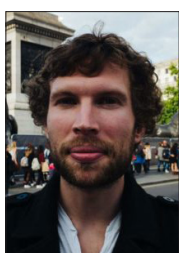


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- Blockchain backed insurance is a double win
- Why don't you just use a database, why does it have to be blockchain?

Instant insurance

Harry Hamburg, Editor



Dear Reader,
I've just got back from two and a half weeks in Vietnam, which is why I'm writing

to you a week later than usual.

On the way out there, something happened to my travel plans that has given me the theme for this month's issue. It illustrates another major area of life and business that is set to be revolutionised by crypto.

I was hesitant about using the word "revolutionised" there

because it is now so overused by so many non-revolutionary businesses and ideas. But in this case, as you'll see, it really fits.

Here's my story.

We were flying out to Hanoi via Bangkok from London Heathrow.

Everything was going fine. Then just as we were due to board, we were told there would be a short delay.

This delay, in the end, turned into a flight cancellation.

You see, this was the day Pakistan and India had declared no-fly zones and our flight was

due to fly over Pakistan.

Other aircraft carriers simply rerouted their flights, but ours decided to ground every single one of its flights going to and from every single European destination.

As you can imagine, it was chaos.

Adding to this, our carrier was refusing to put passengers on to any alternative flights from other carriers.

Many passengers pointed out this is against Civil Aviation Authority regulations, but that didn't seem to matter.

Our carrier instead shipped



passengers off to a hotel at 2pm in the afternoon and said it would try to work something out tomorrow. But it didn't know what.

All the carrier's airport staff then went home and its customer service lines closed down.

Basically it was overwhelmed by the situation and didn't know what to do, so it ran away.

If you're wondering who our carrier was, it was Thai Airways. And as you can imagine, I can't recommend you ever fly with them.

Its bizarre decision to ground every flight going into or out from Europe made all the UK papers.

So we had a choice, take the coach to a hotel and stay there until the next day when we might be able to get a flight out.

Or cut our losses and buy new flights out with a different carrier there and then.

The thing is, those alternative flights were over £1,000, and we don't have that kind of money to throw away.

And I should probably point out that we were flying to Vietnam to attend a wedding in about 48 hours' time. So we didn't really have much time to play with.

As a last ditch attempt, I called my credit card company. They apologised for our situation, immediately credited my card £1,000 and said they would launch a dispute with Thai Airways.

The alternative flights I'd found came to £1,040, so we

were pretty happy with that.

We had still lost out on money because by this time we'd missed our next flight from Hanoi to Da Nang, but that was a much cheaper flight to rebuy.

Situations like this are what you buy travel insurance for, right?

Only the thing with travel insurance is it takes weeks and weeks, if not months to claim. And you have to fill out reams and reams of forms and supply pages and pages of evidence to support your claims.

I know this, because that's what I did over the weekend.

Maybe you get some money back in the end, but at the time, that insurance isn't doing you any good at all.

But what if it was instant?

What if the second your flight was delayed or cancelled you got your pay out, without having to send in pages and pages of forms and evidence?

And what if this model didn't just apply to travel insurance, but to all kinds of insurance, from home, to car to medical?

That would be pretty revolutionary, wouldn't it?

Well that is what blockchain-based insurance promises. Actually not just promises, it has already been tested, proven and initiated.

Why insurance claims take forever

The reason insurance pay-outs aren't instant is because insurers have to verify everything you're saying is true.

Sticking with my flight delay insurance example, the insurer needs to verify:

- You are who you say you are
- You have a policy with them
- Your policy covers flight delays/cancellations
- You had a ticket on the delayed/cancelled flight
- Your flight was actually delayed or cancelled.

What really slows this process down is insurers currently get all this information through printouts and letters.

In my case I had to print out many pages of forms, fill them out in pen, print out pages and pages of supporting documents, bundle it all up and post it to my insurer.

Then at their end someone will have to go through all these printouts and forms, verify them and digitise them.

If there is missing information or anything needs more explanation I will receive their questions through the post and have to post back the further evidence they need, which will then be sorted, verified and digitised at their end.

And this process will repeat until everything is sorted.

What can crypto do to change this?

It can automate the whole process, make it instant and make it much more secure.

There is a company called Etherisc that launched a fully regulated, blockchain-backed



flight insurance proof of concept last year. Here's how it worked:

You go on its site, fill out your name, email and flight details.

You then choose how much you want your premium to cost in GBP, EUR or USD. The higher your premium, the higher your pay-out will be if your flight is delayed/cancelled.

For example, if you chose a \$28 premium, you would receive the following pay-outs:

- Delay of 45 minutes or more: \$842.13
- Cancelled flight \$1,403.56
- Diverted flight: \$1,403.56.

If you chose a \$50 premium your pay-outs would be:

- Delay of 45 minutes or more: \$1,503.81
- Cancelled flight \$1,700
- Diverted flight: \$1,700.

You then enter your credit card details and pay the premium. This then creates an Ethereum smart contract that will pay you the premium in the event of a delay or cancellation.

You also get an email with your insurance certificate.

You're given a link that you can use to check your policy at any time, in real time.

As flightpaths, delays and cancellations are all public knowledge the smart contract will use an oracle to constantly check if your chosen flight has been delayed or cancelled.

If it does get cancelled, the

smart contract will send you the pay-out instantly, at your request.

No paperwork. No back and forth. No delays of weeks and weeks. No ambiguity. No arguments.

If your flight gets delayed or cancelled, the smart contract will execute. That is the great thing about smart contracts, they are autonomous.

You'll notice that I mentioned the smart contract uses an oracle to work out if your flight has been delayed or cancelled.

Oracles are essential to smart contracts functioning correctly and as crypto becomes more and more commonplace the importance of oracles will increase exponentially.

I've had a number of people email in and ask me to cover some specific cryptos that specialise in oracles, and I'm considering covering oracles in an upcoming *Crypto Wire*.

If that's something you'd be interested in, let me know: harry@southbankresearch.com.

For now, though, [you can read this Exponential Investor article I wrote about oracles](#). I think it's a pretty good primer on what oracles are, how they work and why they are so important for smart contracts.

If I would have had this kind of blockchain-based flight insurance, I could have got a payment as soon as my flight was cancelled.

If my girlfriend and I had each insured our flights for £21 each, we'd have got a total pay-out of around £2,120, instantly.

We could have booked our alternative flight there and then and enjoyed around £1,100 extra spending money.

It actually pains me to think about that because it would have been fantastic and have saved us a whole lot of stress.

But this kind of insurance should become commonplace within the next few years.

As I said, Etherisc was has now closed its proof of concept. But when it launches for real I will definitely be trying it out for myself.

Etherisc isn't the only one out there offering this kind of smart-contract based insurance though.

Crypto flight insurance via a chatbot

A crypto called Byteball has been running its own version of flight insurance for years.

Byteball's flight delay insurance is notable because it takes literally seconds to set up (at least in theory; it's all fully automated through a chatbot).

You just enter your flight number, choose your delay time and say how much you want your insurance premium to be.

It's also notable because Byteball's insurance is P2P. Other Byteball holders are the insurers.

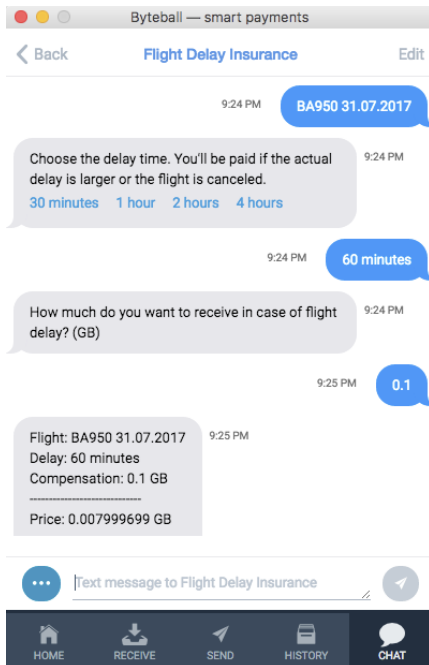
You may not really trust a random crypto holder to be your insurer.

But remember, once the policy is taken out, their funds are locked in a smart contract. So they can't take your money and run. And if they don't have



the funds available, they won't be able to offer insurance in the first place.

Here it is in action:



Source: github.com

I haven't used it for myself though so I can't say how well it actually works.

The only problem with Byteball's version is you need to pay for your policy with Byteball, and its pay-out is in Byteball.

This is okay if you buy insurance on the day of your travel, but given how volatile most cryptos are, your policy could basically be worthless if you buy it a few months in advance.

However, this is yet another scenario where stablecoins will come to the rescue. They will allow you to enjoy the benefits of smart contract-based insurance, without the price volatility.

If you missed my issue on stablecoins [you can find it here](#). And if you'd like even more information on how

smart contract-based stablecoins work, you can read [last month's issue](#) where I ranked MKR.

Blockchain-based (or in Byteball's case DAG-based) insurance sounds great for customers, but what are insurance companies getting out of it?

First, let's take a look at how insurance works, and then we can see how this new model will help solve their biggest problem.

Insurance companies are just bookies in suits

Insurance is a game of probability.

Insurance providers are essentially just bookies. They work out the odds of any given event and let you take out a bet against that event occurring.

Say you get insurance for your mobile phone, you're basically betting you're going to lose or break it. They are betting you're not.

You then pay them a premium every month. If you ever do lose your phone, you then pay them an excess and they supply you a replacement.

They are betting that the value of your premiums and your excess covers more than that replacement cost. In reality this is unlikely, but they have scale on their side.

In any given year, more people will buy insurance than claim. This is how insurers make money.

Let's use a simplified example (with real numbers I got from Protect Your Bubble prices):

Say 1,000 people have a phone that costs £500 to replace.

Each person's premium is £10 a month and their excess is £75.

So in one year the insurance company will collect £120,000 in premiums from these mobile phone owners.

According to consumerreports.org:

In a 2016 Consumer Reports survey about smartphone mishaps (which involved more than 5,200 people with at least one smartphone in their household) about 50 percent of respondents reported at least one major smartphone fiasco during the previous 24 months.

50% in two years is the same as 25% a year.

And remember those people that claim will each have to pay a £75 premium. So the phones will really only cost the insurance £425 to replace.

$250 \times £425 = £106,250$.

So the insurance company is making around £13,750 per 1,000 customers. That's £1.3 million per 100,000 customers.

And that's if the insurance company is paying full retail value for these phones, which it wouldn't be. It would definitely have a deal with the phone manufacturers.

In this same example, if 25% of people are claiming per year, that means the average person is claiming once every four years.

In that time they would have paid £480 in premiums. Then if they need to claim, they will



need to pay a £75 excess.

So they will have paid £555 insurance costs on a £500 phone. This is why many people see most insurance as a scam. It's usually the insurer, not the customer who wins in the end.

And if you do ever have to make a claim, your premiums will increase. This in turn discourages people from claiming because they don't want their premiums to increase.

Like I said, insurance firms are basically just bookies in suits.

They calculate all the probabilities of having to pay out and set their premiums and excesses in such a way that they will always win.

Many consumer sites advocate just putting that same £10 a month into a rainy day fund for your mobile phone. Then if you lose or break it, you can just take the money out of that, with no paperwork and no increased premiums.

The only thing insurance companies fear is fraud

Unlike bookies though, insurers have to deal with fraud. And a lot of it.

This is the only way they can really lose money. Other than through completely unforeseen events.

Although, in the case of unforeseen events, they usually have a get-out clause. "Acts of God" are not usually covered by insurance companies. Neither are acts of war – which means I probably won't get any compensation from my travel insurance claim.

So insurers really only have to worry about fraud. That's why they have whole departments dedicated to investigating it.

Insurers' understandable fear of fraud is the main reason why making a legitimate claim is such a pain.

According to the Association of British Insurers (ABI) there is one fraudulent claim per minute in the UK. With a total of 562,000 fraudulent cases detected in 2017.

Experian calculates the total cost of this insurance fraud at £2.8 billion.

And insurers take this fraud very seriously.

That same report celebrated a cyclist being jailed for three years after being injured falling off his bike. Apparently he had claimed he came off due to a pot hole, but he in fact came off because the road was slippery.

Fraud, in its most fundamental sense is simply lying. And that is something blockchain makes very difficult.

Blockchain backed insurance is a double win

Blockchain can be used to prevent insurance fraud in the same way it can be used to prevent counterfeit goods.

As Altoros says in its "Blockchain for Insurance" report:

A potential remedy to mitigate fraud is to enable secure sharing of data and intelligence among insurers. In this case, blockchain becomes an ideal candidate due to its decentralized

model, immutability, and transparency. The technology's permissioned approach to data access becomes key to the privacy of shared information.

Blockchain can minimize counterfeiting, double booking, document, or contract alterations. The technology may enable insurers to create receipts at any stage of the claims process, while ensuring an immutable and auditable record of all the claims activities. Thus, all the participants can get a "distributed, single view of the entire exposure data chain."

Basically, it makes data easy to verify and impossible to edit.

To go back to the flight insurance example, I said an insurer needs to verify:

- You are who you say you are
- You have a policy with them
- Your policy covers flight delays/cancellations
- You had a ticket on the delayed/cancelled flight
- Your flight was actually delayed or cancelled.

Every single step of this could be done automatically via smart contracts on the blockchain.

The customer would be happy because they would have no paperwork to fill out and they would get their pay-out automatically and near instantly.

And the insurer would be happy because it would hugely cut down on fraud and massively cut down on their staffing



requirements.

It's a double win.

It's no surprise then that insurers are taking a big interest in blockchain, and they have been doing for a while.

While researching this piece I found a PwC report from 2016 titled: "Chain Reaction: How Blockchain Technology Might Transform Wholesale Insurance".

But PwC isn't the only big name exploring blockchain insurance. EY has also done a fair amount of research and is very positive.

Blockchain has the potential to evolve into a core, underlying element in the technology "stacks" of most P&C carriers, supporting a diverse range of processes and part of your company's future technology "plumbing."

- From "Blockchain in insurance: applications and pursuing a path to adoption" by EY

And blockchain-focused computer companies like IBM are already on board. IBM recently developed blockchain-based insurance for Marsh, AIG and Standard Chartered.

So maybe insurers are finally ready to embrace technology and make our lives easier.

Or maybe we will see a wave of new school insurers popping up and taking the industry by storm.

But if every other technological revolution of the last 100 years or so is anything to go by, the later seems much more likely.

Why not just use a database, why does it have to be blockchain?

This leads me nicely on to a question I received from a reader recently about the point of using blockchain rather than a normal database.

His question asked specifically about RFID tags, but it can be equated to nearly any blockchain idea.

Here was his question:

First off: I am glad to have seen you bringing up the social implications of advancing technology, and in particular the notion of UBI [universal basic income].

The message that "technology is taking us down a route that will leave a lot of people in a very bad place unless we as a society do something" is very, very important.

But I'm actually writing to ask you about your recent use for blockchain, which still feels to me like a solution in search of a problem.

You say: When a company manufactures an item, it attaches an RFID tag which corresponds to its record in the blockchain.

Fine. But how is that different from when a company manufactures an item, it attaches an RFID tag which corresponds to its record from the company.

If I'm thinking of buying a power adapter, you're saying I could look up its RFID reference on a blockchain and find "this was made by Apple". That would be reas-

suring.

But how is it better than looking it up on Apple's servers and finding "we made this"?

You say that the blockchain is immutable. So is the point that using it protects me against duplicitous behaviour by Apple? So I will have third party proof that the thing I am about to buy was made by a company I don't trust to vouch for it themselves?

That doesn't sound all that great to me. So what am I missing? Where is the value of all the blockchain palaver? To anyone other than the blockchain tech providers?

Oh, and how does "lookup on the immutable blockchain" deal with the discovery that Doh Gee Deelao has found a guy who can post records that assert that anything they can get their hands on was made by Apple? Or, indeed, to mass produce RFID tags that all correspond to the same "made by Apple" blockchain record?

Keep up the good work.

RW.

And here was my reply:

Hi RW,

Good questions!

As you say, Apple or whatever company could just do this themselves. But then every single company would need to keep these public databases and make them accessible to people.

So you would have the situation where every manufac-



turer would need to set up a separate database, with separate logins and user accounts, and pay for server space and pay for engineers to keep it all up and running – forever. Over time the costs would be huge.

Or they could just enter their records into the blockchain and never have to deal with them again.

Also, they would not be immutable. So if someone hacked into their databases – say someone paid by a manufacturer of fake Apple products – they could change all the records going back since the database was first created.

As you say, someone could still gain access to Apple's systems and enter new records into the blockchain to add their fake goods as real. But they would have to start from the date they hacked it. They could not go back in time.

So, after every batch, someone at Apple could check Apple's entries and see that corresponds to the right number of records.

If they found too many had been added, they would immediately know they had been compromised. And because once an entry is in the blockchain it can't be removed, it would make it easy to find the records that shouldn't be in there. So they could respond to it faster.

Also, these entries are checked and updated at every point in the shipping journey. So the hacker would need to hack all the carriers along the way too. And all the port authorities and all the customs officials of all the countries involved in its manufacture and shipping

route.

Make a fake entry in the apple system then you'd need to dupe Apple's official shipping partners into shipping your fake products or the next entry on the tag wouldn't match.

Then you'd need to hack the port authorities or their entries wouldn't match.

You get the picture...

I'm sure there would still be ways around it. Nothing is perfect. But it would make making fakes a whole lot harder than it is today. The costs involved with hacking every point along the manufacture and shipping journey would surely make it too expensive. Making fakes would become economically non-viable.

At least, that's my take on it.

If you're going to Paris Blockchain Week you can use our code to get 20% off your tickets

Last year Sam Volkering, Paolo Cabrelli and I attended London Blockchain Week.

It had presentations from many of the biggest names in crypto and great presentations from IBM and other mainstream companies about their crypto plans.

I still regularly quote from the presentations I saw there in my editorial pieces. There was such a wealth of great information.

This year's London Blockchain Week was far less compelling.

I was pretty disappointed with the line-up compared to last year's. There wasn't really

anything on the schedule I thought would be worth seeing, so none of us went.

I soon found out why. All the big names are going to the Paris one in April instead.

Arthur Breitman, co-founder of Tezos, is speaking. Dominik Schiener, co-founder of IOTA, is speaking. The CFO of Binance is speaking. The head of global banking at Ripple is speaking. The COO of OKEx is speaking. The president of Ledger is speaking. The former CEO of SWIFT is speaking... you get the picture.

So this year, Sam Volkering and I will be going along to Paris Blockchain Week and reporting back to you.

I'll probably dedicate the May issue of *Crypto Wire* to what I learned there.

If you'd like to go for yourself, you can use the discount code EXPONENTIALINVESTOR to get 20% off your tickets.

Which is a pretty decent discount because the tickets aren't exactly cheap. You can get your ticket here: pbwsummit.com/tickets.

Okay, that's it for this month.

Again, sorry about the delay in getting this month's issue to you.

If you're interested in finding out how my travel insurance claim goes, I'll add a PS into a future issue if I ever get it resolved.

Until next time,

Harry Hamburg
Editor, *Crypto Wire*

