big part, but it's also a very important part because you need that checks and balances in place to ensure that we rolling out these projects in the right way and also in a sustainable way and keeping the environment in mind. So obviously, the EIA processing environmental authorizations are extremely important. But I think it's also worth noting that South Africa has set up areas where in a certain area there was eias and stuff done to say that projects developed in this region would have certain requirements and that you need to meet. So those areas has been set up. And a lot of project development within those environmental areas development zones is going ahead a lot quicker.

24:24
Speaker 4
But it is very important that you go through that process and understand what is the requirements in terms of how that authorization is linked to your project size and your development. Because we can't say, okay, we have an energy crisis and now we're going to deploy hundreds of projects and in a few years we have an environmental crisis. It's very important that these projects goes hand in hand and that the right authorizations is in place and the requirements is understood to, for example, developing a wind farm, taking into account not only the construction, are we going to build it in terms of the land, but also taking in the impact on the bird migrations and all the other studies that needs to be done.

25:15
Speaker 4
So it goes hand in hand to energy as well as the impact on the environment and what needs to be done, what mitigation needs to be in place. And I think that process has been shortened quite a lot over the last number of years. But I think a lot of projects, a lot of developers understand that process and they have teams that actively drive that process as well. But obviously a lot of that work or leg work needs to be done in advance before you start considering the development.

25:57
Speaker 4
But I think for farmers and that what makes it sometimes complicated, and it's a topic that I've spent some time on the last couple of months to a year, because a lot of farmers wants now to go off grid and they want to be independent of the utility or the network service provider, and they want to have their own, be in charge of their own destiny. And it's understanding your operations versus the solution that get put in. There's obviously a lot of players out there that would like to install their solution or any solution just to maybe get the project. Yes, but I think what I've seen is that the clients needs to understand basically what they want to use the system for, how their operation operates, what is the operating hours, and what technology would support their operation the best.

26:57
Speaker 4
And then in terms of control, a topic that's really been exciting for me was the whole micro grid control, how that control system integrates into various applications like agriculture, industrial applications. And then the topic how can, for example, battery energy storage, how can that assist with what they call synthetic inertia, or virtual inertia, which is basically reserve power that you need to start up a large motor, for example. And how does the technology and control systems can assist you to achieve that? Using an off grid solution where you would rely on a combination between diesel generators, battery, and maybe pv or wind to run your facility off grid, and then to understand the requirements of the control system, to be able to provide that virtual inertial power, to be able to start up large motors.

28:02
Speaker 4
I think there's a lot of development there being done, which is quite exciting for me. It's another dynamic to control systems. So we've worked with control systems now for a while, and then every time you get this challenge where the client is saying, well, I have this 200 kilowatt motor, but I want to disconnect the grid and I don't want to just run on a diesel generator, what is my options? So that's the kind of challenge that currently excites us and get us more focus on what control systems support at the base.

28:43
Speaker 1
Yeah. So outside of, I want to get back to the technology, but.

28:49
Speaker 3
As much.

28:49
Speaker 1
As we want to be resilient, our grids and our infrastructure to be resilient, and we want it to be functioning as a minimum, it has to also be sustainable, and it has to provide some sustainability for future generations. So there is that element or combination of urgency versus doing it responsibly. So really happy that the responsible element is still there, because one day when Jesus is going to be like a really horrible talk today, one day when we die, because we know it's completely irrelevant, but then it sits within our children and their children. So it is a very important aspect. I want to get back to the technology. I would imagine we see it on our side. There's a ton of emerging technologies, digital technologies.

29:45
Speaker 1
Just, you mentioned two really interesting scenarios now that I didn't know about, but there is a lot of new technology available, the ability to embrace some of that technology and benefit from more innovative ways to deliver value. Looking at what you've mentioned now, are there specific things that you're excited about? You want to elaborate maybe on those two scenarios? And how do you see the openness to deploy new technology and more importantly, a new way of doing things? Is there a reluctance to that, or is there an openness to that?

30:27
Speaker 4
Well, it depends on who the client is mostly, but I think indefinitely in the more private sector, there's an openness to taking on new technologies that supports. Well, these days supports more openness in terms of integrating different, almost be OEM agnostic. So that the solution that you put down must be able to integrate any devices that you put down. So there's definitely a big drive to put down systems that support that openness, that drive to not be necessarily bound to one vendor. But I think that's also some of that has been driven by the technology or the equipment that's used, is that clients wants almost the best fit for purpose solution for each technology area. So then your monitoring and control layer needs to be able to integrate, to have that openness, to integrate various downstream technologies.

31:39
Speaker 4
I think there's a large, just two major focuses that I've seen in our projects that's become a really hot topic is being able to monitor efficiently, but also have remote access and basically data. Well, the data becomes a very big topic in terms of the reporting and being able to either prove compliance one end or prove performance on the other end, because a lot of renewable projects, for example, has performance contracts and guarantees and stuff in place, and they need to be able to prove that they've met a certain performance target. So for them, the data and reporting becomes extremely important on how to collect the data, transfer of data, manage the data, and then also the reporting side of it.

32:34
Speaker 4
But with that, the second topic that is definitely a play, a big part is the cybersecurity topic, because the moment you create this remote connection and have these new technologies that are built for web interfaces and all that, and openness, you definitely need better security or more dedicated security, cybersecurity in place to allow that openness, but still make sure that you're not compromised.

33:07
Speaker 1
That openness is an interesting one, because often when we speak about openness, people associate it with lessened security or lower security or no security. And there's a very big difference between openness and something that is open publicly. The ability to connect to anything is not the same as no security, but the

security is data and security. That's Lenny, pretty much what we've been hearing a lot of that as well on our mean, people are talking about.

33:43
Speaker 2
So yeah, people are talking about this whole notion of sabotage. It's not always just physical. People shouldn't just think it's someone maliciously damaging equipment. I think what we've seen around the world, I think in this week, there was an allegation from the british media that the Russians tried to hack and destroy the Internet infrastructure in the UK. So, yeah, very important. Especially with these infrastructure projects, it becomes a little bit vulnerable. Cybersecurity is not up to scratch.

34:16
Speaker 1
Yeah, sorry, Kenny.

34:19
Speaker 4
I think it's just before Kenny jumps in, I think the openness is 100%. It's the openness of integration and not necessarily the openness of access. So it's having a common protocol that allows seamless integration of different technologies and that openness is becoming very important.

34:42
Speaker 1
And if that system can maintain the integrity and the fidelity of your overall application, that's ultimately what you want. With all of these. There's some really sexy stuff, devices, things out there. You want to have the ability to just get whatever's available, first of all, today in 2023, whatever you can get your hands on. Secondly, you want to just be able to integrate whatever you have everywhere easily and quickly, but then obviously securely and maintain the fidelity of that system. But yeah, I think the days of this will only function with that one specific type make brand model that's become far too limiting for most successful projects to be flexible and quick to implement.

35:33
Speaker 3
And also were talking about our data is becoming so important. What excites me about the renewable energy projects is there's an incentive to really look carefully at your data, because either from a contractor perspective or operator perspective, you can prove that you're making you well, you can maintain and operate your plant better, but also from owner perspective, you can audit your renewable energy contract and you can make sure that they're actually performing like they should. There's a more of an incentive to look carefully at the data and to do that and to be able to manage performance like that. You're not just going to put one software package that's going to solve it all. Often it's multiple hardware and software that you must integrate together.

36:39
Speaker 3
And that's where obviously where the open architecture becomes so important and the flexibility, because also I think what's interesting about infrastructure is our projects are typically, it takes a long time to build it, but then they should last for at least 20 years. And if you do like water treatment stuff, it's 50 year lifetime. So you must future proof everything that you do. You can't just think about, okay, what happened? I've only been working for 13 years, which sounds like a long time, but I'm building infrastructure that's going to last for 50 years. So what type of data are they going to need and what type of innovation would they like to do in 50 years time? That's a good challenge.

37:29
Speaker 1
Absolutely.

37:31
Speaker 3
The example that I use is in 2007, the iPhone came out. Yes. So that's 15 years or 16 years ago. And now, at the moment, we're busy building infrastructure, whether it's water or renewable energy. That's going to last for more than 15 years. It's going to last for 20 years. So just think about how smartphones have changed our lives

completely. What is the next thing that's going to change our lives completely? And how the end users or the operators and maintenance people, they're going to want to be able to integrate these new technologies in the way they do things. I like that challenge.

38:20
Speaker 1
Yeah, perfect.

38:22
Speaker 2
And at the end of the day, if we think about it, yes, there might be all of these nice new technology out there, but it's us. It's us as people, right? It's us. The men and women, the thinkers, the doers. We are that innovation force that drives all of these things. Now, we mentioned right in the beginning that there is, unfortunately, a little bit of exodus of really talented people out of the industry, and it's a little bit under threat with the amount of talent that we are losing to the outside world through immigration. And there's been quite a big exodus just from engineers that I know in the past two years of people that already made the plan.

39:06
Speaker 2
How does it impact Zetari, and what do you guys do to try and keep these young, innovative, talented people to stay with the company and to be on this journey with you guys?

39:18
Speaker 3
Yeah, it's a big challenge for us. Just in the Rihanna, my team, we felt it physically, almost, because we lost a core group of engineers with four to six years experience. One thing in our industry, it's very important to get professionally registered. So once someone becomes professionally registered, in honesty, if they have half a LinkedIn profile, they get offers from recruiters, and that's overseas. So there's obviously a big market for south african engineers overseas. It looks like they really appreciate the skills that we have here, because just the amount of people that's going there. And the other thing is this whole renewable energy boom. There's just so much work at the moment that it's difficult to keep. The people. Obviously, pay plays a role, but in our team.

40:31
Speaker 5
And we'll probably never be.

40:33
Speaker 3
Able to match what they're going to get paid in London or Ireland. We've lost a lot of people to Ireland and the Netherlands, but the things that's in our control is we can pay them a fair salary, which we obviously try to do. So we see pay as a hygiene factor. So it's not going to motivate the person to really be passionate about their job and make them stay, or motivate them to go to really be a great engineer, but it might cause them to leave the job. So that's how we see it. And then the other thing is almost more important is give them a purpose. I think for us as engineers, and especially infrastructure, it's very easy to link what we do to. We're solving load sheding, we're solving the water problem. In the Eastern Cape.

41:29
Speaker 3
We've worked on lots of projects where after that project is done, we're giving water to people that haven't had water before. And that's a story we go back to just become or just be engineers. We just talk about technical stuff, but we forget to tell the why of why we really do the material.

41:52
Speaker 2
Cause almost of what you are.

41:57
Speaker 4
Well, Richard Wright, I watched a session that he talked about the power of purpose. We shouldn't underestimate the power of purpose. People that they need sort of a purpose, a why to do something. And I think

these days, with climate change and a lot of things that goes with it, there are definitely enough people that wants to make a difference and they're just looking for a place where they can feel like they have a purpose and why they want to do it. And yeah, I've been involved in a few projects where, like Kenny said, we're building a new water treatment plant for drinking water, potable water. And then when a project is done, you see the people having water in their taps and you see the difference that you're making in their lives.

42:57
Speaker 4
And definitely that is a purpose that we want to sort of show the young engineers to say that we in Africa, we have a role to play here. And we have almost, in my opinion, an obligation to contribute, to try and provide basic services to people across Africa. And that basic services obviously include proper drinking water and proper sanitation as well.

43:29
Speaker 3
And all the other infrastructure they provide. Sorry, I think I'm an Afro optimist, so I don't like it when people immigrate.

43:41
Speaker 1
You'd have to google that.

43:43
Speaker 4
Especially.

43:48
Speaker 3
I think, Paul Harris, he was one of the founders of R-B-I had a talk where he said, you can choose. You must see yourself as a Springbok and you can choose, do you want to be in a zoo or do you want to be in the wilderness? If you're in a zoo, you're going to get fed, you'll never die. If you get sick, there'll probably be a very highly trained fate that can come and examine you and solve your sickness. But if you're in the wilderness, yes, there's lions, you might die that once you aren't here, it's more dangerous. But it's the wilderness you made for it. There's opportunities that you're never going to get in the zoo. I'm not saying London and Ireland and the Netherlands is a zoo, but I think in Africa we've got, especially infrastructure, what we're doing now.

44:50
Speaker 3
They talk about developed countries. For me that means developed countries means most of the stuff is already developed. So when you go and do infrastructure there, and we've seen it now when we worked with the Australians, a lot is you don't see Greenfield projects as often as we see it in just in South Africa, we're already very developed. If you compare us to the rest of Africa, and Africa is busy developing and there's so much opportunity for infrastructure, and everyone knows infrastructure is the basis for economies to thrive.

45:35
Speaker 2
Not just economies, I think for security. People talk about water security, they talk about food security.

45:44
Speaker 3
Exactly. I think, yes, we're in the wilderness. There's a few lions roaming around that, but there's so many opportunities. And the young people.

46:01
Speaker 2
There'S real tigers.

46:02
Speaker 1
Real tigers in Joburg.

46:04
Speaker 3
Yeah, exactly.

46:09
Speaker 5
I had an old engineer.

46:11
Speaker 3
Some of these old engineers that you work with are real legends. The one guy were sitting, it was actually a roads project where were looking at maintaining street lights. And a lot of discussions around that contract meetings was about theft and how are they going to keep the guys from stealing the cables? And then this guy will just look to me and says, kenny, can you imagine how boring would it be in Australia? They don't have these problems. So he was extreme optimist. I wouldn't say sometimes I would love a bit of boring, but I think I don't see myself as that old, but as older engineers, we should frame those opportunities and challenges like that to the young people. And we see it, the people that we.

47:08
Speaker 3
Zutori is very lucky in a sense that the cvs that we get from varsity, it's amazing. The engineers that applied to us and it's people that really want to make a difference. Well, they always want to do renewable energy because they want to make a difference, or data science because they interested in AI and machine learning. And two things that Ria and I, we try and meet that. No, I think there's lots of.

47:42
Speaker 1
We actually. It's probably an episode on its own with chat GBT and all these chappies. The availability or the accessibility of platforms like that is set to change a couple of industries quite significantly. But, yeah, that is.

48:00
Speaker 3
I've become a Python developer now that chat GBT is out.

48:05
Speaker 1
Okay.

48:09
Speaker 4
I think it's one of those things that you either need to get onto it and understand it and see how it can be useful, or you're going to get left behind.

48:20
Speaker 2
Absolutely. Either embrace it or lead the path.

48:23
Speaker 1
And, I mean, Lenny always points it out as an engineer, that's almost a fundamental purpose, is to learn every day and continue learning and figure out new ways.

48:34
Speaker 2
Yeah, I mean, you said it, Kenny, you've got an industrial engineering degree. Doesn't matter. Engineering teach you to learn. I always say engineering gives you. You have to research your research papers, do the investigations, do the understanding. Engineering is there for you to learn.

48:55

Speaker 1
The other thing you mentioned, Kenny, was, and Rian, I think through describing some of your projects, is our obligation to highlight when there are successful outcomes and positive change. We spoke about the media a little bit earlier. Yes, we rely on media for various bits and sources of information in different contexts, but I don't think we celebrate when there are successful and positive things happening, especially on the infrastructure side. In South Africa, it's far easier to complain about everything that is not working slow or not happening. But when there is something positive, I don't think it's highlighted and celebrated as enough as it should be. So, yeah, I agree with that quite a bit.

49:45
Speaker 3
And it's our fault. As well as engineers, we're not very good with storytelling, telling those stories.

49:52
Speaker 1
Yeah. Cool. That was really awesome.

49:57
Speaker 2
I feel much better.

49:58
Speaker 1
I feel a lot more positive thinking. If we could maybe do this every morning, maybe if we can take five minutes every morning, I'd feel a lot better. But, yeah, that was good insight from your team and you guys that are really at the forefront of a lot of these things. Thank you for that.

50:15
Speaker 3
And we haven't even spoken about the cool tech stuff we're doing.

50:20
Speaker 1
Yeah, typically, we usually speak more about the tech than anything else, but this was insightful, maybe on the tech side, anything. As we sort of at the epigenesis of 2023, if we look at this year, any trends, any tech things that you're excited about that you're looking forward to, that's set to revolutionize.

50:48
Speaker 4
Yeah.

50:49
Speaker 5
For us, what is exciting is connecting what we do, obviously, because we build infrastructure, we do a lot of projects, we do stuff that's in. So there's a big 3d modeling part to what we do. And obviously Rihanna and I, we in the industrial automation space. So bring those two components together, the bomb modeling and the IoT live data. Bringing those two together to create digital twins of our projects. That's one of our passion projects that we've got on the go and we've got some good example or good proof of concept already going on.

51:42
Speaker 1
No, that sounds fantastic. You already have a PoC running?

51:47
Speaker 5
Yeah, because as we told you, we've got advanced guys that can build amazing 3d models and we've also got a unity developer. Unity as a gaming engine.

52:03

Speaker 1
That's right.

52:04
Speaker 5
We've managed to get those 3d models into unity and then stream live data via MQTT broker Yaku and Lenny will.

52:14
Speaker 1
Like it.

52:17
Speaker 5
To that Unity engine. So what you're creating is you're creating a virtual reality skater. It's still very basic, but the guy can walk. If you take it a few steps further, the guy will be able to put his glasses on at his home and he can walk his whole plant and see it in virtual reality. We've got some unity authors as well, so they make sure the concrete looks nice and the pump actually looks like a pump. It's not just around cylinder in the middle of the pump station. So that's very exciting together. Just one step further that we're also busy with is the whole mixed reality where we don't just put those additional info, we don't just put it in virtual reality. We've actually augment reality with it.

53:24
Speaker 5
So we've also done a little proof of concept where a guy can put on a hololens, which is Microsoft's AR glasses, and he can walk through a pump station and he can see some basic streaming data of a pump.

53:42
Speaker 1
I think amazing videos. About 1215 years ago, we saw those videos, those conceptual videos of that.

53:53
Speaker 4
Yeah.

53:55
Speaker 5
If I can refer back to the iPhone. Apple brought out the iPhone 2007. This year, apparently they're going to release AR glasses. So I think that could be the next iPhone. And if you think about industrial plants, one of the most important things for operators or people that walk around the plant, they want to have both hands available. And if they can be in their plant and see real time data that's associated with the asset that they're looking at, that can be a real game changer. And I think it's not that far off. Will, the technology is definitely available. I think one of the cool things that we've seen now is MQTT really makes that an adult pop sub broker type architecture maker. And also the light weightness of MQTT makes it so much more possible and easier to do.

55:03
Speaker 1
Yeah. That heavy reliance on a network infrastructure to give you that data or access to the data, that reliance is coupled with 5g, obviously.

55:14
Speaker 6
I think the exciting thing about BIM, we call it better information management. A lot of our clients experience high turnover of operators on site. So they're looking for tools, how they can quicker upskill and train the plant operators so that they can efficiently operate the plant. And that's more where I see the value of having a training environment where the operator can so to call play with the plant before he goes on the real plant. And we have done a few training environments using VR and that for a few clients, for example, on how to switch a substation. So we gamified the training for them so they can in VR go through the steps of switching the plant.

56:11
Speaker 6
And it's basically almost the next gen would now be to take that the next step further, to give them a mixed reality environment where they can do the practical training on site using the tech that's available. And I think this has been coming now for a lot of time, but I think the technology and it's more viable now to make it more streamlined, lightweight than what it used to be. So I think it will become definitely more accessible to do this type of setups.

56:49
Speaker 1
Yeah. And that time to value for those operators and they're cutting down that learning time is a huge.

56:55
Speaker 6
Exactly.

56:55
Speaker 1
Because it happens in parallel.

56:57
Speaker 2
The farm doesn't even have to be built.

56:59
Speaker 1
Right.

56:59
Speaker 2
So you talk about the 24 months it takes to build these things. Literally, you almost have a guy with two years experience, if I can say it like that.

57:09
Speaker 1
With basic concepts.

57:10
Speaker 2
With basic concepts without a plant. Without the plant being built. And the second thing is, it's a very good way to get new people and new talent. If you think about it.

57:21
Speaker 1
That's great. Our industry is not the sexiest.

57:24
Speaker 2
It's not the sexiest industry.

57:26
Speaker 1
We think it's really sexy. Speak to young students.

57:33
Speaker 5
The people are sexy, but not our industry.

57:37

Speaker 4
Think about it.

57:39
Speaker 2
You actually go to work and you play with all this cool tech stuff, lenses and et cetera. It must be exciting for a new person coming into the field.

57:48
Speaker 1
Yeah.

57:48
Speaker 2
So, yeah, very important.

57:50
Speaker 1
Cool guys. Thank you so much. Sorry. Anything else on that topic? Sound like I cut somebody off there?

57:59
Speaker 5
No, I just wanted to affirm that point. If you show clients what we found, it's definitely a wow factor, but it inspires something in them, I think. And then it makes them excited about the projects that you work on for them. And then when they see you can do that, they also trust you. The more non sexy stuff, I think. Yeah, for us it's something that's not happening now at the moment on projects as going mainstream, but it's definitely something that's in the next five years, I think it's going to be something to watch.

58:53
Speaker 1
Looking forward to seeing that. Cool. So I think we've run out of time. Have we actually gone overtime? Thank you so much for the chat. So I hope I gave you the heads up. When we record an episode and we speak to different men and women, we typically end off with a personal note. I think it's more personal than anything else in terms of what you are currently reading. Book, watching a specific series, listening to. It could be a podcast. I always find it quite an interesting topic to just get some feedback, what different people are reading and listening to, and maybe there's some nuggets and things that people can learn from and maybe take up. So yeah, Kenny, we want to start with you. Anything interesting that you're reading, listening or watching?

59:44
Speaker 5
Yeah, at the moment I'm just reading.

59:47
Speaker 1
Kids'Books.

59:53
Speaker 5
But yeah, I've got four daughters. That was the reason why I'm passionate about leaving a legacy in South Africa for them. But I read David Livingston's biography over the holidays and I was again just inspired by how excited and how well he was on the frontier and really pioneer in Africa. And I think in Zetori and the projects we do, we can also be pioneers and create infrastructure in Africa.

01:00:34
Speaker 1
I love that. Maybe it looks a little bit different today, maybe it is a little bit different today. But I think the concept is very similar and the purpose behind it is what the driving force is now. I love that. That's really cool.

01:00:52

Speaker 4
Yeah.

01:00:53
Speaker 6
So I think what I'm reading is maybe not so sexy, but the last couple weeks I've just been reading technical notes on microgrid control.

01:01:06
Speaker 4
About load balancing.

01:01:07
Speaker 6
And all that kind of stuff. But yeah, it's quite interesting to see what the Ic tech notes is saying because that's quite good guidelines on how it can be done or should be guidelines to follow. And then reading a lot of obviously case studies surrounding different studies that's been done for off grid systems on islands and various locations. So yeah, that's basically my reading.

01:01:39
Speaker 1
And then to keep nerdy, embracing your.

01:01:41
Speaker 6
True engineer, to keep myself sane. I go hiking every weekend just to get to the mountains. Keep sane.

01:01:51
Speaker 5
If I can add just on the industrial automation. I think I really like Walker Reynolds, the stuff they're doing. He's an interesting personality, but what he's done for me is just brought a lot of clarity around all these buzzwords. And then also, I think, in South Africa, Kutsai. I can't pronounce his surname, but he's amazing. Sorry.

01:02:21
Speaker 1
Dawariga.

01:02:23
Speaker 5
Yeah, yeah.

01:02:24
Speaker 1
Great guy.

01:02:24
Speaker 4
Well done.

01:02:25
Speaker 1
We've actually had him on a prior episode. Just a fantastic young man.

01:02:30
Speaker 5
And he's local and he's doing amazing stuff. And he gets recognized internationally with the teachings and the stuff he's done.

01:02:39
Speaker 1

Yeah. There is a lot of information out there when it comes to our industry and our space and technology. And I think the ability to clarify that is something that both of them do really well.

01:02:51
Speaker 4
Yeah.

01:02:51
Speaker 6
Just to get past the jargon and get to the actual value. I think both of them is very good at going through all the buzzwords and actually saying, giving a bit of a better explanation of how to use it.

01:03:09
Speaker 5
And it's a challenge for us with our clients because they get bombarded with all these buzzwords and they feel like they must do something about all these digital things, but they just overwhelmed. They don't know what to do. So if you can explain to them, and a lot of them are not electrically or electronically or software orientated people. So to explain it in a simpler. With more clarity. Simpler way, with more clarity. It's really powerful.

01:03:44
Speaker 1
That's the other big role that we have in our industry, is to help people make sense of the noise. That's a big responsibility, I think.

01:03:55
Speaker 5
By the way, Yaku, I think you and Lenny also doing a good job.

01:04:00
Speaker 2
Fantastic.

01:04:01
Speaker 1
Despite what everybody tells us, we're doing all right.

01:04:06
Speaker 5
You guys are very good communicators. I've really enjoyed the breakfast we had beginning of last year.

01:04:17
Speaker 1
That's right. Yeah. That's fantastic. Kenny, just another thought. I think what we should do is we should get you and Rian to join us at the ICC in September this year. We actually met Walker there September last year. A really incredible community, like minded community of people in Folsom in California. I think that would be a great experience.

01:04:43
Speaker 5
Yeah, no, we can.

01:04:46
Speaker 1
Awesome, guys. Thank you so much for your time. That was a little bit more philosophical than I expected, but it was just incredibly insightful and positive and inspiring. Thank you for that.

01:05:00
Speaker 3
We can do it more technical.

01:05:03
Speaker 2
Definitely schedule another episode.

01:05:06
Speaker 1
Yeah.

01:05:07
Speaker 6
The next one we'll do of a whiteboard and some formulas.

01:05:10
Speaker 4
And sand standards and stuff.

01:05:12
Speaker 2
Perfect.

01:05:14
Speaker 5
I can do a great one in Ohm's law.

01:05:19
Speaker 1
Rihanna's fan base will appreciate that. Guys, thank you so much for your time. And it was good chatting, and if it's okay, we'll share your contact details. If anybody wants to get in touch with you. We'll make sure that we share that in the description of the podcast as well.

01:05:38
Speaker 4
Perfect.

01:05:40
Speaker 5
I'm going to just try and figure out my signature again so they can do autographs of this box.

01:05:49
Speaker 1
Cool. So that was episode 30. If you have any other suggestions in terms of content, industries, people stories, that's what we're all about. Please send us your suggestions. Really enjoyed that chat with Rihanna.

01:06:03
Speaker 2
Definitely a little bit put more positivity in my. Absolutely in my step. So from electronic circuits, we ended up there with Ohm's law. So I'm definitely more optimistic, biased electronic guys who know what that means. After this episode, one thing that I've been listening to quite often is the podcast called the Diary of a CEO with Otlet. Yes, that's great. He's got a very fascinating session with a nearest scientist, the doctor, where they actually discuss this whole topic, that through evolution, we are actually wired to be optimistic. And there's a few things that you can do for your brain to be tricked to be optimistic biased. So again, this kind of tied into that. Definitely feeling a lot more better with the infrastructure process and progress and the good work that the guys are doing to bring that to Africa.

01:06:56
Speaker 1
When you listen to these stories, there's going to be a lot of good, positive things happening, definitely. So we're going to continue with the trade, I suppose, of infrastructure and talking a little bit more about what's happening

on the ground, different projects, different businesses, and the technologies and how that impacts what's happening.

01:07:13
Speaker 2
And if you've got any other questions, topics or suggestions, please reach out to podcast at elementate co z Cool.

01:07:21
Speaker 1
Minnie, thank you very much. Thank you for listening.

01:07:23
Speaker 2
Cheers, everybody. Bye.