Alex Norta - Invitation to participate in the research proje...

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SPEAKERS

Augustine Madumere, Alex Norta

Alex Norta 00:05
So I'm Alex north. I hold a PhD degree from the Netherlands from University of Technology Eindhoven. I was a postdoc at the University of Helsinki. After that, then when Nokia collapsed once upon a time, got washed into Estonia. We ended up being an associate professor at Tallinn University of Technology. And then because of the Corona, I got washed back into Finland because all my children are here. So I had no choice because I couldn't commute. So now I'm an entrepreneur, I work on my own company, focusing on multifactor self sovereign identity authentication, I mean, Blockchain based and at the same time, I'm still collaborating a lot with universities. I mean, I still collaborate with Estonia and universities, I have still the fundamental research project in web three going with Tallinn University, that's the other one in Tallinn. And I still collaborate with my Taltech buddies, I mean, the colleagues there to put projects together and supervise and whatever. And otherwise, one of my 10th PhD students will now defend his PhD thesis at Lappeenranta university of technology that's in southeastern Finland, and also collaborate with Austrian University, Johannes Kepler University in Linz. Yeah, that's it basically, about myself.

Augustine Madumere 02:16
Thank you. My research is about tensions that are associated with the implementation or use of blockchain technology in supply chain. So and what are the resulting paradoxes? In the course of that research, I chose the IBM Food Trust, food tracking solution, just so it's

Alex Norta 03:09
food security kind of that so you want to have immutable traceability of foods that goes through supply chains? Yes.

Alex Norta 03:21

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And they also from a customer point of view, you can scan the code and you can see the digital footprint of your food from the grower to the shelf within 2.2 seconds.

Alex Norta 04:04
I'm still involved in a farming automation and smart farming project proposal that we put together now. Using AI and robotics and blockchains and otherwise, with also an Applied Science University in Austria. Actually. I just finished a project about using NF T's and multifactor self-sovereign identity authentication for tracking the authenticity of luxury items like I don't know luxury watches and things like Louis Vuitton bags and all these things. We can use QR codes or NFC or barcodes and so on to you know, assign that to an NF T and then check with multifactor challenge sets. You know, also the authentication of the trading organizations and individuals involved and so on. So that's yeah, I have and if my old PhD thesis is really about logistics although there, that was so long ago, there was no blockchain involved, but conceptually this can all be done much better with Blockchain. So, it's very interesting topic.

Augustine Madumere 05:19
Its an interesting topic. Is the solution that was created or the solution is it more on optimizing an existing process of just something completely new that a company can just plug in via API and start using

Alex Norta 05:44
At this point, may I say my old PhD thesis, so if you check for Alex Norta Eindhoven, my old PhD thesis, and I started that in 2001, and finished it and I defended it in the beginning in March 2007, I worked on business cross-organizational business process automation for supply chains and looking at logistics back then for truck producers. And I even developed for lack of better wording back then my own e-contracting language that was in 2004. Back then, I didn't know yet I mean, okay, I had the work of Nick Saab Of course, that was even before I started working on my E-contracting language, but just if you go took all this work, because back then there were no smart contracts in today's terms like the Etherum and so on. So, I took my old PhD thesis and pinned it on an already defended PhD student of mine his name is Vimal Dwevedi.This should strike some interests. A Legally Relevant Socio-Technical Language Development for Smart Contracts. Thank you.

Augustine Madumere 07:34
Is the is the solutions that you're proposing is it something that a company can add on top of an existing processes or is it a completely new innovation?

Alex Norta 07:53
okay, then I have to refer to I mean, if we go to what Vimal did, there, we did not define processes as such it was level the cross organizational business process work was actually a level higher to define what the properties are of such a cross organizational process, where you set up the collaboration based on so called process views, which are subsets of what the collaborating parties have in house and don't want to expose maybe because they lose their competitive advantage or give away their business secrets, how they organize the processes internally to gain a profit. So, the idea so, this was still from our PhD thesis, the idea is you have process fuse, and based on this process fuse cross

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organizationally, you can connect business processes from collaborating logistics partners, if you wish and in house, the processes are larger than what is exposed, but you still have behavior wise adherence to what is externally promised in the process future. So, this is the work of Vimal picked up and continued this work. So, if you go to his PhD thesis, you will find all of that we did not as such there harvests the business processes and define them. Yeah. But in any case, the work I did with Austrian university of applied science. So this was really blockchain tech driven there we did not consider the business processes at all. But instead we said okay, we build a platform where nfts can be minted and assigned as a means of identity authentication can be NF T's minted and assigned to luxury products. And that way we track so we have for the purchaser, we have the authenticity assured pretty much when we combine the NFT minting that involves, say barcode scanning or QR code scanning when we combine that still with multi factor challenge set self sovereign identity authentication for that, I just very recently got a paper.

Alex Norta 10:46
I mean, before you mentioned about the company that only implemented on top of existing solution where they're not exposed to the external

Alex Norta 15:09
That was with that was many years ago with a mine, Mark. So they are, I think Bavarian truck producers. And we looked at their processes and how they interface with another ad was the upper Austrian AUTOMOBIL cluster under the leader of Magna.

Augustine Madumere 15:28
What would be the advantage for such solution where instead of a company, going into public blockchain to build something from scratch, like you mentioned before, against having to use a business solution, which is mostly based on a hyperledger - permissioned.

Alex Norta 15:56
permission? I mean, you make a good point, because if I say business processes, you know, you need to, I mean, cross organizational business processes, there's an interest to keep a business secrets hidden. Yeah. Then of course, if you have something like a Etherum in the mix, that's a pseudonymous solution. So you don't really have privacy. So this could be an issue that deters the adoption of blockchains. I have come across papers I haven't looked into the current state of the art but to my knowledge, there are solutions where you can still assure privacy if misuse of public blockchain. some researchers have worked on on this but I know that permissioned blockchains like the hyperledger fabrics and so on. The question then is okay, on one side of course you can then say well, then you know, if it's permissioned I can I have mechanisms in place to issue more privacy. On the other hand, there are public blockchains now that are or this one to my knowledge. That is not pseudonymous, but fully private. And I think it's called dero.io.

Alex Norta 17:35
I think if we're talking about full privacy assurance, then you have here this If we're talking about full privacy assurance, then you have dero, smart contract blockchain system is just like Etherum but Ethereum is synonymous. Yeah, like like Bitcoin. And of course, you don't have privacy. And of course,

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this will not work if you want to have properly setup cross organizational business processes. But I think if you bring the Dero into the mix, as a smart contract blockchain automation option, then you have privacy again. Okay. That's a public blockchain

Augustine Madumere 19:06
In this case, because it does not take your way the benefit for instance, is public. That means also for some businesses. potential data security or not in terms of identifying who is using what data are they right at the time? Yes, this is going to be a tension between a company that wants to as a company want to know who's accessing data at what time usually for work at a company that okay, this is anonymous. We don't know who is that. But you have this nation there. Yes. How do you think

Alex Norta 19:55
I can tell you so this 10th PhD Students I just mentioned his name. Let me type his name here Chibuzor Udokwu who will defend on the 26th? of September 2022 at LUT. I would love to really share his PhD thesis, which I shouldn't do before the defense but what I think I can do I can send the papers that are underlying I mean, that are the foundation for his PhD thesis. What I want to say is I've done many studies for blockchain DAPP design with startup companies. And it is a misconception to assume that you can that you can fix all complex blockchain dapp issues with the one and only blockchain system here doesn't work this way. But instead, you have a technology stack. So you need to study what the future self of respective components, what are the functionalities that you're after? And based on that you need to make tailored technology choices. Yeah. So if you now say you have a complex logistics application, and you think you can just pluck one of the many 1000s of available blockchain solutions or only one smart contract blockchain system, and then everything is fine and dandy doesn't work. So let me quickly find here. Papers of chibuzor. So that's this list of applications. Retry if I can just paste this in. Let's see if there's enough space here. posters. This is papers, you can check them out. And they are seems to work. Great. Nothing cut off, it seems. Yes. So next month, you can access his full PhD thesis and you get the full story. But it's the story of the core publications. And we use this to design many blockchain apps. Because to our knowledge, there is no proper blockchain dapp design and development methodology available. Agile is not an option for blockchain systems. Because Agile is, you know, I built a very buggy system, and I give it to the customer and the customer is kind of dumb, and doesn't understand the challenge and keeps coming back to me for years and years and years to have to bug fixes. Can't do that with Blockchain systems, because then you constantly have to add fork. It's it would be comparable to having a smartphone producer build microchips in an agile way. And then ship out, you know, the phone with the buggy chip and say, okay, every month, you must bring the phone back so that we swap the chip, where we now figured out how to get rid of one pack. It's absurd agile. So that doesn't work for the blockchain development. So we have designed and published the baton methods which she puts her in his PhD thesis will defend very soon and maybe I can even give you the title. I think that was not problematic. Then you're going to hear screenshot of this thing and try if I can, can I share this

Alex Norta 24:58
okay, COVID is done this all the information if you want to listening to his PhD defense next month. Right? Information I'm not sure if the auditorium if that's up to date. Yeah, no. Mind. Okay. Yeah, but so you will, I mean, my experience working with many startups, Blockchain startups is you need a tech

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stack. That's not the one and only Holy Grail, smart contract blockchain system with which you can satisfy all the functionalities that you want in a complex step. You if

Augustine Madumere 25:55
I, if I will go to have gone through the list of questions that I have in mind. And I think, this question that we gave before, touched on two, on two different things, immediately, that's what I was why I just jumped on but not close the issue of an anonymous surfing the web are looking at application where the company would like to have a very audited report of who is assessing which data also kind of accountability point of view where it is required, for instance, for the company, internal privacy, to also limit access of user data or tracking data to certain group of people. But the hierarchy, absolutely, always, always there always a tension..

Alex Norta 26:48
This is where you could use MFSA multifactor challenge set self sovereign identity authentication, to identify that really the right people, in the right context access the appropriate data sets.

Augustine Madumere 27:08
How can transparency and traceability via foster internal processes, let's have a look that we are in a private hyper ledger,

Alex Norta 27:20
domain privacy and traceability what's what what additional

Augustine Madumere 27:24
transparency and traceability of a human activities that is compliant within or outside outside the blockchain ecosystem.

Alex Norta 27:35
I mean, if you follow the this process models, if you go to be Vimal Dwivedi PhD thesis, you can check up on the details. But if you follow this process models are once upon a time designed with the public view and the private in-house processes. Then you have kind of flexibility, how you tune transparency, traceability and privacy and so on. In that you create transparency and traceability with respect to those tasks you expose in the public view and stay other tasks or sub ends, sub processes, you don't want to have exposed to simply keep in house opaque. And they just don't show up in the visibility of the counterparty. You see, that's why I think my collaboration models and blockchains. Cove extremely well together. There's still an endless work. I mean, that needs to be done. I wouldn't still need an army of PhD students to get all the work sorted out. But all these good questions I think you saw with my so called E-sourcing framework across organizational business process models that I started publishing about way back to my PhD days in 2003 or 4 and that Vimal I mean, I published about this also, when I was supposed to clean Helsinki and I gave everything to Vimal. Vimal did not really focus on the business process part but extended my work to introduce legal relevance because we say we have a smart contract, so it's got to be smart. That's kind of At some sort of AI integration Etherum solidity code as such is not by default, legally relevant. For this legal relevance, the Vimal as a follow up to my old PhD thesis from 20 years ago, whatever, almost he extended that work with legal relevance. But in

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there, you will find all the references to my esourcing into cross organizational business processes. And this work should be very much combined with Blockchain smart contract or blockchain technologies, not just one not just, I don't know, the one and only Etherum not how it works. We got the Oracles we got the DAO's, you know, and so many blockchain systems really, it's very unique and different features. So you need a technology stack to get things working the way to shoot.

Augustine Madumere 31:19
Let me go to one more step for it. Because I've been you also mentioned something, just don't bring another question in my case is I'm looking at the trust model. So trust model in these cases, the trust in blockchain code, or do you trust in institution offering the solution so in the case of IBM Food trust solution, is a big solution provider right? Offering that service to the ecosystem. And, and, and some of the rules might be tagged to some maybe smart contracts, for instance, for you to join the the ecosystem you need to be you will be vented by an advisory board, right for you to join. Now with this kind of setup, how can be established between those users that are participating? And what is required?

Alex Norta 32:29
Yes, trust is a very complicated issue. On the one hand side, so that's just my own personal observation, all these so called institutions have become utterly, not trustable. We're living in very interesting days where we are observing the collapses of all these so called institutions. They are mostly turns out I mean, I've known this for many years, but even for people with normal observation, willingness, they understand evermore that this institution such as criminal frauds, and scammers that operate with a lot of propaganda to fleece people into believing some something trustable about them, just because then institution. The smart contract code there again, we go back to what system you use. If you use your Etherum, solidity can't be trusted. solidity is a language, which is not truly properly rooted in mathematics can be verified, not a good option. There are many other much better smart contract systems we have now that are based on properly explored languages that come out of academia where you have to support to verify the languages and then in many ways you can establish trust in the code much more and better. And in something like solidity I'm talking about systems like Tesos or Cardano, or eternity. And others that have languages for which tool support exists for all sorts of verifications and quotes verifications and so on. So then, I mean, trust is a very complex socio technical notion. Of course, you can then argue, okay, you have not a tool support and you're checking the code with some mathematical algorithms for some properties. Okay, then you have Maybe some some sort of technical trust. There's still, if we understand trust as a socio technical notion, then there's still even when the tools, you know, the algorithms in the tool, say, Okay, this is like secure code that will run in a sound way, there might still be all sorts from a social point of view. There might be a lot going on in the codes, so that you can still not trust the codes.

Augustine Madumere 35:40
Work out what kind of benefits will do arise from the restricting access, when we say, okay, we put the trust in the code, right? For something like a platform like solidity that we cannot trust, right? We put it on on the institutions we have, apart from the institution may be too strong. They might, they might have used the data in a way to enrich themselves, but to understand your business to understand your

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market and make great new products. However, when VC participate in this project, right, again, is kind of taking away that decentralized financing. But blockchain was promising. Right?

Alex Norta 36:44
So yeah, I mean, the the trust establishing aspect is, of course, you have a decentralized system with replications of blockchains, I don't know this safe etherum. You have these nodes that are self healing, if something gets corrupted, and so on. Of blockchains. So there is definitely enhanced security in the picture. But security and trusts are not the same. I mean, you can then trust. If you say, Okay, this is totally distributed. There's no one powerful institution that controls the data bases and can fiddle with the data all day long, you know, and manipulate data sets, and so on. To have restrictions to accessing data sets. Definitely is an improvement of trust. But again, you have a lot of scope for breaches of trust. So certainly the codes, the soundness of the code, that's, that's an issue. The other thing if the code is sound, but you can still make mistakes, that you assign that say, privileges to certain categories of stakeholders, now, the verification algorithms was okay, there's no problem with it. But still, the damage is done. And you open up by accident, maybe data sets to stakeholder classes, or categories who are not supposed to get access. Yes, so. Yeah, I mean, so yes, you have trust enhanced, and certainly with making better choices than using Etherum. You can top that even more with, you know, tools taking for soundness of code, and so on. But it's a very complex issue trust because it's also a social qualitative matter, not just a technical algorithmic matter.

Augustine Madumere 39:32
Let me go back to a different topic from the point of integration, right. What challenges in your views let's let's assume that the solution that describe about luxury goods, right, will be in the market. What challenges do you think might arise with implementating such solutions in an existing business. Let's say I have a secondhand shop. Right? That is selling both luxury goods, right? Yeah. Oh, I am I'm a new young startup that is creating luxury goods and yes. Work, what challenges might arise, right? How can blockchain be integrated with my existing processes? Yes, we will be there are some certain steps that are necessary.

Alex Norta 40:34
Chaise EU project. So the problem is to find skilled people. At this point, Blockchain solutions still require quite a bit of technical know how. And the competencies for that know how or not really readily available because blockchain technology has exploded auto, Bitcoin came out in 2008. So not not entirely fresh. But the response of the so called institutions like the universities has been ridiculously obstructive. Why do I say that?

Alex Norta 42:42
Any government funded institution will only commit itself to work that reinforces the currently existing structures of central planning and central control, which is what government is doing.

Alex Norta 43:03
Yeah. So I always love it when people are rambling on about, you know, we're living in the free democratic society and all this stuff. I challenge these people to take the 10 planks of the Communist Manifesto. Now Marx, and read them. 10 planks of the Marxist Communist Manifesto. And they will

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understand that live actually in a hardcore communist society, even in Switzerland, yeah. All right. So, now comes blockchain. And blockchain is basically an anarcho-capitalistic tech. Yeah. So this Marxist communism freedom we're so proudly enjoying, and now suddenly under threat. So, what do you think is the response of a government funded institution University? Will they set up all the courses so that, you know, the cohorts of you know, Blockchain specialists will be suddenly generated? No, of course not. Will they fund projects? I mean, it's now much better actually. You do have funded projects, but I can tell you like I wanted to do that in 2016. When a etherum came out, I fell off my chair when I read the white paper. Because I knew I should have had this ready in 2001 When I started my PhD thesis. Yeah. Instead, when I had me I think done in 2006, then you got the bureaucracies were defended in March 2007, in the Netherlands, and then for 10 years, nothing happened. Nothing. Because we had, you know, the big, big data mining phase. So it's like computer science to put communism on steroids. It's to completely reinforce all the central planning and central control. Everybody went wild on this stuff. And the work that I did, you know, total distribution, decentralization disintermediation, disruption. This was completely sidelined. Nobody was interested. So at least when in 2014, the Etherum, whitepaper came out. There should have been a response on this government funded education institution levels. Yeah. Exactly. The opposite happened. Yeah. So no funding. I mean, you have very critically important technology. But you get just ridicule, you get no funding, you get no support. And certainly, there's no willingness to educate anyone. It's now changing a bit. But it's like the drops in the big barrel that's empty. Yeah. So that's the biggest problem, where do you find the people who can get the job done, there have to be auto detects. And for that, I can say, auto detection. And for that I can say so I've been lecturing for many years. The surprising realization is that auto detects are not necessarily I mean, it does not infer if you're good auto detect, you're automatically also a top student. You can be a top student who does very well during exams, but then you still don't know how to teach yourself. Yes. So auto detects, you find an excellent, but also in quite bad students. It's something it's a special skill, that you know, where to look for material to teach yourself and to train yourself. And these are the cohorts of blockchain people who satisfy the market need for skilled labor, you know, your average SME person will not be able to bring in blockchain technology into existing processes.

Alex Norta 47:58
So, you will need to search for some auto detects, or maybe some large companies say the IBM's and so on, have their own in house training centers. From the universities, you can hardly expect anything with very few exceptions like that. I think I'm aware of, okay, this of course, the Nicosia University. Does to IT Copenhagen university that does a lot in blockchain training, some blockchain courses, sporadically an offer. I'm aware of a courseto Munich barrier. But mostly if you want to train blockchain people you meet still a lot of hostility.

Augustine Madumere 48:53

Augustine Madumere 59:49
Before I wrap up the interview. I'm not an expert in this domain. And some of my questions might not be taking me to where I want to be. Because I just want to understand the tensions are existing when you think about profitability and growth, you have open public and private blockchain, In private one can just plug in via API and starting using it, In public, a group with a lot of participants come together until you

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start benefiting from it. So it's a long term investment, whereas this is a short term profitability investment in one is it exclusive to you, participants behave differently, like you said, Trust is already there you believe that it is trustworthy to an extent as a small company, you cannot verify it, you don't have the capabilities to verify till you assume that the trust is already participants have on the ecosystem.

Alex Norta 1:00:53
Dont forget the legal side. If, yeah, because you, you get into you know, working with blockchains. And then, okay, you do the logistics costs automation to a certain degree. And then maybe you get into cryptos, you know, because it well, what the heck now? I want to accept payments in Monero. And then suddenly, you get into all sorts of troubles with, you know, laws and taxes and could not spot and then there's GDPR, of course, and you know, if you have immutable traceability once on a blockchain can't be forgotten. What are you doing then? Yeah. So you think you want to adopt blockchain technology, and suddenly you get into all sorts of GDPR legal issues, issues, and, and you get suits. And I mean, like in Estonia, does this is possible to, you know, accept payments and pay yourself in Cryptos? And accountants know how to deal with it. But I think if I would do this in Austria, for example, okay, I'll get right into hell. Legal Issues. Yeah. Yes. And I don't know this in Switzerland. I think it depends on the country. And if you're in Zug, you can do that as well. But I could imagine that some cartons in Switzerland might also give you hell, if you suddenly get into crypto payments. It's, you know,

Alex Norta 1:03:36
Yep. Okay. Very good. Yes, so I mean, what we very briefly, what we discovered during this PhD thesis was that the laws are interpreted in a hostile way by the courts into charges. Surely, deliberately, often probably on order from the government, to discriminate against blockchain industry and to actually criminalize the blockchain industry in many cases. And that's a knee jerk reaction. Because it's technology that goes against Central planning and central control paradigms of these people. The quasi communism that we're not allowed to call communism. But we have to call it freedom. It's absurd. When I think about it all we live in a very absurd world of make believe. That's all I can say.

Augustine Madumere 1:08:08
Thank you for your time.

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