Pierre Kaufman - Master thesis with IBM Food Trust as case s...

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SPEAKERS

Augustine Madumere, Pierre Kauffmann

Augustine Madumere 00:02
Thank you so much for taking the time to join me today. For my Master's degree program - MSc in Digital Business Administration at BFH Bern, the University of Applied Science. I am researching tensions associated with implementing and using blockchain technology in the supply chain and the resulting paradoxes. The knowledge of blockchain-related tensions and contradictions is nascent and limited, and the goal is to validate identified existing tensions using interviews. I am using IBM Food Trust as a case study.

Augustine Madumere 00:57
So my goal is to, I mean, from IBM point of view, you have the resources, you have the knowhow you have the brand to push it. And and for the smaller companies that they might have issues with, for instance, this is a good fit for us. Can we trust these companies? Can we what does it mean being tied with this contract of using the ecosystem? Meaning that we are for, for instance, this one of tensions that I mentioned before? That it's might be difficult to come out of it in the future? Or if we have a new partner, let's say who is not on this blockchain? How does it affect the organization of our company? Some of the participants of this survey will come from these companies. So that for instance, so that we can be able to understand from their perspective, where do they see tor what are the issues they are facing? What was kind of a paradox, contradition of for instance, like I just said, now, with a with a permissioned. Blockchain. Maybe this decentralization of blockchain does not exist anymore. But that might be a paradox, looking at what they, what and how, how blockchain, food trust was set up, right. So from your viewpoint, how will you engage a small company who is interesting to come onto this blockchain? Bearing in mind that you as a big brand have more potential from this blockchain than a small company that is in Mexico, for instance.

Pierre Kauffmann 03:03

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So there are a truckload of elements. Let me try to do some a little bit of categorization in here. You. As you mentioned that your focus is more, let's say on enterprise blockchain rather on crypto thing. This is also let's say the the focus of IBM, not saying that we do not believe I'm not saying that in crypto thing is that what we witness in the request from our customer when we, as IBM are engaging into a blockchain project. Most of them, let's say maybe 99.9% of all the projects we run. We are not involved in any, let's say, crypto related elements. We've done some for some reason. But when I'm talking about a project, I'm talking not just about the proof of concept proof of value. It's something that runs wherever you have users which are using that into production. Apart, let's say the public blockchain and the private blockchain permission version versus permissionless. There is kind of another category of project that we witness as either a customer and it's totally do not depend on the size because as just a simple example, I'm taking IBM Food Trust. We do have a company like WalMart, 3 million employees using Blockchain, IBM Food Trust. We do have also been In Geneva, a smaller company, which is a startup, they started to use IBM Food Trust, they were eight or nine, something like that. And now they're 15. So it's a very small company, and they using the same platform as a Walmart as a Nestle, as a Carefour as a Kroger's, are all of the customers that are currently using Food Trust. So it's not too much a question of size. It's a question of how do you want to approach a blockchain project? Either you're trying to join a blockchain platform which already exists? And then it's just a question that say, of in IT integration, no more, no less so to say. Or you're wanting to build yours. And when you start to build a new blockchain and weakness, and weakness, a lot of those the challenge is to when you build that usually say, Well, how much can I invest and what is, let's say the return on investment for for this for this project. And then you narrow the scope to from your big idea to something which is smaller, which is only for your organization, whatever the size of your organization, there is an important time there is someone who has the budget and say, Well, you need to do the same thing, but with half of the budget, and then you narrow it again. And at the end of the day, the use of the real value of the blockchain is no longer let's say visible, or it does not bring what you expected at the very start. And this is regardless the size of the company, it's always the same story. And I've witnessed that 20 times, but this is I mean, they say common knowledge. So the adoption of your project will be very low. And it will be I mean, likely to be to be thrown to the to the been a year, a year and a half after you started the project. So to answer your question, how do we approach so a customer? I approach personally build a large customer or a smaller one with always the same story first to trying to tell them

Pierre Kauffmann 07:42
what is why are they doing blockchain? Because blockchain is nothing new. Because it's just a database, which is encrypted, which is distributed. And database. I mean, we've we've built databases since the 1960s. So that's, I mean, 60 years ago, encryption, I mean, Julius Caesar was already doing encryption. I mean, that was 2000 years ago. And distributing data. Yeah. Okay. Let's go to the 70s. So this is I mean, all the technology is I mean, over decades old. So it's just a database at the end of the day, a blockchain. So it's the value that you can bring out of this shared encrypted database that brings an additional value. And then you need to have a real pain point that you need to solve any this pain point is only dedicated to your company or to a department or to an organization within your company. It's doomed to fail, it will not fly, frankly speaking. Where there is value is when you start to open up to others, would it be your partners, either upstream or downstream in your value chain, or your direct competitors. And that's why Walmart and Kroger's in the US for IBM Food Trust, they are direct competitors, but they're using the same blockchain. They're not sharing the same data, but there's

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they're sharing the same platform because there is a value in it. And the value is that they can trust the data which is in an if there is only one word to remember is that blockchain is about trust, whatever the technology, it could end up to be a permissioned private blockchain or permission less public one, who cares at the end of the day is just a storage mechanism at the end of the day. So there is usually there is a fight between should I choose Bitcoin, Etherreum, Hyperledger and cadano , whatever the name of the blockchain, the protocol, it's the least of the choice, but because we are so IT driven If people start to choose a protocol and say, oh, let's build something out of it, but this does not fly either. So coming back to your question, the way approach is, what is your problem? Are you sharing data? Are you sharing processes between your provider or your suppliers between your competitors? How does it work? Where do you see friction where blockchain can help and let's say 60% 70% 40% of the time depends. This friction can be alleviated by using Blockchain because everybody looks simply at the same data. And this is where the value comes from. And if there is not this pain point, if people are not able to express his pain point, it doesn't fly.

Augustine Madumere 10:50
When we say that, for instance, the food blockchain is used both by Walmart and its competition. Yeah. How can how can we establish trust.

Pierre Kauffmann 11:00
So the trust the trust is going on several levels. The first one is the pure data. When you inject the data into the blockchain, you need to trust the guys or the ladies that are injecting the data into the blockchain. And usually this could be farmers at you named Ecuador or Mexico you need to have I mean, to be sure that the data which is let's say, for a batch of fruits of mangoes, let's say that these mangoes into a manufacturing plant then when they're seeing it when they're doing all the packaging of it, that this is I mean the real mango and that you can trace this mango I mean into into the blockchain. So you need first this is the first develop trust. If this first level of trust is broken, then everything goes bananas, frankly speaking, so but that's another story. If you have that, then this provider can provide them in mangoes for Kroger's, as well as for our friend from Walmart. So then there is a transporter layer and each time people inject some data in it, then you need to trust them and to be sure that there is kind of this providing this traceability. If you don't trust the guy who scans or the lady who's scan stuff, then there is there is always a possibility. So that's how the blockchain works at each. Each level, there are people that are verifying that the people are doing the job correctly such that the data which is into the blockchain is trustable. Now, in your own organization, Kroger's versus Walmart, both say well if I do have access to IBM blockchain to the IBM Food Trust on one side or on the other side, well, I trust that the data which is in has been injected into the blockchain correctly, according certain standards and blah blah blah, and then I can read so I can remove some of my checks that I'm used to do in the past extracting data from one IT system putting into another one then put into a third one and put into a fourth one. Force One then trying to see and to guess if the data is okay or not. So this is what blockchain But IBM Food Trust brings in terms of pure traceability. The second level which is very interesting, too, is that all of those gentlemen Walmart, Carrefour, the Food and Drug Administration, and some of there is kind of a committee that is managing IBM Food Trust. It's not even if IBM Food Trust is just a trademark. We are doing, let's say supporting the way it runs the way it executes. But we are not driving the directions. It's our customer, the Nestle the Walmart, the Kroger's of the world, which are saying, we want to develop into that we would like to inject certificates. Can you do that IBM? Yes,

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we can do that. This is what we plan to do. Blah, blah, blah, blah, blah. Are you okay? Kroger's. Oh, no, we need this more information. Okay, let's try to inject this more information. So all of those people is like the European Union, they are all together, they need to find a common agreement for their business problem. And when they find a common agreement on the governance layer, then they can inject that down to the I mean, let's say the pure into the IT dimension of the story. So and this is where the trust is built from. It's not IBM deciding to go that way. It's a it's not a product. It's something that is built between different parties all together.

Augustine Madumere 14:58
Does this require from the participants also, let's say for instance, we just were still using this case of the Walmart and Carrefour. And I understand that that, first of all, you need to trust your farmers, right? The origin, there has to be a level of trust. And if it's garbage in, garbage out, yep.That's it, though that level of trust is there, second level level of trust, and the participants themselves also need to agree on a mechanism to be able to do that. And for that, IBM only comes in as support rolei n this regard, yet where the board have taken a consensus decision what they want to do.

Pierre Kauffmann 15:52
we also have a word to say, because sometimes they come with really crazy ideas, which is, let's say, still feasible, but which are I mean, a little bit too crazy. So we have also a word to say, but there is they have a kind of a monthly meeting, all together have a discussion, and when there is someone who wants to join. And I do have currently a customer here in Switzerland that wants to join, I mean, this ecosystem, they will vote there currently have 12 seats, which are valid for two years. And after those two years, there is another vote and then the seats are changing at steroids, right. And when there is a new joiner that would say, Well, shall we accept this company? What would they bring, either they will bring, let's say, another set of products, let's say, dairy product, let's say something which is totally different that that they don't have, or pickles or whatever you name it. And at the end of the day, they will say, Well, it's a value for us to bring also this visibility into IBM food trust, because we're looking at leafy greens, we're looking at this, we're looking at that we're looking at meat, but we haven't looked yet at beverage or milk or yogurt, or you name it. And it could be very interesting for all of us to bring, let's say, the capability of crossing tracing and tracking the, let's say yogurh, because they don't have that. So they will not track the yogurt of this specific company. But they will try yogurt as let's say, a product in as as such. So would it be big product products? I mean, yogurt with fruit fruits in it or not? And blah, blah, blah. So there is kind of all of those variations, okay, no, we need we can, let's say bring more value in IBM Food Trust. To try track those those kinds of goods.

Augustine Madumere 17:57
You just mentioned that the new participant. I mean, they will vote to say if they accept a new participant or not. So that means that the new participant might also need to have additional cost of investment to prepare themselves to be able to participate in the ecosystem.

Pierre Kauffmann 18:16
yes and no, because yes, of course, because there will be a change. The way IBM Food Trust is architected is that your let's say regular IT system can exchange data in, in, let's say, a standard form, which is a public form. And you can go on the internet and see how we can exchange data, which are

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following some standards like the GS1 standards, and some others. And it's let's say traditional IT by doing some API calls or exchanging files in a defined defined format. So there is of course, a cost of change in the IT world, but it's, I mean, it's totally standardized, and it's, it's it does not cost honestly a lot It costs a little bit but and we also have already integration with some specific tools like SAP and some others.

Augustine Madumere 19:15
So there are some standards, identification, key identifiers of of the data. Thank you. How does the company from your point of view benefit from this structure, this data sovereignty that rests with IBM?

Pierre Kauffmann 19:51
So, first point, it does not rest and it's not only the IBM even if it's taking Again, the example of IBM Food Trust, IBM Food Trust relies on hyperledger hyper ledger is a private permissioned. Blockchain. It currently runs both in the US and in Europe, some customer asked to run some nodes, meaning adding some copies of the blockchain of the ledger. So to say, in their own, let's say premises,which is feasible. And they're doing that some others say, Well, we are too small, I'm just, I just named a company of 15. People that say, well, we don't have let's say, on site IT. So I'm okay to use the server, which are currently on hosted in Paris. And I'm fine with that. So they we do not have as IBM the capability to either see or to, we have no capabilities on the data, but making sure that the data is still there. So it's our customer who have the capability of getting the data we do not have any any specific rights for for that. So that's the first point. And I've lost the initial point that I wanted to say.

Augustine Madumere 21:23
My point was the data sovereignty where the company shares the data with the hyperledger, the liquid ecosystem and somehow it can be a risk.

Pierre Kauffmann 21:49
So we do not have any, as I said, we cannot delete we cannot alter data. This is I mean by design not feasible for with hyperledger.There is two things. The first one coming back to your very initial question. Large Company versus small one, they all have the same level of access of the data. That's the first point. And the second point is that I say that they're all sharing the same platform. But the beauty of the underlying protocol, which is hyper ledger fabric, is that you can define technically speaking, and it's built in into the initial product, which is not an IBM product, of course, you can separate the data that you want to share so the data and just name them in the avocado provider or the mango provider somewhere in Mexico, they can sell avocado to Walmart and avocado to Kroger's. Well, they, I mean, they can separate the data because the fact that the producer and Walmart share one part of the data is for I mean, what we call the channel that said, okay, there is a channel where this this provider and Walmart, they will exchange data together, and then this the same provider with an with another, let's say Krogers, or Carrefour, well, they will use another channel, the only one to have a view between the two is, of course, the provider and the one and Walmart will never ever see the data from Kroger's and vice versa. So this is where the data is separated. And this is a pure This is the mean the beauty of how hyper ledger is built, we could have chosen I mean, another technology, but hyper ledger is of the separation of of data. And each of the one who participate into the into the blockchain will see his or her

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own data and the one that you want to exchange with with the other. So that's that's also something which is very, very, very important.

Augustine Madumere 24:01
Okay, does that mean just clarify? clarification? I'm not an expert. Does that mean that let's say for instance, I produce orange, my wife produces orange and my son produces orange, this orange and we're competitors. But we are all we also apply to, to Walmart, we open access to Walmart to all the data. Yeah. Right. So Walmart has access to the data. But we don't have access to each other's data. Exactly going to have that. But yet the end customer can see where it is coming from when when they scan the QR code.

Pierre Kauffmann 24:40
That's up to the person who builds the application on top of Food Trust and it's not only the application provider Use I mean, you can scan with your phone while going to a Carrefour you can scan a QR code, then Carrefour say I'm okay that my consumer scan the QR code, but I just want to give them the visibility on the country where the food is coming from either the olive oil, the mango, the avocado, the orange, whatever you name it. I know as Carrefour the name of the provider I know the batch code I know the when I produce when I bought this and I'll which price and blah blah blah, but I just want to say well this is coming from Tunisia or this is coming from Ecuador. Basta. So and this is the level also of there are several layers and you don't see the pure data which is stored on the blockchain because it's, it makes no sense. And it's more let's say, what you would like to do on the consumer side, then there is always a question that reminds is, well, Carrefour can show me whatever they want. So indeed, but the way, and this is how, you know, there is some let's say, NGOs, which are currently existing in that are tracking and say, Okay, well, you're using IBM Food Trust. Show us that when we scan this kind of product, I mean, you don't have let's say kind of stupid Excel file that's sending that sense data, okay, okay. Everything is okay. No child labor, everything is green and blah, blah, blah, no co2, well, they are inspecting there is the Rainforest Alliance. And there is kind of some other which, which are I mean, auditing and say it's up to Carrefour . It's up to the Walmart the Kroger's to say, well look at our data, what we have and this is what we're providing and looked at the data we are not I mean, manipulating the data, which is stored on a blockchain and presenting something which is different. Usually they are just aggregating the data is what they're using us to do normally.

Augustine Madumere 27:16
How do they choose this participant, these partners that you just mentioned?

Pierre Kauffmann 27:21
It depends how they acquired a chose

Augustine Madumere 27:25
because he also afraid to alignment organization.

Pierre Kauffmann 27:29
Yeah, but it totally depends. I mean, some Nestle as an example, they choose the French company to do their website for Nespresso, which is currently using IBM Food Trust. To be very frank and honest

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IBM bid to win this project. But we were more expensive than than the French company. So they chose this French company. For other Walmart, they're doing that with some of the company in the US which are not IBM either. And they were providing me this layer of access to the to the data, but it's Walmart again, who says I would like them in again, it's nothing I don't know what to say. I would like as Walmart to expose aggregated data from a country about this product, this product is or the product, but not all of these, you know, there is like 10s of 1000s of products which are currently tracked on IBM Food Trust. Some are more let's say sensible than than others. So I mean, they display Carrefour may display something about the eggs or the fresh salmon. And Kroger's may not because they don't want to. So it's their choice not ours to there is a very extensive data matrix sharing which which exist and they can do whatever they wanted, without telling us

Augustine Madumere 29:03
so to say this, this can be built into a smart contract. And

Pierre Kauffmann 29:07
it's not directly in the smart contract because then it's more about the data sharing what is currently bit in the smart contracts of the blockchain is more things which are more let's say on on the lower level saying when there is a batch load which is separated into, I mean, you get a pallet of orange, then, which is a bulk pallet of oranges, then you split that into, into, let's say smaller, smaller boxes for whatever reason, then those the way to transform one full pallet into, let's say 100 different boxes, then this is built in into the smart contract to say well generate all the QR code and blah blah blah and then we put just the stickers on the on the boxes with the appropriate QR code. So this See, this is built into the smart contract. So whatever there is in the smart contracts, there is also kind of alarm and mechanism which are popped up because there is a company which is called Golden State's food, who use IBM food trust also in the US because they're providing the, the meat pastries for McDonald's in the US. And a couple of years back McDonalds changed from their frozen meat, steaks, they change that to a fresh one. So the level of temperature, if you have frozen steaks, then you need to be below minus six degrees. But when you're using fresh food, then you must be between four and eight. So you have a very, very tiny little margin of temperature. So we do have I mean, some stickers on some pallets of of those meat steaks. And then whenever there is kind of we don't say that in English, but when there is kind of a temperature breach, or you're going higher or lower than the food is no longer, let's say suitable for human ingestion. So what happens is that smoke when you scan the QR code, the smart contract, recognize that there is a break into the temperature, let's say scenario, and when there is a break, then just declare that the This batch is not good for for result. So

Augustine Madumere 31:42
thank you. Are there other areas where you think that I'm missing out that I should look into when it comes to these types of conflicts in the implementation ad integration? Also if there are contradictions to the belief of these challenges.

Pierre Kauffmann 32:04
There is one word that you mentioned earlier, and that I am a little bit I mean, move aside for a moment. There is one, there is one large challenge is that when you're building an ecosystem, I mentioned in the very beginning of our discussion, the fact that there is I mean two categories of group

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of, let's say organization, the builders and joiners, so the builders that build their own blockchain and joiners that join existing platforms. There is one common factors is that everyone that wants either to build or to join such a platform like IBM Food Trust, you need to find a value in it, not just an ROI. Sometimes it's just a marketing stuff. Sometimes you need to find a value, you must have a pain point and this pain point is solved using using these blockchain if there is none, then you have a problem. I'm giving you one example that is for Nestle and the potato grower in in North of France. Why in the hell sorry for the wording as a potato grower? Should I inject data into an IT tool? That's not my job, I grow potatoes basta. And that's it, I don't care. Who cares I mean, those are mean geek thing. So, but there is an interest for Carrefour to say that those potatoes are coming from this place in France from Pierre Poljak whatever the name of the of the grower. So the question is who pays then for taking the data from the field the real field of the potato then to the manufacturing plant and to inject this data from the manufacturing plant into into the this IBM System which is called IBM Food Trust. The choice that has been made at the time is to say well, if mousline in which is the name of the mashed potato which is well known. We are paying for that said Nestle. we are doing that. And we are teaming with Carrefour to be sure that and with the packaging company to patent the package and batch size the batch numbers such that the people in the supermarket they can scan and they can they can get the let's say the value knowing if it's coming from Pierre or if it's coming from Poljak or whatever the name of the guy. So it's not always let's say the provider of the goods that provides the that pays for the providing the data and that does the integration because there's a farmer there I mean, no IT skills, this is not their job. But Nestle, said, Well, we do have I mean, some some guys which are knowledgeable on the it that knows how to connect to whatever system to our SAP. So let's bring those gentleman in one place. And let's do and they will do the integration and inject data into into the IBM Food Trust. And at the end of the day, the people, the NDC, where I'm coming, the farmer, they are, let's say, they can be rewarded to say where we are, let's say I can differentiate me as a farmer as potato farmer, I can differentiate myself because I have a system that can inject data that can bring traceability, and the one which is aside two kilometers away, he cannot, I can do that. So this is an added value for you, if you want to buy my potatoes, so I sell them a little bit more expensive, because I have all of those. And I'm fully transparent. The other one you don't know if he grow directly the potato in his field, or if he bought that from whatever place and so in this is, let's say, the win of the person and the person, the farmer also get rewarded by just the fact that he is part of a larger ecosystem. And he let's say, a value, let's say intangible value to be part of this of this ecosystem.

Augustine Madumere 36:28
You mean that it is a joint value capture for both the small company and the big company? Right. And also, this kind of exclusivity, in the sense that from Carrefour point of view, right? Yeah. Thank you.

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