Emmanuel DELERM - Invitation to participate in the research ...

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SPEAKERS

Emmanuel DELERM, Augustine Madumere

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. I am using IBM Food Trust as a case study.

Emmanuel. It a very good for my research that you have this experience of starting to develop own blockchain and then switching to IBM solution. Right. So there must have been benefits maybe the solution that was in place before did not fulfill the criterias? Or are there any special reasons or benefit? Why this switch from in house to IBM Food Trust?

Emmanuel DELERM 00:44
Yeah. Very valid question, of course. In fact, we started in 2017, our first blockchain on Ethereum. And at that time, because it was in 2017. The first blockchain we set up was working very well. But we had two issues. The first one was, even if we were using private blockchains. So not working on public cryptocurrency, like blockchain, but we had our own network of nodes. We had two issues with Ethereum. The first one was performance. And the second one was the fact that if we were to launch different blockchain on different products on traceability, we were obliged by the Ethiereum solution at the time to run multiple instances of Ethereum. So, and to have multiple registers, so we moved over. And it was, let's say, having having on with ethereum during six months, we moved over a hyperledger, always open source and directly open hyper ledger is distributed through the Linux Foundation. So we went to the Linux Foundation on to the GitHub downloaded the open source, hyper ledger. And hyperLedger was really interesting, because that we could use where they call the channels, which may we add only one blockchain with every product running on a separate channel so that if you're running a blockchain on eggs, and eggs, egg producers, the producers of chicken that you were running on other side, we're not seeing the data from the egg producer, because obviously eggs and chicken are in the same business. So there are competitors, in fact, so. So we add, and this was in the same

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ledger. So we move to a hyperledger for I would say, performance, but also architectural reasons. And then IBM Food Trust was also running on hyper ledger. So we we had some discussions as being both I would say, pioneers in blockchain and traceability. And one day, we had Nestle a Swiss company. And they came to us and said, Well, we would like to have you on board to make the first blockchain on national brands. And it could be with Nestle, but Nestle won't go and won't put any data in. Carrefour blockchain. And Carrefour blockchain won't put any data in a Nestle blockchain. So where can we meet? Where can we share data with the third party, and at that time, IBM Food trust was the strongest third party and we knew already hyper ledger. So it was I say an obivous choice to put data in, in third party in a common shared system. And by the way, IBM Food Trust was looking for some European based companies, and especially a retailer so we were quite, I would say, warmly welcomed into the IBM Food Trust, when I can say because I know it's anonymous but what I can say is,

Emmanuel DELERM 05:40
at a technical level, we were quite disappointed by the level of technology and technicity of the IBM Food Trust system. The system we managed, and we built internally with Carrefour, who was far more ahead in terms of technology permission off and on chain, portability, and so on. So, the first thing we said to IBM is, we will work together in order to, to work on the few tection technological setups and parameters that we will need with your solution. So it was not for technological reasons, obviously, it was very, for a matter of philosophy and going to a community where we could share data without losing the ownership of the data.

Augustine Madumere 06:45
So it didn't in the initial phase, , it was not to improve processes, processes, so it was more of an if we can put it like this, it was more of an objective that is tied to profitability looking at Nestle as a partner that wants you to come on board.

Emmanuel DELERM 07:15
In fact, it was Yeah, profitability, I don't know. But it was like if we were I at that time going to industrialized traceability with blockchain and with potential outside partners because it's the heart of blockchain in terms of traceability to be very open to outside partners. Maybe it was time to go for for a platform like IBM foot trust. I left Carrefour. So I cannot say anything about this today but I think even if it's a strong business case I don't see much why don't hear much about food traceability anymore so I'm not in that business anymore. So we did the project with Nestle we add the first national brands on blockchain with Nestle and IBM Food Trust. And as of my knowledge Carrefour was deploying an is deploying all the new blockchain they issue every yea and deployed on IBM Food Trust.

Augustine Madumere 08:52
If I may want to go back to your blockchain. Yeah. For sure. It took quite a long time to be developed. Right? A lot of resources.

Emmanuel DELERM 09:03
No time. No, no, no. What's funny with Blockchain is it's not that complicated because everything's on the on the web. It's open source. So it's a blockchain itself. Our first blockchain we set it up in I think it was over two three days. So it's, it's nothing in terms of technology if you have I had the chance and the

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pleasure to work with a strong IT team so it was not big business for them. What's difficult is to represent the transformation process of chicken or tomatoes and to get to understand really in depth, the process of raising chicken or producing tomatoes and then translating it into a ledger or a data model that you will be ledgered i would say, and then to connect all the different partners to this ledger or to this data model. So speaking about the chicken that we talked in the first blockchain, we had to connect the farmers, but also the slaughterhouse. The packaging at the slaughterhouse, the transporter Carrefour but also the veterinarians, so we had some five people around the table, giving each piece of information in order to have the vision of the complete life and traceability and traces of one chicken. So what took time, and when I say this, it was the project started end of July. And we were alive beginning of December, with everything. So

Augustine Madumere 11:25
also with on board onboarding partners.

Emmanuel DELERM 11:29
Yeah, everything was live in, let's say, which would exclude the the months of August, so it was September, November, October or November, in let's say, three and a half months it was down. So it's not that difficult. The most difficult part is really to understand the business process, and to translate it to the data model that you will, as a community that you will enrich so this is what's taking time. And then what was of some use in the IBM foot trust. And it was quite interesting for us was that they were fully compliant. And they were embedding all the GS1 standardss, I don't know whether, you know, GS1 but GS1 is a is a ststandard in retail business, for barcodes, for suppliers, for locations, and for events in terms of processing goods. So they were fully compatible with GS1. And it was like, having maybe not a new way of putting the data in the data model but having a new grammar to work with. So this was quite also a plus from IBM Food Trust side it was this, this full compatibility with the standards that we're already existing,

Augustine Madumere 13:21
there's kind of an off the shelf solution that can be deployed immediately. In within a short time.

Emmanuel DELERM 13:30
Yeah, yeah. I

Augustine Madumere 13:32
mean, meaning the, the idea of, of own blockchain been I've been up and running within 100 and something days, and then the admin solution deployment was a bit shorter. Right.

Emmanuel DELERM 13:45
And, and working with such big companies like Nestle, it's not like working with a farmer, but the bigger the company are, and themore stardardsyou have to be compatible ways in order to interconnect the different systems. And on this, it was really helpful to have these GS 1 standard because the I don't know but the what they call the in GS1 standard a GLN - global location number, which is describing a sub entity on a supplier, we will not discussing about what is the supplier in your system, what's your

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qualification and so on, we had the gln number, and that were that's so it was I would say quickening the the, the discussion on the data standards that we will be using in in the data model.

Augustine Madumere 14:56
And from a management point of view, was it easy to decide between dropping the solution and going for IBM. Were there some kind of conflict or different objectives that supported the argument to move to IBM?

Emmanuel DELERM 15:18
It was, I would say from a conflict, I wouldn't say it was a conflict. I would say that the the IT team was a bit reluctant because they had the the the opinion that they had built have been built a very efficient and Tong system with all capabilities, where there was some lack within the IBM Food Trust solution. So there was some disappointment. I would say from the IT team perspective, I think that IBM also had they were quite, I would say, it was quite a big announcement for them to say that the first retailer in the world to have experimented live focused on a blockchain Carrefour was going and moving to IBM Food Trust, it was quite a strong announcement for them in terms of marketing and so on. So yes, we had some pressure , but the idea was ready to industrialize and to say, well, Blockchain is not some technical gimmick anymore. It's going into production, we are going into a really industrial approach, and will be based on an industrial solution, even if it's a one size fits all approach, and not the typical carrefour approach where we had our own options that were maybe far better. So but the question is not about technology. The question is about number of products and of partners, you're, you're embodying with you.

Augustine Madumere 17:23
And for those partners, what kind of value does It bring to them, let's say a farmer who grows potato in South France, for instance.

Emmanuel DELERM 17:34
I think the good idea that IBM Food Trust is like, I would say or hub. If you're partnering with carrefour or Nestle, it's easy to partner as a co operative or metal producers. Then it's easy to partner with. I would, I don't know, Tesco or ocean or coop or Migros because you're in Switzerland, so obviously I will. So it's easier to go to another retailer or another producer and say to to Migros, well, I'm already connected to IBM Food Trust with Caarefour when you consider making a blockchain or exchanging data with us, and and it's a way to be transparent and to build some, some relationship and some long lasting relationship because when you partnering on traceability, in fact you're building a system a community based system that is made to last, you're not doing this, if you're not in a long lasting relationship. If you're changing every two or three months, your tomato supplier you're not going into a blockchain. Blockchain is somehow it's a bit of an effect. It's a bit of a connection. It's a bit of a data model that you working with or working about. And then it's certainly made for long lasting relationship and from a Carrefour standpoints. We were focusing on very long lasting relationship in terms of producers like I don't know, five or 10 years long lasting relationship. So and blockchain is a way to say also to the market but also the suppliers. You're important for us will exchange and will communicate and share together data up to the customer. And we won't change our producer or our supplier, every, every two months, we are going to, to build something that will last.

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Augustine Madumere 20:18
If you mentioned that, because then I'm looking at what the company builds, which is in this time, in this case, you're onboarding your partners for a long time, right. So it's more of an innovation and Growth, right. Whereas on the IBM, I don't know, it takes less than a few days to be on boarded. Right? Once you are approved by the by the governance board, right? Its off the shelf solution. So you can click and connect and start using it as a supplier or as a farmer. Do you see that this might not yield the results you mentioned with long term with profitable growth growing together with a partner to innovate. Because if it's something that you can plug and play, which you can switch off any time. you have subscription models, where you pay every month, from 100 francs, right? When you are a new supplier and not happy with the setup, you can leave easily. rtner in the use of player, you can just say, Okay, I'm done. What I'm not mining. Blockchain, you put it there. So it's about we look, will you put it in this corpus? Like, how do you see that?

Emmanuel DELERM 21:33
What I see there is, if it's well done from a data model perspective, it may be easier to connect to a platform like IBM foot trust, I will just take an example to illustrate. But if you're a tomato producer, you are farmer or cooperative, and the cooperative sign with IBM Food Trust, and is putting the cooperative data in the system. If it's only made for France, and for carrefour, the the unit of measure will be a kilo or tonnes. If you're working with Tesco, you need to have pounds, you see what I mean? And therefore, to have a more global platform is also certainly a plus in terms of, they have already faced the case of having pounds and kilos and whatever unit of measure. So it's easier for me as a co operative to just leave one information and then the potential user will work on it without much investment so it will be quicker. Again, what's really difficult from a traceability perspective is to understand the journey of the tomato and to implement this journey of a tomato in a data model when you will be able to mirror every step of transformation because tomato is seed plant going time so location, and then it's the selection, it's a quality measure, its calibration, its packaging, its transport, and then it will be put into the shelf in a in a shop in order to be sold so so it's you have to do this for every product. And the variety of product is huge, as you may see when you're going to Migros or to Coop Salmon is not tomato chicken is not Salomon eggs is not a tomato orange is not a tomato. So you have to face a lot of different approach and different data model and the idea for IBM Food Trust. When was to say well, I will gather so much experience. So that will be prepared to check or to be compatible with any product or any process that you come with. Like coffee. Oh, I already did some coffee. So salmon, did some salmopn. Are you speaking about smoked salmon or whole Salmon? And so on. So I think the idea from IBM perspective was to say, we'll gain experiences from our customers. And it will be every year, we'll go faster in the onboarding of new companies and new products. Maybe it's they exceeded? Honestly, I've done that. That much contact with IBM anymore. Maybe they succeeded? Maybe not. The question could be you had some questions beyond to deal with. One is pricing of the system. Do you price the system so that you have quickly a lot of users? And you have some retainer in order to retain these, these suppliers in your database? This is the first thing the second thing is oh, do I

Emmanuel DELERM 26:25
guarantee that the data that the poor tomato producers is putting into the blockchain is still the property of the tomato producer and not the property of IBM Food Trust. So there is a point in sharing data,

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which is the consentement of the using of the data and the ownership of the data. And we were very at the time, when we signed the contract with IBM Food Trust. We were very strict on this in terms of ethics in terms of data ethics and the of not saying that the data was Carrefour or IBM's, but it was still the ownership of the data. The number of kilo per plot, for instance, was still the data of the farmer.

Augustine Madumere 27:30
How can this transparency and taceability foster improvement of internal processes for you? You have to trust the source of the data, because it's garbage in garbage out, right?

Emmanuel DELERM 27:55
It has nothing to do with Blockchain. It's always the case even if you have a paper based approach, which is the case for other industries, you have some stories running on the cotton industry for instance saying on the certificates on PDF, ready authentic and and solid? And yes, you have some some doubts in some areas. So I would say that, yes, Blockchain is garbage in garbage out or the value of the blockchain is the value of the data you put in at every steps. But it's not new, it has always been the case. And I will take again an example with my tomato producer you have a plot a in South of France of Spain, you have a plot of 1000 plants of tomato, you know that waste irrigation and with the warming conditions and so on the weather conditions, you will produce something like 12 to 15 kilos of tomato per plant, not more, not less. So with a better a paper based system. You will have to make some additions to say well, if I'm above 15,000 kilos of tomato, on this plot from this farmer, this could raise some question if you doing this through, a computerized or if you digitalize all the data, and may have some dashboard, on the plots on the farmer saying, well, the farmer is producing more than 15,000 kilos of tomato on thisplots, then you have maybe not a red flag but a yellow flag saying, Well, this farmer as a tremendous productivity or yields in terms of tomato production. So maybe I will ask the quality department or the sourcing department or may auditors to go and visit this farmer or next year in order to check whether it's his practices that are the best ones, or the quality of the soil, or any other reason. And when I say any other reason, it could be that maybe made a mistake on the plot number when bringing the tomatoes or or II add some fertilizers or whatever. So having data digitalized is also a way to help the sourcing, but also help. In some conditions, you may also help the producers themselves to say well, your neighbor is making maybe more, and I won't tell you. But with proper practices, maybe you could be a better farmer and have a better yields. So even for the farmers and the CO operative. The data could be variable. When carrefour honestly, it has limited value. It's a value of can I trust you when you say that you are good tomato producers and so on, without any fertilizer or synthetic fertilizer or pesticides. Can I trust you. Butyou will have maybe other means like committing some audits or from certification bodies, and the certification bodies could also implement some data in the blockchain and so on. And it's come it's a common system where everybody could get his own dashboard or performance indicator. And in fact,

Augustine Madumere 32:47
Thank you for for elaborating on that. I have some other open open questions will be that you haven't touched upon also slightly about trust, right? In the blockchain, you either trust in the code, or you trust in the institution providing the solution. And I believe for the IBM Food Trust is mostly trust in the institution or trusting the ecosystem that is behind the IBM Food Trust. Right? So knowing the ethics of

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Carrefour, what they stand for, and knowing the requirements, what their partners, farmers should do. Right? Do you see a conflict in that?

Emmanuel DELERM 33:31
In fact, of course, IBM is very well established on the, in the IT sector, they have been, it was something that was somehow important for us. IBM was one of the main contributor of developing a hyperledger, even if hyper ledger was open source. So, we knew that they had some technical and programming capabilities that were quite good. On the so technology speaking, there was by default, a certain level of of trust given to IBM, but not more than to Google have to Azure, in terms of cloud for instance, Microsoft so, so, then trust is quite complex as as, as meaning because trust is also based on the fact that the data is captured every day or every hour or every week or and so on, but our regular pace and that there is no no lack of data, no, no data that are late being given. And that oerall, we can all see as a community that the data are consistent. If I take, again the food business, you cannot have more tomato in the supply chain, and then you had at the exiting at the cooperative. So you also managing because you're getting data at critical points at exit points that are really important. All the community is seeing because it's very visible, that it's consistent. And this is where blockchain is interesting, because of this. All the codes that you can write as smart contracts. Because in a smart contract, you may say, I cannot have more chicken coming to the stores or to the distribution center than I had chicken coming in the slaughterhouse or I have a consistency problem. Which is not the case when you baptizing, for instance, cotton on paper, because you have all the the certificates of origin that are being given to you on a PDF format, but you have no common authority, saying if I'm adding every tons and Bale of Cotton do I have any consistency problems that may occur and say you're selling more to a country, you're selling more organic cotton, then you're saying you're producing. So there is a problem, which is what you call in the and we have been coding in traceability business and inequality business and processes. This is called mass balancing. Mass balancing is a way of comparing maths and units of measure volumes, kilos, whatever, between across the different steps of the process, in order to verify that you're not producing extraordinary extra numbers that are not justified. So it's a way to say well, if you have so much quantity of product at the beginning of the process, you cannot have more than this due to the yield or the the different steps that will degrade in fact your yield. You cannot have more than

Emmanuel DELERM 38:31
that number of kilos and tons of Salmon if you didn't add that much eggs and and and young Salmon's and food for the salmon at first, you see what I mean? It's a way digitalising with or without a blockchain. The traceability gives the community a way to to permanently check the consistency of the process and therefore being more trustful. Each other's I trust more the farmer that I'm working with because I know that they will give and be transparent on their production, the unit of transformation will be transparent to and I know them the unit of packaging or the supply chain. I am working with transparence and therefore I know that I can touch them. Just an example of this, it's a company called eProvenance and that is also working on IBM Food Trust. They are monitoring the transfer of luxury wines from France to the US. And the problem you have on this is to be transparent on the shipping conditions, the supply chain conditions. Notably in terms of weather, if, if the temperature of a wine is getting higher than I would say 20 to 25 degrees, you're degrading the wine quality and eProvenance was coming to the to blockchain, saying, Well, I will just collect the temperature, capture the

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temperature, taken at the source of a capture or sensor that is in the case, or the pallet or the containers on the ship. And we'll get this information every once every hour. So we'll give you a next time information on the weather conditions for the wine storage during the shipping, this is how you can have transparency and then trust.

Augustine Madumere 41:20
Thank you, for elaborating that, if I had a practioner last last week that I interviewed, that is also using this type of processes to also look at product Providence, if it's original. And if the product has changed. Also temperature has changed from what it should be. They share data about the shipping conditions and product at interval. Before we round up. I have a question about integration of partners, companies to ecosystem, right. Access is restricted on the blockchain infrastructure to the users that are on it. For a permission based blockchain, what are the necessary steps required to implement such. Let's say for instance, a new partner comes onboard, right? What are the necessary skills or knowledge or component of the business case?

Emmanuel DELERM 43:01
Yeah, so the, it will depend a bit on the size of the partner, because it's not the same case, if you're a farmer, and you have to just give once a week or once a day, enter a number in the system. And if you are honestly owning multiple brands, multiple businesses, and so on, and you have also some strong IT capabilities. What's necessary for I will take an example of a farmer, what's necessary is to be connected to the IBM Food Trust platform. So you need to have an IBM ID and password and so on. So what's behind this is what's the cost for the farmer to enter data. And again, I left Carrefour. But what's the idea was at the time was to say, it should be free for a little farmer to enter data in the blockchain. And when I say this, it's we need the farmer to be part of the equation and to be passed up the chain. So we will and we took all the costs of developing an API ,the access or just the license to the blockchain was taken In terms of cost by Carrefour and not by the farmer, which is also the case for other blockchain, where if you're just a farmer or putting data in a system, it's free of charge. This is up to a certain it will depend on the blockchain. But it could be depending on the size of your business or on the number of data you enter in the system. If you're entering data once a day, once a week, okay, it's free. If you're entering data every minute, and it's a long string of data, then IBM will discuss with you and it could be volume based on volume and frequency. In terms of way of interacting, it's a the access to a portal via ID and password. And then you enter your data and you quit. Or you disconnect. Or it could be via having a CSV file, the next type of an Excel spreadsheet with data of the day that you put into, or the months that you put onto an FTP server, and that will be digested by the blockchain. We did this also. Or it will be it could be an API, connecting directly to your system to the blockchain system, which is certainly the case with Nestle, where you we have an API from the SAP system from Nestle to the blockchain of IBM. But it's certainly the way of the future. But again, it's depending, and it's very, honestly, we did it. So that it was very easy for the farmer or for a veterinarian to enter data. It was it was really not a big deal to do this.

Augustine Madumere 47:19
Thank you, Emmanuel. We are running out of time, I see was almost almost 55 minutes. If I may, actually. Is there anything that you looking at my my case? My question, yeah. Is there anything in the

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area you think I might be missing or additional input you want to add? I have omitted. As a practitioner, I believe you have lots of insights on these processes and the business benefits.

Emmanuel DELERM 47:47
In terms of they could add, which effectively have a meeting in six minutes. So first of all, where they can say is if if you need some extra time on Zoom, just send me an email. And we'll have next 30 minutes together. If you forget anything, just or you think to me, oh, that Oh, I forgot to ask this. Don't be shy. I will maybe come back on the paradox between transparency and intellectual property of the data, which is certainly something that is key, if you want to have even a farmer in Europe will ask you about the intellectual property of the data, because he's not crazy. And he or she will say, Well, I agree to give you some data because of the common consistency checking and traceability and it's a way for me to be better than my competitors and so on. But I want to be sure that you will not valuate in any way my data without my consentement. So this is something that was really important for us. The other thing that I see still being important in blockchain and traceability is personal data, because when you're speaking to farmers or to others, or to I don't know, milk producers. You can register some personal data, like GPS coordinates names and so on. So you have to be quite cautious about this. And I know systems where you don't have the name of the farmer or that is in the blockchain, but you have the code of the farmer in the blockchain so that you need an extra table enough chain table to say these coded this farmer. And maybe it's not yours, it's a cooperative or whatever.

Emmanuel DELERM 50:26
Yeah, exactly. And I see traceability in ten years will be given. It's going to be I don't know, for Switzerland, of course, but I know a bit Switzerland but I'm not living in Switzerland, so but I know Bern. And the wonderful color of the buildings in Bern. I think, on the regulation perspective, there will be in 10 years, we live in a world where there will be a strong regulation, to say, even for your T shirts, where the cotton is coming. For your tomatoes, if you go to Denner or to our to Migros, you will know that your tomatoes are coming from this country, because it's a regulation. We already have this for foods, mostly in Europe, but it will come for other things. So traceability is very important, because it's giving you as a producer, it's giving you the knowledge about the process that you do not see from from your supplier, it's a way to go into the process and the actual process of your supplier. First of all, so in terms of quality of sourcing, it's quite important tasks, traceability would be about proving things and not only registering but proving things. And I see this as being the some of the future for for some goods. And then if you know if you prove, you can improve. Meaning if you collectively know the business or know the transformation process, if you have the proof's of the certificates, the times the yields, and so on, then you will be able to be in a partnership prediction. In a partner based relationship, you will be able to sit on the table and say, well, Oh, can we ameliorate the yield? Or can we ameliorate the packaging process together? Or can we ameliorate right? And you can do things together because of traceability and because of the of this importance of sharing data and being trustful to each other.

Augustine Madumere 53:37
Thank you, Have a wonderful afternoon. Bye

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