FINISHED FILE

ASIA PACIFIC REGIONAL INTERNET GOVERNANCE FORUM
EVOLUTION OF INTERNET GOVERNANCE:
EMPOWERING SUSTAINABLE DEVELOPMENT
MACAO 2015
01 JULY 2015
ROOM 2
14:00 LOCL TIME
BUILDING AN INTERNET FOR TRUST ON A TRUSTLESS INTERNET:
SESSION 24/1

***
This text is being provided in a rough draft format.
Communication Access Realtime Translation (CART) is provided in
order to facilitate communication accessibility and may not be a
totally verbatim record of the proceedings.
***

Live captioning at APrIGF Macao 2015 is brought to you by
Internet Society

          (No audio for beginning of the session.)

     >> MODERATOR: We are trying to foster the local community
in Macao and we are also interested in Blockchain technology.
So first I'm going to be talking about Bitcoin, specifically in
2011. But I didn't start looking at the technology side of
things until 2013. I started looking at technology, which
really blew me away. It's game-changing technology. So one
thing, at the university we were the first merchant in Macao to
accept Bitcoin, and the first customer ever with Bitcoin. And
the second customer to pay Bitcoin over here also happens to
Bitcoin with us for networking in Macao.
     Macao, if you don't know, is the number one region with the
highest density of Bitcoin. He can talk a more about that in a
few minutes. And so, yes, I'm looking forward to the discussion
in how he can help in the Internet Governance and looking for

some technical questions you have.

Thank you.

\>\> (Audio interrupted.)

\>\> (No audio.)

\>\> In China. What do you do with these kiosks?

\>\> LEONARD WEESE: Right now, I have other cryptocurrencies. Right now it's just a medium of exchange. We find a lot of people come to a machine and find Bitcoin and instantly sell Bitcoin immediately. They're not holding on to it. They're holding on to as a method of transfer. We're able to undercut traditional services like Western Union and offer customers a cheaper fee. People that are doing remittances, every dollar they send home definitely counts. So every percent and every cent that we can save them is making a difference.

\>\> MODERATOR: Right. So this is an example of a technology, which for the purposes of today we're call Blockchain technology. The example is Bitcoin, how it came into. In Hong Kong there is a new association, which has just formed.   I'm very fortunate to have the president of that association. Could you describe the association?

\>\> LEONARD WEESE: With the Bitcoin Association in Hong Kong, we come from a group of makers, entrepreneurs in the past two years we have pretty much outgrown ourselves to the point we need to organize ourselves better. We can no longer ad hoc. We need to structure them better.

A lot of it is education and resources for the Bitcoin community itself. A lot of it is connecting with the world. For that we now have a more formal one that we call the Bitcoin Association.

\>\> This is called financial technology. So the changes in financial technology are closing in. It's more regulated than banking and finance. We are very fortunate to have the founder of.

\>\> LEONARD WEESE: My background is legal. So corporate financial law, I was an investment banker and decided to be an entrepreneur. It has a similar mandate with the Bitcoin, much broader in that sense. We are represent the (?) virtual currency and all the types of things we do. My background being regulation, my interest is really finding what are the laws and regulations in the industry whenever it comes to an event. This is called electronic banking. It was written in 1985.

Finance has always used technology. There's only so much disruption to happen. European Union is all shadow of business model. Bitcoin and Blockchain is fundamentally different. In many ways, from a regulator perspective, you need an understanding to make sure you can support that industry.

\>\> MODERATOR: So the background to the session is there is

a technology that's causing a lot of social obstruction, a lot of government challenges. That's why we're kicking off the last three days, because the next billion who come online, the next billion in Asia, and next billion in the developing worlds don't have existing infrastructure. So the topic of today's talk is, again, building an Internet of trust out of a trustless Internet.

We know the post-Snowden regulation, I guess, there is a lot of mass surveillance on the Internet. We know the Internet is, for many of us who are building the Internet, not exactly what we intended it to be. And so we're going to look through the two technologies -- not actually that deeply into the technical, but more the social impact of the trustless technology, what it could mean for Internet Governance. For example, could Blockchain technology be used for signing the root keys to the NSA, for one example? They were looking at it from the optics, from the next billion coming online, most of it coming online through a phone, provide them with payments of the structure and other kinds of trust infrastructure, that could be a huge benefit.

So we'll kick that off with a little bit of a presentation, which will run for about 20 minutes. And then that's going to cover basically what the technology is, why it's important. Then I'll open the floor up for hopefully an hour's worth of discussion.

So moving right along. So we have just gone through background. It's on the website. My job here is really to set the scene as the moderator of the session, by saying, look, you know, what is the -- why the opening session is evolving governance. What you heard this morning is there is an existing governance models, multi-stakeholder and are the new technologies such as Blockchain, such as Smart Contracts, with the multi-stakeholder apply? I think it's something different, which is why we have the session today.

In order for you to understand why the governance model for Bitcoin or for Blockchain technology may be different from traditional Internet Governance, one level down and get a little bit about technology, see roughly what it does and it's important. There are two keywords: One is Blockchain technology, the other one is Smart Contract.

So through understanding value proposition of these two equally transformative technologies, we can then see and chart a course how Internet Governance might itself benefit by the technology and might also be challenged by it.

As we begin, cross-border remittances; right? Sending value from A to B, converting your dollars and things in your wallet to Bitcoin. There are a lot of social issues that we are

just beginning to understand. In Hong Kong we're fortunate to have a few sessions two weeks ago. The Bitcoin Association had a session on regulation. Right now I think -- how many events did you have last month?

>> Last month, since January, we had about 24.

>> 24 in Hong Kong. That's one of the global financial centers. How many did you participate in?

>> 22.

>> MODERATOR: So all right. So let's move along. So the key innovation here is talking about two technologies, Blockchain and Smart Contracts. I'll work through an example of a tech change within the Bitcoin community, which is causing a lot of friction, and that is increasing block size. What I'm really trying to do here is lead up to another session that I'm running at the IGF also on Bitcoin. The participants there are MIT, Harvard University, the Bitcoin Foundation, the local Bitcoin community. And so today's session, the output from today's session is going to feed into that session at IGF.

What we'll try to do in terms of an emerging issue is to raise hands and say, hey, regulators, people who are interested in policy, you got to keep an eye on this. Why? Because if one looks at just the investment in the cryptocurrency space, by value is larger than in the commercialized, in equivalent dollars in the mid-'90s. This is an incredible phenomenon. Not really on the radar screen. We are hoping the APrIGF with this issue.

Notwithstanding that, there is a whole group of engineers again who are working very hard in the technical space. You heard this morning about Tim Berners Lee, who is the founder of the Web. Within that one area there are three groups dealing with making the Web the payment infrastructure for the Internet. There's another group dealing specifically with something called cryptomeasures, legends, and others dealing with credentials. Mark will know this because it has gone from a group of four or five crazy people to now 42 leading countries inside the W3C. That includes Apple, Alibaba, Google, and others.

So the payment area, again, within is a lot of innovation. The innovation is not from traditional banks. They've had since 1985 to think about it. It's coming from tech companies. The tech companies innovate at a very different rate than traditional banks.

The interesting thing is very several meetings since Harvard University dealing with this technology. It was MIT in January, and then Stanford University two weeks ago in London and the same conference we'll be having in long Kong. Mark your calendars October 12 through 13, which is when I'll be formally marking the Smart Contract.

So why is this something? Some of us believe it might be a new form of law that this cryptographic technology simulates. And that form of law where it's beyond national borders, it's not going to be Macao law, not a Hong Kong law. It will be in this law of mathematics. The policy issues concerning that, the government -- because in the end I'll be -- are we talking about software or are we talking about something different? So here we are today and we have the next session.

So this morning you heard about existing governance laws, most famous of which is, I guess, the two competing views, one is the multi-stakeholder model, ICANN, the IGF is an example of that, and you have other more traditional processes which only involve countries and others by invitation, the multilateral process, such as the IoT.

You can kind of look along different trajectories, whether it's open. Is it free to attend or do you have to pay a fee? Are you able to participate as an individual, or are you only support? Are they documenting the process? Did you have to in order to participate in discussion; is it advisable to submit a document for review beforehand? In fact, how much time is there for review beforehand?

Similarly, afterwards, after the meeting, is there a document produced? So the innovation we heard this morning is that this afternoon at 5:30 there will be innovation happening at the APrIGF, which is the beginning of trying to draft the consensus document. So we're beginning to see this document-driven viewpoint beginning to be expressed.

Translation when necessary. This morning it was not translation, it was just stenography, captioning from English to English. But in UN circles, we know from the IGF, it's translated into how many UN languages? Six? Six plus one, which is now Portuguese. And then are there induction processes? Even though it's open, does it mean that you can actually participate as a first-class citizen?

This morning you also heard there were APrIGF fellows. How many are fellows? Green T-shirts? People who are new to the process, to begin to learn how these discussions work. But as you know, if we decide we can all agree that it's quite important that within the technical standards of the open technical standards which the Internet in many ways relies upon, that there is robust engineering. That is similar tension is now beginning to happen within the area of Bitcoin.

Why go through all of this? We live in lots of big places, and many different points of view, many different cultures, as we heard this morning, languages, many different priorities of what we feel is important. How do we resolve that? We call it multi-stakeholder approach. We learned this morning. My image

is a lot of get their interest represented, they won't be upset.
If you take a look at one ecosystem, you can see there are many
different stakes and interests represented, from the
registration of the domain name, different roles of the
registrar and for example.

There are other areas to deal with, for example, software,
that there could be other models, such as, perhaps, the software
that runs on your phone which may be based on at least the
software or Linux. They themselves have open software
foundation kind of model that tries to do the governance of
software. Would that work for Bitcoin? Well, Bitcoin itself
has its own foundation or the Bitcoin Foundation, which I think
at the end of February, early March.

Similarly, there are technical bodies to make sure that the
technical underpinnings has enough transparency, correctness,
such as the W3C you heard this morning, and the IGF.

There are other models, because whose property is it
anyway? When we talk about the technical standard, in other
words, as developing country do you have to pay money to get
access? Is there some secret handshake that you need to get
access, or are there other models? For example, going back to
the software model of Linux, there are groups of companies that
have banded together who have agreed not to sue each other in
order to have the ecosystem -- the Linux ecosystem grow. That's
open Internet.

So going back to this challenge, you got technical
companies now entering the payment space. Extremely disruptive,
the finance industry, the technology in your wallet, the credit
cards, 30 or 40 years old. An example of this, in terms of we
can't click on this, but there is a diagram -- are we able to
click on? What is this? All the links here would be on what is
that language again? That should bring up a browser. If it
doesn't, don't worry about it.

So we heard a stream called Bitcoin, Blockchain technology,
Smart Contract. Do we know what it is? Some people think they
do. When we talk about Bitcoin, is there a difference between
Bitcoin with a capitol "B" and bitcoin with a small "b"?

>> Usually when we refer to Bitcoin with a capital "B," we
talk about the technology, the underlining Blockchain
technology. The small "b" is just a token that this Blockchain
uses. And you can imagine the Blockchain to use any kind of
token that doesn't need to be a numerical token. It could be,
as you already said, a name space, user names as tokens that
could be a domain name, a domain name that's being transferred
around on the Blockchain, or any token you can trade or transfer
or keep for yourself.

>> An example here is main coin, main registration using

this Blockchain technology. One reason we don't talk about Bitcoin in terms of policy circles is if we say Bitcoin, are you referring protocol or the token? Some people think they know what Bitcoin is, and it's definitely a currency. For example, the New York Department of Financial Services last month came out with a license, BitLicense.

And this reminds me of the days in the early 1990s where we were beginning to do Internet search, for example, in Hong Kong. The regulator asked me, are you a telephone company? Are you a television company? No, I'm an Internet service provider. What is Internet? Don't forget, which is before the Web. So even when we start talking about the cryptographic tokens, legends, contracts, we ourselves don't quite know what we're talking about insofar as the issues. We think we know, but right now the policymakers see something completely different.

In Hong Kong, for example, they do not view Bitcoin as a currency. They view it as a what?

>> Virtual commodity.

>> MODERATOR: A virtual commodity. So in other places they think it's currency. So that's just an example of why in some sense it's quite different to say if you're a business and you want some kind of legal certainty, then are you going to be -- who is your regulator? That's the first question. Who is the regulator? If I'm regulated in some sense, I have some legitimacy.

I'm sorry to put you on the spot, Janos, but what's the regulatory situation for companies who want to do Bitcoin in Hong Kong?

>> JANOS BARBERIS: You really put me on the spot. I'd like to kick it off, but I do say about regulation, regulation cannot be prescriptive. So it's very specific and this is what you have to do and this is the certainty. The issue with that is it's way too narrow. You'll have the regulation which is more open-ended, as long as the outcome is reached, is good enough. But here you go, imagine your small business, and then you'll IPO, is the fact that you regulator obligation good enough for your investor. They'll go you might be right, but you might be wrong. How is that going to be seen? So it's just one thing I would like to put on with the regulator.

>> MODERATOR: This goes back to why have regulation in the first place? One of the arguments why you need regulation is so that the ecosystem itself is stable. It's sometimes couched in terms of consumer protection. The other type of thing is the ecosystem need to be stable. Only last night we can see the situation in Greece; right? Bitcoin went up --

>> 20% in the last week. But I wouldn't point -- it's funny with Greece, because yes, it does have a lot to do with

it, but it also has a lot to do with other things. For example, capital of China, investing in the Chinese stock market. For the people right now in Greece, if you have your money in your bank account, Bitcoin is useless to you; you can't buy it. If you have money in cash, you might not need Bitcoin.

In Greece, we see suddenly a need and see what's wrong with their financial systems and either driving up the price up in anticipation of something happening in their places as well, or simply reevaluate their idea of Bitcoins. This is a lot more useful than I thought; I might get my hands on some.

>> MODERATOR: Sure. And so the point here is that even within that area of FinTech, there's an existing regime. In Hong Kong we have the securities and futures, the issue of shares. We have all heard about innovation in terms of crowdsourcing. An example of why policymakers and governments are being challenged by this is imagine the rate right now, it's companies that normally issue shares. The same technology can issue shares.

>> Everybody can open a stock exchange. Right now if you want to open a stock exchange, that's a huge thing to do. That's incredibly difficult. You're basically not just need approval from your government. You basically need an invitation from our own government. If you have digitally issued shares either by individuals or by companies or for whatever purpose whatsoever, all you need is a website that people transfer the ownership of the shares to be able to trade them for Bitcoins, for U.S. dollars and for other shares.

>> MODERATOR: The amount of money invested, professional venture money in the Bitcoin space, is approaching a billion dollars. That's more money than in the mid-'90s. Is that going to be a big bubble? Who knows? People see something in the technology Blockchain and Smart Contracts. Correct share issues. Again, for challenge traditional regulatory governance models, primarily because the traditional models are quite oriented. We have the management authority and we have the securities and futures commission to regulate the stocks. We have police and customs to regulate.

>> May I ask you a question? What's the real benefit of using Bitcoin? Why do we need to do this?

>> Bitcoin with a large B or small?

>> Both.

>> LEONHARD WEESE: Let me think about how are you using it today. If I want to buy a VPN service for just one day, technologically that's very easy to do, because I just get access to a VPN service for a day. How do I pay for it? Right now there is no other technology other than cash that I could use for this other than Bitcoin. I cannot transfer US dollars

in value across the globe without Bitcoin. I can only, because I cannot transfer carbon line.

Another thing is for example a machine suddenly needs to interact with financial means, because a machine cannot easily -- a machine can use my credit card, but the machine cannot use its own credit card. A lot of it is convenience. Probably more interesting is trust.

>> More so than credit card?

>> One of the mistakes we're making is actually going straight to the finance. That's where the innovation began. Everyone associates Bitcoin protocol with the currency. That is a mistake that I'm actually trying to avoid. We'll go through that, because just looking at that one space of Blockchain in the currency, you get pulled into the financial. Blockchain technology is being investigated by IBM and Samsung for the government's model of the Internet on its face.

>> I think the trust issue is very important here. If you look as an example, maybe if I am the owner of my own currency, that means I have an account on my mobile or my computer, I know no one can shut that down. It's open 24/7. There is no opening times. No one can go and freeze my accounts.

So the issue of trust is very important. Not just in terms of currency, but in terms of any data that you want to have on Internet, the fact that you own your piece of data and only you can change that. That's a very powerful concept to apply to a large number of these cases.

>> It's used, for example, the Blockchain element. That takes national market. Using the Blockchain towards the Blockchain is 20 billion a year. It's just more efficient. To increase regulators, I had a discussion last week, say you're using the Blockchain publicly; therefore, regulator can have access to your data and therefore you capture on a real-time basis. Why did regulators care about this?

Whenever you ask the question to the person you're regulating, you change his behavior. Why are they asking me this? I don't have something to hide. Blockchain only allows the regulator to review that exchange without having to ask the question. And they can see on real-time basis whether they have sufficient solvency. So if there is interest through financial point of view.

>> MODERATOR: You've heard about the Blockchain. That's clear what we're talking about. We'll go through a little bit about what those actually mean. We'll ask that question first.

So the key thing to understand here is that one thing we're looking for is for ecosystems that involve for everyone to have an interest, for everyone to invest in the ecosystem. What are the key pieces? How can we make the ecosystem transparent

enough? Can we identify the players in the ecosystem? What each of their roles are? Will we end up with a tragedy upon us?

So the real thing we need to go up and this is not to think about tokens. What is the point of all this? The point is trust, the key concept here in terms of the title concession. What we're trying to do is build an Internet for trust, the technology itself. Trust is atomic. It's the foundation of society. We have to have trust within a society for us to have 150 people. That trust is recognized in terms of contracts, trust systems like the legal system, or the financial system. The financial system is a system of trust. You may not trust me, I may not trust you, but we must this, as the case may be.

The transition here is really looking from previous systems centralized analog fronts. The big change is this. Moving from centralized analog trust to digital decentralized trust. That transition probably we speculate will take 15 to 20 years. If you understand that that trust Ann is changing from outlook to digital, centralized to contributed, then you'll begin to be able to have the mental framework to think about how to conceptualize this.

So the example here is centralized trust structure. Obviously we have the more common one, which is backed by state, the law, backed by violence, or traditional public register industries run by governments, birth or death. They literally have you check in and check out of society at the beginning and the end. You have company registrants. Centralized structures. There is no dispute about who has access.

Then we have some interesting other structures like the domain names and is causing everyone to have lots of headaches because we have a hierarchic system where everyone has to play, yet that system is beyond the individual sovereign state, which is why sometimes the gap exists.

The example where governments, together with technology, come together to somehow work things out, so that's what I call backed by community. The community that agrees to participate in essential rule making; another example are the regional Internet register industries. Paul Wilson talked about where IP NET. That is a group of traditional ISPs which administer within this region the ISP addresses. That is a rule of law being the hard law.

And then you have the ICANN framework, the consensus policy processes, all the different take holders get together and share documents and point view. Over time you kind of reach to sort of the rough consensus. It may be daily; it may be monthly. It may be yearly that these central trust register industries are updated. That's kind of like the analog model, and it worked fine.

If we move to these traditional centralized fiduciary trust structures, a bit of a mouthful, those who believe; right? If the government says you were not born and you're in the database and you died a lot people in America right now are trying to get back their identity because somehow that database says they passed away, when obviously they haven't. That's centralized trust for every structure.

If we look at the other technology like Blockchain, where it's completely decentralized, then we can have a different kind of fiduciary trust structure. That's very interesting, because one of the problems in centralized trust structures, ICANN is a good example, and regulators is a good example, who watches the watcher? So you're trusting regulators to watch the securities market, looking over the banking market. That used to be fine. But when a lot of the innovation is no longer silent, in fact is cross cutting, when you touch all of these different areas, that's going to be a question finger pointing, where it's not quite finished. You look at the fiduciary trust structures, which are decentralized has got to cause or is already cause lots of governments and headaches.

Are you an ISP? Are you a telephone company? Are you a TV company? Internet service provider. What is that? We're doing exactly the same thing right now. Are you a bank? No, I'm a Bitcoin company. Are you a securities broker? No, a Bitcoin company. Are you an ATM provider? We don't know what this technology is. That's why we start the dialogue.

Instead of being backed by the monopoly of violence of the state, for example, the law, these decentralized structures in some sense are backed by mathematics. In that sense, if the math is correct, which may or may not be the case, and if the implementation of the math is correct, then you can't change it. So what we can then begin is to say I'm not going to trust the laws. I trust the banks and that instead of the peril of the rule of law, to be a rule of code. And I think Lawrence talked about that quite extensively. Then we had a similar process of rough consensus policy processes, at least in the Bitcoin space. But the difference is this: The innovation governance of the reason very recently from Bitcoin world is that this new technology has introduced a new complexity.

When you rely on code, specifically when you rely on the same piece of consensus code, who gets to update that code? That's that governance charge I don't believe we have seen before. I'll go through an example of that.

The difference, though, is that instead of having these centralized trust structures which look at things daily, monthly, yearly, I used to play football, FIFA, the accountants are tradition go and society looked through accounts to see if

there is a true reflection. Heavily regulated industries like finance did not stop Bernie Madoff. The existing global architecture may be too big to fail, which probably means you have the wrong one.

The opportunity that many of the tech companies see is that you've got the centralized trust structure, and they're going to smear it out. That's a pretty big change.

What we learned in the last 20 years of governance and policy making, don't regulate what you can't control. Why? It's embarrassing. You should not do it, and they're gonna do it anyway.

When you've got a piece of software which allows you to effectively send money or value anywhere on the Internet, that's going to be disruptive for people who are already -- what was the company you mentioned? The company that you mentioned that does the --

>> Western Union.

>> MODERATOR: Western Union. I think it's been around for a while. That's disruptive for that kind of business model. And yet the basic problem that we've had is on the Internet no one knows if -- you have the question of identity. We heard this morning of the Internet having been a human right, and access to anonymity and right to privacy.

One of the key innovations we keep talking about, the Blockchain and Smart Contracts, you heard about it the last 10 or 15 minutes. What is that? It's quite simply, if you look at trust, the existing trust structures, we can look at something which is very well known, which is basically accounting. Accounting 500 years ago, when we had the starting of global trade, like the Italians invented the technology for the double entry bookkeeping, you could cook the books to keep track.

That led this to societal trust being put in a new kind of entity, or an auditor who audits your books once a year. Are they true reflection? Are you FIFA, or what have you? But that structure of auditing, where we have community trust: I don't trust you; you don't trust me.

The auditor, whoever keeps score, that structure, the role of the auditor has traditionally played. That structure, just like this for thought in the networking people, it's a hub and spoke model. You have a centralized, the auditor, but the trust is the same. You have everyone relying on it. The change is this: This has -- is very efficient; right? Like any communication, it's very efficient. But when you're digital, we don't care about efficiency. The cost of duplication is zero.

In the old days when the -- when they were competing technologies, Ethernet, why does everyone talk at the same time? Because it was simple. You don't have to be the best solution

or the most efficient, but this solution, quite clearly, the existing analog trust structures are efficient for the analog world.

For digital we have the opportunity to do something. You've heard of peer to peer, and you smear it over the Internet, and you have a structure. The easiest way to look at it is really an accounting revolution. Why? Instead of checking the accounts once a month, you check it real time, every single second. We solve the problem of who watches the watcher, because anyone who wants to can basically watch the watcher.

So think of that for a second. If you wanted to watch -- what does it mean to have a public set of accounts? Right? What does it mean for the government to keep a public set of accounts? When anyone at any point in time can look through the accounts in real time. What does that mean for low trust economies where there is corruption, for example? Which accounting revolution, as exampled by Blockchain, will have large ramifications? Some call it the next stage of democracy. These are examples of policy and governance questions which begins to surface why it's very interesting.

As I said, the technology now for the Blockchain is being looked at by two companies, looking at how are you going to govern the Internet of Things when you've got thousands of sensors everywhere, outside your body and inside your body. What are the privacy considerations? These sensors are all going to generate big data. Who is going to have visibility into that data? How are you going to control the access to that?

The Blockchain technology, which may or may not be public, you can have public Blockchains and private Blockchains, that's a very interesting way of saying, hey, I can spread out the information. Why? Because I don't have to pick a center.

Look at it right now. How do you pick a center when we all agree in some sense that I don't trust you', you don't trust me; let's just get out of the way? If I don't trust you and you don't trust me, how are we going to do Internet Governance? Who is going to sign the root key for the DNS? Is the U.S. Government and the U.S. Government only? A bunch of individuals? Or could we have, for example, 195 different keys and one key for every sovereign and a majority of the sovereigns will decide what happens to the industry? This is crazy talk; right?

Again, it changes the way we think about Internet Governance where we can stay out of the way. I'm sorry, mate, I don't trust you; you don't trust me. But I think we can both agree to look through this code together, trust this code, run

it on a Blockchain. That way we can move forward. Because without trust, we won't have trade.

>> LEONHARD WEESE: Imagine a voting system where nobody trusts anybody and everyone wants to make sure their vote really got into the system. At the same time they want to make sure their vote stays secret. They want to make sure the total number of votes is capped. That's a problem that the Blockchain for the first time ever can solve, where you can distribute 200 keys among randomly among 200 entities. You can allow them to vote in a way that they can make sure that there are only 200 keys. They can make sure that their vote really got into the final result and everybody can see the final result. Mathematically prove it was not forged.

>> MODERATOR: There was a system it was marked with democracy 3.0. When you start looking at this Blockchain as an accounting revolution, then we can really change the way how we look at how to solve issues.

The Blockchain, the thing we've been talking about, you've seen every month from your monthly bank statements. Your monthly bank statements typically has an opening balance, the line at the top, series of transactions of what went inside and outside your account every month. Hopefully if you add that up correctly, you get a closing balance. So what the Blockchain is like this distributed ledger, it just means forgery of anything that occurred within that statement is almost computation extremely difficult.

What right now -- do you know what the computation complexity of the Blockchain next work is?

>> LEONHARD WEESE: If you fix together all the computers mining Bitcoin, they are several times more powerful than top 500 super computers in the world put together. That's kind of slightly unfair comparison because the top 500 super computers can do general computation, whereas the Bitcoin can only do one specific computation.

But in terms of if they were both doing the same computation, the Bitcoin network, I don't know exactly how many times, but several times faster. The last time I looked, two or three years ago, and then the computational power of the top 500 super computers in the world, the Bitcoin network, the interesting thing as of this moment, along with that computational power actually sits in China. Think about that.

Again, if you have these sequences of the legend where it's almost impossible to forge any individual transaction and you make the transaction public, in other words, digital public legend, anyone who wants to can see. Anyone who wants to can check. You think have interesting technologies for digital voting. Other examples are how do you know your insurance

company has the funds to cover what it claims are against them?
You can keep a Blockchain to see here is what I've got. You can
have a security by transparency law where in some instances you
don't divulge who owns what. But it can be done selectively.
We've almost finished the section on understanding how to reason
about these two technical innovations. The next thing is we'll
talk about what we can do with the Smart Contracts.

While we're waiting, you've got the set -- assume now
you've got a set of public accounts that no one can forge and
that can also be private. One of the things -- what do you
build on top of that? Well, the first thing that people try to
use the technology for is to recognize that the longer
relationships that we have for business is written in the form
of the contract. In some sense, if certain conditions hold,
then do this. Otherwise, not do that.

So it looks like a computer program. And so when you have
this technology, which runs on network doing this Blockchain
real time audit, you can then write programs on top of that that
might be able to do interesting things.

So, for example, here in Macao we have a huge gaming
industry. We have gaming regulator; right? One of the things
in that euphemism is predictive markets.

>> They are very popular in Scotland and England. It's
pretty much people betting on a certain outcome of events. If
you really have a free market that everybody can anonymously
take part in, a predictive market allows and creates a very
strong incentive for people to put in their own information.
You get very good predictions of what's actually going to
happen, especially since you allow people to put in their
insider information, the proprietary information. This is where
it gets tricky and problematic, because very often it's illegal.

The reason such predictive markets are getting popularity,
the Bitcoin network is there, you can anonymously put in your
insider information. First of all, it creates a situation where
you're much better able to predict certain events, because
everybody puts in their own information. But in the second
form, you create insurance events where you say I'm putting -- I
don't want my house to burn down, but I'll make a big bet that
my house will burn down. If I win that bet, then at least I
will get that output. Other people, for example, like that
could be professional insurance companies. It could be
companies that try to monitor me. They could try -- I could try
to reduce my risk in any kind of way. They can bet against
that.

They can say, actually, we can prevent that fire from
happening, because we have the fire station set next to each
other. You create a private market for anything where you say,

well, you have a predictive market for whatever kind of event
will happen. And you say, hey, I can, for example, by becoming
a firefighter, influence the outcome of these events, e.g.,
making fires less likely. I can actually make a business doing
something, which before would never have been possible because
of things like the tragedy.

>> MODERATOR: In summary, it potentially allows you for
the first time to create extremely efficient transparent
markets. If you have this public ledger, and watches anyone
that wants to, solves the issue of I don't trust you. I don't
hold the money, but the program holds the money.

The last bit I'll repeat again, because if we were all
sitting here right now betting a football game; right? We could
probably put money into a hat right on the table here, watch the
Super Bowl and agree whoever is going to take that. But if we
do that online? What is the conceptual equivalent of putting
the money in the middle? So these Smart Contracts, which run,
again, you have this token which represents value, you can all
put our tokens on the contract. We don't trust each other. We
trust the program to be right.

>> LEONHARD WEESE: We can all look into the program. We
all know how it's working. We know in advance this is how it's
working, because it's -- the source code is open. So we can all
see how it's working, but it's not running on any our machines.
So it's not even that we have to trust somebody with running
that code who could then alter it in their machine. But it runs
on a transfer network where we can predict based on what inputs
it will show us.

>> MODERATOR: Runs in all of our machines because we are
the network.

>> So the title of session is Trustless Trust. It seems
ironic. How can you have trust when we don't trust each other?
It's because you have to trust this new way of doing things,
which is Blockchain, and then Smart Contracts run on top of
that.

Now, that also introduces us to societal complexity. Right
now we have in some sense exactly the same situation. If we
wanted to do that, right now the friction for us to go hire a
lawyer, to write a contract, which can do exactly the same, we
could simulate that exactly today, but most people don't. They
don't go through the business of hiring a lawyer, to writing
legally enforceable contract code, to the event that if one of
us doesn't pay us, the others will sue them. For small amounts,
that doesn't make sense.

The friction of getting some kind of legal certainty is too
high. If we produce to simulate that, that will be
transformative to the next billion people who come online. They

may not trust their judicial system. They may not trust their government. They may not even trust each other. Right now some of them --
>> LEONHARD WEESE: It goes the other way. We see so many people right now who don't have bank accounts, who don't have access to finance. I don't have to tell you this. It's not that they don't trust their government. They would love to trust their government to be able to get a bank account, but the government doesn't trust them. The bank doesn't trust them. For the bank to overcome this trust, in Hong Kong, if we want to do background checks and open an account, it costs them more than a hundred U.S. dollars. That's something they'll never be able to make back in fees if I only have that much in a year.
>> AUDIENCE MEMBER:
(Off microphone)
>> LEONHARD WEESE: You do need at some point access to the Internet and electricity.
(Off microphone)
>> LEONHARD WEESE: A SIM card, all you need right now is a SIM card and a phone, like $2 plus the SIM card. That's within the reach of everybody in the world. Our protocols --
(Off microphone)
>> LEONHARD WEESE: Yeah, yeah.
>> That's the same billion people we're talking about.
(Off microphone)
>> LEONHARD WEESE: If we look at how the world is electrifying, and they get it for the purpose of lighting, and they never got it, and suddenly people have mobile phones and suddenly electricity comes to them, suddenly there is a lot of use for all these things. The cost of a satellite dish, constant uplink to satellite is going down to $50 U.S. dollars a month. That's already for a large village actually within what's possible.
So very optimistic about these people being connected to electricity, being connected -- for what? All the existing products, like the Bitcoin over the SIM card that exists. I think bit pays out very interesting.
>> MODERATOR: I think they've moved off of that. You there are several unique solutions. We'll move on to discussion phase. I want to finish the conceptual framing for what it's worth. Now we have the -- again we have a set statements, continue in public you can have some very interesting things if we are able to write programs that can manipulate them: That's the Smart Contract. If you assume sooner or later we'll solve this Blockchain and several competing technologies, Ethereum. Right now it's a question of trust. Who do we trust in our analog structures? We trust lawyers? Accountants? Notaries?

We trust the government or not or none of that. We might trust our relatives or not. But the change here is from analog to digital, from centralized to distributed. That's going to take 15 to 20 years. It's starting now.

Policy challenge, the governance challenge is when is it going to make sense to have centralized trust structures because it's efficient? And that's kind of where we are today. Like stock markets, the Hong Kong Stock Exchange, for example, we were on a call last night. It was about stock markets, again, these technical challenges that may challenge the concept of the centralized stock market. Society needs banking, but doesn't need banks. Society needs banking, but doesn't need banks.

Again, banks in many instances are trusted. They are the arbiters of trust. If you can't get a bank because you don't have an infrastructure, then all the same billion people who would come online, are they the same billion? Probably. If you give them a smart device, could we give them their trust in that they have a capacity to save? What kind of social implication is that? Huge.

One of the largest investments this year was 116 million U.S. dollars. They were looking to build chips that do Bitcoin. They partnered with Qualcomm. They put chips in the mobile phone, then, again, we're ahead of the game right now. You're the very early guys -- this is one way of conceptualizing the change. There is big money behind and it's giving you the example of why is that the case.

This is the most important -- this is all you have to remember. It's like an equal slide. The way that Dan Gilmore on the 18th of November at 1313, coined the phrase, "Oh, I get it." You're trying to build Internet trust on a trustless Internet. And I said, "You're a genius! Come on in." Why? Because he's one of the leading tech reporters in Silicon Valley.

I was trying to explain this stuff and Bitcoin and all sorts of stuff. He was like, "Rubbish!" What you're doing is building infrastructure trust, operable trust structures. The way to look at it is only two layers: one which is concerning these digital tokens, digital value exchange. That's the concept of blotching, these public ledgers which you can't change that are inoperable and that you can exchange digital value.

Right now you can look at that with Bitcoin as a currency, but it could be shares in the company. It could be practically anything that you perceive as being valued. It could be air miles. I think what was the quotation that was recently, more money in air miles than -- more air miles -- Starbucks. I don't know how many of you use Starbucks, but it has a store value

card that is used extensively to pay.

>> That store value card actually, from a technology perspective, works quite nicely. You can easily create a new account. You can transfer value into that account. You can fund it in many different ways, to the point it's much better Internet money than the U.S. dollar is or the credit cards are. Which is why if you want to buy coffee with Bitcoin at Starbucks, you can already do that today through their coupon system, because Bitcoins interact so well with the coupon system and coupon systems track very well with Starbucks, which you can use the Starbucks cards to send money and value across the globe in a much easier way than you could, like, cash.

>> For those of you before Internet, when you used to send e-mail, and you would sometimes were very friction because you had to say how big is this e-mail, because based on the size of the e-mail it will cost X, X, X, Y.

The key thing before the Web is e-mail. I didn't really care how big it was. I could just what we're doing right now is exactly similar, but for any kind of digital value. For the initial aspect, it is currency. So that means I can send you one set anywhere on network as easily as a hundred million dollars.

>> LEONHARD WEESE: And you can send a Satoshi, which is a hundred million of a Bitcoin, hundred million of 250 U.S. dollars. Imagine you attach such a request to every HTP request, you can solve, like, DDS attacks, like spam attacks. Eventually your phone will generate -- your phone will never mine enough Bitcoins that it will make money for you. But your phone will mine enough Bitcoins to be able to send the smallest unit of account for every request for every e-mail, for every -- and that solves spam. That's all the DDS attacks.

>> MODERATOR: That's significant. Spam is a problem, primarily because there is no cost associated with that, but cost is shared in the ecosystem and they exploit that. Now we have surveillance. If we have a business model that doesn't rely on advertisers with our data, with big data equals Big Brother and all the free services. We can have a completely new business model for the Internet whereby if little amounts is virtually free, we can keep the bloggers employed. We can pay for these designs, and license them. Why? Because the cost of doing so is going to be effectively free to wrap that value. So that's why the transformative change is so significant.

Anyone who comes online, the next billion or perhaps the same billion in banking, if we get this value exchange network correct, if we get to build an Internet for trust, these people will directly be able to participate in global coffers.

That's it. One -- I'm going to finish the top layer and

then open for discussion. That's the first layer. Imagine the
possibility. You've got a token. You can go anywhere on
Internet with value. That's the bottom line.

     So what? The real so-what question is the layer on top,
which is you can write programs that, based on certain kinds of
conditions, can now directly wrap value, that's you being able
to program the massive computers. Imagine that. Hey, look, if
tomorrow is a rainy day; please pay this person this money.
Then it becomes very interesting. You've got several themes in
this conference, not just Internet of Things, where is the data
feed coming from, but also big data.

     So who is gonna be the new sources of trusted data? Right
now, again, we have the same issue, which is our traditional
sources of trusted data have come typically from centralized
sources. Why? Because it's very efficient to collect that
information with centralized source. Right knew when we have
sensors everywhere, generating all this big data, it's going to
be a different problem where it's gonna be everyone broadcasting
the information. The question is do we have to pick a center to
coordinate that data? And with Blockchain technologies, the
potential answer is no. You do not have to pick a cake. You
can broadcast it, but what are the privacy implications? If I
broadcast my health data, I don't care anyone who knows my blood
type. I do care if someone changes it.

     Medical records, all the sets of data from your pacemaker
or perhaps my artificial hip or whatever it is, who is gonna own
that? Who is gonna have access to that?

     So when we start to have these programs which can simulate
some kind of legal certainty, which are smart because they can
have a smart data feed, then we can have another thing called
smart property. The example used, I think most recently or in
the literature, which is very early age, is self-driving cars.
The new economic models are no longer I own something. I don't
care who owns it. I just want access to it. Uberizing the
world. I don't want to own the office. I just want access to
the office infrastructure.

     Airbnb: I don't want to own the home, I want access to it.
Another thing we'll talk about is digital exchange. We're in
for a new era with decentralization is going to happen in a
scale we have never seen before. So going back to that
self-driving car, if I have a cryptographic here in my phone and
I walk up to the car and my phone talks to the car and the car
talks to my bank account, has he paid his car installment loan?
And if it says yes, the door opens.

     >> LEONHARD WEESE: Imagine how much this is going to
decentralize the entire Internet structure itself. Internet
service providers are going to become as small as single

buildings. There is nothing that says that my phone shouldn't go around in Macao, wherever I travel, and try to log in whatever cheapest ISP it can find right now through whatever technology means that it finds, whether it's over WiFi or over LTE, and then just pay that Internet service provider based on the data usage. I no longer need to have a monthly subscription with my data provider in Hong Kong who charges me roaming fees when I cross the delta. That breaks down their monopoly. I can in my home start an ISP for whoever goes through there. If you have a cafeteria, university, a city bus, that becomes an ISP in itself.

    >> AUDIENCE MEMBER: I really like the self-driving car example. Yes, it's great to go wake up at 7:00 a.m. and drive me to work and that's fine. But what about get off work and you tell your car now you go make money for me. Now you send your driverless car around town, pick up people, driving them around, because they're needing a taxi. This is where people will realize the driverless car, it doesn't have to stay in that car park. That car can go and work for me and the work hours.

    >> MODERATOR: Some other science fiction examples are that you can have new distributed companies to have just Internet of Things that these smart cars, self-performing taxi companies, and basically compete in the marketplace and pay for the fuel. If they can't succeed in business, they effectively -- devices govern themselves according to such logic.

    Are we building skynet? Because there is a problem here. When these programs run beyond control, whose control is it? How do you turn it off? So there are huge societal issues, governance issues that it is. We have additional value; digital currency initiative has begun by MIT in April. Society needs to start thinking about what could we do with that technology? Building on top of it, which is why the Smart Contract initiatives is interesting.

    So with that, let's open to the floor.

    >> AUDIENCE MEMBER:
    (Off microphone)
    The Blockchain stuff is working, but outside of this Bitcoin --
    (Off microphone)
    >> MODERATOR: This is the exchange? That's your business?
    (Off microphone)
    >> LEONHARD WEESE: We do see that a lot. That's really why we are on the ground floor. I'm trying to put a kiosk in a hotel. They can put in Hong Kong at the hotel and have something more recognizably known. Right now exchanging Bitcoin is very limited, but it is growing and it is worldwide. So we do have a steady growth.

>> My point is you need -- even though.
(Off microphone)
>> At a certain point you need to have some centralized.
(Off microphone)
>> LEONHARD WEESE: Let me rephrase that. You have one trust system in Macao -- you have another trust system, and right now you're trying to exchange value for this trust system into the other trust system. How do you do that? Well, I'm saying that you could do in theory via Bitcoin. It could be done transparently.

One issue I'm trying to get in Hong Kong, we had a huge problem in Hong Kong. We have the Optimist card, which you can basically use it for anything. With that one card, you basically -- one second do all your transactions. What I'm trying to say is anytime a tourist lands in Hong Kong, we will give them an Optimist card. Why? Because the minute they can transfer value into the Optimist card, they're a first-class citizen of Hong Kong. They can use anything, but what happens when they leave? The same issue.

Well, I just said we put something in the smart card that converts everything to Bitcoin. Why? Because we still want to do business with them when they leave Hong Kong. What does this solve? It solves pockets full of notes when they're leaving, money used for charity. It keeps the relationship. The concept here is that the next example, in Asia, we have -- just within the area of FinTech, we have in Europe they have 27 jurisdictions. Harmonized regulation, homogenous market. They may have soon 26. In the USA has 51 jurisdictions that has national regulation. Europe and America has and in Asia 25 jurisdictions. Everyone has their own different way. 25 different infrastructures, 25 sets of regulation.

But if we built a layer on top of that, right, from Hong Kong dollar, take Asia infrastructure, if you built the layer on top of that, if we could do remittances, very low cost remittances, where we can route money from A to B, Philippines to Indonesia, and if we can have access to certain kinds of data, what could we do? We could do trade files. We could then as the W3C stuff. We could then start tagging other data, whereby physical shipments, everything in terms of the insider ingredients, we could have taxation. Once we have this infrastructure, we can build what was previously a disadvantage by 25 different markets, then you have to invent the common language that we all can speak. The interesting thing now is that it seems as if there are technical components which you can download today to start building them. And that's amazing.

But it's also extremely frightening; right? Because let's go to the last example. The governance challenges of Blockchain

and Smart Contracts. I don't trust you, you don't trust me, but
we trusted the almighty code, the rule of code. The question is
who governs the code? So is that governance model the same as
multi-stakeholder? Is it the same as multilateral? Or
something different? Those blocks, right now are a certain
size. And because of the popularity of the Bitcoin network,
that size may in about a year or so reach -- make problems. The
number of transactions per second, what's the current number?
        >> Seven per second.
        >> MODERATOR: The Bitcoin network can do seven networks
per second. All the people from Visa laugh and say we do a
hundred thousand. Don't forget these are technology companies.
        If you increase the block size from one meg to whatever is
the latest -- eight meg, you can increase the transaction per
second rate, then perhaps if you did it even faster than the
Visa network, what would be the implication? This is the
example here.
        The way that the current process works, again, it's like
the Internet. You've got a process laid out called the Bitcoin
improvement proposal, BIP. It's a process, but there's a
problem, which is some of these changes require everyone to
agree, some of them not. And this change from one meg to eight
meg, which has been most written up last week in terms of the
Bitcoin improvement proposal 101, back to basics, is causing
huge trouble. The community does not agree that this is a good
idea. Some people think it's a stupid idea.
        You got a discord, lack of consensus. You've got running
code. You heard this morning, rough consensus, the code thus
far works. But you don't have upgraded this consensus code,
just changing the number on the program. That's relatively, I
hope, straight forward. What's not straight forward is
upgrading the consensus process. When you've got a lot of
developers who have never met each other, some of them may even
be scholars.
        >> LEONHARD WEESE: Very suspicious of each other's
intentions.
        >> MODERATOR: These are crypto guys. We need to know if I
had -- again, this would be on the website, cling on anything
with a link. The Chinese mining pool operators came out with a
statement a few days ago that basically said everyone needs to
stick together. We need to work on a consensus process. This
in my mind is the first time that China is saying, hey, we need
to work together. This is the first time in my mind that China
has actually is dominant or potentially.
        The way I characterize it, I think it's a chain, because
it's going from "made in China" to "trust in China." If we
start throwing in it will be trust with China. That's why I

think this whole discussion is significant. It's a very obscure
discussion, but it's gonna be a very important one, because this
is the future of this.

     With Chinese saying we have to work together to make this
work, that to me is awesome. Absolutely awesome. That's really
quite mature. That's what we typically try and do when in other
processes, like the IGF processes. What you heard this morning
is rough consensus. In this case, what's new with the evolution
of the government's model is that rough consensus is not good
enough. It has to be pretty much agreed to. So what I propose
is a group of us propose is that we need to change the
discussion. We need to move beyond basically from rhetoric,
from opinion to facts, move away from rhetoric, which is let's
make this scientific. Let's find if this decision is very hard.
Let's get hard data. Let's get a lot of data.

     That's what's new about the governance model, is that
governance based on data, not opinion? That's what I think is
good to leave on, with one final note. Why did we meet today
face to face? In fact, all of these ITF, IGF, we all wind up
for some reason, getting on a plane, traveling thousands miles
to meet each other person to person, face to face. Is that a
trust-building process? I think it is. But when we have that
right now is kind of what's missing from the trustless
technology, because we never needed it. One thing I propose is
for the engineers to meet in Hong Kong on October 14 and 15.
Have the first face-to-face meeting. There is a lot that the
Internet Governance community can teach or share with trustless
trust guys, the Blockchain guys, and vice versa.

     With that today, we start that discussion.

     Thank you very much.

     (Applause)

     >> MODERATOR: Comments, in the back.

     >> I like the model and I like the fact that you have
someone who can get regulation. It's one part of the solution
by designing something that works. The second part of the
question is really whether or not the regulators are actually
going to see something like this. My question is whether or not
this idea that's been tested with any of the regulators and if
it hasn't, what kind of objections have you been hearing? If
you haven't tested with the regulators, what is the strategy to
approach this conversation?

     >> MODERATOR: Complex question. Let's start with the easy
one and let's start with the first. Has it been tested before?
I think it has in terms of not this technology or not this
process, but ICANN itself. As the first vice chairman of ICANN,
one of the biggest mistakes I made is not waiting too long to do
the gap. That was a very immature discussion.

In 1998 it was governments go away, outside the room, you are not part of the technical community, that kind of stuff. Lo and behold, several years we didn't realize that governments, in fact, have a huge important stake in this conversation. They have a certain role to play. One interesting idea that I discussed with small group is does the bitcoin community have a gap? Clearly it does if you consider bitcoin with a small B is a currency. Why? Because there is an existing regulations.

Do we really need to reinvent the anti-money laundering or any of the existing regulatory rules because of bitcoin? My argument of Hong Kong is absolutely not. But I'm in complete disagreement with the Department of Financial Services in New York, who consider this technology bitcoin as a currency.

They have got a BitLicense, which starts in less than 40 days now. If you don't have that license, you basically move out of New York. Some businesses are doing it. The experiment is depending on what you see this Blockchain technology to be, who should have a stake? Who should have a say in how it is used and deployed?

Now, with software, you can download it and run it. As I said earlier, don't regulate what you can't control. What you can control is the interfaces. If you keep it within the bitcoin world, let's wait and see. I don't quite know what it is, like the Internet. If you touch the real money network, the banking network, the Korean National Bank or what have you, then I want to know about it. I want to know who you are.

So that interface between one network and another network, that's an interesting place. And I said the Dutch National Bank, and I said, look, it's not going to change from analog to digital, I don't know how it will change, but in terms of testing it, we can start doing testing in the small in areas where there is common societal interests.

Bitcoin might be the first currency. It might be the last. But if we look within our region of all these different jurisdictions, it seems to me the area that I promote is logistics. Not in FinTech. If we do logistics, I could not only -- right now I can see everything from the buyer from Amazon to my house. If I'm interested in food security, why do people come to Hong Kong to buy milk powder? When you see that label inside that milk powder, they know that's what's inside.

When we look at "made in China," what that means, or "made in Asia," transparency of the manufacturing supply chain seems to me very logical can be unfair and destructive competitive advantage than Blockchain can use. Make a community. Come together with crazy things. But when you start to have from basically copycat technology to basically innovative technology using digital manufacturing, 3D printing, for example, then you

get new forms of trade, new forms of taxation, new forms of trust building. In the end of the game, my view is, to answer your question; we're in the business of building an Internet of trust. How we do that? I have no idea, other than let's look at what worked for building the Internet. Multi-stakeholder seems to work. Multilateral has a role.

It's not either/or. It's probably some combination. But in the end, the common interoperable standards are what's important. Long story short, the Smart Contract initiative is to build interoperable standards with Smart Contracts.

(Off microphone)

>> AUDIENCE MEMBER: Thank you very much.

(Off microphone)

I want to ask about experiences in Macao. You have a kiosk here. What has been your experience and your learning, and especially the interface? What has been your challenges?

>> LEONHARD WEESE: I would say moved here from the U.S. to start my business. I would say pros are there is not much regulation. The regulation we have said says don't call it ATM because it implies traditional services. That's why we branded it digital kiosk. It's no difference from a vending machine that drops a cell phone card where you can top off your cell phone. If I really wanted to, I could go to that vending machine, scratch off the code, and call someone and transfer the value. It's no different from a digital code from bitcoin.

Drawbacks, we have been hit by the slowdown of tourism in Macao. People are interested in moving large amounts of money and they don't understand, sure, that's no problem, but you have 20 medical bitcoin, but you need to provide AML verification to prove you're not involved in organized crime activities. That starts and stops at the bank's gateways. So as long as money is inside the bank's gateways, there's very little potential for criminal activity.

>> AUDIENCE MEMBER:

(Off microphone)

>> My comment is we as a society, the functions prevailing -- distributed services and functions, perhaps, of the information, the social links, centralized services. If we can have --

(Off microphone)

We see the banker's movement and also essentially making the distributed network. We see science and technology by the DNA hacking outside the Ivory Tower is a really low cost DNA analyzer, you can unlock. So not to physically move off the question of the -- do you have any governance suggestions with some kind country in mind to be able to discuss about that?

>> MODERATOR: Yes.

>> AUDIENCE MEMBER: We would like to know.
>> MODERATOR: Okay. Well, I'll try and have a slide
later. There is a deadline of January 11 for one of the
developers to basically activate some code. And that code might
be very damaging, I think, to the Bitcoin network. So it's
almost an ultimatum, a threat, which is very interesting,
because of the trust associated. So right now there is a
deadline January 11. One of the reasons for choosing the date
of the 14th or 15th, is that the -- China said we want at least
three months of the code. So if you look back three months from
January 11, it's right around this date, when we're also having
a conference. So there is a need for coming together quickly.
That's why the governance discussions are important.
    What's also equally great is it's exhibiting one of the
problems of the rate of change, which is our social mechanisms
for coming to consensus to adopt that, our social processes have
not changed. Look at the U.N. It really hasn't evolved. We
need in some sense the social technology whereby this
distinction between fix, AI, big data, all coming together in
strange ways. That kind of leads to a huge problem and we'll be
talking to Japan about is I think there needs to be new ethics.
That's a point mentioned, not just a rough consensus. There was
another third one, the ethical dimension of all of this. Just
because you can do it, doesn't mean you should do it. That's
means the engineers themselves also have a social
responsibility, which changes how we built this.
    But the scientist discussion, that needs to be a societal
discussion. The Web payments work in some sense we have the
IGF, two IGFs, and successfully launched in terms of the Web
page interest group. What I was hoping to start in today's
discussion here, another discussion in Brazil, so they're aware
of this huge decentralized change and then the implications.
>> AUDIENCE MEMBER: Going back to the point you just made,
in your mind, what would be the ideal path?
>> MODERATOR: The ideal path is to recognize, in my view,
that this technology is fundamentally transformative as
Internet. Financial numbers indicate bigger than the Internet.
So what does that mean? It means we don't know what this
technology is. So don't try to overregulate it. Do what is
best or what we learned from the Internet. Let's kind of if you
want to make an omelet, you have to break a lot of eggs. The
ecosystem stability, at the same time have some kind of -- what
I've -- regulators stay out. Industry -- let me pick out a
part -- industry self-insure. The biggest change in the
industrial revolution was fire insurance. Not many people know
that. But right now with Blockchain technology, you can have a
new insurance model because it's provable that you have the

funds to ensure.

You have predictive markets that in some sense can better manage the risk. You've got data transparency of the likes Hitler would only dream of. That can come together in a very interesting model whereby the group self-insures, so that if any of us go bust like a predictive market, if we manage it correctly, that pool of funds can go. Very different from the regulations.

Self-regulation for insurance, a totally new concept, but that is an example of when you've got this confluence of technology, it changes the way you think about governance.

One final example: Right now the IANA transition, you've got people going away, drafting service level agreements that once you sign them, they'll sit in a drawer. Why don't you write that as a Smart Contract? Changes the way we think. That's all we're trying to do is hey, look, something called Blockchain worth looking at, something called Smart Contracts worth looking at. That's where we are. No answers, only questions.

Last question? If not, thank you for taking your time. This is the coffee break.

(Applause)

***

This text is being provided in a rough draft format. Communication Access Realtime Translation (CART) is provided in order to facilitate communication accessibility and may not be a totally verbatim record of the proceedings.
***